DFL

· LIGHTING DESIGN · ELECTRICAL · SMART CITIES ·
ENERGY REDUCTION · LIGHTING IMPACT

Humans vs The Environment – Can Standards Help the Conflict?

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Environmental Lighting – Human wants and needs


COSTA
GREGGS


MORRISONS


POWERFUL
NOISE CANCELLING
LANCÔME
PARIS
La vie est belle
GAP
BARCLAYS
Boots
WICKED


EV POWER
Fast Clean Energy
WE POWER THE
FUTURE
EV POWER
Fast Clean Energy
NOW
OPEN
mfg

The Conflict: Environmental Sensitivities

- Designated sites.
- Dark landscapes / dark skies.
- Sensitive ecology receptors.
- Rural settlements.
- Urban residential amenity.

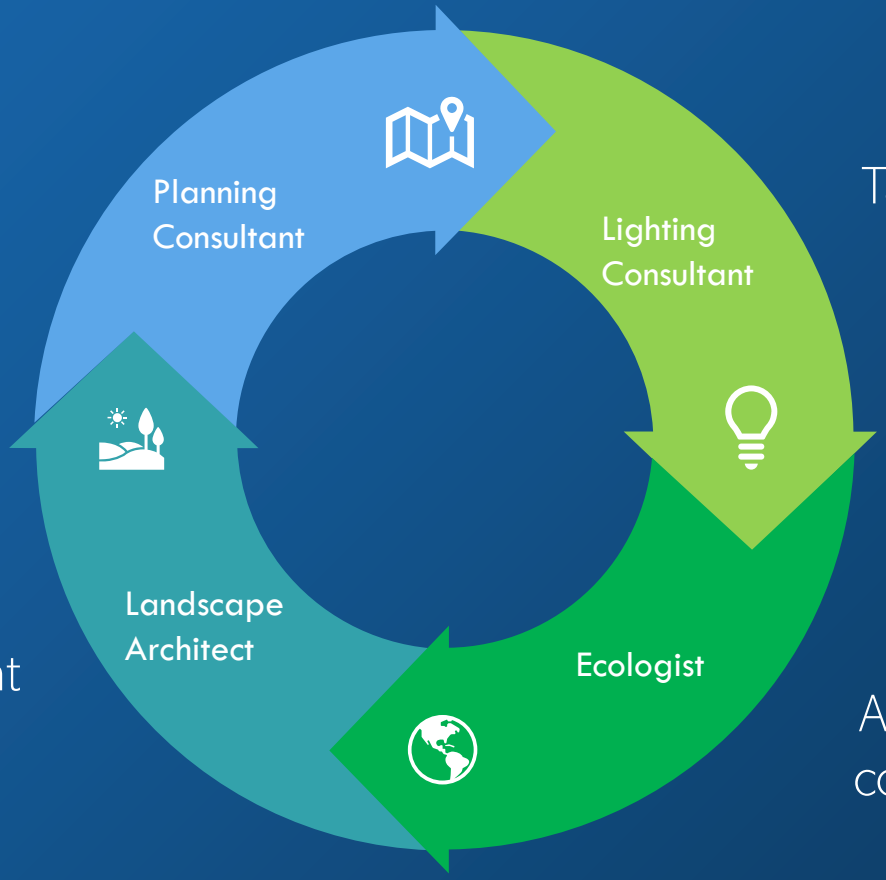
Can Lighting Professionals Resolve the Conflict?

- Collaborative Working
- Competent Lighting Design.
- Strong Lighting Strategies.
- Site Specific Solutions.
- Competent Planning Authority that understands importance of light and compromises needed.
- First ask – do we need to light?

Collaborative Approach

Benefits of early involvement and interdisciplinary collaboration

Help to reduce objections from officers and other consultees



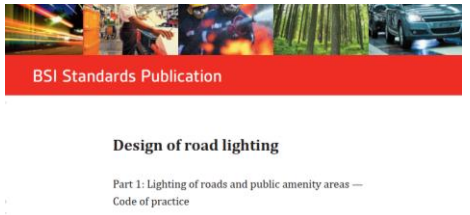
Take the lead on gathering the key information / opening dialogue

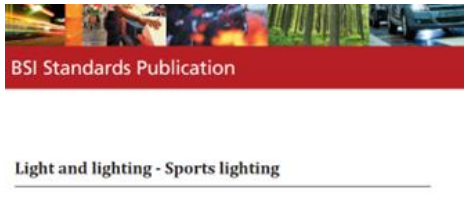
Input into design development

Advise on buffer zone / dark corridor locations / distances

Current British Standards.

- Applicable Exterior Lighting Standards:
  - BS EN 12193: 2018
  - BS EN 12464-2:2024
  - BS 5489-1:2020 / EN 13201-2:2015





Sports – BS EN 12193: 2018

Padel and Tennis Court Lighting

Outdoor			Reference area		Number of grid points	
			Length m	Width m	Length	Width
Tennis	PA		30	15	13	7
	TA		36	18	15	7
Padel [a]	PA		20	10	13	7
Class	**Horizontal illuminance**		**Horizontal illuminance TA**		R_G	R_a
	$E_{hor\ Ave}$ lx	$U2_{hor}$	$E_{hor\ Ave}$ lx	$U2_{hor}$		
I	500	0,70	75 % PA	75 % PA	50	70
II	300	0,70	75 % PA	75 % PA	50	60
III	200	0,60	75 % PA	75 % PA	55	60

[a] A safety zone around both entrances of width 2 m, height 4 m and extending 4m from the centre to both sides is to be kept clear of any obstacles.

- What type of sport is being played?
- What level is the sport being played at?
- Who is paying?
- What sensitive receptors are nearby?
- Has planning approval been granted yet?
- Are there any planning conditions?

Outdoor Work places – BS EN 12464-2:2024

Car Parking Areas

Table 8 — Parking areas

Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx		U_o	R_{GL}	R_a	Specific requirements
		required[a]	modified[b]				
8.1	Light traffic, e.g. parking areas of shops, terraced and apartment houses; cycle parks	5	–	0,25	55	70	
8.2	Medium traffic, e.g. parking areas of department stores, office buildings, plants, sports and multipurpose building complexes	10	–	0,25	50	70	
8.3	Car charging station points in lit areas	20	–	0,25	50	70	At the relevant area approx. up to 3 m from charging point. If the display is not self illuminated, a vertical illuminance of $\bar{E}_m$ = 50 lx at the charging poles should be provided for the time of reading. Vertical illuminance on the car should be considered.
8.4	Car charging station points in unlit areas	10	–	0,25	50	70	If the display is not self illuminated, a vertical illuminance of $\bar{E}_m$ = 50 lx at the charging poles should be provided for the time of reading.
8.5	Heavy traffic, e.g. parking areas of major shopping centres, major sports and multipurpose building complexes	20	–	0,25	50	70	

[a] Required: minimum value.

[b] Modified: considers common context modifiers in 5.3.3.

Industrial Sites

Table 17 — Industrial sites

Ref. no.	Type of area, task or activity	$\bar{E}_m$ lx		U_o	R_{GL}	R_a	Specific requirements
		required[a]	modified[b]				
17.1	Short-term handling of large units and raw materials, loading and unloading of solid bulk goods	20	–	0,25	55	70	When the area is non-occupied $\bar{E}_m$ required may be reduced to 5 lx.
17.2	Continuous handling of large units and raw materials, loading and unloading of freight, lifting and descending location for cranes, open loading platforms	50	–	0,40	50	70	When the area is non-occupied $\bar{E}_m$ required may be reduced to 5 lx.
17.3	Reading of addresses, covered loading platforms, use of tools, ordinary reinforcement and casting tasks in concrete plants	100	–	0,50	45	70	Movement detection control preferred for energy savings.
17.4	Demanding electrical, machine and piping installations, inspection	200	–	0,50	45	70	Can be met with use of local mobile lighting.

[a] Required: minimum value.

[b] Modified: considers common context modifiers in 5.3.3.

Roadway Lighting – BS 5489-1:2020 / EN 13201-2:2015

Subsidiary (Residential) Roads

Lighting classes for subsidiary roads

Traffic flow	Lighting class		
	E1 to E4[A)]	E1 to E2[A)]	E3 to E4[A)]
	Pedestrian and cyclists only	Speed limit $v \leq 30$ mph	Speed limit $v \leq 30$ mph
Busy [B)]	P5	P4	P3
Normal [C)]	P5	P5	P4
Quiet [D)]	P6	P5	P4

Table 3 — P lighting classes

Class	Horizontal illuminance		Additional requirement if facial recognition is necessary	
	$\bar{E}$ [a] [minimum maintained] lx	E_{min} [maintained] lx	$E_{v,min}$ [maintained] lx	$E_{sc,min}$ [maintained] lx
P1	15,0	3,00	5,0	5,0
P2	10,0	2,00	3,0	2,0
P3	7,50	1,50	2,5	1,5
P4	5,00	1,00	1,5	1,0
P5	3,00	0,60	1,0	0,6
P6	2,00	0,40	0,6	0,2
P7	performance not determined	performance not determined		

[a] To provide for uniformity, the actual value of the maintained average illuminance shall not exceed 1,5 times the minimum $\bar{E}$ value indicated for the class.

Town and City Centres

Lighting classes for city and town centres

Type of traffic	Lighting class			
	Normal traffic flow		High traffic flow	
	E3[A)]	E4[A)]	E3[A)]	E4[A)]
Pedestrian thoroughfare	P2	P1	P2	P1
Pedestrian only	C4	C3	C3	C2
Mixed vehicle and pedestrian with separate footways	C3	C2	C2	C1
Mixed vehicle and pedestrian on same surface	C2	C1	C1	C1

[A)] Environmental zone, as given in ILP GN01 [N2].

Table 2 — C lighting classes based on road surface illuminance

Class	Horizontal illuminance	
	$\bar{E}$ [minimum maintained] lx	U_o [minimum]
C0	50	0,40
C1	30	0,40
C2	20,0	0,40
C3	15,0	0,40
C4	10,0	0,40
C5	7,50	0,40

Industry Guidance

- ILP - GN01/2021
- ILP- GN08/2023
- SLL- LG21/2021

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How does this work in the SDNP?

- National and Local Policies.
- Lighting Industry Guidance.
- British Standards.

- NPPF.
- Dark Skies TAN.
- Local Plan Policies (SD8) – Serves to protect, conserve and enhance the IDSR.

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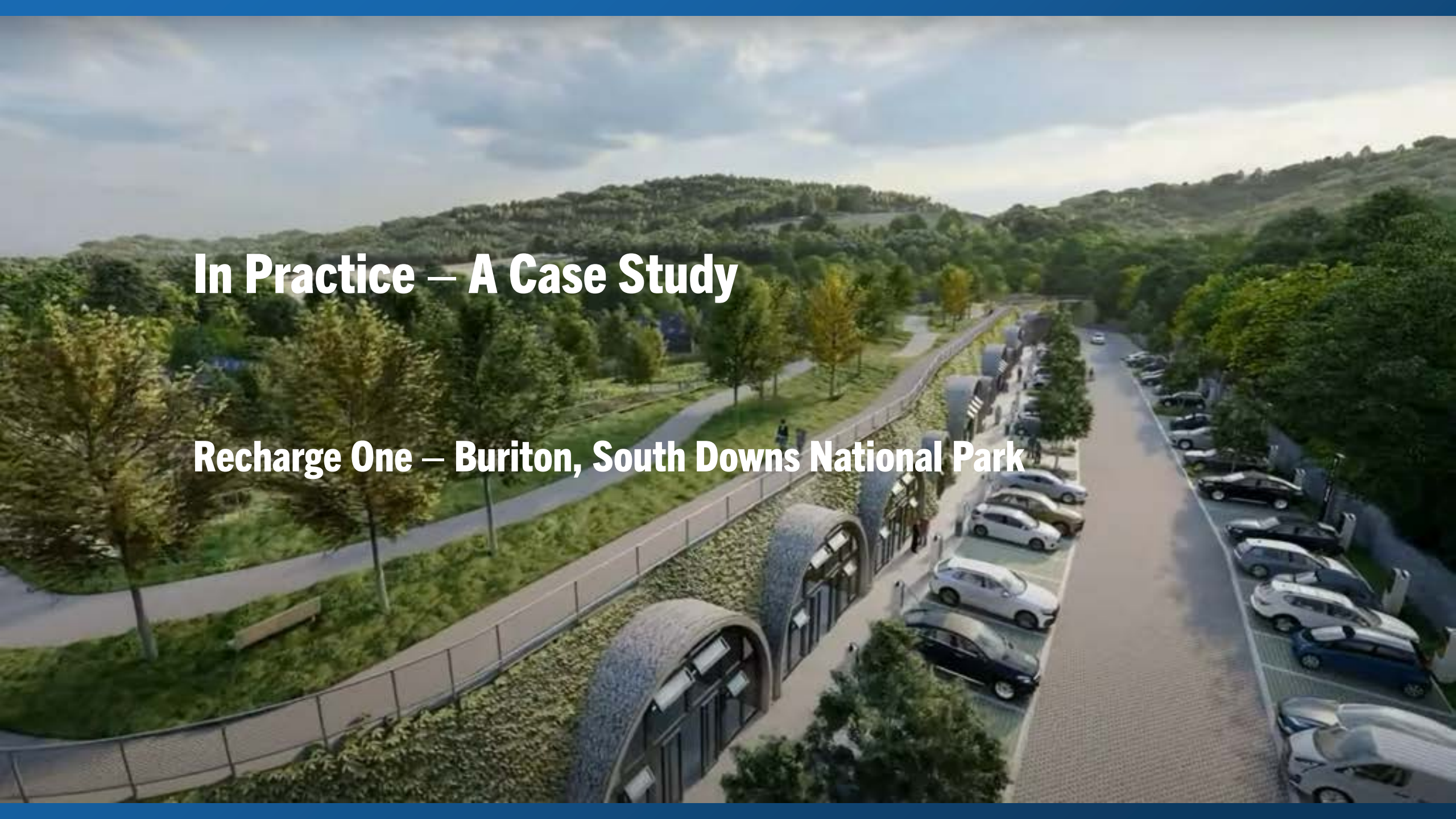

In Practice – A Case Study

Recharge One – Buriton, South Downs National Park

Recharge One – Buriton, South Downs National Park

- First of its kind.
- Green Travel Solution.
- National Park Focused.
- EV charging solutions.
- Retail component.
- ‘Retreat style’ development.
- Residential (eco lodges) with charging.

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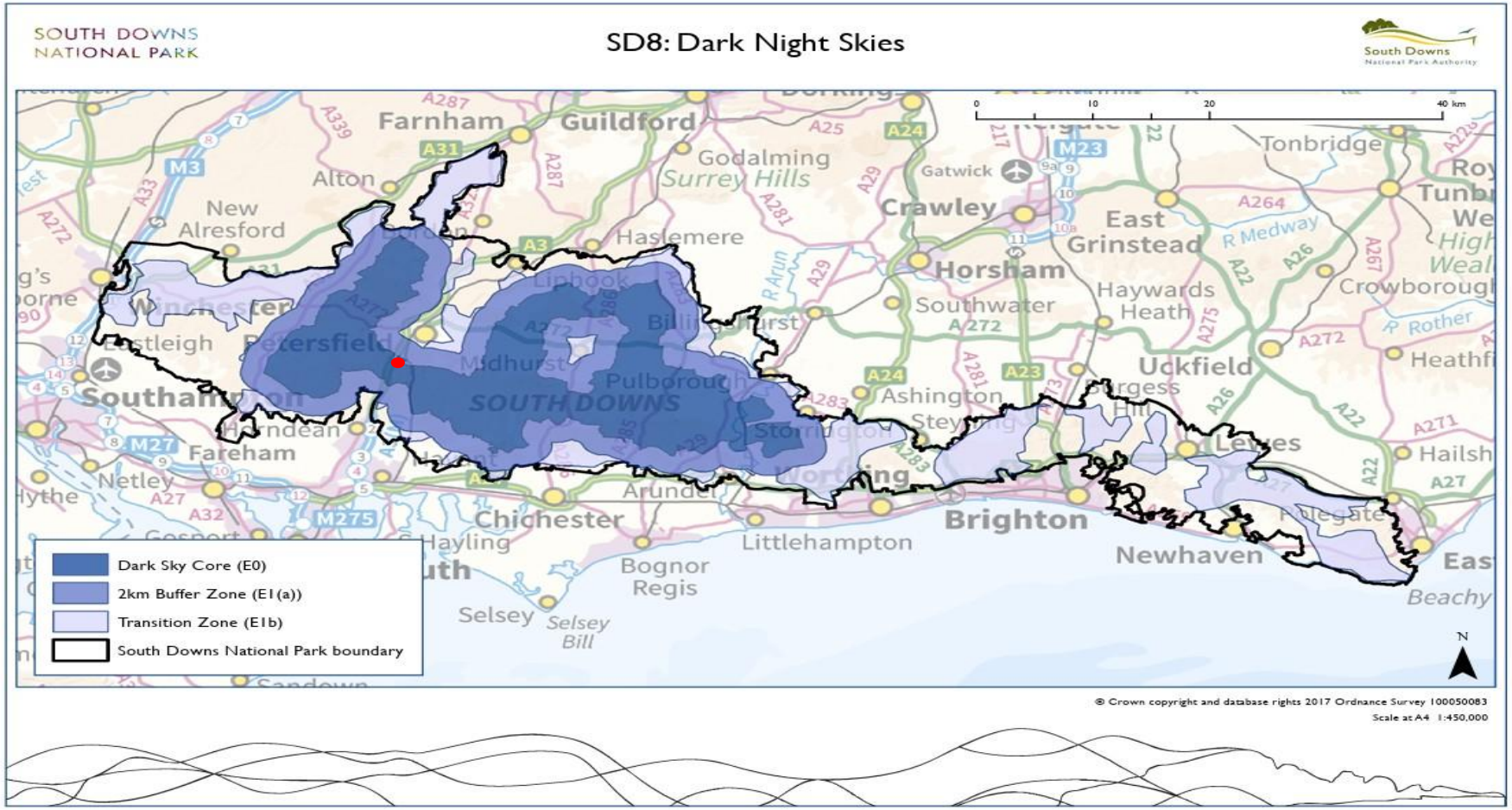
Site Location
Ramsdean Ln
Ramsdean Ln
Ramsdean Ln
Copyhold Ln
Weston Ln
Weston Ln
A3
A3
A3
Framework Sports
B2070
B2070
John Huntley
(Petersfield)
Greenway Ln
Greenway Ln
Petersfield Rd

Baseline

Dark Sky Zones



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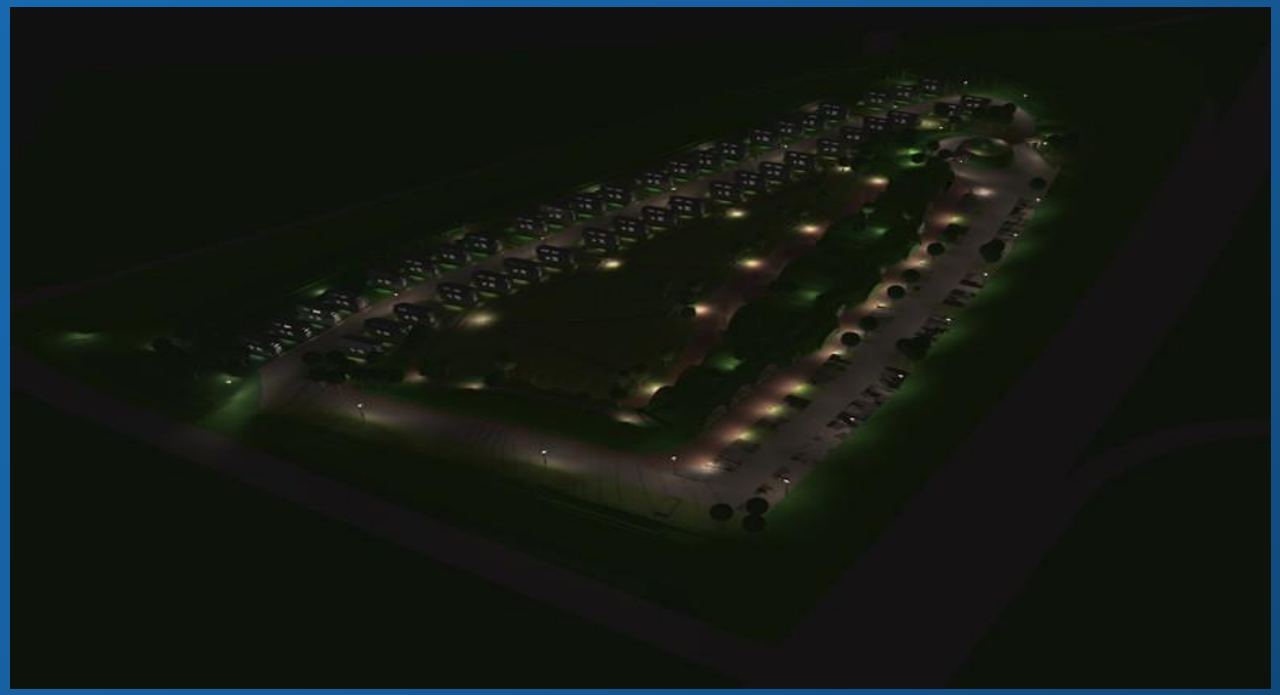
Approach to Lighting



- Understanding the usage.
- Pre / Post-Curfew Lighting Zones.
- Charging spaces prioritised because of task requirements.
- Layers of light approach.

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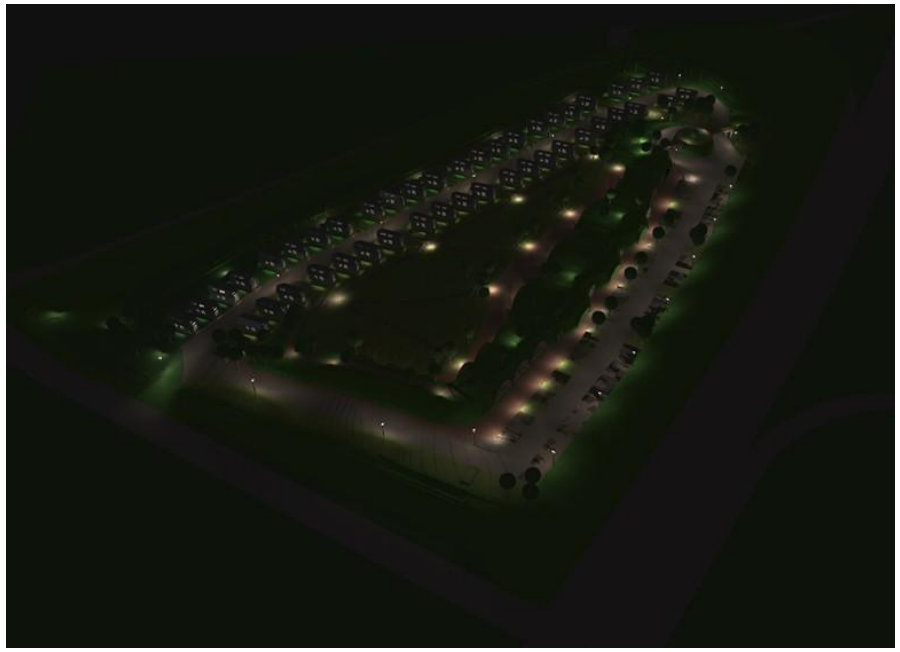
Adaptive Lighting

- Pre-Curfew Lighting Levels
  - Charging spaces and circulatory road lit to 5.0 Lux Ave / 1.0 lux min (P4 lighting class).
  - Pedestrian footpaths and residential links lit with illuminated bollards for wayfinding purposes.
  - Earth covered retail units to be fitted with solar control glazing (<70% LTV).



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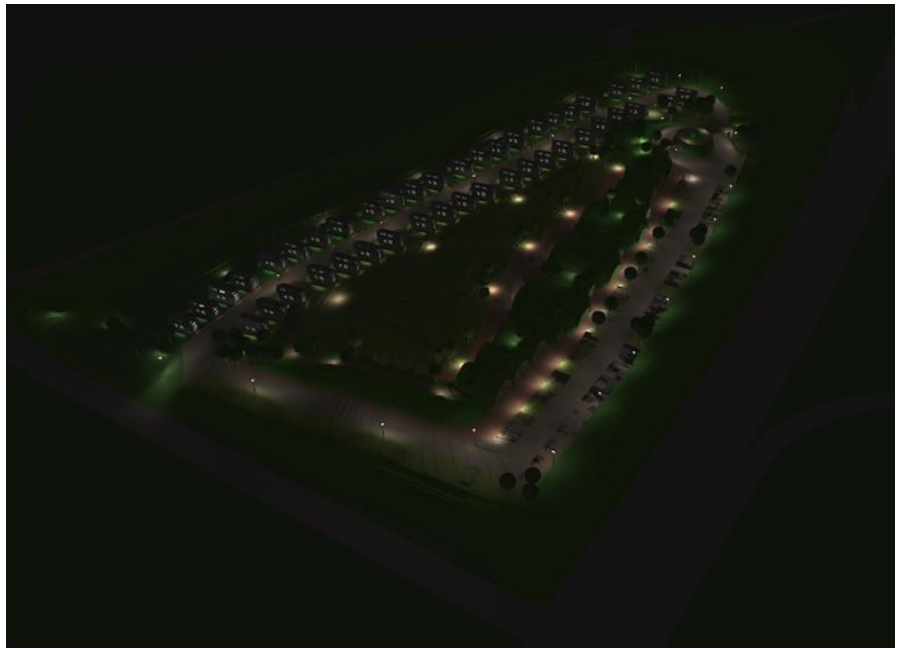
Adaptive Lighting

- Post-Curfew Lighting Levels (from 21:00pm – 07:00am)
  - Charging spaces and circulatory road lit to 2.0 Lux Ave / 0.20 lux min (P6 lighting class).
  - Pedestrian footpaths and residential links sensor controlled.
  - Earth covered retail units lights off.



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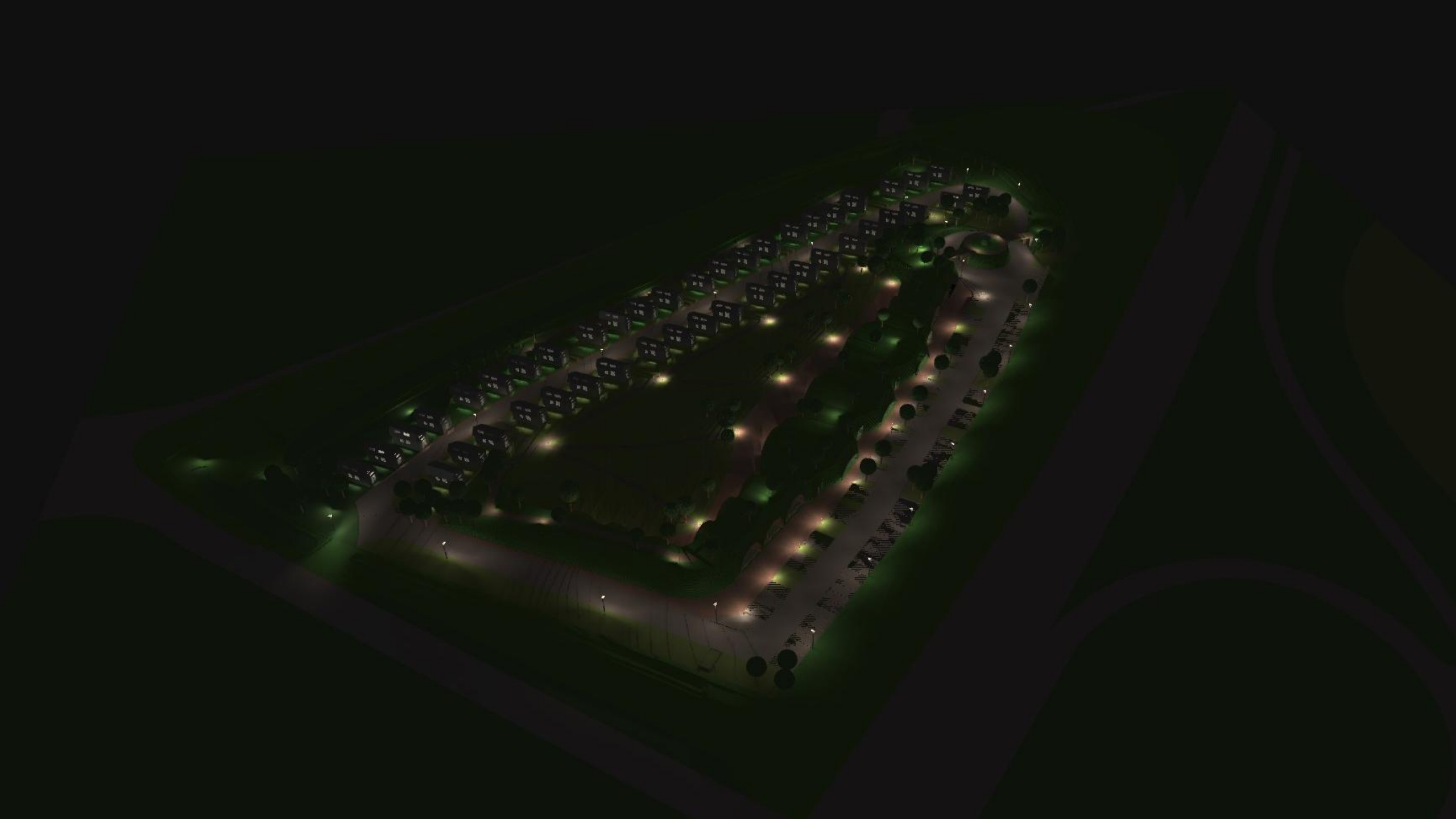

THANK YOU

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