



دراسة أحمال مشروع مدينة جديدة من الجيل الخامس
(المملكة العربية السعودية)

تجميع م.أحمد عيسى



مقدمة

بسم الله الرحمن الرحيم

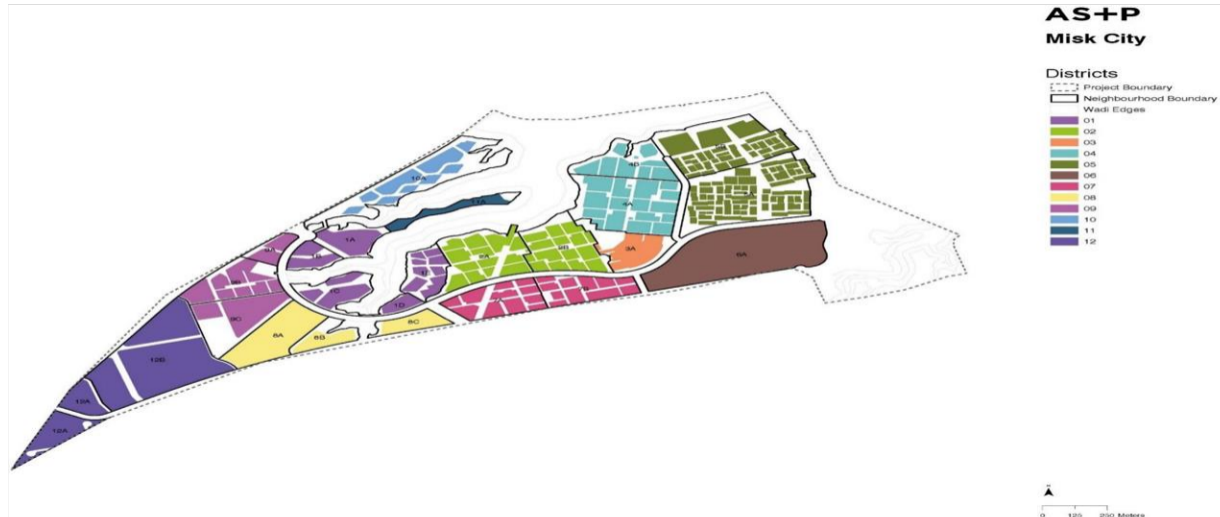
مما لا شك فيه أن حسابات أحمال الكهرباء للمشاريع الكبرى أصبح علم نظرا لإختلاف الأكواد والمراجع من أجل ذلك كنت قد أنزلت دراسته سابقه عن حسابات أحمال كهربائية لكامبوند سكني لإحدى مشاريع المملكة وكان بداية لأى مهندس يبدأ فى هذا المجال

ونظرا لحاجة البعض إلى دراسة لمشاريع أخرى كبرى لحاسات أحمال الكهرباء لمدن كبرى جديدة من الجيل الخامس فقد قمت بتجميع هذه الدراسة لحسابات أحمال مدينة كبرى شوف يتم بنائها فى المملكة العربيه السعوديه وقد قامت بعض الشركات الهندسية الأجنبية لدراسه هذه الحسابات فقد قمت بتجميع الدراسات المختلفه لحساب أحمال هذا المشروع مع مخططاته وغيرها من الملفات لكى تكون بين يدى المهندسين والطلاب لمعرفة كيفية حسابات الأحمال للمدن الجديدة وخاصة فى دول الخليج أدعوا الله عز وجل أن يكون هذا العمل لوجه الكريم ويكون سببا لنشر العلم حتى لو كان باعته فى العلم ضئيل جدا

مهندس /أحمد محمود عيسى

الرياض -2021/5/11





Landuse Code	Land Use
A	Manga Studio
	MISK Academy
	MiSK Arts Institute
	MiSK School
	MiSK World
	MBS College for Cybersecurity
	ILMI Museum
	Misk Foundation Centre
	Conference Centre
	MBS College
	MiSK Experiential Centre
	Culinary Arts
CO	Hotel
	Office
	Retail
IM	Office (LifeLine) + Retail
	District Cooling
	Mobility Hub
	Parking
	Parking/ Cooling
	Infrastructure New
MX	Existing Infrastructure
	Logistics + Infrastructure New
	Retail
OS	Residential (Apartments) + Retail
	Residential (Apartments) + Office + Retail
PF	Wadi C Escarpments
	Wadi C Wadi Bed
	Wadi Escarpments
	Wadi Bed
	Shared Space/ Living Streets
	Other Open Spaces
RE	Urban Parks and Plazas
	Friday Mosque
	Local Mosque
	Youth Center
	Hospital/ Clinic
RO	Community Facilities
	Apartment
RO	Existing Residential
	Villas + Townhouses + Twin Homes
	Primary Road
RO	Secondary Road

47 - Development Summary - All Districts Summary																		
Area (m²)																		
Total Area (m²)	District No.																	
Land Use Type	01	02	03	04	05	06	07	08	09	10	11	12	LA	RO	Grand Total			
Developable Land	118,340	131,549	37,600	143,472	177,559	201,715	97,559	127,351	117,408	49,756	23,486	113,723			1,339,518			
Non-Developable Land												142,239			142,239			
Public Land	70,524	71,988	29,227	71,096	155,194		38,910	16,947	73,039	84,408	3,256	30,212	983,604	245,636	1,874,042			
Grand Total	188,864	203,537	66,828	214,568	332,754	201,715	136,469	144,298	190,447	134,164	26,742	286,175	983,604	245,636	3,355,800			

Wadi and Buffer Spaces			
Wadi and Buffer Spaces	Land Use	Land Use Type	Total Area
LA	Other Open Spaces	Public Land	240,706
	Wadi Bed	Public	325,046
	Wadi C Escarpment	Public Land	76,000
	Wadi C Wadi	Public Land	33,366
	Wadi Escarpment	Public Land	308,486
Grand Total			983,604

48 - Development Summary - All Districts Summary

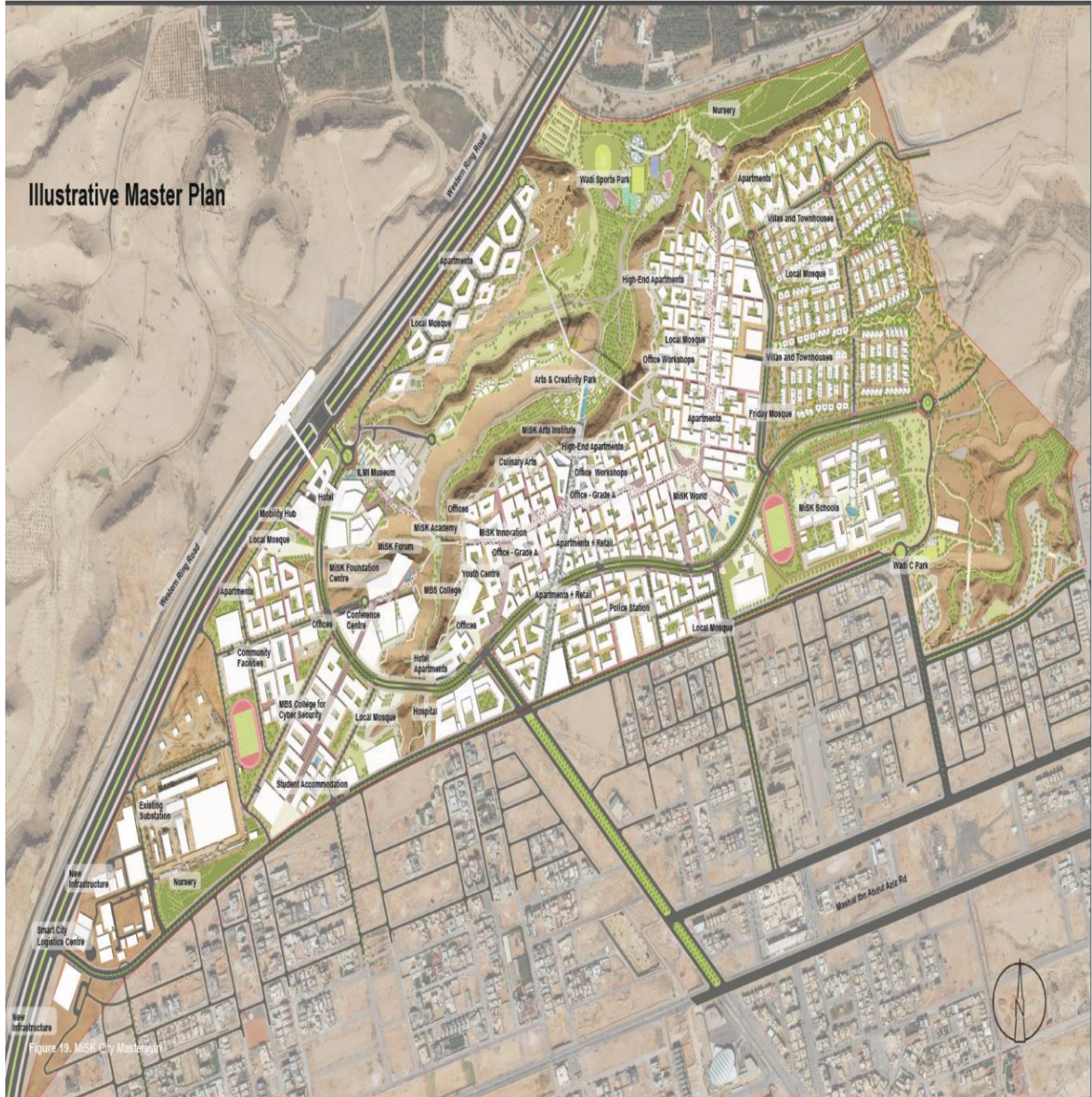
Summary

				Residential					Academic	Hospitality			Retail		Offices	Assets	Public Facility	Infrastructure		
District No.	Neigh. No.	Total Area (m²)	GFA (m²)	Total Residential GFA (m²)	Total Residential Units (U.)	Total Residents (Ppl.)	Total Student Acc. (Ppl.)	Total Teacher Housing Population (Ppl.)	Total Number of Students (Ppl.)	Total Hospitality y GFA (m²)	Total Hotel Units (U.)	Total Hotel Population (Ppl.)	Retail GFA (m²)	Retail Frontage (m)	Total Offices GFA (m²)	Misk Assets GFA (m²)	Public & Culture GFA(m²)	Infrastructure GFA (m²)	Total Parking GFA (m²)	
1	A	44,766	22,960	0	0	0	0	0	0	0	0	0	0	0	0	22,960	0	0	0	
	B	28,111	46,677	18,302	131	402	0	0	0	20,612	317	539	963	64	6,800	0	0	0	0	
	C	50,950	39,726	0	0	0	0	0	0	0	0	0	1,050	70	7,017	31,659	0	0	0	
	D	15,325	16,250	0	0	0	0	0	0	16,250	250	425	0	0	0	0	0	0	0	
	E	49,712	70,828	0	0	0	0	0	900	24,400	203	519	395	26	19,653	21,380	5,000	0	0	
2	A	108,784	190,073	67,555	455	1,414	0	0	413	0	0	0	18,120	1,208	78,499	22,976	2,923	0	0	
	B	94,753	174,316	69,307	458	1,430	0	0	0	0	0	0	16,704	1,114	87,556	0	749	0	0	
3	A	66,828	46,996	11,704	84	257	0	0	0	0	0	0	7,586	506	17,467	10,240	0	0	0	
4	A	142,451	217,390	159,591	1,065	3,316	0	0	0	0	0	0	10,481	699	26,207	0	3,111	0	18,000	
	B	72,116	86,395	54,068	348	1,092	0	0	0	0	0	0	9,466	631	5,720	0	2,142	0	15,000	
5	A	188,884	94,675	87,025	324	1,337	0	0	996	0	0	0	0	0	0	0	6,583	0	1,068	
	B	143,870	130,989	113,283	571	1,948	0	0	328	0	0	0	208	14	0	0	3,909	0	13,589	
6	A	201,715	67,120	0	100	208	0	208	1,000	0	0	0	0	0	0	67,120	0	0	0	
7	A	73,838	104,332	64,731	463	1,422	0	0	1,773	0	0	0	6,353	424	0	0	9,248	0	24,000	
	B	62,631	86,964	54,390	389	1,195	0	0	0	0	0	0	4,664	311	0	0	3,910	0	24,000	
8	A	83,459	116,262	24,000	1,000	1,000	1,000	0	5,000	0	0	0	0	0	0	62,262	0	0	30,000	
	B	32,524	27,211	0	0	0	0	0	0	0	0	0	0	0	0	0	3,211	0	24,000	
	C	28,315	34,107	0	0	0	0	0	0	0	0	0	0	0	0	0	28,857	0	5,250	
9	A	22,609	49,000	0	0	0	0	0	0	0	0	0	1,000	67	0	0	10,500	1,500	36,000	
	B	76,031	82,709	49,557	355	1,089	0	0	328	0	0	0	2,005	134	1,803	0	5,344	0	24,000	
	C	91,807	91,838	0	0	0	0	0	500	0	0	0	0	0	0	0	55,838	0	36,000	
10	A	134,164	114,171	89,907	609	1,891	0	0	328	0	0	0	1,591	106	0	0	3,121	0	19,551	
11	A	26,742	5,895	0	0	0	0	0	0	5,011	50	100	0	0	0	0	0	0	884	
12	A	71,761	12,560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,560	0	
	B	214,414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
LA	A	308,486	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	B	325,046	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	C	76,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	D	33,366	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	E	240,706	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
RO	A	35,375	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	B	55,593	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	C	17,937	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	D	136,732	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Grand Total		3,355,800	1,929,445	863,420	6,353	18,001	1,000	208	11,565	66,272	821	1,583	80,586	5,372	250,721	238,596	144,446	14,060	271,342	

49 - Development Summary - All Districts Summary

GFA Breakdown

District No.	High-End Ap. GFA (m²)	Mid-End Ap. GFA (m²)	Town-house Large GFA (m²)	Town-house Medium GFA (m²)	Town-house Small GFA (m²)	Villas Large GFA (m²)	Villas Small GFA (m²)	Student Acc. GFA (m²)	Upscale Hotel Ap. GFA (m²)	Upscale Boutique Hotel GFA (m²)	Midscale Lifestyle Hotel GFA (m²)	Misk Assets GFA (m²)	Retail GFA (m²)	Creative Office GFA (m²)	Office GFA (m²)	Office Workshop GFA (m²)	Public & Culture GFA	Infra-structure GFA (m²)	Total Parking GFA (m²)
1	0	18,302	0	0	0	0	0	0	24,400	0	36,861	75,998	2,408	0	33,470	0	5,000	0	0
2	46,587	90,276	0	0	0	0	0	0	0	0	0	22,976	34,824	12,990	104,207	48,858	3,672	0	0
3	0	11,704	0	0	0	0	0	0	0	0	0	10,240	7,586	0	7,994	9,473	0	0	0
4	81,506	132,152	0	0	0	0	0	0	0	0	0	0	19,947	0	21,398	10,529	5,253	0	33,000
5	72,884	0	14,941	23,074	7,456	41,444	40,509	0	0	0	0	0	208	0	0	0	10,492	0	14,656
6	0	0	0	0	0	0	0	0	0	0	0	67,120	0	0	0	0	0	0	0
7	0	119,122	0	0	0	0	0	0	0	0	0	0	11,017	0	0	0	13,157	0	48,000
8	0	0	0	0	0	0	0	24,000	0	0	0	62,262	0	0	0	0	32,067	0	59,251
9	0	49,557	0	0	0	0	0	0	0	0	0	0	3,005	0	1,803	0	71,682	1,500	95,999
10	24,025	65,881	0	0	0	0	0	0	0	0	0	0	1,591	0	0	0	3,121	0	19,551
11	0	0	0	0	0	0	0	0	0	5,011	0	0	0	0	0	0	0	0	884
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,560	0	0
Grand Total		225,002	486,994	14,941	23,074	7,456	41,444	40,509	24,400	5,011	36,861	238,596	80,586	12,990	168,872	68,859	144,446	14,060	271,342



المخطط العام لمشروع المدينة الجديدة



المخطط الإنشائي العام لمشروع المدينة الجديدة

General Land Use Guidelines

2.4 Land Use Plan

The Land Use Plan shows the distribution of the main land uses, such as residential (yellow), mixed-use (light brown), commercial (red and blue), community facilities (purple and dark brown), open space (green and beige), the MiSK City Assets (pink and purple) and infrastructure (grey and dark blue).

Generally, the MiSK City Assets are located along the Ceremonial Road and are accessible through it. The core area (MiSK Forum) accommodates the MiSK Foundation Centre, the MiSK Academy, the Conference Centre, the MBS College and the ILMI Museum, which are connected through the Forum Bridge.

The Lifeline represents the link between the MiSK Forum and MiSK World. It is a large flexible mixed-use area with creative offices, workshops, apartments and retail that extends towards the Wadi access in the north.

Residential areas are located along the Wadi promenade and on the eastern, western, northern, and southern peripheral neighbourhoods. They are all clustered together with educational, religious and parking facilities.

The utilities and logistics areas are located south of the existing electrical substation and connected via the Southern Boulevard with the rest of the MiSK City area.

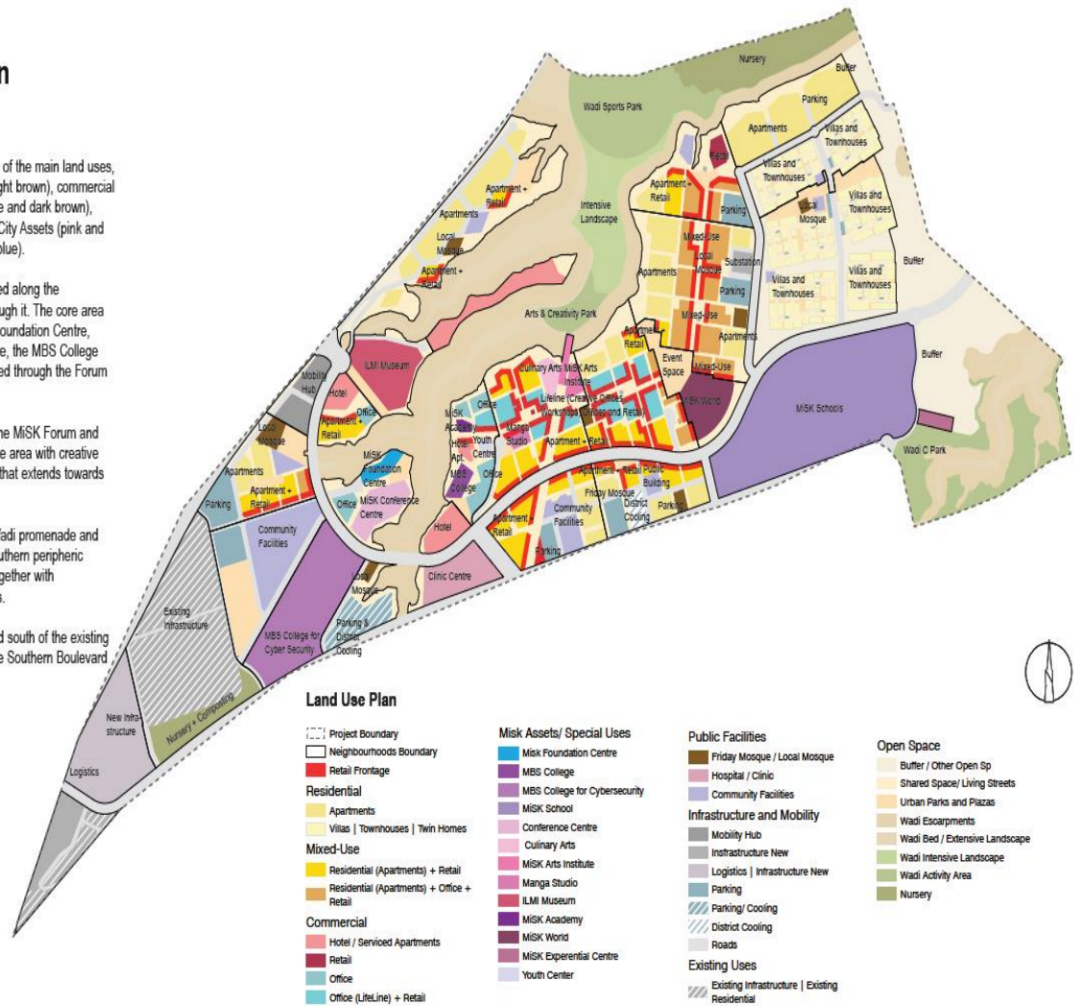


Figure 20. Landuses

2.5 Landscape Land Use Plan

The Landscape Land Use Plan is mainly distributed between the program on top of the plateau and the program on the Wadi Bed. Along the Wadi bed branches, the program is divided by level of activity and intensity. Going from a nursery on the northeast border, a Sports Park on the north, an intensive lush green and an Arts and Creativity Park at the centre, the Wadi bed program is completed with extensive landscape areas on the branches towards the MISK Forum.

On the plateau, the program is differentiated by the type of surface and intensity of activity. As hardscape areas, the main spine is the Lifeline corridor which extends from district 1 until the end of district 4. In district 3 and at the intersection of the Lifeline with MISK World, an Event Space is proposed. A series of local plazas are distributed through the different neighbourhoods, becoming points of gathering and interaction for the different communities. Finally an extensive network of shared or living streets like alleyways and the promenade Wadi front connect all districts.

In terms of the softscape areas, big neighbourhood parks and smaller pocket parks or neighbourhood greens are located in each of the residential districts. Sports facilities are located in districts 9, 1 and the Wadi C Park plateau. On district 12 and as a visual buffer to the existing electrical substation a second nursery and a composting area are also included.

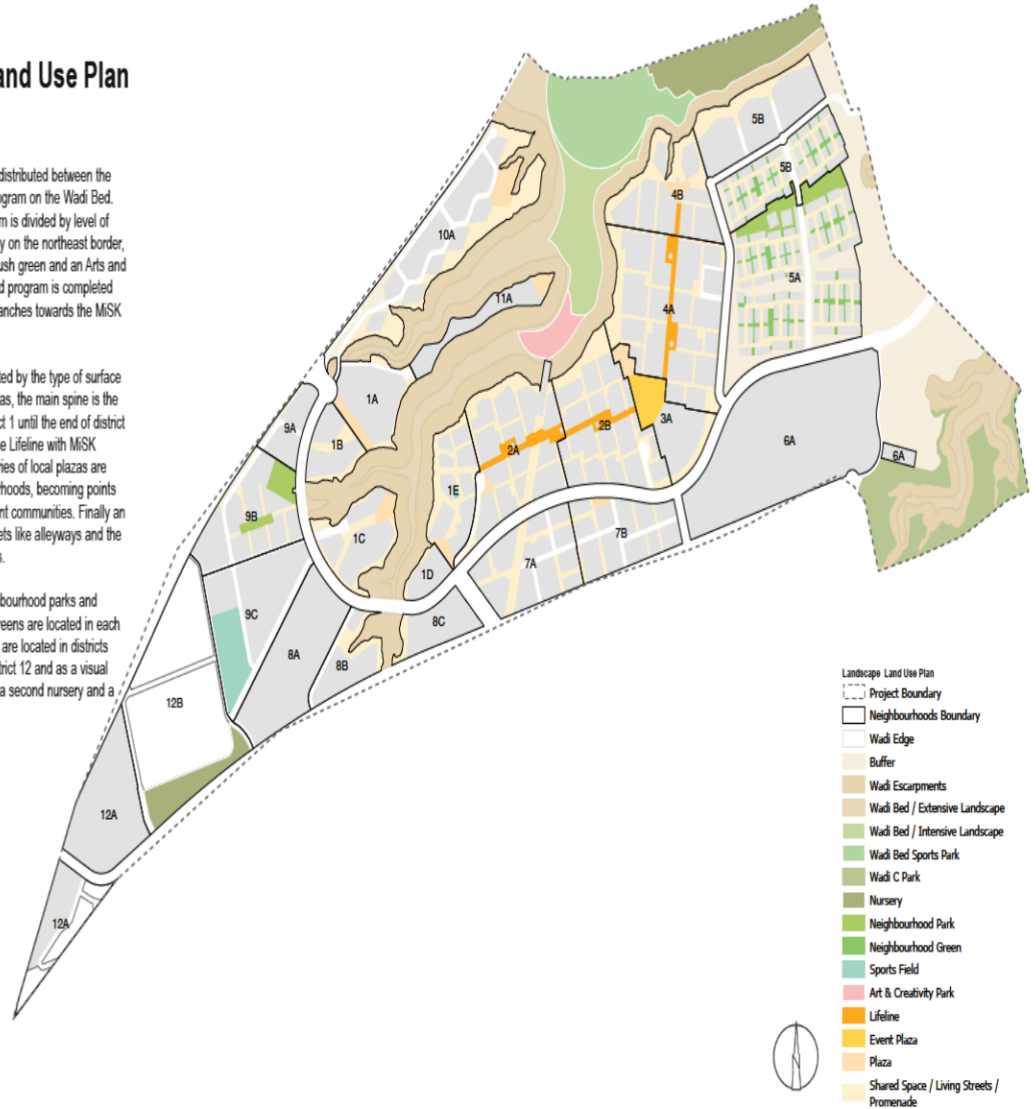


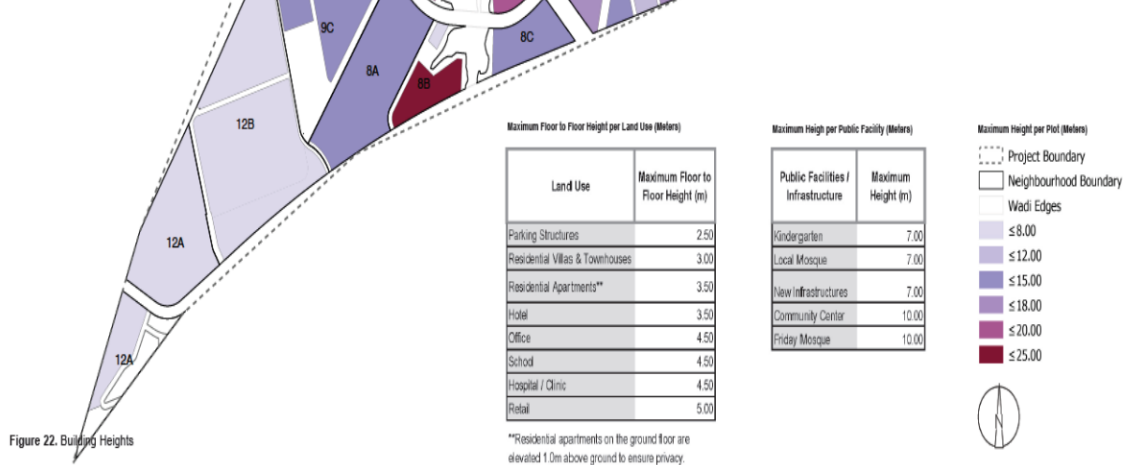
Figure 21. Landscape Landuses

General Land Use Guidelines

2.6 Building Heights

The shown plan indicates the maximum heights per plot of the development according to a series of floor to floor or total maximum height assumptions, shown in the tables below. At certain places, high points define the urban entrances.

Lower land uses include the low-density residential areas (villas and townhouses) towards the east and the logistics and infrastructure areas towards the southwest. Medium height areas are located along the Lifeline, including both residential or mixed-use blocks with a height of G+3. Other mid-density areas are located south of the Ceremonial Road, west of the MiSK Forum and north of the villas and townhouses. Across the project infrastructure and mobility uses such as parking structures with district cooling facilities have a maximum height of 22 meters. Higher buildings such as the northern apartments and the Mobility Hub are located along the Western Ring Road and have a maximum height of 25 meters.



2.7 Development Land / Parcels and FAR

From the total 3.36 million sqm of the project site, the total developable land comprises approximately 1.34 million sqm, excluding public and non-developable land. Public land includes the Wadi areas, buffer zones, open spaces and roads. Non-developable land, on the other hand, includes the sites of the existing electrical substation on the southwest.

The FAR plan illustrates the density of the development site. The shown FAR of each development parcel is a target number and only a maximum of a possible density. Areas with a higher density are located along the Lifeline, in MSK Forum and on the northern residential neighbourhood.



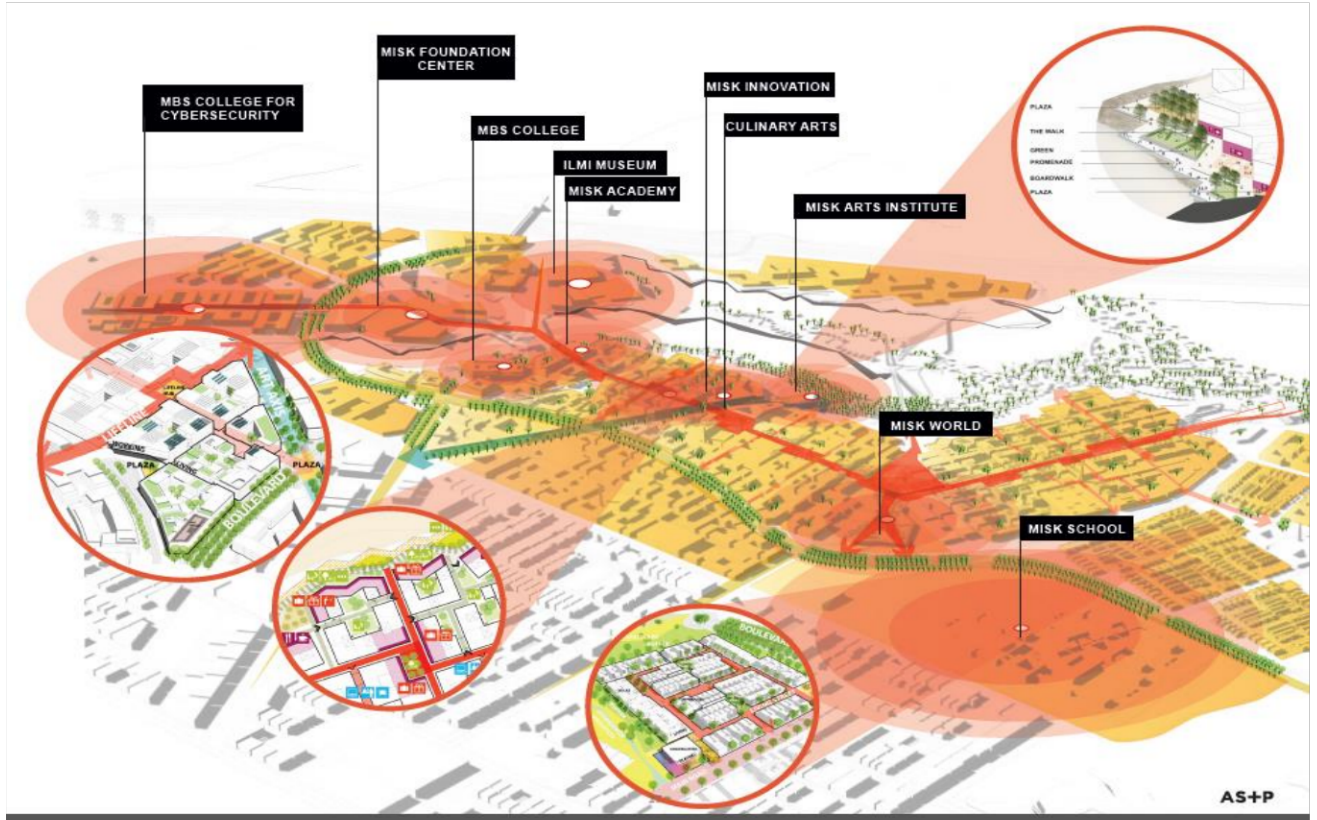
Figure 24. FAR

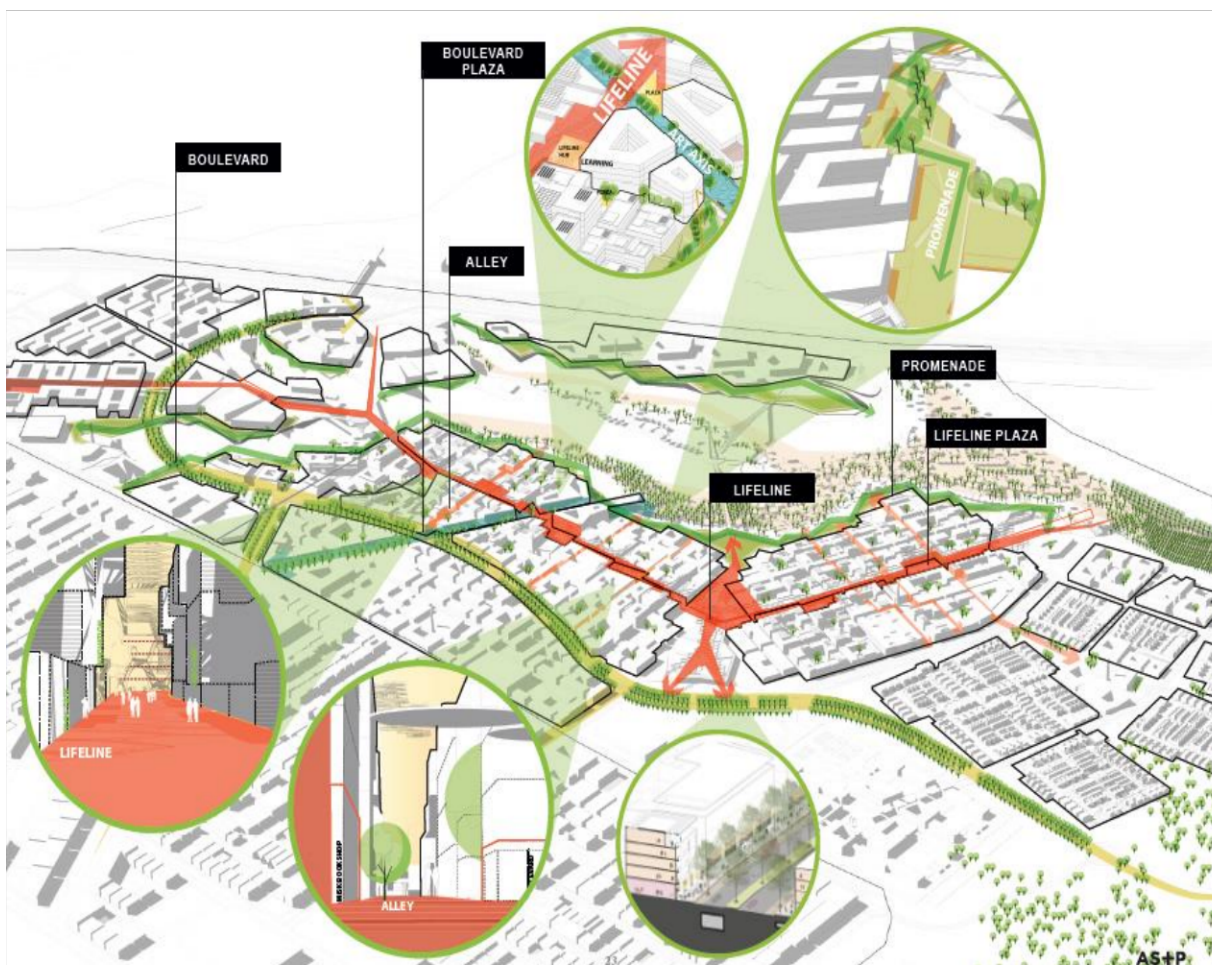
2.8 Population Density

The following map shows how the residential population is distributed throughout MiSK City, mainly being concentrated towards the north and northeast districts along the Wadi promenade. An exception of this distribution are the 1,000 student accommodations units, located at the MBS College for Cyber Security, in the southwest area.



Figure 25. Densities



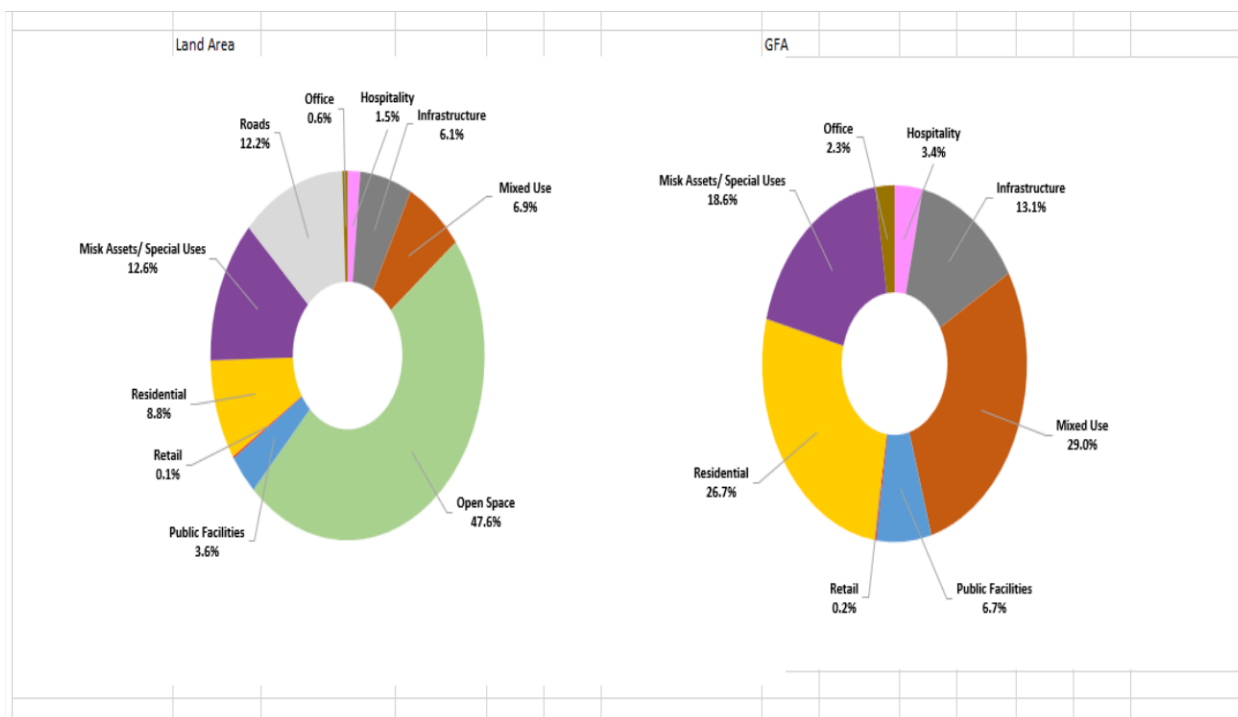


GIS Reports

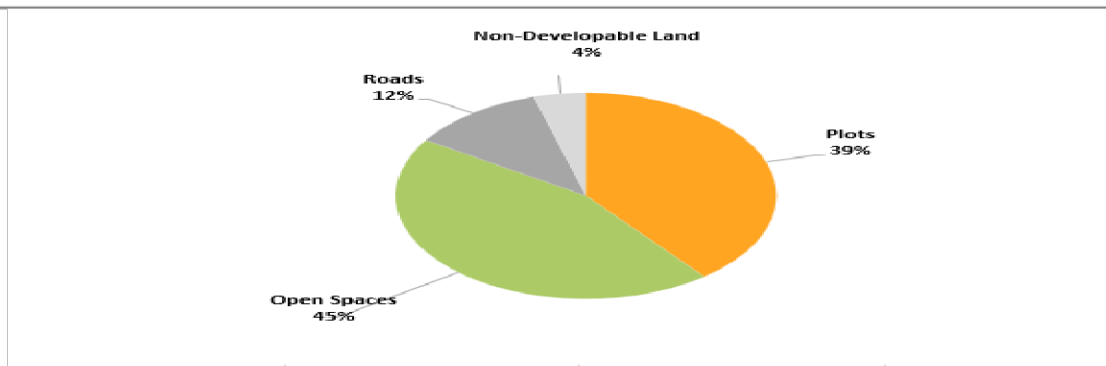
Land Use	Land Area	Land Use2	GFA_Total
Hospitality	47,151	Hospitality	60,816
Infrastructure	193,371	Infrastructure	234,009
Mixed Use	217,032	Mixed Use	516,019
Open Space	1,501,845		
Public Facilities	113,598	Public Facilities	119,216
Retail	4,677	Retail	3,274
Residential	277,758	Residential	474,882
Misk Assets/ Special Uses	398,023	Misk Assets/ Special Uses	331,937
Roads	385,034		
Office	19,553	Office	41,544

Land Use Type	Land Area
Plots	1,320,491
Open Spaces	1,501,845
Roads	385,034
Non-Developable Land	148,431
	3,355,800

Main_Land_Use	Land Use	Total Area (m²)	% Total Area	GFA (m²)	% GFA
Residential		277,758	8.66%	474,882	24.49%
Mixed-Use		217,032	6.77%	516,019	26.61%
Commercial	Hotel	47,151	1.47%	60,816	3.14%
	Office	19,553	0.61%	41,544	2.14%
	Retail	4,677	0.15%	3,274	0.17%
	Office (LifeLine) + Retail	49,328	1.54%	157,134	8.10%
Misk Assets/ Special Uses		398,023	12.41%	331,937	17.12%
Public Facilities		113,598	3.54%	119,216	6.15%
Infrastructure and Mobility		193,371	6.03%	234,009	12.07%
Roads		385,034	12.00%	0	0.00%
Open Space		1,501,845	46.82%	0	0.00%
Grand Total		3,207,369	100.00%	1,938,831	100.00%



Row Labels	Sum o (sqm)
Developable Land	
Non-Developable Land	
Public Land	
Grand Total	



Main_Land_Use	Land Use	Total Area (m²)	% Total Area	GFA (m²)	% GFA	Residential			Hospitality			Retail		Offices	Assets	Public Facilities	Infrastructure		Visitors and Employment	
						Total Residential GFA (m²)	Total Residential Units (U.)	Total Residents (Ppl.)	Total Hospitality GFA (m²)	Total Hotel Keys (U.)	Total Hotel Population (Ppl.)	Retail GFA (m²)	Retail Frontage (m)	Total Offices GFA (m²)	Misk Assets GFA (m²)	Public & Culture GFA (m²)	Infrastructure GFA (m²)	Total Above Ground Parking GFA (m²)	Total Visitor Population (Ppl.)	Total No. of Jobs (Ppl.)
Residential	Apartments	171,355	5.34%	346,140	17.85%	327,540	2,014	6,326	0	0	0	0	0	0	0	0	0	18,600	0	0
	Villas + Townhouses + Twin Homes	106,403	3.32%	128,741	6.64%	128,741	517	1,839	0	0	0	0	0	0	0	0	0	0	0	0
Mixed-Use	Retail	450	0.01%	70	0.00%	0	0	0	0	0	0	70	5	0	0	0	0	0	4	1
	Residential (Apartments) + Retail	133,707	4.17%	308,811	15.93%	275,308	1,885	5,838	0	0	0	29,979	1,999	0	0	2,923	0	600	1,727	610
	Residential (Apartments) + Office + Retail	82,875	2.58%	207,139	10.68%	132,946	952	2,921	0	0	0	18,878	1,259	52,498	0	2,817	0	0	1,114	2,089
Commercial	Hotel	47,151	1.47%	60,816	3.14%	0	0	0	59,832	806	1,562	100	7	0	0	0	0	884	6	800
	Office	19,553	0.61%	41,544	2.14%	0	0	0	0	0	0	0	0	41,544	0	0	0	0	0	1,662
	Retail	4,677	0.15%	3,274	0.17%	0	0	0	0	0	0	2,763	184	0	0	510	0	0	152	60
	Office (LifeLine) + Retail	49,328	1.54%	157,134	8.10%	0	0	0	0	0	0	17,174	1,145	139,960	0	0	0	0	945	4,849
Misk Assets/ Special Uses	ILMI Museum	33,418	1.04%	25,952	1.34%	0	0	0	0	0	0	0	0	0	25,952	0	0	0	0	65
	Manga Studio	4,122	0.13%	10,262	0.53%	0	0	0	0	0	0	577	38	7,785	1,900	0	0	0	32	295
	MBS College for Cybersecurity	82,438	2.57%	116,262	6.00%	24,000	1,000	1,000	0	0	0	0	0	0	62,262	0	0	30,000	0	220
	MSK Academy	1,748	0.05%	6,496	0.34%	0	0	0	0	0	0	195	13	0	6,301	0	0	0	11	21
	MSK Arts Institute	7,861	0.25%	21,942	1.13%	0	0	0	0	0	0	0	0	6,942	15,000	0	0	0	0	305
	MSK School	201,715	6.29%	64,870	3.35%	0	100	208	0	0	0	0	0	0	64,870	0	0	0	0	44
	MSK World	23,490	0.73%	16,440	0.85%	0	0	0	0	0	0	6,200	413	0	10,240	0	0	0	341	329
	Youth Center	2,613	0.08%	5,000	0.26%	0	0	0	0	0	0	0	0	0	0	5,000	0	0	0	33
	Misk Foundation Centre	6,528	0.20%	12,952	0.67%	0	0	0	0	0	0	0	0	0	12,952	0	0	0	0	518
	Conference Centre	17,805	0.56%	24,471	1.26%	0	0	0	0	0	0	0	0	0	24,471	0	0	0	0	163
	MBS College	5,185	0.16%	15,078	0.78%	0	0	0	0	0	0	0	0	0	15,078	0	0	0	0	22
	MSK Experiential Centr	4,873	0.15%	2,250	0.12%	0	0	0	0	0	0	0	0	0	2,250	0	0	0	0	6
	Culinary Arts	6,226	0.19%	9,962	0.51%	0	0	0	0	0	0	1,893	126	1,992	6,077	0	0	0	104	128
Public Facilities	Friday Mosque	2,592	0.08%	1,555	0.08%	0	0	0	0	0	0	0	0	0	0	1,555	0	0	333	2
	Hospital/ Clinic	25,907	0.81%	34,107	1.76%	0	0	0	0	0	0	0	0	0	0	28,857	0	5,250	952	360
	Local Mosque	15,832	0.49%	6,755	0.35%	0	0	0	0	0	0	0	0	0	0	6,755	0	0	1,447	7
	Community Facilities	69,266	2.16%	76,798	3.96%	0	0	0	0	0	0	0	0	0	0	76,448	0	350	0	513
Infrastructure and Mobility	District Cooling	6,052	0.19%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mobility Hub	17,367	0.54%	49,000	2.53%	0	0	0	0	0	0	1,000	67	0	0	10,500	1,500	36,000	55	132
	Parking	55,317	1.72%	148,449	7.66%	0	0	0	0	0	0	500	33	0	0	0	0	147,949	27	10
	Parking/ Cooling	18,981	0.59%	24,000	1.24%	0	0	0	0	0	0	0	0	0	0	0	0	24,000	0	0
	Infrastructure New	24,527	0.76%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Logistics + Infrastructure New	71,126	2.22%	12,560	0.65%	0	0	0	0	0	0	0	0	0	0	0	12,560	0	0	63
Roads	Primary Road	254,426	7.93%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Secondary Road	130,608	4.07%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Open Space	Shared Space/ Living Streets	321,659	10.03%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wadi Bed	324,643	10.12%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wadi C Escarpments	76,000	2.37%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wadi C Wadi Bed	33,366	1.04%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wadi Escarpments	308,971	9.63%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Other Open Spaces	327,442	10.21%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Urban Parks and Plazas	109,764	3.42%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total		3,207,369	100.00%	1,938,831	100.00%	888,536	6,468	18,132	59,832	806	1,562	79,329	5,289	250,721	247,353	135,366	14,060	263,635	7,250	13,306

Main Land Use	Land Use	Residential Units											Hospitality Rooms					
		High-End Ap. Units (U.)	Mid-End Ap. Units (U.)	Town-house A Units (U.)	Town-house B Type 1 Units (U.)	Town-house B Type 2 Units (U.)	Villas A Units (U.)	Villas B Units (U.)	Twin Homes Units (U.)	Student Acc. Units (U.)	Teacher Housing Units (U.)	Total Residential Units (U.)	Upscale Boutique Hotel Keys (U.)	Upscale Hotel Ap. Keys (U.)	Midscale Lifestyle Hotel Keys (U.)	Total Hotel Keys (U.)		
Residential	Apartments	527	1,062	0	0	0	0	0	0	0	0	2,014	0	0	0	0		
	Villas + Townhouses + Twin Homes	0	0	130	84	164	41	48	50	0	0	517	0	0	0	0		
Mixed-Use	Residential (Apartments) + Office + Retail	0	952	0	0	0	0	0	0	0	0	952	0	0	0	0		
	Residential (Apartments) + Retail	344	1,541	0	0	0	0	0	0	0	0	1,885	0	0	0	0		
Commercial	Hotel	0	0	0	0	0	0	0	0	0	0	0	50	208	547	806		
Misk Assets/ Special Uses	MBS College for Cybersecurity	0	0	0	0	0	0	0	0	1,000	0	1,000	0	0	0	0		
	MSK School	0	0	0	0	0	0	0	0	0	100	100	0	0	0	0		
Grand Total		871	3,575	130	84	164	41	48	50	1,000	100	6,468	50	208	547	806		

Main Land Use	Land Use	Residential Population											Hospitality Population				Visitor Population*	
		High-End Ap. Pop. (Ppl.)	Mid-End Ap. Pop. (Ppl.)	Town-house A Pop. (Ppl.)	Town-house B Type 1 Pop. (Ppl.)	Town-house B Type 2 Pop. (Ppl.)	Villas A Pop. (Ppl.)	Villas B Pop. (Ppl.)	Twin Homes Pop. (Ppl.)	Student Acc. Pop. (Ppl.)	Teacher Housing Pop. (Ppl.)	Total Residents (Ppl.)	Upscale Boutique Hotel Pop. (Ppl.)	Upscale Hotel Ap. Pop. (Ppl.)	Midscale Lifestyle Hotel Pop. (Ppl.)	Total Hospitality Pop. (Ppl.)	Retail Visitor Pop. (Ppl.)	Mosque and Health Facilities Visitor Pop. (Ppl.)
Residential	Apartments	1,700	3,322	0	0	0	0	0	0	0	0	6,326	0	0	0	0	0	0
	Villas + Townhouses + Twin Homes	0	0	468	218	590	209	173	180	0	0	1,839	0	0	0	0	0	0
Mixed-Use	Residential (Apartments) + Office + Retail	0	2,921	0	0	0	0	0	0	0	0	2,921	0	0	0	0	1,038	76
	Residential (Apartments) + Retail	1,108	4,730	0	0	0	0	0	0	0	0	5,838	0	0	0	0	1,649	79
	Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
Commercial	Hotel	0	0	0	0	0	0	0	0	0	0	0	100	531	930	1,562	6	0
	Office (LifeLine) + Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	945	0
	Retail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	0
Misk Assets/ Special Uses	Culinary Arts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	104	0
	Manga Studio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	0
	MBS College for Cybersecurity	0	0	0	0	0	0	0	0	1,000	0	1,000	0	0	0	0	0	0
	MISK Academy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
	MISK School	0	0	0	0	0	0	0	0	0	208	208	0	0	0	0	0	0
	MISK World	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	341	0
Public Facilities	Friday Mosque	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	333
	Hospital Clinic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	952
	Local Mosque	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,447
Infrastructure and Mobility	Mobility Hub	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	0
	Parking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	0
Grand Total		2,808	10,972	468	218	590	209	173	180	1,000	208	18,132	100	531	930	1,562	4,363	2,887

Main Land Use	Land Use	Employment Figures												Total Empl. (Jobs)
		Retail Empl. (Jobs)	Hospitality Empl. (Jobs)	Office Empl. (Jobs)	Creative Office Empl. (Jobs)	Office Workshop Empl. (Jobs)	Total Office Empl. (Jobs)	Religious Empl. (Jobs)	Com. Facilities Empl. (Jobs)	Health Empl. (Jobs)	Education (Kindergarten) Empl. (Jobs)	Mobility and Logistics Empl. (Jobs)	MISK Assets Empl. (Jobs)	
Commercial	Hotel	2	798	0	0	0	0	0	0	0	0	0	0	800
	Office	0	0	1,662	0	0	1,662	0	0	0	0	0	0	1,662
	Office (LifeLine) + Retail	343	0	3,190	371	944	4,506	0	0	0	0	0	0	4,849
	Retail	55	0	0	0	0	0	0	5	0	0	0	0	60
Infrastructure and Mobility	Infrastructure New	0	0	0	0	0	0	0	0	0	0	0	0	0
	Logistics + Infrastructure New	0	0	0	0	0	0	0	0	0	0	63	0	63
	Mobility Hub	20	0	0	0	0	0	0	105	0	0	8	0	132
	Parking	10	0	0	0	0	0	0	0	0	0	0	0	10
Misk Assets/ Special Uses	Culinary Arts	38	0	80	0	0	80	0	0	0	0	0	11	128
	Conference Centre	0	0	0	0	0	0	0	0	0	0	0	163	163
	ILMI Museum	0	0	0	0	0	0	0	0	0	0	0	65	65
	Manga Studio	12	0	246	0	33	279	0	0	0	0	0	5	295
	MBS College	0	0	0	0	0	0	0	0	0	0	0	22	22
	MBS College for Cybersecurity	0	0	0	0	0	0	0	0	0	0	0	220	220
	MISK Academy	4	0	0	0	0	0	0	0	0	0	0	18	21
	MISK Arts Institute	0	0	278	0	0	278	0	0	0	0	0	27	305
	MISK Experiential Centre	0	0	0	0	0	0	0	0	0	0	0	6	6
	Misk Foundation Centre	0	0	0	0	0	0	0	0	0	0	0	518	518
	MISK School	0	0	0	0	0	0	0	0	0	0	0	44	44
	MISK World	124	0	0	0	0	0	0	0	0	0	0	205	329
	Youth Center	0	0	0	0	0	0	0	0	0	0	0	33	33
Mixed-Use	Residential (Apartments) + Office + Retail	378	0	1,300	0	400	1,700	0	5	6	0	0	0	2,089
	Residential (Apartments) + Retail	600	0	0	0	0	0	0	0	6	4	0	0	610
	Retail	1	0	0	0	0	0	0	0	0	0	0	0	1
	Community Facilities	0	0	0	0	0	0	0	493	0	20	0	0	513
Public Facilities	Friday Mosque	0	0	0	0	0	0	2	0	0	0	0	0	2
	Hospital/ Clinic	0	0	0	0	0	0	0	0	360	0	0	0	360
	Local Mosque	0	0	0	0	0	0	7	0	0	0	0	0	7
	Residential Apartments	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total		1,587	798	6,755	371	1,377	8,503	8	608	372	24	70	1,336	13,306

GFA Breakdown																			
District No.	High-End Ap. (Types A+B) GFA (m²)	Mid-End Ap. GFA (m²)	Villa A GFA (m²)	Villas B GFA (m²)	Town-house A GFA (m²)	Town-house B Type 1 GFA (m²)	Town-house B Type 2 GFA (m²)	Twin Home GFA (m²)	Student Acc. GFA (m²)	Boutique Hotel GFA (m²)	Upscale Hotel GFA (m²)	Midscale Lifestyle Hotel GFA (m²)	Misk Assets GFA (m²)	Retail GFA (m²)	Creative Office GFA (m²)	Office GFA (m²)	Office Workshop GFA (m²)	Public & Culture GFA (m²)	Infra- structure GFA (m²)
1	0	16,302	0	0	0	0	0	0	0	0	21,735	33,086	84,755	1,358	0	50,270	0	5,000	0
2	46,587	96,289	0	0	0	0	0	0	0	0	0	0	22,876	35,553	12,990	90,995	54,325	3,672	0
3	0	0	0	0	0	0	0	0	0	0	0	0	10,240	6,200	0	0	0	0	0
4	81,506	137,843	0	0	0	0	0	0	0	0	0	0	0	20,805	0	25,803	14,524	6,004	0
5	84,266	0	16,041	15,847	27,361	15,426	38,837	15,228	0	0	0	0	0	0	0	0	0	5,170	0
6	0	0	0	0	0	0	0	0	0	0	0	0	67,320	0	0	0	0	0	0
7	0	131,537	0	0	0	0	0	0	0	0	0	0	0	11,017	0	0	0	11,041	0
8	0	0	0	0	0	0	0	0	24,000	0	0	0	62,282	0	0	0	0	29,675	0
9	0	48,557	0	0	0	0	0	0	0	0	0	0	3,005	0	1,803	0	71,682	1,500	0
10	24,025	65,881	0	0	0	0	0	0	0	0	0	0	1,591	0	0	0	0	3,121	0
11	0	0	0	0	0	0	0	0	0	5,011	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12,560
Grand Total	236,385	489,410	16,041	15,847	27,361	15,426	38,837	15,228	24,000	5,011	21,735	33,086	247,353	79,329	12,990	198,872	68,859	135,366	14,060

Misk Assets													
Land Use	Plot Area (m²)	Total Plot GFA (m²)	Plot FAR	MISK Assets Target GFA (m²)	Misk Assets GFA (m²)	Total Retail GFA (m²)	Total Residential GFA (m²)	Total Hospitality GFA (m²)	Total Offices GFA (m²)	Total Public & Culture GFA (m²)	Total Infrastructure GFA (m²)	Total Parking GFA (m²)	
Culinary Arts	6,226	9,962	1.6	6,000	6,077	1,893	0	0	1,992	0	0	0	
Conference Centre	17,805	24,471	1.4	24,471	24,471	0	0	0	0	0	0	0	
ILMI Museum	33,418	25,952	0.8	25,952	25,952	0	0	0	0	0	0	0	
Manga Studio	4,122	10,262	2.5	1,900	1,900	577	0	0	7,785	0	0	0	
MBS College	5,185	15,078	2.9	12,500	15,078	0	0	0	0	0	0	0	
MBS College for Cybersecurity	82,438	116,262	1.4	60,000	62,262	0	24,000	0	0	0	0	30,000	
MISK Academy	1,748	6,496	3.7	6,000	6,301	195	0	0	0	0	0	0	
MISK Arts Institute	7,861	21,942	2.8	15,000	15,000	0	0	0	6,942	0	0	0	
MISK Experiential Centre	4,873	2,250	0.5	2,250	2,250	0	0	0	0	0	0	0	
Misk Foundation Centre	6,528	12,952	2.0	12,952	12,952	0	0	0	0	0	0	0	
MiSK School	201,715	64,870	0.3	64,870	64,870	0	0	0	0	0	0	0	
MiSK World	23,490	16,440	0.7	10,240	10,240	6,200	0	0	0	0	0	0	
Grand Total	395,410	326,937	1.8	242,135	247,353	8,864	24,000	0	16,719	0	0	30,000	

District No.	Total Area (m²)	% Total Area	GFA (m²)	% GFA	Residential			Hospitality			Retail		Offices	Assets	Public Facilities	Infrastructure	Total Above Ground Parking GFA (m²)
					Total Residential GFA (m²)	Total Residential Units (U.)	Total Residents (Ppl.)	Total Hospitality GFA (m²)	Total Hotel Units (U.)	Total Hotel Population (Ppl.)	Retail GFA (m²)	Retail Frontage (m)	Total Offices GFA (m²)	Misk Assets GFA (m²)	Public & Culture GFA (m²)	Infra-structure GFA (m²)	
1	188,036	5.60%	214,506	11.06%	18,302	131	402	54,821	755	1,461	1,358	91	50,270	84,755	5,000	0	0
2	213,794	6.37%	363,388	18.74%	142,876	956	2,975	0	0	0	35,553	2,370	158,310	22,976	3,672	0	0
3	46,575	1.39%	16,440	0.85%	0	0	0	0	0	0	6,200	413	0	10,240	0	0	0
4	224,838	6.70%	319,295	16.47%	219,349	1,453	4,533	0	0	0	20,605	1,374	40,337	0	6,004	0	33,000
5	322,473	9.61%	225,127	11.61%	213,008	922	3,143	0	0	0	0	0	0	0	5,170	0	6,950
6	206,588	6.16%	67,120	3.46%	0	100	208	0	0	0	0	0	0	67,120	0	0	0
7	136,468	4.07%	201,595	10.40%	131,537	942	2,890	0	0	0	11,017	734	0	0	11,041	0	48,000
8	145,761	4.34%	175,187	9.04%	24,000	1,000	1,000	0	0	0	0	0	0	62,262	29,675	0	59,251
9	190,446	5.68%	223,546	11.53%	49,557	355	1,089	0	0	0	3,005	200	1,803	0	71,682	1,500	95,999
10	133,442	3.98%	114,171	5.89%	89,907	609	1,891	0	0	0	1,591	106	0	0	3,121	0	19,551
11	26,742	0.80%	5,895	0.30%	0	0	0	5,011	50	100	0	0	0	0	0	0	884
12	286,175	8.53%	12,560	0.65%	0	0	0	0	0	0	0	0	0	0	0	12,560	0
LA	980,036	29.20%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0
RO	254,426	7.58%	0	0.00%	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	3,355,800	100.00%	1,938,831	100.00%	888,536	6,468	18,132	59,832	806	1,562	79,329	5,289	250,721	247,353	135,366	14,060	263,635

Phase	Total Area (m²)	% Total Area	GFA (m²)	% GFA	Residential			Hospitality			Retail		Offices	Assets	Public Facilities	Infrastructure	Total Above Ground Parking GFA (m²)
					Total Residential GFA (m²)	Total Residential Units (U.)	Total Residents (Ppl.)	Total Hospitality GFA (m²)	Total Hotel Units (U.)	Total Hotel Population (Ppl.)	Retail GFA (m²)	Retail Frontage (m)	Total Offices GFA (m²)	Misk Assets GFA (m²)	Public & Culture GFA (m²)	Infra-structure GFA (m²)	
1	1,134,483	47.75%	555,357	28.64%	156,952	907	2,880	34,209	438	922	19,015	1,268	105,168	174,851	12,284	0	52,878
2	557,972	23.49%	767,359	39.58%	417,557	3,457	8,706	20,612	317	539	38,199	2,547	113,819	72,502	12,600	0	92,072
3	444,665	18.72%	476,384	24.57%	224,120	1,495	4,655	5,011	50	100	19,524	1,302	31,734	0	96,861	0	99,134
4	238,644	10.04%	139,731	7.21%	89,907	609	1,891	0	0	0	2,591	173	0	0	13,622	14,060	19,551
Grand Total	2,375,764	100.00%	1,938,831	100.00%	888,536	6,468	18,132	59,832	806	1,562	79,329	5,289	250,721	247,353	135,366	14,060	263,635

ELECTRICAL LOAD ESTIMATION CALCULATION

APPLICABLE CODES AND STANDARDS

As per SAEP-148 (Saudi Aramco Engineering Procedure 148), a list of Standards and Codes required for Non-Industrial facilities has been established. The design and construction of this project shall conform to the codes, guidelines, and standards listed in SAEP-148 Appendix-A. All electrical installations will be designed in compliance with the latest edition of the following Standards and Regulations:

- SEC-Saudi Electricity Company
- SBC – Saudi Building Code
- MOT-Ministry of Transportation Standards
- IEC- International Electro-Technical Commission
- NEC- National Electrical Code
- IESNA-Illuminating Engineering Society of North America
- CIE- The International Commission on Illumination

ENVIRONMENTAL CONDITIONS

All electrical equipment, apparatus, materials, and accessories shall be designed, specified and de-rated for a continuous and trouble-free operation in the ambient conditions of KSA, which are as follows, in accordance with SEC regulations:

- Altitude above mean sea level sea level
- Max. outdoor ambient temperature (shade) 55 deg. C
- Min. ambient air temperature -5 deg. C
- Monthly Average of the hottest month 40 deg. C
- Ambient Temperature (Indoor):
 - a. Air-conditioned buildings 25 deg. C
 - b. Buildings, where no air-conditioning
 - is provided 40 deg. C
 - Relative humidity 100% (Max.)
 - Thunderstorms per year Occasional
 - Wind speed 45 m/s
 - Ambient Ground temperature 40 deg. C
 - Soil thermal resistivity at one (1) meter and below 2.0 deg. C/m/W

UTILIZATION VOLTAGES

The power supply characteristics are to follow SEC regulations:

- Medium Voltage (MV): 13.8 kV, 60 Hz, 3 phase
- Low Voltage (LV): 400/230 V, 60 Hz, 3 phase

Electrical Load List

Definitions

The below definitions are extracted from Distribution Planning Standards (DPS-01) issued by Saudi Electric Company (SEC).

Connected Load (CL)

It is the sum of all the nameplate ratings of all present and future electrical equipment & installations belongs to the customer's building/facility and could be used by the customer in future. It is to be estimated before applying any demand factor or diversity factor. It is expressed in Volt-Amperes (VA).

Demand Load(DL)

Demand Load = Connected Load × Demand Factor

Demand Factor (DF)

It is the ratio of the Demand Load of a customer's building's unit to the Connected Load of that customer's building's unit.

$$\text{Demand Factor} = \frac{\text{Demand Load}}{\text{Connected Load}}$$

It is the total (non-coincident) demand load of a customer's building with multiple units. It is the noncoincident

Total Demand Load

summation of all individuals demand loads of all units belongs to that customer's building. It is expressed in Volt-Amperes (VA).

$$\text{Total Demand Load} = \Sigma(\text{all individuals demand loads})$$

Coincident Factor

It is the ratio of the Coincident Demand Load of a customer's building with group of units (KWH Meters) to the Total Demand Load of that customer's building both taken at the same point of supply for the same time

We have (5) methods of electrical load estimations which were:

A- Preliminary load calculation which divide to:

1. Space by space (functional area method),
2. Building Area method.
3. Area method.

B- NEC load calculations.

C- Final load calculations.

The electrical load is calculated based on Built-up area (BUA) for each land use type. The determination of the Load Densities (VA/m²) and Demand Factors applied at the plots (up to the plot transformer) are based on SEC *"Distribution Planning Standard, DPS-01-Rev.02, dated September 2015"*.

Coincident factors are based on SEC "General Guidelines for Design of Distribution Network of Private Schemes" *DPS-10-Rev.02 dated February 2016*".

Load Factors

	الشركة السعودية للكهرباء Saudi Electricity Company	DISTRIBUTION PLANNING STANDARD DPS-01	
		ISSUE DATE:	REVISION
	DISTRIBUTION PLANNING STANDARD Estimation of Customer Load Guideline (Connected Load & Demand Load)	September, 2015	02
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19.0 CONNECTED LOADS ESTIMATION FOR THE OTHER REMAINING AREA-BASED CUSTOMERS FACILITIES TYPES (FROM TYPE C3 UP TO TYPE C17)

For all such customers (from type C3 up to type C17) an average load requirement VA/m² is considered as appropriate method for the load calculation. Use Table (7).

$$\text{Total Connected Load (KVA)} = \frac{\text{Built up Area (m}^2\text{)} \times \text{Load Density (VA/m}^2\text{)}}{1000}$$

Table (7)

Code	Customer Category	Loads included*	VA/m ²
C3	Furnished Flats	(Lights + Air Conditioning + Power Sockets)	175
C4	Hotels	(Lights + Air Conditioning + Power Sockets)	240
C5	Malls	(Lights + Air Conditioning + Power Sockets)	255
C6	Restaurants	(Lights + Air Conditioning + Power Sockets)	235
C7	Offices	(Lights + Air Conditioning + Power Sockets)	220
C8	Schools	(Lights + Air Conditioning + Power Sockets)	180
C9	Mosques	(Lights + Air Conditioning + Power Sockets)	185
C10	Mezzanine in Hotel	(Lights + Air Conditioning + Power Sockets)	100
C11	Common Area/Services in Buildings	(Lights + Power Sockets)	60
C12	Public Services Facilities	(Lights + Power Sockets)	50
C13	Indoor Parking	(Lights + Vans + Gates + Safety Systems)	30
C14	Outdoor Parking	(Lights)	5
C15	Streets Lighting	(Lights)	5
C16	Parks & Garden	(Lights + Water Distributor)	4
C17	Open Spaces	(Lights)	3

Note : This is only covering normal loads , any additional loads will be considered & added as special loads.

21.0 CONNECTED LOADS ESTIMATION FOR AREAS DEVELOPMENT PROJECT OR COMBINED PLOT PLAN

For all such customers, an average load requirement VA/m² is considered as appropriate method for the load calculation. Use Table (8).

Table (8)

Code	Customer Category	Loads included*	VA/m ²
C3	Furnished Flats	(Lights + Air Conditioning + Power Sockets)	175
C4	Hotels	(Lights + Air Conditioning + Power Sockets)	240
C5	Malls	(Lights + Air Conditioning + Power Sockets)	255
C6	Restaurants	(Lights + Air Conditioning + Power Sockets)	235
C7	Offices	(Lights + Air Conditioning + Power Sockets)	220
C8	Schools	(Lights + Air Conditioning + Power Sockets)	180
C9	Mosques	(Lights + Air Conditioning + Power Sockets)	185
C10	Mezzanine in Hotel	(Lights + Air Conditioning + Power Sockets)	100
C11	Common Area/Services in Buildings	(Lights + Power Sockets)	60
C12	Public Services Facilities	(Lights + Power Sockets)	50
C13	Indoor Parking	(Lights + Vans + Gates + Safety Systems)	30
C14	Outdoor Parking	(Lights)	5
C15	Streets Lighting	(Lights)	5
C16	Parks & Garden	(Lights + Water Distributor)	4
C17	Open Spaces	(Lights)	3
C18	Hospitals\Medical Facilities	(Lights + Air Conditioning + Power Sockets)	250
C19	Medical Clinics	(Lights + Air Conditioning + Power Sockets)	225
C20	Universities/High Educational Facilities	(Lights + Air Conditioning + Power Sockets)	245
C21	Light Industries	(Lights + Motors + Power Sockets + AC)	280
C22	Workshops	(Lights + Power Sockets)	80
C23	Cooling Stores	(Lights + Chillers + Power Sockets)	260
C24	Warehouses	(Lights + Vans + Power Sockets)	70
C25	Community Halls	(Lights + Air Conditioning + Power Sockets)	230
C26	Recreational Facilities	(Lights + Air Conditioning + Power Sockets)	200
C27	Farms\Agricultural Facilities	(Lights + Power Sockets)	130
C28	Fuel Stations	(Lights + Power Sockets)	90
C29	Bulk Factories	(Lights + Power Sockets)	295

Note : This is only covering normal loads , any additional loads will be considered & added as special loads.

22.0 CONNECTED LOADS ESTIMATION FOR FACILITY WITHOUT AC (DISTRICT COOLING)

For all such customers, an average load requirement VA/m^2 is considered as appropriate method for the load calculation. Use Table (9).

Table (9)

Code	Customer Category	Loads included*	VA/m ²
C3	Furnished Flats	(Lights + Power Sockets)	80
C4	Hotels	(Lights + Power Sockets)	95
C5	Malls	(Lights + Power Sockets)	75
C6	Restaurants	(Lights + Power Sockets)	95
C7	Offices	(Lights + Power Sockets)	90
C8	Schools	(Lights + Power Sockets)	80
C9	Mosques	(Lights + Power Sockets)	65
C10	Mezzanine in Hotel	(Lights + Power Sockets)	40
C11	Common Area/Services in Buildings	(Lights + Power Sockets)	60
C12	Public Services Facilities	(Lights + Power Sockets)	50
C13	Indoor Parking	(Lights + Vans + Gates + Safety Systems)	30
C14	Outdoor Parking	(Lights)	5
C15	Streets Lighting	(Lights)	5
C16	Parks & Garden	(Lights + Water Distributor)	4
C17	Open Spaces	(Lights)	3
C18	Hospitals\Medical Facilities	(Lights + Power Sockets)	115
C19	Medical Clinics	(Lights + Power Sockets)	100
C20	Universities/High Educational Facilities	(Lights + Power Sockets)	125
C21	Light Industries	(Lights + Motors + Power Sockets)	240
C22	Workshops	(Lights + Power Sockets)	80
C23	Cooling Stores	(Lights + Power Sockets)	25
C24	Warehouses	(Lights + Vans + Power Sockets)	70
C25	Community Halls	(Lights + Power Sockets)	115
C26	Recreational Facilities	(Lights + Power Sockets)	90
C27	Farms\Agricultural Facilities	(Lights + Power Sockets)	115
C28	Fuel Stations	(Lights + Power Sockets)	70
C29	Bulk Factories	(Lights + Motors + Power Sockets)	250

Note : This is only covering normal loads , any additional loads will be considered & added as special loads.

23.0 CONNECTED LOADS ESTIMATION FOR FACILITIES IN WINTER PEAK AREA (WITHOUT AC & WITH HEATING)

For all customers, belonging to areas where Air Conditioners are not used and instead heating appliances are used due to specific climatic conditions. Specifically for these customers an average load requirement VA/m² is considered the appropriate method for the load calculation as given in Table (10).

Table (10)

Code	Customer Category	Loads included*	VA/m ²
C3	Furnished Flats	(Lights + Air Heating + Power Sockets)	145
C4	Hotels	(Lights + Air Heating + Power Sockets)	195
C5	Malls	(Lights + Air Heating + Power Sockets)	200
C6	Restaurants	(Lights + Air Heating + Power Sockets)	195
C7	Offices	(Lights + Air Heating + Power Sockets)	180
C8	Schools	(Lights + Air Heating + Power Sockets)	150
C9	Mosques	(Lights + Air Heating + Power Sockets)	150
C10	Mezzanine in Hotel	(Lights + Air Heating + Power Sockets)	80
C11	Common Area/Services in Buildings	(Lights + Power Sockets)	60
C12	Public Services Facilities	(Lights + Power Sockets)	50
C13	Indoor Parking	(Lights + Vans + Gates + Safety Systems)	30
C14	Outdoor Parking	(Lights)	5
C15	Streets Lighting	(Lights)	5
C16	Parks & Garden	(Lights + Water Distributor)	4
C17	Open Spaces	(Lights)	3
C18	Hospitals/Medical Facilities	(Lights + Air Heating + Power Sockets)	210
C19	Medical Clinics	(Lights + Air Heating + Power Sockets)	190
C20	Universities/High Educational Facilities	(Lights + Air Heating + Power Sockets)	210
C21	Light Industries	(Lights + Motors + Power Sockets + Heating)	265
C22	Workshops	(Lights + Power Sockets)	80
C23	Cooling Stores	(Lights + Chillers + Power Sockets)	260
C24	Warehouses	(Lights + Vans + Power Sockets)	70
C25	Community Halls	(Lights + Air Heating + Power Sockets)	195
C26	Recreational Facilities	(Lights + Air Heating + Power Sockets)	165
C27	Farms/Agricultural Facilities	(Lights + Power Sockets)	125
C28	Fuel Stations	(Lights + Power Sockets)	85
C29	Bulk Factories	(Lights + Motors + Power Sockets + Heating)	280

27.0 DEMAND FACTORS FOR ALL FACILITIES TYPES

Table (11)

Code	Customer Category	DF
C1	Normal Residential Dwelling	0.60
C2	Normal Commercial Shops	0.70
C3	Furnished Flats	0.70
C4	Hotels	0.75
C5	Malls	0.70
C6	Restaurants	0.70
C7	Offices	0.70
C8	Schools	0.80
C9	Mosques	0.90
C10	Mezzanine in Hotel	0.75
C11	Common Area/Services in Buildings	0.80
C12	Public Services Facilities	0.75
C13	Indoor Parking	0.80
C14	Outdoor Parking	0.90
C15	Streets Lighting	0.90
C16	Parks & Garden	0.80
C17	Open Spaces	0.90
C18	Hospitals\Medical Facilities	0.80
C19	Medical Clinics	0.70
C20	Universities/High Educational Facilities	0.80
C21	Light Industries	0.90
C22	Workshops	0.90
C23	Cooling Stores	0.90
C24	Warehouses	0.70
C25	Community Halls	0.80
C26	Recreational Facilities	0.80
C27	Farms/ Agricultural Facilities	0.90
C28	Fuel Stations	0.70
C29	Bulk Factories	0.90

28.0 COINCIDENT FACTORS

Table (12)

Number of Meters N	Coincident Factor CF(N)	Number of Meters N	Coincident Factor CF(N)	Number of Meters N	Coincident Factor CF(N)
1	1.000	34	0.581	67	0.568
2	0.723	35	0.581	68	0.568
3	0.688	36	0.580	69	0.568
4	0.668	37	0.579	70	0.568
5	0.654	38	0.579	71	0.567
6	0.644	39	0.578	72	0.567
7	0.636	40	0.578	73	0.567
8	0.629	41	0.577	74	0.567
9	0.624	42	0.577	75	0.566
10	0.619	43	0.576	76	0.566
11	0.616	44	0.576	77	0.566
12	0.612	45	0.575	78	0.566
13	0.609	46	0.575	79	0.566
14	0.607	47	0.575	80	0.566
15	0.604	48	0.574	81	0.565
16	0.602	49	0.574	82	0.565
17	0.600	50	0.573	83	0.565
18	0.598	51	0.573	84	0.565
19	0.597	52	0.573	85	0.565
20	0.595	53	0.572	86	0.564
21	0.594	54	0.572	87	0.564
22	0.592	55	0.572	88	0.564
23	0.591	56	0.571	89	0.564
24	0.590	57	0.571	90	0.564
25	0.589	58	0.571	91	0.564
26	0.588	59	0.570	92	0.564
27	0.587	60	0.570	93	0.563
28	0.586	61	0.570	94	0.563
29	0.585	62	0.570	95	0.563
30	0.584	63	0.569	96	0.563
31	0.583	64	0.569	97	0.563
32	0.583	65	0.569	98	0.563
33	0.582	66	0.568	99	0.563

Coincident Factor (as per DPS-10 issued by SEC)

Level	Coincident Factor
Between 13.8 /0.4kV Substations (13.8 kV loop level)	0.9

الأحمال الكهربائية للمرحلة الأولى

وتحتوى هذه المرحلة على

بنية تحتية

نفق

طرق

محطة مضخات

محطة رفع

MiSK CITY - LOAD ESTIMATION - PHASE-0 (To be Fed from Existing SEC S/S-8051)											
Landuse						Load Estimation					
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating or VA/m ²)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (MVA)
Infrastructure											
.	.	.	Road Area	245,636	.	Load Density VA/m ²	C15	5	1,228	0.9	1.0
	.	.	Other Infrastructure (Tunnel / Lift Station / Pump Station)	.	.	Estimated Loads	.	.	.	.	25
TOTAL				245,636							3.5

الأحمال الكهربائية للمرحلة الثانية

وتحتوى هذه المرحلة على (مدارس ومنطقة خدمات -مركز الإستقبال-فلل -عمارات سكنية - مساجد وغيرهما)

MiSK CITY - LOAD ESTIMATION - EARLY PHASE-1 (To be Fed from Existing SEC S/S-8051)											
Landuse						Load Estimation					
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating or VA/m ²)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (MVA)
Social											
DISTRICT-6	SPLIT A/C	06A001 06A002	MiSK School - MiSK Assets	201,715	67,120	Load Density VA/m2	C8	180	12,082	0.8	9.7
-	-	-	Visitors Center	-	-	Estimated Loads	-	-	-	-	1.0
TOTAL				201,715	67,120						10.7
TOTAL DEMAND LOAD REQ'D FROM EXISTING SEC SUBSTATION (8051) (MVA)											14.2

MiSK CITY - LOAD ESTIMATION - PHASE-1															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating or VA/m ²)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
Residential, Commercial & Social															
DISTRICT-1	DISTRICT COOLING	1E+005	MBS College	5,185	15,878	Load Density VA/m ²	C20	125	1,885	0.80	1,507.8	1.000	0.90	0.90	1.22
	DISTRICT COOLING	1E+001	MSQ Academy	1,748	6,301	Load Density VA/m ²	C20	125	788	0.80	630.1	1.000	0.90	0.90	0.51
	DISTRICT COOLING		MSQ Academy - Retail		195	Load Density VA/m ²	C2	65	13	0.70	8.9	1.000	0.90	0.90	0.01
	DISTRICT COOLING	1E+006	Hotel	7,936	16,800	Load Density VA/m ²	C4	95	1,596	0.75	1,197.8	1.000	0.90	0.90	0.97
	DISTRICT COOLING	01D001	Hotel	10,891	16,250	Load Density VA/m ²	C4	95	1,544	0.75	1,157.8	1.000	0.90	0.90	0.94
	DISTRICT COOLING	1E+003	Hotel	2,936	7,600	Load Density VA/m ²	C4	95	722	0.75	541.5	1.000	0.90	0.90	0.44
	DISTRICT COOLING		Hotel - Retail		100	Load Density VA/m ²	C2	65	7	0.70	4.6	1.000	0.90	0.90	0.00
	DISTRICT COOLING	01C001	MSQ Foundation	6,528	11,700	Load Density VA/m ²	C7	90	1,053	0.70	737.1	1.000	0.90	0.90	0.68
	DISTRICT COOLING	1E+002	Office	3,782	8,726	Load Density VA/m ²	C7	90	785	0.70	549.7	1.000	0.90	0.90	0.45
	DISTRICT COOLING		Office - Retail		100	Load Density VA/m ²	C2	65	7	0.70	4.6	1.000	0.90	0.90	0.00
	DISTRICT COOLING	1E+004	Youth Center	2,613	5,800	Load Density VA/m ²	C25	115	575	0.80	468.0	1.000	0.90	0.90	0.37
	DISTRICT COOLING	01C002	MiSK Conference Center	17,805	19,960	Load Density VA/m ²	C25	115	2,295	0.80	1836.3	1.000	0.90	0.90	1.49
	DISTRICT COOLING		MiSK Conference Center - Retail		1,050	Load Density VA/m ²	C2	65	68	0.70	47.8	1.000	0.90	0.90	0.04
	DISTRICT COOLING	01A001	ILMB Museum	29,146	22,968	-	-	-	-	-	3008 (**)	1.000	0.90	0.90	2.43
	DISTRICT COOLING	1E+011	OFFICE	1,868	4,309	Load Density VA/m ²	C7	90	388	0.70	271.5	1.000	0.90	0.90	0.22
	DISTRICT COOLING	1E+012	OFFICE	2,868	6,618	Load Density VA/m ²	C7	90	596	0.70	416.9	1.000	0.90	0.90	0.34
	-	-	Road Area	4,453	-	Load Density VA/m ²	C15	5	22	0.90	28.0	1.000	0.90	0.90	0.02
	-	-	Open Space	145,665	-	Load Density VA/m ²	C16	4	583	0.80	466.1	1.000	0.90	0.90	0.38
NOTE (**): LOAD RECEIVED FROM BIRO HAPPOLLO (VIA MiSK / JLS)															
FOR PHASE-1 CONTINUATION, REFER TO NEXT PAGE															

MISK CITY - LOAD ESTIMATION - PHASE-1															
Landuse				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-2	DISTRICT COOLING	02A001	Apartment - High End	4,504	8,319	Load Density VA/m²	C1	45	374	0.60	224.6	0.571	0.90	0.90	0.10
	DISTRICT COOLING		Apartment - High End-Retail		1,590	Load Density VA/m²	C2	65	103	0.70	72.3	0.688	0.90	0.90	0.04
	DISTRICT COOLING	02A005	Apartment - Mid-End	6,730	16,536	Load Density VA/m²	C1	45	744	0.60	446.5	0.571	0.90	0.90	0.21
	DISTRICT COOLING		Apartment - Mid-End-Retail		1,635	Load Density VA/m²	C2	65	106	0.70	74.4	0.688	0.90	0.90	0.04
	DISTRICT COOLING	02A006	Apartment - Mid-End	4,767	8,580	Load Density VA/m²	C1	45	386	0.60	231.7	0.571	0.90	0.90	0.11
	DISTRICT COOLING		Apartment - Mid-End - Clinic		2,383	Load Density VA/m²	C19	180	238	0.70	166.8	1.000	0.90	0.90	0.14
	DISTRICT COOLING		Apartment - Mid-End-Retail		953	Load Density VA/m²	C2	65	62	0.70	43.4	0.688	0.90	0.90	0.02
	DISTRICT COOLING	02A007	Apartment - High-End	6,246	11,803	Load Density VA/m²	C1	45	531	0.60	318.7	0.571	0.90	0.90	0.15
	DISTRICT COOLING		Apartment - High-End-Retail		1,937	Load Density VA/m²	C2	65	126	0.70	88.1	0.688	0.90	0.90	0.05
	DISTRICT COOLING	02A013	Apartment - Mid-End	1,801	5,424	Load Density VA/m²	C1	45	244	0.60	146.4	0.571	0.90	0.90	0.07
	DISTRICT COOLING		Apartment - Mid-End-Retail		972	Load Density VA/m²	C2	65	63	0.70	44.2	0.688	0.90	0.90	0.02
	DISTRICT COOLING	02A018	Apartment - Mid-End	7,580	16,093	Load Density VA/m²	C1	45	760	0.60	456.1	0.571	0.90	0.90	0.21
	DISTRICT COOLING		Apartment - Mid-End-Retail		1,516	Load Density VA/m²	C2	65	99	0.70	69.0	0.688	0.90	0.90	0.04
	DISTRICT COOLING	02A003	Manga Studio - MISK Assets	4,122	1,980	Load Density VA/m²	C7	90	171	0.70	119.7	1.000	0.90	0.90	0.10
	DISTRICT COOLING		Manga Studio - Retail		577	Load Density VA/m²	C2	65	38	0.70	26.3	1.000	0.90	0.90	0.02
	DISTRICT COOLING		Manga Studio - Office		10,312	Load Density VA/m²	C7	90	928	0.70	649.7	1.000	0.90	0.90	0.53
	DISTRICT COOLING		Manga Studio - Office Workshop		1,637	Load Density VA/m²	C7	90	147	0.70	103.1	1.000	0.90	0.90	0.08
	DISTRICT COOLING	02A002	Life Line - Innovation Office	6,778	2,372	Load Density VA/m²	C7	90	213	0.70	149.4	1.000	0.90	0.90	0.12
	DISTRICT COOLING		Life Line-Retail		1,897	Load Density VA/m²	C2	65	123	0.70	86.3	1.000	0.90	0.90	0.07
	DISTRICT COOLING		Life Line-Office		10,643	Load Density VA/m²	C7	90	958	0.70	670.5	1.000	0.90	0.90	0.54
	DISTRICT COOLING		Life Line-Office Workshop		9,490	Load Density VA/m²	C7	90	854	0.70	597.9	1.000	0.90	0.90	0.48

MISK CITY - LOAD ESTIMATION - PHASE-1															
Landuse				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-2	DISTRICT COOLING	02A008	Life Line - Innovation Office	3,719	1,952	Load Density VA/m²	C7	90	176	0.70	123.0	1.000	0.90	0.90	0.10
	DISTRICT COOLING		Life Line-Retail		1,627	Load Density VA/m²	C2	65	106	0.70	74.0	1.000	0.90	0.90	0.06
	DISTRICT COOLING		Life Line-Office		6,183	Load Density VA/m²	C7	90	556	0.70	389.5	1.000	0.90	0.90	0.32
	DISTRICT COOLING		Life Line-Office Workshop		3,254	Load Density VA/m²	C7	90	293	0.70	205.0	1.000	0.90	0.90	0.17
	DISTRICT COOLING	02A011	Life Line - Innovation Office	3,900	2,057	Load Density VA/m²	C7	90	185	0.70	129.6	1.000	0.90	0.90	0.10
	DISTRICT COOLING		Life Line-Retail		2,184	Load Density VA/m²	C2	65	142	0.70	99.4	1.000	0.90	0.90	0.08
	DISTRICT COOLING		Life Line-Office		6,397	Load Density VA/m²	C7	90	576	0.70	403.0	1.000	0.90	0.90	0.33
	DISTRICT COOLING		Life Line-Office Workshop		3,412	Load Density VA/m²	C7	90	307	0.70	215.0	1.000	0.90	0.90	0.17
	DISTRICT COOLING	02A017	Life Line-Retail	3,619	1,277	Load Density VA/m²	C2	65	83	0.70	58.1	1.000	0.90	0.90	0.05
	DISTRICT COOLING		Life Line-Office		8,605	Load Density VA/m²	C7	90	774	0.70	542.1	1.000	0.90	0.90	0.44
	DISTRICT COOLING		Life Line-Office Workshop		3,800	Load Density VA/m²	C7	90	342	0.70	239.4	1.000	0.90	0.90	0.19
	DISTRICT COOLING	02A014	MISK Arts Institute	3,547	9,000	Load Density VA/m²	C20	125	1,125	0.80	900.0	1.000	0.90	0.90	0.73
	DISTRICT COOLING	02A015	MISK Arts Institute Studio	4,314	6,000	Load Density VA/m²	C20	125	750	0.80	600.0	1.000	0.90	0.90	0.49
	DISTRICT COOLING		Office		6,952	Load Density VA/m²	C7	90	626	0.70	438.0	1.000	0.90	0.90	0.35
	DISTRICT COOLING	02A010	MISK Culinary Arts Institute	6,226	6,077	Load Density VA/m²	C20	125	760	0.80	607.7	1.000	0.90	0.90	0.49
	DISTRICT COOLING		MISK Culinary Arts Institute - Retail		1,893	Load Density VA/m²	C2	65	123	0.70	86.1	1.000	0.90	0.90	0.07
	DISTRICT COOLING		MISK Culinary Arts Institute - Office		1,992	Load Density VA/m²	C7	90	179	0.70	125.5	1.000	0.90	0.90	0.10
	-	-	Road Area	4,204	-	Load Density VA/m²	C15	5	21	0.90	18.9	1.000	0.90	0.90	0.02
	-	-	Open Space	145,936	-	Load Density VA/m²	C16	4	584	0.80	467.0	1.000	0.90	0.90	0.38

MISK CITY - LOAD ESTIMATION - PHASE-1															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transd.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-7	-	07A008	Parking Building	6,754	24,000	Load Density VA/m2	C13	30	720	0.80	576.0	1.000	0.90	0.90	0.47
	DISTRICT COOLING		Parking Building - Retail		500	Load Density VA/m2	C2	65	33	0.70	22.8	1.000	0.90	0.90	0.02
District 8	DISTRICT COOLING	08B001	Friday Mosque	5,351	3,211	Load Density VA/m2	C9	65	209	0.90	187.8	1.000	0.90	0.90	0.15
	-	08B003	Parking Building + District Cooling	14,072	24,000	Load Density VA/m2	C13	30	720	0.80	576.0	1.000	0.90	0.90	0.47
	-	-	Road Area	5,646	-	Load Density VA/m2	C15	5	28	0.90	25.4	1.000	0.90	0.90	0.02
	-	-	Open Space	8,553	-	Load Density VA/m2	C16	4	34	0.80	27.4	1.000	0.90	0.90	0.02
DISTRICT-9	DISTRICT COOLING	09A001	Mobility Hub	8,339	1,500	Load Density VA/m2	C25	115	173	0.80	138.0	1.000	0.90	0.90	0.11
	DISTRICT COOLING		Traffic Police + Security Center		18,500	Load Density VA/m2	C7	90	945	0.70	661.5	1.000	0.90	0.90	0.54
	DISTRICT COOLING		Retail		1,000	Load Density VA/m2	C2	65	65	0.70	45.5	1.000	0.90	0.90	0.04
	-	09A004	Parking Building	9,028	36,000	Load Density VA/m2	C13	30	1,080	0.80	864.0	1.000	0.90	0.90	0.70
	-	-	Road Area	2,782	-	Load Density VA/m2	C15	5	14	0.90	12.5	1.000	0.90	0.90	0.01
	-	-	Open Space	2,460	-	Load Density VA/m2	C16	4	10	0.80	7.9	1.000	0.90	0.90	0.01
	District Cooling														
-	-	-	District Cooling Plant Load	-	-	-	-	-	-	-	14.9	1.000	0.90	0.90	12.10
Infrastructure															
-	-	-	Lift Station / Pump Station, Electric Vehicle Charging	-	-	Estimated Load	-	-	-	-	9.6	1.000	0.90	0.90	7.78
Underground Elements															
-	-	-	Underground Parking	130,821	-	Load Density VA/m2	C13	30	3,925	0.80	3139.7	1.000	0.90	0.90	2.54
-	-	-	Tunnel Connecting Parking Areas	9,435	-	Load Density VA/m2	TO BE FED FROM RFP								
TOTAL				524,483	433,489										43.2

الأحمال الكهربائية للمرحلة الثالثة

وتحتوى هذه المرحلة على (وحدات سكنية عالية الجودة-فندق-مكاتب إدارية-مكاتب إيجار وغيرهما)

MISK CITY - LOAD ESTIMATION - PHASE-2																		
DISTRICT	Cooling Method	Plot Index	Landuse		Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Load Estimation					Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
			Type								Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.					
Residential, Commercial & Social																		
DISTRICT-1	DISTRICT COOLING	01B002	Apartments - Mid End - Apartments	9,633	18,362	Load Density VA/m2	C1	65	824	0.68	494.2	0.571	0.90	0.90	0.23			
	DISTRICT COOLING		Apartments - Mid End - Retail	963		Load Density VA/m2	C2	65	63	0.78	43.8	0.688	0.90	0.90	0.02			
	DISTRICT COOLING	01B001	Retail	8,245	28,612	Load Density VA/m2	C4	95	1,958	0.75	1468.6	1.000	0.90	0.90	1.19			
	DISTRICT COOLING	01C003	Office	4,540	7,017	Load Density VA/m2	C7	90	632	0.78	442.1	1.000	0.90	0.90	0.36			
	DISTRICT COOLING	01B003	Office	2,615	6,800	Load Density VA/m2	C7	90	612	0.78	428.4	1.000	0.90	0.90	0.35			
	-	-	Road Area	3,414	-	Load Density VA/m2	C15	5	17	0.98	15.4	1.000	0.90	0.90	0.01			
	-	-	Open Space	135,569	-	Load Density VA/m2	C16	4	542	0.88	433.8	1.000	0.90	0.90	0.35			
	DISTRICT COOLING	02B001	Apartment - High End	4,595	9,191	Load Density VA/m2	C1	45	414	0.68	248.2	0.572	0.90	0.90	0.11			
	DISTRICT COOLING	02B006	Apartment - Mid End	4,197	9,442	Load Density VA/m2	C1	45	425	0.68	254.9	0.571	0.90	0.90	0.12			
	DISTRICT COOLING		Apartment - Mid End - Retail	1,049		Load Density VA/m2	C2	65	68	0.78	47.7	0.688	0.90	0.90	0.03			
DISTRICT COOLING	02B008	Apartment - High End	4,881	8,893	Load Density VA/m2	C1	45	400	0.68	248.1	0.573	0.90	0.90	0.11				
DISTRICT COOLING		Apartment - High End - Retail	879		Load Density VA/m2	C2	65	57	0.78	48.0	0.688	0.90	0.90	0.02				
DISTRICT COOLING	02B007	Apartment - High End	4,196	8,391	Load Density VA/m2	C1	45	378	0.68	226.6	0.574	0.90	0.90	0.11				
DISTRICT-2	DISTRICT COOLING	02B023	Apartment Mid End	2,802	3,654	Load Density VA/m2	C1	45	164	0.68	98.7	0.588	0.90	0.90	0.05			
	DISTRICT COOLING		Apartment Mid End - Office	1,301		Load Density VA/m2	C7	90	117	0.78	82.0	0.688	0.90	0.90	0.05			
	DISTRICT COOLING	02B005	Apartment Mid End - Retail	4,275	9,620	Load Density VA/m2	C2	65	17	0.78	11.8	0.688	0.90	0.90	0.01			
	DISTRICT COOLING		Apartment - Mid End	1,069		Load Density VA/m2	C1	45	433	0.68	259.7	0.571	0.90	0.90	0.12			
	DISTRICT COOLING	02B014	Apartment - Mid End-Retail	4,800	8,001	Load Density VA/m2	C2	65	69	0.78	48.6	0.688	0.90	0.90	0.03			
	DISTRICT COOLING		Apartment - Mid End	2,000		Load Density VA/m2	C1	45	360	0.68	216.0	0.571	0.90	0.90	0.18			
	DISTRICT COOLING	02B015	Apartment - Mid End	5,394	12,136	Load Density VA/m2	C1	45	546	0.68	327.7	0.571	0.90	0.90	0.15			
	DISTRICT COOLING		Apartment Mid End - Retail	1,348		Load Density VA/m2	C2	65	88	0.78	61.3	0.688	0.90	0.90	0.03			

MISK CITY - LOAD ESTIMATION - PHASE-2															
DISTRICT	Cooling Method	Plot Index	Landuse	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Load Estimation					
			Type							Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-2	DISTRICT COOLING	02B003	Local Mosque	1,872	749	Load Density VA/m²	C9	65	49	0.98	43.8	1.000	0.90	0.90	0.04
	DISTRICT COOLING	02B009	Office	2,912	5,911	Load Density VA/m²	C7	90	532	0.78	372.4	1.000	0.90	0.90	0.38
	DISTRICT COOLING		Office Workshop		3,068	Load Density VA/m²	C7	90	276	0.78	193.3	1.000	0.90	0.90	0.16
	DISTRICT COOLING		Retail		1,223	Load Density VA/m²	C2	65	79	0.78	55.6	1.000	0.90	0.90	0.05
	DISTRICT COOLING	02B002	Retail	4,740	1,609	Load Density VA/m²	C2	65	108	0.78	75.5	1.000	0.90	0.90	0.06
	DISTRICT COOLING		Office		9,964	Load Density VA/m²	C7	90	897	0.78	627.7	1.000	0.90	0.90	0.51
	DISTRICT COOLING		Office Workshop		4,977	Load Density VA/m²	C7	90	448	0.78	313.6	1.000	0.90	0.90	0.25
	DISTRICT COOLING	02B010	Life Line-Retail	4,872	1,428	Load Density VA/m²	C2	65	93	0.78	65.0	1.000	0.90	0.90	0.05
	DISTRICT COOLING		Life Line-Creative Office		1,696	Load Density VA/m²	C7	90	153	0.78	106.8	1.000	0.90	0.90	0.09
	DISTRICT COOLING		Life Line-Office		6,859	Load Density VA/m²	C7	90	617	0.78	432.1	1.000	0.90	0.90	0.35
	DISTRICT COOLING		Life Line-Office Workshop		4,276	Load Density VA/m²	C7	90	385	0.78	269.4	1.000	0.90	0.90	0.22
	DISTRICT COOLING		Retail		2,248	Load Density VA/m²	C2	65	146	0.78	102.3	1.000	0.90	0.90	0.08
	DISTRICT COOLING	02B004	Office	6,424	13,489	Load Density VA/m²	C7	90	1,214	0.78	849.9	1.000	0.90	0.90	0.69
	DISTRICT COOLING		Office Workshop		6,745	Load Density VA/m²	C7	90	607	0.78	424.9	1.000	0.90	0.90	0.34

MISK CITY - LOAD ESTIMATION - PHASE-2															
Landuse				Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating or Load Density VA/m ²)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Load Estimation					
DISTRICT	Cooling Method	Plot Index	Type							Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transd.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-2	DISTRICT COOLING	02B012	Life Line - Innovation Office	3,703	1,944	Load Density VA/m ²	C7	90	175	0.78	122.5	1.000	0.90	0.90	0.18
	DISTRICT COOLING		Life Line-Retail		1,555	Load Density VA/m ²	C2	65	101	0.78	78.8	1.000	0.90	0.90	0.06
	DISTRICT COOLING		Life Line-Office		6,221	Load Density VA/m ²	C7	90	560	0.78	391.9	1.000	0.90	0.90	0.32
	DISTRICT COOLING		Life Line-Office Workshop		3,240	Load Density VA/m ²	C7	90	292	0.78	204.1	1.000	0.90	0.90	0.17
	DISTRICT COOLING	02B013	Life Line - Innovation Office	5,678	2,981	Load Density VA/m ²	C7	90	268	0.78	187.8	1.000	0.90	0.90	0.15
	DISTRICT COOLING		Life Line-Retail		1,987	Load Density VA/m ²	C2	65	129	0.78	98.4	1.000	0.90	0.90	0.07
	DISTRICT COOLING		Life Line-Office		9,936	Load Density VA/m ²	C7	90	894	0.78	626.0	1.000	0.90	0.90	0.51
	DISTRICT COOLING		Life Line-Office Workshop		4,968	Load Density VA/m ²	C7	90	447	0.78	313.0	1.000	0.90	0.90	0.25
	-	-	Road Area	2,914	-	Load Density VA/m ²	C15	5	15	0.90	13.1	1.000	0.90	0.90	0.01
	-	-	Open Space	138,187	-	Load Density VA/m ²	C16	4	553	0.80	442.2	1.000	0.90	0.90	0.36
DISTRICT-5	SPLIT A/C	05A001	Friday Mosque	3,876	1,845	Load Density VA/m ²	C9	185	341	0.90	307.2	1.000	0.90	0.90	0.25
	SPLIT A/C	05A002	Primary School	2,539	1,523	Load Density VA/m ²	C8	180	274	0.80	219.3	1.000	0.90	0.90	0.18
	SPLIT A/C	05A003	Intermediate School	3,557	2,137	Load Density VA/m ²	C8	180	385	0.80	307.7	1.000	0.90	0.90	0.25
	-	05A011	Parking	137	137	Load Density VA/m ²	C13	30	4	0.80	3.3	1.000	0.90	0.90	0.00
	-	05A019	Parking	139	139	Load Density VA/m ²	C13	30	4	0.80	3.3	1.000	0.90	0.90	0.00
	-	05A033	Parking	137	137	Load Density VA/m ²	C13	30	4	0.80	3.3	1.000	0.90	0.90	0.00
	SPLIT A/C	05A037	Kindergarten	900	548	Load Density VA/m ²	C8	180	97	0.80	77.8	1.000	0.90	0.90	0.06
	-	05A043	Parking	137	137	Load Density VA/m ²	C13	30	4	0.80	3.3	1.000	0.90	0.90	0.00
	-	05A053	Parking	126	126	Load Density VA/m ²	C13	30	4	0.80	3.0	1.000	0.90	0.90	0.00
	-	05A071	Parking	127	127	Load Density VA/m ²	C13	30	4	0.80	3.0	1.000	0.90	0.90	0.00
	SPLIT A/C	05A076	Kindergarten	900	548	Load Density VA/m ²	C8	180	97	0.80	77.8	1.000	0.90	0.90	0.06
	-	05A080	Parking	126	126	Load Density VA/m ²	C13	30	4	0.80	3.0	1.000	0.90	0.90	0.00

MISK CITY - LOAD ESTIMATION - PHASE-2															
Landuse				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or Load Density VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-5	-	05A093	Parking	137	137	Load Density VA/m²	C13	30	4	0.80	3.3	1.000	0.90	0.90	0.00
	SPLIT A/C	-	Townhouse Small	3,795	4,554	Load Density VA/m²	C1	145	660	0.60	396.2	0.575	0.90	0.90	0.18
	SPLIT A/C	-	Townhouse Medium	14,113	16,936	Load Density VA/m²	C1	145	2,456	0.60	1473.4	0.575	0.90	0.90	0.69
	SPLIT A/C	-	Townhouse Large	8,894	9,713	Load Density VA/m²	C1	145	1,408	0.60	845.0	0.575	0.90	0.90	0.39
	SPLIT A/C	-	Villa Small	22,808	22,808	Load Density VA/m²	C1	145	3,307	0.60	1984.3	0.575	0.90	0.90	0.92
	SPLIT A/C	-	Villa Large	33,814	33,814	Load Density VA/m²	C1	145	4,787	0.60	2872.2	0.575	0.90	0.90	1.34
	-	-	Road Area	8,266	-	Load Density VA/m²	C15	5	41	0.90	37.2	1.000	0.90	0.90	0.03
	-	-	Open Space	196,843	-	Load Density VA/m²	C16	4	784	0.80	627.3	1.000	0.90	0.90	0.51
DISTRICT-7	DISTRICT COOLING	07B001	Apartment - Mid End	2,588	5,823	Load Density VA/m²	C1	80	466	0.78	326.1	0.577	0.90	0.90	0.15
	DISTRICT COOLING		Apartment - Mid End - Retail		647	Load Density VA/m²	C2	65	42	0.78	29.4	0.688	0.90	0.90	0.02
	DISTRICT COOLING	07B002	Apartment - Mid End	3,565	8,020	Load Density VA/m²	C1	80	642	0.78	449.1	0.571	0.90	0.90	0.21
	DISTRICT COOLING		Apartment - Mid End - Retail		891	Load Density VA/m²	C2	65	58	0.78	48.5	0.688	0.90	0.90	0.02
	DISTRICT COOLING	07B003	Apartments Mid End	3,149	6,299	Load Density VA/m²	C1	80	504	0.78	352.7	0.575	0.90	0.90	0.16
	DISTRICT COOLING	07A010	Primary School + KG	3,668	2,201	Load Density VA/m²	C8	80	176	0.80	140.9	1.000	0.90	0.90	0.11
	DISTRICT COOLING	07A003	Apartments Mid End	6,927	12,460	Load Density VA/m²	C1	80	997	0.78	697.8	0.571	0.90	0.90	0.32
	DISTRICT COOLING		Apartment Mid End - Retail		1,395	Load Density VA/m²	C2	65	91	0.78	63.5	0.688	0.90	0.90	0.04
	DISTRICT COOLING	07B006	Apartments Mid End	2,412	4,821	Load Density VA/m²	C1	80	386	0.78	278.0	0.581	0.90	0.90	0.13
	DISTRICT COOLING	07B007	Apartments Mid End	2,173	4,164	Load Density VA/m²	C1	80	333	0.78	233.2	0.584	0.90	0.90	0.11
	DISTRICT COOLING		Apartment Mid End - Retail		1,267	Load Density VA/m²	C2	65	82	0.78	57.6	0.688	0.90	0.90	0.03
	DISTRICT COOLING	07B008	Police Station	3,836	3,836	Load Density VA/m²	C7	90	273	0.78	191.3	1.000	0.90	0.90	0.15
	DISTRICT COOLING	07B009	Apartment Mid End	4,267	9,600	Load Density VA/m²	C1	80	768	0.78	537.6	0.571	0.90	0.90	0.25
	DISTRICT COOLING		Apartment Mid End - Retail		1,067	Load Density VA/m²	C2	65	69	0.78	48.5	0.688	0.90	0.90	0.03

MISK CITY - LOAD ESTIMATION - PHASE-2															
Location						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating or Load Density VA/m ²)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincidental Factor at Transf.	Coincidental Factor at MV Loop	Coincidental Factor at Primary SS	Total Coincidental Demand Load (MVA)
DISTRICT-7	DISTRICT COOLING	07A001	Apartment Mid End	3,871	8,710	Load Density VA/m ²	C1	80	697	0.78	487.8	0.571	0.90	0.90	0.23
	DISTRICT COOLING		Apartment Mid End - Retail		968	Load Density VA/m ²	C2	65	63	0.78	44.0	0.688	0.90	0.90	0.02
	DISTRICT COOLING	07A002	Apartment Mid End	7,383	16,611	Load Density VA/m ²	C1	80	1,329	0.78	938.2	0.571	0.90	0.90	0.43
	DISTRICT COOLING		Apartment Mid End - Retail		1,846	Load Density VA/m ²	C2	65	120	0.78	84.0	0.688	0.90	0.90	0.05
	-	07B005	District Cooling Plant	6,852	-	POWER DEMAND CONSIDERED UNDER DISTRICT COOLING PLANT LOAD									-
	DISTRICT COOLING	07A004	Apartment Mid End	3,258	7,331	Load Density VA/m ²	C1	80	586	0.78	418.5	0.573	0.90	0.90	0.19
	DISTRICT COOLING		Apartment Mid End - Retail		815	Load Density VA/m ²	C2	65	53	0.78	37.1	0.688	0.90	0.90	0.02
	DISTRICT COOLING	07A005	Apartment Mid End	3,319	7,468	Load Density VA/m ²	C1	80	597	0.78	418.2	0.572	0.90	0.90	0.19
	DISTRICT COOLING		Apartment Mid End - Retail		838	Load Density VA/m ²	C2	65	54	0.78	37.8	0.688	0.90	0.90	0.02
	DISTRICT COOLING	07A006	Intermediate School	4,548	2,729	Load Density VA/m ²	C8	80	218	0.88	174.7	1.000	0.90	0.90	0.14
	DISTRICT COOLING	07A007	Apartment Mid End	3,448	6,896	Load Density VA/m ²	C1	80	552	0.78	386.2	0.574	0.90	0.90	0.18
	DISTRICT COOLING	07B010	Apartment Mid End	3,168	7,129	Load Density VA/m ²	C1	80	570	0.78	399.2	0.573	0.90	0.90	0.19
	DISTRICT COOLING		Apartment Mid End - Retail		792	Load Density VA/m ²	C2	65	51	0.78	36.0	0.688	0.90	0.90	0.02
	-	07B011	Parking Building	7,699	24,000	Load Density VA/m ²	C13	30	720	0.88	576.0	1.000	0.90	0.90	0.47
	DISTRICT COOLING	07B012	Apartment Mid End	4,265	8,531	Load Density VA/m ²	C1	80	682	0.78	477.7	0.571	0.90	0.90	0.22
	DISTRICT COOLING	07A009	Secondary School	7,198	4,319	Load Density VA/m ²	C8	80	346	0.88	276.4	1.000	0.90	0.90	0.22
	DISTRICT COOLING	07B022	Local Mosque	2,184	874	Load Density VA/m ²	C9	65	57	0.98	51.1	1.000	0.90	0.90	0.04
	DISTRICT COOLING	07A012	Apartment Mid End	2,628	5,256	Load Density VA/m ²	C1	80	420	0.78	294.3	0.579	0.90	0.90	0.14
	-	-	Road Area	14,277	-	Load Density VA/m ²	C15	5	71	0.98	64.2	1.000	0.90	0.90	0.05
	-	-	Open Space	24,946	-	Load Density VA/m ²	C16	4	100	0.88	79.8	1.000	0.90	0.90	0.06

FOR PHASE-2 CONTINUATION, REFER TO NEXT PAGE

FOR PHASE-2 CONTINUATION, REFER TO NEXT PAGE

MISK CITY - LOAD ESTIMATION - PHASE-2															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or Load Density VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-8	DISTRICT COOLING	08A001	MHS College	82,362	62,262	Load Density VA/m²	C20	125	7,783	0.80	6226.2	1.800	0.90	0.90	5.04
	DISTRICT COOLING		Student Housing		24,800	Load Density VA/m²	C1	45	1,080	0.60	648.0	1.800	0.90	0.90	0.52
	-		Parking Building		38,800	Load Density VA/m²	C13	30	900	0.80	720.0	1.800	0.90	0.90	0.58
DISTRICT-9	DISTRICT COOLING	09B001	Local Mosque	5,543	2,217	Load Density VA/m²	C9	65	144	0.90	129.7	1.800	0.90	0.90	0.11
	DISTRICT COOLING	09B004	Apartment Mid End	5,250	18,501	Load Density VA/m²	C1	80	840	0.70	588.1	0.571	0.90	0.90	0.27
	-	09B005	Parking Building	13,341	24,800	Load Density VA/m²	C13	30	720	0.80	576.0	1.800	0.90	0.90	0.47
	DISTRICT COOLING	09B006	Apartment Mid End	6,214	12,429	Load Density VA/m²	C1	80	994	0.70	696.0	0.571	0.90	0.90	0.32
	DISTRICT COOLING	09B007	Primary School + KG	4,362	2,617	Load Density VA/m²	C8	80	209	0.80	167.5	1.800	0.90	0.90	0.14
	DISTRICT COOLING	09B008	Apartment Mid End	3,939	7,440	Load Density VA/m²	C1	80	611	0.70	427.8	0.572	0.90	0.90	0.20
	DISTRICT COOLING		Apartment Mid End - Retail		236	Load Density VA/m²	C2	65	15	0.70	10.7	0.688	0.90	0.90	0.01
	DISTRICT COOLING	09B009	Apartment Mid End	3,660	7,180	Load Density VA/m²	C1	80	568	0.70	397.6	0.573	0.90	0.90	0.18
	DISTRICT COOLING		Apartment Mid End - Retail		220	Load Density VA/m²	C2	65	14	0.70	10.8	0.688	0.90	0.90	0.01
	DISTRICT COOLING	09B010	Apartment Mid End	4,268	8,280	Load Density VA/m²	C1	80	662	0.70	463.7	0.571	0.90	0.90	0.21
	DISTRICT COOLING		Apartment Mid End - Retail		256	Load Density VA/m²	C2	65	17	0.70	11.6	0.688	0.90	0.90	0.01
	DISTRICT COOLING	09B011	MID - APARTMENT	3,666	3,666	Load Density VA/m²	C1	80	288	0.70	201.9	0.588	0.90	0.90	0.19
	DISTRICT COOLING		MID - RETAIL		1,293	Load Density VA/m²	C2	65	84	0.70	58.8	0.688	0.90	0.90	0.03
	DISTRICT COOLING		MID - OFFICE		1,803	Load Density VA/m²	C7	90	162	0.70	113.6	0.688	0.90	0.90	0.06
	DISTRICT COOLING		MID - POST OFFICE		510	Load Density VA/m²	C7	90	46	0.70	32.1	1.800	0.90	0.90	0.03

MISK CITY - LOAD ESTIMATION - PHASE-2															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating or Load Density VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincld. Factor at Transf.	Coincld. Factor at MV Loop	Coincld. Factor at Primary SS	Total Coincld. Demand Load (kVA)
DISTRICT-9	DISTRICT COOLING	09C081	International School	39,884	55,838	Load Density VA/m²	C8	80	4,467	0.88	3573.6	1.000	0.90	0.90	2.89
	-	09C083	Parking Building	9,974	36,000	Load Density VA/m²	C13	30	1,080	0.88	864.0	1.000	0.90	0.90	0.78
	-	-	Road Area	28,758	-	Load Density VA/m²	C15	5	144	0.98	129.4	1.000	0.90	0.90	0.18
	-	-	Open Space	38,711	-	Load Density VA/m²	C16	4	155	0.88	123.9	1.000	0.90	0.90	0.18
District Cooling															
-	-		District Cooling Plant Load	-	-	-	-	-	-	-	28.7	1.000	0.90	0.90	16.79
Infrastructure															
-	-		Lift Station / Pump Station, Electric Vehicle Charging	-	-	Estimated Load	-	-	-	-	8.0	1.000	0.90	0.90	6.48
Underground Elements															
-	-	-	Underground Parking	76,768	-	Load Density VA/m²	C13	30	2,323	0.88	1698.4	1.000	0.90	0.90	1.38
-	-	-	Tunnel Connecting Parking Areas	6,785	-	Load Density VA/m²	TO BE FED FROM RPP								
TOTAL				1,646,131	780,333										55.8

الأحمال الكهربائية للمرحلة الرابعة

وتحتوى هذه المرحلة على (وحدات سكنية عالية الجودة-مواقف سيارات -مكاتب إدارية-مكاتب إيجار وغيرهما)

MISK CITY - LOAD ESTIMATION - PHASE-3															
Loadshow				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
Residential, Commercial & Social															
DISTRICT-3	DISTRICT COOLING	03A001	MISK World - MISK Assets	23,490	18,240	Load Density VA/m2	C5	75	768	0.70	537.6	1.000	0.90	0.90	0.44
	DISTRICT COOLING		MISK World - Retail		6,200	Load Density VA/m2	C2	65	403	0.70	282.1	1.000	0.90	0.90	0.23
	DISTRICT COOLING	03A002	Apartment Mid End - Apartment	3,332	3,020	Load Density VA/m2	C1	45	136	0.60	81.5	0.592	0.90	0.90	0.04
	DISTRICT COOLING		Apartment Mid End - Retail		333	Load Density VA/m2	C2	65	22	0.70	15.2	1.000	0.90	0.90	0.01
	DISTRICT COOLING		Apartment Mid End - Office		1,734	Load Density VA/m2	C7	90	156	0.70	109.2	0.688	0.90	0.90	0.06
	DISTRICT COOLING		Apartment Mid End - Office Workshop		1,577	Load Density VA/m2	C7	90	142	0.70	99.4	0.688	0.90	0.90	0.06
	DISTRICT COOLING	03A003	Apartment Mid End - Apartment	4,047	2,671	Load Density VA/m2	C1	45	120	0.60	72.1	0.597	0.90	0.90	0.03
	DISTRICT COOLING		Apartment Mid End - Retail		324	Load Density VA/m2	C2	65	21	0.70	14.7	1.000	0.90	0.90	0.01
	DISTRICT COOLING		Apartment Mid End - Office		2,671	Load Density VA/m2	C7	90	240	0.70	168.3	0.688	0.90	0.90	0.09
	DISTRICT COOLING		Apartment Mid End - Office Workshop		2,428	Load Density VA/m2	C7	90	219	0.70	153.0	0.688	0.90	0.90	0.09
	DISTRICT COOLING	03A004	Apartment Mid End - Apartment	1,134	1,455	Load Density VA/m2	C1	45	65	0.60	39.3	0.619	0.90	0.90	0.02
	DISTRICT COOLING		Apartment Mid End - Retail		176	Load Density VA/m2	C2	65	11	0.70	8.0	1.000	0.90	0.90	0.01
	DISTRICT COOLING		Apartment Mid End - Office Workshop		1,323	Load Density VA/m2	C7	90	119	0.70	83.3	0.688	0.90	0.90	0.05
	DISTRICT COOLING	03A005	Apartment Mid End - Apartment	1,561	1,030	Load Density VA/m2	C1	45	46	0.60	27.8	0.636	0.90	0.90	0.01
	DISTRICT COOLING		Apartment Mid End - Retail		125	Load Density VA/m2	C2	65	8	0.70	5.7	1.000	0.90	0.90	0.00
	DISTRICT COOLING		Apartment Mid End - Office		1,030	Load Density VA/m2	C7	90	93	0.70	64.9	0.688	0.90	0.90	0.04
	DISTRICT COOLING		Apartment Mid End - Office Workshop		937	Load Density VA/m2	C7	90	84	0.70	59.0	0.688	0.90	0.90	0.03
	DISTRICT COOLING	03A006	Apartment Mid End - Apartment	3,224	2,558	Load Density VA/m2	C1	45	115	0.60	69.1	0.598	0.90	0.90	0.03
	DISTRICT COOLING		Apartment Mid End - Retail		310	Load Density VA/m2	C2	65	20	0.70	14.1	1.000	0.90	0.90	0.01
	DISTRICT COOLING		Apartment Mid End - Office		2,558	Load Density VA/m2	C7	90	230	0.70	161.2	0.688	0.90	0.90	0.09
	DISTRICT COOLING		Apartment Mid End - Office Workshop		2,326	Load Density VA/m2	C7	90	209	0.70	146.5	0.688	0.90	0.90	0.08
	DISTRICT COOLING	03A010	Apartment Mid End - Apartment	812	970	Load Density VA/m2	C1	45	44	0.60	26.2	0.636	0.90	0.90	0.01
	DISTRICT COOLING		Apartment Mid End - Retail		118	Load Density VA/m2	C2	65	8	0.70	5.4	1.000	0.90	0.90	0.00
	DISTRICT COOLING		Apartment Mid End - Office Workshop		882	Load Density VA/m2	C7	90	79	0.70	55.6	0.688	0.90	0.90	0.03
	-	-	-	Open Space	29,227	-	Load Density VA/m2	C16	4	117	0.80	93.5	1.000	0.90	0.90

MISK CITY - LOAD ESTIMATION - PHASE-3															
Landuse				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating / Load Density VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-4	DISTRICT COOLING	04A001	Apartment - High End	9,988	19,816	Load Density VA/m²	C1	45	892	0.60	535.0	0.571	0.90	0.90	0.25
	DISTRICT COOLING	04A002	Apartment - High End	9,559	19,118	Load Density VA/m²	C1	45	868	0.60	516.2	0.571	0.90	0.90	0.24
	DISTRICT COOLING	04A014	Apartment - Mid End	3,380	6,760	Load Density VA/m²	C1	45	304	0.60	182.5	0.574	0.90	0.90	0.08
	DISTRICT COOLING	04A003	Apartment - High End	5,184	10,208	Load Density VA/m²	C1	45	459	0.60	275.6	0.571	0.90	0.90	0.13
	DISTRICT COOLING	04A004	Apartment - High End	2,626	4,889	Load Density VA/m²	C1	45	225	0.60	134.7	0.585	0.90	0.90	0.06
	DISTRICT COOLING		Apartment - High End - Retail		263	Load Density VA/m²	C2	65	17	0.70	12.0	1.000	0.90	0.90	0.01
	DISTRICT COOLING	04A007	Apartment Mid End - Apartment	5,451	10,133	Load Density VA/m²	C1	45	456	0.60	273.6	0.571	0.90	0.90	0.13
	DISTRICT COOLING		Apartment Mid End - Retail		1,205	Load Density VA/m²	C2	65	78	0.70	54.8	1.000	0.90	0.90	0.04
	DISTRICT COOLING		Apartment Mid End - Office		709	Load Density VA/m²	C7	90	64	0.70	44.7	0.688	0.90	0.90	0.02
	DISTRICT COOLING		Apartment Mid End - Office Workshop		2,126	Load Density VA/m²	C7	90	191	0.70	133.9	0.688	0.90	0.90	0.07
	DISTRICT COOLING	04A008	Apartment Mid End - Apartment	9,818	15,671	Load Density VA/m²	C1	45	705	0.60	423.1	0.571	0.90	0.90	0.20
	DISTRICT COOLING		Apartment Mid End - Retail		1,914	Load Density VA/m²	C2	65	124	0.70	87.1	0.688	0.90	0.90	0.05
	DISTRICT COOLING		Apartment Mid End - Office		5,862	Load Density VA/m²	C7	90	528	0.70	369.3	0.688	0.90	0.90	0.21
	DISTRICT COOLING	04A005	Apartment Mid End - Apartment	6,956	12,660	Load Density VA/m²	C1	45	570	0.60	341.8	0.571	0.90	0.90	0.16
	DISTRICT COOLING		Apartment Mid End - Retail		1,809	Load Density VA/m²	C2	65	118	0.70	82.3	0.688	0.90	0.90	0.05
	DISTRICT COOLING		Apartment Mid End - Office		3,617	Load Density VA/m²	C7	90	326	0.70	227.9	0.688	0.90	0.90	0.13
	DISTRICT COOLING	04A009	Apartment Mid End - Apartment	8,178	15,242	Load Density VA/m²	C1	45	686	0.60	411.5	0.571	0.90	0.90	0.19
	DISTRICT COOLING		Apartment Mid End - Retail		2,409	Load Density VA/m²	C2	65	157	0.70	109.6	0.688	0.90	0.90	0.06
	DISTRICT COOLING		Apartment Mid End - Workshop		3,611	Load Density VA/m²	C7	90	325	0.70	227.5	0.688	0.90	0.90	0.13

MISK CITY - LOAD ESTIMATION - PHASE-3															
Landuse				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating / Load Density VA/m ²)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-4	DISTRICT COOLING	04A010	Apartment Mid End - Apartment	5,293	9,633	Load Density VA/m2	C1	45	433	0.60	260.1	0.571	0.90	0.90	0.12
	DISTRICT COOLING		Apartment Mid End - Retail		1,376	Load Density VA/m2	C2	65	89	0.70	62.6	0.688	0.90	0.90	0.03
	DISTRICT COOLING		Apartment Mid End - Office		688	Load Density VA/m2	C7	90	62	0.70	43.3	0.688	0.90	0.90	0.02
	DISTRICT COOLING		Apartment Mid End - Office Workshop		2,864	Load Density VA/m2	C7	90	186	0.70	130.0	0.688	0.90	0.90	0.07
	DISTRICT COOLING	04A011	Apartment Mid End - Apartment	4,592	8,357	Load Density VA/m2	C1	45	376	0.60	225.6	0.571	0.90	0.90	0.10
	DISTRICT COOLING		Apartment Mid End - Retail		597	Load Density VA/m2	C2	65	39	0.70	27.2	0.688	0.90	0.90	0.02
	DISTRICT COOLING		Apartment Mid End - Office		2,985	Load Density VA/m2	C7	90	269	0.70	188.1	0.688	0.90	0.90	0.10
	DISTRICT COOLING	04A013	Apartment Mid End - Apartment	6,992	12,725	Load Density VA/m2	C1	45	573	0.60	343.6	0.571	0.90	0.90	0.16
	DISTRICT COOLING		Apartment Mid End - Retail		909	Load Density VA/m2	C2	65	59	0.70	41.4	0.688	0.90	0.90	0.02
	DISTRICT COOLING		Apartment Mid End - Office		1,818	Load Density VA/m2	C7	90	164	0.70	114.5	0.688	0.90	0.90	0.06
	DISTRICT COOLING		Apartment Mid End - Office Workshop		2,727	Load Density VA/m2	C7	90	245	0.70	171.8	0.688	0.90	0.90	0.10
	DISTRICT COOLING	04A017	Apartment Mid End	5,700	11,400	Load Density VA/m2	C1	45	513	0.60	307.8	0.571	0.90	0.90	0.14
	DISTRICT COOLING	04A026	Electrical Substation	4,200	0				-						-
	DISTRICT COOLING	04B001	Public buildings	3,263	1,631	Load Density VA/m2	C7	90	147	0.70	102.8	1.000	0.90	0.90	0.08
	-	04A015	Parking Building	7,200	18,000	Load Density VA/m2	C13	30	540	0.80	432.0	1.000	0.90	0.90	0.35
	DISTRICT COOLING	04A016	Apartment Mid End	2,592	2,877	Load Density VA/m2	C1	45	129	0.60	77.7	0.571	0.90	0.90	0.04
	DISTRICT COOLING		Apartment Mid End - Clinic		2,307	Load Density VA/m2	C19	100	231	0.70	161.5	1.000	0.90	0.90	0.13
	DISTRICT COOLING	04A028	Local Mosque	2,810	804	Load Density VA/m2	C9	65	52	0.90	47.0	1.000	0.90	0.90	0.04
	DISTRICT COOLING	04B003	Retail	4,677	2,763	Load Density VA/m2	C2	65	180	0.70	125.7	0.571	0.90	0.90	0.06
	DISTRICT COOLING		Post Office + Recreation		510	Load Density VA/m2	C7	90	46	0.70	32.1	0.688	0.90	0.90	0.02
	DISTRICT COOLING	04B002	Apartment High End	6,619	13,238	Load Density VA/m2	C1	45	596	0.60	357.4	0.571	0.90	0.90	0.17
	DISTRICT COOLING	04B011	Apartment High End	7,560	14,137	Load Density VA/m2	C1	45	636	0.60	381.7	0.571	0.90	0.90	0.18
	DISTRICT COOLING		Apartment High End - Retail		983	Load Density VA/m2	C2	65	64	0.70	44.7	0.688	0.90	0.90	0.02

FOR PHASE-3 CONTINUATION, REFER TO NEXT PAGE

FOR PHASE-3 CONTINUATION, REFER TO NEXT PAGE

MISK CITY - LOAD ESTIMATION - PHASE-3															
Landuse				Load Estimation											
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m ²)	Total BUA (m ²)	Method of Load Calculation (Circuit Breaker Rating)	Load Category	Connected Load per Unit Area (VA/m ²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Tmsd.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-4	-	04B005	Parking Building	7,253	15,800	Load Density VA/m2	C13	30	450	0.80	360.0	1.000	0.90	0.90	0.29
	DISTRICT COOLING	04B012	Apartment Mid End	7,617	13,864	Load Density VA/m2	C1	45	624	0.60	374.3	0.571	0.90	0.90	0.17
	DISTRICT COOLING		Apartment Mid End - Retail		2,971	Load Density VA/m2	C2	65	193	0.70	135.2	0.888	0.90	0.90	0.08
	DISTRICT COOLING		Apartment Mid End - Office		2,971	Load Density VA/m2	C7	90	267	0.70	187.2	0.888	0.90	0.90	0.16
	DISTRICT COOLING		Apartment Mid End		6,875	Load Density VA/m2	C1	45	309	0.60	185.6	0.574	0.90	0.90	0.09
	DISTRICT COOLING	04B013	Apartment Mid End - Retail	3,777	1,473	Load Density VA/m2	C2	65	96	0.70	67.0	0.888	0.90	0.90	0.04
	DISTRICT COOLING		Apartment Mid End - Office		1,473	Load Density VA/m2	C7	90	133	0.70	92.8	0.888	0.90	0.90	0.05
	DISTRICT COOLING		Apartment Mid End		5,955	Load Density VA/m2	C1	45	268	0.60	140.8	0.576	0.90	0.90	0.08
	DISTRICT COOLING	04B014	Apartment Mid End - Retail	3,272	1,276	Load Density VA/m2	C2	65	83	0.70	58.1	0.888	0.90	0.90	0.03
	DISTRICT COOLING		Apartment Mid End - Office		1,276	Load Density VA/m2	C7	90	115	0.70	80.4	0.888	0.90	0.90	0.04
	DISTRICT COOLING		Apartment Mid End		1,276	Load Density VA/m2	C1	45	115	0.70	80.4	0.888	0.90	0.90	0.04
	-	-	Road Area	2,841	-	Load Density VA/m2	C15	5	14	0.90	12.8	1.000	0.90	0.90	0.01
	-	-	Open Space	178,219	-	Load Density VA/m2	C16	4	713	0.80	570.3	1.000	0.90	0.90	0.46
DISTRICT-5	SPLIT A/C	05B050	Apartment High End	15,855	30,110	Load Density VA/m2	C1	145	4,366	0.60	2619.6	0.571	0.90	0.90	1.21
	SPLIT A/C	05B051	Apartment High End	12,426	24,852	Load Density VA/m2	C1	145	3,604	0.60	2162.1	0.571	0.90	0.90	1.00
	SPLIT A/C	05B052	Apartment High End	7,169	17,822	Load Density VA/m2	C1	145	2,599	0.60	1559.2	0.571	0.90	0.90	0.72
	SPLIT A/C	05B017	Primary School	2,300	1,300	Load Density VA/m2	C8	180	270	0.80	216.0	1.000	0.90	0.90	0.17
	-	05B024	Parking	137	137	Load Density VA/m2	C13	30	4	0.80	3.3	1.000	0.90	0.90	0.00
	-	05B026	Parking	1,215	1,215	Load Density VA/m2	C13	30	36	0.80	29.2	1.000	0.90	0.90	0.02
	-	05B031	Parking	126	126	Load Density VA/m2	C13	30	4	0.80	3.0	1.000	0.90	0.90	0.00
	SPLIT A/C	05B037	Community Center - Retail	2,877	208	Load Density VA/m2	C2	215	45	0.70	31.3	1.000	0.90	0.90	0.03
	SPLIT A/C		Community Center - Clinic		1,809	Load Density VA/m2	C19	225	421	0.70	294.4	1.000	0.90	0.90	0.24
	SPLIT A/C		Community Center - Clinic		1,809	Load Density VA/m2	C19	225	421	0.70	294.4	1.000	0.90	0.90	0.24
	-	05B044	Parking	110	110	Load Density VA/m2	C13	30	3	0.80	2.6	1.000	0.90	0.90	0.00
	-	05B063	Parking	3,959	12,800	Load Density VA/m2	C13	30	360	0.80	288.0	1.000	0.90	0.90	0.23

MISK CITY - LOAD ESTIMATION - PHASE-3															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
DISTRICT-5	SPLIT A/C	05B036	Kindergarten	900	540	Load Density VA/m2	C8	180	97	0.80	77.8	1.000	0.90	0.90	0.06
	SPLIT A/C	-	Townhouse Small	2,418	2,902	Load Density VA/m2	C1	145	420.8	0.60	252.5	0.575	0.90	0.90	0.12
	SPLIT A/C	-	Townhouse Medium	5,115	6,138	Load Density VA/m2	C1	145	890.0	0.60	534.0	0.575	0.90	0.90	0.25
	SPLIT A/C	-	Townhouse Large	4,357	5,228	Load Density VA/m2	C1	145	758.1	0.60	454.8	0.575	0.90	0.90	0.21
	SPLIT A/C	-	Villa Small	17,701	17,701	Load Density VA/m2	C1	145	2,566.6	0.60	1540.0	0.575	0.90	0.90	0.72
	SPLIT A/C	-	Villa Large	8,430	8,430	Load Density VA/m2	C1	145	1,222.4	0.60	733.4	0.575	0.90	0.90	0.34
	-	-	Road Area	12,094	-	Load Density VA/m2	C15	5	60	0.90	54.4	1.000	0.90	0.90	0.04
	-	-	Open Space	157,370	-	Load Density VA/m2	C16	4	629	0.80	583.6	1.000	0.90	0.90	0.41
DISTRICT-8	DISTRICT COOLING	08C001	Hospital/Clinic	25,567	28,857	Load Density VA/m2	C18	115	3,319	0.80	2654.8	1.000	0.90	0.90	2.15
	-		Parking Building		5,250	Load Density VA/m2	C13	30	158	0.80	126.0	1.000	0.90	0.90	0.18
	-		Open Space		2,740	-	Load Density VA/m2	C16	4	11	0.80	8.8	1.000	0.90	0.90
DISTRICT-11	SPLIT A/C	11A001	Hotel	23,486	5,811	Load Density VA/m2	C4	240	1,203	0.75	902.0	1.000	0.90	0.90	0.73
	-		Parking		884	Load Density VA/m2	C13	30	27	0.80	21.2	1.000	0.90	0.90	0.02
	-	-	Open Space	112,545	-	Load Density VA/m2	C16	4	458	0.80	360.1	1.000	0.90	0.90	0.29
District Cooling															
-	-	-	District Cooling Plant Load	-	-	-	-	-	-	-	13.7	1.000	0.90	0.90	11.10
Information															
-	-	-	LR Station / Pump Station, Electric Vehicle Charging	-	-	Estimated Load	-	-	-	-	8.0	1.000	0.90	0.90	6.48
Underground Elements															
-	-	-	Underground Parking	162,120	-	Load Density VA/m2	C13	30	4,864	0.80	3890.9	1.000	0.90	0.90	3.15
-	-	-	Tunnel Connecting Parking Areas	14,458	-	Load Density VA/m2	TO BE FED FROM RFP								
TOTAL				808,190	521,771										37.1

الأحمال الكهربائية للمرحلة الخامسة

وتحتوى هذه المرحلة على (وحدات سكنية -مسجد-مناطق إداريه للإيجار -مدارس وغيرهما)

MISK CITY - LOAD ESTIMATION - PHASE-4															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating - or VA/m²)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transit	Coincid. Factor at MV Loop	Coincid. Factor at Primary BS	Total Coincid. Demand Load (kVA)
Residential, Commercial & Social															
DISTRICT-10	DISTRICT COOLING	10A017	Local Mosque	2,532	1,013	Load Density VA/m2	C9	65	66	0.90	59.3	1.000	0.90	0.90	0.85
	DISTRICT COOLING	10A012	Apartment Mid End	14150	31,735	Load Density VA/m2	C1	80	2,539	0.70	1777.2	0.571	0.90	0.90	0.82
	-		Apartment Mid End - Parking		9,300	Load Density VA/m2	C13	30	279	0.80	223.2	1.000	0.90	0.90	0.18
	DISTRICT COOLING	10A013	Apartment High End	3,747	6,400	Load Density VA/m2	C1	80	512	0.70	358.4	0.571	0.90	0.90	0.17
	DISTRICT COOLING		Apartment High End - Retail		795	Load Density VA/m2	C2	65	52	0.70	36.2	0.608	0.90	0.90	0.82
	-		Apartment High End - Parking		300	Load Density VA/m2	C13	30	9	0.80	7.2	1.000	0.90	0.90	0.81
	DISTRICT COOLING	10A014	Primary School + KG	3,515	2,109	Load Density VA/m2	C8	80	169	0.80	135.0	1.000	0.90	0.90	0.11
	-		Parking Building		358	Load Density VA/m2	C13	30	11	0.80	8.4	1.000	0.90	0.90	0.81
	DISTRICT COOLING	10A016	Apartment Mid End	13060	28,575	Load Density VA/m2	C1	80	2,286	0.70	1688.2	0.571	0.90	0.90	0.74
	-		Apartment Mid End - Parking		9,300	Load Density VA/m2	C13	30	279	0.80	223.2	1.000	0.90	0.90	0.18
	DISTRICT COOLING	10A019	Apartment High End	3,302	5,506	Load Density VA/m2	C1	80	440	0.70	308.3	0.571	0.90	0.90	0.14
	DISTRICT COOLING		Apartment High End - Retail		797	Load Density VA/m2	C2	65	52	0.70	36.3	0.608	0.90	0.90	0.82
	-		Apartment High End - Parking		300	Load Density VA/m2	C13	30	9	0.80	7.2	1.000	0.90	0.90	0.81
	DISTRICT COOLING	10A003	Apartment High End	3,200	6,401	Load Density VA/m2	C1	80	512	0.70	358.5	0.571	0.90	0.90	0.17
	DISTRICT COOLING	10A020	Apartment High End	3,389	5,571	Load Density VA/m2	C1	80	446	0.70	312.0	0.571	0.90	0.90	0.14
	DISTRICT COOLING	10A022	Apartment High End	2,859	5,719	Load Density VA/m2	C1	80	458	0.70	328.3	0.571	0.90	0.90	0.15
	-	-	Road Area	26,012	-	Load Density VA/m2	C15	5	130	0.90	117.1	1.000	0.90	0.90	0.89
	-	-	Open Space	167,685	-	Load Density VA/m2	C16	4	671	0.80	536.6	1.000	0.90	0.90	0.43
District Cooling															
-	-	-	District Cooling Plant Load	-	-	-	-	-	-	-	3.3	1.000	0.90	0.90	2.67
Infrastructure															
-	-	-	Lift Station / Pump Station, Electric Vehicle Charging	-	-	Estimated Load	-	-	-	-	4.0	1.000	0.90	0.90	3.24
TOTAL				243,651	114,371										9.3

الأحمال الكهربائية للمرحلة الأخيرة

وتحتوى هذه المرحلة على (مدينة ذكية لوجستية -طرق -إنارة شوارع -existing buildings)

MISK CITY - LOAD ESTIMATION - EXPANSION PHASE															
Landuse						Load Estimation									
DISTRICT	Cooling Method	Plot Index	Type	Total Land Area (m²)	Total BUA (m²)	Method of Load Calculation (Circuit Breaker Rating)	Load Category	Connected Load per Unit Area (VA/m²)	Total Connected Load (kVA)	Demand Factor	Total Demand Load (kVA)	Coincid. Factor at Transf.	Coincid. Factor at MV Loop	Coincid. Factor at Primary SS	Total Coincid. Demand Load (MVA)
Logistics & Service Facilities															
DISTRICT-12	SPLIT A/C	12A001	Smart City Logistics	25,120	12,560	Load Density VA/m2	C25	230	2,889	0.80	2311.0	1.000	0.90	0.90	1.87
	-	12B003	Permanent Nursery + Composting Area	25,316	-	Load Density VA/m2	C16	4	101	0.80	81.0	1.000	0.90	0.90	0.07
	-	-	Road Area	30,212	-	Load Density VA/m2	C15	5	151	0.90	136.0	1.000	0.90	0.90	0.11
	-	12B001	Existing Power Plant	47,361	-	EXISTING FACILITIES									-
	-	12B002	Existing Power Plant	82,179	-										-
	-	-	Non-Developable Land	12,699	-	NON-DEVELOPABLE LAND									-
	-	12A002	Potable Water Storage Tanks + Pump Station	26,265	-	POWER DEMANDS INCURRED UNDER PHASE DEVELOPMENTS									-
	-	12B005	Waste Transfer Station	15,074	-										-
	-	12B006	TSE and DC Water Tanks + Treatment Plant + Pumping Station	21,948	-										-
TOTAL				286,174	12,560										2.0

LOAD ESTIMATION CALCULATIONS

1

MISK CITY - PHASE-WISE LOAD ESTIMATION SUMMARY

PHASE	LOAD TYPE	Land Area (m ²)	BUA (m ²)	Demand Load req'd from Existing SEC Substation (8051) (MVA)	Coincident Demand Load @ <u>NEW</u> Primary SS (MVA)
PHASE-0	ROADS & INFRASTRUCTURE	245,636	-	3.5	-
EARLY PHASE-1	INSTITUTIONAL (MISK SCHOOL)	201,715	67,120	9.7	-
	VISITORS CENTRE	-	-	1.0	-
PHASE-1	RESIDENTIAL, COMMERCIAL, SOCIAL & INSTITUTIONAL	524,483	433,489	-	43.2
PHASE-2	RESIDENTIAL, COMMERCIAL, SOCIAL & INSTITUTIONAL	1,046,151	780,333	-	55.0
PHASE-3	RESIDENTIAL, COMMERCIAL, SOCIAL & INSTITUTIONAL	808,190	521,771	-	37.1
PHASE-4	RESIDENTIAL, COMMERCIAL & SOCIAL	243,451	114,171	-	9.3
EXPANSION	LOGISTICS & SERVICE FACILITIES	286,174	12,560	-	2.0
RO + Potable + IR	-	-	-	-	2.5
TOTAL		3,355,800	1,929,453	14.2	149

MV NETWORK -LOOP LOADING CALCULATIONS

المحطة الأولى - الملوبة الأولى رقم 1/1

						Load List for Loop 1/1							
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL)=(MDL*CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
09A001	Mobility Hub	8,339	0.18	1,500	1	115.0	0.80	173	138	1.000	0.14	0.90	0.12
	Traffic Police + Security Center		1.26	10,500	1	90.0	0.70	945	662	1.000	0.66	0.90	0.60
	Retail		0.12	1,000	1	65.0	0.70	65	46	1.000	0.05	0.90	0.04
01C003	Office	4,540	1.55	7,017	1	90.0	0.70	632	442	1.000	0.44	0.90	0.40
09A004	Parking Building	9,028	3.99	36,000	1	30.0	0.80	1,080	864	1.000	0.86	0.90	0.78
09C001	International School	39,884	1.40	55,838	1	80.0	0.80	4,467	3,574	1.000	3.57	0.90	3.22
01B003	Office	2,615	2.60	6,800	1	90.0	0.70	612	428	1.000	0.43	0.90	0.39
Total for Social		64,406		118,655	7			7,973	6,153		6.15		5.54
Residential:													
09B004	Apartment - Mid End	5,250	2.00	10,501	1	80.0	0.70	840	588	0.571	0.34	0.90	0.30
09B006	Apartment - Mid End	6,214	2.00	12,429	1	80.0	0.70	994	696	0.571	0.40	0.90	0.36
09B008	Apartment - Mid End	3,939	1.94	7,640	1	80.0	0.70	611	428	0.572	0.24	0.90	0.22
01B002	Retail	9,633	0.06	236	1	65.0	0.70	15	11	0.688	0.01	0.90	0.01
	Apartments - Mid End		1.90	18,302	1	45.0	0.60	824	494	0.571	0.28	0.90	0.25
	Retail		0.10	963	1	65.0	0.70	63	44	0.688	0.03	0.90	0.03
Total for Residential		25,036		50,071	6			3,347	2,261		1.30		1.17
Total for EV Charging													
ESTIMATED													
TOTAL		89,442		168,726	13			11,320	8,414		7.45		7.53
Total MV Loop length inside Phase-1 boundary =				2144	meters								
MV Distrib. Voltage =		13.8	kV										
MV Cable Size =		3c x 500 sqmm,Al		K = 15170	VD factor as per SEC standards								
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.53 *1000/ 2) x (2144.1 / 1000) / 15170											
Hence,		VD =	0.53	%	(Approx. Total VD at MV loop inside site boundary)								

المحطة الأولى - اللويزة الثانية رقم 2/1

Load List for Loop 2/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area-(sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL)=(MDL*N)/CFG/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) =DDL*CFL (MVA)
Commercial:													
Total for Commercial													
Social:													
08C001	Hospital/Clinic	25,567	1.13	28,857	1	115.0	0.80	3,319	2,655	1.000	2.65	0.90	2.39
	Parking Building		0.21	5,250	1	30.0	0.80	158	126	1.000	0.13	0.90	0.11
08B001	Friday Mosque	5,351	0.60	3,211	1	65.0	0.90	209	188	1.000	0.19	0.90	0.17
09B001	Local Mosque	5,543	0.40	2,217	1	65.0	0.90	144	130	1.000	0.13	0.90	0.12
09B007	Primary School + KG	4,362	0.60	2,617	1	80.0	0.80	209	167	1.000	0.17	0.90	0.15
09B005	Parking Building	13,341	1.80	24,000	1	30.0	0.80	720	576	1.000	0.58	0.90	0.52
Total for Social		54,164		66,152	6			4,758	3,842		3.84		3.46
Residential:													
09B006	Apartment - Mid End	6,214	2.00	12,429	1	80.0	0.70	994	696	0.571	0.40	0.90	0.36
09B009	Apartment - Mid End	3,660	1.94	7,100	1	80.0	0.70	568	398	0.573	0.23	0.90	0.21
	Retail		0.06	220	1	65.0	0.70	14	10	0.688	0.01	0.90	0.01
09B010	Apartment - Mid End	4,268	1.94	8,280	1	80.0	0.70	662	464	0.571	0.26	0.90	0.24
	Retail		0.06	256	1	65.0	0.70	17	12	0.688	0.01	0.90	0.01
09B011	MXD - APARTMENT	3,606	1.00	3,606	1	80.0	0.70	288	202	0.588	0.12	0.90	0.11
	RETAIL		0.36	1,293	1	65.0	0.70	84	59	0.688	0.04	0.90	0.04
	OFFICE		0.50	1,803	1	80.0	0.70	162	114	0.688	0.08	0.90	0.07
	POST OFFICE		0.14	510	1	90.0	0.70	46	32	1.000	0.03	0.90	0.03
Total for Residential		17,748		35,497	9			2,836	1,985		1.17		1.06
Total for EV Charging													2.65
TOTAL		71,912		101,649	15			7,595	5,827		5.02		7.16
Total MV Loop length inside Phase-1 boundary =				3036	meters								
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al		K = 15170		VD factor as per SEC standards							
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.16 *1000/ 2) x (3035.55 / 1000) / 15170											
Hence,		VD =		0.72 %		(Approx. Total VD at MV loop insdie site boundary)							

المحطة الأولى - اللوبة الثالثة رقم 3/1

		Load List for Loop 3/1											
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL)=[MDL*(N/CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
02B009	Office	2,912	2.03	5,911	1	90.0	0.70	532	372	1.000	0.37	0.90	0.34
	Office Workshop		1.05	3,068	1	90.0	0.70	276	193	1.000	0.19	0.90	0.17
	Retail		0.42	1,223	1	65.0	0.70	79	56	1.000	0.06	0.90	0.05
02B010	Life Line - Retail	4,072	0.35	1,428	1	65.0	0.70	93	65	1.000	0.06	0.90	0.06
	Creative Office		0.42	1,696	1	90.0	0.70	153	107	1.000	0.11	0.90	0.10
	Office		1.68	6,859	1	90.0	0.70	617	432	1.000	0.43	0.90	0.39
02B012	Office Workshop	3,703	1.05	4,276	1	90.0	0.70	385	269	1.000	0.27	0.90	0.24
	Life Line - Innovation Office		0.52	1,944	1	90.0	0.70	175	122	1.000	0.12	0.90	0.11
	Retail		0.42	1,555	1	65.0	0.70	101	71	1.000	0.07	0.90	0.06
02B013	Office	5,678	1.68	6,221	1	90.0	0.70	560	392	1.000	0.39	0.90	0.35
	Office Workshop		0.87	3,240	1	90.0	0.70	292	204	1.000	0.20	0.90	0.18
	Life Line - Innovation Office		0.53	2,981	1	90.0	0.70	268	188	1.000	0.19	0.90	0.17
02B014	Retail	2,002	0.35	1,987	1	65.0	0.70	129	90	1.000	0.09	0.90	0.08
	Office		1.75	9,936	1	90.0	0.70	894	626	1.000	0.63	0.90	0.56
	Office Workshop		0.87	4,968	1	90.0	0.70	447	313	1.000	0.31	0.90	0.28
Total for Social		16,365		57,293	15			5,902	3,591		3.59		3.15
Residential:													
02B001	Apartment - High End	4,595	2.00	9,191	1	45.0	0.60	414	248	0.572	0.14	0.90	0.13
02B007	Apartment - High End	4,196	2.00	8,391	1	45.0	0.60	378	227	0.574	0.13	0.90	0.12
02B008	Apartment - High End	4,881	1.82	8,893	1	45.0	0.60	400	240	0.573	0.14	0.90	0.12
	Retail		0.18	879	1	65.0	0.70	57	40	0.688	0.03	0.90	0.02
02B014	Apartment - Mid End	4,000	2.00	8,001	1	45.0	0.60	360	216	0.571	0.12	0.90	0.11
	Retail		0.50	2,000	1	65.0	0.70	130	91	0.688	0.06	0.90	0.06
02B015	Apartment - Mid End	5,394	2.25	12,136	1	45.0	0.60	546	328	0.571	0.19	0.90	0.17
	Retail		0.25	1,348	1	65.0	0.70	88	61	0.688	0.04	0.90	0.04
02B023	Apartment Mid End	2,002	1.83	3,654	1	45.0	0.60	164	99	0.588	0.06	0.90	0.05
	Office		0.65	1,301	1	90.0	0.70	117	82	0.688	0.06	0.90	0.05
	Retail		0.13	260	1	65.0	0.70	17	12	0.688	0.01	0.90	0.01
Total for Residential		25,068		56,054	11			2,671	1,643		0.97		0.88
Total for EV Charging													
ESTIMATED													
TOTAL		41,433.00		113,347.00	26			7,672	5,144		4.48		7.59
Total MV Loop length inside Phase-1 boundary =				2876	meters								
MV Distrib. Voltage =				13.8	kV								
MV Cable Size =				3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards						
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,	VD = (7.59 *1000/ 2) x (2875.95 / 1000) / 15170												
Hence,	VD = 0.72 % (Approx. Total VD at MV loop insdie site boundary)												

المحطة الأولى - اللوية الرابعة رقم 4/1

		Load List for Loop 4/1											
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) (MDL*N/CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
02A017	Life Line - Retail	3,619	0.35	1,277	1	65.0	0.70	83	58	1.000	0.06	0.90	0.05
	Office		2.38	8,605	1	90.0	0.70	774	542	1.000	0.54	0.90	0.49
	Office Workshop		1.05	3,800	1	90.0	0.70	342	239	1.000	0.24	0.90	0.22
02A015	MISK Arts Institute Studio	4,314	1.39	6,000	1	125.0	0.80	750	600	1.000	0.60	0.90	0.54
	Office		1.61	6,952	1	90.0	0.70	626	438	1.000	0.44	0.90	0.39
02B003	Local Mosque	1,872	0.40	749	1	65.0	0.90	49	44	1.000	0.04	0.90	0.04
02B002	Retail	4,740	0.35	1,659	1	65.0	0.70	108	75	1.000	0.08	0.90	0.07
	Office		2.10	9,964	1	90.0	0.70	897	628	1.000	0.63	0.90	0.56
	Office Workshop		1.05	4,977	1	90.0	0.70	448	314	1.000	0.31	0.90	0.28
02B004	Retail	6,424	0.35	2,248	1	65.0	0.70	146	102	1.000	0.10	0.90	0.09
	Office		2.10	13,490	1	90.0	0.70	1,214	850	1.000	0.85	0.90	0.76
	Office Workshop		1.05	6,745	1	90.0	0.70	607	425	1.000	0.42	0.90	0.38
Total for Social		20,969		66,466	12			6,044	4,315		4.32		3.88
Residential:													
02A018	Apartment - Mid-End	7,580	2.23	16,893	1	45.0	0.60	760	456	0.571	0.26	0.90	0.23
	Retail		0.20	1,516	1	65.0	0.70	99	69	0.688	0.05	0.90	0.04
02B005	Apartment - Mid End	4,275	2.25	9,620	1	45.0	0.60	433	260	0.571	0.15	0.90	0.13
	Retail		0.25	1,069	1	65.0	0.70	69	49	0.688	0.03	0.90	0.03
02B006	Apartment - Mid End	4,197	2.25	9,442	1	45.0	0.60	425	255	0.571	0.15	0.90	0.13
	Retail		0.25	1,049	1	65.0	0.70	68	48	0.688	0.03	0.90	0.03
Total for Residential		16,052		39,589	6			1,854	1,136		0.67		0.60
Total for EV Charging		ESTIMATED											
TOTAL		37,021		106,055	18			7,898	5,451		4.98		7.53
Total MV Loop length inside Phase-1 boundary =				2893	meters								
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al → K = 15170											
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.53 *1000/ 2) x (2892.75 / 1000) / 15170											
Hence,		VD = 0.72 % (Approx. Total VD at MV loop insdie site boundary)											

المحطة الأولى-اللوبة الخامسة رقم 5/1

		Load List for Loop 5/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit(Sqm, LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) (MDL*N)/CFG/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)		
Commercial:															
-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total for Commercial															
Social:															
02A010	MISK Culinary Arts Institute	6,226	0.98	6,077	1	125.0	0.80	760	608	1.000	0.61	0.90	0.55		
	Retail		0.30	1,893	1	65.0	0.70	123	86	1.000	0.09	0.90	0.08		
	Office		0.32	1,992	1	90.0	0.70	179	125	1.000	0.13	0.90	0.11		
02A014	MISK Arts Institute	3,547	2.54	9,000	1	125.0	0.80	1,125	900	1.000	0.90	0.90	0.81		
02A002	Life Line - Innovation Office	6,778	0.35	2,372	1	90.0	0.70	213	149	1.000	0.15	0.90	0.13		
	Retail		0.28	1,897	1	65.0	0.70	123	86	1.000	0.09	0.90	0.08		
	Office		1.57	10,643	1	90.0	0.70	958	671	1.000	0.67	0.90	0.60		
	Office Workshop		1.40	9,490	1	90.0	0.70	854	598	1.000	0.60	0.90	0.54		
02A008	Life Line - Innovation Office	3,719	0.52	1,952	1	90.0	0.70	176	123	1.000	0.12	0.90	0.11		
	Retail		0.44	1,627	1	65.0	0.70	106	74	1.000	0.07	0.90	0.07		
	Office		1.66	6,183	1	90.0	0.70	556	390	1.000	0.39	0.90	0.35		
	Office Workshop		0.87	3,254	1	90.0	0.70	293	205	1.000	0.21	0.90	0.18		
1E+012	Office	2,868	2.31	6,618	1	90.0	0.70	596	417	1.000	0.42	0.90	0.38		
Total for Social		23,138		62,998	13			6,062	4,432		4.43		3.99		
Residential:															
02A001	Apartment - High End	4,504	1.85	8,319	1	45.0	0.60	374	225	0.571	0.13	0.90	0.12		
	Retail		0.35	1,590	1	65.0	0.70	103	72	0.688	0.05	0.90	0.04		
02A007	Apartment - High-End	6,246	1.89	11,803	1	45.0	0.60	531	319	0.571	0.18	0.90	0.16		
	Retail		0.31	1,937	1	65.0	0.70	126	88	0.688	0.06	0.90	0.05		
02A013	Apartment - Mid-End	1,881	2.88	5,424	1	45.0	0.60	244	146	0.571	0.08	0.90	0.08		
	Retail		0.52	972	1	65.0	0.70	63	44	0.688	0.03	0.90	0.03		
Total for Residential		12,631		30,045	6			1,442	894		0.53		0.48		
Total for EV Charging													2.82		
TOTAL		35,769		93,043	19			7,504	5,326		4.97		7.29		
Total MV Loop length inside Phase-1 boundary =				2789	meters										
MV Distrib. Voltage =		13.8 kV													
MV Cable Size =		3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards										
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K											
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL															
therefore,			VD = (7.29 *1000/ 2) x (2788.8 / 1000) / 15170												
Hence,			VD =	0.67 %	(Approx. Total VD at MV loop inside site boundary)										

المحطة الأولى - اللوطة السادسة رقم 6/1

		Load List for Loop 6/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built-Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL=(MDL*N)/CFG/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)		
Commercial:															
-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total for Commercial															
Social:															
1E+001	MISK Academy	1,748	3.60	6,301	1	125.0	0.80	788	630	1.000	0.63	0.90	0.57		
	Retail		0.11	195	1	65.0	0.70	13	9	1.000	0.01	0.90	0.01		
1E+002	Office	3,782	2.31	8,726	1	90.0	0.70	785	550	1.000	0.55	0.90	0.49		
	Retail		0.03	100	1	65.0	0.70	7	5	1.000	0.00	0.90	0.00		
1E+006	Hotel	7,936	2.12	16,800	1	95.0	0.75	1,596	1,197	1.000	1.20	0.90	1.08		
1E+011	Office	1,888	2.31	4,309	1	90.0	0.70	388	271	1.000	0.27	0.90	0.24		
	Life Line - Innovation Office		0.53	2,057	1	90.0	0.70	185	130	1.000	0.13	0.90	0.12		
02A011	Retail	3,900	0.56	2,184	1	65.0	0.70	142	99	1.000	0.10	0.90	0.09		
	Office		1.64	6,397	1	90.0	0.70	576	403	1.000	0.40	0.90	0.36		
	Office Workshop		0.87	3,412	1	90.0	0.70	307	215	1.000	0.21	0.90	0.19		
	Manga Studio - MISK Assets		0.46	1,900	1	90.0	0.70	171	120	1.000	0.12	0.90	0.11		
02A003	Retail	4,122	0.14	577	1	65.0	0.70	38	26	1.000	0.03	0.90	0.02		
	Office		2.50	10,312	1	90.0	0.70	928	650	1.000	0.65	0.90	0.58		
	Office Workshop		0.40	1,637	1	90.0	0.70	147	103	1.000	0.10	0.90	0.09		
Total for Social		23,356		64,907	14			6,070	4,407		4.41		3.97		
Residential:															
02A006	Apartment - Mid-End	4,767	1.80	8,580	1	45.0	0.60	386	232	0.571	0.13	0.90	0.12		
	Clinic		0.50	2,383	1	100.0	0.70	238	167	1.000	0.17	0.90	0.15		
	Retail		0.20	953	1	65.0	0.70	62	43	0.688	0.03	0.90	0.03		
02A005	Apartment - Mid-End	6,730	2.46	16,536	1	45.0	0.60	744	446	0.571	0.25	0.90	0.23		
	Retail		0.24	1,635	1	65.0	0.70	106	74	0.688	0.05	0.90	0.05		
Total for Residential		11,497		30,087	5			1,537	963		0.64		0.57		
Total for EV Charging													2.85		
ESTIMATED															
TOTAL		34,853		94,994	19			7,607	5,370		5.04		7.39		
Total MV Loop length inside Phase-1 boundary = 2806 meters															
MV Distrib. Voltage =		13.8 kV													
MV Cable Size =		3c x 500 sqmm,Al → K = 15170 VD factor as per SEC standards													
Total Voltage Drop of MV Loop inside site boundary (% VD) =		Load (kVA) x L (km) / K													
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL															
therefore,		VD = (7.39 *1000/ 2) x (2805.6 / 1000) / 15170													
Hence,		VD = 0.68 % (Approx. Total VD at MV loop inside site boundary)													

المحطة الأولى- اللوية السابعة رقم 7/1

Load List for Loop 7/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL= CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL= (MDL*N/CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
Total for Commercial													
Social:													
1E+003	Hotel	2,936	2.59	7,600	1	95.0	0.75	722	542	1.000	0.54	0.90	0.49
	Retail		0.03	100	1	65.0	0.70	7	5	1.000	0.00	0.90	0.00
1E+004	Youth Center	2,613	1.91	5,000	1	115.0	0.80	575	460	1.000	0.46	0.90	0.41
1E+005	MBS College	5,165	2.91	15,078	1	125.0	0.80	1,885	1,508	1.000	1.51	0.90	1.36
01C001	MISK Foundation	6,528	1.79	11,700	1	90.0	0.70	1,053	737	1.000	0.74	0.90	0.66
09C003	Parking Building	9,974	3.61	36,000	1	30.0	0.80	1,080	864	1.000	0.86	0.90	0.78
01D001	Hotel	10,891	1.49	16,250	1	95.0	0.75	1,544	1,158	1.000	1.16	0.90	1.04
Total for Social		38,127		91,728	7			6,865	5,273		5.27		4.75
Residential:													
07A003	Apartments - Mid End	6,927	1.80	12,460	1	80.0	0.70	997	698	0.571	0.40	0.90	0.36
	Retail		0.20	1,395	1	65.0	0.70	91	63	0.688	0.04	0.90	0.04
Total for Residential		6,927		13,855	2			1,087	761		0.44		0.40
Total for EV Charging ESTIMATED													
TOTAL		45,054		105,583	9			7,952	6,034		5.71		7.57
Total MV Loop length inside Phase-1 boundary =				2985	meters								
MV Distrib. Voltage =		13.8	kV										
MV Cable Size =		3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards								
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,	VD = (7.57 *1000/ 2) x (2985.15 / 1000) / 15170												
Hence,	VD = 0.75 % (Approx. Total VD at MV loop insdie site boundary)												

المحطة الأولى - اللوحة الثامنة رقم 8/1

		Load List for Loop 8/1											
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL=(MDL*N*CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
01C002	MISK Conference Center	17,805	1.12	19,960	1	115.0	0.80	2,295	1,836	1.000	1.84	0.90	1.65
	Retail		0.06	1,050	1	65.0	0.70	68	48	1.000	0.05	0.90	0.04
12A001	Smart City Logistics	25,120	0.50	12,560	1	230.0	0.80	2,889	2,311	1.000	2.31	0.90	2.08
12B003	Permanent Nursery + Composting Area	25,316	-	-	1	4.0	0.80	101	81	1.000	0.08	0.90	0.07
RO Plant, Irrigation Plant & Potable Water Plant		ESTIMATED									2.78	0.90	2.50
Total for Social		68,241		33,570	4			5,354	4,276		7.05		6.35
Residential:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Residential													
Total for EV Charging		ESTIMATED											1.07
TOTAL		68,241		33,570	4			5,354	4,276		7.05		7.42
Total MV Loop length inside Phase-1 boundary =				1556	meters								
MV Distrib. Voltage =		13.8	kV										
MV Cable Size =		3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards								
Total Voltage Drop of MV Loop inside site boundary (% VD) =		Load (kVA) x L (km) / K											
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.42 *1000/ 2) x (1556.1 / 1000) / 15170											
Hence,		VD =	0.38 %	(Approx. Total VD at MV loop insdie site boundary)									

المحطة الأولى - اللوية التاسعة رقم 1/(F1)

				Load List for T-Loop 1 (F1)/1									
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built-Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL=([MDL*N]/CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
11A001	Hotel	23,486	0.21	5,011	1	240.0	0.75	1,203	902	1.000	0.90	0.90	0.81
	Parking		0.04	884	1	30.0	0.80	27	21	1.000	0.02	0.90	0.02
01B001	Hotel	8,245	2.50	20,612	1	95.0	0.75	1,958	1,469	1.000	1.47	0.90	1.32
01A001	ILMI Museum	29,146	0.79	22,960	1	-	-	-	3,000	1.000	3.00	0.90	2.70
Total for Social		60,877		49,467				3,187	5,392		5.39		4.85
Residential:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Residential													
Total for EV Charging		ESTIMATED											2.34
TOTAL		60,877		49,467	0			3,187	5,392		5.39		7.19
Total MV Loop length inside Phase-1 boundary =				1466	meters								
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al		→ K = 15170		VD factor as per SEC standards							
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.19 *1000/ 2) x (1465.8 / 1000) / 15170											
Hence,		VD = 0.35 %		(Approx. Total VD at MV loop insdie site boundary)									

المحطة الأولى - اللوحة العاشرة رقم 1/(F2)

		Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) (MDL*CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) =DDL*CFL (MVA)
Plot Index	Facility/Plot no.												
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
10A017	Local Mosque	2,532	0.40	1,013	1	65.0	0.90	66	59	1.000	0.06	0.90	0.05
10A014	Primary School + KG	3,515	0.60	2,109	1	80.0	0.80	169	135	1.000	0.13	0.90	0.12
	Parking Building		0.10	350	1	30.0	0.80	11	8	1.000	0.01	0.90	0.01
Total for Social		6,047		3,472	3			245	203		0.20		0.18
Residential:													
10A003	Apartment - High End	3,200	2.00	6,401	1	80.0	0.70	512	358	0.571	0.20	0.90	0.18
10A012	Apartment - Mid End	14,150	2.24	31,735	1	80.0	0.70	2,539	1,777	0.571	1.01	0.90	0.91
	Parking		0.66	9,300	1	30.0	0.80	279	223	1.000	0.22	0.90	0.20
	Apartment - High End		1.71	6,400	1	80.0	0.70	512	358	0.571	0.20	0.90	0.18
	Retail		0.21	795	1	65.0	0.70	52	36	0.688	0.02	0.90	0.02
	Parking		0.08	300	1	30.0	0.80	9	7	1.000	0.01	0.90	0.01
10A016	Apartment - Mid End	13,060	2.19	28,575	1	80.0	0.70	2,268	1,600	0.571	0.91	0.90	0.82
	Parking		0.71	9,300	1	30.0	0.80	279	223	1.000	0.22	0.90	0.20
	Apartment - High End		1.67	5,506	1	80.0	0.70	440	308	0.571	0.18	0.90	0.16
	Retail		0.24	797	1	65.0	0.70	52	36	0.688	0.02	0.90	0.02
	Parking		0.09	300	1	30.0	0.80	9	7	1.000	0.01	0.90	0.01
10A020	Apartment - High End	3,389	1.64	5,571	1	80.0	0.70	446	312	0.571	0.18	0.90	0.16
10A022	Apartment - High End	2,859	2.00	5,719	1	80.0	0.70	458	320	0.571	0.18	0.90	0.16
Total for Residential		43,707		110,699	13			7,872	5,568		3.39		3.05
Total for EV Charging								ESTIMATED					1.08
TOTAL		49,754		114,171	16			8,117	5,771		3.59		4.31
Total MV Loop length inside Phase-1 boundary =				894	meters								
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards								
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,	VD = (4.31 *1000/ 2) x (893.55 / 1000) / 15170												
Hence,	VD =		0.13 %	(Approx. Total VD at MV loop inside site boundary)									

المحطة الثانية - اللوية رقم F1/1

		Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area-(sqm) (BUA)	Number of Units (N)	Load List for T-Loop 2 (F1)/1				Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL= MDL*N CFG /1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Plot Index	Facility/Plot no.					Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)				
Commercial:		-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
03A001	MISK World - MISK Assets	23,490	0.44	10,240	1	75.0	0.70	768	538	1.000	0.54	0.90	0.48
	Retail		0.26	6,200	1	65.0	0.70	403	262	1.000	0.28	0.90	0.25
07B011	Parking Building	7,699	3.12	24,000	1	30.0	0.80	720	576	1.000	0.58	0.90	0.52
07A006	Intermediate School	4,548	0.60	2,729	1	80.0	0.80	218	175	1.000	0.17	0.90	0.16
07A008	Parking Building	6,754	3.55	24,000	1	30.0	0.80	720	576	1.000	0.58	0.90	0.52
	Retail		0.07	500	1	65.0	0.70	33	23	1.000	0.02	0.90	0.02
07A009	Secondary School	7,198	0.60	4,319	1	80.0	0.80	346	276	1.000	0.28	0.90	0.25
07A010	Primary School + KG	3,668	0.60	2,201	1	80.0	0.80	176	141	1.000	0.14	0.90	0.13
07B008	Police Station	3,036	1.00	3,036	1	90.0	0.70	273	191	1.000	0.19	0.90	0.17
07B022	Local Mosque	2,164	0.40	874	1	65.0	0.90	57	51	1.000	0.05	0.90	0.05
Total for Social		58,577		78,099	10			3,713	2,829		2.83		2.55
Residential:													
07A001	Apartment - Mid End	3,871	2.25	8,710	1	80.0	0.70	697	488	0.571	0.28	0.90	0.25
	Retail		0.25	968	1	65.0	0.70	63	44	0.688	0.03	0.90	0.03
07A002	Apartment - Mid End	7,383	2.25	16,611	1	80.0	0.70	1,329	930	0.571	0.53	0.90	0.48
	Retail		0.25	1,846	1	65.0	0.70	120	84	0.688	0.06	0.90	0.05
07A004	Apartment - Mid End	3,258	2.25	7,331	1	80.0	0.70	586	411	0.573	0.24	0.90	0.21
	Retail		0.25	815	1	65.0	0.70	53	37	0.688	0.03	0.90	0.02
07A005	Apartment - Mid End	3,319	2.25	7,468	1	80.0	0.70	597	418	0.572	0.24	0.90	0.22
	Retail		0.25	830	1	65.0	0.70	54	38	0.688	0.03	0.90	0.02
07A007	Apartment - Mid End	3,448	2.00	6,896	1	80.0	0.70	552	386	0.574	0.22	0.90	0.20
07A012	Apartment - Mid End	2,628	2.00	5,256	1	80.0	0.70	420	294	0.579	0.17	0.90	0.15
07B001	Apartment - Mid End	2,588	2.25	5,823	1	80.0	0.70	466	326	0.577	0.19	0.90	0.17
	Retail		0.25	647	1	65.0	0.70	42	29	0.688	0.02	0.90	0.02
07B002	Apartment - Mid End	3,565	2.25	8,020	1	80.0	0.70	642	449	0.571	0.26	0.90	0.23
	Retail		0.25	891	1	65.0	0.70	58	41	0.688	0.03	0.90	0.03
07B003	Apartments - Mid End	3,149	2.00	6,299	1	80.0	0.70	504	353	0.575	0.20	0.90	0.18
07B006	Apartments - Mid End	2,412	2.00	4,821	1	80.0	0.70	386	270	0.581	0.16	0.90	0.14
07B007	Apartments - Mid End	2,173	1.92	4,164	1	80.0	0.70	333	233	0.584	0.14	0.90	0.12
	Retail		0.58	1,267	1	65.0	0.70	82	58	0.688	0.04	0.90	0.04
07B009	Apartment - Mid End	4,267	2.25	9,600	1	80.0	0.70	768	538	0.571	0.31	0.90	0.28
	Retail		0.25	1,067	1	65.0	0.70	69	49	0.688	0.03	0.90	0.03
07B010	Apartment - Mid End	3,168	2.25	7,129	1	80.0	0.70	570	399	0.573	0.23	0.90	0.21
	Retail		0.25	792	1	65.0	0.70	51	36	0.688	0.02	0.90	0.02
07B012	Apartment - Mid End	4,265	2.00	8,531	1	80.0	0.70	682	478	0.571	0.27	0.90	0.25
Total for Residential		49,494		115,782	23			9,126	6,388		3.71		3.34
Total for EV Charging													
ESTIMATED													
TOTAL		108,071		193,881	33			12,839	9,217		6.54		7.20

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Total MV Loop length inside Phase-1 boundary =				3877	meter								
MV Distrib. Voltage =				13.8	kV								
MV Cable Size =				3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards						
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) /									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,													
$VD = (7.2 *1000/ 2) x (3877.125 / 1000) / 15170$													
Hence,													
VD =				0.92 %	(Approx. Total VD at MV loop inside site boundary)								

المحطة الثانية - اللوية رقم F2/1

Load List for T-Loop 2 (F2)/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area - (sqm) (BUA)	Number of Units (N)	Connected Load per UnitSqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) (DDL=(MDL*N)/CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
Community Facilities - 1		12,038	-	7,651	-	-	-	1,227	1,015	-	1.02	0.90	0.91
Total for Social		12,038		7,651				1,227	1,015		1.02		0.91
Residential:													
Villas & Townhouses - 1		81,824	-	87,025	-	-	-	12,619	7,571	-	4.35	0.90	3.92
Total for Residential		81,824		87,025	0			12,619	7,571		4.35		3.92
Total for EV Charging		ESTIMATED											2.70
TOTAL		93,862		94,676	0			13,845	8,587		5.37		7.53
Total MV Loop length inside Phase-1 boundary = 7626 meters													
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al		K = 15170		VD factor as per SEC standards							
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (KVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.53 *1000/ 2) x (7625.625 / 1000) / 15170											
Hence,		VD = 1.89 %		(Approx. Total VD at MV loop insdie site boundary)									

المحطة الثانية - اللبوة رقم F1,2&3/1

Load List for F1, 2 & 3/1

Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL=[MDL*N]/CFG/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
08A001	MBS College	82,362	0.76	62,262	1	125.0	0.80	7,783	6,226	1.000	6.23	0.90	5.60
	Student Housing		0.29	24,000	1	45.0	0.60	1,080	648	1.000	0.65	0.90	0.58
	Parking Building		0.36	30,000	1	30.0	0.80	900	720	1.000	0.72	0.90	0.65
Total for Social		82,362		116,262	3			9,763	7,594		7.59		6.83
Residential:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Residential													
Total for EV Charging		ESTIMATED											2.60
TOTAL		82,362		116,262	3			9,763	7,594		7.59		9.43
Total MV Loop length inside Phase-1 boundary =				F1	1029	meters							
				F2	1032	meters							
				F3	1035	meters							
MV Distrib. Voltage =		13.8 kV		→	K = 15170	VD factor as per SEC standards							
MV Cable Size =		3c x 500 sqmm,Al											
Voltage Drop (% VD) =		Load (kVA) x L (km) / K											
The total load for approx. voltage drop shall be distributed evenly among all feeders therefore voltage drop = (Load (KVA) / 3) x L (km) / K													
Voltage Drop (F1) =		0.213											
Voltage Drop (F2) =		0.214											
Voltage Drop (F3) =		0.215											

المحطة الثانية - اللوية رقم 8.1, 5, 6, 7, 4

Load List for F 4, 5, 6, 7 & 8/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area - (sqm) (BUA)	Number of Units (N)	Connected Load per Unit (Sqm. LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL= (MDL*N)/CFG/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
08B003	Parking Building	14,072	1.71	24,000	1	30.0	0.80	720	576	1.000	0.58	0.90	0.52
District Cooling Plant - 1											28.64	0.90	25.78
ESTIMATED													
Total for Social		14,072		24,000	1			720	576		28.22		26.30
Residential:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Residential													
Total for EV Charging													
ESTIMATED													
TOTAL		14,072		24,000	1			720	576		29.22		26.30
Total MV Loop length inside Phase-1 boundary =		F4		1064	meters								
		F5		1066	meters								
		F6		1068	meters								
		F7		1071	meters								
		F8		1073	meters								
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al			K = 15170	VD factor as per SEC standards							
Voltage Drop (% VD) =		Load (KVA) x L (km) / K											
The total load for approx. voltage drop shall be distributed evenly among all feeders therefore voltage drop = (Load (KVA) / 5) x L (km) / K													
Voltage Drop (F4) =		0.369											
Voltage Drop (F5) =		0.370											
Voltage Drop (F6) =		0.370											
Voltage Drop (F7) =		0.371											
Voltage Drop (F8) =		0.372											

المحطة الثانية - الملوية رقم 9,10,11&12/1

Load List for F 9, 10, 11 & 12/1													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL= MDL*N *CFG/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
District Cooling Plant - 2											23.56	0.90	21.20
Total for Social											23.56		21.20
Residential:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Residential													
Total for EV Charging													
TOTAL		0		0	0			0	0		23.56		21.20
Total MV Loop length inside Phase-1 boundary =		F9		1956	meters								
		F10		1958	meters								
		F11		1960	meters								
		F12		1962	meters								
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al			K = 15170	VD factor as per SEC standards							
Voltage Drop (% VD) =		Load (kVA) x L (km) / K											
The total load for approx. voltage drop shall be distributed evenly among all feeders therefore voltage drop = (Load (KVA) / 4) x L (km) / K													
Voltage Drop (F9) =		0.683											
Voltage Drop (F10) =		0.684											
Voltage Drop (F11) =		0.685											
Voltage Drop (F12) =		0.686											

المحطة الثانية - اللوبة رقم 1/2

Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area - (sqm) (BUA)	Number of Units (N)	Load List for Loop 1/2				Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL = (MDL * N * CFG) / 1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL = DDL * CFL (MVA)
						Connected Load per Unit (VA/Sqm) (LD)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)				
Commercial:													
Total for Commercial													
Social:													
04A015	Parking Building	7,200	2.50	18,000	1	30.0	0.80	540	432	1.000	0.43	0.90	0.39
Total for Social		7,200		18,000	1			540	432		0.43		0.39
Residential:													
04A003	Apartment - High End	5,104	2.00	10,208	1	45.0	0.60	459	276	0.571	0.16	0.90	0.14
04A004	Apartment - High End	2,626	1.90	4,989	1	45.0	0.60	225	135	0.585	0.08	0.90	0.07
03A002	Retail	3,332	0.10	263	1	65.0	0.70	17	12	1.000	0.01	0.90	0.01
	Apartment - Mid End		0.91	3,020	1	45.0	0.60	136	62	0.592	0.05	0.90	0.04
	Retail		0.10	333	1	65.0	0.70	22	15	1.000	0.02	0.90	0.01
	Office		0.52	1,734	1	90.0	0.70	156	109	0.688	0.08	0.90	0.07
	Office Workshop		0.47	1,577	1	90.0	0.70	142	99	0.688	0.07	0.90	0.06
03A003	Apartment - Mid End	4,047	0.66	2,671	1	45.0	0.60	120	72	0.597	0.04	0.90	0.04
	Retail		0.08	324	1	65.0	0.70	21	15	1.000	0.01	0.90	0.01
	Office		0.66	2,671	1	90.0	0.70	240	168	0.688	0.12	0.90	0.10
	Office Workshop		0.60	2,428	1	90.0	0.70	219	153	0.688	0.11	0.90	0.09
03A004	Apartment - Mid End	1,134	1.28	1,455	1	45.0	0.60	65	39	0.619	0.02	0.90	0.02
	Retail		0.16	176	1	65.0	0.70	11	8	1.000	0.01	0.90	0.01
	Office Workshop		1.17	1,323	1	90.0	0.70	119	83	0.688	0.06	0.90	0.05
03A005	Apartment - Mid End	1,561	0.66	1,030	1	45.0	0.60	46	28	0.636	0.02	0.90	0.02
	Retail		0.08	125	1	65.0	0.70	8	6	1.000	0.01	0.90	0.01
	Office		0.66	1,030	1	90.0	0.70	93	65	0.688	0.04	0.90	0.04
	Office Workshop		0.60	937	1	90.0	0.70	84	59	0.688	0.04	0.90	0.04
03A006	Apartment - Mid End	3,224	0.79	2,558	1	45.0	0.60	115	69	0.598	0.04	0.90	0.04
	Retail		0.10	310	1	65.0	0.70	20	14	1.000	0.01	0.90	0.01
	Office		0.79	2,558	1	90.0	0.70	230	161	0.688	0.11	0.90	0.10
	Office Workshop		0.72	2,326	1	90.0	0.70	209	147	0.688	0.10	0.90	0.09
03A010	Apartment - Mid End	812	1.19	970	1	45.0	0.60	44	26	0.636	0.02	0.90	0.01
	Retail		0.15	118	1	65.0	0.70	8	5	1.000	0.01	0.90	0.00
	Office Workshop		1.09	882	1	90.0	0.70	79	56	0.688	0.04	0.90	0.03
04A007	Apartment - Mid End	5,451	1.86	10,133	1	45.0	0.60	456	274	0.571	0.16	0.90	0.14
	Retail		0.22	1,205	1	65.0	0.70	78	55	1.000	0.05	0.90	0.05
	Office		0.13	709	1	90.0	0.70	64	45	0.688	0.03	0.90	0.03
	Office Workshop		0.39	2,126	1	90.0	0.70	191	134	0.688	0.09	0.90	0.08
04A008	Apartment - Mid End	9,018	1.74	15,671	1	45.0	0.60	705	423	0.571	0.24	0.90	0.22
	Retail		0.21	1,914	1	65.0	0.70	124	87	0.688	0.06	0.90	0.05
	Office		0.65	5,862	1	90.0	0.70	528	369	0.688	0.25	0.90	0.23
04A010	Apartment - Mid End	5,293	1.82	9,633	1	45.0	0.60	433	260	0.571	0.15	0.90	0.13
	Retail		0.26	1,376	1	65.0	0.70	89	63	0.688	0.04	0.90	0.04
	Office		0.13	688	1	90.0	0.70	62	43	0.688	0.03	0.90	0.03
	Office Workshop		0.39	2,064	1	90.0	0.70	186	130	0.688	0.09	0.90	0.08

CONTINUED ON NEXT PAGE

Load List for Loop 1/2													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL=([MDL*N]/CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
04A011	Apartment - Mid End	4,592	1.82	8,357	1	45.0	0.60	376	226	0.571	0.13	0.90	0.12
	Retail		0.13	597	1	65.0	0.70	39	27	0.688	0.02	0.90	0.02
	Office		0.65	2,985	1	90.0	0.70	269	188	0.688	0.13	0.90	0.12
04A013	Apartment - Mid End	6,992	1.82	12,725	1	45.0	0.60	573	344	0.571	0.20	0.90	0.18
	Retail		0.13	909	1	65.0	0.70	59	41	0.688	0.03	0.90	0.03
	Office		0.26	1,818	1	90.0	0.70	164	115	0.688	0.08	0.90	0.07
	Office Workshop		0.39	2,727	1	90.0	0.70	245	172	0.688	0.12	0.90	0.11
04A016	Apartment Mid End	2,592	1.11	2,877	1	45.0	0.60	129	78	0.571	0.04	0.90	0.04
	Clinic		0.89	2,307	1	100.0	0.70	231	161	1.000	0.16	0.90	0.15
04A017	Apartment - Mid End	5,700	2.00	11,400	1	45.0	0.60	513	308	0.571	0.18	0.90	0.16
Total for Residential		61,478		144,099	46			8,404	5,443		3.54		3.19
Total for EV Charging		ESTIMATED											3.95
TOTAL		68,678		162,099	47			8,944	5,875		3.97		7.52
Total MV Loop length inside Phase-1 boundary =				460	meters								
MV Distrib. Voltage =		13.8	kV										
MV Cable Size =		3c x 500 sqmm,Al	→ K = 15170		VD factor as per SEC standards								
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (KVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.52 *1000/ 2) x (459.9 /1000) / 15170											
Hence,		VD =	0.11	%	(Approx. Total VD at MV loop insdie site boundary)								

المحطة الثانية - اللوبة رقم 2/2

Load List for Loop 2/2													
Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built-Up Area - (sqm) (BUA)	Number of Units (N)	Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)	Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL={MDL*N*CFG}/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
Commercial:													
Total for Commercial													
Social:													
04A028	Local Mosque	2,010	0.40	804	1	65.0	0.90	52	47	1.000	0.05	0.90	0.04
04B003	Retail	4,677	0.59	2,763	1	65.0	0.70	180	126	0.571	0.07	0.90	0.06
	Post Office + Recreation		0.11	510	1	90.0	0.70	46	32	0.688	0.02	0.90	0.02
04B001	Public buildings	3,263	0.50	1,631	1	90.0	0.70	147	103	1.000	0.10	0.90	0.09
04B005	Parking Building	7,253	2.07	15,000	1	30.0	0.80	450	360	1.000	0.36	0.90	0.32
05B063	Parking	3,959	3.03	12,000	1	30.0	0.80	360	288	1.000	0.29	0.90	0.26
Total for Social		21,162		32,708	6			1,235	956		0.89		0.80
Residential:													
04A002	Apartment - High End	9,559	2.00	19,118	1	45.0	0.60	860	516	0.571	0.29	0.90	0.27
04A014	Apartment - Mid End	3,380	2.00	6,760	1	45.0	0.60	304	183	0.574	0.10	0.90	0.09
	Apartment - Mid End		1.82	12,660	1	45.0	0.60	570	342	0.571	0.20	0.90	0.18
04A005	Retail	6,956	0.26	1,809	1	65.0	0.70	118	82	0.688	0.06	0.90	0.05
	Office		0.52	3,617	1	90.0	0.70	326	228	0.688	0.16	0.90	0.14
	Apartment - Mid End		1.86	15,242	1	45.0	0.60	686	412	0.571	0.23	0.90	0.21
04A009	Retail	8,178	0.29	2,409	1	65.0	0.70	157	110	0.688	0.08	0.90	0.07
	Workshop		0.44	3,611	1	90.0	0.70	325	227	0.688	0.16	0.90	0.14
04B002	Apartment High - End	6,619	2.00	13,238	1	45.0	0.60	596	357	0.571	0.20	0.90	0.18
04B011	Apartment - High End	7,560	1.87	14,137	1	45.0	0.60	636	382	0.571	0.22	0.90	0.20
	Retail		0.13	963	1	65.0	0.70	64	45	0.688	0.03	0.90	0.03
	Apartment - Mid End		1.82	13,864	1	45.0	0.60	624	374	0.571	0.21	0.90	0.19
04B012	Retail	7,617	0.39	2,971	1	65.0	0.70	193	135	0.688	0.09	0.90	0.08
	Office		0.39	2,971	1	90.0	0.70	267	167	0.688	0.13	0.90	0.12
	Apartment - Mid End		1.82	6,875	1	45.0	0.60	309	186	0.574	0.11	0.90	0.10
04B013	Retail	3,777	0.39	1,473	1	65.0	0.70	96	67	0.688	0.05	0.90	0.04
	Office		0.39	1,473	1	90.0	0.70	133	93	0.688	0.06	0.90	0.06
	Apartment - Mid End		1.82	5,955	1	45.0	0.60	268	161	0.576	0.09	0.90	0.08
04B014	Retail	3,272	0.39	1,276	1	65.0	0.70	83	58	0.688	0.04	0.90	0.04
	Office		0.39	1,276	1	90.0	0.70	115	80	0.688	0.06	0.90	0.05
05B052	Apartment - High End	7,169	2.50	17,922	1	145.0	0.60	2,599	1,559	0.571	0.89	0.90	0.80
Total for Residential		64,087		148,640	21			9,327	5,784		3.46		3.11
Total for EV Charging								ESTIMATED					3.66
TOTAL		85,249		182,348	27			10,562	6,739		4.35		7.57
Total MV Loop length inside Phase-1 boundary =					1432	meters							
MV Distrib. Voltage =		13.8 kV											
MV Cable Size =		3c x 500 sqmm,Al		→	K = 15170	VD factor as per SEC standards							
Total Voltage Drop of MV Loop inside site boundary (% VD) =				Load (kVA) x L (km) / K									
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		VD = (7.57 *1000/ 2) x (1432.2 / 1000) / 15170											
Hence,		VD = 0.36 %		(Approx. Total VD at MV loop insdie site boundary)									

المحطة الثانية - اللوطة رقم 3/2

Plot Index	Facility/Plot no.	Plot Area (sqm)	Conversion Factor / FAR	Estimated Built Up Area- (sqm) (BUA)	Number of Units (N)	Load List for Loop 3/2		Connected Load (CL) CL = LD x BUA (KVA)	Maximum Demand Load per Unit (MDL) MDL = CL x DF (KVA)	Coincidence Factor For Grouping (CFG)	Diversified Demand Load (DDL) DDL=(MDL*NY*CFG)/1000 (MVA)	Coincident Factor at MV Loop (CFL)	Total Coincident Load (TCL) TCL=DDL*CFL (MVA)
						Connected Load per Unit/Sqm. (LD) (VA/Sqm)	Demand Factor (DF)						
Commercial:													
-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total for Commercial													
Social:													
Community Facilities - 2		7,065	-	5,705	-	-	-	880	658	-	0.66	0.90	0.59
Total for Social													
		7,065		5,705				880	658		0.66		0.59
Residential:													
04A001	Apartment - High End	9,908	2.00	19,816	1	45.0	0.60	892	535	0.571	0.31	0.90	0.27
05B050	Apartment - High End	15,055	2.00	30,110	1	145.0	0.60	4,366	2,620	0.571	1.50	0.90	1.35
05B051	Apartment - High End	12,426	2.00	24,852	1	145.0	0.60	3,604	2,162	0.571	1.23	0.90	1.11
Villas & Townhouses - 2		38,021	-	40,399	-	-	-	5,858	3,515	1.000	2.02	0.90	1.82
Total for Residential													
		75,410		115,177	3			14,719	8,831		5.06		4.55
Total for EV Charging													
ESTIMATED													
TOTAL													
		82,475		120,882	3			15,599	9,489		5.71		7.59

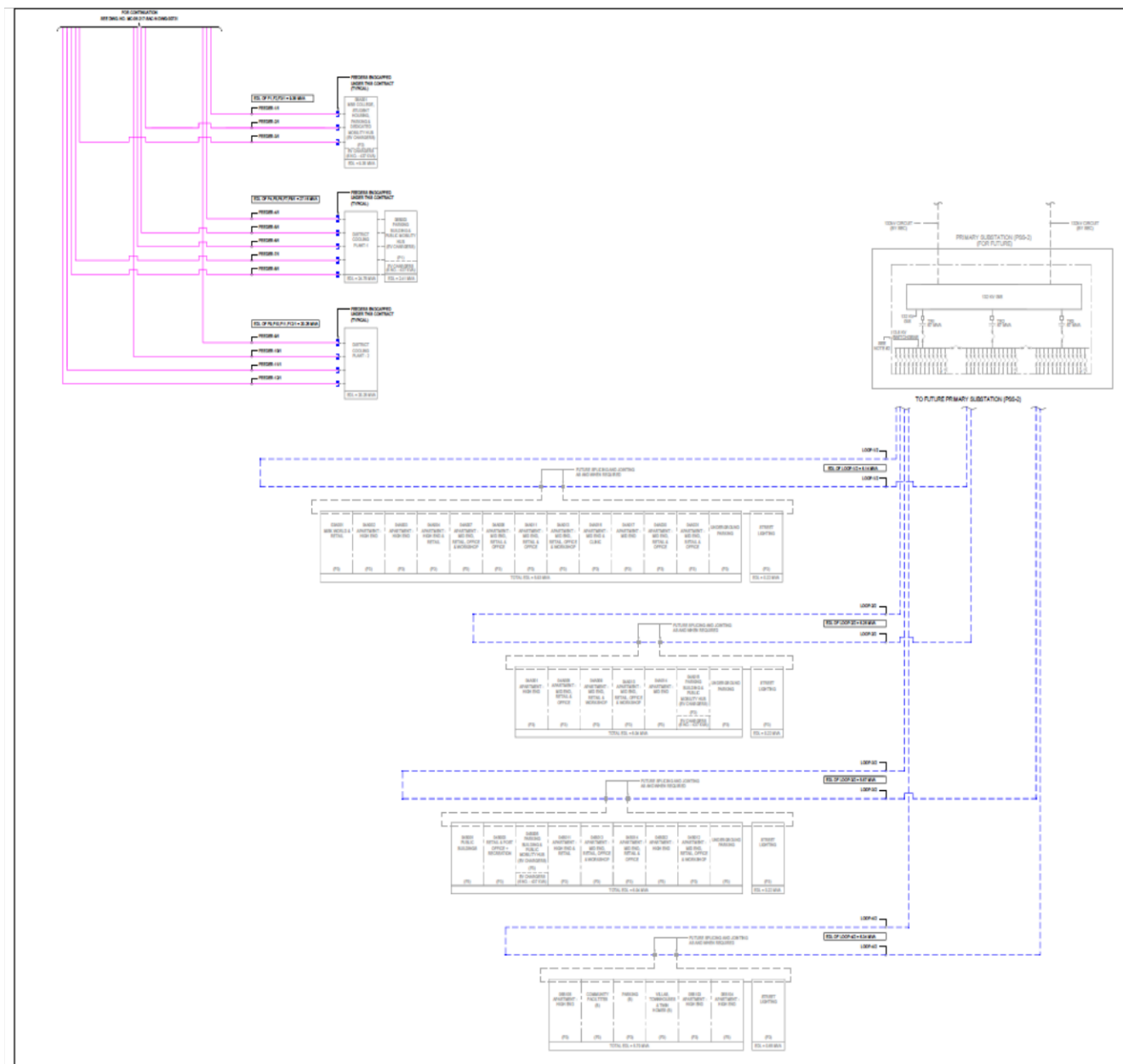
Note: This loop shall be formed after the construction of substation 2 when connecting T-Loop 2 (F2) between substation 1 & 2.

Total MV Loop length inside Phase-1 boundary =		0	meters										
MV Distrib. Voltage =		13.8	kV										
MV Cable Size =		3c x 500 sqmm,Al	→	K = 15170	VD factor as per SEC standards								
Total Voltage Drop of MV Loop inside site boundary (% VD) =			Load (kVA) x L (km) / K										
since this is a distributed load , the total load for approx. voltage drop shall become half of TCL													
therefore,		$VD = (7.5929186189 * 1000 / 2) x (0 / 1000) / 15170$											
Hence,		VD =	0.00	%	(Approx. Total VD at MV loop insdie site boundary)								
43													

المجموع الإجمالي لأحمال حلقات الجهد المتوسط

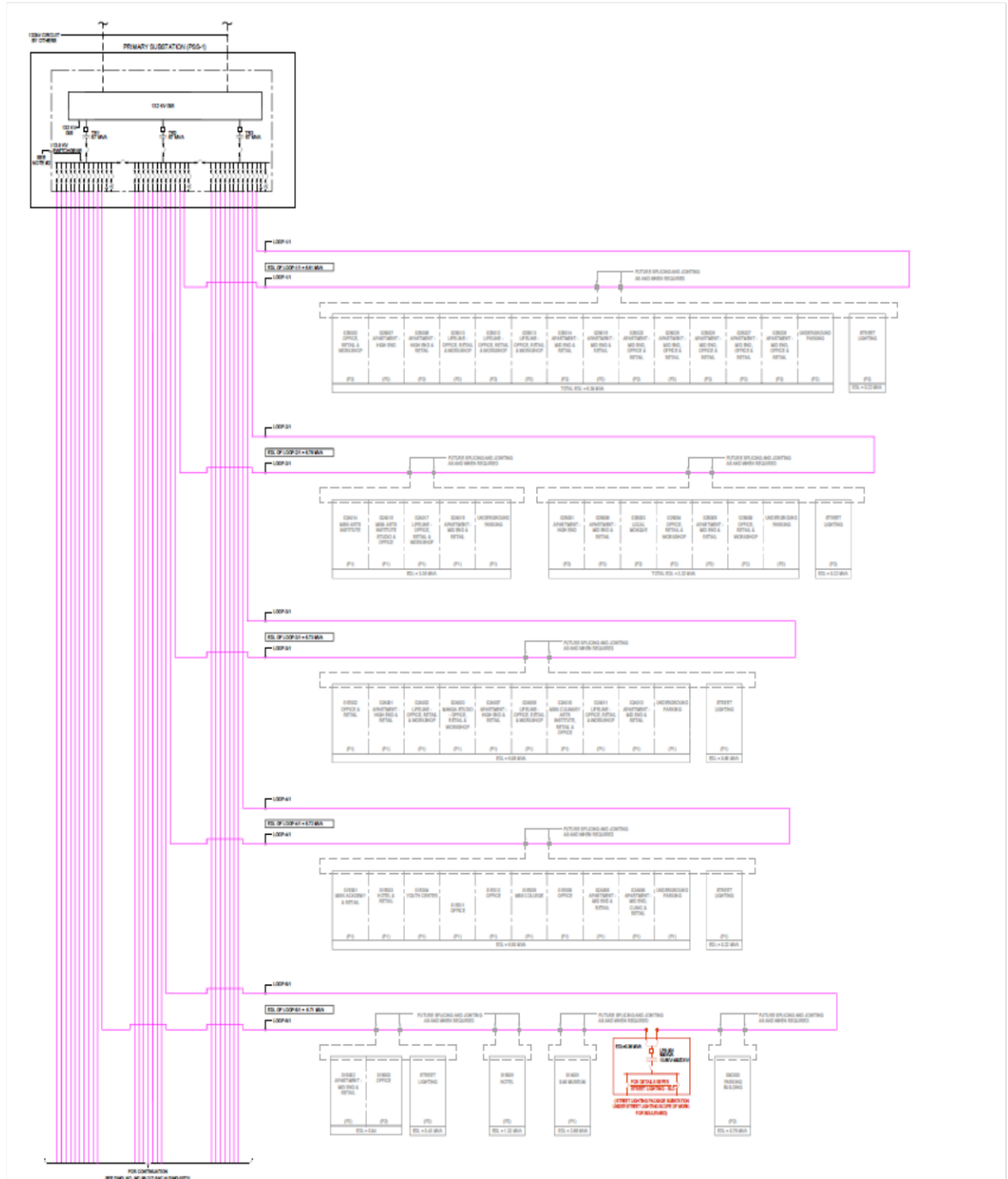
LOOP LOADING SUMMARY - MISK CITY										
S.No.	MV Loop & Feeders	Total Coincident Load (MVA)					MV Distribution Voltage (KV)	MV.Cable Size(mm ²)	Loop / Feeder Length (KM)	Total Voltage Drop Inside Site Boundary (%)
		Commercial	Social	Residential	EV Charging & Underground Parking	TOTAL				
1	>LOOP#1/1	0.00	5.54	1.17	0.82	7.53	13.8	3c x 500 sqmm,Al	2.1	0.53
2	>LOOP#2/1	0.00	3.46	1.06	2.65	7.16	13.8	3c x 500 sqmm,Al	3.0	0.72
3	>LOOP#3/1	0.00	3.15	0.88	3.56	7.59	13.8	3c x 500 sqmm,Al	2.9	0.72
4	>LOOP#4/1	0.00	3.88	0.60	3.04	7.53	13.8	3c x 500 sqmm,Al	2.9	0.72
5	>LOOP#5/1	0.00	3.99	0.48	2.82	7.29	13.8	3c x 500 sqmm,Al	2.8	0.67
6	>LOOP#6/1	0.00	3.97	0.57	2.85	7.39	13.8	3c x 500 sqmm,Al	2.8	0.68
7	>LOOP#7/1	0.00	4.75	0.40	2.43	7.57	13.8	3c x 500 sqmm,Al	3.0	0.75
8	>LOOP#8/1	0.00	6.35	0.00	1.07	7.42	13.8	3c x 500 sqmm,Al	1.6	0.38
9	>LOOP#1/2	0.00	0.39	3.19	3.95	7.52	13.8	3c x 500 sqmm,Al	0.5	0.11
10	>LOOP#2/2	0.00	0.80	3.11	3.66	7.57	13.8	3c x 500 sqmm,Al	1.4	0.36
11	>LOOP#3/2	0.00	0.59	4.55	2.45	7.59	13.8	3c x 500 sqmm,Al	0.0	0.00
12	T-LOOP 1 (F1)/1	0.00	4.85	0.00	2.34	7.19	13.8	3c x 500 sqmm,Al	1.5	0.35
13	T-LOOP 1 (F2)/1	0.00	0.18	3.05	1.08	4.31	13.8	3c x 500 sqmm,Al	0.9	0.13
14	T-LOOP 2 (F1)/1	0.00	2.55	3.34	1.31	7.20	13.8	3c x 500 sqmm,Al	3.9	0.92
15	T-LOOP 2 (F2)/1	0.00	0.91	3.92	2.70	7.53	13.8	3c x 500 sqmm,Al	7.6	1.89
16	F1/1	0.00	6.83	0.00	2.60	9.43	13.8	3c x 500 sqmm,Al	1.0	0.21
17	F2/1						13.8	3c x 500 sqmm,Al	1.0	0.21
18	F3/1						13.8	3c x 500 sqmm,Al	1.0	0.21
19	F4/1						13.8	3c x 500 sqmm,Al	1.1	0.37
20	F5/1						13.8	3c x 500 sqmm,Al	1.1	0.37
21	F6/1	0.00	26.30	0.00	0.00	26.30	13.8	3c x 500 sqmm,Al	1.1	0.37
22	F7/1						13.8	3c x 500 sqmm,Al	1.1	0.37
23	F8/1						13.8	3c x 500 sqmm,Al	1.1	0.37
24	F9/1						13.8	3c x 500 sqmm,Al	2.0	0.68
25	F10/1						13.8	3c x 500 sqmm,Al	2.0	0.68
26	F11/1	0.00	21.20	0.00	0.00	21.20	13.8	3c x 500 sqmm,Al	2.0	0.68
27	F12/1						13.8	3c x 500 sqmm,Al	2.0	0.69
TOTAL		27	0.0	99.7	26.3	165			53.1	
@ 132kV S/S with 90% Diversity factor						149				

Loop #1/2&2/2&3/2&4/2



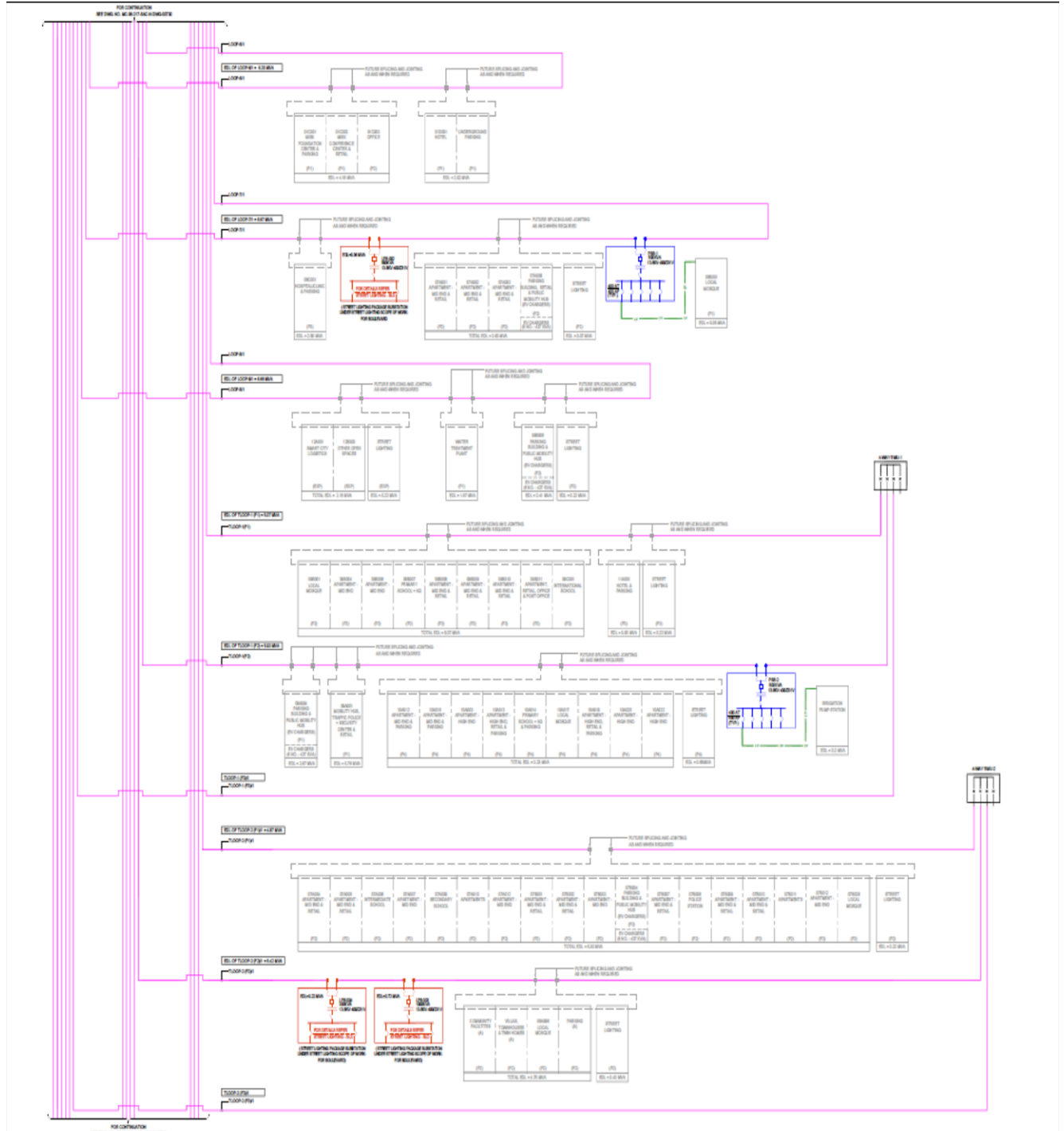
Riser Diagram

Loop #1/1&2/1&3/1&4/1&5/1&7/1&7/1&(F1)&(F2)

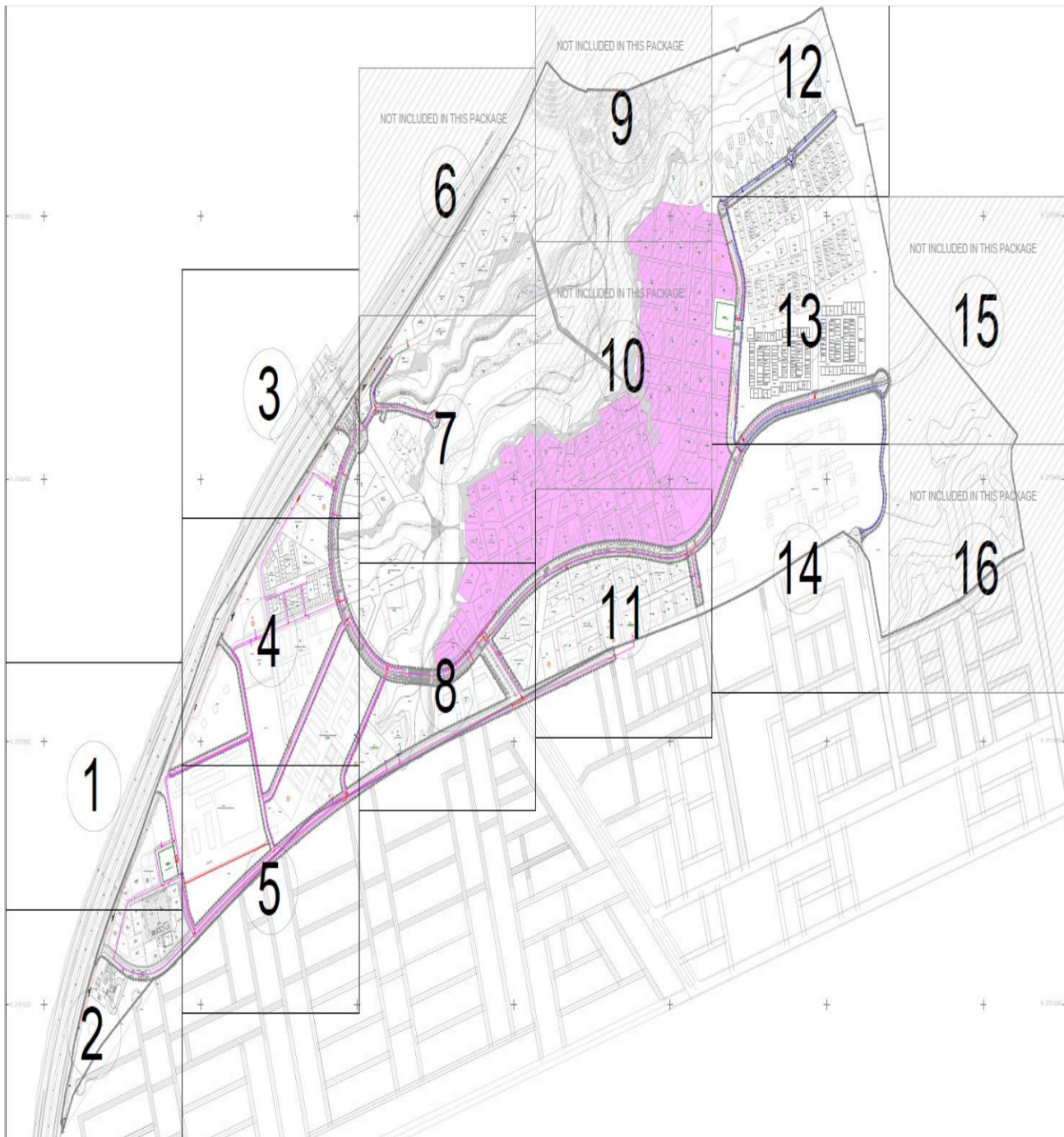


Riser Diagram

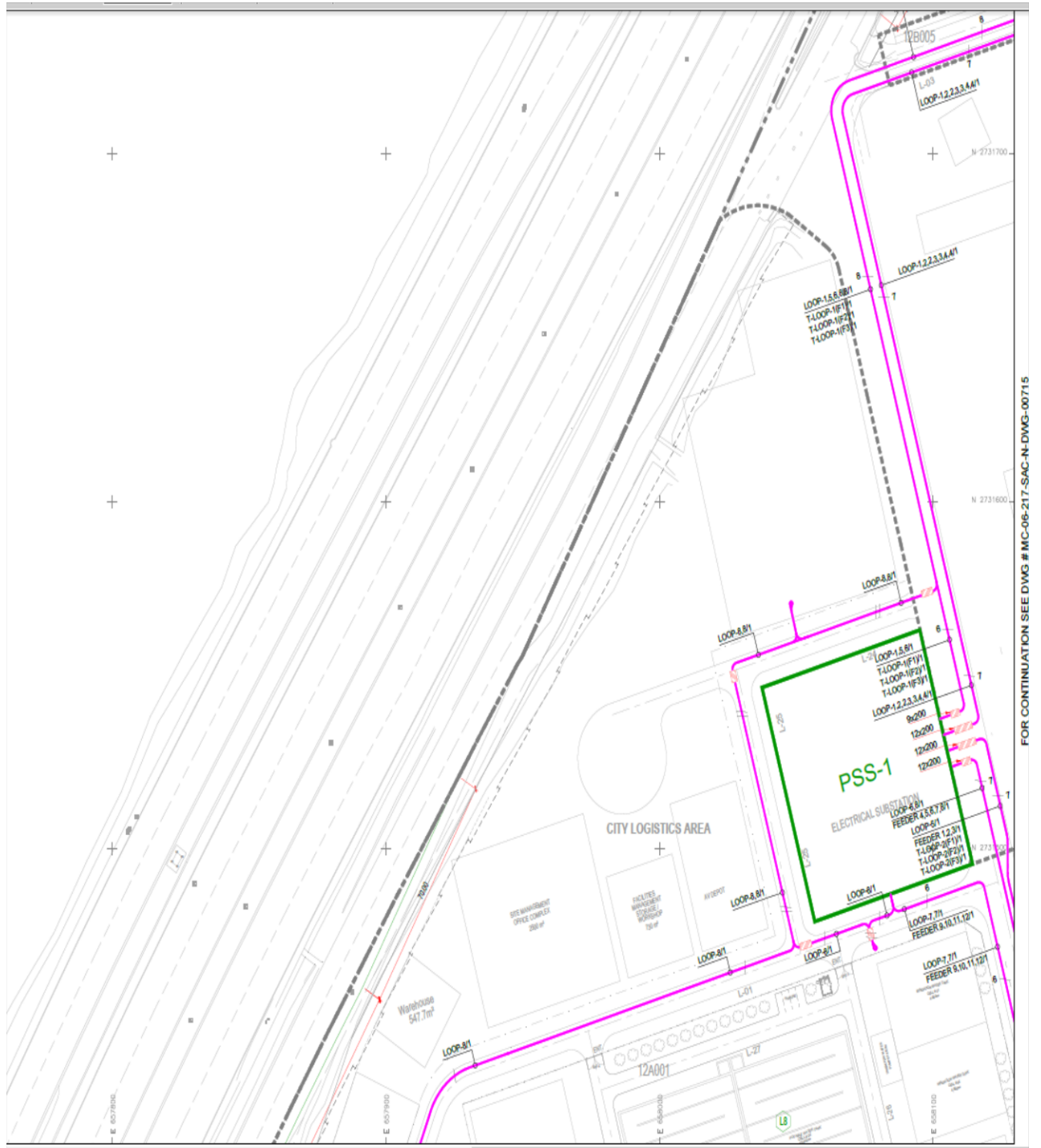
Loop #6/1&7/1&8/41&1(F1)&1(F2)&1(F3)



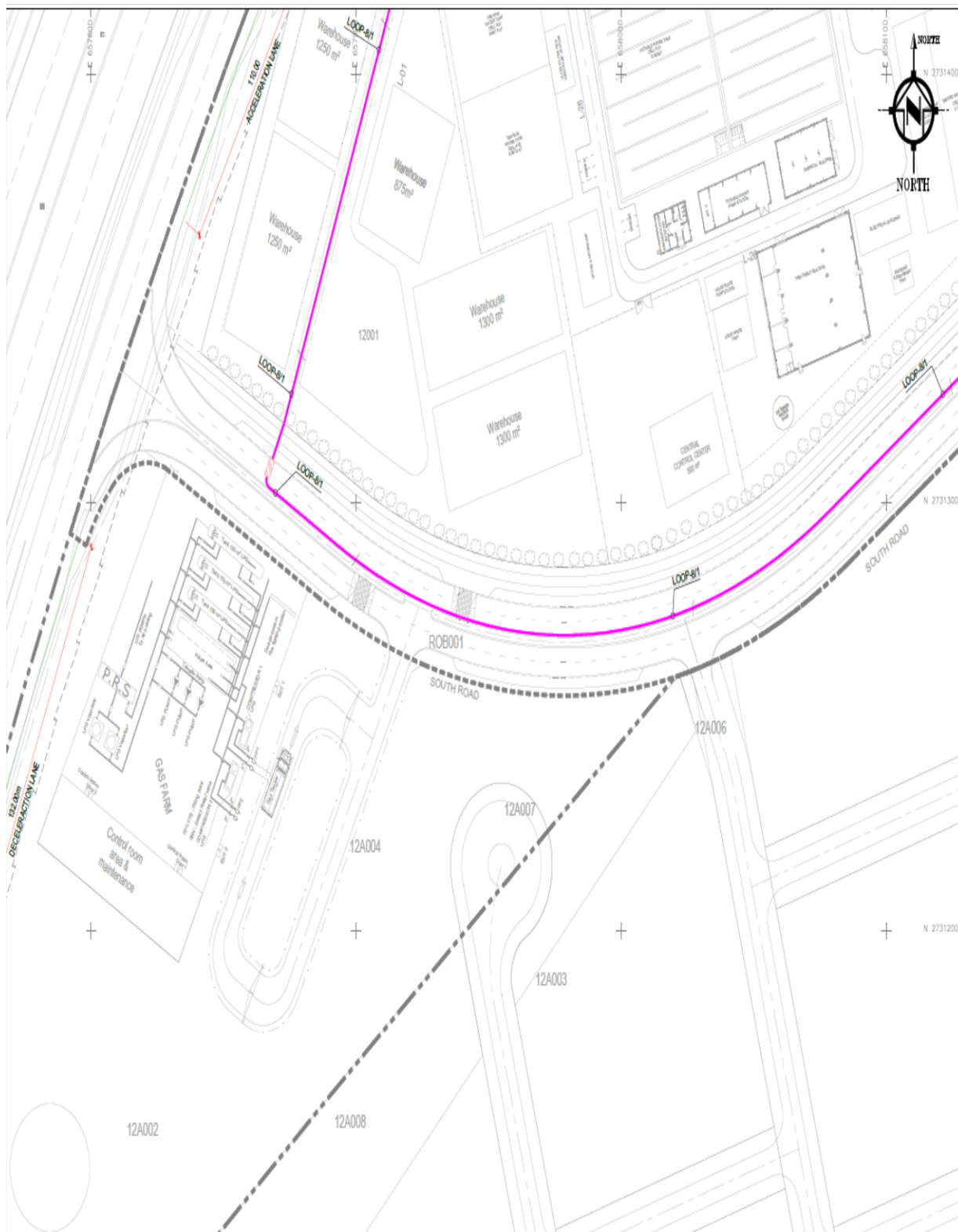
General Layout for Medium Voltage Cables



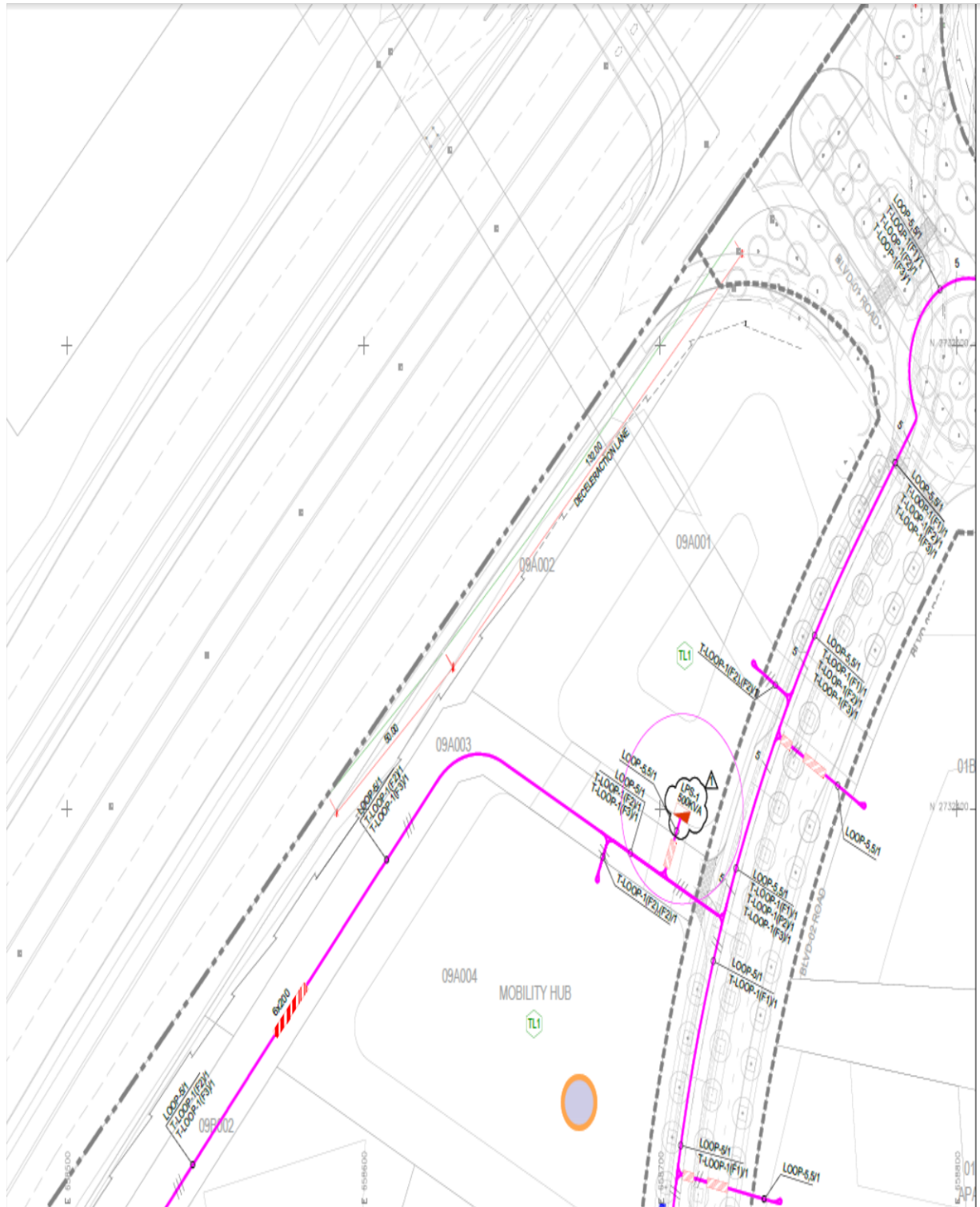
Part #1



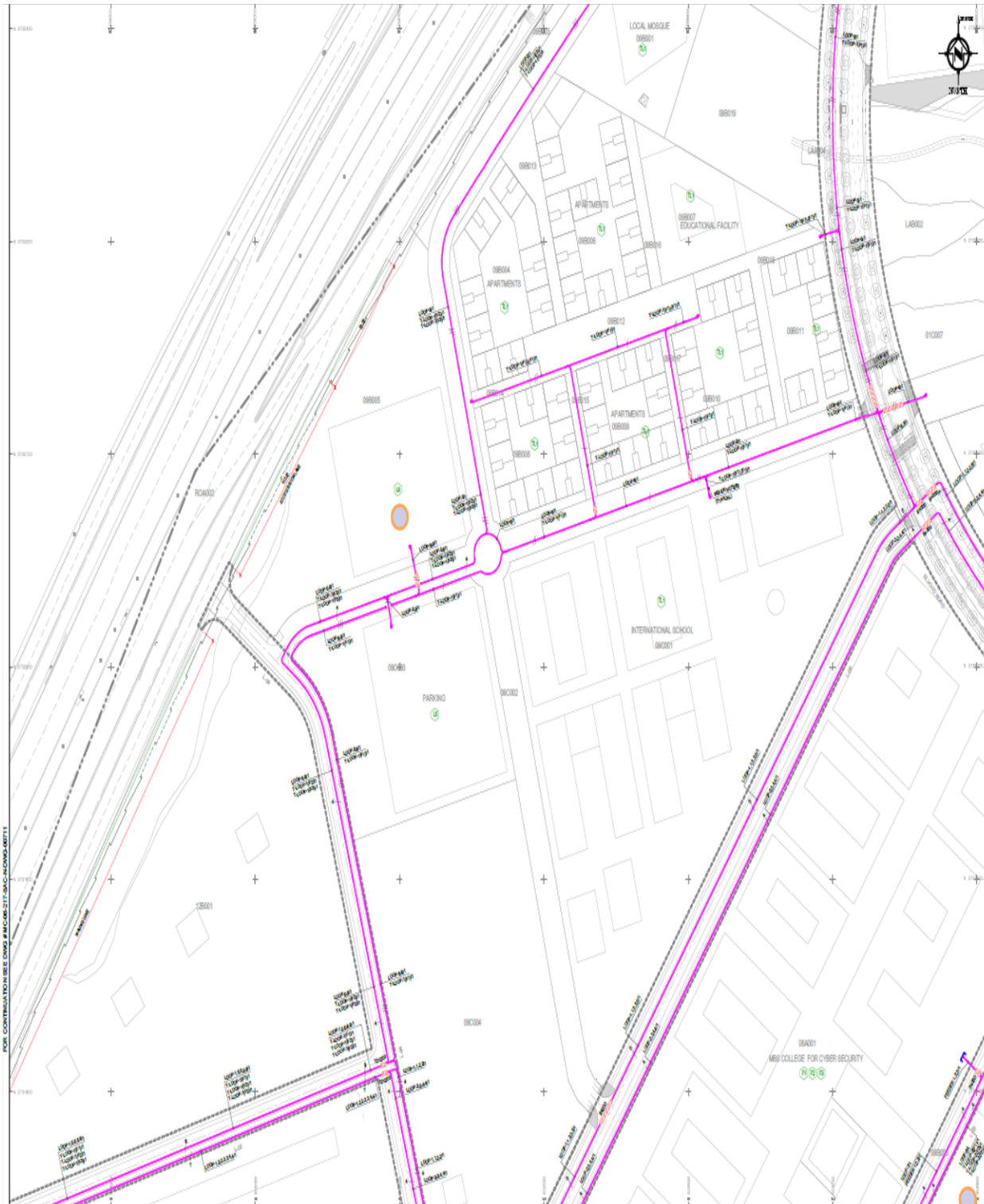
Part#2



Part#3

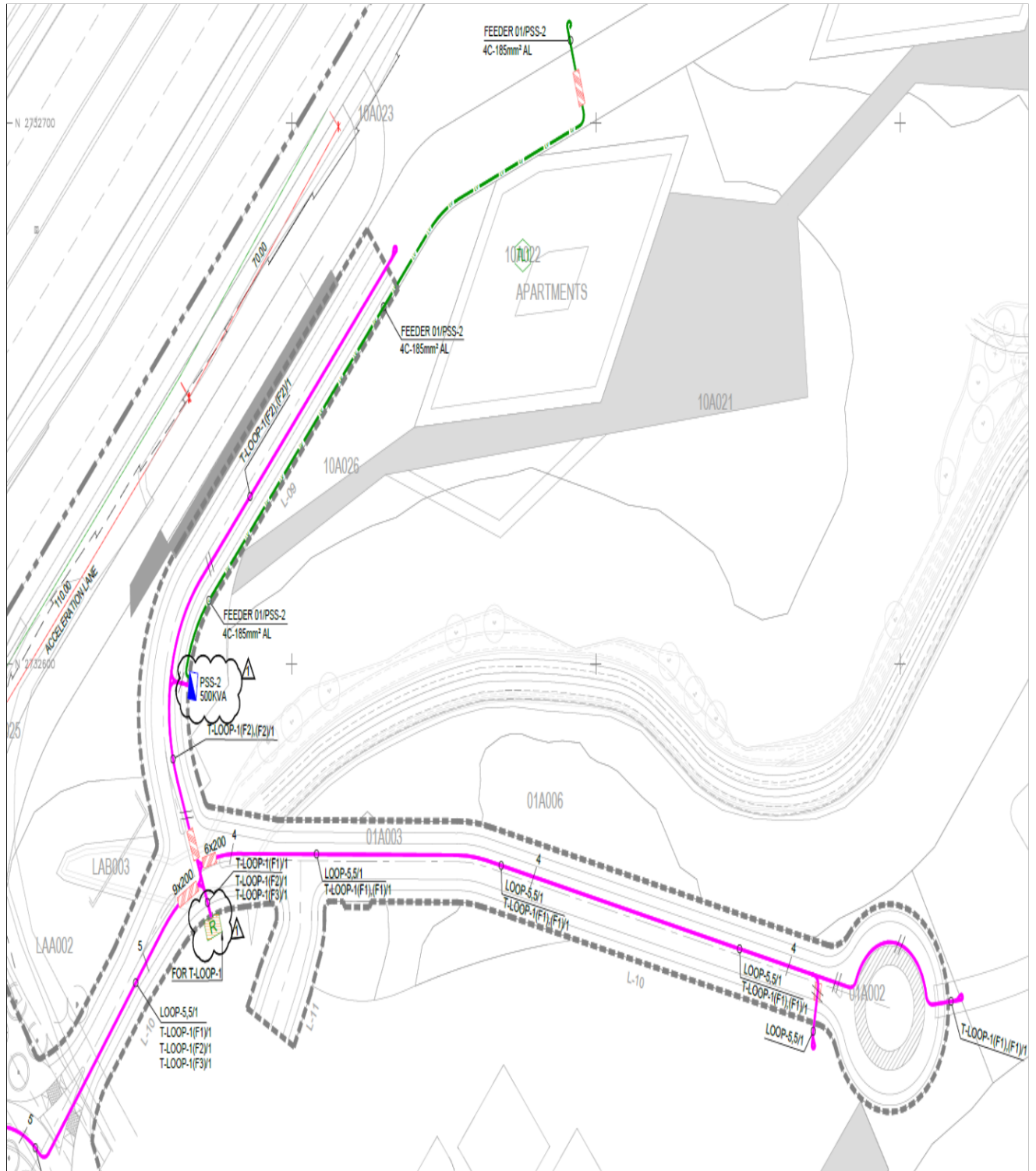


Part#4



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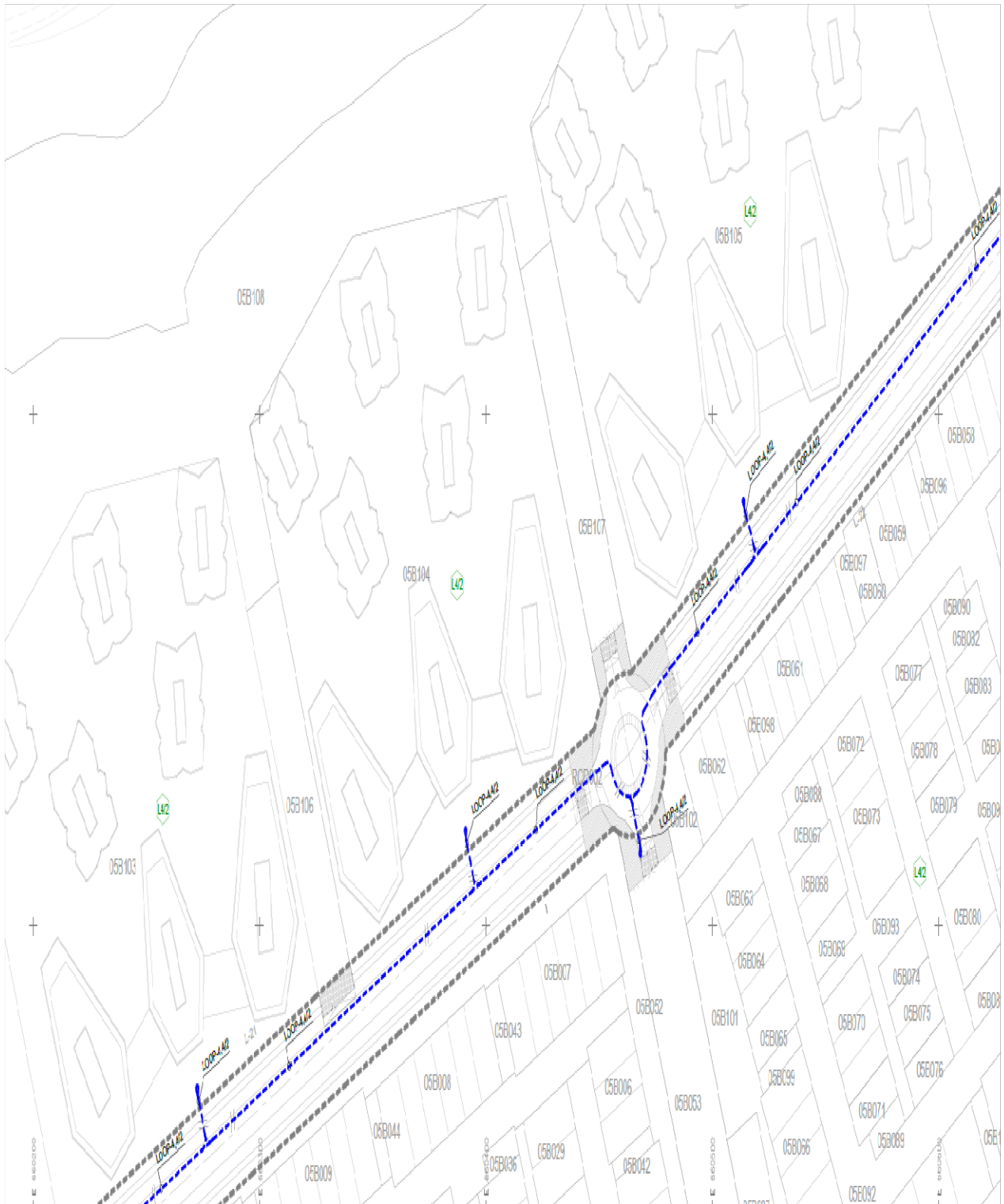
Part#6



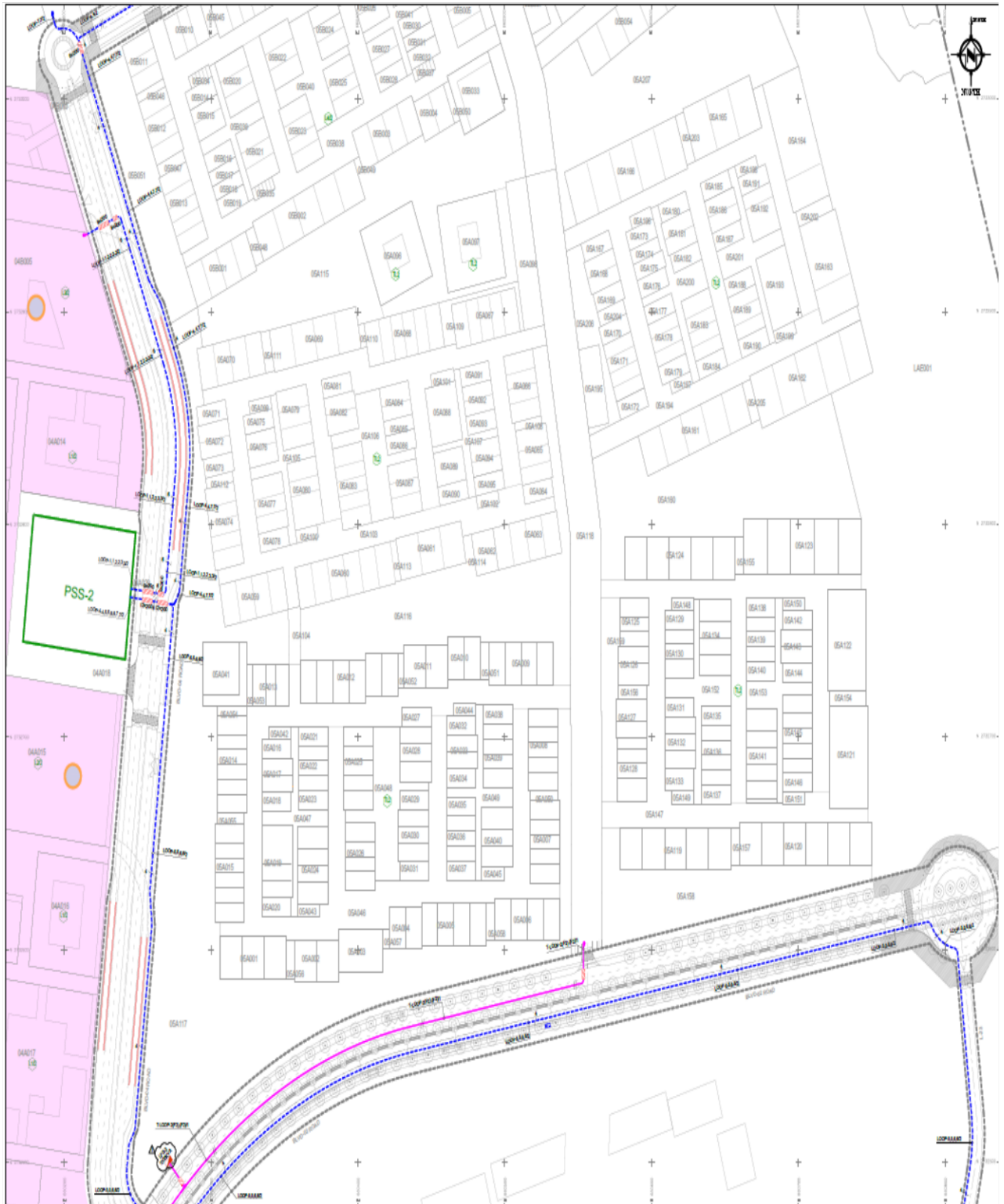
Part#8



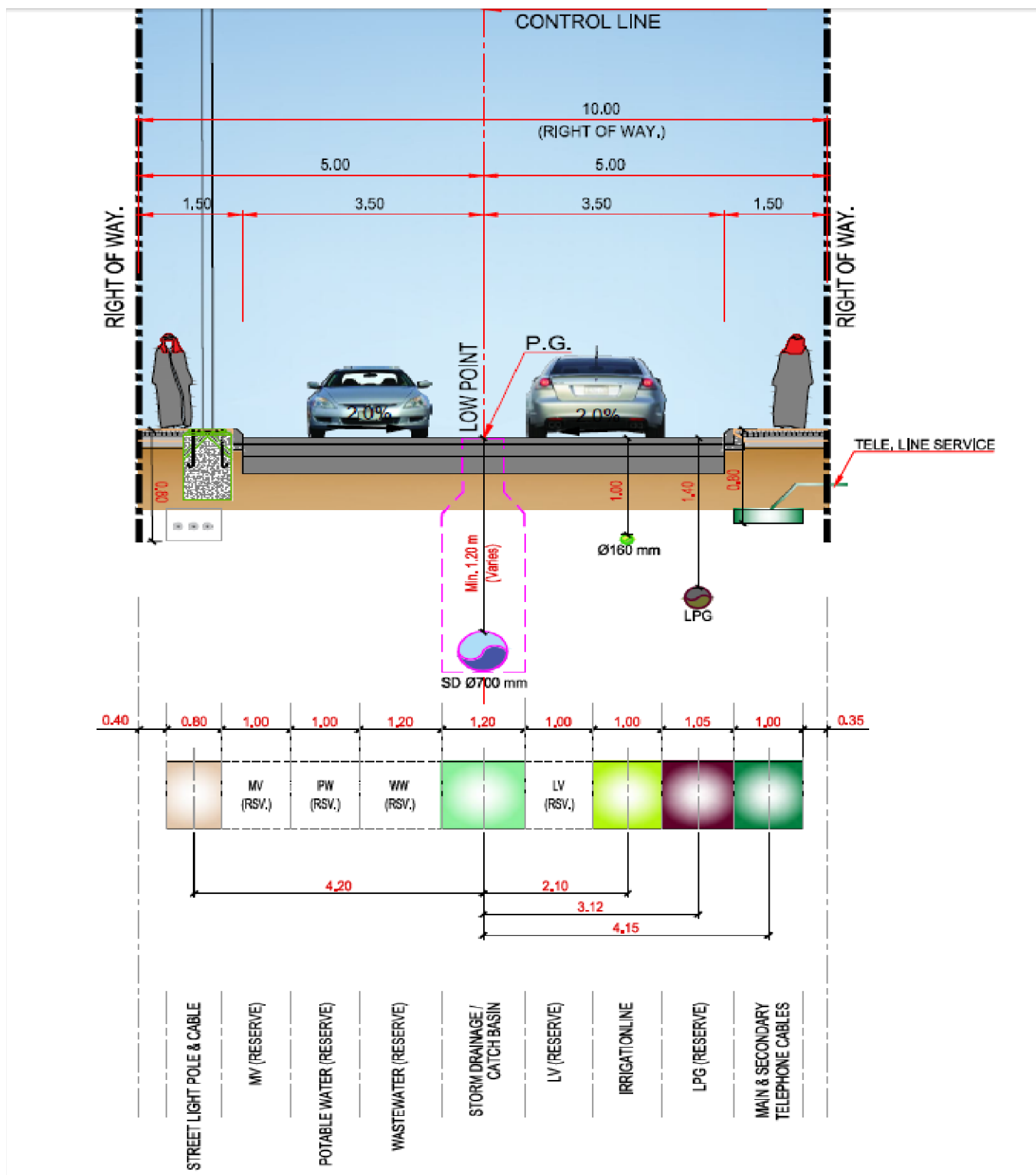
Part#9



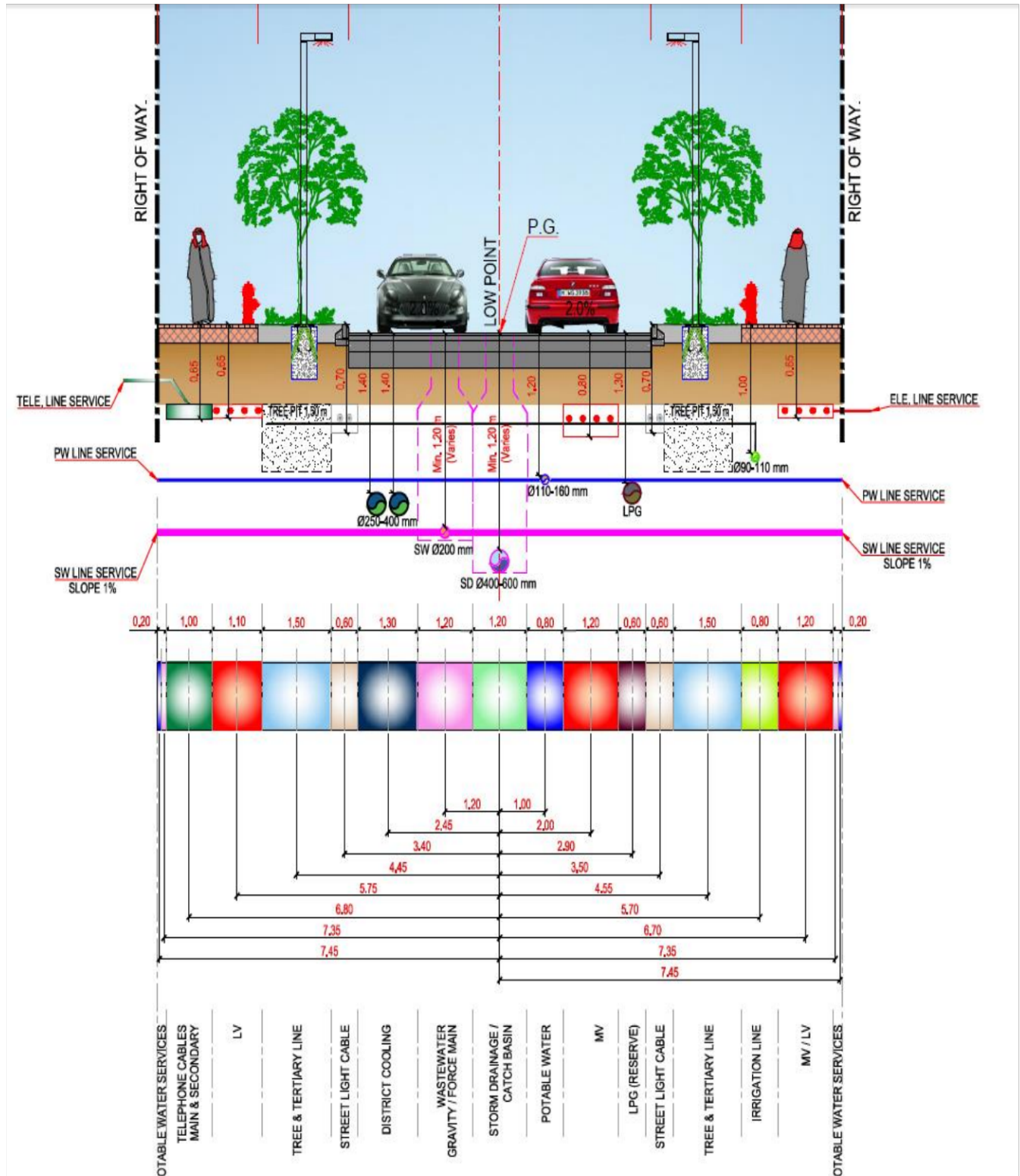
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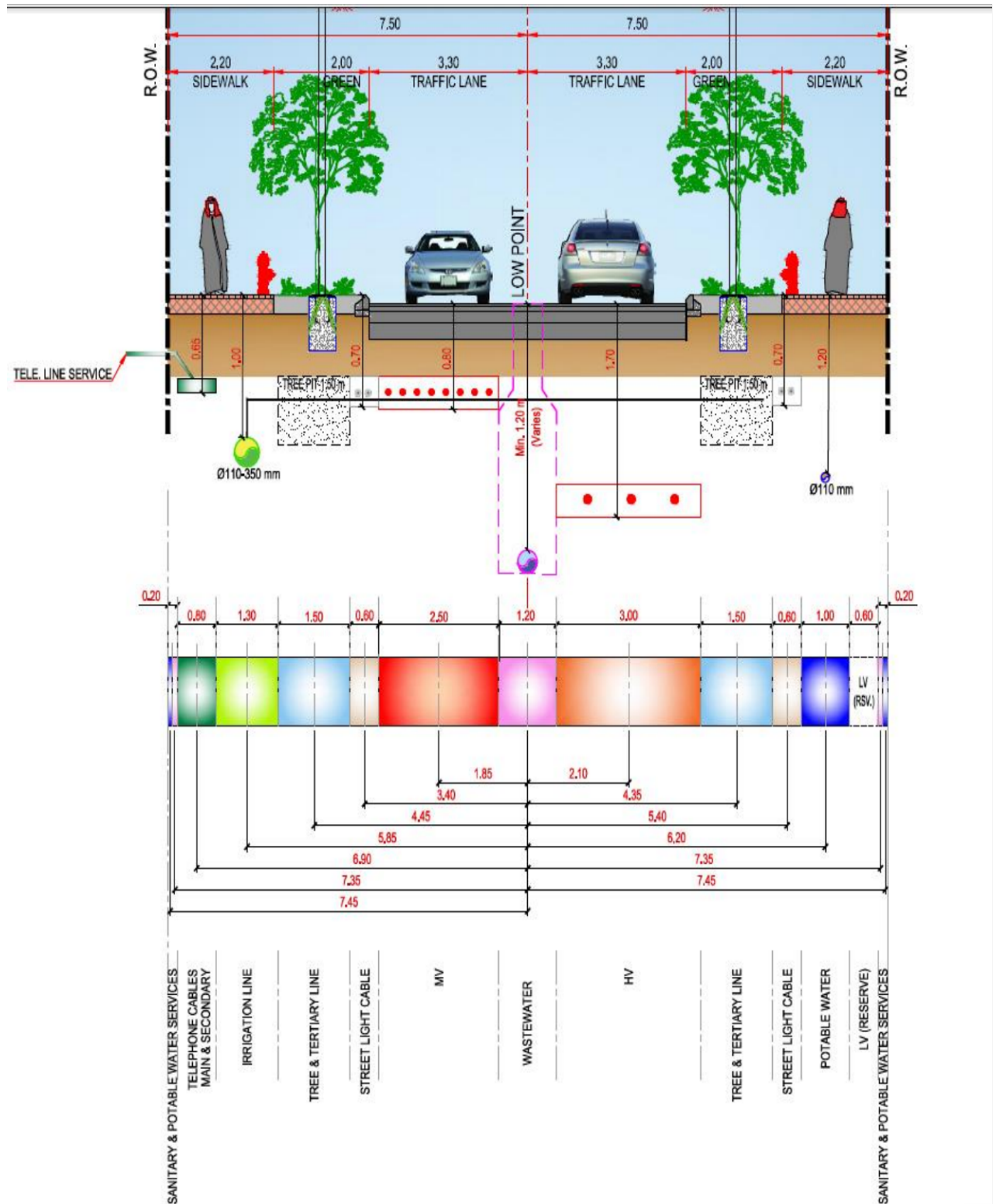
Cross Section (Details) #1



Cross Section (Details) #2



Cross Section (Details) #3



Reference

- SEC-Saudi Electricity Company
- SBC – Saudi Building Code
- MOT-Ministry of Transportation Standards
- IEC- International Electro-Technical Commission
- NEC- National Electrical Code
- IESNA-Illuminating Engineering Society of North America
- CIE- The International Commission on Illumination
- Tender Documents for MISK project (Saudi consult & JLL)
- Tender Documents for ARAMCO project

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