



RATIONALE OVERVIEW

Responding to **higher-income older car users**, Recharge/Revive incorporates **sustainability features** as a means of recycling energy, reducing the facility's carbon footprint and also **generating its own fuel**. Sustainability in the design also reflects on current design trends since being green is a current taste. Concrete from the former petrol station can be reused in the structure of the new facility.

The form relates to landscaping. The shape **breaks away from the tradition of the linear and blocky** petrol station. Standard procedures requires the soil to be excavated, which means incentive to create landscaping. This has a lot more of an elegant look and a different kind of car journey on the sight.

It is a place for cars to recharge and for drivers to revive themselves whilst they wait. People have several purposes for driving, most can be physically and/or psychologically draining. The colour green socially represents nature, health, well being. This in itself encourages the car driver to feel a lot more comfortable.

The landscaping allows for **privacy** as well as a sound barrier. The facility

encourages the idea of having **its own realm**. This is another psychological benefit for the user as it can be seen as a getaway location. Whilst waiting for cars to charge, they can relax, eat, pay for fuel, roam the area freely as well as maintain their car.

DESIGN CONSIDERATIONS

- **New infrastructures** have started to **revolutionise** the way we live and drive
- Key stumbling block is **long charging times**
- Long term goal: EV charging from 0 to 80% in 15 minutes
- Make a place to **park and charge** at selling point



West View across facility

EXISTING SITE CASE STUDY



Extent of Existing Site



Satellite View of Site in relationship to nearest surrounding buildings

Example Site:
Total, Bullsmoor Lane,
Enfield,
Northeast London

Description:
Situating just off the
M25 motorway, the
site is based in a
reasonably built
up area in Enfield. It's
surrounded by

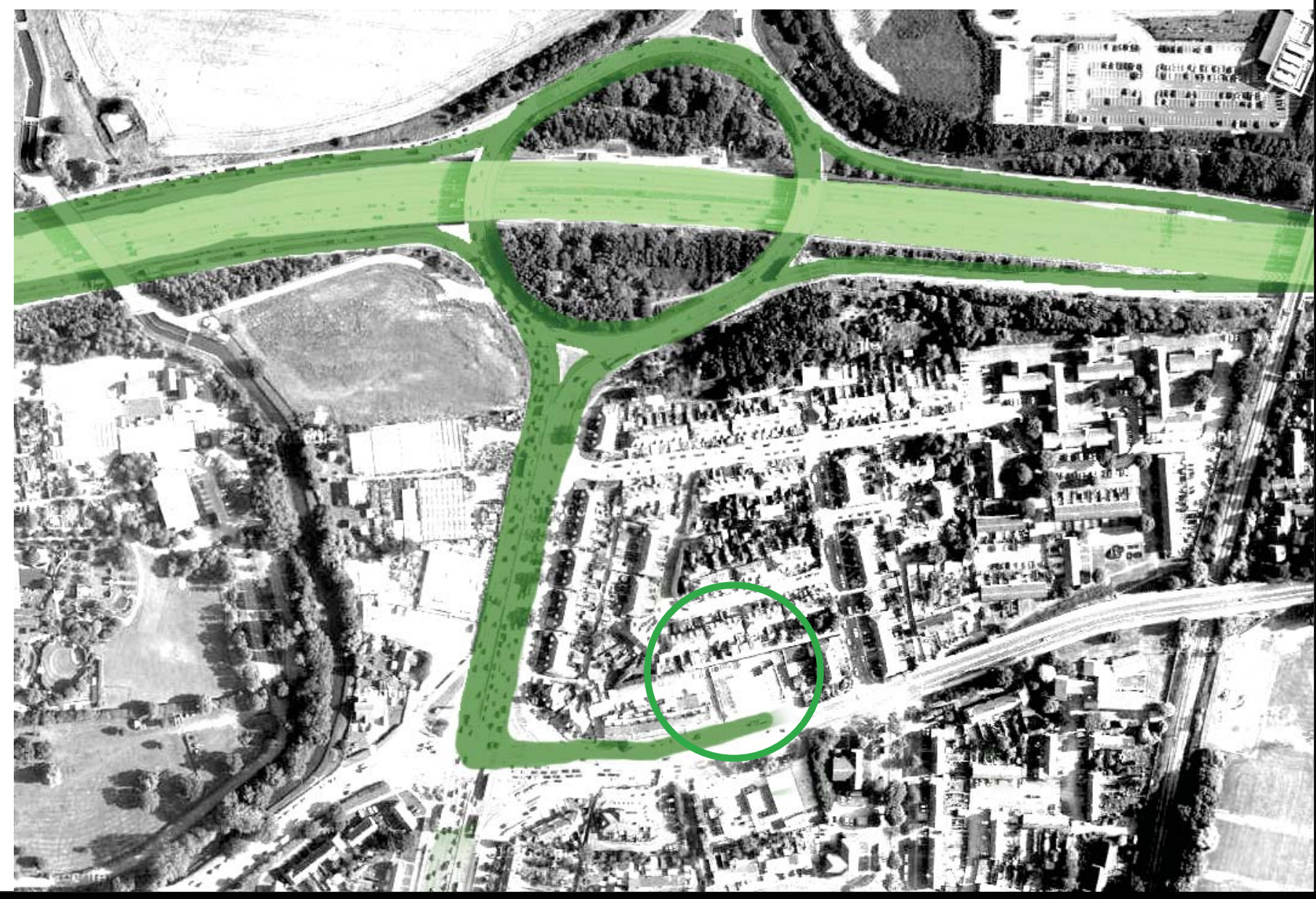
buildings, both
commercial and
residential and lies
off a busy road
(Bullsmoor Lane), which
links to the
A10 that links on
to the M25. An EV
station proposal would
encourage sound
insulation and
takes advantage of the

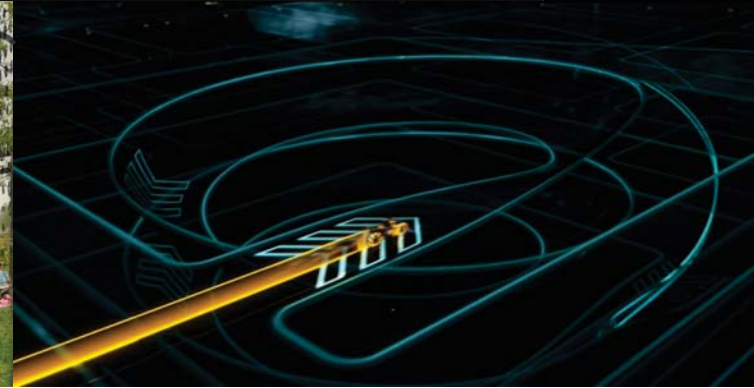
size of the plot. The
station itself
is a typical size as
seen in most locations
in the UK. Designed
mainly for
cars and small/ medium
sized goods vehicles.
The low height of the
canopy
makes this station
unsuitable for larger
vehicles.



Site plan @ 1:1250

Satellite View of Site in relationship to key roads





Cloud Bridge by WATG

Beaconsfield Petrol Station

New Heden by Lloyd Alter

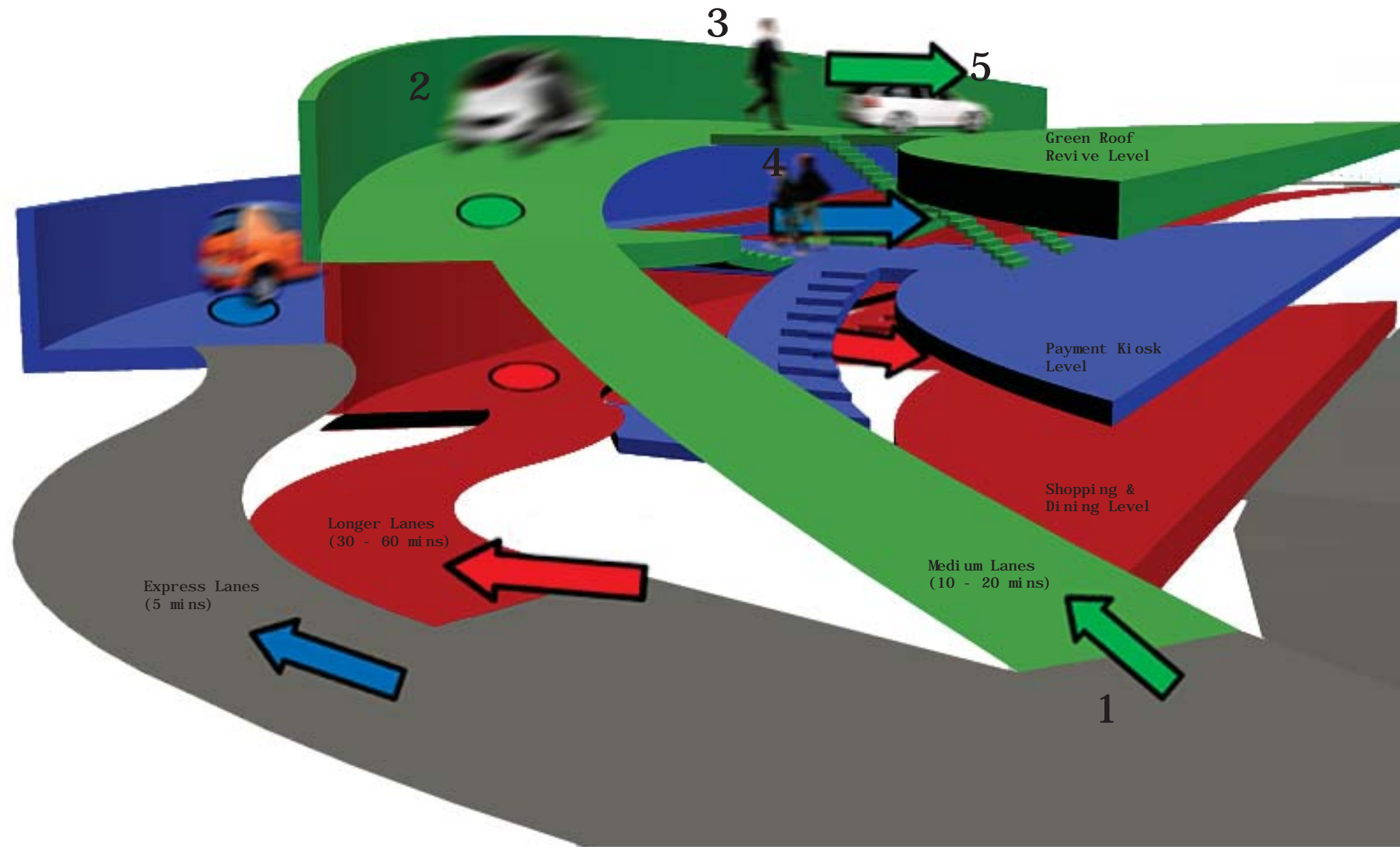
Tron: Legacy

KEY DESIGN INSPIRATIONS

THE CHARGING PROCESS IN THE EYES OF THE CAR OWNER

- 1) Select ramp according to desired charge time
- 2) Drive into parking bay inside tunnel, stop car and leave vehicle
- 3) You may leave tunnels to make use of all facilities available, including pay kiosk, outside spaces and shopping conveniences
- 4) When the car charging is complete, return to car
- 5) Drive out of other end of tunnel

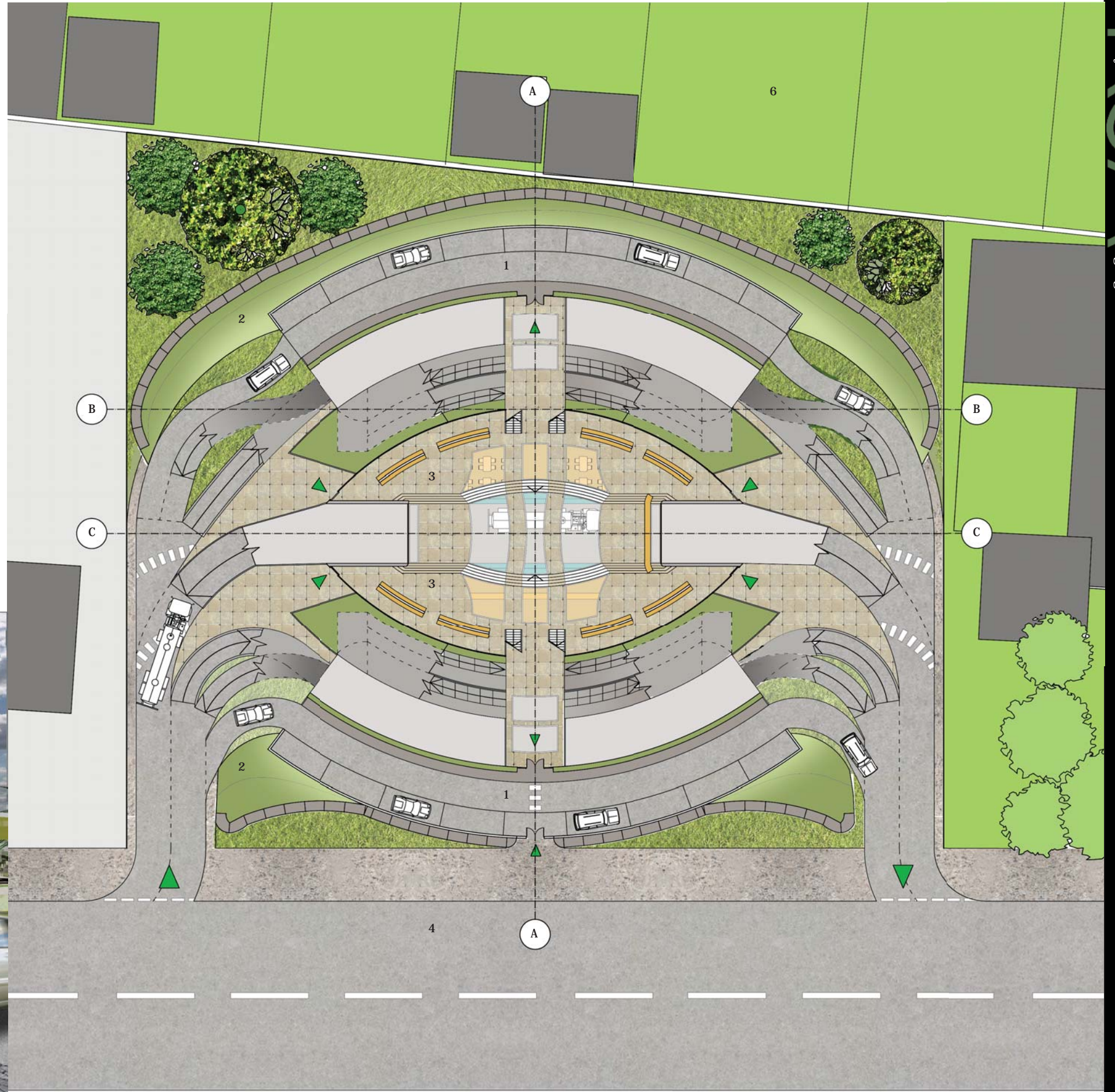
Type of Lane	Charge time (in minutes)	Number of spaces in Lane	Number of cars charged in one lane per hour	Total Number of cars charged in an hour
Express	5	9	12	108
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Medium	10	7	6	42
Medium	20	7	3	21
Longer	30	7	2	14
Longer	60	7	1	7
GRAND TOTAL OF CARS CHARGED ON SITE				300



PAYMENT KIOSK LEVEL
Ground Floor Plan @
1: 250

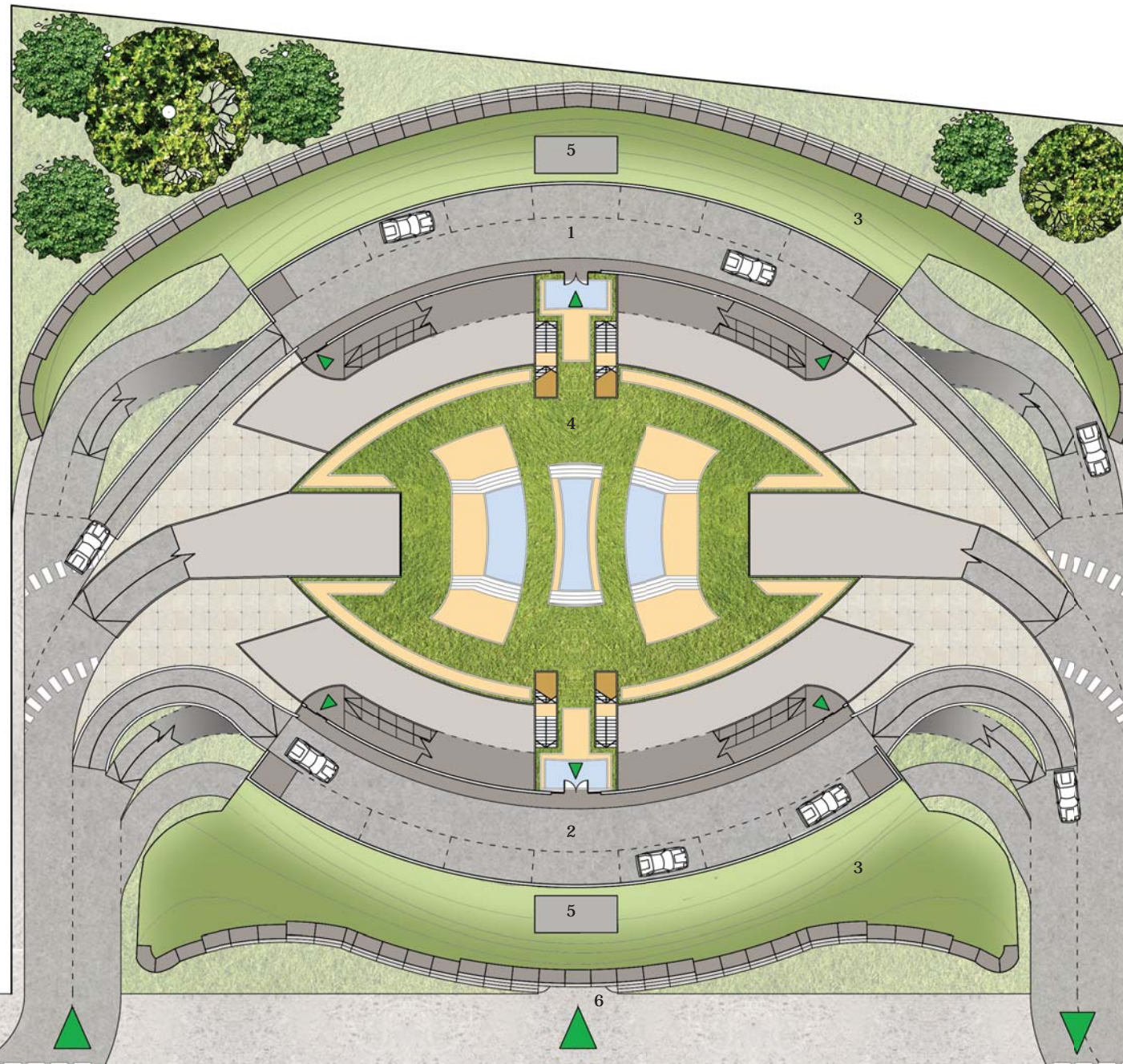
KEY:

- 1 - 5 minute recharge tunnel
- 2 - Landscaping / Sound barriers
- 3 - Convenience Store / Payment Kiosk
- 4 - Bullsmoor Lane
- 5 - Surrounding Context
- 6 - Gabion Wall Pedestrian Entrance



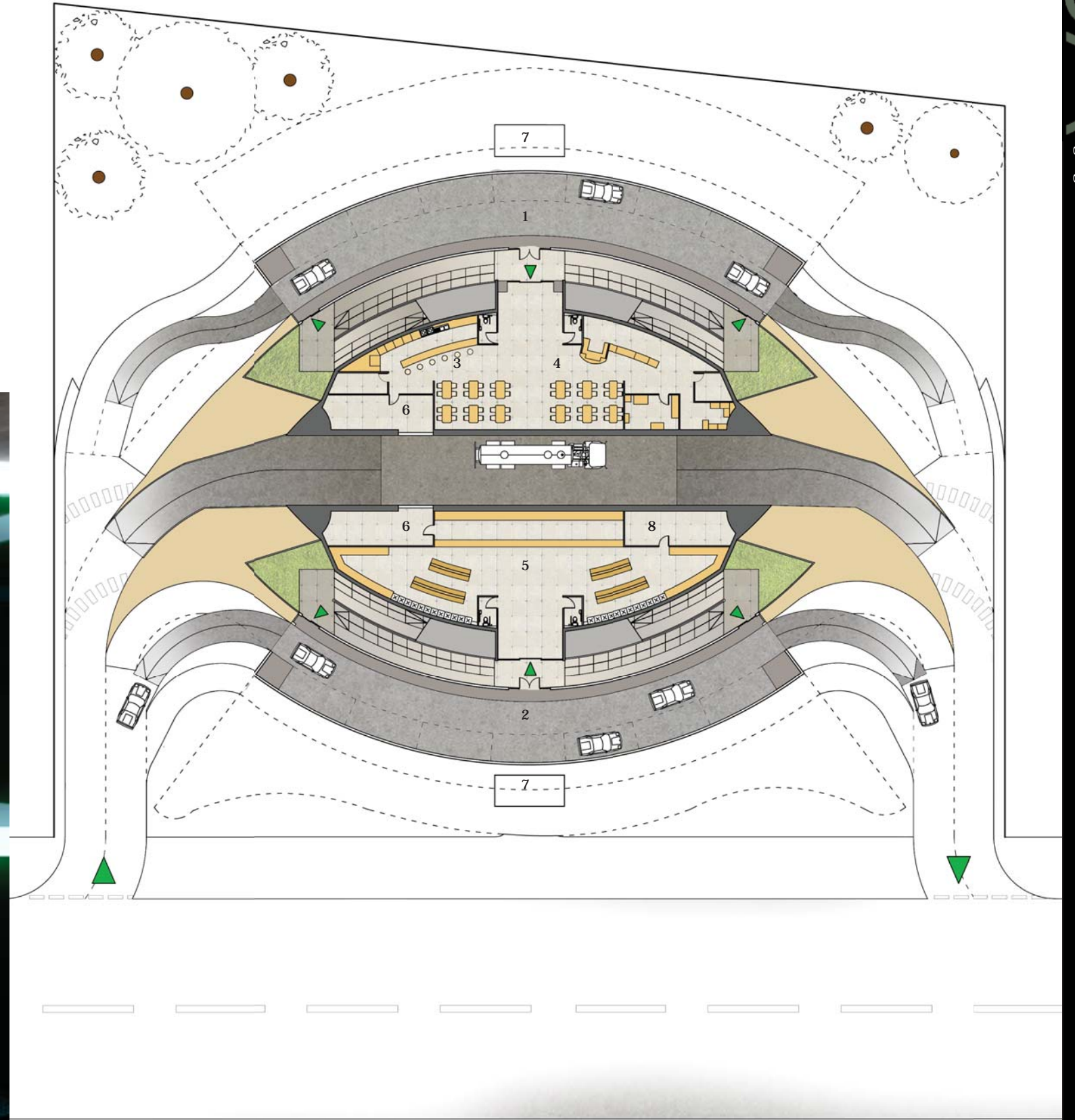


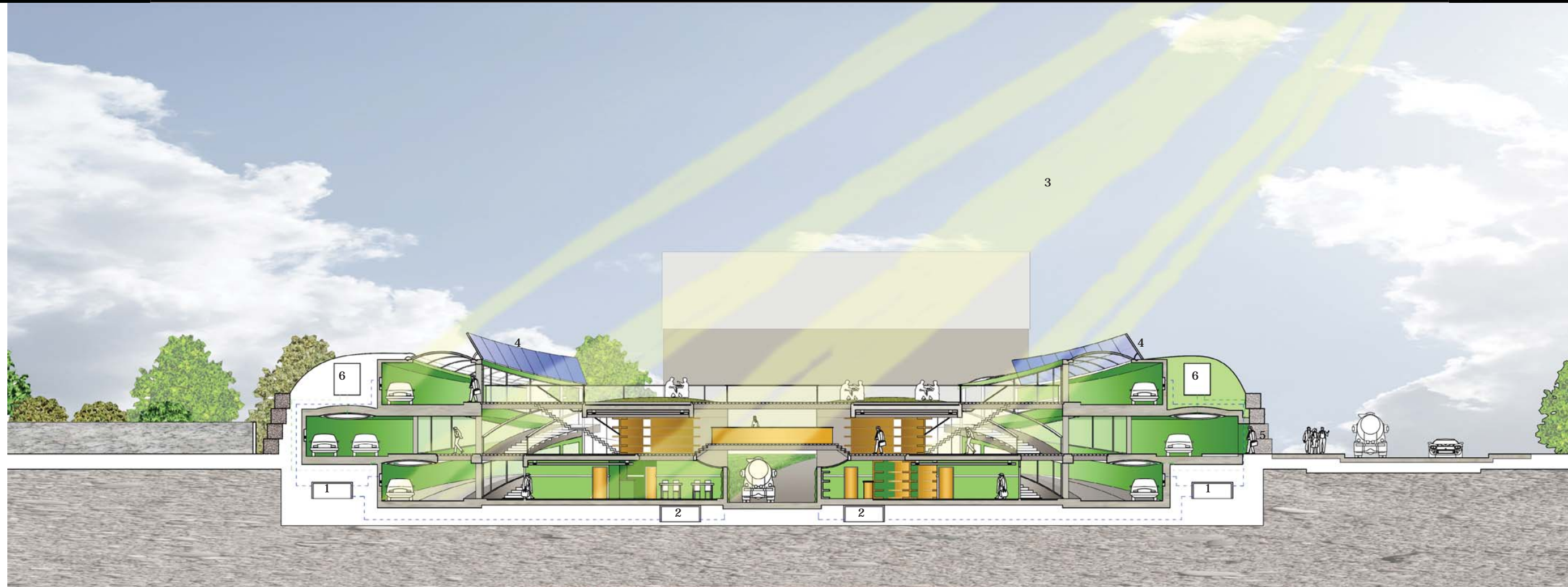
- KEY:
- 1 - 20 minute recharge tunnel
 - 2 - 10 minute recharge tunnel
 - 3 - Landscaping / Sound barriers
 - 4 - Green roofs / Relaxation Space
 - 5 - Wind turbine spaces
 - 6 - Gabion Wall Entrance (accessed from ground floor)



KEY:

- 1 - 1 hour recharge tunnel
- 2 - 30 minute recharge tunnel
- 3 - Coffee shop i.e. Starbucks
- 4 - Fast food establishment
i.e. Pizza Express
- 5 - Car shop i.e. Halfords
- 6 - Storage / Unloading bay
- 7 - Electrolysis Tank
- 8 - Staff Room





Section A - A 1:200

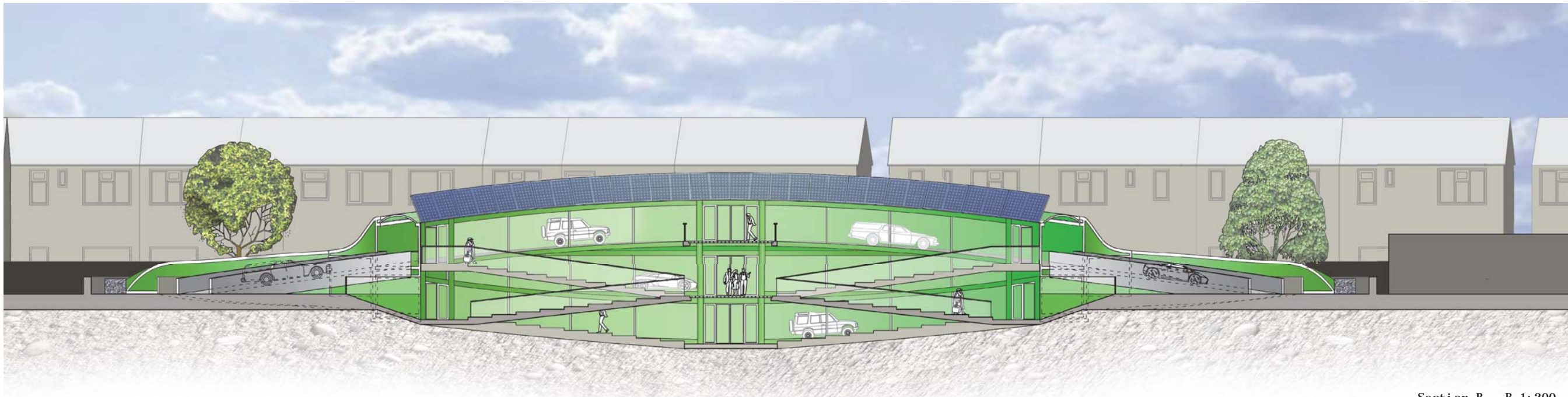
KEY:

- 1 - Water Purification Tanks
- 2 - Electrolysis Tanks
- 3 - Sun Beams (12pm September Sun)
- 4 - Photovoltaic panel arrays
- 5 - Gabion Wall Pedestrian Entrance
- 6 - Wind Turbine Spaces

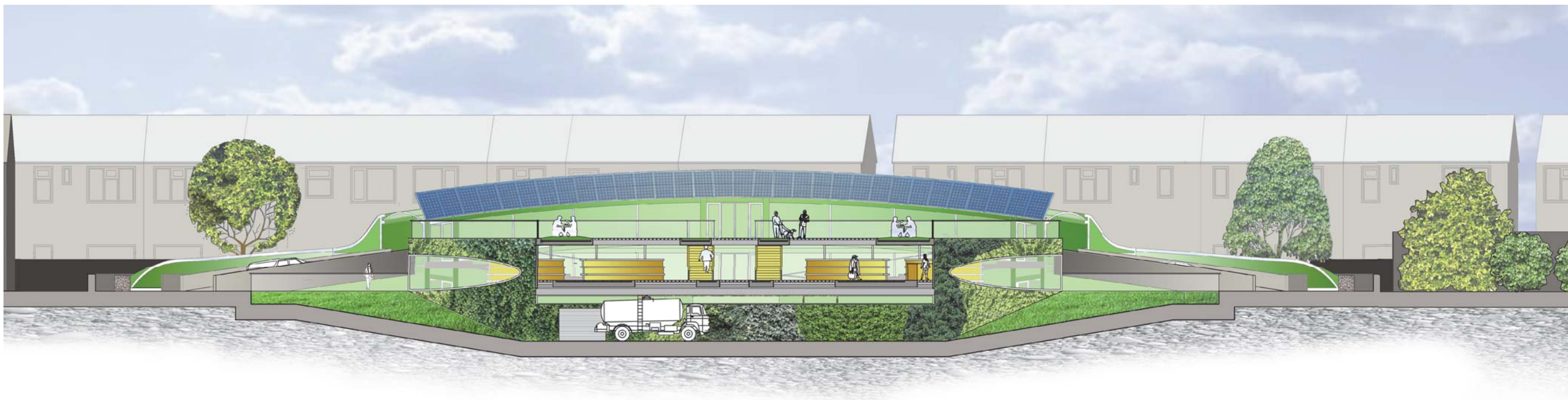
(Green dashed line represents wind energy transfer and blue dashed line represents the passage of harvested rainwater from green roofs)

The sun beams indicate how natural light penetrates into the depths of the petrol station.





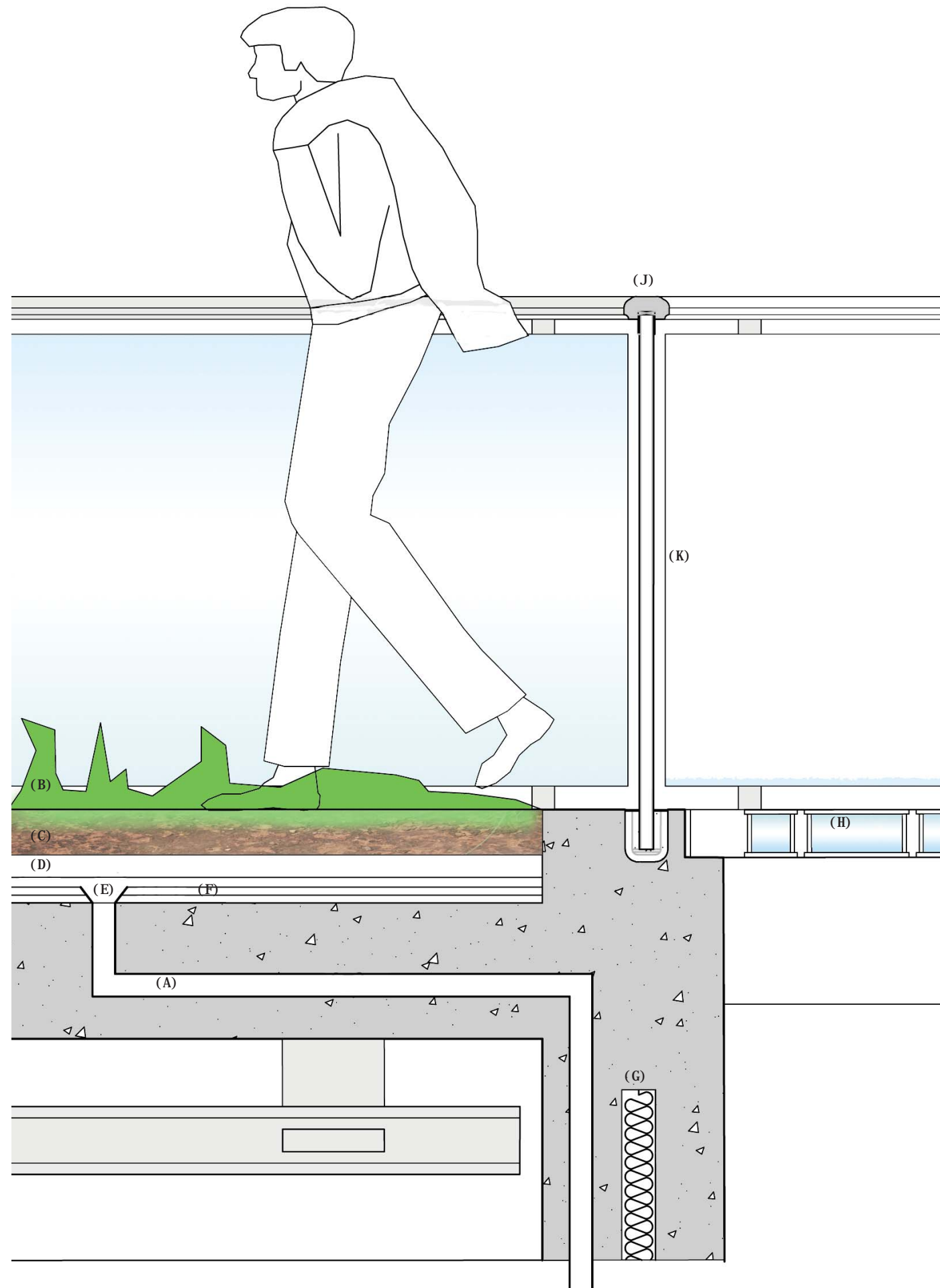
Section B - B 1:200



Section C - C 1:200



East view outside Ground Floor Kiosk

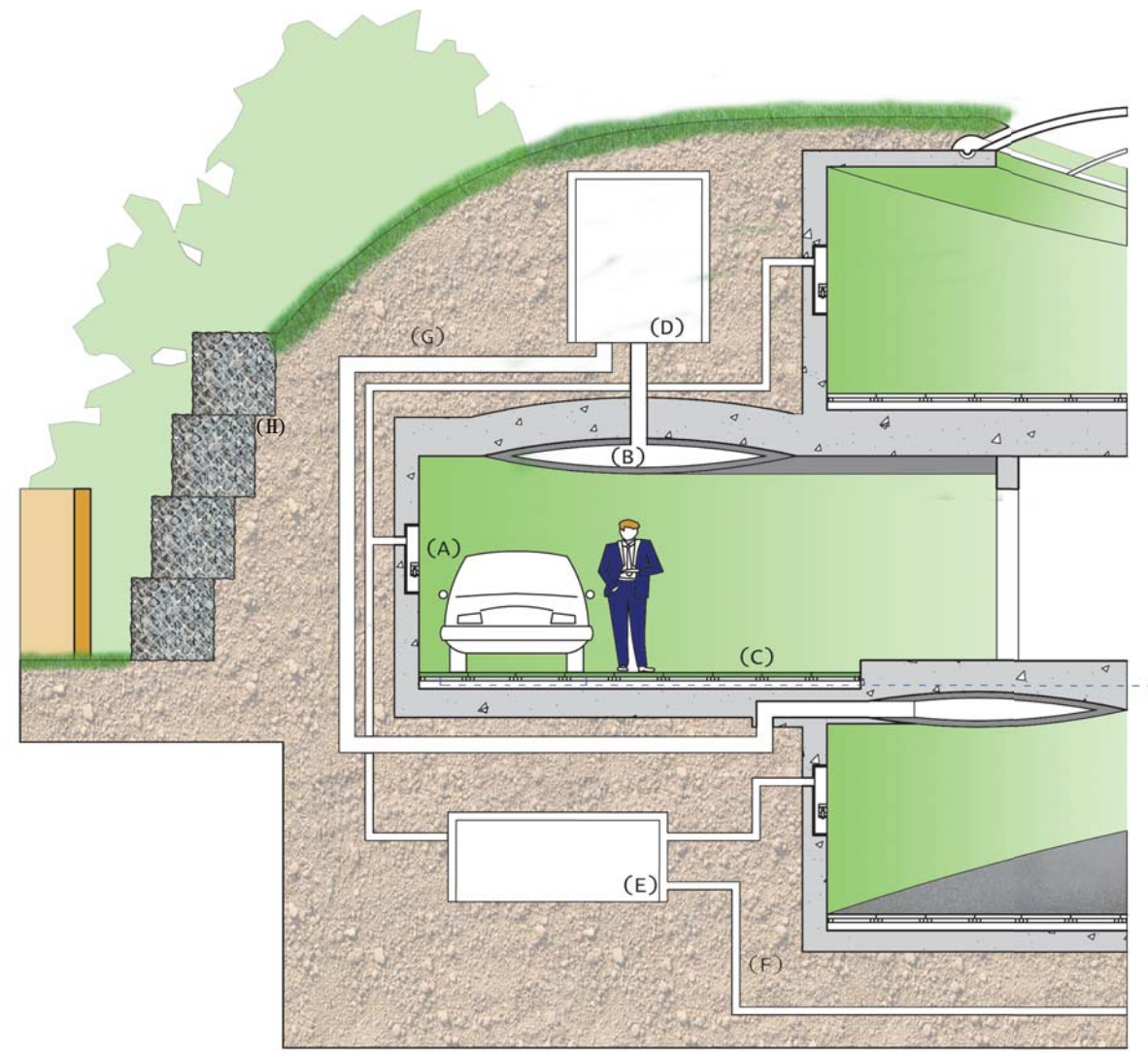


Green Roof Section Detail @ 1:25

- KEY:**
- A - Harvester Rain Water Ducts
 - B - Planting
 - C - Growing Medium
 - D - Filter Fleece
 - E - Drainage Layer
- Rainwater permeates from the layers above
and is filtered into the rainwater harvesting
system
- F - Waterproof Membrane
 - G - Full Fill Wall Insulation
 - H - Walk-on Glass Panels
 - J - Timber Balustrade Cap
 - K - Tempered Glass Balustrade

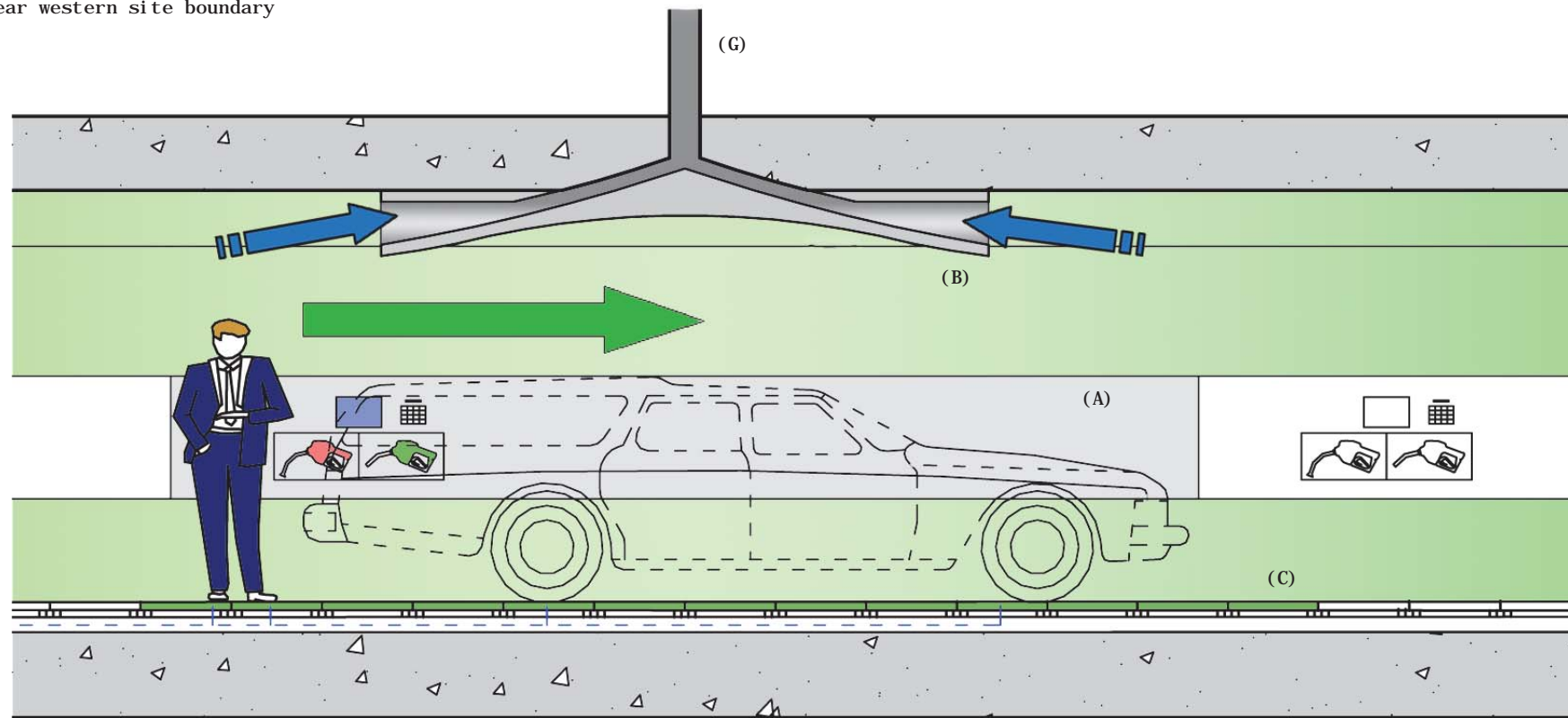


East View across facility and pedestrian crossing near western site boundary



Tunnel Detail @ 1:100

- KEY:
- A - Wall Panel
Pumps integrated with "Pay @ Pump feature"
 - B - Wind extractor Fan
 - C - Pavegen Flooring Tiles
When a car drives on them and when people walk on them, electrical energy is produced
 - D - Wind Turbine Space
 - E - Electrolysis Tank
 - F - Harvested Rainwater Ducts
 - G - Extracted Wind Ducts
 - H - Gabiion Walls



Tunnel Elevation @ 1:50



Pavegen - Power Producing Floor Tiles

These tiles flex 5mm when stepped on, capturing kinetic energy which is stored in lithium batteries beneath the ground's surface or converted into electricity and distributed throughout surrounding lights. So the electric car charging station user is contributing to the environment and the continuation of sustainable awareness and decisions.

Currently used in small spaces like bus stops and ticket machines.

View inside Ground Floor Kiosk

Being green

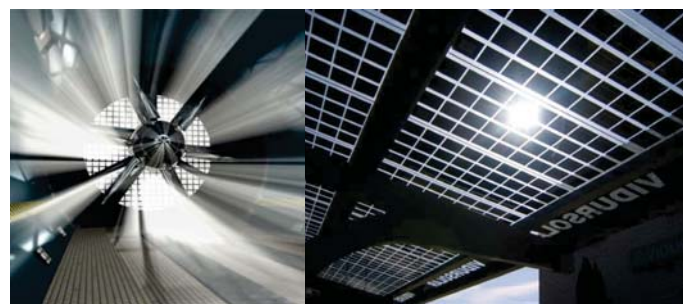
Electric, Hydrogen and Hybrid Cars are designed to be environmentally friendly. So why not design a car charging station that's environmentally friendly too?

Photovoltaic panels, Patrick Blanc style

green walls and green roofing add to creating an environmentally friendly solution.

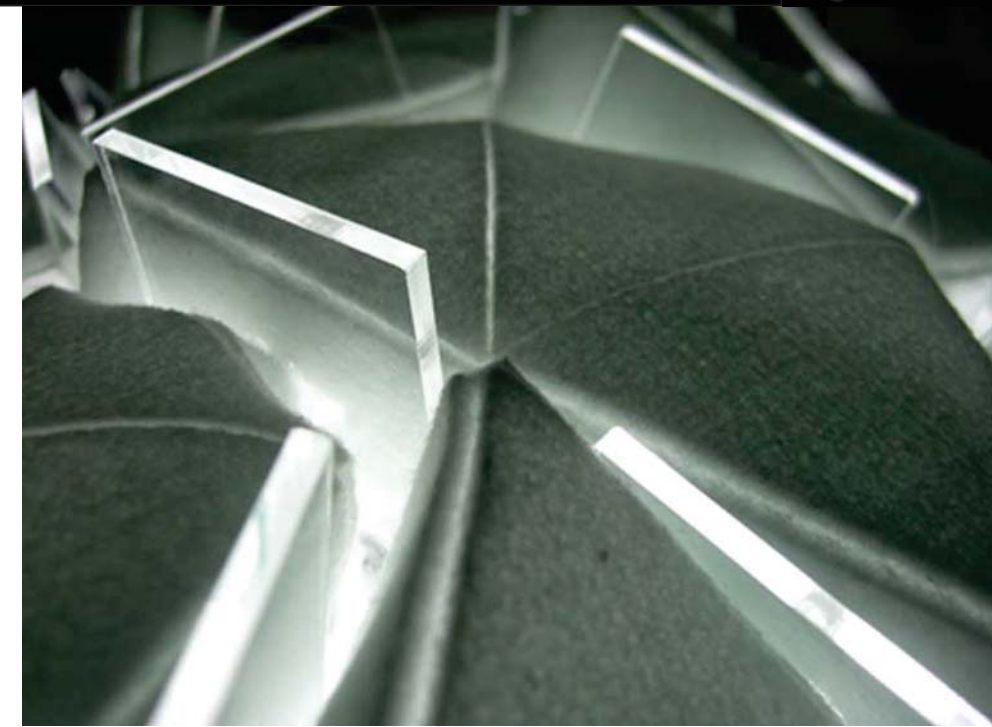
The advantage of photovoltaic floors is whilst people are walking around on them, they're also collecting solar energy to convert into electrical energy. Extracting wind into

turbines is another form of renewable energy that can be converted into electrical energy. When there is the opportunity to harvest this, especially when there are tunnels that introduce a natural vacuum, measures should be taken to gather wind to power the proposed facility.



Raven
Spot
me

RSA
Competition Entry for Electric Car Recharging Stations



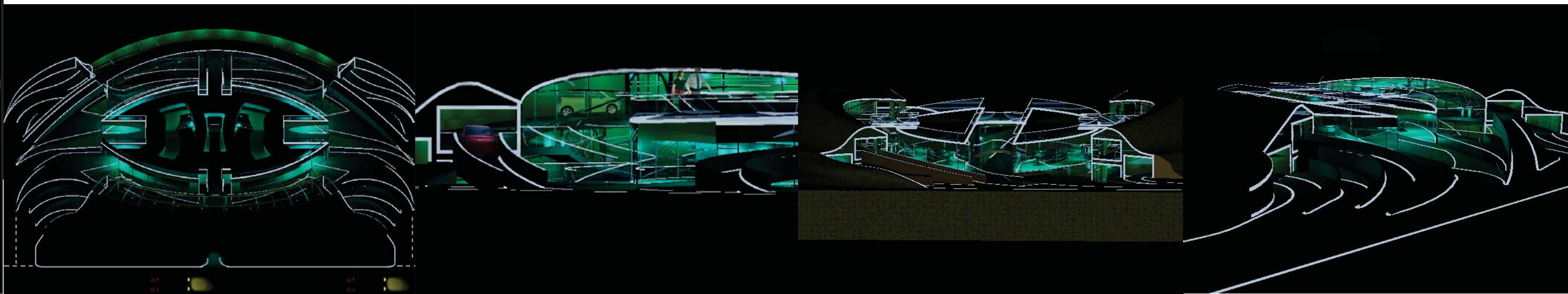
Perspex Lighting

An excellent light conductor, which means that less light sources are needed to light the vicinity. This allows for the Tron effect as well as the futuristic feel tot the environment whilst at the same time using minimal electrical energy overall in the facility.

It is also a sustainable design contribution since it is a recyclable material.

East view outside Ground Floor Kiosk at night

Various Night Time visualisations displaying how light is emitted from the facility.



Raven
spot
me

RSA
Competition Entry for Electric Car Recharging Stations