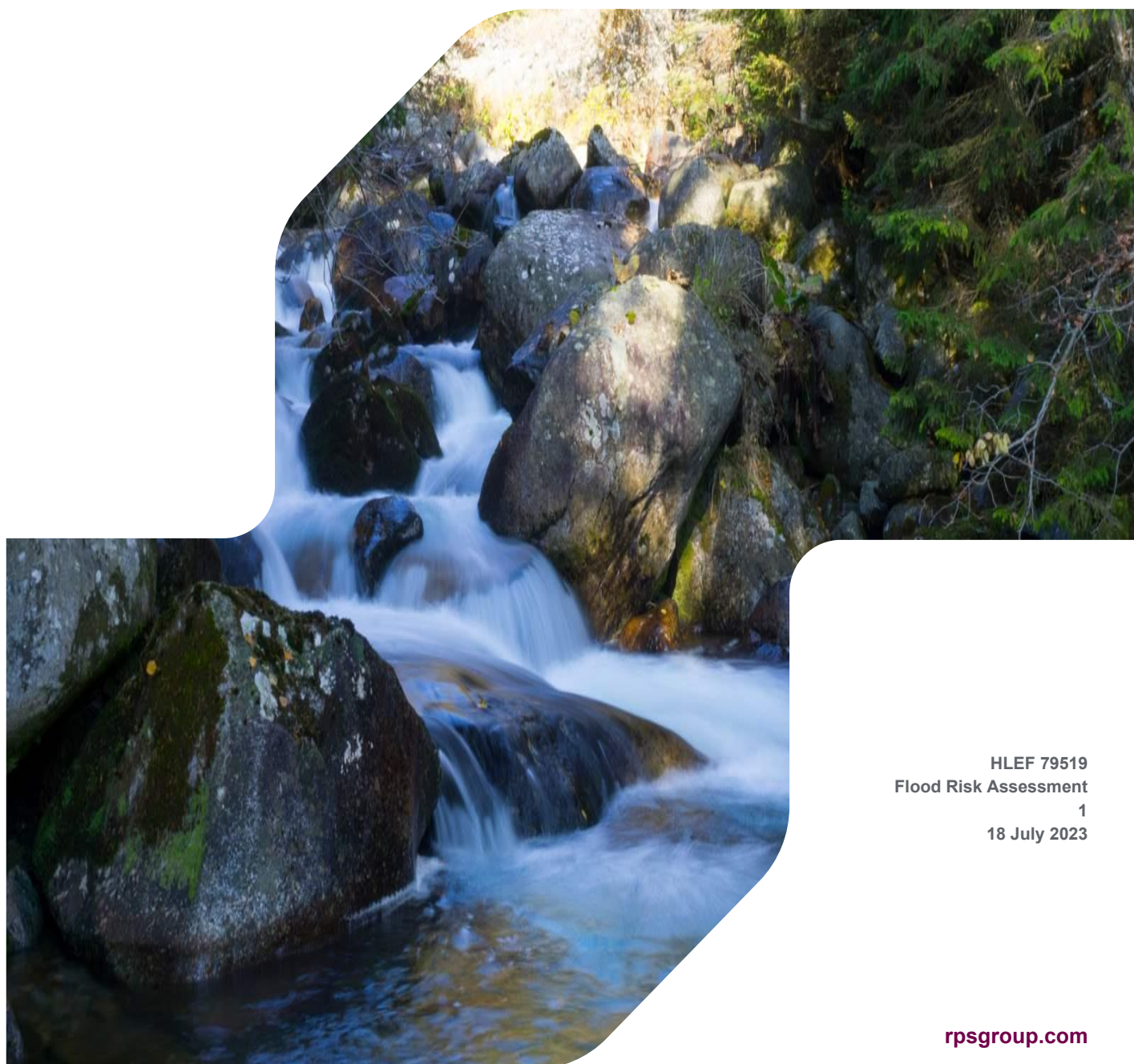


WARWICK MILL, MIDDLETON

Flood Risk Assessment



HLEF 79519
Flood Risk Assessment
1
18 July 2023

REPORT

Quality Management

Version	Status	Authored by	Reviewed by	Approved by	Review date
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Approval for issue

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11 July 2023

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- Appendix A Groundwise Utilities Survey
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- Appendix C Local Authority Response
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1 INTRODUCTION

- 1.1 RPS was commissioned to prepare a Flood Risk Assessment (FRA) in relation to the proposed development of residential apartments with associated infrastructure at Warwick Mill, Oldham Road, Middleton, M24 1AZ ("the site").
- 1.2 The aim of the FRA is to outline the potential for the site to be impacted by flooding, the impacts of the proposed development on flooding in the vicinity of the site. This FRA references publicly available EA data. RPS are currently preparing a refined flood model for the site. A Technical Note and refined flood model will follow the submission of this FRA to support the planning application. This will include the proposed measures which could be incorporated into the development to mitigate against identified flood risk. A Conceptual Drainage Strategy will also be provided at a later stage once development plans are finalised.
- 1.3 The report has been produced in accordance with the guidance detailed in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance (PPG). Reference has also been made to the CIRIA SuDS manual (C753), the Greater Manchester Council Strategic Flood Risk Assessment (SFRA), the Rochdale SFRA and the Greater Manchester Surface Water Management Plan (SWMP).
- 1.4 This report has been produced in consultation with the Environment Agency (EA) and the Lead Local Flood Authority (LLFA). The site is not located within an Internal Drainage Board (IDB) District.
- 1.5 This report is not intended to provide formal details of the final drainage design for the development. However, it provides information regarding the capabilities of the conceptual surface water drainage strategy to meet the requirements of the NPPF.
- 1.6 The desk study was undertaken by reference to information provided / published by the following bodies:
- EA;
 - Centre for Ecology and Hydrology;
 - British Geological Survey (BGS);
 - Multi-Agency Geographic Information Centre (MAGIC);
 - Ordnance Survey (OS); and
 - United Utilities

2 PLANNING POLICY CONTEXT

National Planning Policy

- 2.1 The National Planning Policy Framework (NPPF) was released in March 2012 and was updated in July 2021. The document advises of the requirements for a site-specific Flood Risk Assessment (FRA) for any of the following cases (Planning and Flood Risk paragraph 167 (footnote 55)):
- All proposals (including minor development and change of use) located within the EA designated floodplain, recognised as either Flood Zone 2 (medium probability) or Flood Zone 3 (high probability);
 - All proposals of 1 hectare (ha) or greater in an area located in Flood Zone 1 (low probability);
 - All proposals within an area which has critical drainage problems (as notified to the Local Planning Authority by the EA);
 - Land identified in a strategic flood risk assessment as being at increased flood risk in future; and
 - Where proposed development may be subject to other sources of flooding, where its development would introduce a more vulnerable use.
- 2.2 Paragraph 169 of the updated NPPF identifies that major developments (developments of 10 homes or more and to major commercial development) should incorporate Sustainable Drainage Systems unless there is clear evidence that this would be inappropriate. The systems used should:
- a. Take account of advice from the Lead Local Flood Authority;*
 - b. Have appropriate proposed minimum operational standards;*
 - c. Have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and*
 - d. Where possible, provide multifunctional benefits.*
- 2.3 Defra published their 'Non-statutory technical standards for sustainable drainage systems' in March 2015. These are supported by the revised NPPF.

Regional Planning Policy

- 2.4 The development site is within the Greater Manchester Borough of Rochdale which is covered by the Places For Everyone Joint Development Plan, published in August 2021. The Places For Everyone Joint Development Plan contains various policies pertaining to flood risk and drainage. The main relevant policy is JP-S 5, which is reproduced below:

Policy JP-S 5

Flood Risk and the Water Environment

An integrated catchment based approach will be taken to protect the quantity and quality of water bodies and managing flood risk, by:

- 1. Returning rivers to a more natural state, where practicable, in line with the North West River Basin Management Plan;*
- 2. Working with natural processes and adopting a natural flood management approach to slow the speed of water drainage and intercept water pollutants;*

3. *Locating and designing development so as to minimise the impacts of current and future flood risk, including retrofitting or relocating existing developments, infrastructure and places to increase resilience to flooding;*
4. *Expecting developments to manage surface water runoff through sustainable drainage systems and as close to source as possible (unless demonstrably inappropriate) so as to not exceed greenfield run-off rates or alternative rates specified in district local plans, such as those identified for areas with critical drainage issues.*
5. *Ensuring that sustainable drainage systems:*
 - i. *Are designed to provide multifunctional benefits wherever possible, including for water quality, nature conservation and recreation;*
 - ii. *Avoid adverse impacts on water quality and any possibility of discharging hazardous substances to ground;*
 - iii. *Are delivered in a holistic and integrated manner, including on larger sites split into different phases; and*
 - iv. *Are managed and maintained appropriately to ensure their proper functioning over the lifetime of the development.*
6. *Securing the remediation of contaminated land and the careful design of developments to minimise the potential for urban diffuse pollution to affect the water environment;*
7. *Securing further investment in wastewater treatment to reduce the frequency of intermittent discharges of storm sewage; and*
8. *Conserving water and maximising water efficiency in new development.*

Local Planning Policy

2.5 The Rochdale Core Strategy contains the following Policies relating to flood risk and drainage:

G1 - Tackling and adapting to climate change

We will address climate change and ensure growth does not increase CO2 emissions by:

- *Locating growth in areas which are likely to minimise the need for travel and which are well served by public transport, services and infrastructure;*
- *Expecting all development and regeneration schemes to be well connected to surrounding areas and facilities by sustainable means of transport (Policy T2);*
- *Encouraging and promoting renewable energy developments, including standalone and community developments, that do not, by virtue of their scale, siting, construction or operation, cause harm to the local area, its character and environmental assets and adjoining uses, which cannot be satisfactorily mitigated (Policy G3);*
- *Promoting the efficient re-use of buildings, especially those of heritage value, and the recycling of construction waste;*
- *Ensuring that development does not cause unacceptable harm to the borough's peatlands and woodlands, and encouraging their restoration and responsible management;*
- *Promoting sustainable waste management through the operation of policies in the Core Strategy and Greater Manchester Joint Waste Plan;*
- *Making the best use of open space to contribute to climate change mitigation and adaptation; and*

- *Securing planning obligations for energy infrastructure and climate change adaptation measures.*

New developments will be expected to:

- a. Be zero carbon in line with national targets and definitions;*
- b. Adhere to the 'energy hierarchy' as outlined in policy G2, being designed in such a way that ensures that buildings require the minimum amount of energy to function over their lifetime;*
- c. Reduce CO2 emissions through the use of renewable and low carbon decentralised energy technologies and networks. This will be through both on-site provision in new developments and through connection to local networks;*
- d. Address the impacts of climate change by incorporating comprehensive adaptation measures, including:*
 - i. suitable measures, such as urban greening, for tackling the 'urban heat island' effect;*
 - ii. where possible, the opening up of covered and culverted sections of waterways and provision of new water features, to help cooling and provide biodiversity, landscape and flood prevention benefits;*
 - iii. the incorporation of appropriate water conservation and management measures, such as Sustainable Drainage Systems (SuDS), including ensuring that the rate of run-off on 'greenfield' sites is not increased and on 'brownfield' sites is significantly reduced, and avoiding the use of impermeable surfaces;*
 - iv. the retention of existing trees wherever possible and the taking of all appropriate opportunities to plant trees and other suitable vegetation on site; and*
 - v. the incorporation of 'green roofs' wherever possible, such as with flat roofs.*

G8 - Managing water resources and flood risk

We will ensure that new development (including flood risk mitigation measures) does not lead to any form of increased flooding locally or further downstream, does not impede natural water and flood risk management, is not detrimental to existing or potential flood storage areas, contributes where possible to alleviating existing flood risk, is itself well protected from flood risk and ensures prudent use of water resources. We will require:

- a. Compliance with a 'sequential' approach to new development and flood risk, directing development away from areas of high risk, in accordance with the National Planning Policy Framework;*
- b. Full regard to and compliance with the advice of the Environment Agency (or equivalent agency) and the objectives and priorities for flood risk management set out in the Local Flood Risk Management Strategy, including any mitigation measures recommended for particular sites;*
- c. Full regard to the published evidence of local flood risk and its significance as included in Strategic Flood Risk Assessments, Surface Water Management Plans and other recognised sources of flood risk data and the production of additional Flood Risk Assessments (FRAs) as appropriate;*
- d. Incorporation of appropriate measures for the management of surface and flood water, including flood storage areas, Sustainable Urban Drainage Systems (SUDS) and the protection of 'overland flow paths';*

- e. Compliance with any Surface Water Management Plan or drainage strategies produced, such as for the identified critical drainage areas of Littleborough and Heywood;*
- f. The avoidance of culverting, and support the opening up of existing culverts wherever*
- g. The incorporation of measures for the conservation of water to minimise potable water consumption, including rainwater collection measures, which should be integral to the design of buildings and spaces;*
- h. Development that does not directly or indirectly lead to pollution of existing water resources such as watercourses and groundwater or the derogation of the quantity of groundwater;*
- i. The incorporation of measures to improve water quality; and*
- j. The taking of opportunities to improve the habitat value of watercourses and water bodies.*

In addition, we will identify additional flood storage areas which will be protected from development.

- 2.6 The Greater Manchester Level 1 and Level 2 SFRAs (Strategic Flood Risk Assessment) and the Rochdale Level 1 and Level 2 SFRAs identify and map flood risk from all sources at a council and borough wide scale as well as providing guidance on producing site specific FRAs. Relevant information from the SFRAs has been referenced throughout this FRA report.
- 2.7 The SWMP assesses the risk of surface water flooding within Greater Manchester and identifies options to manage risk to acceptable level. Relevant information from the SWMP has been reproduced throughout this FRA report.

3 CONSULTATION

Environment Agency

- 3.1 The FRA has been prepared in consultation with the Partnership and Strategic Overview Team at the EA. The EA have provided a model for the Wince Brook (2017) including model files, results and reporting.
- 3.2 RPS are currently updating the model to incorporate site-specific details i.e. topographic survey data for the site. This will also include the most recent climate change data.
- 3.3 We are awaiting the results of the modelling to inform any mitigation for the proposed development. Therefore, a model report and subsequent Technical Note will follow this FRA.
- 3.4 Details of historic flooding and flood defences within the vicinity of the site made available by the EA including 'Flood Map for Planning' maps have been referenced within this report. The information available by the EA in the context of the site is summarised in Section 6.

United Utilities

- 3.5 The public sewer network within the vicinity of the site is operated by United Utilities. Asset Plans have been obtained for the sewers in the vicinity, this is included in **Appendix A**. In addition, RPS has undertaken a utilities survey at the site, the report is included in **Appendix B**.
- 3.6 The results of the above are discussed in Section 8. A conceptual drainage strategy will be provided in a Technical Note when design plans are finalised upon receipt of model results for the Wince Brook. Initial surface water drainage findings are discussed in Section 10.

Local Planning Authority

- 3.7 The site is within the administrative boundary of Rochdale Council. We have requested any details that the council hold regarding flood risk at the site. A response was provided on the 13th July 2023 and is included in full in **Appendix C**. The main information provided as part of the response is summarised below:
- Site is located partially within Flood Zone 3;
 - United Utilities data held indicates there is a 450mm diameter combined sewer and 225m diameter surface water sewer in Oldham Road; and,
 - Council holds no historic records of flooding at the site.

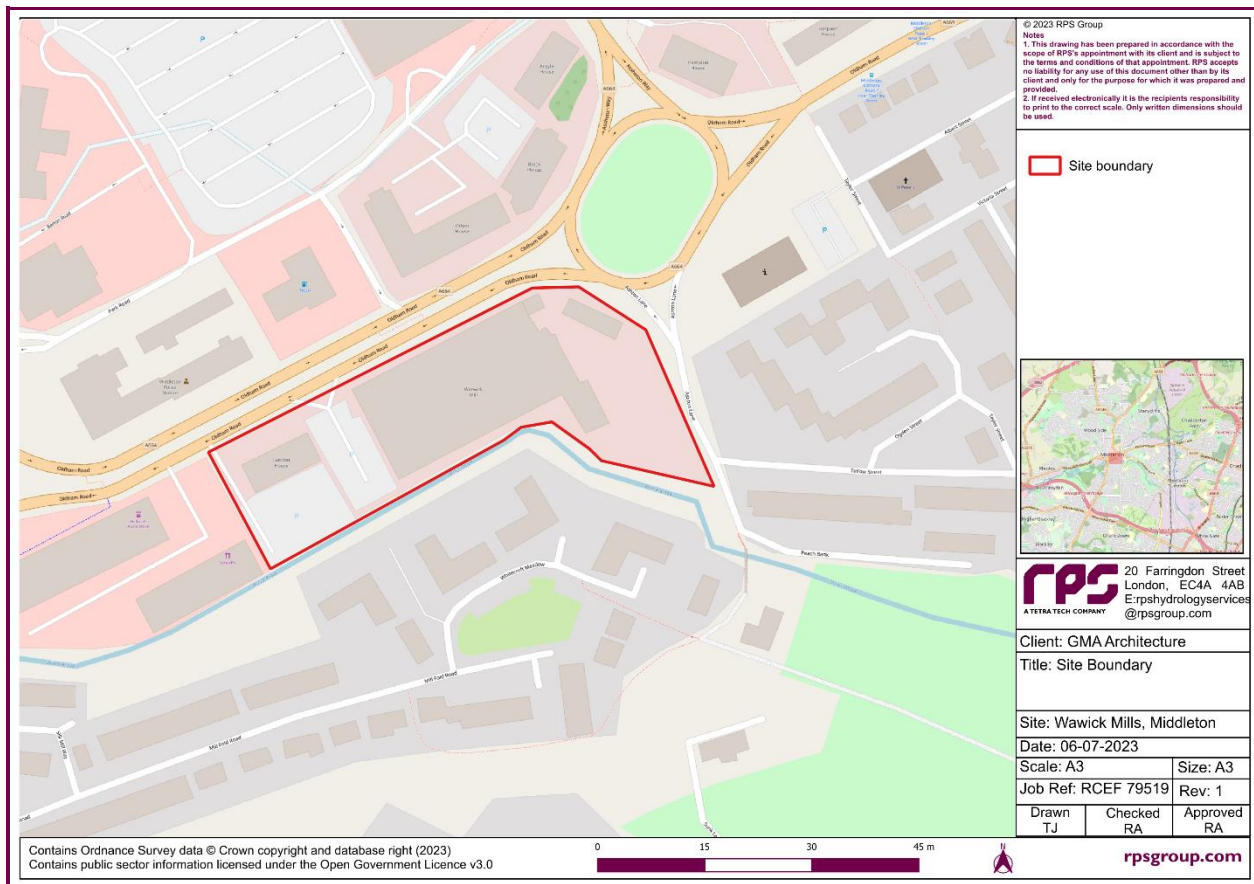
Internal Drainage Board

- 3.8 The site is not located within an IDB District.

4 SITE DESCRIPTION

Site Description

- 4.1 The site is located at National Grid Reference SD 87111 05677 and occupies an area of approximately 1.2 hectares (ha). The site location is presented in Figure 1.



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Figure 1. Site Location

- 4.2 The site is occupied by the disused Warwick Mill a Grade II listed building. The building covers the majority of the site, with a smaller associated building in the north east. A further disused office building is situated in the west of the site. Most of the site comprises hardstanding either as buildings, or associated hardstanding surrounding the buildings for car parking. The hardstanding occupies approximately 85% of the site.
- 4.3 Small areas of shrubbery and grass are noted in the west between the disused office building and Warwick Mill and running along the southern boundary adjacent to the brook.
- 4.4 Vehicular and pedestrian access to site is provided via Oldham Road running along the northern boundary to the site, with an access road connect onto Oldham Road.

Surrounding Land Uses

- 4.5 The site is located adjacent to Oldham Road and is bound at the south by Wince Brook. To the north of the site is a region of commercial buildings. This includes a large supermarket and associated car park, Middleton Shopping Centre to the northeast, the Middleton Arena sport complex and a considerable number of smaller office type building. To the south is an extended region of suburban residential buildings, comprising mostly of semi-detached houses and a small number of terrace

block houses located at the norther edge. An industrial complex is located to the west of the site beyond which is a large area of woodland and open pasture comprising Alkington Woods Nature Reserve. In the general eastern direction from there is a section of terrace housing, several commercial building and some area of open green pasture.

- 4.6 There are no designated sensitive areas (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA) or Site of Special Scientific Interest (SSSI)) within close proximity to the site. The only area designated as a SAC or SSSI is Rochdale Canal, which at it its closest is approximately 1.8m from the site to the east.

Topography

- 4.7 A topographic survey was completed by RPS in 2022, references UAQ3603_A. The topographic survey indicated that the site slopes in a south westerly direction towards the brook adjacent south. At the northwest entrance of the site elevations are 79.18m AOD with elevations sloping to 76.61m AOD in the southwest. In the northeast elevations are 83.92m AOD, similarly sloping towards lower elevations in the south. There is a maximum elevation difference of approximately 7m.
- 4.8 The current buildings are raised above adjacent ground levels.
- 4.9 The site is generally flat and there are not major topographic depressions on the site.
- 4.10 The topographic survey is in **Appendix D**.

5 PROPOSED DEVELOPMENT

- 5.1 The application is for the change of use of the existing listed Warwick Mill in the east of the site. As well as the demolition of the existing building in the western area of the site and construction of a new building, referred to as the 'Loom'.
- 5.2 The 'Warwick Mill' building will involve the refurbishment and conversion of the disused building for the proposed commercial use on the ground level and residential use above. As such there is anticipated to be no additional hardstanding as a result of this.
- 5.3 The 'Loom building' will see the removal of the existing building, which has a total area of 457m². This will be replaced by a new 1,138m² building. This results in an additional 681m² of building at the site. The additional built footprint will occupy an area which is already hardstanding in the form of tarmacked car parking.
- 5.4 The current development plans are shown in **Appendix E**. These are subject to change upon receipt of the modelling work.
- 5.5 Vehicular and pedestrian access to site is provided via Oldham Road running along the northern boundary to the site, with an access road connect onto Oldham Road. Additional access is proposed as part of the development via Ashton Lane to the east.
- 5.6 The proposed use of the site is classified as 'less vulnerable' within the PPG. Note the residential properties usually designated 'more vulnerable' are not located on the ground floor so are not considered to be at risk of flooding.
- 5.7 Surface water runoff is anticipated to pass to the south of the site into Wince Brook. The acceptable discharge rate to the watercourse is anticipated to be based upon existing rates.
- 5.8 The potential to provide surface water attenuation, including the use of Sustainable Drainage Systems (SuDS), has been considered as part of the preliminary design process (see Section 10 – Surface Water Management).

6 HYDROLOGICAL SETTING

Nearby Watercourses

- 6.1 OS Mapping indicates that the nearest surface water feature is Wince brook with flows in a westerly direction along the southern boundary of the site.
- 6.2 Wince Brook is a tributary to the River Irk the confluence being located 300m west downstream of the site. The River Irk flows east to west approximately 100 m north of the site and has an extended box culvert (approximately 500m long) which runs under Middleton shopping centre and the Tesco supermarket.
- 6.3 No significant artificial watercourses or features (for example canals and reservoirs) have been identified within 1km of the site.

Fluvial / Tidal Flood Risk Classification

- 6.4 The EA Flood Map for Planning, which is available online, provides flood zones for the different levels of risk. These are the following:
- Flood Zone 1; area which has a less than 1 in 1000-year chance of flooding (less than 0.1% AEP);
 - Flood Zone 2; area which has between a 1 in 100-year (1% AEP) and 1 in 1000-year chance of flooding (0.1% AEP); and,
 - Flood Zone 3; area which has a greater than 1 in 100-year chance of flooding (greater than 1% AEP).
- 6.5 The Flood Map for planning indicates that the site is located within Flood Zone 3 and 2. The EA Flood Map for Planning is provided in Figure 2.

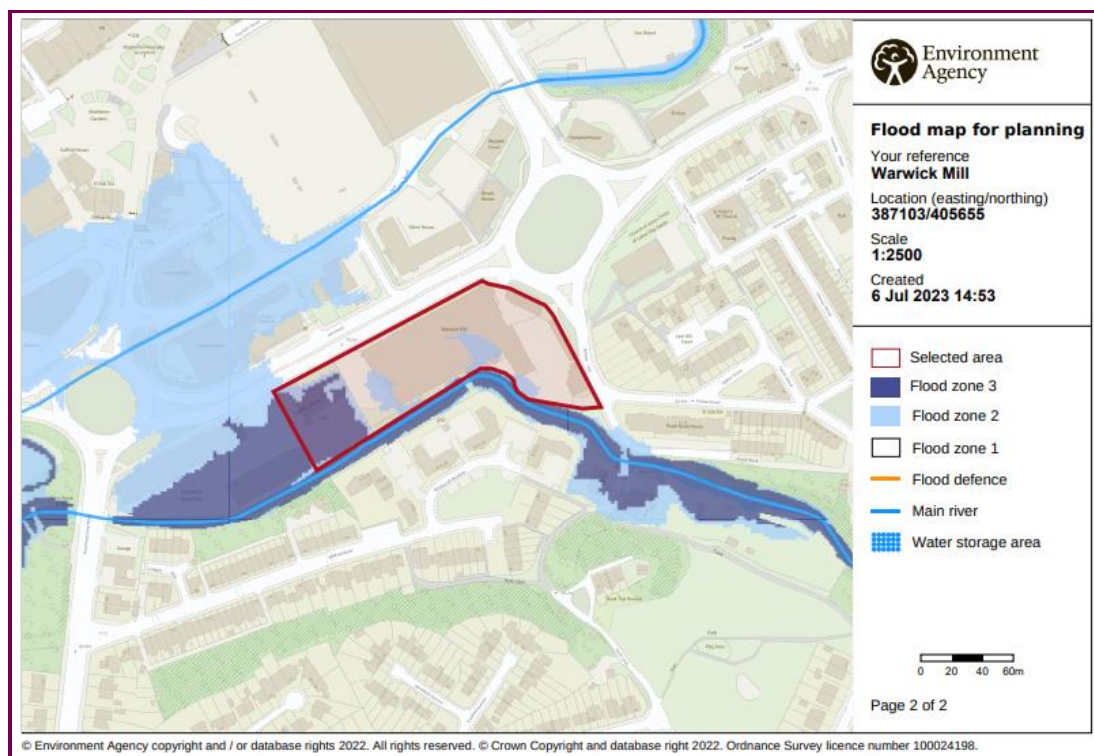


Figure 2. EA Flood Map for Planning

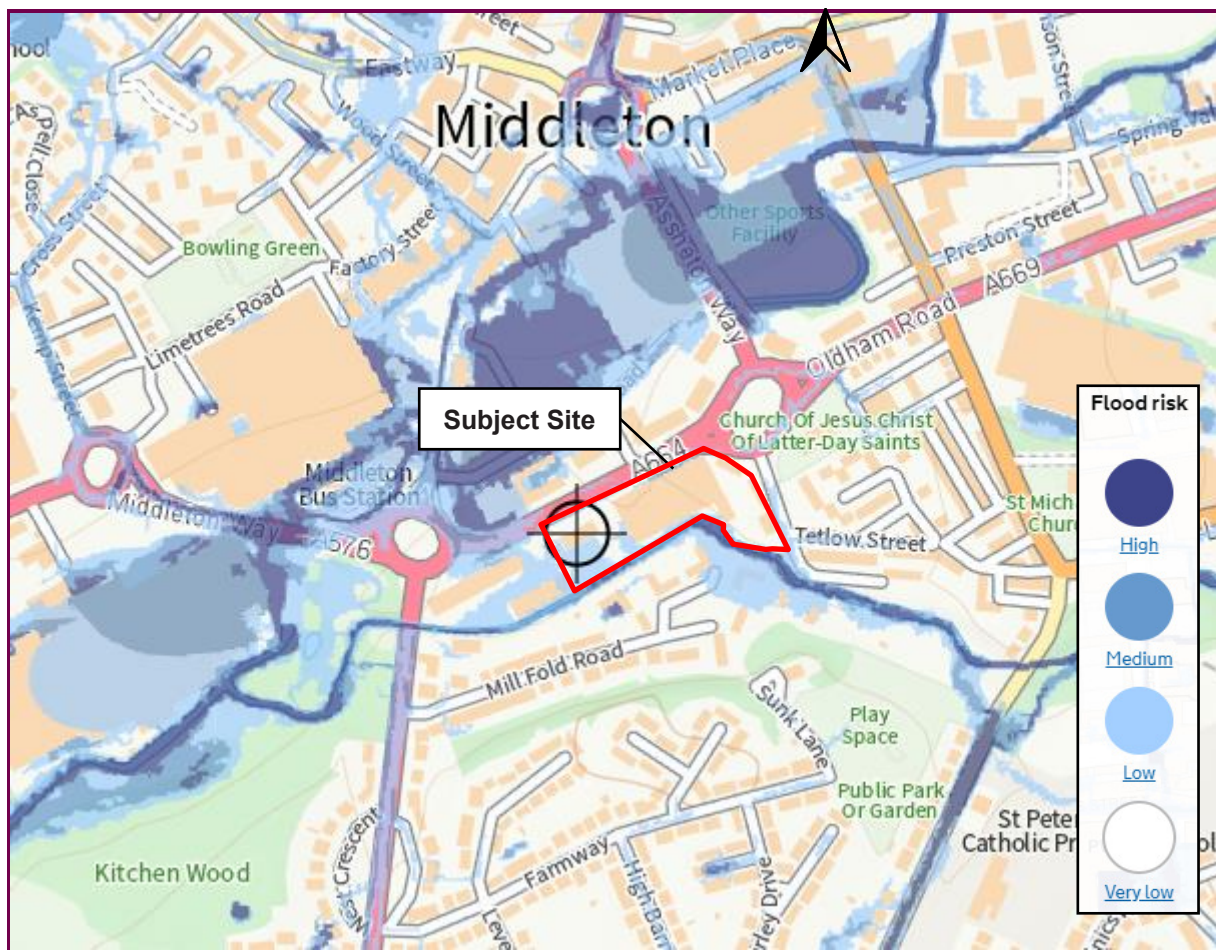
- 6.6 RPS are currently undertaking flood modelling for the Wince Brook. This modelling will provide flood levels, depths and velocities at the site. Subsequently it will be used to recommend any required mitigation measures and floor levels. The results of this modelling will be prepared in a Technical Note to be submitted at a later stage.

EA Flood Warning Area

- 6.7 The EA defines a Flood Warning Area as *“geographical areas where we expect flooding to occur and where we provide a Flood Warning Service. They generally contain properties that are expected to flood from rivers or the sea and in some areas, from groundwater.”*
- 6.8 DEFRA online mapping indicates that the site is located in a Flood Warning Area and Flood Alert Area. This Flood Warning Area is titled the ‘Winford Brook at Chew Magna’ warning area.

Surface Water Flood Risk Classification

- 6.9 The EA’s updated Flood Map for Surface Water, which is available online, provides risk levels for different areas. These are categorised into the following:
- Very low; area which has a less than 1 in 1000-year chance of flooding (less than 0.1% AEP);
 - Low; area which has between a 1 in 100-year (1% AEP) and 1 in 1000-year chance of flooding (0.1% AEP);
 - Medium; area which has between a 1 in 30-year chance of flooding (3.3% AEP) and 1 in 100-year chance of flooding (1% AEP); and,
 - High; area which has a greater than 1 in 30-year chance of flooding (3.3%).
- 6.10 The map indicates that the site is largely at a ‘very low’ risk of flooding. A small area in the west is at a low risk of flooding. This appears to be in the current car parking area. The risk appears to be coming from the north and south and resulting in the pooling at the car parking in the central west. This is likely to be as there is a topographical depression within in the car park to direct water to the gully drains. The most significant velocities are along the southern border, over 0.25m/s with pooling in the car park at velocities of less than 0.25m/s.
- 6.11 The updated Flood Map for Surface Water is presented in Figure 3.



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Figure 3. Updated Flood Map for Surface Water

Reservoir Flood Risk Classification

- 6.12 EA mapping also indicates that the site not located within an area potentially at risk from reservoir flooding.

Local Authority Flood Risk Assessment

- 6.13 The Bury, Rochdale and Oldham SFRA was published in 2009. It provides an overview of flood risk from various sources within the borough.
- 6.14 Greater Manchester Strategic Flood Risk Management Framework was published in 2018. Relevant information is detailed below:
- The majority of the site is located within Flood Zone 3a.
 - Flood Zone 3 depth grids are situated in the west and reach up to 1.5m.
 - Flood Defences are located directly upstream of the site.
 - Areas of the site are located within areas of Low and Medium Susceptibility to Surface Water flooding.
 - The majority of the site is identified as being at risk from one source of flooding with the west identified as being at risk from two sources of flooding.
 - The site is not located within a Critical Drainage Area.

- The site is not at risk from canal flooding.
- The site is within an Opportunity Areas for Further Critical Drainage Management.
- United Utilities information on sewer flooding incidents has not identified any events in Rochdale.
- The most recent flooding that occurred with substantial impacts in Greater Manchester was the Boxing, 2015 floods (Storm Eva) resulted in flooding in Rochdale Town centre. No records to the 2015 flood impacted the site.
- Climate projections for Manchester reveal an increase in temperature and decreased summer rainfall and increased winter rainfall resulting in an increase in average rainfall overall.

7 HYDROGEOLOGICAL SETTING

- 7.1 British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is situated on Pennine Lower Coal Measures Formation formed of mudstone, siltstone and sandstone. The superficial deposits are Alluvium comprising clay, silt, sand and gravel.
- 7.2 The nearest borehole record in proximity to the site is situated approximately 80m northwest of the site. The reference number is SD80NE150. The borehole indicates made ground; concrete until 0.25m bgl, hardcore to 0.75m bgl, brick, stone, ash and boulders until 2.5m bgl, and sand and brick until 3.30m bgl. Beneath this is sand; very fine to coarse and gravelly fine until 7m bgl. No groundwater was encountered.
- 7.3 The soils are described as 'freely draining slightly acid sandy soils' by the National Soils Research Institute.
- 7.4 According to the EA's Aquifer Designation Mapping, the superficial drift at the surface is classified as a Secondary A and the bedrock is classified as Secondary A also. These formations are formed of permeable layers capable of supporting water supplies at a local scale, in some cases forming an important source of base flow to rivers.
- 7.5 MAGIC map indicates that the site is not located within a groundwater Source Protection Zone (SPZ).

8 EXISTING DRAINAGE / WATER MAINS

8.1 Surrounding Area

- 8.1 United Utilities plans of public sewers, included as a Groundwise Search report, dated 2022 is included in **Appendix A**. This indicates that that several sewers are located on the site.

Combined sewers

- 8.2 In the southwest of the site boundary, south of London House there is a combined sewer (CS); manhole reference 0601. This sewer connects to Oldham Road network northwest of the site. Adjacent west of Warwick Mill there is a further CS, reference 0603. Adjacent northeast of the site a combined sewer with reference 1701 is situated.
- 8.3 Manhole reference 0700 is noted adjacent north but, this is not identified as a connection to the wider area. No details regarding invert or cover levels have been provided for this manhole.

Surface Water sewers

- 8.4 Surface water (SW) sewers run along Oldham Road. The closest manhole in proximity is located adjacent north 0604.
- 8.5 Manhole cover levels and invert levels are given in Table 1 below.

Table 1. Manhole level details

Manhole Reference	Type of Sewer	Manhole Cover Level (mAOD)	Manhole Invert Level (mAOD)	Invert Depth (m)	Size (mm)
0601	CS	78.63	74.83	3.8	600
0603	CS	78.93	-	-	450
1701	CS	-	-	-	225
0604	SW	-	-	-	225

- 8.6 No water mains information has been provided for the site.

8.2 The site

- 8.1 RPS has conducted a topographic survey for the site, reference: UAQ3603_A, dated 2022 included in **Appendix D**. This includes a plan of the gully drains on the site. It is noted that in the west of the site at the current car park there are a series of gully drains. These are generally situated 0.1m below surrounding ground levels so that overland surface water flow enters them. Water is collected in the gullies from where it enters the surface water sewers. It is then discharged into the nearby brook. Similarly, rainwater pipes at the building are assumed to collect water before connecting to the wider surface water sewer system.
- 8.2 In the east at the existing building there are rainwater pipes at the building, the assumed discharge route of these is also via surface water sewers into the adjacent brook.
- 8.3 Manholes have also been identified on the site and adjacent by RPS Utilities, reference UAQ3603_MH_Cards, dated 2022 included in **Appendix B**. One of the manholes referenced: FW02 adjacent Ashton Lane is noted to be blocked.

9 FLOOD RISK AND MITIGATION

- 9.1 The key sources of flooding that could potentially impact the site are discussed below:

Fluvial / Tidal Flooding

- 9.2 The EA Flood Map for Planning, as seen in Figure 2, indicates that the site is located within regions of Flood Zone 1, 2 and 3. The annual probability of flooding is classified as Less than 1 in 1000, between 1 in 1000 and 1 in 100 and greater than 1 in 100 for flood zones 1, 2 and 3 respectively in the absence of any defences.
- 9.3 The Warwick Mill Building is located predominantly in Flood Zone 1. A small portion located centrally and at the western end of the Mill building is located within Flood Zone 2. The western section of the site associated with London House, is primarily located with Flood Zone 3. Flood Zone 2 largely matches that of Flood Zone 3, with an area of Warwick Mill house within this zone too. The fluvial flood mapping indicates that the mechanism for flooding is overtopping of fluvial waters from Wince Brook.
- 9.4 RPS is presently updating the existing Wince brook model to account for the most recent climate change allowances. Once complete the model outputs will be used to inform flood resilience and/or resistance measures, if required. The PPG details the suitability of different land uses within each flood zone. The proposed land use is classified as 'less vulnerable' for the ground floors and such uses are generally considered appropriate within Flood Zones 1, 2 and 3a.

Flooding from Sewers

- 9.5 Sewer flooding can occur during periods of heavy rainfall when a sewer becomes blocked or is of inadequate capacity. Sewers are currently located on site and are anticipated to remain as part of the development. One of the sewers was noted as being flooded at the time of inspection in 2022. It is recommended that a maintenance plan be put in place to ensure that regular inspection and clearance is undertaken.
- 9.6 The discharge rate to the existing sewer will be agreed with United Utilities to ensure that there is capacity to receive discharge from the site without significantly increasing flood risk.

Surface Water Flooding (Overland Flow)

- 9.7 This can occur during intense rainfall events, when water cannot soak into the ground or enter drainage systems. The site is at a low risk of surface water flooding in the west of the site. Gully drains are present here, which due to their localised nature will not be included in the surface water modelling. These are anticipated to capture the majority of any overland flow.
- 9.8 Surface water flooding from on-site sources is considered in Section 10 of this report.

Groundwater Flooding

- 9.9 This can occur in low-lying areas when groundwater levels rise above surface levels, or within underground structures. BGS mapping indicates that during a nearby borehole log of depth 7m bgl the water table was not encountered. This indicates that the water table is not identified as being near to the surface.
- 9.10 No below ground level floors are planned for the development.
- 9.11 As such the risk from this source is not deemed significant.

Other Sources

- 9.12 There is a limited risk of flooding occurring because of a break in a water main. We have not been provided with details of water mains at the site or in proximity.
- 9.13 The risk of flooding from reservoirs and canals is considered low as no features have been identified in proximity.
- 9.14 The EA reservoir flood risk maps indicate the site is not within an 'at risk' area from this source.
- 9.15 Overall, the risk from other sources is deemed low.

Proposed Mitigation

- 9.16 Mitigation will be discussed within a Technical Note upon receipt of the updated modelling.

10 SURFACE WATER MANAGEMENT

Introduction

- 10.1 The proposed development comprises of commercial and residential use and will largely involve the development of existing buildings/impermeable land.
- 10.2 Generally this type of development is considered to have a design life of 100 years. Therefore, for the purposes of this assessment, taking into account the Environment Agency's climate change allowances (published in February 2016), a 45 % increase in peak rainfall intensity has been included as climate change allowance, which caters up to the year 2115. No climate change guidance is available beyond 2115.
- 10.3 As the site plans are to be finalised upon receipt of the flood modelling, we have not yet undertaken runoff rate calculations for the site. This along with a Conceptual Drainage Strategy will be undertaken upon receipt of modelled flood data. The below considers the drainage hierarchy and SuDS features which are possible at the site.

Consideration of Drainage Hierarchy

- 10.4 The PPG advises of the following hierarchy for the disposal of surface water;
1. Infiltration;
 2. To a surface water body;
 3. To a surface water sewer, highway drain or another drainage system; or
 4. To a combined sewer.
- 10.5 The drainage hierarchy has been considered as follows.

Infiltration

- 10.6 According to BGS data the site is underlain by mudstone, siltstone and sandstone. Superficial deposits comprise of clay, silt, sand and gravel. The soils are described as 'freely draining slightly acid sandy soils' by the National Soils Research Institute.
- 10.7 Given that the development is located within an area of existing brownfield land, it is anticipated the site is underlain by made ground. As such, it is considered that the infiltration techniques are not considered a suitable means to dispose surface water from the site. In addition, where there is soft landscaping present it is located within 8m of the brook, to avoid encroaching the 8m stand off of the nearby brook infiltration SuDS must be avoided here. The development proposed is not located within 8m of the brook.
- 10.8 As such given space limitations this option has not been considered further.

To a Surface Water Body

- 10.9 Where infiltration is not feasible, discharging to a surface water body should be considered, subject to proximity of nearby watercourses in accordance with LLFA requirements. Discharging to the surface watercourse is proposed based on the existing catchment of the site.
- 10.10 The existing sewer network on the site already discharges to the nearby brook. As such it is proposed to follow this existing approach and connect the new site scheme with the existing system.

Consideration of Sustainable Drainage Systems

- 10.11 The potential for the use of Sustainable Drainage Systems (SuDS) to provide attenuation within the development has been considered as follows:

Modular Underground Attenuation Storage

- 10.12 Underground systems can be used to control and manage rainwater surface water runoff by offering storage of runoff within the site prior to discharge off-site. This may be a viable option to explore upon receipt of finalised site plans following modelling work.

Permeable / Porous Paving

- 10.13 It is expected that buildings and hardstanding will be demolished/ altered with new car parking bays and external hardstanding. As such where possible it recommended to include permeable paving into the development design.

Rainwater Harvesting

- 10.14 Rainwater harvesting is where rainwater from roofs and hard surfaces can be stored and used. If designed appropriately, the systems can also be used to reduce the rates and volumes of runoff, water butts are primarily, usually in small scale projects.
- 10.15 Due to the nature of the development rainwater harvesting may potential be available, however this would need to be confirmed at a detailed design stage, depending on whether it would be compatible with the construction type.

Green Roofs

- 10.16 Green roofs can help slow the flow of water into the drainage system by storing water within the feature.
- 10.17 Due to the nature of the development green roofs may potentially be workable, however this would need to be confirmed at a detailed design stage, depending on whether it would be compatible with the construction type.

Infiltration SuDS Features

- 10.18 As discussed within Section 10.10, the use of infiltration SuDS within the site is not considered to be feasible.

Swales, Detention Basins and Ponds

- 10.19 Swales, detention basins and ponds are large open water features. Due to the size of the development and the development layout, it is not considered feasible to include large open surface water attenuation features.

11 SEQUENTIAL TEST AND EXCEPTION TEST

Sequential Test

- 11.1 The NPPF requires the Local Authority to apply the Sequential Test in consideration of new development. The aim of the Test is to steer new development to areas at the lowest probability of flooding.
- 11.2 The development seeks to utilise an existing commercial site for continued commercial/residential use. The residential use will be situated above the ground floor level out of the flood zone. The site is at low risk from all other sources. A sequential approach has been undertaken to the development placing residential land uses above ground floor. In addition, the 'low' surface water risk areas are anticipated to be managed through appropriate drainage already present at the site. The modelling will confirm the extent of the flood risk areas and provide mitigation where required.

The Exception Test

- 11.3 According to Table 3 of the PPG to the NPPF, 'less vulnerable' developments are considered appropriate within Flood Zone 3a without the requirement to apply the Exception Test. The 'more vulnerable' residential development will be placed above the flood level, located above the ground floor level.
- 11.4 Therefore, application of the Exception Test is not required for the proposed development.

12 SUMMARY AND CONCLUSIONS

- 12.1 The aim of the FRA is to outline; the potential for the site to be impacted by flooding, the potential impacts of the development on flooding both onsite and in the vicinity, and the proposed measures which can be incorporated into the development to mitigate the identified risks. The report has been produced in accordance with the guidance detailed in the NPPF. Reference has also been made to the CIRIA SuDS manual (C753), the Greater Manchester and Rochdale SFRA's and the Greater Manchester SWMP. We are awaiting the completion of flood modelling which will inform mitigation measures and the Conceptual Drainage Strategy.
- 12.2 The potential flood risks to the site, and the measures proposed to mitigate the identified risks, are summarised in Table 3.

Table 2. Proposed mitigation

Source of Flooding	Identified Risk			Mitigation Proposed	Residual Risk		
	L	M	H		L	M	H
Fluvial			✓	Awaiting refined modelling	Awaiting refined modelling		
Tidal	✓				✓		
Sewers	✓			Create a maintenance and inspection plan for the on-site sewers.	✓		
Surface Water	✓				✓		
Groundwater	✓				✓		
Other Sources (e.g. reservoirs, water mains)	✓				✓		

- 12.3 The accompanying Technical Note will incorporate model results and mitigation measures. This will be supplied later.
- 12.4 Given the brownfield nature of the site, runoff is anticipated to discharge to the adjacent brook in line with current drainage plans. A conceptual drainage strategy will be provided once design plans are finalised upon receipt of flood modelling.
- 12.5 The ground level of the development will be used for commercial use, this type of 'less vulnerable' development is appropriate in Flood Zone 3.
- 12.6 The Technical Note will detail model outputs, present recommendation for practicable flood resilience/resistance options, and seek to provide SuDS options to manage surface water runoff in accordance with best practice.

APPENDICES

Appendix A

Groundwise Utilities Survey

GROUNDWISE

Groundwise Searches Ltd

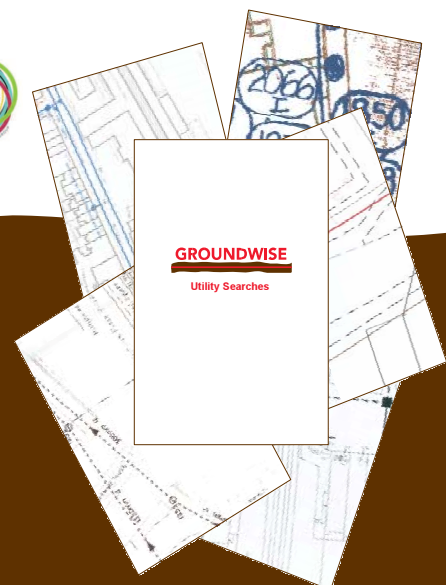


Groundwise Searches Limited

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1 High Street
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Essex, SS1 1JE

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Website www.groundwise.com

Registered Office Address:
Matrix House, 12-16 Lionel Road
Canvey Island, Essex, England, SS8 9DE



GROUNDWISE

Groundwise Searches Ltd

Product	Desktop Utility Search (United Utilities - Sewers search)
Scope	PAS 128 – Level D

Groundwise Reference	29715JS
Site	Warwick Mills
Client	Chris Alcock
Company	RPS Environmental Management Ltd
Client Reference	Warwick Mills
Purchase Order	ST0810-00711

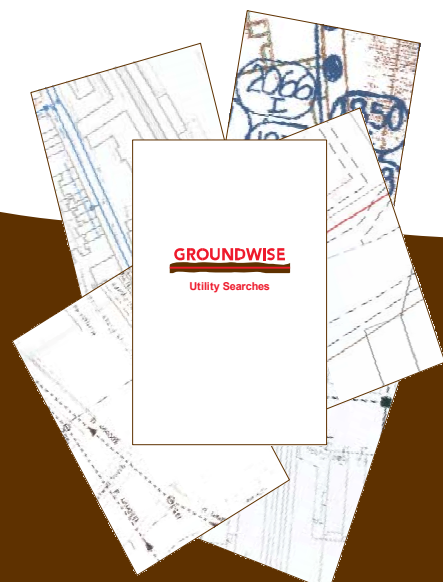


Researcher	Joe Shawyer jshawyer@groundwise.com
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GROUNDWISE

Groundwise Searches Ltd

Groundwise Reference 29715JS

Site Warwick Mills

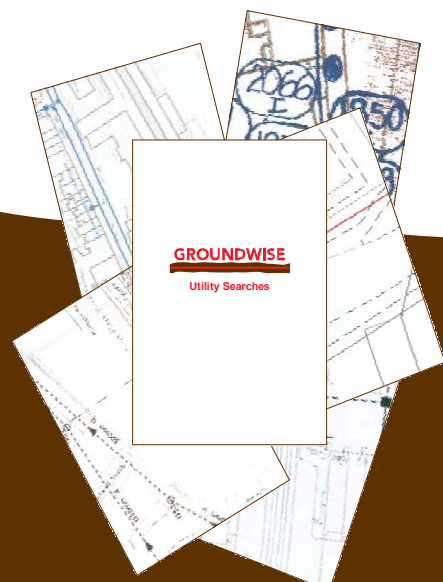
Version	Date Issued	Notes
#1	06/01/2022	Utility Report issued – complete (no results outstanding)

Groundwise Searches Limited

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Canvey Island, Essex, England, SS8 9DE



GROUNDWISE



Groundwise Searches Ltd

Groundwise Reference 29715JS

Site Warwick Mills

Click on a Data Supplier to view their response

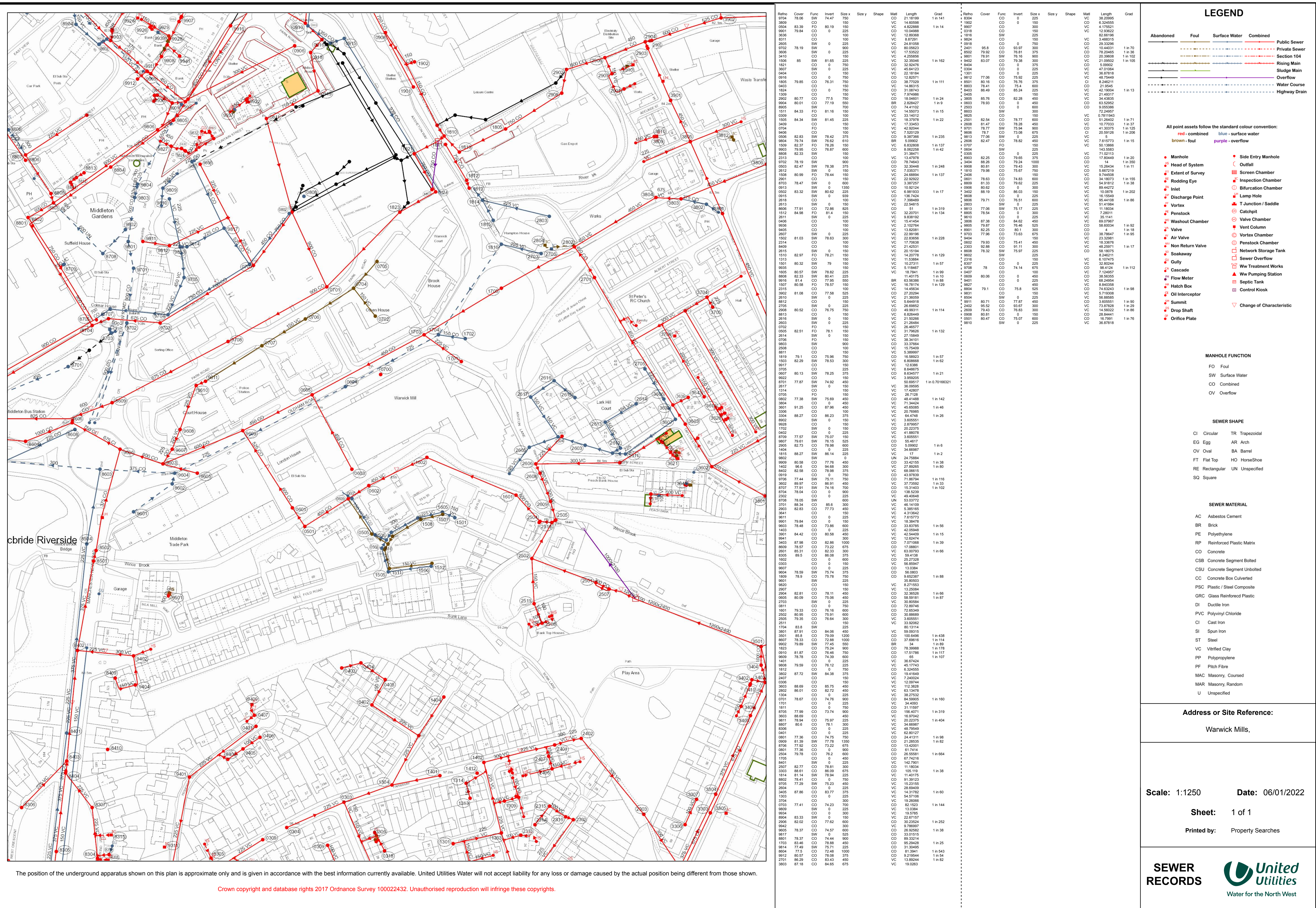
Type	Data Supplier	Date Sent	Assets in Area
Sewers	United Utilities	6/1	X

TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and effect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.



GROUNDWISE

Groundwise Searches Ltd

Advice

1 Purpose of Utilities Report

The Utilities Report is intended to be for project planning and feasibility only. It is not suitable to be used for construction or excavation purposes. The existence of utilities on the plans does not imply that they are suitable in size, capacity, type or location for the project purpose. The Utility Companies should be contacted directly for clarification in this regard.

2 Compilation of the Utilities Report

The Utilities Report is a compilation of Utility Company record plans. These are obtained via application to the Utility Companies following a geographic search to determine which Companies are in a given area. The data is provided by the Utility Companies in a variety of formats including faxed plans, pdf files, digital drawing files and paper drawings. They are all converted to pdf files for inclusion in the report. The quality of the plans therefore varies. A quality assured process is followed for each report. This requires that it is checked at different stages during the process before being subjected to a final assessment prior to issue.

3 Limitations and Accuracy of the data

Each Utility Company has its own disclaimer statement in respect of the information they provide. They do not guarantee or provide a warranty for the data. The Utility Company disclaimers should be referred to when considering the accuracy and completeness of the data. Generally the plans provided are for guidance only and are not guaranteed to be up to date or to be a complete record of the Utility Company plant in a given area.

Some Utility Companies only show main utilities. Therefore service pipes or cables may not be shown on the plans but they may be present on the site.

Some Utility Companies state that the utilities may deviate from the route and position shown on the plans. Due to the time delay between installation of, or repair or upgrading of utilities and the subsequent updating of the Utility Companies plans, it should be noted that there could be utilities present that are not shown on the plans.

The exact position of the utilities should be verified by the use of suitable detecting devices and safe digging practices in accordance with HS(G)47. Further advice on the location of the utilities should be requested from the owner.

4 Completeness

Whilst every effort is made to locate all Utility Companies in a given area, due to the sensitive or restrictive nature of certain sites, the existence of redundant utilities, the emergence of new companies and the combining of, takeover or sale of existing Companies, we cannot guarantee to provide details on all utilities in a given area.

5 Date

Due to the Utility Companies plans being regularly changed and updated, the Utility Report is only valid at the time of production.



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Groundwise Searches Ltd Terms & Conditions

1. Definitions

"Client" means any company or other person or body placing an Order with Groundwise;

"Equipment" means pipes wires cables and other plant or equipment;

"Fee" means in relation to a Site of an area not exceeding the Standard Maximum Area the fee for carrying out a Search identified either on Groundwise website (where an Order is placed through the website) or on the Order Form where an Order is placed using an Order Form plus Value Added Tax and in relation to a Site of an area exceeding the Standard Maximum Area shall be such sum as shall be agreed between Groundwise and a Client plus Value Added Tax;

"Groundwise" means Groundwise Searches Limited;

"Order" means an order by a Client from Groundwise for the provision of a Search whether placed electronically through Groundwise's website or in paper form using an Order Form;

"Order Form" means Groundwise's current standard Utility Searches Order Form for placing an order for a Search in hard copy;

"Report" means a written report provided by Groundwise to a Client in response to an Order reflecting the results of Groundwise's enquiries of Utility Companies made on or before the date of the Report;

"Search" means making enquiries of the Utility Companies likely to have utilised or operated Equipment on a Site, as to the location of any Equipment on that Site following acceptance by Groundwise of an Order, and providing the Client with a Report;

"Site" means a site identified on a plan submitted with an Order which in relation to any Order placed electronically shall not exceed the Standard Maximum Area;

"Standard Maximum Area" means an area no greater than 15 hectares or of a length no greater than one kilometre and a width no greater than two hundred metres;

"Terms of an Order" means in the case of an Order placed electronically the information requested from a Client relating to a Site, the provisions relating to the method of payment, the information contained in or accessed through the tabs appearing on an Order Summary and all other applicable information contained in Groundwise's website and in the case of an Order placed in hard copy means the provisions of a completed Order Form.

2. Agreement

2.1 The Terms of an Order together with these Terms and Conditions constitute the terms of a contract ("Contract") between Groundwise and a Client for the carrying out of a Search.

2.2 A Contract shall come into effect when Groundwise notifies a Client that it has accepted an Order. Where such notification is by email it shall be deemed to have occurred as soon as Groundwise has sent the email to the Client, where such notification is by letter, upon the posting of the letter to the Client, or where there is a verbal acceptance when Groundwise verbally confirms acceptance of an Order to the Client.

3. Payment and Refunds

3.1 Other than in the case of Clients who have set up an account with Groundwise, when placing an Order a Client shall provide Groundwise with credit card details sufficient to enable Groundwise to debit that credit card with the Fee and by such notification and subject to accepting the relevant Order Groundwise is authorised to debit that credit card with the Fee.

3.2 In the case of Clients who have an account with Groundwise the Fee shall be paid within 30 days of the delivery of the Report.

3.3 Groundwise shall be entitled to terminate any account set up with it by a Client any time without notice and to require payment in accordance with paragraph 3.1.

3.4 Where a Client cancels an Order :

3.4.1 within three hours of that Order being accepted by Groundwise, Groundwise shall promptly refund the Fee paid plus Value Added Tax in full, or where no fee has been paid no fee shall be payable;

3.4.2 within three days but after the elapse of three hours of an Order being accepted by Groundwise, Groundwise shall promptly refund 50% of the Fee paid plus Value Added Tax or where no fee has been paid 50% of the fee plus Value Added Tax shall be payable and in either such case following such reimbursement or where no payment has been made upon making any payment due the relevant Contract shall terminate without further liability on the part of Groundwise or of the Client.

4. Limitation of Liability

4.1 Groundwise shall use its reasonable endeavours to provide a Search within the period referred to in the Order and shall not be liable for any delay arising because of any act omission or delay of any Utility Company.

4.2 Without limiting the liability of Groundwise in the case of death or personal injury Groundwise shall have no liability to a Client:

4.2.1 for the information contained in a Report to the extent that any errors or omissions reflect the errors or omissions of a Utility Company in providing or omitting to provide information to Groundwise and to the extent that that Utility Company has no liability to Groundwise in relation to the provision of such information, or the omission to provide relevant information;

4.2.2 in relation to any Report for loss or damage arising in relation to loss of profits, loss of business, loss of use, or any special indirect consequential or pure economic loss, costs, damages, charges or expenses and subject as earlier provided Groundwise's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation restitution or otherwise in relation to the performance or contemplated performance of the Services shall be limited £5,000,000.00.

4.2.3 In the absence of express written agreement to the contrary, Groundwise shall have no liability to any third party for any errors or omissions contained in or omitted from a Report.

5. Copyright

5.1 The copyright in the Report is the property of Groundwise and the Report may not be copied or reproduced in whole or in part nor communicated or divulged to any third party without the prior written consent of Groundwise save as set out below.

5.2 The Report may, without further charge, be made available to the owner of the Site at the date of the Report, their agents, consultants and professional advisors, any person who purchases the whole of the Site, any person who provides funding secured on the whole of the Site, and prospective buyers of the Site, and any of their respective agents, consultants and professional advisors. The Report may also be published on a local authority planning portal in relation to a proposed development of the site.

5.3 The provisions concerning liability in Clause 4 shall apply to any of the third parties mentioned above in the same manner as they do to the Client.

6. Data Protection

In processing any personal data received from a Client or potential Client, Groundwise will comply with its privacy policy a copy of which can be viewed at [address] on its website.

7. Force Majeure

Groundwise will have no liability to the Client if it is prevented from or delayed in performing its obligations under a Contract by acts events omissions or accidents beyond its reasonable control, including strikes, lock-outs and other industrial disputes, failure of a utility service or transport network, act of God, war, riot, civil commotion, malicious damage, compliance with any law or governmental order rule regulation or direction, accident, breakdown of plant or machinery, fire, flood, storm or default of suppliers or sub-contractors.

8. Severance

8.1 If any provision or part of any provision in these terms and conditions or of any Contract is found by any court or administrative body of competent jurisdiction to be invalid, unenforceable or illegal, the other provisions will remain force.

8.2 If any invalid, unenforceable or illegal provision would be valid, enforceable or legal if some of it were deleted that provision will apply with whatever modification is necessary to make it valid, enforceable and legal.

8.3 The parties agree, in the circumstances referred to in paragraph 8.1 above to attempt to substitute for any invalid, unenforceable or illegal provision a valid, enforceable and legal provision which achieves to the greatest extent possible the same effect as would have been achieved by the invalid, unenforceable or illegal provision.

9. Status of Pre-Contractual Statements

Each of the parties acknowledges and agrees that in entering into a Contract it does not rely on any undertaking, promise, assurance, statement, representation, warranty or understanding (whether in writing or not) of any person (whether party to these terms and conditions or not) relating to the subject matter of a Contract, provided that without prejudice to the generality of the foregoing, any revision to the Terms and Conditions agreed in writing by Groundwise and a Client or a potential Client (including any express written agreement relating to the assignment of copyright or licensing of all or part of the contents of a Report) shall apply to the Contract to which it has been agreed that it will apply.

10. Assignment

A Client shall not, without the prior written consent of Groundwise, assign transfer charge sub-contract or deal in any other matter with any of its rights under a Contract.

11. Third Party Rights

For the purposes of the Contracts (Rights of Third Parties) Act 1999 it is not intended that the rights of either of the parties shall be contractually enforceable by any third party.

12. Governing Law and Jurisdiction

These terms and conditions and any Contract are governing by and construed in accordance with the laws of England and Wales and the parties irrevocably agree that the courts of England and Wales shall have non-exclusive jurisdiction to settle any dispute or claim that arises out of or in connection with these terms and conditions or any Contract.

Appendix B

RPS Utilities Survey

Project Information

Site Name	Warwick Mills, Middleton		Site No.	UAQ3603	
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	FW01

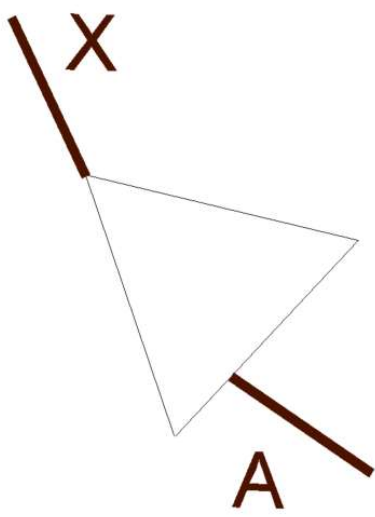
Project Information

Eastings	387024.769	Northings	405603.267	MH Cover Level	78.71
----------	------------	-----------	------------	----------------	-------

Hinged	No	Man Entry Required?	No	Cover Shape	Triangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Foul Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	600 apx	3.72	74.99	UTT - Unable to Sonde	
B					
C					
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	600 apx	3.81	74.90	Road	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber
	

Comments	Not able to trace Incoming A pipe due to flow/volume of water.
----------	--

Project Information



Site Name	Warwick Mills Middleton			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	FW02

Project Information

Eastings	387210.154	Northings	405640.799	MH Cover Level	82.16
Hinged	Yes	Man Entry Required?	No	Cover Shape	Square
Padlocked	No	Cover Type	Heavy	Cover Material	Steel

Service Information

Drainage Type	Foul Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	150	2.39	79.77	Capped	
B	150	3.23	78.93	UTS	
C	100	0.92	81.24	Silted	
D	300	2.54	79.62	OSA	
E	300	1.77	80.39	OSA	
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	NVP			NVP	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber

Comments	Manhole flooded, No visible X pipe
----------	------------------------------------

Project Information



Site Name	Warwick Mills, Middleton			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	MH01

Project Information

Eastings	387020.656	Northings	405660.609	MH Cover Level	79.34
Hinged	No	Man Entry Required?	No	Cover Shape	Triangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Unknown			
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity
A				
B				
C				
D				
E				
F				
G				
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity
X				
Y				
Z				

Chamber Sketch (Orientated to North)	Manhole Chamber

Comments	Unable to raise due to constant flow of traffic in the road.
----------	--

Project Information

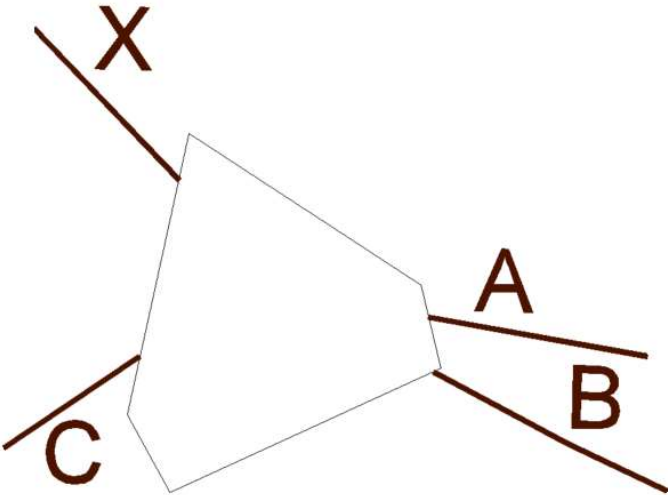
Site Name	Warwick Mills, Middleton			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	MH02

Project Information

Eastings	387154.384	Northings	405713.588	MH Cover Level	84.25
Hinged	No	Man Entry Required?	No	Cover Shape	Triangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Unknown			
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity
A	300	2.68	81.57	UTT - Poss Back Drop
B	150	1.35	82.90	Building
C	300	2.64	81.61	EOT
D				
E				
F				
G				
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity
X	300	2.75	81.50	OSA
Y				
Z				

Chamber Sketch (Orientated to North)	Manhole Chamber
	

Comments	Stats Suggest Combined, Unable to confirm connectons
----------	--

Project Information



Site Name	Warwick Mills, Middleton			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	SW06

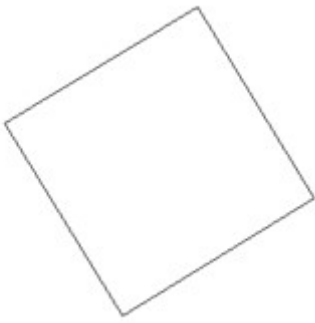
Project Information

Eastings	387208.241	Northings	405648.166	MH Cover Level	82.54
----------	------------	-----------	------------	----------------	-------

Hinged	Yes	Man Entry Required?	No	Cover Shape	Square
Padlocked	No	Cover Type	Heavy	Cover Material	Steel

Service Information

Drainage Type	Surface Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	UTS			UTS	
B					
C					
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	UTS			Brook	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber
	

Comments	Unable to raise frame broken and loose
----------	--

Project Information



Site Name	Warwick Mills, Middleton			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	SW01

Project Information

Eastings	387025.114	Northings	405608.259	MH Cover Level	78.72
----------	------------	-----------	------------	----------------	-------

Hinged	No	Man Entry Required?	No	Cover Shape	Rectangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Surface Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	225	1.20	77.52	SW03	
B	150	1.16	77.56	SW02	
C	100	1.08	77.64	Gully	
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	225	1.22	77.50	Discharges Into the Brook	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber

Comments	
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Project Information

Site Name	Warwick Mills, Middleton			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	SW02

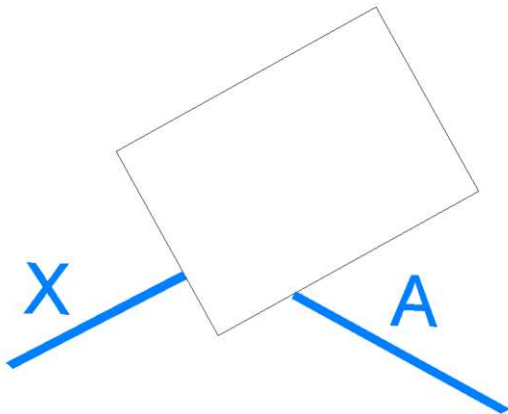
Project Information

Eastings	387048.879	Northings	405620.959	MH Cover Level	78.71
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Hinged	No	Man Entry Required?	No	Cover Shape	Rectangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Surface Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	100	0.76	77.95	Gully	
B					
C					
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	150	0.82	77.89	SW01	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber
	

Comments	
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Project Information



Site Name	Warwick Mills, Middleton		Site No.	UAQ3603	
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	SW03

Project Information

Eastings	387017.519	Northings	405620.144	MH Cover Level	78.71
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Hinged	No	Man Entry Required?	No	Cover Shape	Rectangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Surface Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	150			SW05	
B	150			SW04	
C					
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	225			SW01	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber	

Comments	Unable to raise, Cover Cracked
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Project Information



Site Name	Warwick Mills, Middleton		Site No.	UAQ3603	
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	SW04

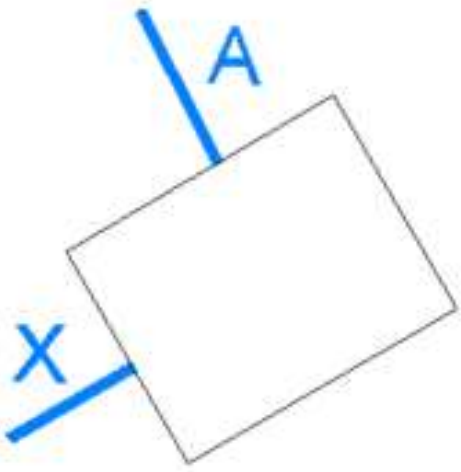
Project Information

Eastings	387044.699	Northings	405635.783	MH Cover Level	78.79
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Hinged	No	Man Entry Required?	No	Cover Shape	Rectangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Surface Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	100	0.70	78.09	Building - Poss Internal RWP	
B					
C					
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	150	0.73	78.06	SW03	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber
	

Comments	
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Project Information

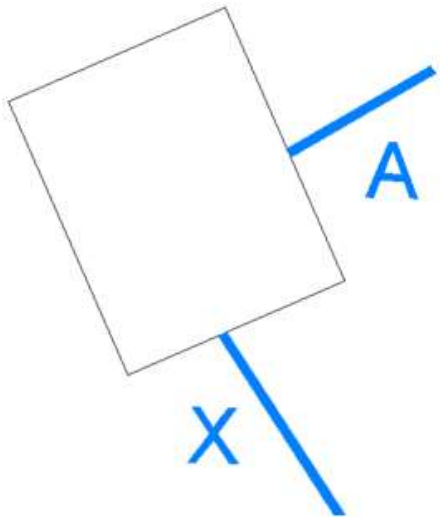
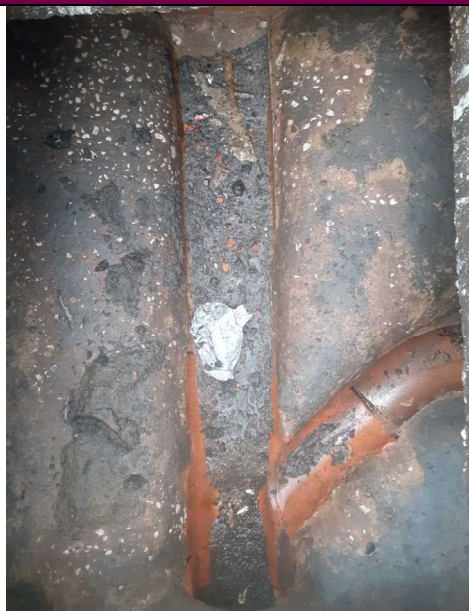
Site Name	Warwick Mills			Site No.	UAQ3603
Surveyor	JS	Date	10/Jan/2022	Manhole Ref.	SW05

Project Information

Eastings	387004.454	Northings	405640.491	MH Cover Level	78.71
Hinged	No	Man Entry Required?	No	Cover Shape	Rectangular
Padlocked	No	Cover Type	Medium	Cover Material	Steel

Service Information

Drainage Type	Surface Water				
Incoming Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
A	100	0.56	78.15	End Of Trace	
B					
C					
D					
E					
F					
G					
Outgoing Pipes	Size (mm) Ø	Invert Depth from Cover Level (m)	Reduced Invert Level (m)	Manhole Connectivity	
X	150	0.60	78.11	SW03	
Y					
Z					

Chamber Sketch (Orientated to North)	Manhole Chamber
	

Comments	
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Appendix C

Local Authority Response

Tamsin Jones

From: Laura Precious <Laura.Precious@Rochdale.Gov.UK>
Sent: 13 July 2023 11:00
To: Tamsin Jones
Cc: Francis Comyn; Sarah Parkington; Stephen McCann
Subject: RE: INT-639745-M0F0P2: Warwick Mill, Middleton (Response due 03/08/2023)

CAUTION: This email originated from outside of RPS.

Hi Tamsin

As set out in Stephen's email below, as LLFA, we do not hold any specific records of flood events at this site.

Please note that whilst we have no records of flooding at this site, this is not to suggest that there has not been flooding in the past, especially if these events have gone unreported due to the unoccupied nature of the site. So whilst our records do not show any incidents, we cannot confirm categorically that the site has not experienced flooding (and what area any such flood may have covered). You will appreciate that reports of flooding to us, as LLFA, are generally only made where there is a direct human impact.

The flood risk of an area for rivers and the sea, surface water, reservoirs and groundwater (where available) is findable via the EA flood risk service [here](#).

As Stephen has suggested, the EA and UU will be best placed to provide any modelled data, including historic flood outlines. Datasets, last updated in June 2023 are available directly from the EA [here](#).

Please also refer to the SFRA mapping and documents sent to you via download link last week for any further information on the Wince Brook.

Many thanks

Laura

Laura Precious
Principal Planning Officer
Planning & Development



 01706 924381
 07975 231656
 laura.precious@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

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For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Stephen McCann <Stephen.McCann@Rochdale.Gov.UK>
Sent: 13 July 2023 08:46
To: Tamsin.Jones@rpsgroup.com

Cc: Francis Comyn <Francis.Comyn@Rochdale.Gov.UK>; Laura Precious <Laura.Precious@Rochdale.Gov.UK>; Sarah Parkington <Sarah.Parkington@Rochdale.Gov.UK>

Subject: RE: INT-639745-M0F0P2: Warwick Mill, Middleton (Response due 03/08/2023)

Hello Tamsin,

I received your email (below). Within my section, we have no record of flooding in this area. Laura Precious will advise whether her dept. has flooding records of this area.

The EA flood risk for this areas – see appended screenshot – shows that part of the site lies within Flood zone 3. United Utilities have records of public sewers; there is a 450mm dia combined sewer and a 225mm dia. surface water sewer in Oldham Rd.

For more information, you will need to contact the EA and UU.

Stephen McCann

Drainage & Flooding Engineer

Network Improvement/Development/Flooding



☎ 01706 924606

📠 07552 570262

✉ stephen.mccann@rochdale.gov.uk

Rochdale Borough Council

Floor 2, Number One Riverside

Smith Street, Rochdale, OL16 1XU

To access our services go to www.rochdale.gov.uk

For news, events and social media updates go to www.rochdale.gov.uk/newsandevents

Please consider the environment before printing this email.

From: Francis Comyn <Francis.Comyn@Rochdale.Gov.UK>

Sent: 11 July 2023 15:28

To: Laura Precious <Laura.Precious@Rochdale.Gov.UK>; Sarah Parkington <Sarah.Parkington@Rochdale.Gov.UK>; Stephen McCann <Stephen.McCann@Rochdale.Gov.UK>

Subject: FW: INT-639745-M0F0P2: Warwick Mill, Middleton (Response due 03/08/2023)

Hi

Can you co-ordinate a combined response please via Laura?

Cheers

Fran

Francis Comyn

Service Manager Strategic Planning

Planning & Development



☎ 01706 924353

📠 07976 059367

 francis.comyn@rochdale.gov.uk

Rochdale Borough Council
Floor 3, Number One Riverside
Smith Street, Rochdale, OL16 1XU

Request details:

From: Tamsin.Jones@rpsgroup.com

Sent: Thursday, July 6, 2023 8:56 AM

To: council@rochdale.gov.uk

Subject: FW: Flood data - Warwick Mill, Middleton

Good Morning,

I am looking to obtain some further details regarding flooding for a site located at Warwick Mill, Oldham Rd, Middleton, Manchester M24 1AZ.

Can you please forward my email on to the relevant team?

The site is within flood zone 3.

We would like to request:

1. Any information on the Wince Brook, including flood modelled data (if available), flood defences, flood history etc.
2. Details of any groundwater flooding issues in the area
3. Details of any sewerage flood risk at the site.
4. Details of any other (reservoir, Canal etc) flood risk at the site.

Many thanks,

Tamsin

Tamsin Jones(She/Her)
Senior Consultant - Hydrology
RPS | Consulting UK & Ireland
6-7 Lovers Walk
Brighton, East Sussex BN1 6AH, United Kingdom
T +44 1273 546 800

D +44 1273 856 061

E tamsin.jones@rpsgroup.com

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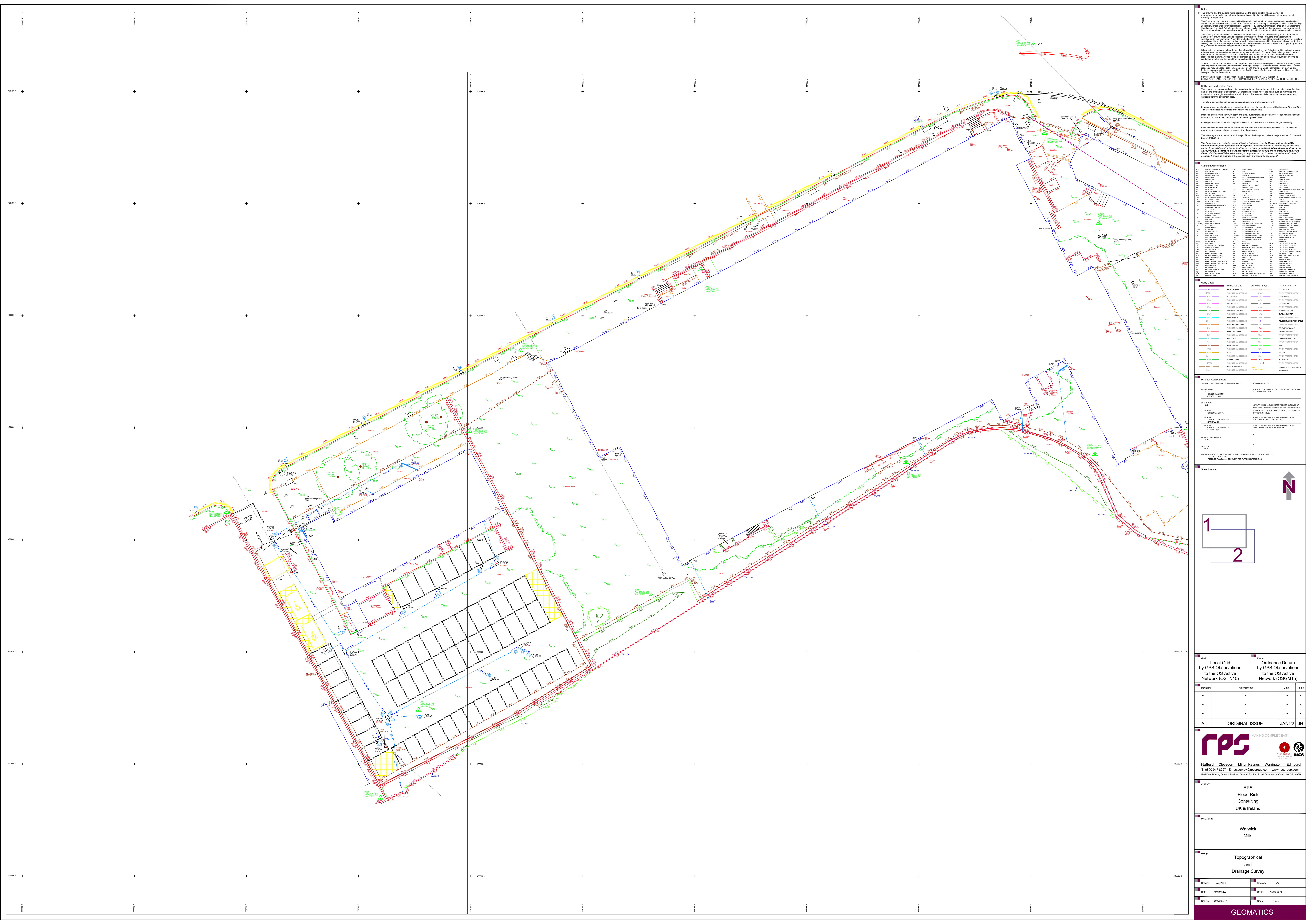
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Appendix D

Topographic Survey



Notes:

1. The Contractor is to check and verify all existing and proposed boundaries, levels and areas shown on the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor.

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6. The Contractor is to check and verify all existing and proposed boundaries, levels and areas shown on the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor.

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8. The Contractor is to check and verify all existing and proposed boundaries, levels and areas shown on the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor.

9. The Contractor is to check and verify all existing and proposed boundaries, levels and areas shown on the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor.

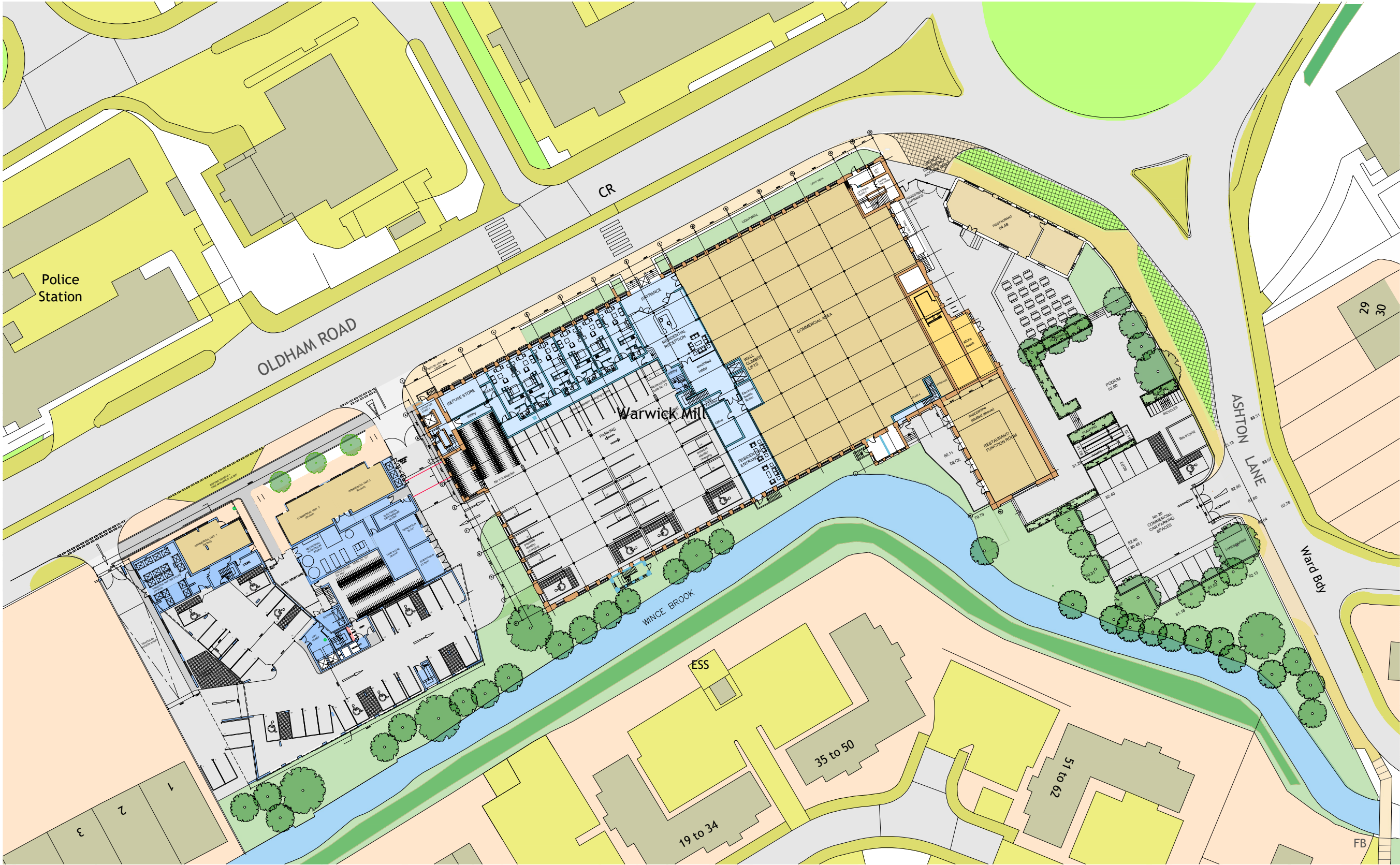
10. The Contractor is to check and verify all existing and proposed boundaries, levels and areas shown on the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor. The Contractor is to be responsible for the accuracy of the plan and to report any discrepancies to the Surveyor.

Standard Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
1:1	As Shown	1:1	As Shown
1:2	As Shown	1:2	As Shown
1:4	As Shown	1:4	As Shown
1:8	As Shown	1:8	As Shown
1:16	As Shown	1:16	As Shown
1:32	As Shown	1:32	As Shown
1:64	As Shown	1:64	As Shown
1:128	As Shown	1:128	As Shown
1:256	As Shown	1:256	As Shown
1:512	As Shown	1:512	As Shown
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Appendix E

Development Plans (Work in Progress)



SCALE 1:500 0 10 20 30 40 50

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UK House 82 Heath Road Twickenham TW1 4BA
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Email enquiries@gmaarchitecture.co.uk

DRAWING ISSUE STATUS

PLANNING

Project
**WARWICK MILL
MIDDLETON
MANCHESTER**

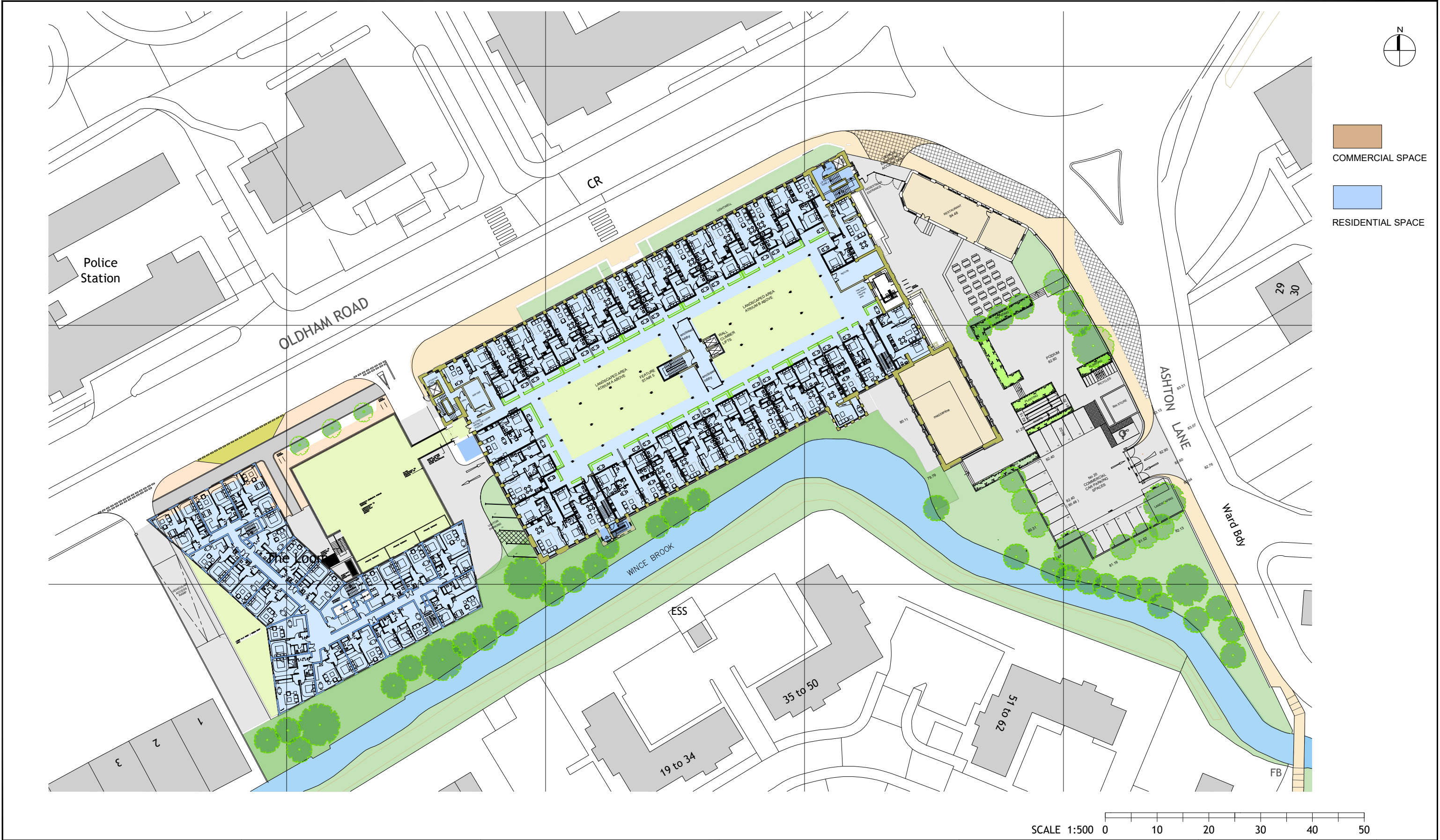
Client
KAM LEI FONG LTD

Drawing
**Warwick Mill Development
Site Plan Lower Ground Floor**

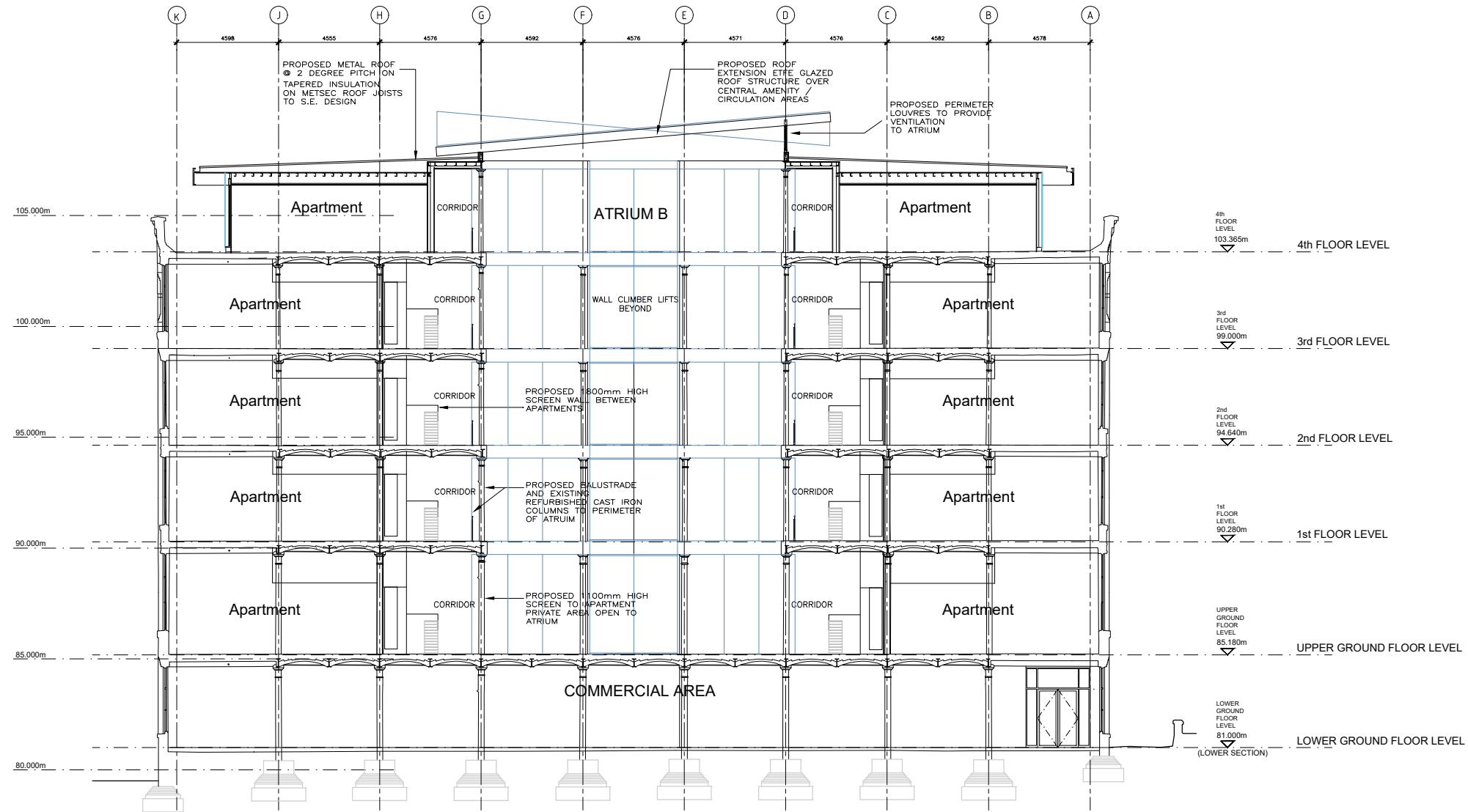
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1:500@A2	June 23	SJS	IL

Type	Client	
01	277/01	WM EH 010

REV	DESCRIPTION	DATE
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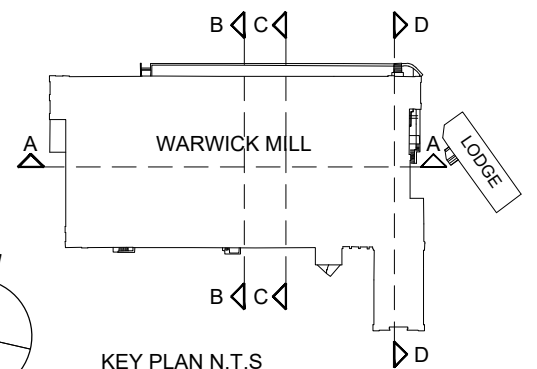
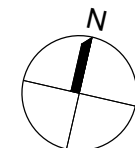
Notes : ■ Dimensions are to be checked on site before fabrication and construction ■ Any discrepancies are to be immediately notified to the architects ■ Structural measurements are to be taken from the structural engineers drawings ■ Do not scale ■ Copyright reserved by GMA			GMA ARCHITECTURE Architects and Designers UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5959 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk		DRAWING ISSUE STATUS PLANNING Project WARWICK MILL MIDDLETON MANCHESTER		Client KAM LEI FONG LTD Drawing Warwick Mill Development Site Plan Upper Ground Floor		Scale 1:500@A2	Date Sep '21	Drawn SJS	Checked IL
REV	DESCRIPTION	DATE							Type 01	Client 277/01	WM EH 011	



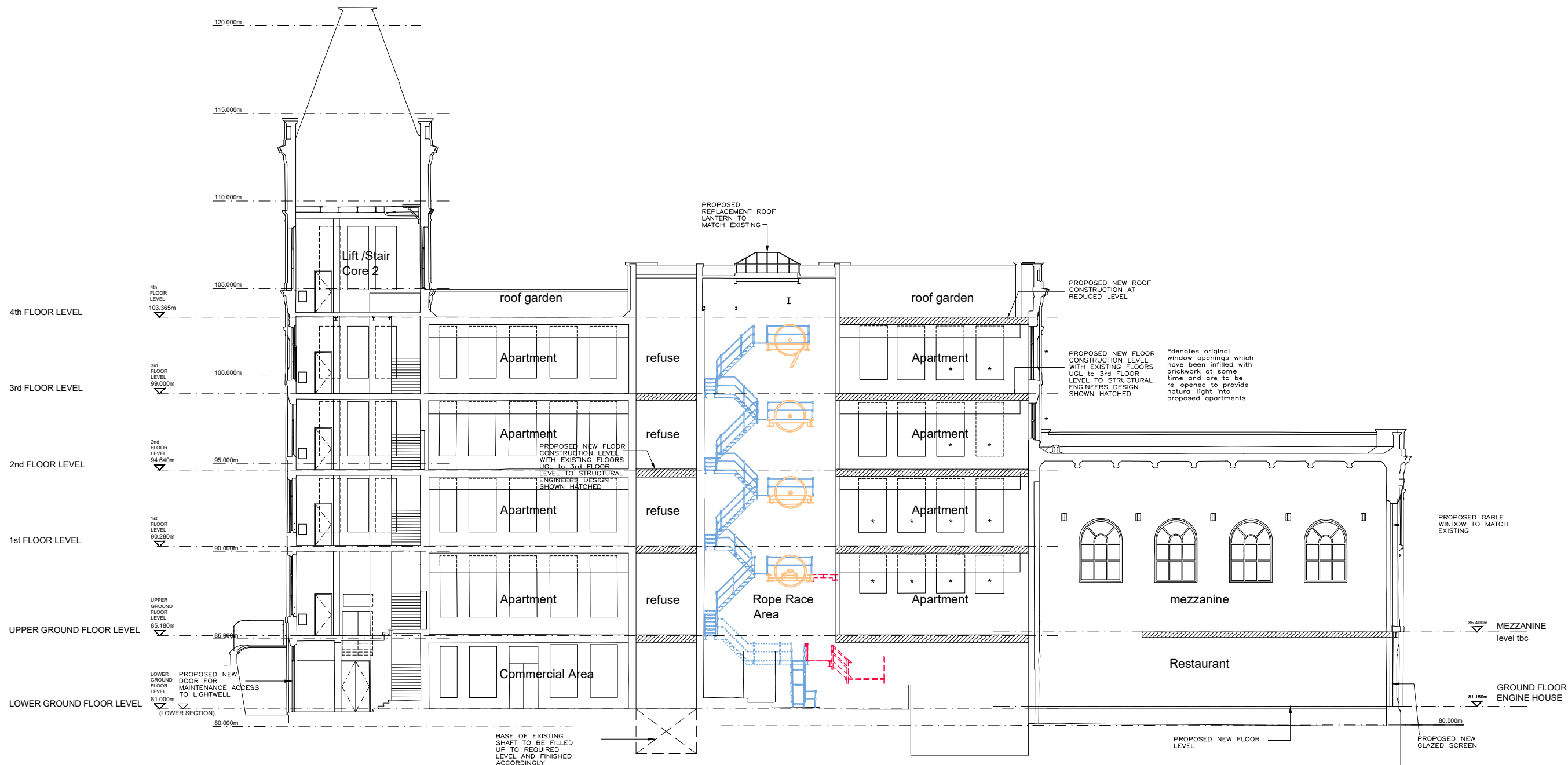
SECTION C-C

Notes :

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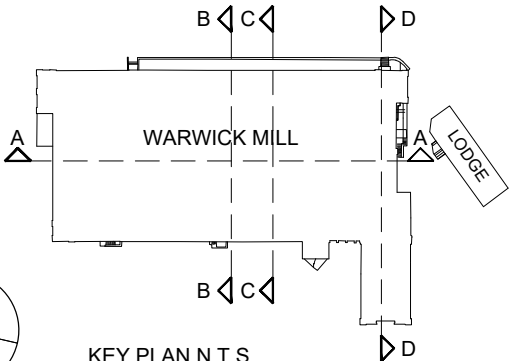
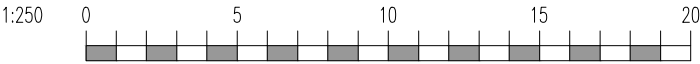


GMA ARCHITECTURE Architects and Designers UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5959 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk www.gmaarchitecture.co.uk			DRAWING ISSUE STATUS		Client	Scale	Date	Drawn	Checked
			PLANNING		KAM LEI FONG LTD	1:250 @ A3	June 23	MD	IL
			Project		Drawing	Type	Client	Drawing No	Revision
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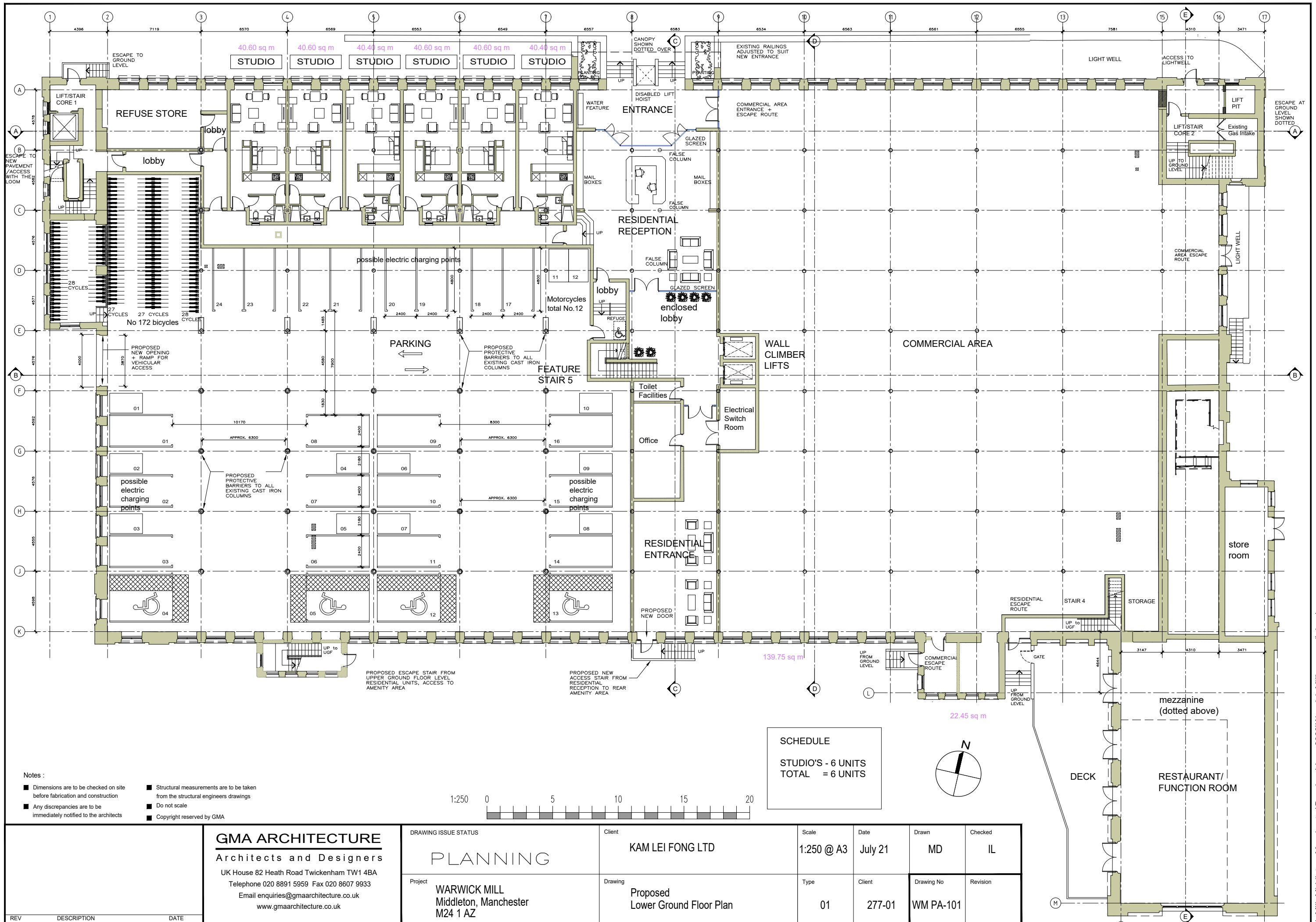


SECTION D-D MAIN MILL BUILDING

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			Project WARWICK MILL MIDDLETON MANCHESTER		Drawing PROPOSED SECTION D-D		Type 01	Client 277-01	Drawing No WM PA-204	Revision	



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DRAWING ISSUE STATUS

PLANNING

Project
WARWICK MILL
Middleton, Manchester
M24 1 AZ

Client
KAM LEI FONG LTD

Drawing
Proposed
Lower Ground Floor Plan

Scale

1:250 @ A3

Date
July 21

Drawn
MD

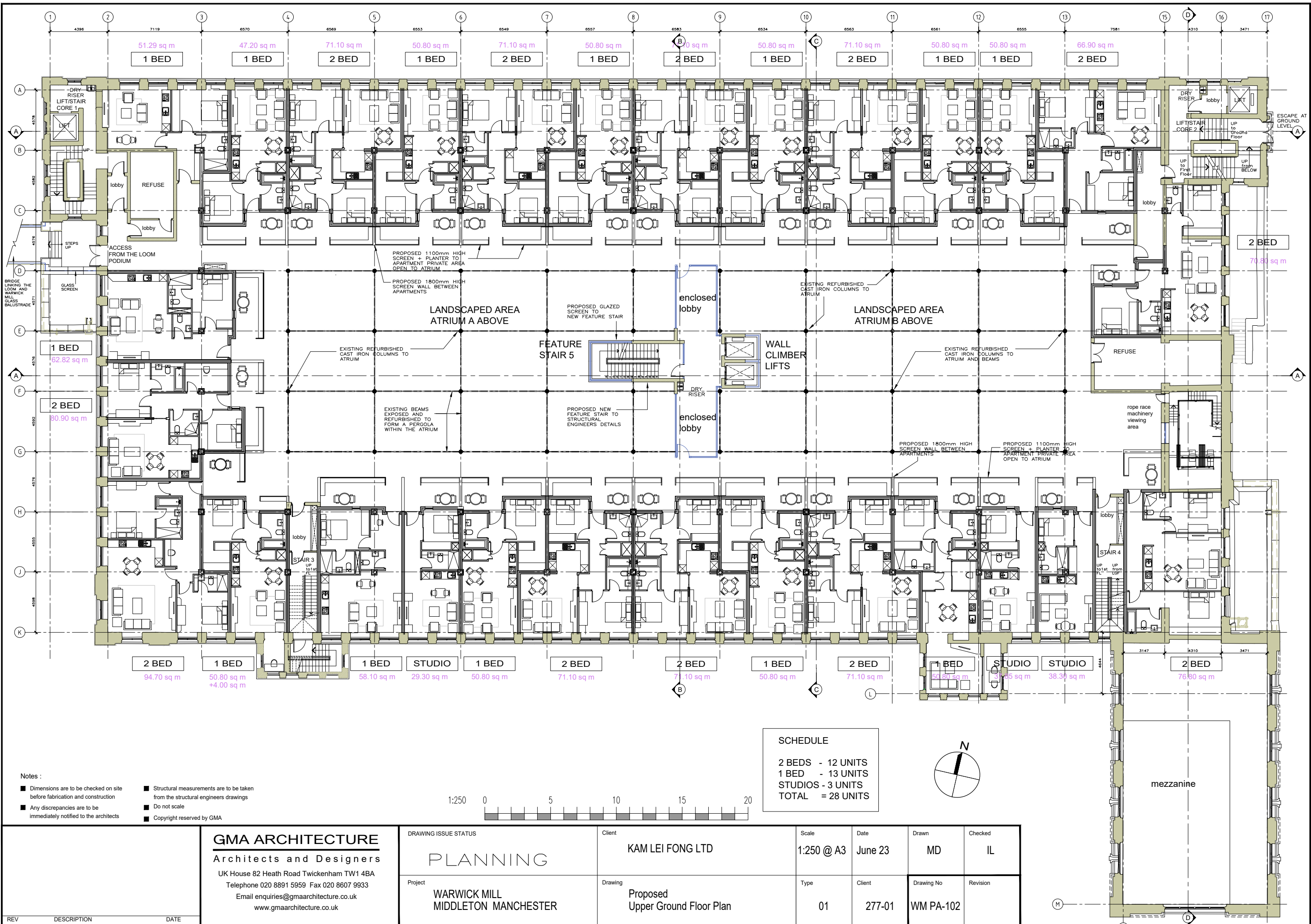
Checked
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Type
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Client
277-01

Drawing No
WM PA-101

Revision



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DRAWING ISSUE STATUS

PLANNING

Project
**WARWICK MILL
MIDDLETON MANCHESTER**

Client
KAM LEI FONG LTD

Drawing
**Proposed
Upper Ground Floor Plan**

Scale

1:250 @ A3

Date

June 23

Drawn

MD

Checked

IL

Type

01

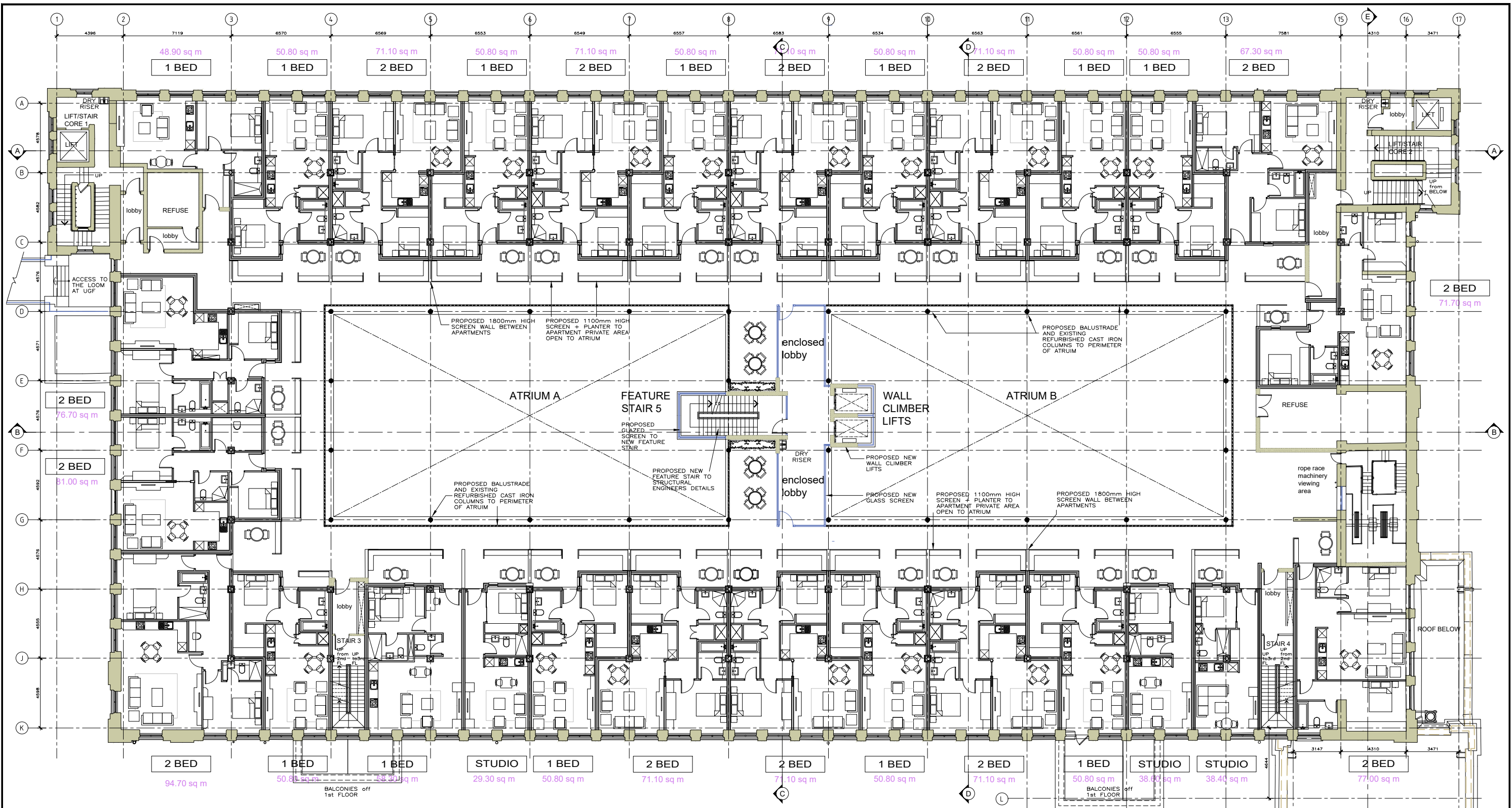
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277-01

Drawing No

WM PA-102

Revision

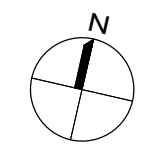


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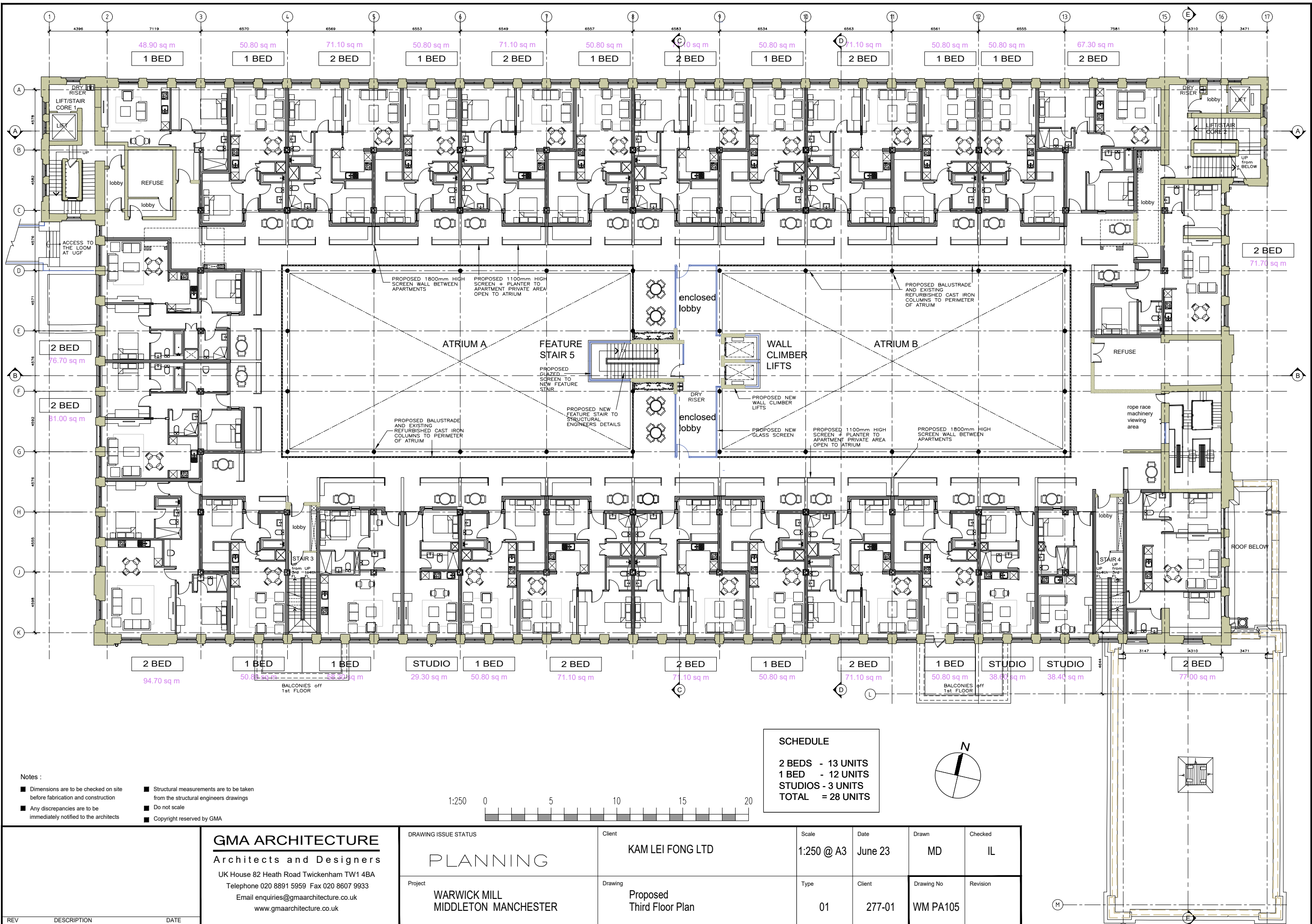
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- Any discrepancies are to be immediately notified to the architects
- Structural measurements are to be taken from the structural engineers drawings
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SCHEDULE

2 BEDS - 13 UNITS
1 BED - 12 UNITS
STUDIOS - 3 UNITS
TOTAL = 28 UNITS



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				PLANNING		KAM LEI FONG LTD		1:250 @ A3		June 23		MD		IL						
REV			DESCRIPTION			DATE			Project		Drawing		Type		Client		Drawing No		Revision	
									WARWICK MILL MIDDLETON MANCHESTER		Proposed Second Floor Plan		01		277-01		WM PA104			

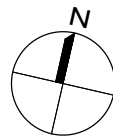


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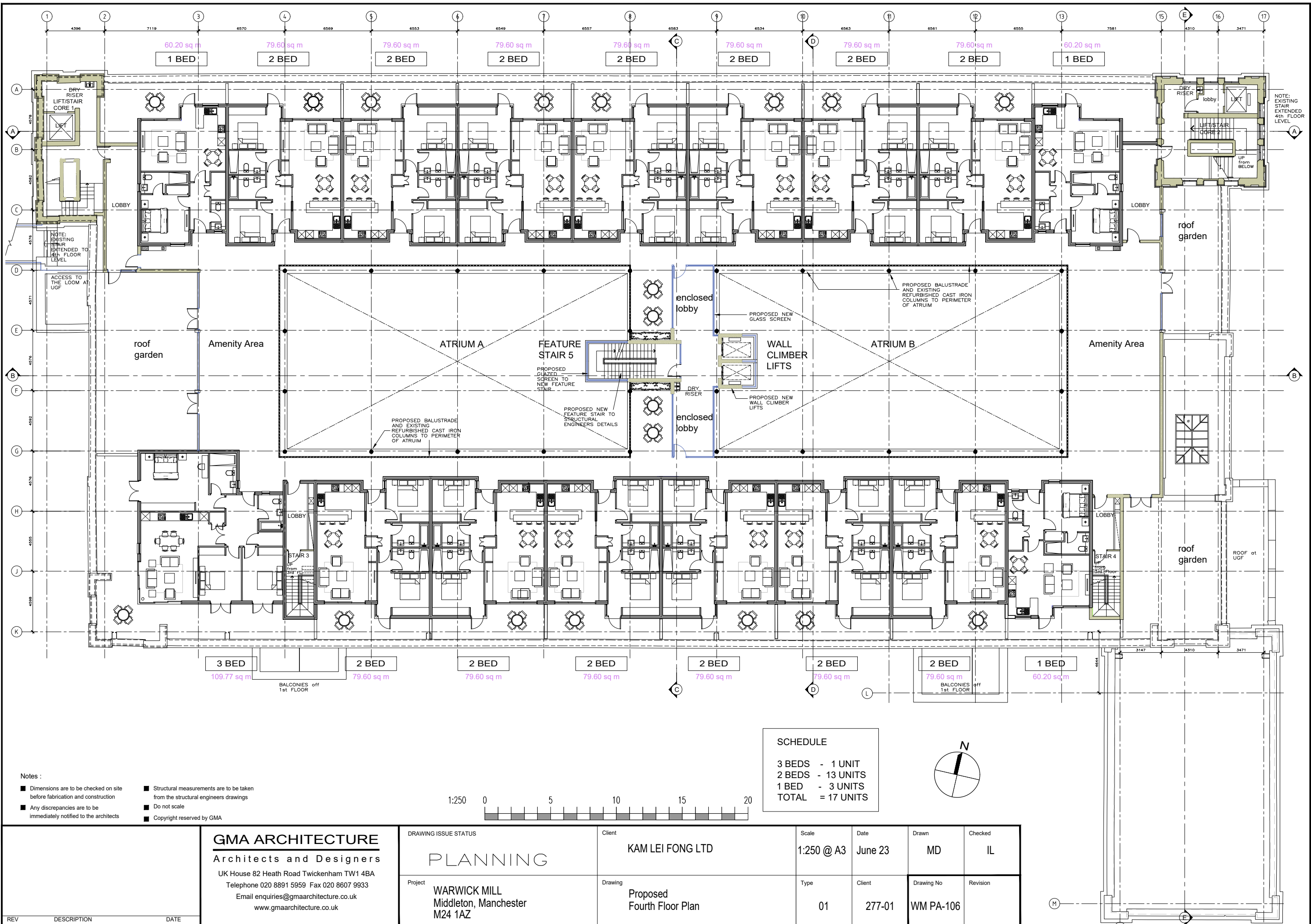
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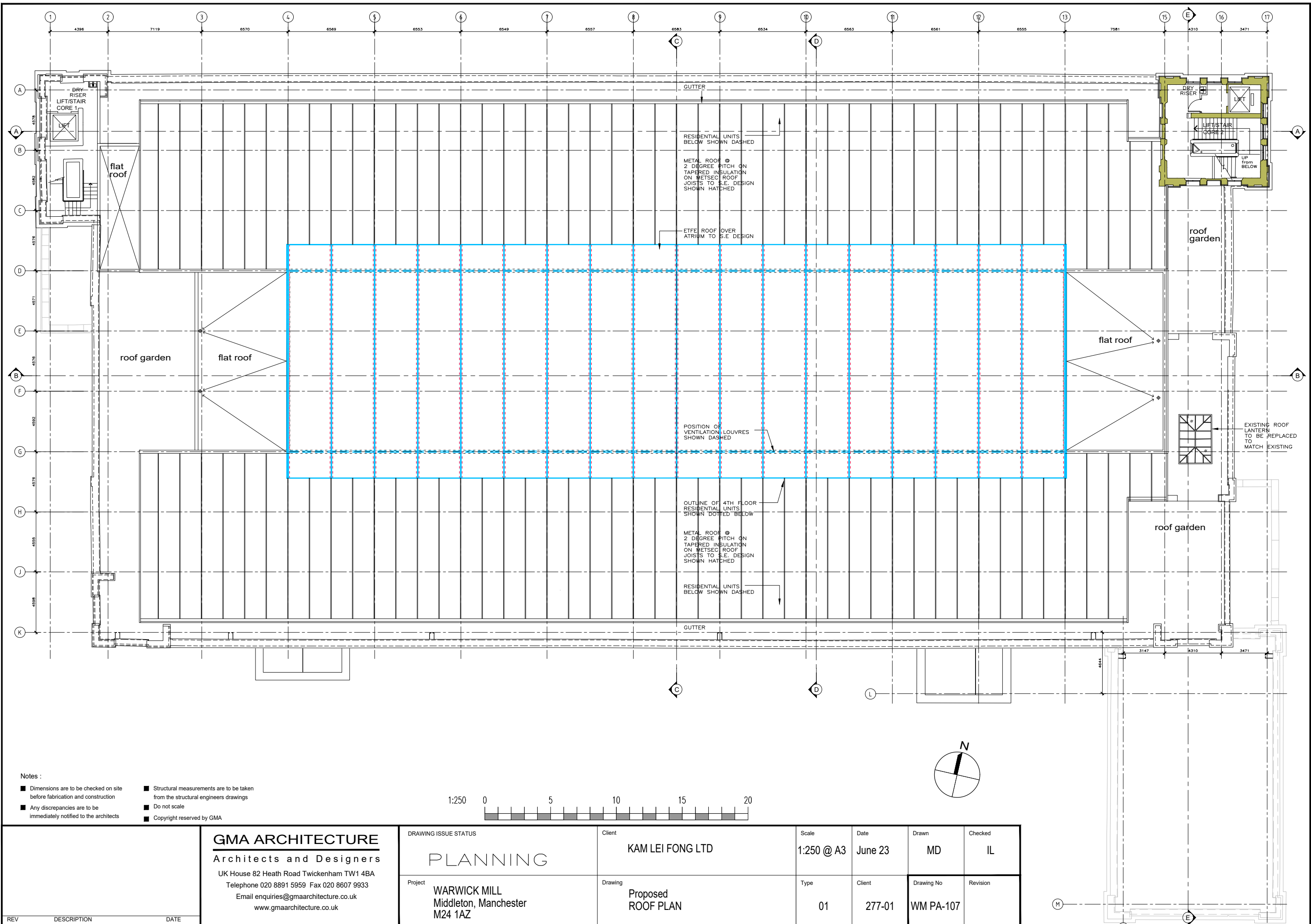
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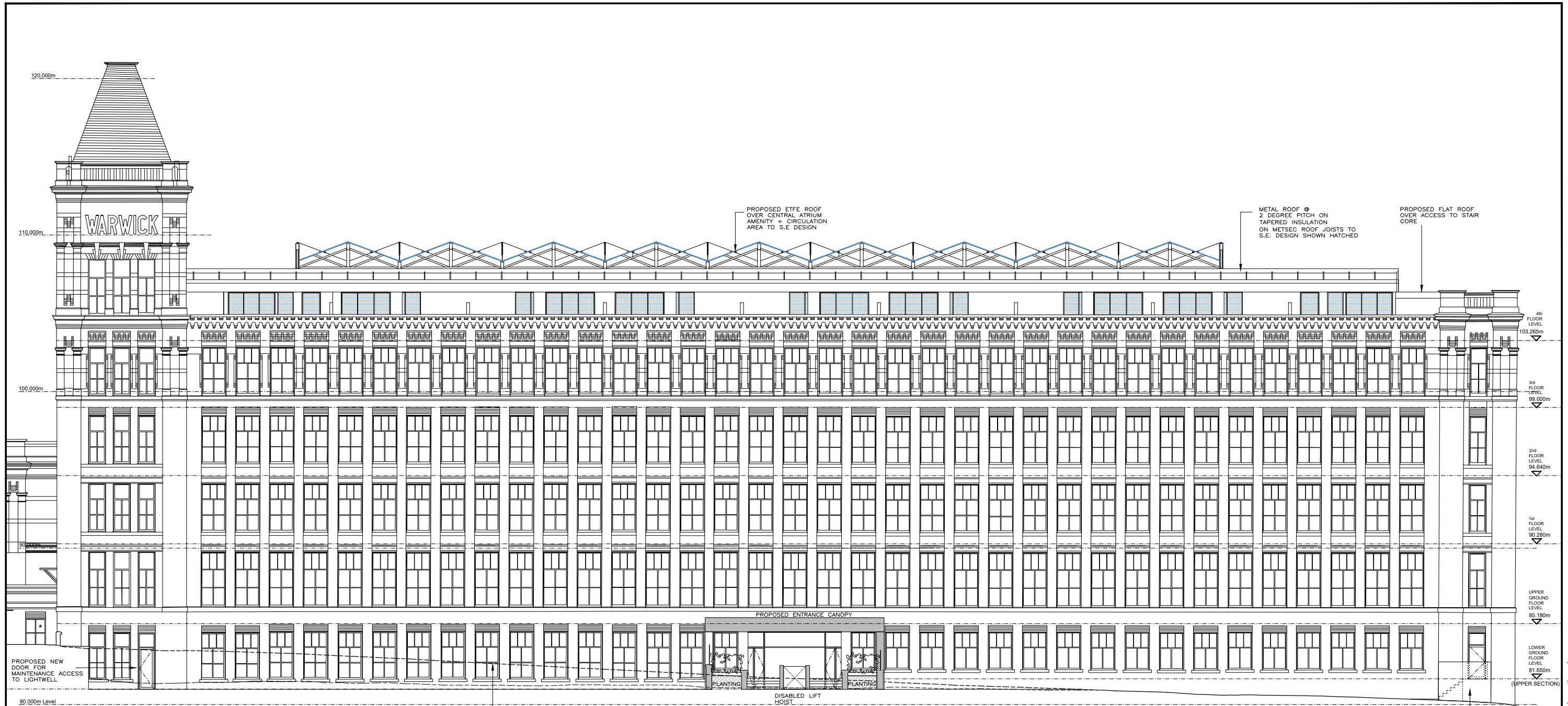
2 BEDS - 13 UNITS
1 BED - 12 UNITS
STUDIOS - 3 UNITS
TOTAL = 28 UNITS



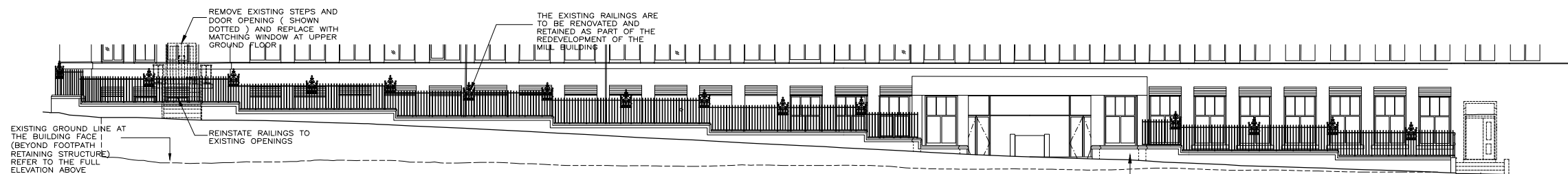
REV	DESCRIPTION	DATE	GMA ARCHITECTURE Architects and Designers UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5959 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk www.gmaarchitecture.co.uk		DRAWING ISSUE STATUS PLANNING		Client KAM LEI FONG LTD		Scale 1:250 @ A3	Date June 23	Drawn MD	Checked IL
			Project WARWICK MILL MIDDLETON MANCHESTER		Drawing Proposed Third Floor Plan		Type 01		Client 277-01	Drawing No WM PA105	Revision	







NORTH ELEVATION - MAIN MILL BUILDING



NORTH ELEVATION - FOOTPATH LEVEL

Notes :

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NOTES:

All existing windows to be replaced with replica units to satisfaction of the Local Authority.

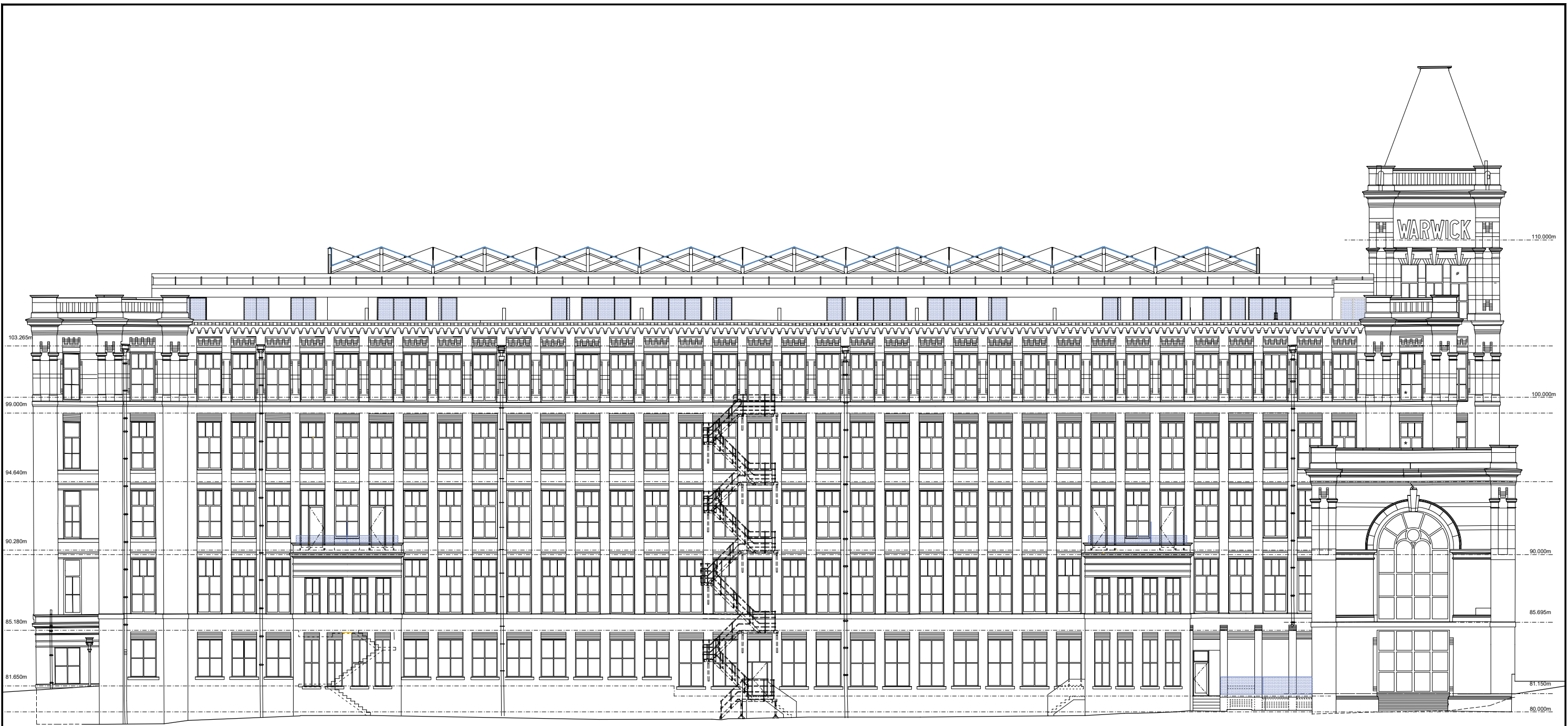
Original existing cast iron rainwater pipes, hopper heads etc to be replaced with replica units to satisfaction of the Local Authority.

All existing foul water pipework, wiring, ducting, service boxes, flues, redundant lighting and signage etc currently located on the building facade to be removed and building made good unless specifically requested to be retained by the Local Authority.

The existing facing brickwork and stonework detailing to doors, windows, parapets etc to be cleaned/restored to the satisfaction of the Local Authority.

The existing windows are to be replaced with aluminium windows to match the existing design

	GMA ARCHITECTURE Architects and Designers UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5959 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk www.gmaarchitecture.co.uk	DRAWING ISSUE STATUS PLANNING	Client KAM LEI FONG LTD	Scale 1:250 @ A3	Date June 23	Drawn MD	Checked IL
		Project WARWICK MILL Middleton, Manchester M24 1 AZ	Drawing Proposed NORTH ELEVATION	Type 01	Client 277-01	Drawing No WM PA-301	Revision
REV	DESCRIPTION	DATE					



Notes :

- Dimensions are to be checked on site before fabrication and construction
-
- Any discrepancies are to be immediately notified to the architects

■

Structural measurements are to be taken from the structural engineers drawings

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■

NOTES:

All existing windows to be replaced with replica units to satisfaction of the Local Authority.

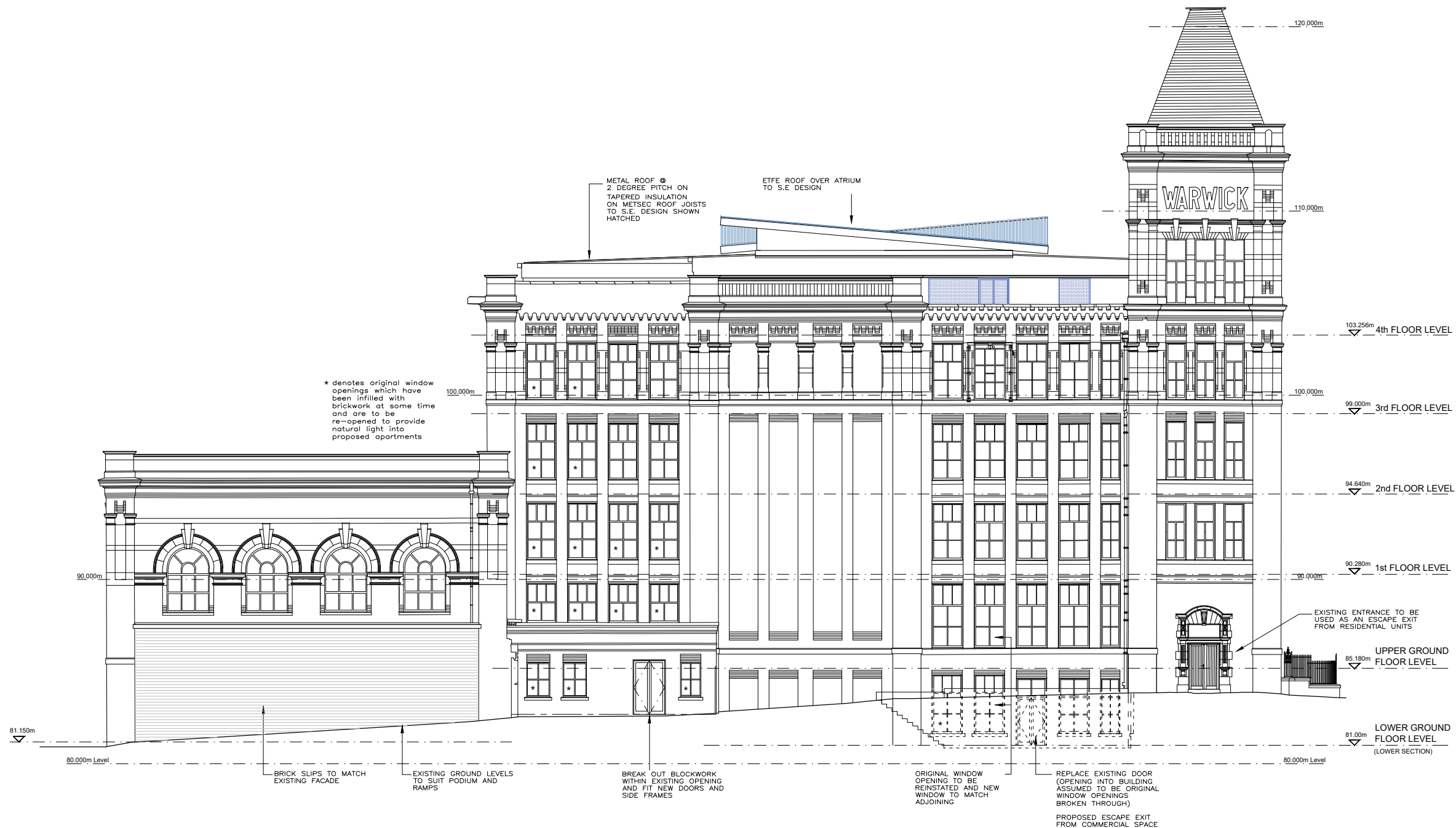
Original existing cast iron rainwater paipes, hopper heads etc to be replaced with replica units to satisfaction of the Local Authority.

All existing foul water pipework, wiring, ducting, service boxes, flues, redundant lighting and signage etc currently located on the building facade to be removed and building made good unless specifically requested to be retained by the Local Authority.

The existing facing brickwork and stonework detailing to doors, windows, parapets etc to be cleaned/restored to the satisfaction of the Local Authority.

The existing windows are to be replaced with aluminium windows to match the existing design

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		Project WARWICK MILL Middleton, Manchester M24 1AZ	Drawing Proposed SOUTH ELEVATION	Type 01	Client 277-01	Drawing No WM PA-302	Revision



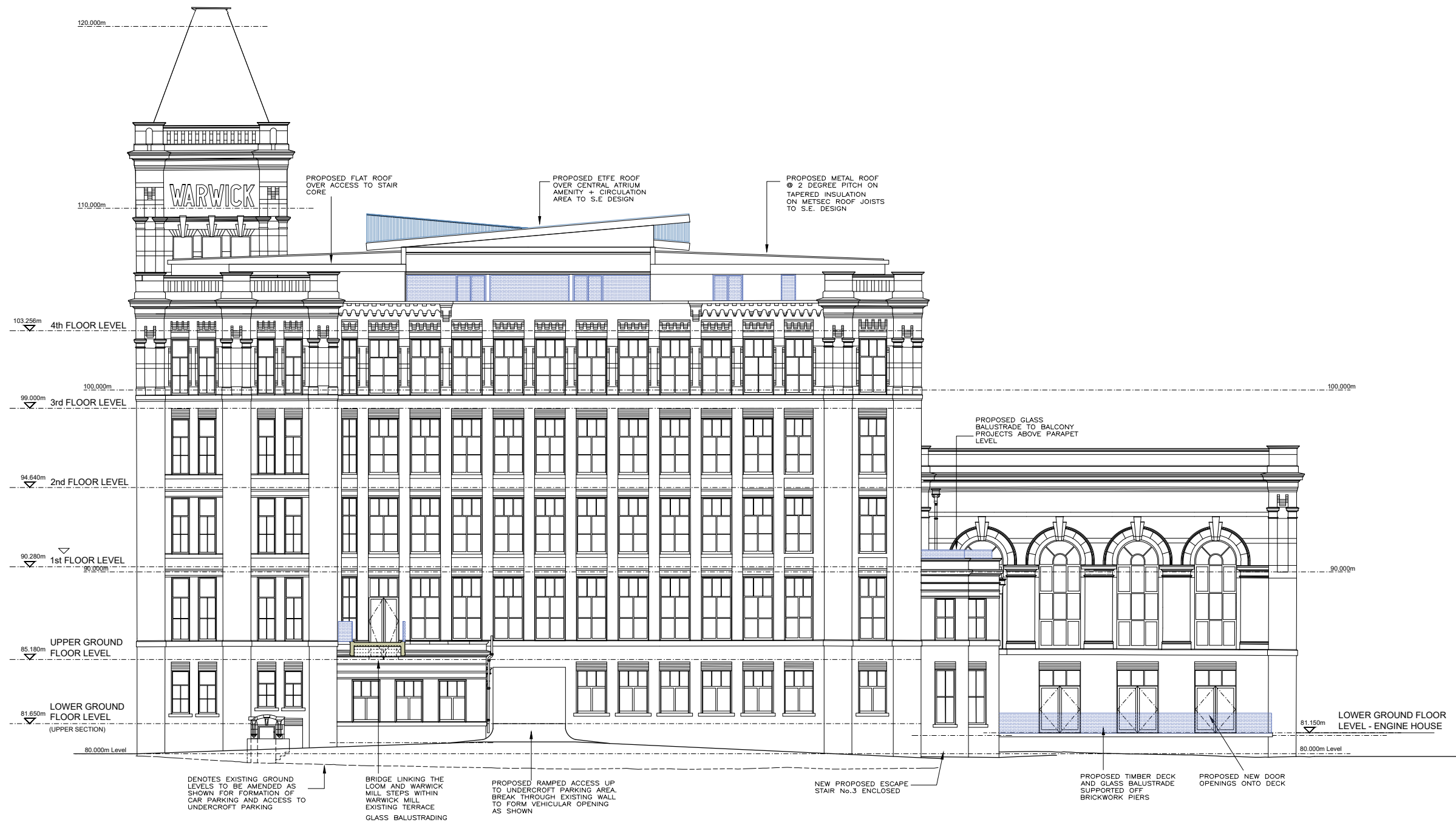
Notes :

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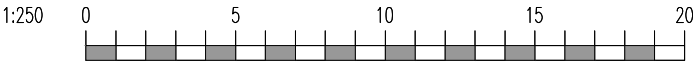
- NOTES:
- All existing windows to be replaced with replica units to satisfaction of the Local Authority.
- Original existing cast iron rainwater pipes, hopper heads etc to be replaced with replica units to satisfaction of the Local Authority.
- All existing foul water pipework, wiring, ducting, service boxes, flues, redundant lighting and signage etc currently located on the building facade to be removed and building made good unless specifically requested to be retained by the Local Authority.
- The existing facing brickwork and stonework detailing to doors, windows, parapets etc to be cleaned/restored to the satisfaction of the Local Authority.
- The existing windows are to be replaced with aluminium windows to match the existing design

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		Project WARWICK MILL Middleton, Manchester M24 1AZ	Drawing Proposed EAST ELEVATION	Type 01	Client 277-01	Drawing No WM PA-303	Revision



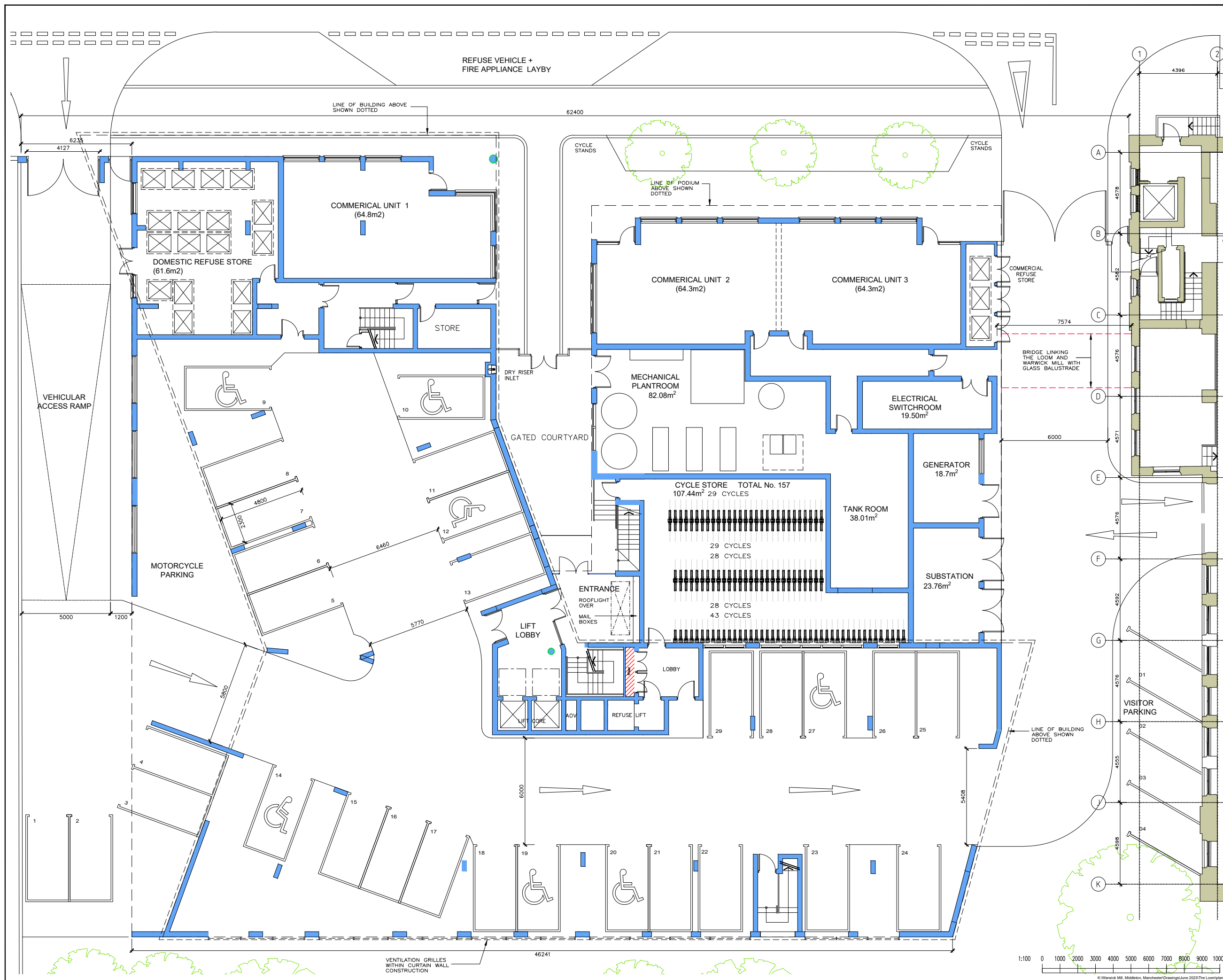
Notes :

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- NOTES:
- All existing windows to be replaced with replica units to satisfaction of the Local Authority.
- Original existing cast iron rainwater paipes, hopper heads etc to be replaced with replica units to satisfaction of the Local Authority.
- All existing foul water pipework, wiring, ducting, service boxes, flues, redundant lighting and signage etc currently located on the building facade to be removed and building made good unless specifically requested to be retained by the Local Authority.
- The existing facing brickwork and stonework detailing to doors, windows, parapets etc to be cleaned/restored to the satisfaction of the Local Authority.
- The existing windows are to be replaced with aluminium windows to match the existing design

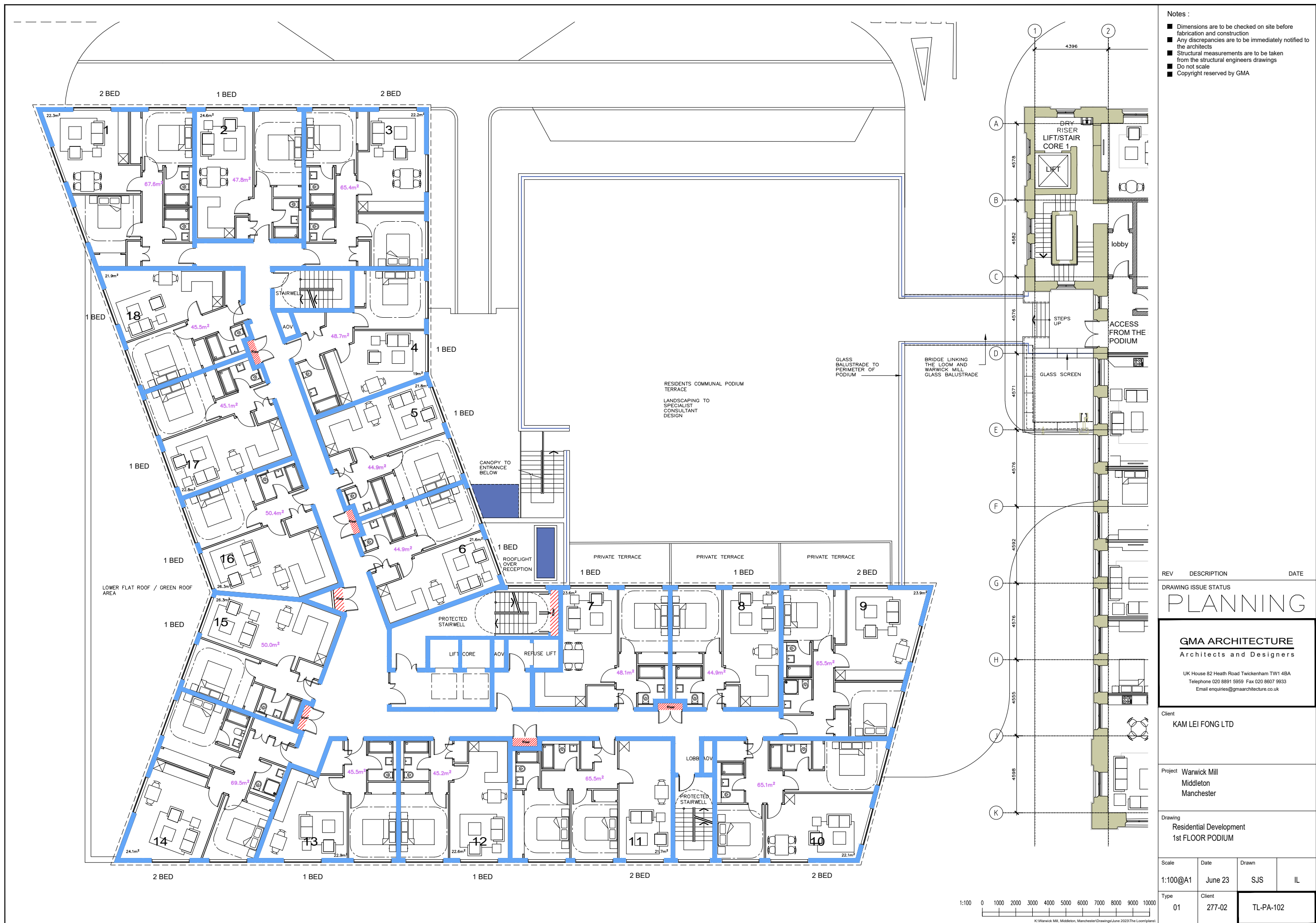
REV	DESCRIPTION	DATE	GMA ARCHITECTURE Architects and Designers UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5959 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk www.gmaarchitecture.co.uk	DRAWING ISSUE STATUS PLANNING	Client KAM LEI FONG LTD	Scale 1:250 @ A3	Date June 23	Drawn MD	Checked IL
				Project WARWICK MILL Middleton, Manchester M24 1 AZ	Drawing Proposed WEST ELEVATION	Type 01	Client 277-01	Drawing No WM PA-304	Revision



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GMA ARCHITECTURE Architects and Designers		
UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5859 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk		
Client KAM LEI FONG LTD		
Project Warwick Mill Middleton Manchester		
Drawing Residential Development Ground Floor Plan		
Scale 1:100@A1	Date June 23	Drawn SJS
Type 01	Client 277-02	IL
TL-PA-101		





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Email enquiries@gmaarchitecture.co.uk

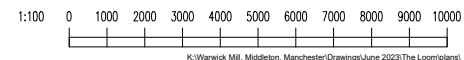
Client
KAM LEI FONG LTD

Project
Warwick Mill
Middleton
Manchester

Drawing
Residential Development
8th FLOOR

Scale 1:100@A1	Date June 23	Drawn SJS	IL
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Type 01	Client 277-02	TL-PA-104
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GMA ARCHITECTURE
Architects and Designers

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Telephone 020 8891 5959 Fax 020 8607 9933
Email enquiries@gmaarchitecture.co.uk

Client

KAM LEI FONG LTD

Project **Warwick Mill**
Middleton
Manchester

Drawing

Residential Development
9th FLOOR

Scale

1:100@A1

Date

June 23

Drawn

SJS

IL

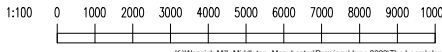
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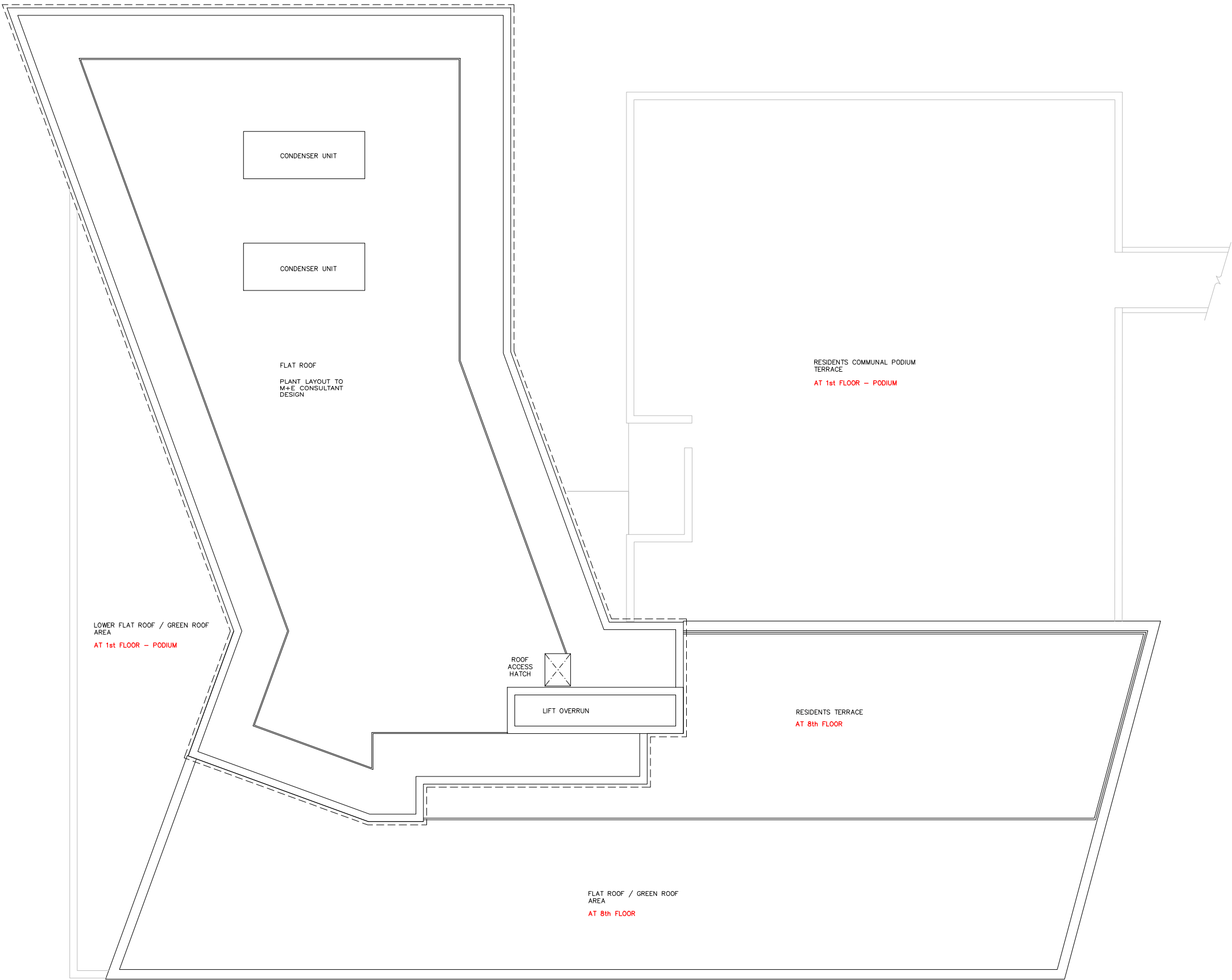
01

Client

277-02

TL-PA-105





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REV	DESCRIPTION	DATE
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DRAWING ISSUE STATUS
PLANNING

GMA ARCHITECTURE
Architects and Designers

UK House 82 Heath Road Twickenham TW1 4BA
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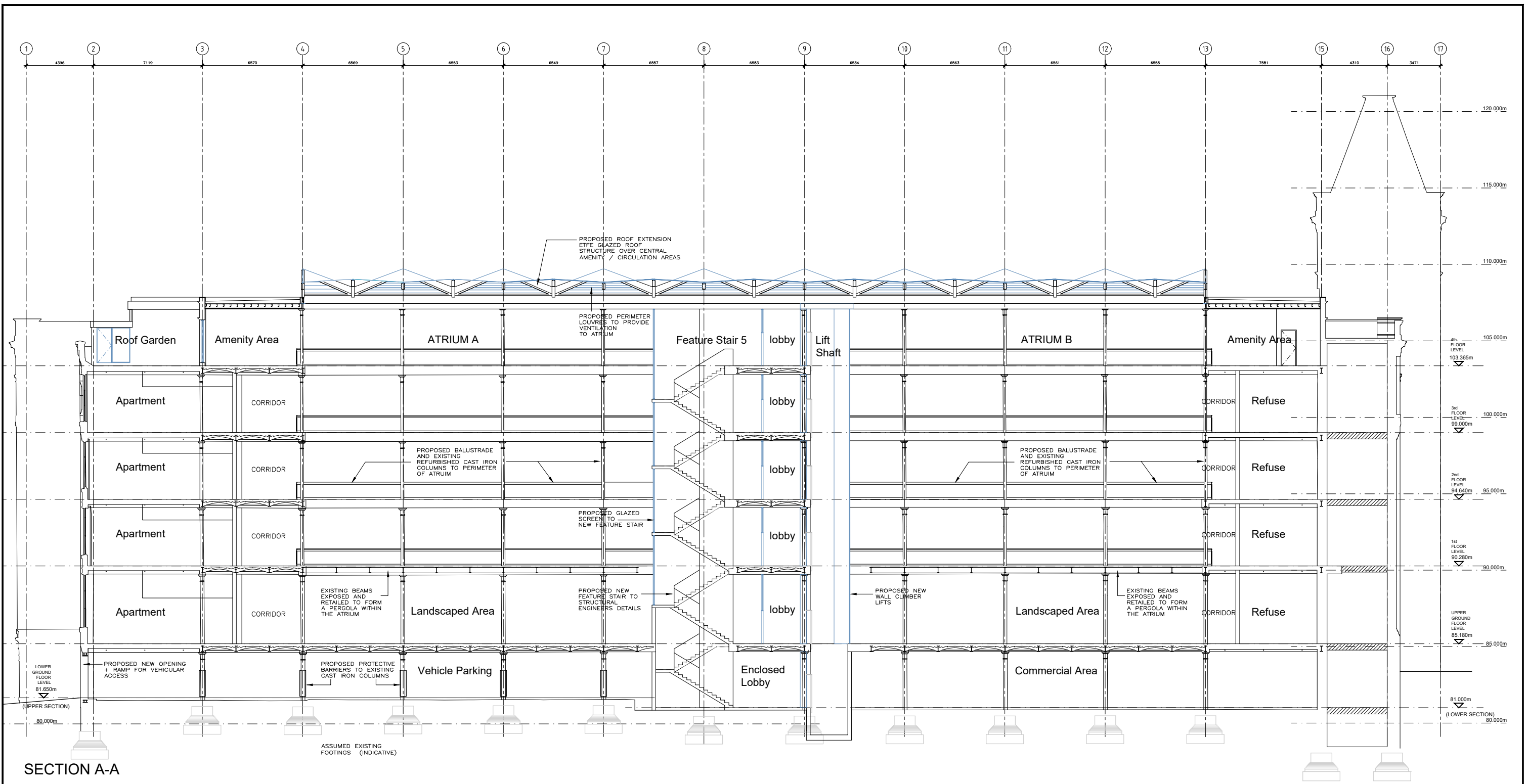
Client
KAM LEI FONG LTD

Project **Warwick Mill
Middleton
Manchester**

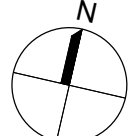
Drawing
**Residential Development
ROOF PLAN**

Scale	Date	Drawn	
1:100@A1	June 23	SJS	IL
Type	Client		
01	277-02	TL-PA-106	

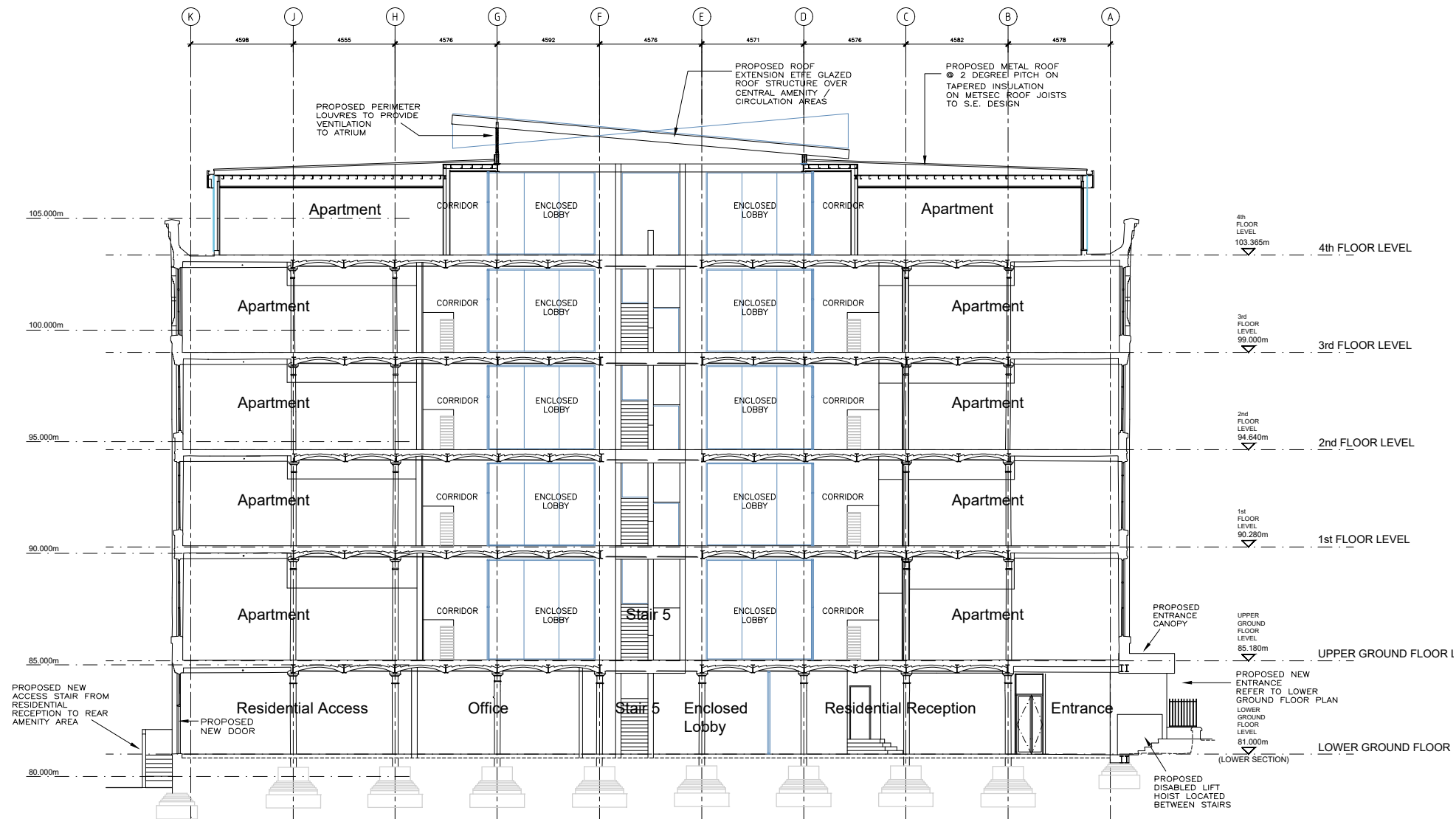




- Notes :
- Dimensions are to be checked on site before fabrication and construction
 - Any discrepancies are to be immediately notified to the architects
 - Structural measurements are to be taken from the structural engineers drawings
 - Do not scale
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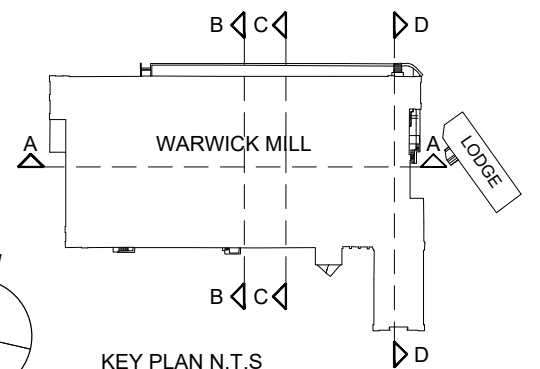
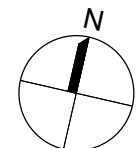
REVDESCRIPTIONDATE	GMA ARCHITECTURE Architects and Designers UK House 82 Heath Road Twickenham TW1 4BA Telephone 020 8891 5959 Fax 020 8607 9933 Email enquiries@gmaarchitecture.co.uk www.gmaarchitecture.co.uk	DRAWING ISSUE STATUS PLANNING	Client KAM LEI FONG LTD	Scale 1:250 @ A3	Date June 23	Drawn MD	Checked IL
		Project WARWICK MILL MIDDLETON MANCHESTER	Drawing PROPOSED SECTION A-A	Type 01	Client 277-01	Drawing No WM PA-201	Revision



SECTION B-B

Notes :

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		Project WARWICK MILL MIDDLETON MANCHESTER	Drawing PROPOSED SECTION B-B	Type 01	Client 277-01	Drawing No WM PA-202	Revision