

A complex network diagram of white nodes and lines on a black background, forming a shape that resembles a hand or a cluster of points.

# Gravity

Smart Campus

# Design Guide



→ Gravity

G22

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LDĀ DESIGN

# Gravity Smart Campus

Gravity Smart Campus is the UK's first commercial development with a purpose to deliver a smarter, cleaner future - faster. It will bring a new era of possibility by supporting companies making a difference socially, economically, and environmentally, driving the UK's transition to a cleaner economy.

Gravity Smart Campus will deliver transformational investment into the UK economy. It has been designed to be able to accommodate all the uses that might be expected of a leading facility of its kind, including:

- Large scale advanced manufacturing for occupiers at the leading edge of the sustainability transition, automotive and battery manufacturing; alternative fuels; modular housing; advanced engineering; and agritech / hydroponics.
- Offices, labs and innovation hubs.
- Training facilities, linking to nearby universities, schools and Bridgwater & Taunton College.
- High quality and sustainable transport infrastructure.
- All the facilities necessary to attract and support a modern working community including an hotel, leisure uses, fitness centres, gyms, nursery and food and drink outlets.
- High quality landscape for amenity and recreation, including sports facilities.
- Accommodation for a future workforce.



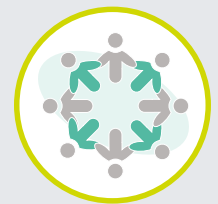
**Integrated smart campus**



**Skills**



**Infrastructure**



**A great place**



**Sustainable, smart mobility**



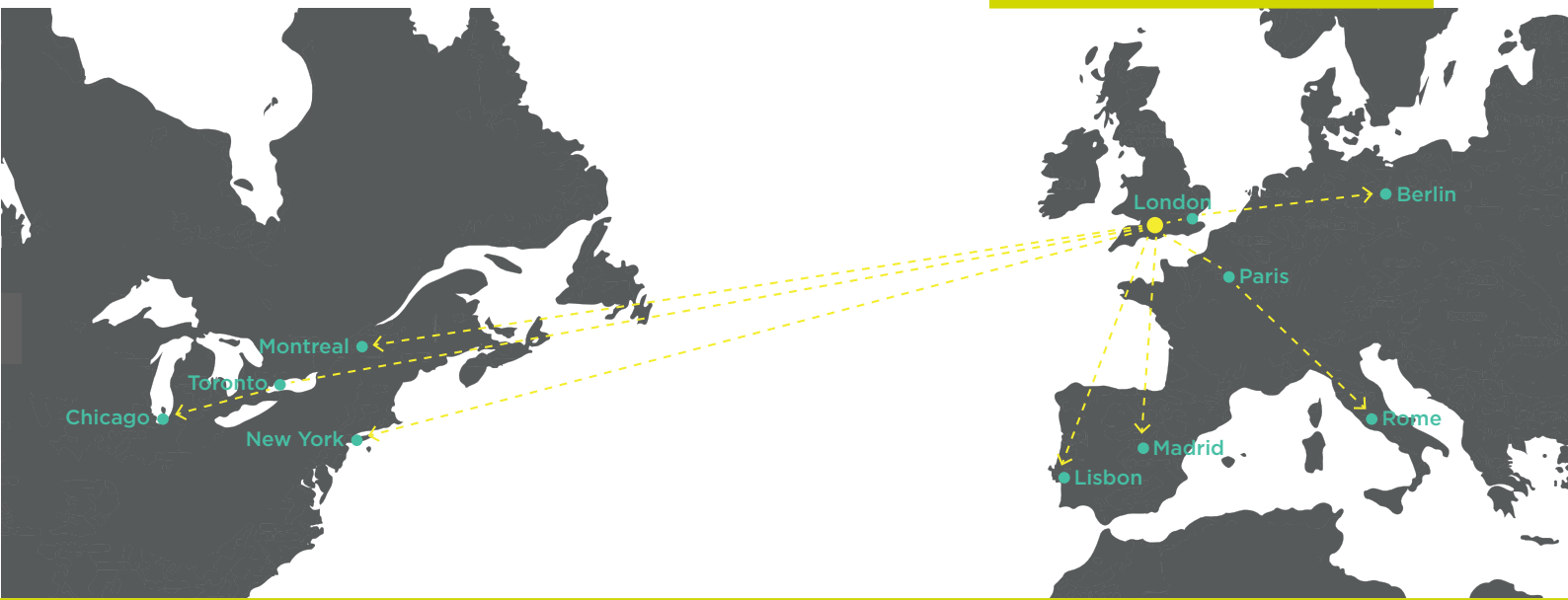
**Jobs**



**Leisure and community**



**Local businesses**



# The Purpose of the Design Guide

Gravity LDO is designed to make the site attractive to investors by granting planning permission. This allows for accelerated delivery for investors and occupiers.

The Design Guide is an important part of the Local Development Order. It provides clarity for occupiers and the local authority by setting out Key Design Principles for Compliance. Other design considerations are also included that present further opportunities to strengthen placemaking where possible.

The Design Guide should inform and support the process of compiling a Local Development Order Compliance submission, which should also be co-designed collaboratively with the Local Planning Authority from the outset. This will ensure Compliance submissions deliver outcomes aligned to the vision and objectives of the Local Development Order and that the Compliance submission can be dealt with quickly and efficiently by the Local Planning Authority when formally received.



# The Site

Gravity Smart Campus is the **only** site in the UK in the next 3 years with the following advantages:

- a national Enterprise Zone that is readily available at a large scale (616 acres) to provide a strategic response to climate change and transport decarbonisation in a global marketplace.
- extremely well connected, being located on the UK's major national motorway and railway networks. It is in close proximity to Bristol Port and Bristol Airport and has dark fibre already in place.
- flat and suitable for large buildings and a new era of advanced manufacturing.
- access to 4 of the UK's leading universities with relevant courses and closely linked to local colleges and education.
- a workforce supported by training opportunities, including a proportion that are transitioning from other major infrastructure projects.

The remediation of the site was concluded in 2020 and it is now ready for development, connected to the national road network by a new access road which connects the site with Junction 23 of the M5. The site has good local connectivity to Bridgwater and it will help make the town a national and international focus for investment.



# Site Characteristics

The site has the following characteristics that could influence and shape an appropriate design response:

## Topography

The site has a general south to north slope which allows it to drain naturally to the Huntspill River. The sites significant topographical features include a bund that has been constructed along the western boundary of the site as part of the remediation works, and a network of rhynes running north-south and east-west.

## Access

Access to the site is via the new Gravity link road (Enterprise Way) that was opened in October 2021. It provides access to the M5 motorway via Junction 23 and the A38 via the Dunball Roundabout.

## Utilities

Western Power Distribution supply the site via two routes, overhead 33kV lines running along the southern boundary and a 33kV cable running along the northern boundary. New overhead powerlines are being constructed in the south east of the site, these lines will be 400kV to serve the Hinkley Point C new nuclear power station.

## Existing vegetation and rhynes

The site is generally surrounded by a mixture of farmland and grazing meadows which are primarily featureless although to the south east hedgerows and hedgerow trees form strong features. It is probable that the field patterns closest to Puriton and Woolavington are mediaeval in origin. The site and the adjoining landscape to the north have an open, expansive character, its principal landscape features being the rhynes that drain the levels and the rectilinear field pattern. Rhynes, or drainage ditches, run through the site conveying flows from the upstream catchment.



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# 2 Parameters

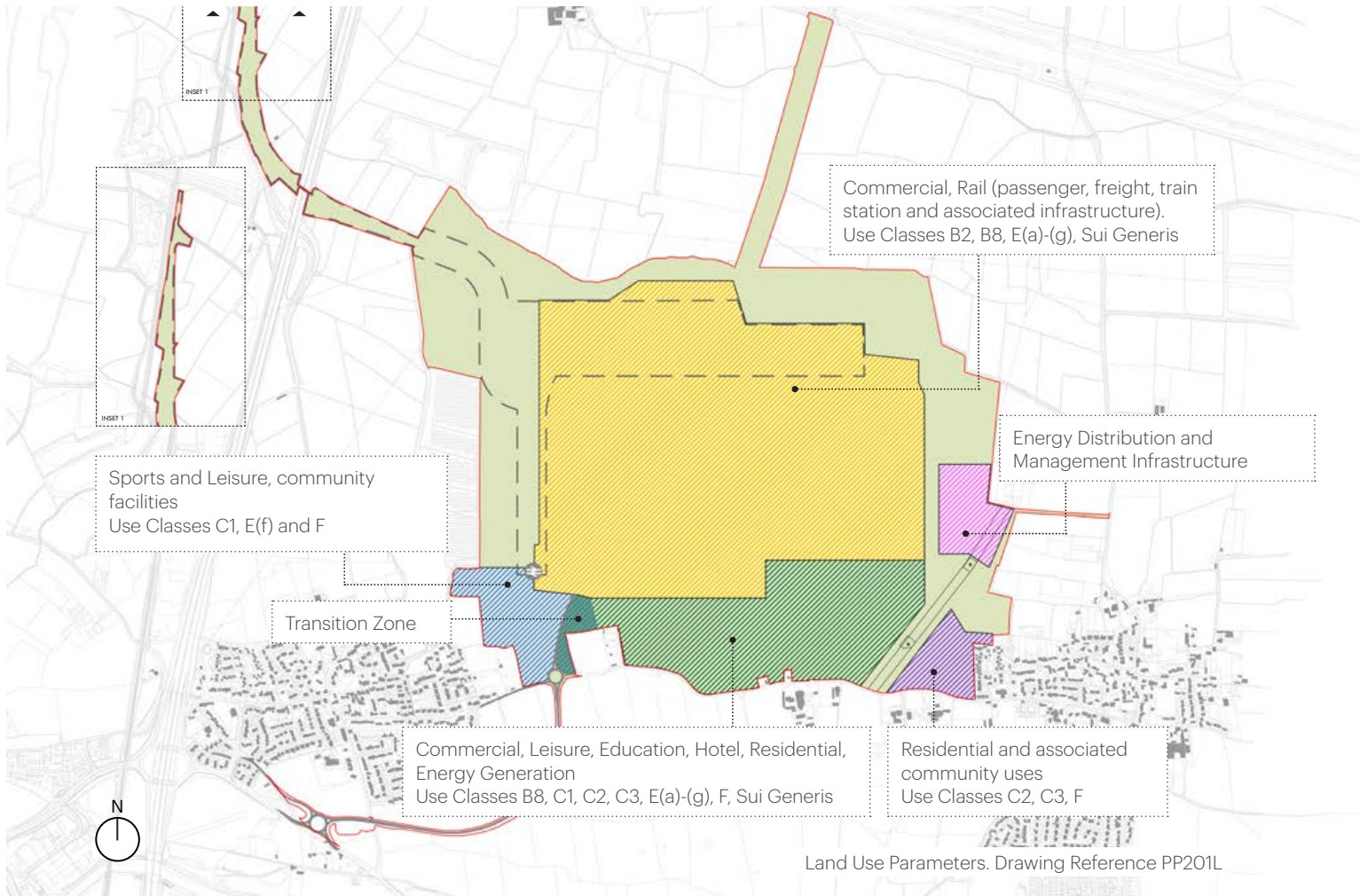
The Parameters that underpin Gravity - Smart Campus provide occupier flexibility and have been developed to respond to the clean growth agenda and shift to a low carbon economy, market requirements and the competitive advantages of the site. They establish the physical and spatial limits of what can be delivered on the site. They include the seven plans as follows:

- **Land Use:** establishes the distribution of permitted land uses across the site and maximum floorspace for each class.
- **Transport: Strategic Infrastructure:** how the transport needs of Gravity should be achieved on site and integrated through good design.
- **Transport: Micromobility:** how principles of micromobility should be integrated through the design process.
- **Building Heights:** establishes maximum building heights.
- **Strategic Landscape:** Establishes a strategic landscape framework to be followed in bringing forward any development.
- **Infrastructure and Utilities:** Predominantly shows available site infrastructure underpinning the sites competitive advantage.
- **Demolition:** Identifying the limited number of remaining buildings on site requiring demolition. This plan has not been included in the design guidance section of this document.













# Land Use

The below plan establishes a maximum floorspace for each use class\* across the campus. The location and distribution of uses across the site is flexible but must reflect the Land Use Parameters.



## Legend

	LDO Boundary		Sport and leisure, community facilities
	Commercial, Rail		Transition Zone
	Energy Distribution and Management Infrastructure		Open Space and Biodiversity Zones
	Residential and associated community uses		Railway corridor
	Commercial, Leisure, Education, Hotel, Residential, Energy Generation		Passenger Station (indicative location)

\*Use Classes are defined in the Town and Country Planning (Use Classes) (Amendment) (England) Regulations 2021 and is the categorisation of different types of property and land into classes. To find out more click here: [https://www.planningportal.co.uk/info/200130/common\\_projects/9/change\\_of\\_use](https://www.planningportal.co.uk/info/200130/common_projects/9/change_of_use)

## Schedule of land uses

Use	Definition	Limitations
<b>Advanced Manufacturing</b>		
B2 / B8 / E(a – g) / Sui Generis	General Industrial Use	Total GEA of up to 1,000,000 m <sup>2</sup>
<b>Supporting Employment Uses</b>		
B2	General Industrial Use	Total GEA of up to 65,000 m <sup>2</sup>
B8	Storage or Distribution	
E (a) to (g)	Commercial, Business and Service	
Sui Generis	Uses which do not fall within the specified use classes above.	
<b>Supporting Uses</b>		
C1	Hotels, boarding and guest houses where no significant element of care is provided	Total GEA of up to 35,000 m <sup>2</sup>
C2	Residential Institutions	
E (a) to (g)	Commercial, Business and Service	
F	Local Community and Learning	
C3	Dwelling houses	Up to 750 dwellings



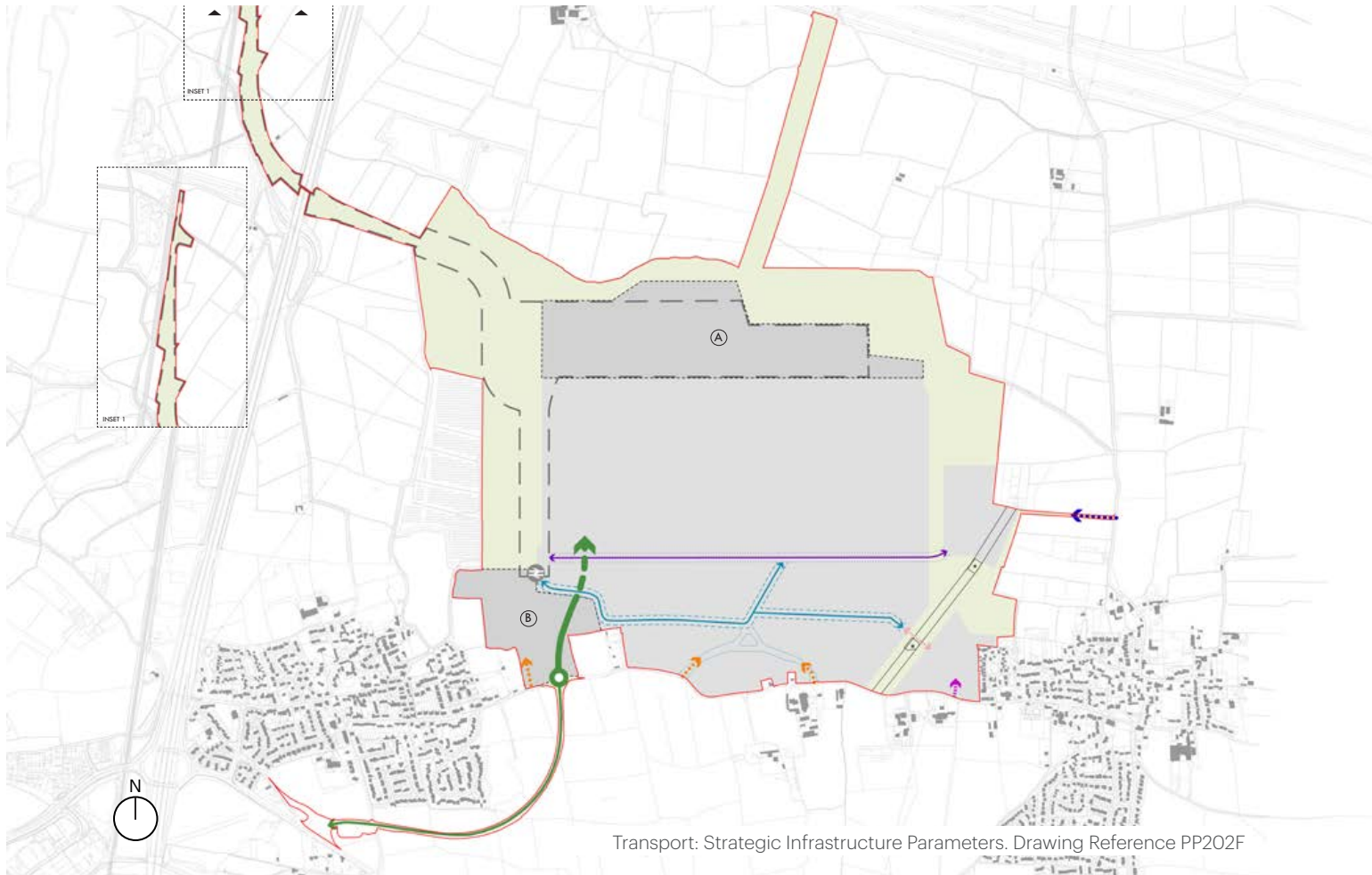
Here East: bold use of an accent colour along a glazed facade.

## Key Design Principles for Compliance

Ref	Design Principle	Further considerations
LU1	Locate the largest scale uses to the northern and central parts of the site.	<ul style="list-style-type: none"> <li>Large buildings can be designed to appear as multiple connected, or stand-alone buildings to reduce bulk and visual impact.</li> </ul>
LU2	Locate the smaller scale and lower height uses in the southern part of the site.	<ul style="list-style-type: none"> <li>Smaller buildings can be placed to minimise visual impact from nearby viewpoints, respect topography and allow existing features to be retained.</li> </ul>
LU3	Make efficient use of land.	<ul style="list-style-type: none"> <li>Consider orthogonal blocks running parallel or perpendicular to streets and public realm.</li> </ul>
LU4	Locate plant, storage yards and servicing out of sight from the main entrances, streets, spaces and amenity areas.	<ul style="list-style-type: none"> <li>Consider placing buildings to the front edge of plots and place yards, parking and other uses to the side or rear.</li> <li>A site wide approach to the management, treatment and recycling of waste should be adopted if possible.</li> <li>Recycling and refuse storage, utility boxes can complement the building design and be placed on the side elevation. Rooftop plant can be concealed behind parapets or solid or perforated plant screens.</li> <li>Site layout to be designed in accordance with Secured By Design (SBD) principles and the security requirements of the occupier(s).</li> </ul>
LU5	Creating a campus to attract and retain a workforce.	<ul style="list-style-type: none"> <li>Streets, spaces and external areas should be designed to be safe and comfortable for people to use with a good microclimate.</li> <li>Layout should be accessible and permeable to encourage walking and cycling.</li> <li>Consider placing active parts of buildings, such as offices, cafes and accommodation, where they face the street providing natural surveillance and activity.</li> <li>The incorporation of spaces where people can meet and interact should be considered to create a sense of community and aid collaboration.</li> </ul>
LU6	Ensure uses at the south-west and south-east corners of the site create a positive relationship with Woolavington and Puriton.	<ul style="list-style-type: none"> <li>Open space and landscape can be used to create a sympathetic relationship between the site and adjacent communities.</li> </ul>













# Transport: Strategic Infrastructure

Gravity Smart Campus will allow smart and 'people-focused' movement through the site. The below plan set a framework for access and movement that is deliverable, adaptive and resilient to future travel patterns and systems.




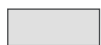

Transport: Strategic Infrastructure Parameters. Drawing Reference PP202F

## Legend

	LDO Boundary		Passenger Station (indicative location)
	Primary Road (all modes)		Overhead powerlines 400kV
	Link Road		Transport corridor (subject to centre line deviation limits of +/-30m, unless other prevailing stipulations of the Parameter Plan directly inform alignment of the corridor).
	Secondary Access (all modes)		Primary road corridor (subject to centre line deviation limits of +/-50m, unless other prevailing stipulations of the Parameter Plan directly inform alignment of the corridor).
	Emergency / operations / pedestrian / cycle access only		Existing road network to be retained
	Indicative vehicular crossing		
	Residential and smart mobility access		

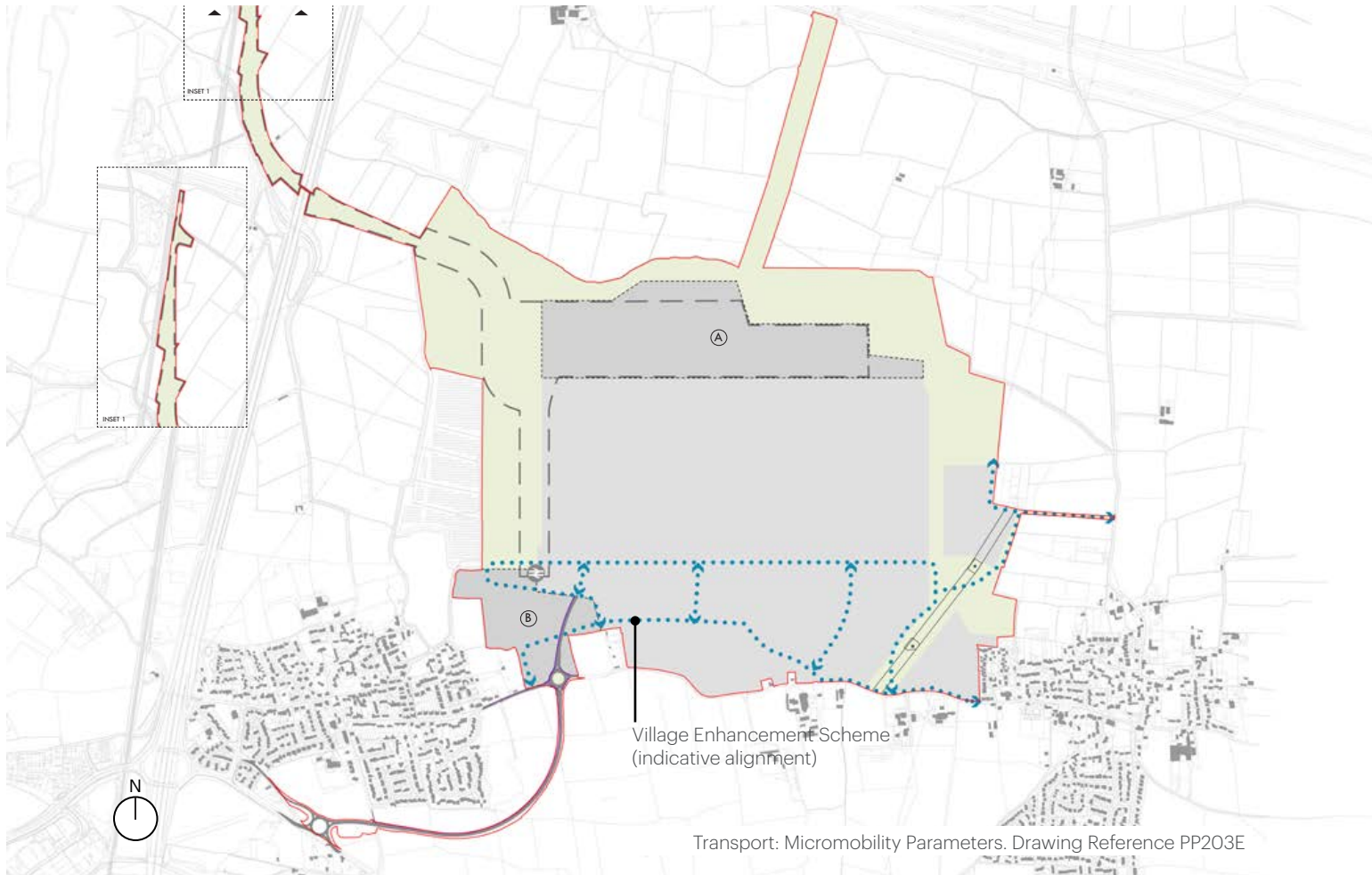
## Key Design Principles for Compliance

Ref	Design Principle	Further considerations
ST1	Manage HGVs to operate safely with pedestrians, cyclists and micromobility.	<ul style="list-style-type: none"> <li>Consider how the main HGV movement can be designed to reduce conflict with pedestrians, cyclists and other users.</li> </ul>
ST2	Prioritise pedestrian / cycle / micromobility users.	<ul style="list-style-type: none"> <li>Streets can be designed to integrate different movement, design and infrastructure needs.</li> </ul>
ST3	Adopt a strategic approach to parking provision.	<ul style="list-style-type: none"> <li>Parking areas should be consolidated into a series of main hubs positioned to intercept car traffic.</li> <li>Parking structures can be designed for future adaptability and conversion.</li> <li>Localised on-street and on-plot parking will need to be provided in accordance with inclusive mobility requirements.</li> <li>Bike and e-scooter storage and charging provision should be provided both on plot and in larger consolidated cycle parking zones.</li> </ul>
ST4	Provide accessible mobility hubs.	<ul style="list-style-type: none"> <li>The largest mobility hubs should be at the interchange of rail and bus with smaller hubs elsewhere.</li> <li>Mobility hubs can be connected to correspond with strategic parking to allow transfer between modes.</li> <li>Mobility hubs can be designed with a range of facilities to meet user needs.</li> </ul>
ST5	Accommodate high levels of public transport provision.	<ul style="list-style-type: none"> <li>Bus facilities should be integrated into the site, for example connecting main mobility hubs, rail station and on-site shuttles.</li> </ul>










-  Rail corridor - Freight and Passenger and associated infrastructure
-  Development Zone
-  Development Zone - 50% of the zone will accommodate buildings, the remainder will be:
  - Ⓐ associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure.
  - Ⓑ blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.

# Transport: Micromobility

Implementing micromobility solutions for people and goods through the site will reduce the need for private car and HGV/LGV movement. Micromobility connections are shown on the below plan, demonstrating the principle of a series of routes that are connected and link key spaces.



## Legend

	LDO Boundary		Rail corridor - Freight and Passenger and associated infrastructure
	Micromobility connections (including pedestrian and cycle), indicative alignment		Passenger Station (indicative location)
	Footpath provided as part of Link Road		Development Zone
	Open space and biodiversity zones		Development Zone - 50% of the zone will accommodate buildings, the remainder will be:
	Overhead powerlines 400kV		(A) associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure. (B) blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.



## Key Design Principles for Compliance

Ref	Design Principle	Further considerations
TM1	Micromobility should be designed as an integral part of site layout.	<ul style="list-style-type: none"> <li>Streets, footpaths and cycleways should be designed to accommodate movement through the development by cyclists and pedestrians and by other mobility users.</li> <li>Cycleways should exceed the minimum requirements to encourage in and out cycle flows where possible.</li> </ul>
TM2	Streets must be designed for everyone.	<ul style="list-style-type: none"> <li>The needs of minority groups, vulnerable users, movement and visually impaired users should be met.</li> </ul>
TM3	Design to create safe micromobility routes and connections.	<ul style="list-style-type: none"> <li>Street designs should be considered which make drivers drive with caution and adopt low vehicle speeds.</li> <li>Routes for e-scooters and e-bikes can be designed to avoid conflict with pedestrians.</li> <li>Street crossing points can be wide and well landscaped using materials and lighting to define the crossing area and prioritising pedestrians and cyclists.</li> </ul>
TM4	Village Enhancement Scheme (VES).	<ul style="list-style-type: none"> <li>A car-free, cycle and pedestrian path between Puriton and Woolavington has planning permission and will be delivered.</li> <li>The VES also includes local traffic calming measures within the villages.</li> </ul>










Micromobility should be designed as an integral part of site layout



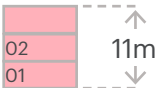
# Building Heights

The below plan sets the maximum or 'up to' heights of buildings across the different areas of the campus. These parameters allow flexibility in delivery while ensuring buildings respond to the site conditions.



## Legend

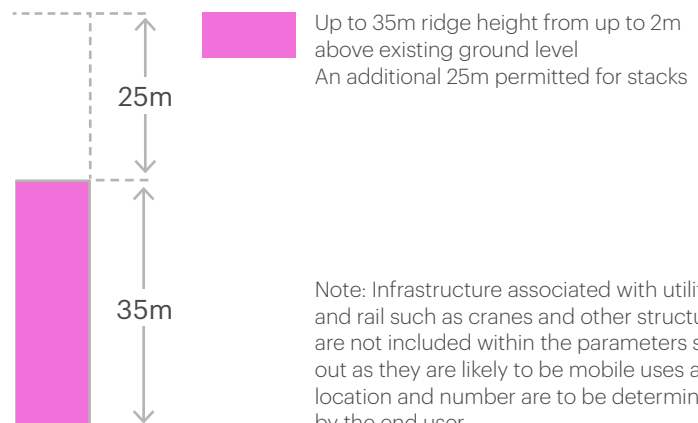
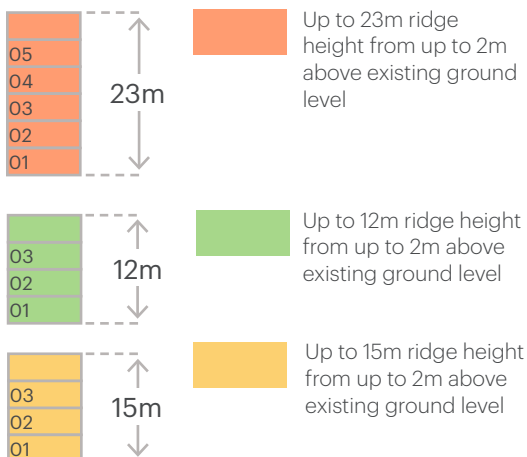
-  LDO Boundary
-  Open space and biodiversity zones  
Including surface water attenuation features, watercourses, woodland, hedgerows and trees, utilities, occasional vehicular routes and rail line with associated infrastructure.
-  Indicative location for Energy Generation. The height and number of flues associated with the Energy Generation will be determined by dispersion modelling. Typically 3m higher than adjacent building height.
-  Rail corridor - Freight and Passenger and associated infrastructure
-  Passenger Station (indicative location)
-  Development north and west of this line will be from finished floor level 6.5m AOD
-  Overhead powerlines 400kV

-  02  
01  
9m  
Up to 9m ridge height, with limited areas (up to 5% of the height zone), of up to 12m ridge height in key locations, from up to 2m above existing ground level
-  02  
01  
11m  
Up to 11m ridge height from up to 2m above existing ground level
-  02  
01  
11m  
Up to 11m ridge height from up to 2m above existing ground level

Up to 50% of the zone will accommodate buildings, the remainder will be:  
 Ⓐ associated infrastructure such as rail, including mobile gantry cranes, roads and/or green infrastructure.  
 Ⓑ green infrastructure, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.

## Key Design Principles for Compliance

Ref	Design Principle	Further considerations
BH1	Locate taller buildings towards the middle and northern part of the site.	<ul style="list-style-type: none"> <li>Consider dividing the roofscape of large footprint buildings into smaller elements to limit the overall ridge height and create a more varied and interesting roofline.</li> <li>Consider how large areas of roofscape can accommodate PV and how this can positively contribute towards managing visual impact.</li> <li>Consider how to take advantage of large areas of roofscape to assist with biodiversity, ecology, water attenuation and heat island effect.</li> <li>Consider potential for elevational treatment on otherwise blank façades.</li> </ul>
BH2	Design to mitigate, where possible, the landscape, visual and heritage impacts identified in the ES and supporting documentation.	<ul style="list-style-type: none"> <li>Building heights will respond to operational needs and site context which has been taken into consideration in the ES and parameters.</li> <li>Environmental Colour Assessment (ECA) can be used to develop a palette of colours to integrate the Proposed Development into its local context.</li> <li>Consideration should be given to optimising views through the placement of buildings where possible.</li> </ul>
BH3	Use building heights to increase the legibility of the development.	<ul style="list-style-type: none"> <li>Consider the locations of taller buildings to emphasise entrances and focal points.</li> <li>Consider the how building height can help create well defined and enclosed spaces.</li> </ul>
BH4	Locate lowest buildings along Woolavington Road and adjacent to Puriton/ Woolavington.	<ul style="list-style-type: none"> <li>Heights should be lower in these areas to minimise visual impact and facilitate spatial integration and cohesion.</li> </ul>
BH5	An innovative approach to design and materials which considers the landscape, visual and heritage impact of the building(s).	<ul style="list-style-type: none"> <li>Consider a design approach that creates a landmark feature(s) to celebrate transformation and put Somerset on the map as a place of economic success.</li> <li>Consider the location and design of other buildings on the campus to break up the bulk and impact of the primary advanced manufacturing uses from the frontage of the site.</li> <li>Creative use of materials to respond to visual impact within a framework of strategic landscape.</li> </ul>

















Note: Infrastructure associated with utilities and rail such as cranes and other structures are not included within the parameters set out as they are likely to be mobile uses and location and number are to be determined by the end user.

# Strategic Landscape








The below plan sets out the key landscape features across the campus, and areas of consideration in the approach to landscape design including existing features such as drainage rhynes, landscaped bund and principles that future designs will need to consider.





## Legend

	LDO Boundary		Gravity Park
	Greenspace		Green Edge to Woolavington
	Micromobility connections (including pedestrian and cycle)		Indicative location of greenspace
	East-west landscape corridor to incorporate landscaping such as street trees and rhynes		Placemaking Node - important focal points, development should respond appropriately through landscape and built form.
	Existing trees/woodland to be retained where possible		Green Edge to Woolavington Road - landscaped area adjoining highway to reflect campus feel.
	Structural tree and woodland planting (indicative extents)		Landscape bund and planting
	Trees to be retained where possible subject to rail alignment and necessary associated infrastructure		Existing waterbodies to be retained



-  Indicative location of water attenuation
-  Attenuation areas to be delivered as part of the link road
-  Existing rhynes, IDB rhynes to be retained, other rhynes to be incorporated into site-wide drainage strategy
-  Wellbeing and Arrival Zone\*
-  Rail corridor - Freight and Passenger and associated infrastructure
-  Passenger Station (indicative location)
-  Development Zone

-  Development Zone\*\*
-  Overhead powerlines 400kV

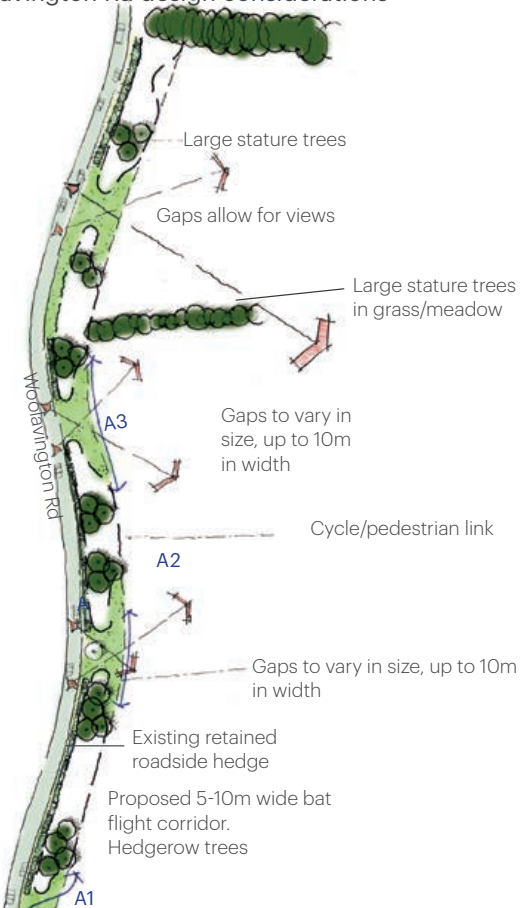
\*Up to 50% of the zone will accommodate buildings, the remainder will be blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.

\*\*50% of the zone will accommodate buildings, the remainder will be:  
 (A) associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure.  
 (B) blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.

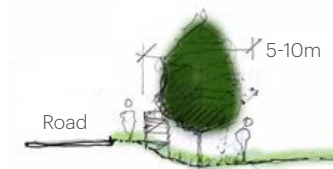
# Key Design Principles for Compliance

Ref	Design Principle	Further considerations
SL1	Create a strong strategic landscape mitigation at the edges of the site to mitigate, landscape visual and heritage impacts identified in the ES and supporting documentation.	<ul style="list-style-type: none"> <li>■ Landscape mitigation requirements will be integrated into strategic landscape design for the edges of the site (see diagram below).</li> <li>■ Landscape design proposals to incorporate Pollinator friendly and climate resilient species.</li> </ul>
SL2	Create edges to Puriton, Woolavington and Woolavington Road that integrate the Smart Campus with its surrounding community through the use of planting and open space provision.	<ul style="list-style-type: none"> <li>■ Puriton Edge: A soft landscaped edge to the LDO boundary. Greenspaces could include tree nursery, sports pitches, recreational space and retained features.</li> <li>■ Woolavington Edge: Enhanced boundaries to existing properties maintaining the existing hedgerow which is retained within the public realm/open space.</li> <li>■ Woolavington Road Edge: A landscape setting to development with retained trees, hedgerows, glades and rhynes serving as a setting to buildings and serving as a bat corridor.</li> </ul>
SL3	Ensure that internal streets and spaces have a landscape structure which make them attractive to occupiers and their workforce.	<ul style="list-style-type: none"> <li>■ Consider integration of existing site features include trees and rhynes into landscape design.</li> <li>■ Use tree planting, rhynes and shrubs and grasses planting to create a good microclimate, visual interest and biodiversity.</li> <li>■ Structural planting and woodland clusters should be used in key locations to manage visual impacts, internally separate contrasting uses and to screen unattractive uses.</li> </ul>

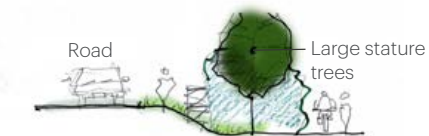
Woolavington Rd design considerations



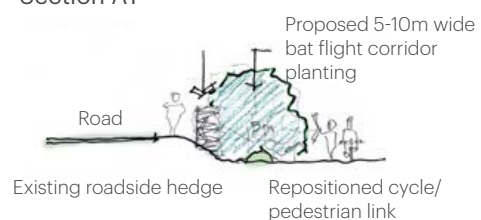
Section A3



Section A2

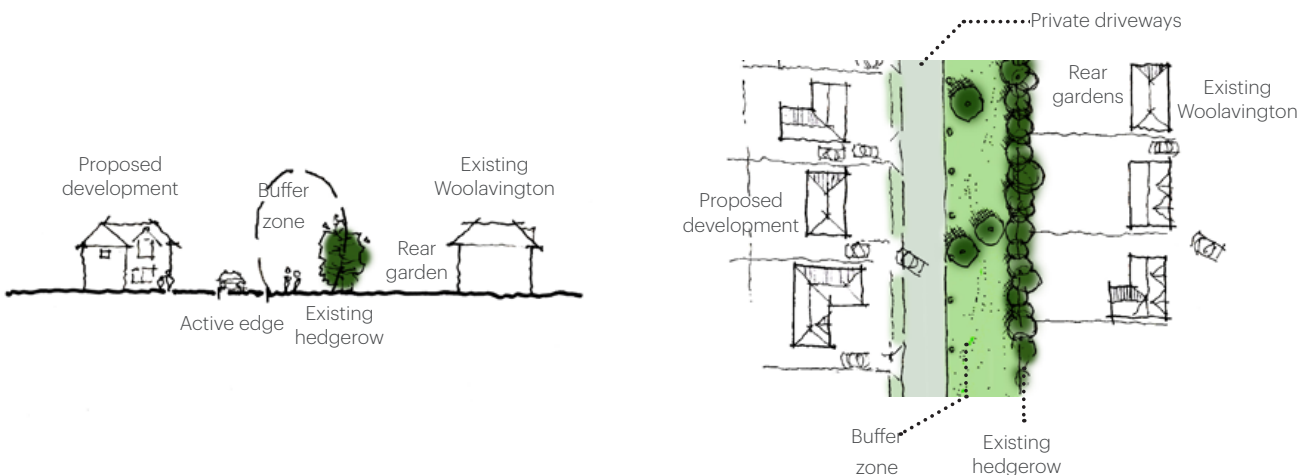


Section A1



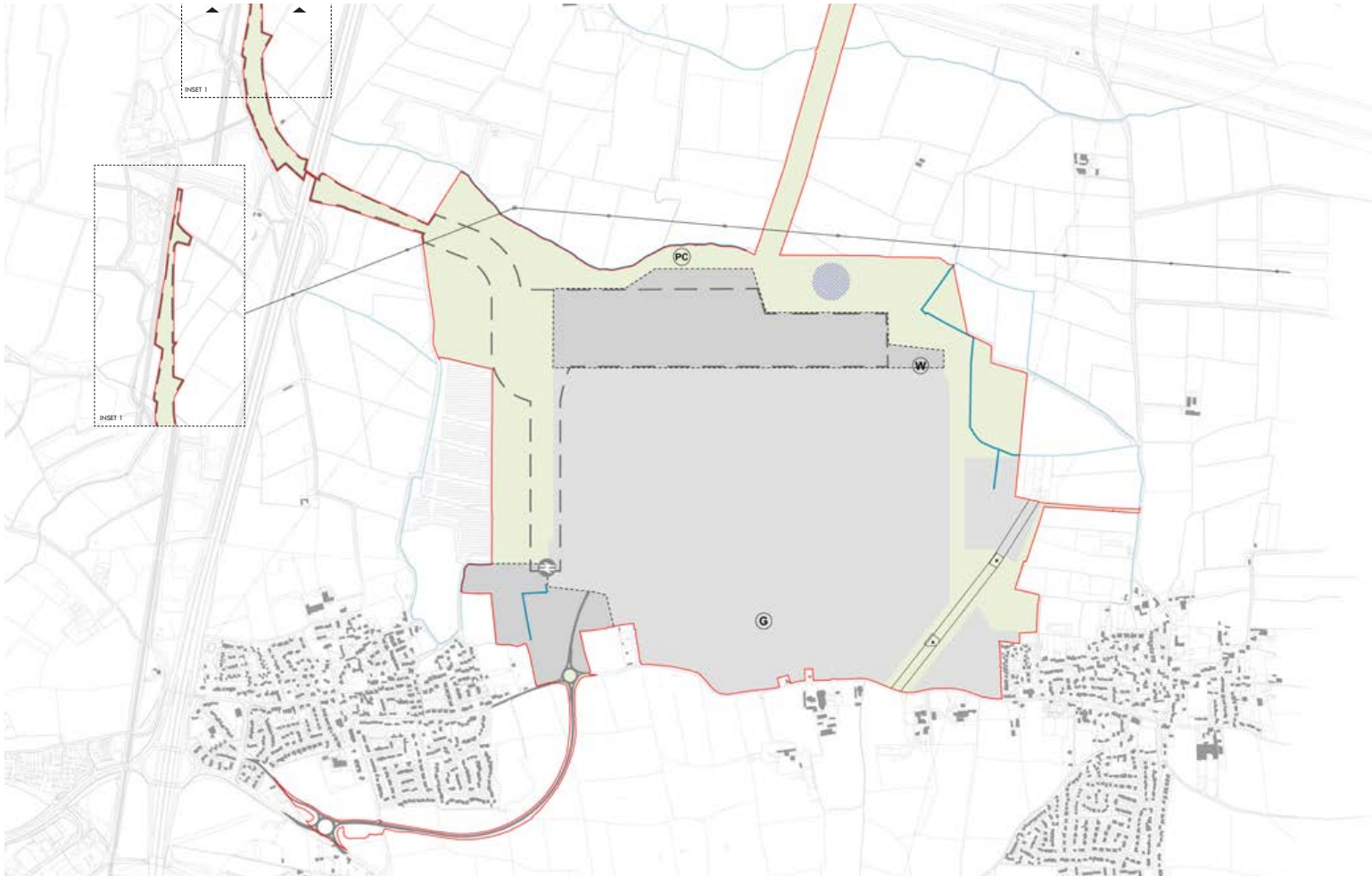
Ref	Design Principle	Further considerations
SL4	Maximise opportunities to integrate the biodiversity potential of the site with its operational requirements.	<ul style="list-style-type: none"> <li>Where operational requirements allow seek to integrate biodiversity measures into proposals.</li> <li>Consider clustered tree and shrub planting with margins of taller grasses and herbaceous plants to create a mosaic of habitats.</li> <li>Define low energy corridors on the southern boundary to minimise the illumination of habitat features avoiding excessive lighting and minimise light intensity, creating dark foraging areas and commuting routes for a variety of species including bats and birds.</li> <li>Consider the use of native plant species of local provenance in planting mixes with nectar-rich and fruiting plants and ephemeral habitats for Invertebrate populations.</li> <li>Seek to install buildings and structures with bat and bird boxes by the eaves or in the apex of a gable end on unlit elevations, where appropriate.</li> </ul>
SL5	Ensure drainage features and waterbodies are integrated into the Smart Campus.	<ul style="list-style-type: none"> <li>Consider how waterbodies and new rhynes required for surface water drainage and attenuation can be positively integrated into the design as landscape and ecological features.</li> </ul>
SL6	Recognise key arrival points within the site and areas where routes come together as 'placemaking nodes'.	<ul style="list-style-type: none"> <li>Gravity Arrival and Wellbeing Area: A distinctive place on the arrival into the Campus from Woolavington Road.</li> <li>Mobility Hub and Train Station Square: A high-quality space that marks the entrance into the Campus for those travelling by train with a lively and animated space with well designed active frontages.</li> <li>Gravity Park: A park designed as a key green space for the development meeting the needs of all age groups and designed and implemented to high standards.</li> <li>Gravity Green: A focal 'place' formed where the secondary access points from Woolavington Road meet routes through the site and existing mature vegetation within the area.</li> <li>Central Park: A major high-quality and formal open space for workers and visitors at the heart of the scheme to provide a leisure and amenity focus.</li> </ul>

## Woolavington edge design considerations



# Infrastructure & Utilities

The below plan sets out infrastructure and utility considerations.



## Legend

	LDO Boundary		Indicative zone for connection to overhead powerlines
	Existing IDB watercourse to be retained in situ		Rail corridor - Freight and Passenger and associated infrastructure
	Overhead powerlines 400kV		Passenger Station (indicative location)
	Overhead powerlines 400kV		Development Zone
	Open space and biodiversity zones		Development Zone - 50% of the zone will accommodate buildings, the remainder will be: A associated infrastructure such as rail, including mobile gantry cranes, roads and laydown space and/or green infrastructure. B blue and green infrastructure, tree nursery, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.
	Water Treatment Works (indicative location)		
	Indicative area of water attenuation		
	Gas connection		



## Key Design Principles for Compliance

Ref	Design Principle	Further considerations
IU1	Leverage the value of national infrastructure.	<ul style="list-style-type: none"> <li>Consider how to maximise the competitive advantage of the site's existing infrastructure, National Grid and the proximity to local renewable energy schemes together with onsite dark fibre and water abstraction licences.</li> </ul>
IU2	Infrastructure and utilities designed to support the clean growth and smart campus vision for the site.	<ul style="list-style-type: none"> <li>The need for energy at source is reduced by adopting a fabric first approach and considering how to balance energy and heat across the site and between uses.</li> <li>Each phase of the development should embrace and contribute towards site-wide integration of smart infrastructure to reduce carbon density where possible.</li> <li>Consider how onsite renewable energy is maximised, for example through the use of PV on roofs, over parking areas and walkways and through the use of other innovative energy generating technologies.</li> <li>The potential to import low carbon and renewable energy through the extension of a smart grid to surrounding renewable energy generators should be considered.</li> <li>Provide for EV charging.</li> <li>Consider alternative fuels for workforce transport and logistics.</li> </ul>
IU3	Integration of Multi-Use Service Trenches within streets.	<ul style="list-style-type: none"> <li>Consider how services can be integrated into the street section to allow ease of expansion and maintenance of services and to reduce impact on occupiers when accessing, laying additional and maintaining utilities infrastructure.</li> </ul>



# Advanced Manufacturing (AM) Case Studies

Research has been undertaken examining existing and emerging AM schemes nationally and internationally to help understand how their operational requirements affect design. It is clear from that research, some examples of which are set out in this section, that:

- Building heights up to 35m are currently being sought by occupiers.
- Overall footprints are typically in excess of 450000 sqm (4.5m sq ft), but usually broken down into separate buildings for operational, health and safety and future potential expansion requirements.
- Operational requirements change over time as technology moves apace. Existing and emerging facilities allow for future expansion / changes to operation over time within the overall footprint consented.

Tesla's Berlin and Shanghai facilities demonstrate the new 'Tesla Production System' which is designed to resolve manufacturing output issues in their earlier, less efficient plants.

## Tesla, Shanghai

### Height

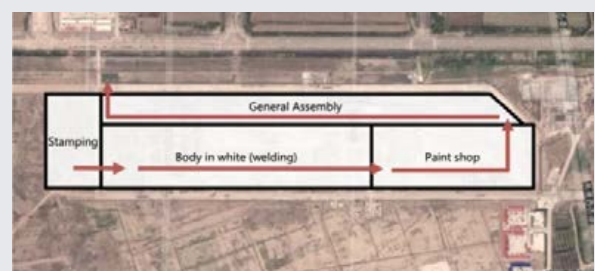
- 30m (10m average floor height)

### Footprint

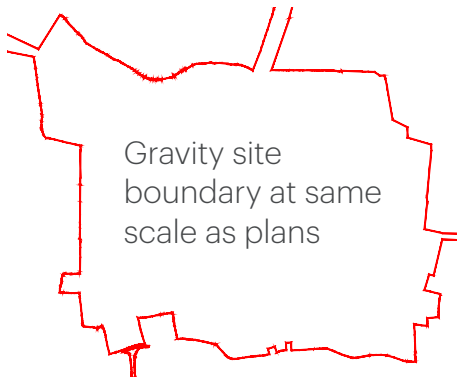
- Discrete rectilinear building modules of approximately 700m x 150m per phase (105,000 sqm/1,1m sqft) with linear assembly lines that optimise production efficiency.
- Areas for similarly sized future phases are safeguarded from the outset which enables each phase to operate independently or specialise depending on future need.
- Modules are separated from each other physically with circulation space in between.



Indicative plan (at same scale as Gravity site boundary overleaf)



Schematic plan of facility



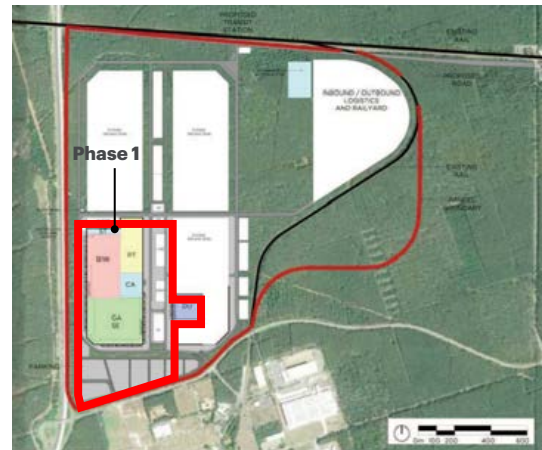
## Tesla, Berlin

### Height

- 24.8m (8.1m average floor height)

### Footprint

- Discrete rectilinear building modules of approximately 700m x 400m per phase (280,000 sqm/3m sqft) with linear assembly lines that maximum production efficiency.
- Similar approach to phasing employed as the Tesla Shanghai site.



Indicative plan (at same scale as Gravity site boundary above)

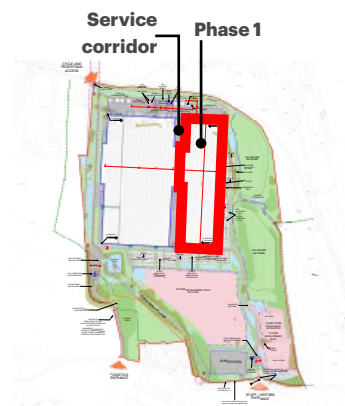
## Northvolt, Northumberland

### Height

- 27m (2 storeys), revised down from 35m on cost grounds

### Footprint

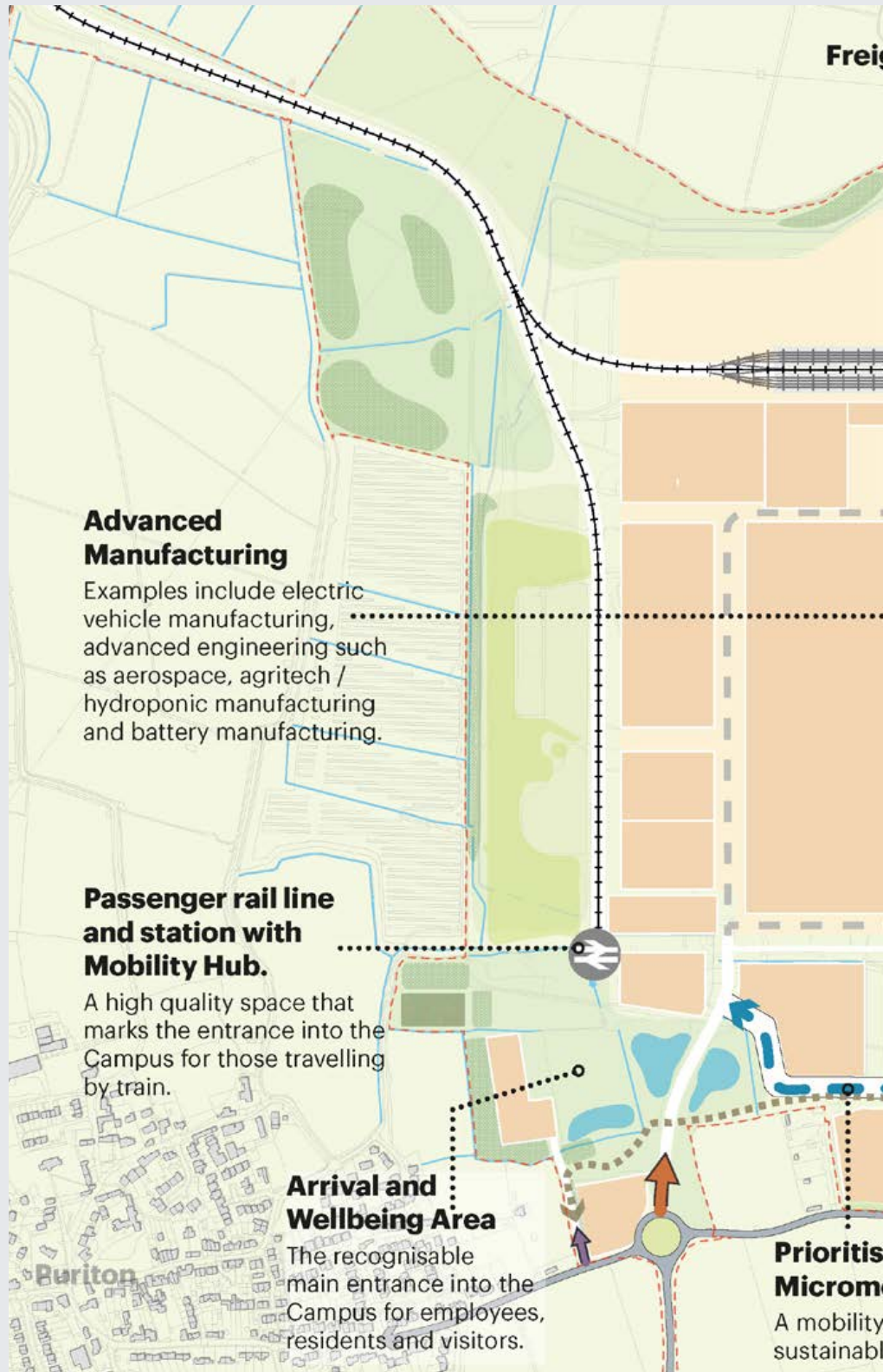
- Phase one building shown is approximately 550m x 150m (82,500 sqm/ 882,641 sq ft)
- Phase two is adjacent and separated by phase one by an outdoor corridor.
- Variation in building heights across the building.
- Big emphasis on roofscape branding, lighting and integration of solar PV arrays in a seamless way. The scheme had input from acclaimed product and automotive designers Pininfarina.

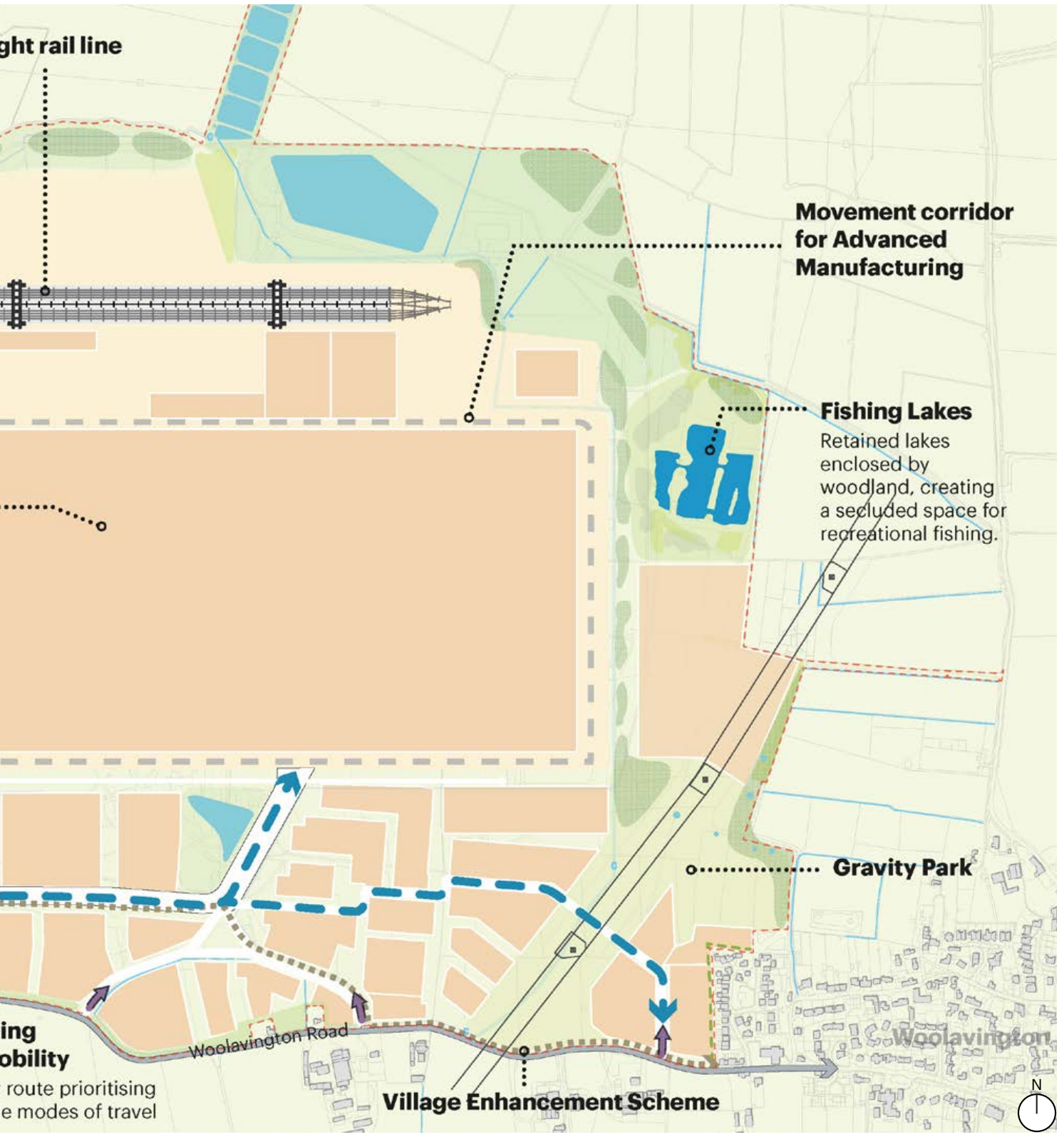


Indicative plan (at same scale as Gravity site boundary above)

# 4 Concept

The Concept articulates one way in which development plots could respond to the LDO parameters and align with the Environmental Statement.





# 5 Preparing Compliance Submissions

The aim of the Design Guide is to ensure that as development proposals come forward they are each prepared to represent a coherent approach to the delivery of the overarching vision for the site, ensuring alignment with the objectives of the LDO and the Environmental Statement as well as ensuring an appropriate design response to the site's context.

The Design Guide will have an important role in shaping the key design considerations for occupiers at an early stage of preparing applications for compliance. It is therefore recommended that compliance submissions should be co-designed collaboratively with the LPA from the outset, adhering to the principles of the Design Guide and other obligations set out in the Compliance Form. Early discussions on these matters are strongly encouraged. This will ensure submissions deliver outcomes aligned to the vision and objectives of the LDO and that the submission can be dealt with quickly and efficiently by the LPA when formally received.



Artist's impression showing a potential micromobility route within a high quality landscape setting.



Artist's impression of an innovative internal atrium space with integrated health and wellbeing opportunities for the workforce.



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