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Equinix DB8 Data Centre, Profile Business Park, Dublin 22

DB080-RKD-XX-XX-RP-A-XXXX-8001
Architectural Design Statement

Purpose of issue: S4 – Issued for Planning (II)
Revision: P03

26 May 2022

Contents

1.0 Introduction

The following report describes the design rationale of the amendments to the previously permitted Equinix Data Centre facility to be constructed in Profile Business Park, Dublin 22, within the jurisdiction of South Dublin County Council. Planning Register Reference Number is SD21A/0186. The Planning Grant has been issued on 5th May 2022.

The report aims to identify and analyse the site, provide key concepts that drive the building programme and design, and outline any other critical items associated with the development.

Text referring to amendments to previously permitted scheme has been highlighted in bold pink text.

The site, which is currently a greenfield site, is located at the entrance to a business park on the west outskirts of Dublin. While noted as greenfield, it has been used as a temporary builders' compound since the park inception and no permanent structure has ever existed - refer to Picture 9 and 10.

This area is currently a popular location for data centres, due to the zoning and services availability. The use of the site for a Data Centre facility has been discussed in a pre-planning meeting with the local authorities.

The site, measuring 2.649ha / 6.545 acres, sits adjacent to Nangor Road. Access to the site is via an internal business park estate road system from the west. The site is bounded on the east and south by an old hedgerow and dry ditch, which separates the site from the golf course.

The proposed building will be a part 3 / part 4 storey Data Centre known as "DB8" and will include data halls, electrical/plant rooms, offices, lobbies, ancillary staff areas including break rooms and toilets, stores, stair/lift cores throughout and photovoltaic panels at roof level. The total gross floor area excluding external staircase will be circa **9,244sqm**. The overall height of the data centre ranges from **c.20.3m to top of flues screens on north façade to c.20.9m to Stair B roof level (excluding the roof ladder).**

The changes to previously permitted scheme include:

- **Omission of third floor level in the office block (removal of approx.366sqm of GFA)**
- **Alterations to floor levels at second floor to provide consistency between front of house and data halls,**
- **Parapet height increase of front of house to c.16.8m**
- **Increase of single storey Loading Dock GFA by approx. 60sqm**
- **Alterations to the permitted generator plant yard to the north of the data centre to include removal of 4 no. internal generators and plant rooms spaces from 2nd floor and provision of same within the Generator Yard – Overall increase of number of external gens from 5 no. to 9 no. and increase of number of external electrical plant rooms from 4 no. to 8 no. All previously permitted free standing fuel tanks are now removed. This also includes increase of the yard size, rearrangement of the yard layout. Overall increase of external electrical plant rooms GFA is 49.66sqm.**
- **Removal of 3 no. air plenums to the front (north) elevation and provision of screening to generator flues in lieu of omitted plenums.**

- **Alterations at roof level to include removal of 2m high gantry screening.**
- **Reconfiguration of plant within the permitted chiller plant yard to the south of the data centre to include omission of one plant room and increase in size of another one.**
- **Removal of 1 no. sprinkler/water tank**
- **Removal of stairs and door to the side of the waste compound.**
- **Reconfiguration of car parking and motorcycle spaces and removal of 1 no. accessible space. 64 no. total number of car parking spaces.**
- **Provision of on-site gas power generation compound (c.2,604sqm in area) in the area previously reserved for a future data centre. The compound comprises 7 no. modular plant rooms (totalling c.180sqm in area), 10 no. gas fired generators and associated flues c.14.7m high, gas skid, associated modular plant, boundary treatment surrounding the compound c.6.5m high and 2 no. vehicular access points including general and emergency access.**
- **Overall Gross Floor Area of the development is reduced by c. 44sqm to c.9,795sqm from previously permitted under SDCC Reg.Ref. SD21A/0186**

The IT capacity will be max.7.56 MW. Environmental requirements are managed by the mechanical and electrical plant located adjacent to the proposed building: **9 no.** external generators and ancillary plant contained within a plant yard to the north, a water tank plant room, air cooled chillers and ancillary plant contained within a chiller plant yard to the south. There will also be a sprinkler pump room (c.23sqm), **1 no.** sprinkler tanks (c.12m high), heat recovery plant room (c.17sqm), ESB substation (c.44sqm), waste/bin stores (c.52sqm).

Area previously reserved for a future data centre development will now be occupied by on-site power generation plant including 7 no. containerized plant rooms, 10no. gas fired gens with flues on steel support structure and gas skid installation.

The total floor area of the ancillary structures and plant measures **circa 540sqm (increase by 256sqm from previously permitted).**

The development will also provide a delivery yard and loading bays, 64 no. car parking spaces, 5 no. motorcycle spaces, bicycle shelter serving 14 no. spaces, smoke shelter, internal access roads and footpaths, vehicular and pedestrian access to the west from Falcon Avenue, as well as all associated site development works, services provision, drainage works including attenuation pond, swales, landscape and boundary treatment works including berming, hedgerow protection areas and security fencing.

2.0 Background

2.1 About Equinix

Equinix is a global industry leading company in digital business management, specialising in interconnection using data centres. Equinix currently have data storage facilities located in Europe, North and South America and across Asia-Pacific. They currently have four existing data centres in Ireland, including one in South Dublin County referred to as DB2, across the road. Further 3 no. data centres are currently under construction in Fingal County. Equinix have had a presence in Ireland since 2000, between the current brand and companies Equinix acquired as they grew their presence in Ireland.

Equinix data centres serve not only as a data storage amenity, but as a hub for offices, customer consultation and general day-to-day business management. Their facilities vary in size and function, with the ability for some areas to expand as required. A typical facility is primarily used to house and store information for both individuals and businesses alike, adheres to strict security protocols, and maintains a steady environment for the computer servers and network technology. The proposed building in this report will be utilised as a data centre with supporting office spaces and associated facilities for a range of companies.

Picture 1: Example of an interior of Equinix Data Centre

3.0 Site and Surrounding Area

3.1 Existing Site Location

The site is located within the Profile Business Park in Dublin 22.

The site is a greenfield site, measuring 2.649 hectares / 6.545 acres of irregular, quasi-triangular shape. It is bounded by Nangor Road to the north, Falcon Road (internal business park estate road) to the west, an old hedgerow, and a ditch to east and south, which separates the site from Grange Castle Golf Course.

The site has been used in the past for agricultural use. It has been recently used by ESB as site compound during their works in the area. There was also stockpiling of fill from adjacent sites stored on the site, which has recently been cleared.

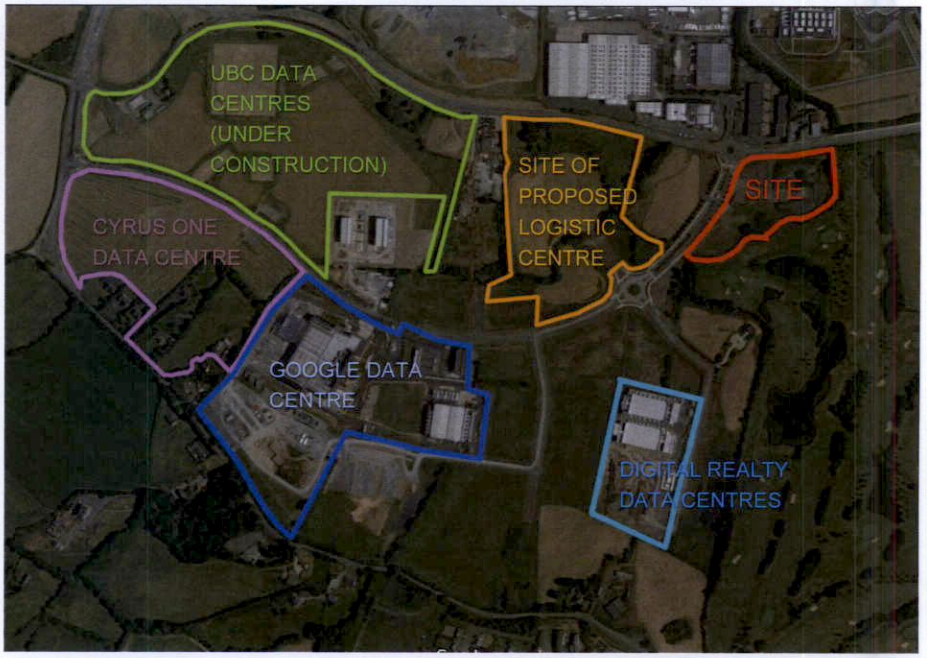
There are various commercial, offices and industrial buildings (including another data centre by Equinix) located across the road from the site, including a petrol station (Circle K). Whilst the uses in the vicinity of the site are predominantly commercial and industrial, there is also a small residential dormer bungalow block located approx. 70m north of the site (beside the petrol station) and a small residential housing estate located 600m to the east from the site.

Data Centre use is already well established in the area including a few of them within the Profile Park but also in the Grange Castle Business Park further to the north and in the Grange Castle South to the west of the site.

The site is located about 800m north from Baldonnell Casement Aerodrome.

Picture 2: Aerial view of site surrounds (Source: Google Maps)

Picture 3: Aerial view of site surrounds with locations of other data centres (Source: Google Maps)



Picture 4: Aerial view of site surrounds immediate surrounds (Source: Google Maps)

Picture 5: View of existing site – direction of view: West.

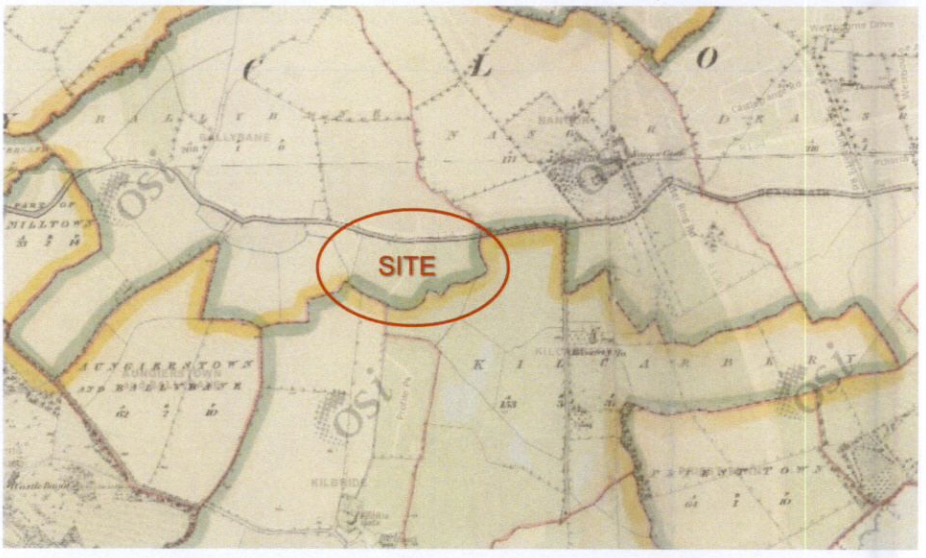
Picture 6: View of existing site – direction of view: North-West.

Picture 7: View of existing site – direction of view: South-East.

3.2 Site constraints

There are numerous site constraints which have been precisely analysed and had impact on the proposal.

- The site is bounded by an old townland boundary between Ballybane and Kilcarberry on the west and south, which is nowadays represented by an old hedgerow and mostly dry ditch. The hedgerow is seen as sensitive element from it's heritage as well as from an ecology point of view, therefore it will be preserved by an 8m set back, and the creation of a biodiversity zone along the boundary. 8m distance is measured from the top edge of the existing ditch. This set back was a requirement written in the original Profile Park planning application, that we are obliged to honour.



Picture 8: Historic 6-inch map with clear representation of townland boundaries

Picture 9: Aerial picture of site taken before Profile Business Park was built (between 2001 and 2006) – hedgerow clearly visible.

Picture 10: Aerial picture of site taken just after the Profile Business Park has been completed (after 2006) – hedgerow clearly visible.

- The existing ditch, which is occasionally filled with water draining from the adjacent golf course, is not classified as a watercourse. Therefore, a 10m set back is not required in this instance.

- Baldonnell Stream adjoins the site at its South-West corner. 10m set back from this watercourse has been observed.

Picture 11: Picture of the existing ditch along the South site boundary

Picture 12: Picture of the existing ditch just before it connects to Baldonnell stream, before entering culvert below Falcon Avenue. View direction: East.

Picture 13: Picture of the existing culvert located South-West of the site. – Point where the existing ditch connects with the BaldonnelL Stream. View direction: West.

Number 1 – Existing ditch, filled with water draining from the gold course

Number 2 – Baldonnell Stream

- There is a public watermain crossing the site along its North boundary (along the Old Nangor Road). This service requires set back of 7.5m either side of the watermain. The proposed building is set back minimum 21m away from this underground service. The only elements located within the wayleave are car parking spaces, security fence and smoking shelter (which is a lightweight structure).

- 220kV electrical cables cross the site across its north and west boundary. They are required to be set back at least 4m away from the underground cable. The building is located at least 12.7m away from the cables.

Picture 14: Masterplan with all wayleaves marked:

- Orange – Watermain
- Pink – ESB
- Green – 8m set back from top of the dry ditch
- Light Blue – 10m set back from Baldonnell Stream.

(changes subject to this planning application maked with pink hatch).

- The site is located within the Department of Defence Inner Zone Limit due its proximity to Baldonnell Casement Aerodrome. The height limit of the development is 20m. Features like flues on top of the building higher than 20m have been permitted in this area, however they need to be agreed on a case by case basis. The site is not located within a flight path.

Picture 15: Extract from SDCC Development Plan index map with Defence Inner Zone and aerodrome approach paths clearly marked. Site location marked in red by authors of this report.

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4.0 Concept Ideas

4.1 Site Layout Overall Concept

The client intends to realise **one data centre building on the site with associated plant spaces including on-site power generation plant**. The data centre will be in the east part of site, parallel to the Nangor Road, with external plant yards north and south of the building.

The On-Site Power Generation Compound, including 7 no. plant rooms, 10 no. gas fired generators and gas skid installation will be located in the west part of the site, parallel to the Falcon Avenue (internal estate road), within a solid fence enclosure.

The delivery yard, with 2 no. loading docks and waste storage building, is located to the south of the building.

The vehicular access point to site is located off Falcon Avenue in the South-West corner of the site. Private car and HGV traffic is being segregated in the forecourt area. Private cars follow the internal access road along the North-West site boundary, with the car parking spaces located east and north of the data centre building. HGV's enter via a dedicated gate and follow the route located along south site boundary, to the delivery yard. Further details of access strategy have been described in *Chapter 7.0* of this report.

We note that the Planning Authority would like to see the building potentially set back further south from Nangor Road, however, due to shape and size of the plot (especially its width) this is not feasible. Locations of buildings have been set out taking in consideration all site constraints: biodiversity strip, underground services, and requirements for vehicular routes, parking and plant areas.

Picture 16: Site plan (changes subject to this planning application maked with pink hatch).

5.0 Proposed Site Plan

The vehicular site entrance is located in the South-West corner of the site. It utilises as existing entrance off Falcon Avenue which will have to be widened to facilitate HGV turning radii.

Picture 17: View of Flacon Avenue looking north, with existing entrance to site to be retained as vehicular entrance (with modifications) in foreground (site visible on the right-hand side of this image)

The vehicles then arrive at a 'forecourt' area which is located outside of the secure site area to prevent the cars queuing on the estate road and facilitate separation of the private and commercial vehicles. Private cars will enter the site via a dedicated automatic gate located closer to the north-west boundary line. HGV will enter the site via a dedicated gate located closer to the south boundary. The forecourt area will also enable HGV to reverse and leave the site in case they are not allowed to access (so called 'HGV rejection area' marked on the site plan).

The forecourt area will also be the location of a single storey Electrical Substation of approximately 43.77sqm GFA and adjacent Heat Recovery Plant Room of approx. 17.3sqm GFA. Heat Recovery Plant Room will be a point of connection for any future recipient of a waste heat generated by the facility.

The internal access road will form a loop with separation of private cars and HGVs for safety reasons. Front of the site (along Falcon Avenue and Nangor Road) will be reserved for private cars with exception of HGVs accessing this part of site for emergency and plant replacement events only. The rear of the site will be excluded from private car traffic by provision of a mini roundabout in the South-East corner of site.

Pedestrians and cyclists will be using a separate access point to the site, located close to the North-West corner of the site, off Falcon Avenue and very close to the Profile Park main entrance gate. The access gate will include a mantrap for security. Both a turnstile and gate for cyclists will be provided. Pedestrians and cyclists will have a short route to access the building entrance and bicycle shelter located in vicinity of the entrance.

Please refer to *Chapter 7.0* for more detailed description.

The existing site levels differ by approx. 2m between the levels along the north boundary (75.5 O.D) and levels along the existing dry ditch along the south boundary (73.24-73.5 O.D.). The existing site entrance is located in between of these levels at approx. 74.6 O.D. This led to a decision to provide a split level on site: the street-side of the site, in front of the building will be designed to be uniform with the Old Nangor Road level (approx. 75.20 O.D.) and the back of the site will be lower to suit the existing levels along the top of the ditch (approx. 74.30-73.20 O.D.). This assists with the following:

- Avoidance of impact of new site levels on the biodiversity zone and existing plants along the existing ditch
- Design of the loading dock based on the level difference of 1.2m between inside and outside.

The internal floor level of the proposed building will be 75.50 O.D.

The proposed Data Centre building has a regular rectangular shape and has been located parallel to the Nangor Road. The building itself consists of a 3-storey office block facing to the west and 3-storey data centre extending to the east. It also has a single storey part to the west which is housing loading bays. The main building also features 3 no. external staircases to the south. Please refer to next chapter for detail description of the proposed building.

The Office Block, where the main entrance to the facility is located, overlooks the 'entrance plaza', which includes car parking area and a landscaped break out space. The pedestrians and cyclist arrive at this area after passing through the Pedestrians and Cyclists gate and mantrap.

The Bicycle Shelter is located just to the left of the building entrance.

This 'Entrance Plaza' is separated visually from the deliveries yard located to the south by a solid concrete wall. The deliveries area is accessible from the plaza via secure gates and stairs leading down to the lower site level at the rear of site.

The Entrance Plaza is connected via a crossing point to further car parking spaces located along the north boundary. The Smoking Shelter is in proximity of the crossing just beside the parking spaces.

Pedestrian traffic across site is separated between visitors' access zones for which raised pavements have been provided, and staff/maintenance only access routes marked with walkways painted on the internal roads.

Picture 18: Extract from Proposed site plan – entrance plaza (changes subject to this planning application maked with pink hatch).

Directly adjacent to the building, to the south and west, there are 2 no. plant yards. The Generator Yard with diesel generators and electrical Plant Rooms are located to the north of the building. It is accessible from the 'Entrance Plaza' as well as from the pedestrians' walkways along the north and west internal road.

The yard will house:

- **9 no.** external Containerised Emergency Generators (running only in case of failure of power from the grid) **with belly fuel tanks and flues screened behind the dedicated shrouds on façade.**
  (Increase in number of generators from 5 no. as permitted before results from relocation of internal 4 no. generators to outside)
- **All free-standing fuel tanks and urea tanks are now omitted.**
- **Fuelling** infrastructure (**fuelling points installed on Compound enclosure fence**, pumps, pipes etc)
- **8 no.** Containerised Electrical Rooms located in **4** clusters. **(Increase in number of plant rooms from 4 no. as permitted before results from relocation of internal 4 no. plant rooms to outside)**
- 2 no. Containerised Switch Rooms located side by side.
- Container housing all plant for Office Block - **now slightly reduced in size.**
- Paved walkways providing access to Plant.

The Generator Yard is screened by 5.3m tall wall, constructed of composite panels in light grey colour. The colour has been selected in order not to draw attention and to provide a neutral background to all landscape present to the front of site. The part of the Generator Yard that is adjacent to the Office Block will have lower enclosure height of 3.8m, as the equipment located behind does not require a higher screening.

Chillers Plant Yard will be located directly at the building along its south façade. It is accessible from the pedestrians' walkways from east, south and west.

The yard will house:

- 9no. Chillers each with a buffer vessel
- 4 no. Make up air units
- **3 no.** Containerised Mechanical Plant Rooms **(reduction from 4 no. permitted before)**
- 1 no. Containerised Water Tank Plant Room
- All associated infrastructure at high level
- Paved walkways providing access to Plant

The Chillers Yard will be screened by 3.5m tall wall constructed of acoustic panels to contain the noise emissions from the chillers.

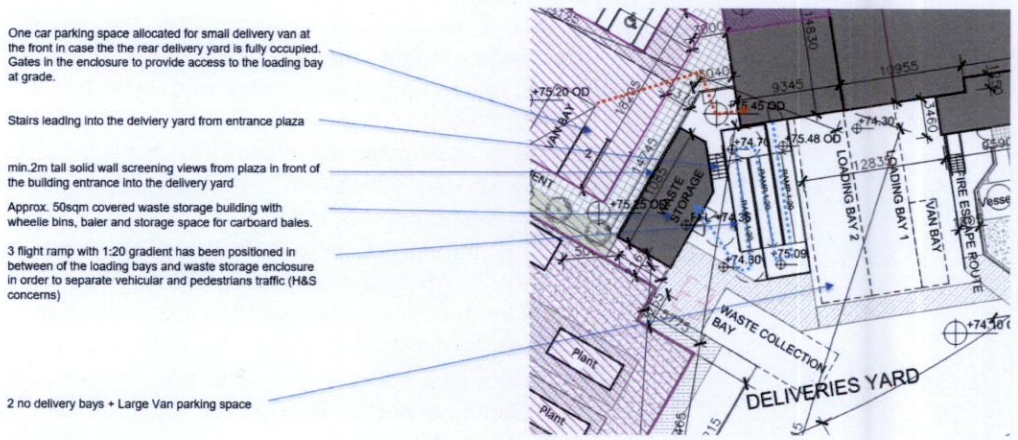
On the other side of the south internal access road there are **1 no.** fire water storage tank **(reduction from 2 no. permitted before),** 11m tall, and pump house of 22.8sqm GFA.

The deliveries yard with the waste compound are located to the South-West of the proposed building, within the lower-level rear site area.

It consists of:

- 2 no. HGV loading bays
- 1 no. Van parking space
- 3-flight ramp to address the level difference during van deliveries and waste removal from the building
- Single-storey, enclosed and covered waste compound of approx. 51.5sqm GFA.
- External skips location
- External stairs for access to higher site level (Entrance Plaza).

Picture 19: Extract from Site plan – Deliveries yard



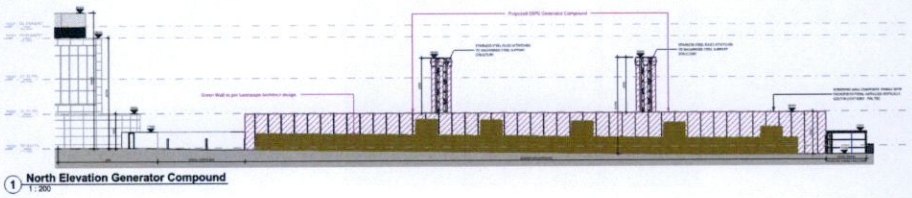
Site area previously reserved for a future data centre building, will now be a location of on-site power generation compound (referred to as OSPG compound).

It will comprise:

- **7 no. containerised plant rooms raised above ground, with access off the galvanized steel stairs and platforms.**
- **10 no. gas fired generators within containerised enclosures with stainless steel flues supported on steel structure. Flues will be grouped in 2 clusters and will be approx. 14.75m tall.**
- **Gas Network Ireland gas skid installation.**
- **Internal maintenance road.**

The OSPG compound is screened by max. 6.45m tall wall, constructed of composite panels in light grey colour. The height of the enclosure is dictated by acoustic requirements to contain the noise from the generators. There will be 2 no. gates within the enclosure: main access gate off the plaza area, and emergency exit gate to the south to facilitate exit of larger vehicles.

A 'Green wall' is proposed to north-west and north-east façade of the enclosure. Refer to Landscape chapter for further description.

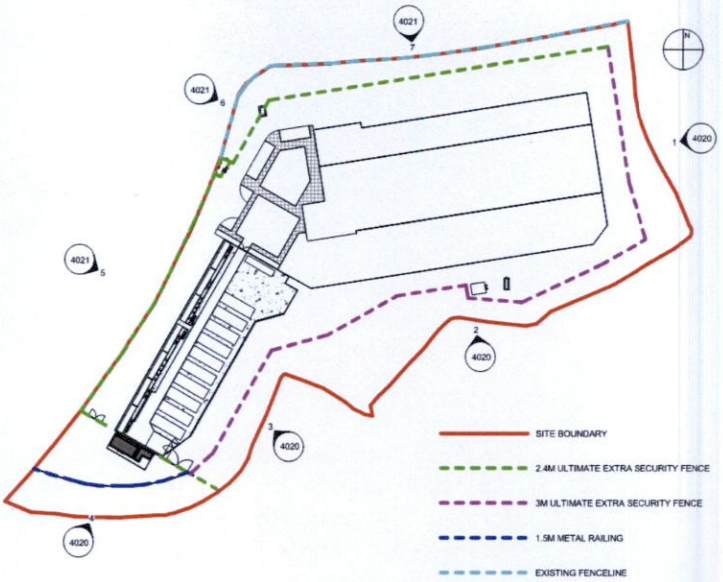


Picture 20: North OSPG compound elevation with green wall

The site is surrounded by a high-quality security/anti-climb mesh fence of minimum 2.4m height, in black colour. The security fence follows the site boundary along the Falcon Avenue, but it is set back from the other site boundaries for a few reasons:

- Along the north boundary at Nangor Road and around the North-West site corner there is an existing fence, which is present around the entire Profile Park area. This section of the fence is to be retained in full for visual consistency.
- Security fence is set back from the biodiversity zone to keep it sterile from any plants growing into it and creating a climbing aid, and in order to be able to fully monitor and inspect the conditions of the fence. 1m wide gravel path will follow the fence on its outer side for facilitate such inspections.
- The security fence has also been set back from the biodiversity strip to facilitate the inspections of the existing dry ditch without the need to enter the secure site area.

Picture 21: Masterplan with types of fencing marked



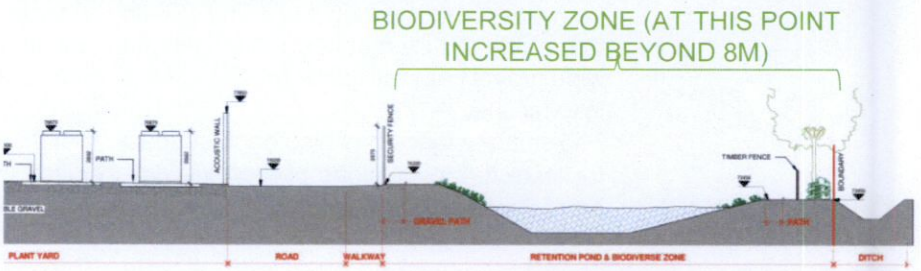
Picture 22: Reference image of a security fence

The Security fence along south and east boundary has been raised to 3m above floor in order to provide increased protection against golf balls flying over the boundary from the gold course (mesh gaps approx. 25mm).

Landscaped biodiversity zone along the south and west boundary will be accessible to the staff via gravel path. The top edge of the existing ditch will be protected by a timber rail fence.

Attenuation strategy for the site is described in civil engineer's *Engineering Planning Report*. One of the attenuation features will be a pond located in the south of the site. It will be landscaped along the edges and will have a path around it to facilitate staff walking in this area.

Picture 23: Section through rear of site (south boundary): Security fence with gravel path, attenuation pond within the biodiversity zone



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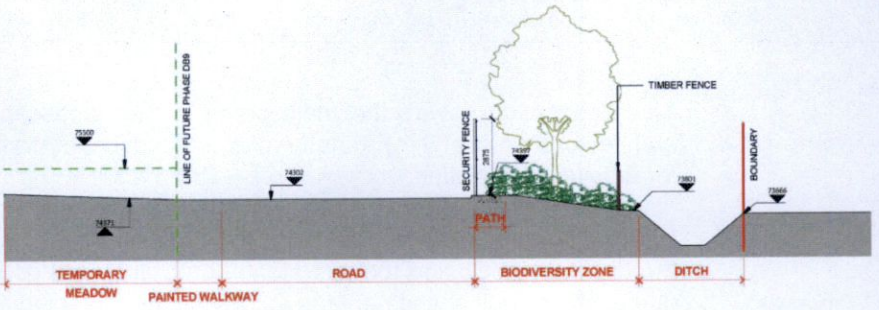
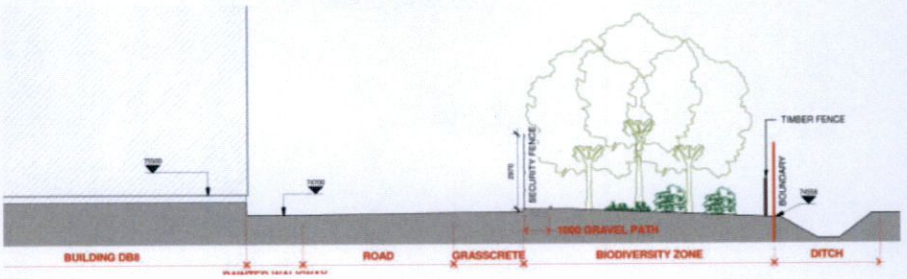
Picture 24: Section through rear of site (south boundary) behind future development.



Picture 25: Section through east of site (east boundary)



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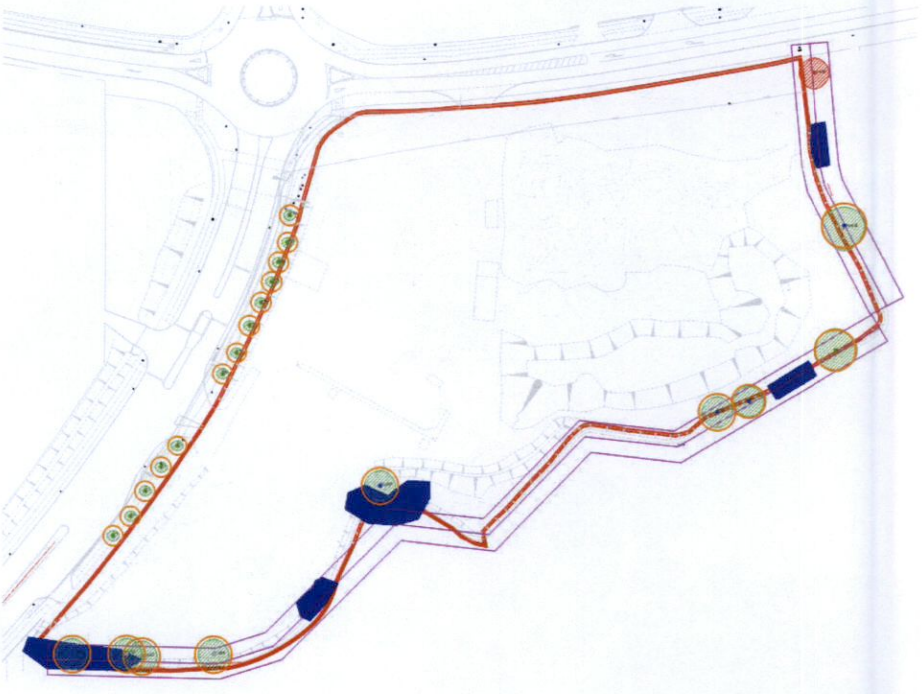
6.0 Landscaping

This description covers the main points of the landscape proposal from an architectural point of view. Please refer to Landscape Architects Design Report for detailed description.

Undoubtedly, the main natural feature of the site is the existing hedgerow along the dry ditch enclosing the site along south and east boundary. This feature, due to its ecological and heritage values will be protected and preserved by 8m 'biodiversity strip' (measured from top edge of the dry ditch).



Picture 25: Trees survey indicating existing trees, tree groups (blue hatch) and hedge (pink line) along the site boundaries.

Due to the layout of the site and access road the biodiversity strip has been slightly narrowed down at one point to the rear of the future development location. This results in narrowing down of the biodiversity protection strip to 6m and loss of approx. 103sqm of biodiversity area. This loss is however compensated by increase of the biodiversity zone elsewhere by total of 1498 sqm (this includes the attenuation pond), which is an increase of about 33.5% in comparison with existing biodiversity area within the 8m strip.

The existing trees along the Falcon Avenue are an original feature of the Profile Park landscape masterplan and will be retained.

The outer north strip of the site, outside of the security fence will be provided with a low ground berm to increase the site security and will be planted with trees to achieve a screening effect on the building massing, as seen from Nangor Road. Trees are to be planted in a staggered line.

A 'Green wall' is proposed to north-west and north-east façade of the OSPG enclosure: a wire trellis system mounted on the wall with a combination of fast-growing climbing plants. This will soften the

appearance of the tall wall as seen from the Falcon Avenue and from the entrance plaza area. Green wall details are contained within the landscape architect drawings. A row of native trees in front of the enclosure has also been added.

The existing boundary treatment along Nangor Road - metal railings and mature hedge is being retained because of its existing biodiversity value and screening potential.

All landscaped areas outside of the security fence will be accessible to the staff and visitors via a secure gate and gravel path.

The main new feature of the site will be a landscaped break out area, outside of the proposed building entrance.

The landscape proposal aims to:

- Reinforce the biodiversity strip, existing habitat for the local species and visual screening along the south and west boundary (ditch) by introducing continuous row of new trees (Birch, Oak, Bird Cherry, Field Maple), 'thorny' hedge planting (Blackthorn, Holly and Hawthorn) and bee friendly and hare resistant native wildflower mix like Lambs ear and heather.
- Introduce an attractive visual screening to the north boundary along Old Nangor Road by introducing a raised berm and trees (Field Maple)
- Retain existing hedgerow and trees along the south and west boundary.
- Provide visually attractive planting to attenuation pond edges (Black alder and goat willow) together with path and benches along the pond
- Provide visually attractive ornamental planting to the edge of the road within the forecourt area: lavender, rosemary, heather.
- Provide visually attractive setting for the building entrance and landscaped break out area for staff and visitors in the 'Entrance Plaza' including decorative trees and shrubs (Cherry Blossom, Japanese Maple, Magnolia and Crab Apple), screening from vehicular routes in form of raised planters and benches.
- Provide visual screening along the Falcon Avenue to include continuous hedge, **'green wall' and additional native trees in front of OSPG compound.**
- Provide an access route into the landscaped and biodiversity zones outside of the security fence (self-binding gravel)
- Provision of log piles / hibernaculum in the pond for amphibians as an ecological enhancement measure.
- Break up ('soften up') the continuous row of car paring space with green islands with trees every 10 spaces.
- Provide greening treatments throughout the site: In car parking area, in forecourt area, in the Entrance Plaza.
- Reduce impact of the building massing to the north, onto Nangor Road.

Picture 26: Landscape masterplan. (changes subject to this planning application marked with pink hatch).

Picture 27: Existing north boundary treatment – mature hedge and railings (Picture taken October 2020)

7.0 Transport and Access

The vehicular site entrance is located in the South-West corner of the site. It utilises as existing entrance off Falcon Avenue which will have to be widened to facilitate HGV turning radii.

The vehicles then arrive at a 'forecourt' area which is located outside of the secure site area to prevent the cars queuing on the estate road and facilitate separation of the private and commercial vehicles. Private cars will enter the site via a dedicated automatic gate located closer to the North-West boundary line. HGV will enter the site via a dedicated gate located closer to the south boundary. The forecourt area will also enable HGV to reverse and eave the site in case they are not allowed to access (so called 'HGV rejection area' marked on the site plan).

The vehicular automated entrance gates will be monitored and controlled from the building reception.

7.1 Vehicular Site Access

The internal access road will form a loop with separation of private cars and HGVs for safety reasons. Front of the site will be reserved for private cars with exception of HGVs accessing this part of site for plant replacement events and oil tanker accessing the fuelling point. A Dedicated Lay-by has been provided for it in order to not block the passage. It will be only in these limited instances when the HGVs will exit via the private cars entrance.

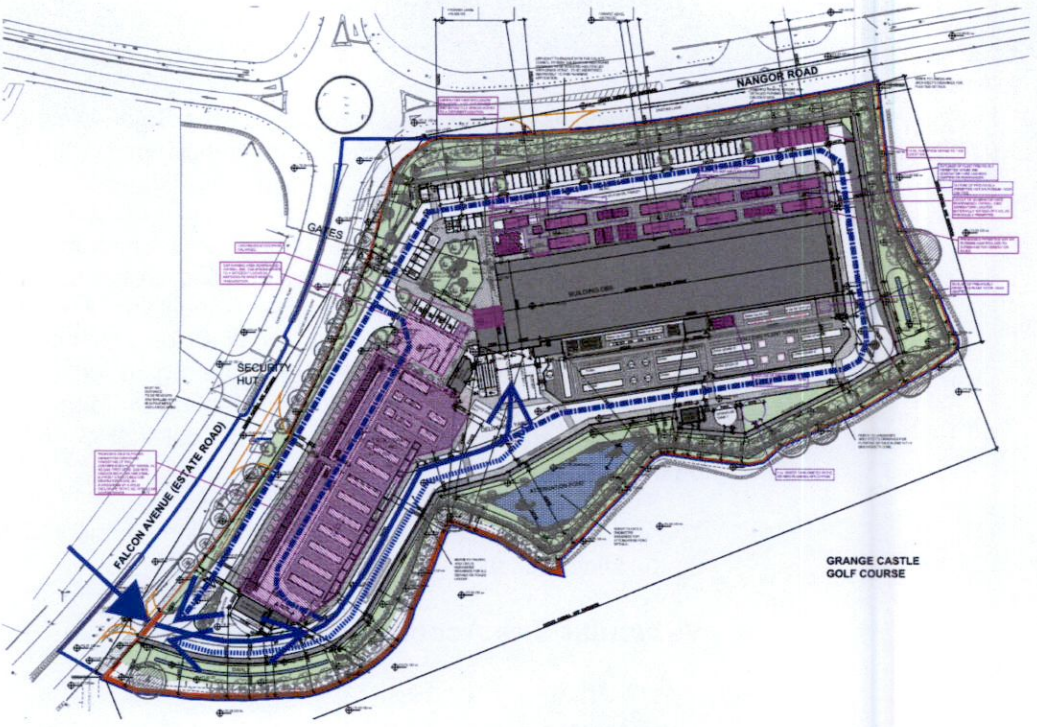
The rear of the site will be excluded from private car traffic by provision of a mini roundabout in the South-East corner of site, where the cars can turn around and follow the route to exit by their dedicated gate.

Rear access roads have been designed partially as two direction and partially as single direction – traffic will be managed via signage and lights. Refer to traffic engineer report for details.

The area of the delivery yard has been designed to facilitate the vehicles to turn back and exit via the dedicated gate.

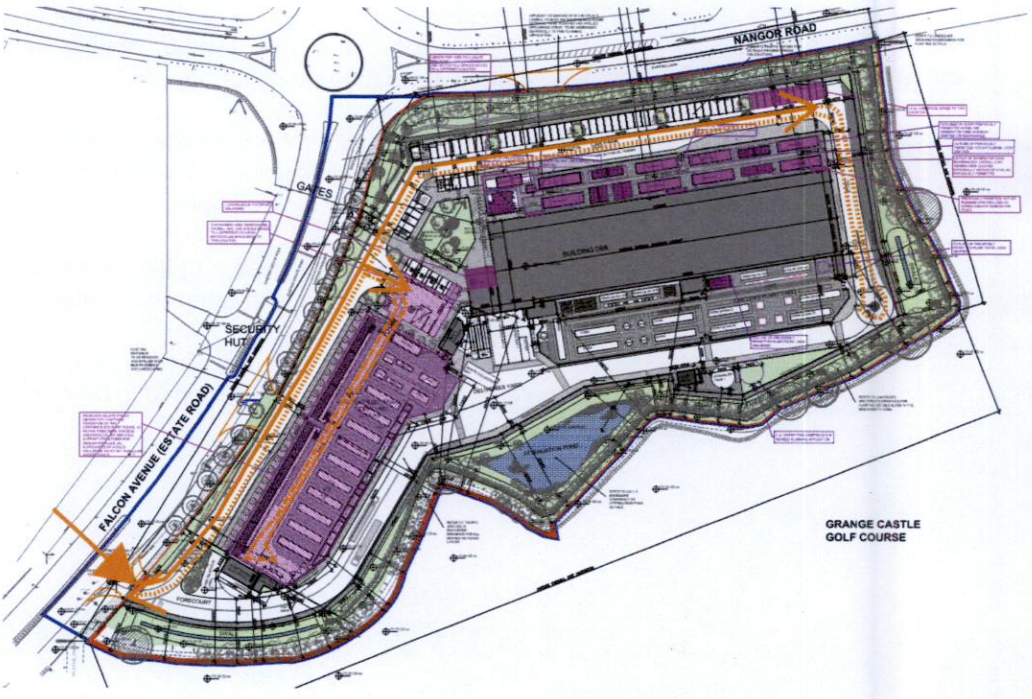
Picture 28: HGV traffic routes:

- Continuous blue line – access to Deliveries yard for HGV
- Dotted blue line - egress from Deliveries yard
- Dash-dot blue line – access for fire tender, oil tanker and HGV vehicle for maintenance only



Picture 29: Private cars / Vans traffic routes:

- Continuous Orange line - access for cars to car parks
- Dashed orange line - egress for cars
- Dash-dot orange line - van maintenance access to OSPG compound.



7.2 Parking spaces

Overall 64 car spaces are being proposed for the development.

Parking spaces have been provided within the 'Entrance Plaza' – mainly disabled car spaces **and short stay Van parking space** – and to the front of the proposed building **- incl. spaces for electrical vehicles.**

Reason for provision of the car parking to the front is that that area of site requires sterilizing due to underground services wayleaves and building had to be set back.

Out of 64 car spaces **5%, that is 4 no.,** will be disabled car spaces and **10%, that is 8no.,** will be for electrical car spaces with charging points. One space has been allocated for a small commercial van to park near the site entrance. There is also one set down space provided.

In addition to the car spaces there is also provision for 5 no. motorbike parking spaces and 14 no. bicycles spaces, in vicinity of the building entrance.

7.3 Pedestrians and Cyclists Site Access

Pedestrians and cyclists will be using a separate access point to the site, located close to the north-west corner of the site, off Falcon Avenue, very close to the Profile Park main entrance gate. The access gate will include a mantrap for security. Both a turnstile and gate for cyclists will be provided. Pedestrians and cyclists will have a short route to access the building entrance and bicycle shelter located in vicinity of the entrance.

Pedestrian traffic across site is separated between visitors' access zones for which raised pavements have been provided, and staff/maintenance only access routes marked with walkways of min.1.8m width painted on the internal roads. Appropriate signage will be provided throughout.

Visitors access routes crossings through internal roads will be highlighted using a raised ramp on the road.

Picture 30: Site masterplan with pedestrians' routes marked up:

- Continuous violet line – cyclists access route
- Continuous pink line – staff and visitors pedestrians access route
- Dotted pink line – pedestrians access route from car parking spaces
- Continuous dark purple line – maintenance staff only access routes

7.4 Security strategy

The site access points are limited to 2 no. secure vehicular gates and 1 no pedestrian access gate.

There is a secondary gate beside the HGV gate to be used for staff to gain access from the secure site area into the 'forecourt' area.

Biodiversity zone, although outside of the secure fence line, will also have controlled access. There will be 2 no. access points into the biodiversity zone: main access from the pedestrian gate mantrap, and secondary access beside the HGV gate.

The data halls are proposed to be accessible 24 hours a day for maintenance and service vehicles. The office building will be accessible also 24hrs however the standard working hours will be 8am-6pm.

8.0 Design and Layout

Proposed building is **3-storey** high structure on a regular rectangular plan, orientated on the East-West axis. External dimensions are approximately 110m x 28m. Loading dock area protrudes from the main volume of the building on the ground floor towards west as a single storey structure. 3 no. external staircases are attached to the building on the south side. **Previously proposed hot air plenums on north façade have now been omitted.**

The building consists of 2 main parts: The Office Block and Data Centre. Offices comprise approx. **1227sqm** which is **13%** of the overall GFA **(9244sqm)**. Data Centre facility will provide services to numerous customers, who will have an opportunity, along with renting of the data services, also to rent an office space, so that their personnel can be permanently on site. This is an important characteristic of this facility and impacts the design in many aspects, mainly the office block layout design and size and number of car parking spaces.

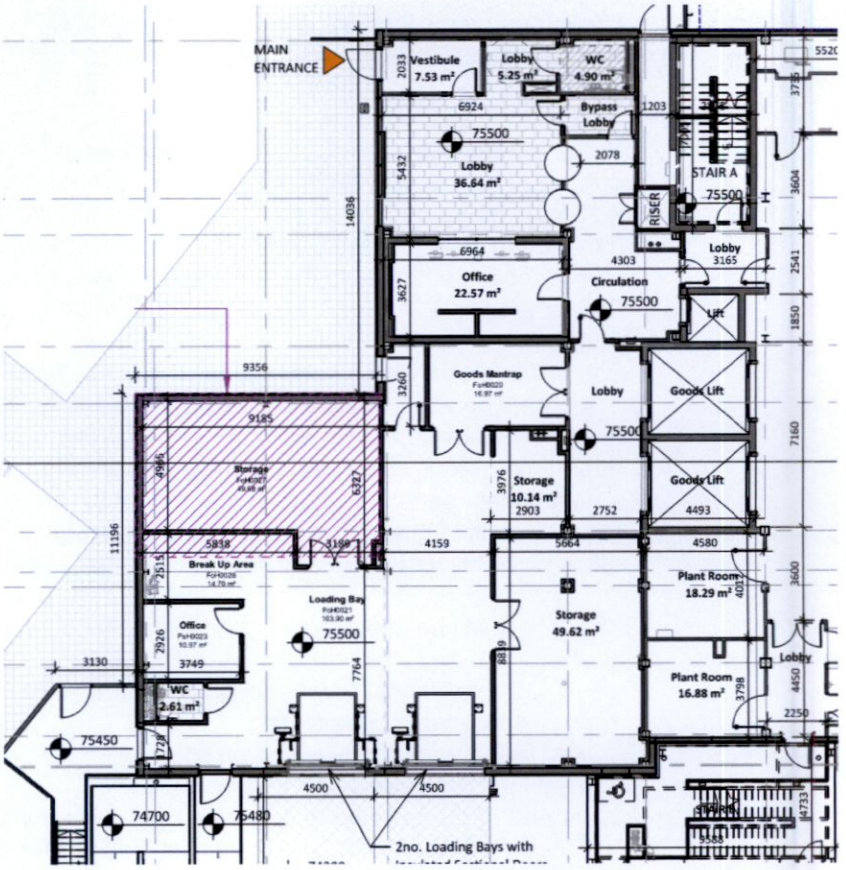
The facility will be occupied by approximately 65 people at any one time:

- 14 permanent personnel of the Data Centre (operations team)
- 45 visitors / customers
- 4-6 contractors working on site

West end of the building is occupied by a **3-storey** tall office block **(top floor has been omitted in this application)** (also referred to as Front-of-House). The office block is approx. 10m wide. It provides the following services:

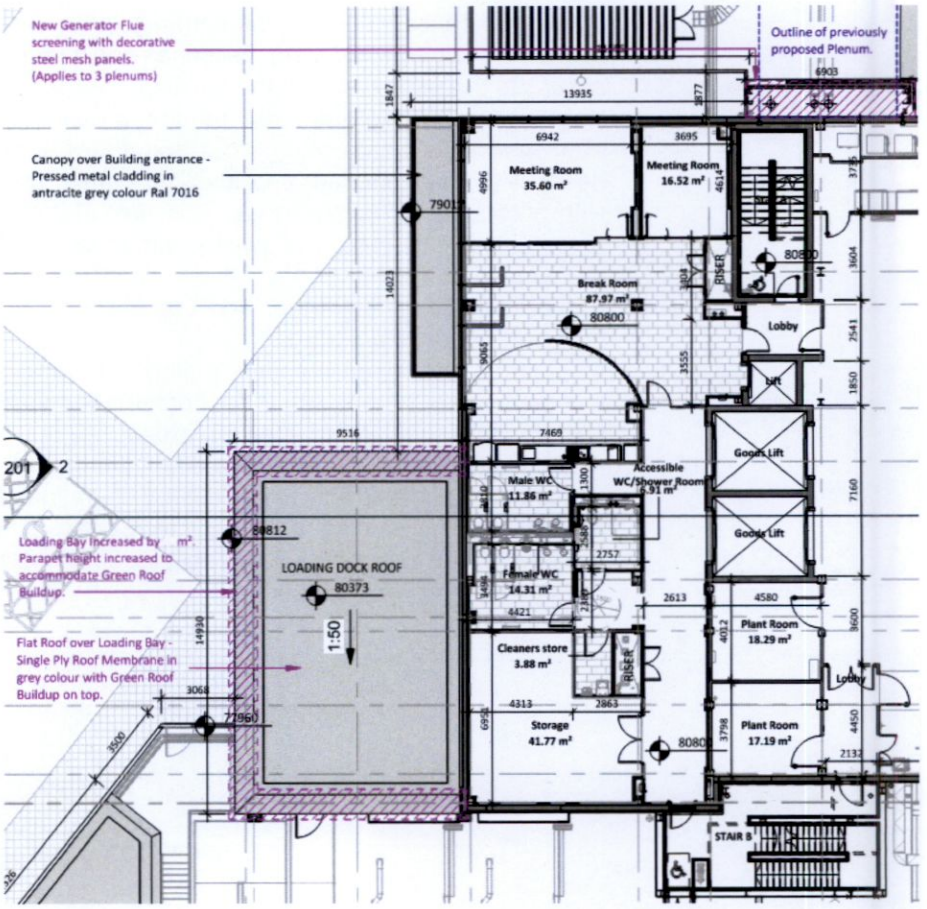
- Building entrance leading to the entrance lobby with security reception desk and disabled toilet, 2 no. passages and a mantrap lobby providing access to the secure side of the building.
- Shipping and Receiving area on the ground floor **(increased by approx. 60m2 in this planning application),** includes 2 no. loading docks with roller shutters and levelling plates, unloading area, office with a toilet, and storage area. This area is directly linked with the external delivery yard and waste compound – refer to description further below.
- All corridors on ground floor and upper floor which will be used for transport of goods are 2.5-2.7m wide.
- 1st floor is the area intended mainly for customers and includes lounge/break out area, with 2 no. conference rooms, and toilets block with disabled shower and a janitors closet.
- Ancillary storage area is also located on the ground floor.
- 2nd floor is dedicated fully to the clients operations team, looking after day to day functioning of the Data Centre. The accommodation includes: Open plan office, 2 no. cellular offices, break out space with kitchenette, and workshop area.

Picture 31: Extract from the Ground floor plan showing the office block with entrance zone and loading bays - additional area hatched in pink



Picture 32:

Extract from the First-floor plan showing the office block with customers facilities - changes hatched in pink



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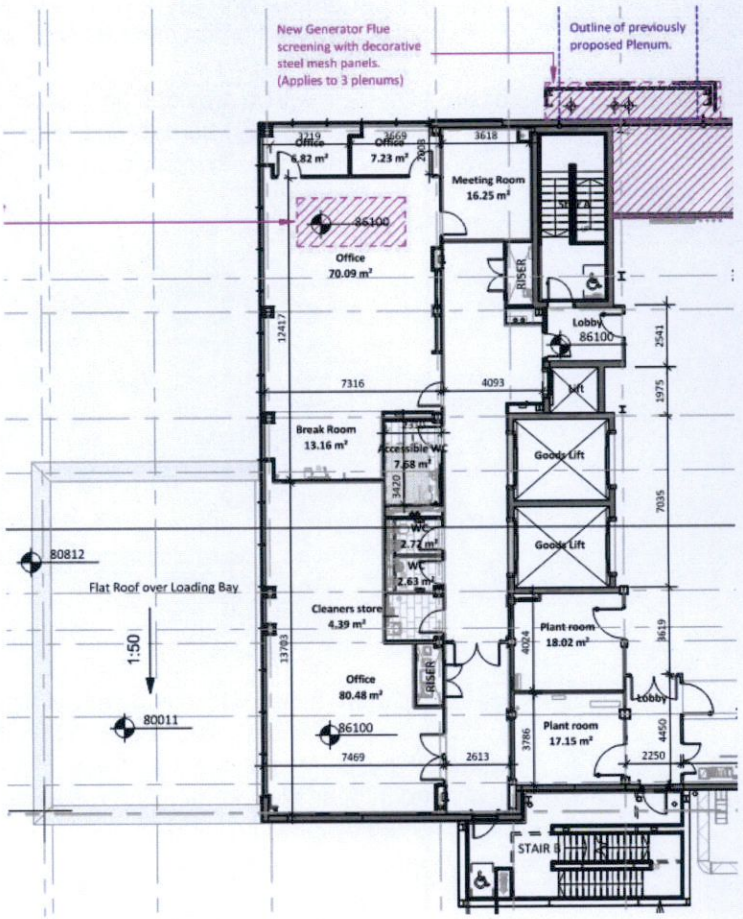
Picture 32 and 33:

Extract from the Second-floor plan showing the office block with staff facilities - changes hatched in pink



As a result of omission of 3rd floor of Front of House it was possible to align the FOH slab levels with Data centre slab levels and optimise the internal circulation.

The Data Centre is separated from the Front of House by an internal staircase (main general access stairs for the building) and lift cores (1 no. passenger lift and 2 no. goods lifts). Lifts are double sided to provide easy access for goods delivery.

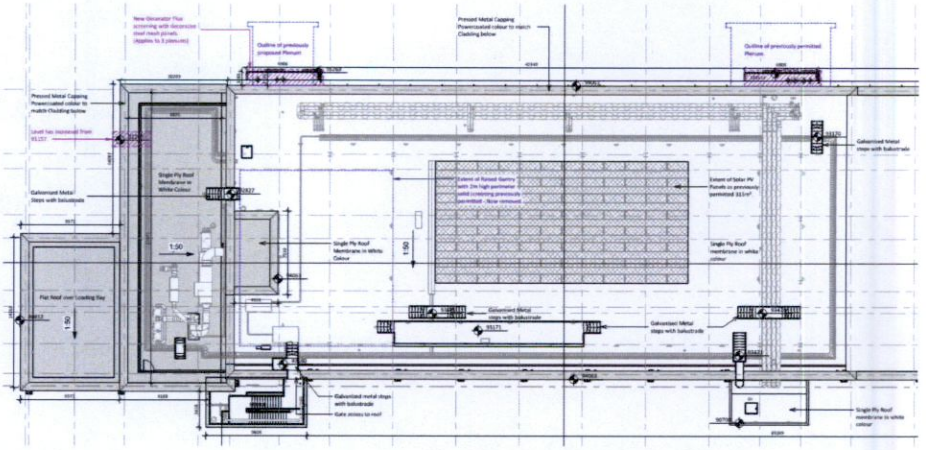
As in the previously approved scheme, lifts and internal stairs do not extend above the roof level.

There are 3 no. fire escape staircase on the south façade which are external. They also facilitate access to the rear chillers yard. Main access to roof is via external Stair B. Stair leads **via a galvanized platform** onto the sloping at 1:50 fall roof surface. **Previously permitted roof gantry and its solid enclosure have now been omitted and AHU plant and chillers has been relocated to FOH roof. Previously approved louvred enclosure on FOH roof has been changed to louvres with backing panel in order to contain the noise from chillers.** Main data centre roof includes a structure for GSM masts (along the south edge of the roof). The roof is accessible for maintenance of the pipes and approx. 200sqm of PV panels present on the roof. A galvanized steel stepover us provided where necessary to cross over the services. Secondary means of escape from the roof is provided by the most eastern external stairs which extend to this level. Data centre roof is surrounded by a min.1.1m tall parapet.

Front of house roof is at a slightly lower level, accessible via steel stepover. Due to the roof parapet being very low, this roof area is screened by continuous louvre panels, which improve the appearance of that side of the building

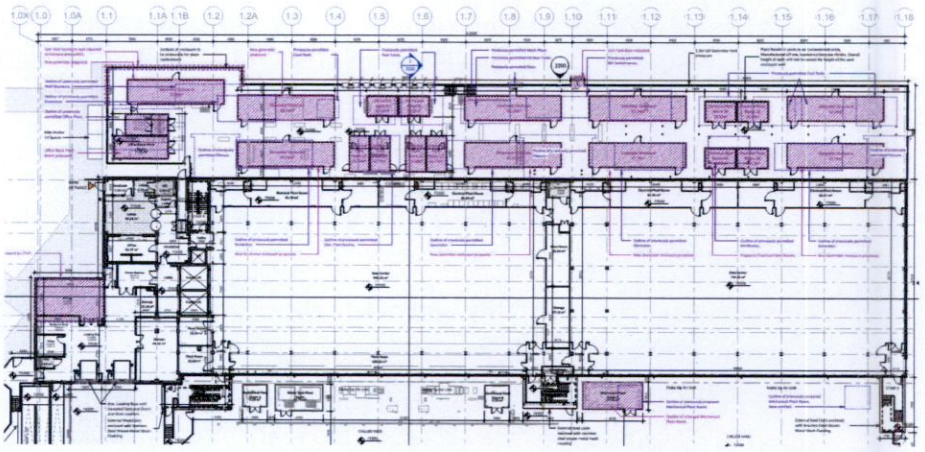
Fall arrest system will be provided on the roofs where parapets are low (external stairs, Office roof beyond screen and loading dock roof) in order to keep the overall building height as low as possible.

Picture 34: Roof plan (fragment) - changes hatched in pink



The Data Centre block, which is 3 storeys high, houses 2 no. open plan server rooms on each floor and plant rooms along its long sides. 2 no. data halls are separated by plant and storage rooms. Each server hall will eventually be subdivided into smaller areas using metal cages, to enclose servers belonging / being rented by individual customers. **2nd floor 4 no. internal generators and plant room have been relocated to external Generator Yard and internal spaces allocated to Storage. Hot air plenums have been removed and replaced with screens for generator flues.**

Picture 35: Ground floor plan showing the data halls and associated plant yards at ground level. - changes hatched in pink



8.1 Building height

We have reviewed the requirements of the development plan, and in addition, have reviewed the most recent applications made in Profile Park. We believe the scheme presented falls within the parameters set out in the development.

Building height (capping level) is approx. 18.9m when measuring from the level of Nangor Road (75.11-75.45 O.D). This is below the limit of 20m as prescribed in the South Dublin County Council Development Plan.

Previously approved scheme already took into consideration Planning Authority comments about building massing and visual impact, ie. internal stair and lifts ha been removed from roof level. **In the current proposal the gantry enclosure have also been removed, which had further positive impact on the massing of the building.**

Omission of hot air plenums and provision of screens for the generator flues is an important improvement to the façade and building massing, proposed as part of this planning application. Flues height have been brough further down to match the height of the screens - this way they are now not visible from the public road.

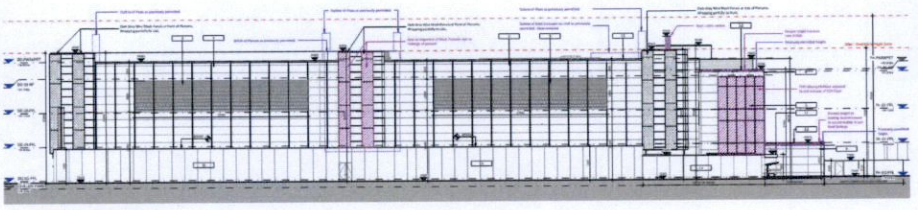
Parapet levels of the Front Of House and Loading Bay have been slightly increased from what was previously approved. The layout of the FOH curtain wall has been rearranged due to omission of the third floor.

There are certain elements of the building that still exceed this limit of 20m and these are:

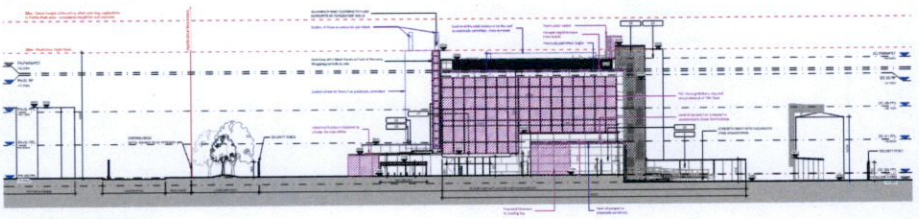
- Screens for generator flues at the north building façade (3 no) - 20.30m above road level and ground level in front of the building
- Staircases at the south façade – the highest at south-west corner reaching to 20.775m above road level / 21.795m above the ground level to the rear of the building.
- **The highest element of the building is the Stair B roof access ladder which is approx.22 m above the ground level in front of the building.**

None of the above structures exceed 25m above ground which has been accepted in the recently approved planning application for UBC Data Centre in the South Grange Castle Business Park (about 900m to the west of the proposed development).

Picture 36 and 37: North and west elevation (changes subject to this planning application marked with pink hatch).



1 Proposed North Elevation
1 : 200



2 Proposed West Elevation
1 : 200

8.2 Elevations' Design and Materials

Due to prominent location of the development and known planning authority expectations of high-quality architecture, based on assessment of recently granted planning application within Profile Park and direct feed-back at Pre-planning consultation. A considerable effort was put to develop an attractive façade approach. Front facades proved to be a greater challenge as external stairs are natural features on the rear elevation. Design requirement for 'hot air plenums' on the front facades assisted in resolving the massing issue.

In general terms the separation of building function into Data Centre has been translated in the façade design by use of different material and colour.

Colour palette is limited to dark and light grey complimented by small red accents, which help avoiding such large building looking monotonous.

The Data Centre is clad with horizontally fixed, composite flat metal panels with mineral wool core, powder coated to a dark grey colour (RAL 7016 Anthracite). The uniform look of the cladding is decorated using metal fins, installed at 2.5m distances and 150mm depth. The colour of the fins matches the cladding colour, which adds texture to the large surfaces of the wall cladding. **Previously permitted hot air plenums on the front façade have now been removed and replaced with screens to conceal the generator flues. The screens are clad with light grey horizontally fixed cladding. They are further enhanced with stainless steel wire mesh vertical panels. The flue screens with mesh detail assist in breaking up the massing of the dark grey front elevation and add a greater detail to a monolithic façade. Previously visible generator flues are now fully concealed.**

Picture 38: View of a proposed building from north-east

Picture 39:

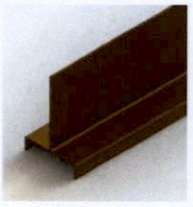
Top left: Mood image of dark grey composite cladding

Top right: Grey RAL colours for composite cladding and selected red for fins on plenums.

Bottom right: reference image of fin profile.

Oyster (RAL 7035)

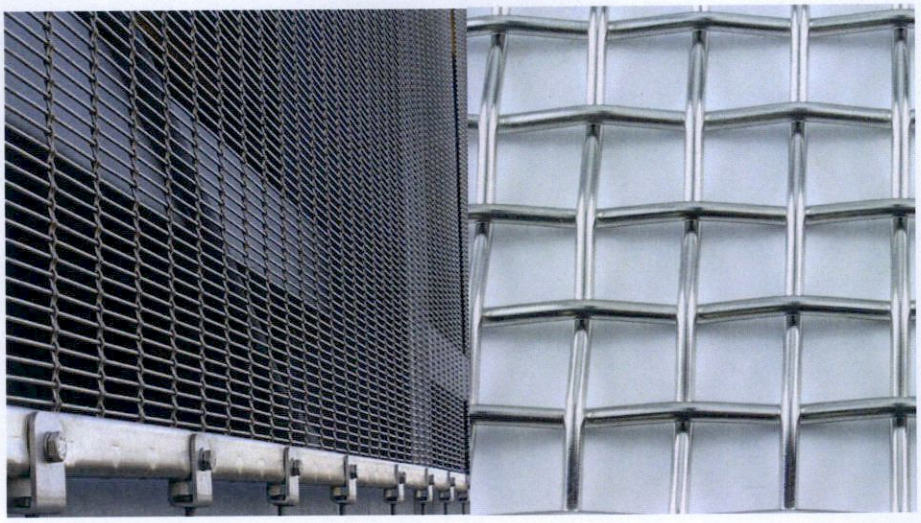
Anthracite (RAL 7016)



Picture 40:

Left: Reference image of wire mesh cladding.

Right: Detail images of wire mesh.



External stairs on the south façade are clad with stainless steel woven mesh cladding. Their steel support structure and stringers will be painted red, to add interest to the rear façade.

The office block facades are visually differentiated from the Data Centre part of the overall building. Office block features curtain wall which extends across the north and west façade. There are glazing mullion feature fins, like fins used on the Data Centre elevations. Solid sections of the front of house facades are clad with fibre-cement cladding panels, with vertical grooved texture. Panels are in mid-grey colour ('granite'). Curtain wall framing will be in selected grey colour to match the cladding.

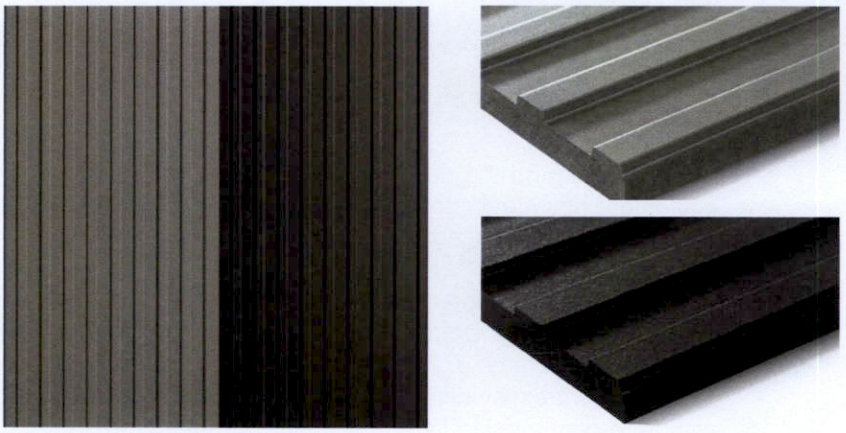
The building entrance is the focal point of the office block facades and has been accentuated by a metal clad canopy – anthracite grey with red underside – and an area of smooth fibre-cement panels to the right-hand side of the entrance, in anthracite grey colour. The panelling will be customized with a diagonal random pattern, to be confirmed at detail design stage.

Loading dock single storey structure, protruding from building to the east will be finished in the same type of cladding as the office block, but in anthracite grey colour.

Picture 41: View of the proposed development from north-west.

Picture 42: Entrance detail view

Picture 43: Reference image of fibre-cement cladding panels with grooved texture, colours: Granite and Anthracite



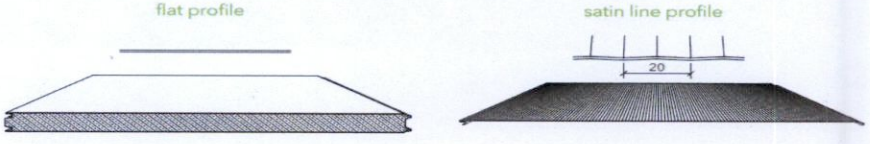
During design, certain references have been made to a 'sister' Data Centre in Helsinki (dark grey cladding to main data centre volume, feature protruding elements from the façade breaking up the massing) and another Equinix Data Centre in North Dublin (fins on the elevation) to achieve a consistency across various facilities.

Generators yard enclosure (to the north of the building) will be constructed of composite metal panels with micro ribbed texture, installed vertically, in light grey colour, reaching up to max. 6.15m above ground level, in order to screen the highest elements within the yard. The section of the enclosure along the office block will be capped at 3.5m height in order not to screen and detract from feature curtain wall element.

OSPG compound enclosure will have the same construction and detail.

Chillers' yard (to the south of the building) will be enclosed with acoustic panels, in light grey colour, to an overall height of 3.5m above ground. Limited height of the enclosure is associated with ensuring proper airflow around the chillers.

Picture 44: Composite cladding textures: flat for the proposed building, satin line (also called micro ribbed) for the generators enclosure.



The design of ancillary structures like the Pump House, Substation or Waste Store is in keeping with the main Data Centre building, ie. use of flat composite panels in dark grey colour (RAL 7016).

8.3 Visualisations

Please refer to the separate booklet. The 'as previously permitted' visuals have been included for comparison.

9.0 Schedule of Areas

Refer to document DB080-RKD-ZZ-XXX-SA-A-XXXX-6002, revision P3:

DB080-RKD-ZZ-XX-SA-A-XXXX-6002

Equinix DB8 Schedule of Areas - Planning Stage

Description of Issue:	Date	Rev.		Purpose of issue
	21/06/2021	P01		S4 - Issued for planning
	25/11/2021	P02		S4 - Issued for Further Information
	20/05/2022	P03		S4 - Issued for revised planning

Buildings gross floor areas

		Area	Totals	Additional GFA in revised planning application	
		m²	m²	m2	Comments
DB8 Building total	Ground	3167.51		60.44	Ground floor office block, incl. loading bay, and Data centre.
	First	3038.41			First floor office block and data centre
	Second	3038.41			Second floor office block and data centre (note that these two areas are on split levels)
	~~Third~~	~~0~~			Third floor office block removed in the revised planning application.
	Roof level	0			Stair A and Goods lifts removed from roof level.
	Total		**9244.33**		
Datahall	Ground	2671.32			
	First	2671.11			
	Second	2672.31			
	Total	8016.74			
Office block (Front of House)	Ground	496.19		60.44	Includes delivery bay, Stair A and lifts.
	First	365.1			Includes Stair A and lifts
	Second	366.1			Includes Stair A and lifts
	~~Third~~	0			Third floor office block removed in the revised planning application.
	Roof level	0			Stair A and Goods lifts removed from roof level.
	Total	1227.59			
External areas (hot air plenums and extrnal staircases) Note: areas not included in the gross floor area.	First fl. plenums	16.21			Area of plenums on first floor
	Ground fl. stairs	85.77			Incl. Stair B, C and D
	First	78.68			Incl. Stair B, C and D
	Second	78.68			Incl. Stair B, C and D
	~~Third~~	~~0~~			Level omitted in the revised planning application.
	Roof level	44.34			Stair B and Stair D continuing to roof level.
	Total	303.68			
Waste Bins Store	Ground		51.56		
Water Pump Room	Ground		22.89		
Electrical substation	Ground		43.77		
Heat recovery plant room	Ground		17.3		
Front of House Plant room (Container)	Ground		39.36		Reduction of floor area in the revised planning application.
Electrical Plantroom 1A (Container)	Ground		12.72	3.58	Increase of 3.58 m2 in the revised planning application.
Electrical Plantroom 1B (Container)	Ground		12.72	3.58	Increase of 3.58 m2 in the revised planning application.
Electrical Plantroom 2A (Container)	Ground		12.72	3.58	Increase of 3.58 m2 in the revised planning application.
Electrical Plantroom 2B (Container)	Ground		12.72	3.58	Increase of 3.58 m2 in the revised planning application.
Electrical Plantroom 3A (Container)	Ground		10.52	10.52	Area added in the revised planning application.
Electrical Plantroom 3B (Container)	Ground		10.52	10.52	Area added in the revised planning application.
Electrical Plantroom 4A (Container)	Ground		10.52	10.52	Area added in the revised planning application.
Electrical Plantroom 4B (Container)	Ground		10.52	10.52	Area added in the revised planning application.
MV Switch room A (Container)	Ground		10.52		
MV Switch room B (Container)	Ground		10.52		
Water tank plantroom (Container)	Ground		22.75		
Mechanical Plant room A (Container)	Ground		9.59		
Mechanical Plant room B (Container)	Ground		9.59		
Mechanical Plant room C (Container)	Ground		29.36	19.77	Increase by 19.77m2 in the revised planning application.
~~Mechanical Plant room D (Container)~~	~~Ground~~		0		Omitted in the revised planning application
OSPG Plant room 1 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
OSPG Plant room 2 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
OSPG Plant room 3 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
OSPG Plant room 4 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
OSPG Plant room 5 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
OSPG Plant room 6 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
OSPG Plant room 7 (Container)	Ground		25.78	25.78	Area added in the revised planning application.
Total Building Area			**9795.48**		
Total additional GFA				**317.07**	Additional GFA in the revised planning application