

Flood Risk Assessment for Planning

February 2026

Prepared for:

OMG EIS Ltd

Location:

18 Clarendon Road

Gravesend

DA12 2BP

Our reference:

96812-Jamal-ClarendonRd



Document Issue Record

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1. Key Facts

Flood Risk Posed:

- Site is located within Flood Zones 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea). The site is shown to be within the EA Flood Zones plus climate change (2070 to 2125) extent. The risk would appear to be predominantly tidal and originate from the River Thames.
- According to the 2009 Kent Thameside SFRA, the site is shown to be within Flood Zone 3a, entirely outside of Flood Zone 3b (functional floodplain).
- In-channel modelled flood levels for use within this report have been requested from the EA. The data is from the Thames Estuary 2100 (TE2100) study completed by HR Wallingford in 2008 and the Thames Barrier Downriver Breach Inundation Modelling Study 2018 completed by Atkins Ltd. in May 2018.
- The closest node to the site is node 3.25. An extreme water level of 5.81mAOD has been provided for the present day, rising to 6.47mAOD in 2100.
- The site is shown to be partially outside of the 1:200 year and 1:1000 year modelled breach extents for 2005.
- The site is shown to be partially within the 1:200 year and 1:1000 year modelled breach extents for 2115.
- Comparison of the maximum modelled breach flood levels (6.63mAOD) with topographic site levels (5.10mAOD to 5.90mAOD) shows that the site lies between 1.53m to 0.73m below the 1:1000 year 2115 breach flood level.
- The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at "Very Low" to "Low" chance of flooding from surface water for the present day and "Very Low" to "Medium" chance between 2040 and 2060.
- The site is located within the North Kent Marshes Internal Drainage Board area. The proposed development is not located within 8 metres of an IDB drain.
- The EA states that this location is outside of a groundwater flood alert area.
- Risk to the site from groundwater and sewer surcharge would appear to be very low. No information has been provided to suggest that the site has flooded historically from these sources.
- The site is located partially within the maximum inundation extent on the EA Reservoir Inundation Map when there is also flooding from rivers. The EA also advise on their website that reservoir flooding is extremely unlikely.
- The EA hold no records of historic flooding having affected the site or surrounding area.

Flood Risk Mitigation:

- The proposed application is for the Erection of single storey rear/side extension (to remain a single dwelling).
- The proposed application is for a residential extension which does not exceed 250m².
- There will be no increase in vulnerability classification. The site will remain a single dwelling.
- There will be no new basements, lowering of floor levels, additional units or bedrooms on the ground floor.
- Internal access will be maintained from the ground floor to the upper floors of the dwelling.
- The proposed development fits within Standing Advice for Minor Extensions.
- Post development, the site will be classified as "more vulnerable" (residential).
- Flood proofing of the development will be incorporated, where appropriate.
- There will be no loss of fluvial floodplain storage.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

2. Introduction

- 2.1. Unda Consulting Limited have been appointed by OMG EIS Ltd (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at 18 Clarendon Road, Gravesend, DA12 2BP (hereinafter referred to as “the site”). The FRA has been undertaken in accordance with the National Planning Policy Framework (NPPF) and the associated technical guidance.
- 2.2. This report presents our findings based on the readily available information and data relating to the site and surrounding drainage area.
- 2.3. The site appears to be located within Flood Zones 2 and 3 as defined by the Environment Agency (EA) on their Flood Map for Planning. Under the National Planning Policy Framework (NPPF), a FRA is required for all development or changes of use proposed:
- In Flood Zones 2 or 3 or see flood map for planning;
 - Within Flood Zone 3b;
 - Within Flood Zone 1 with a site area of 1 hectare or more;
 - Within ‘Flood Zones plus Climate Change’, showing it is at increased risk of flooding from rivers or sea in future - see flood map for planning;
 - With Flood Zone 1 and the flood map for planning shows it is at risk of flooding from surface water;
 - In areas with critical drainage problems;
 - Within Flood Zone 1 where the LPA's strategic flood risk assessment (SFRA) shows it will be at increased risk of flooding during its lifetime;
 - That increases the vulnerability classification and may be subject to sources of flooding other than rivers or sea.
- 2.4. The assessment should demonstrate to the Local Planning Authority (LPA) and EA how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its potential users.
- Whether the proposed development is likely to be affected by current or future flooding from any source;
 - Whether it will increase flood risk elsewhere;
 - Whether the measures proposed to deal with these effects and risks are appropriate.

3. Existing Site

- 3.1. The existing site is a residential dwelling.
- 3.2. The site is understood to have lawful planning permission for residential use.
- 3.3. The surrounding area is characterised by residential properties.
- 3.4. Existing plans are provided in the report Appendix.



Figure 1: Aerial imagery of site and surrounding area (Source: Google Earth)

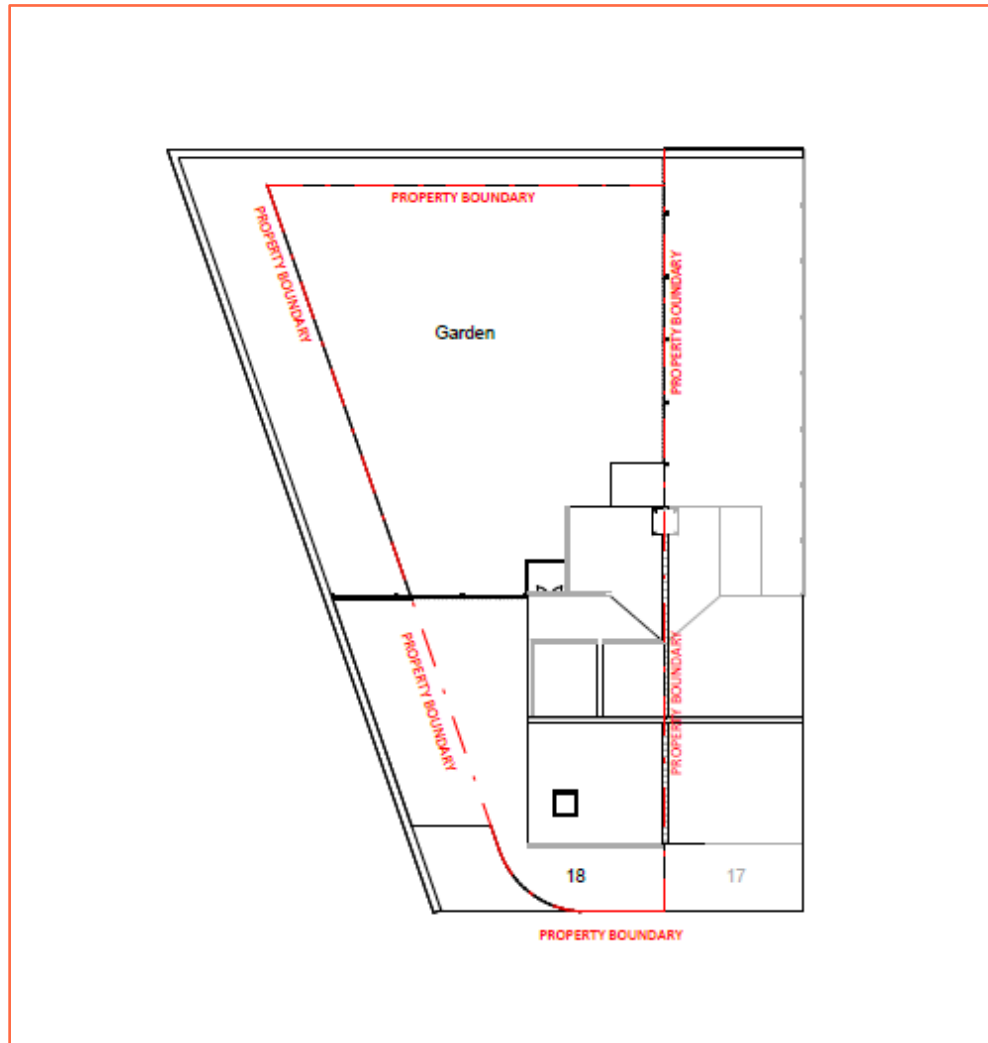


Figure 2: Existing site plan (Source: Archimedes Design)

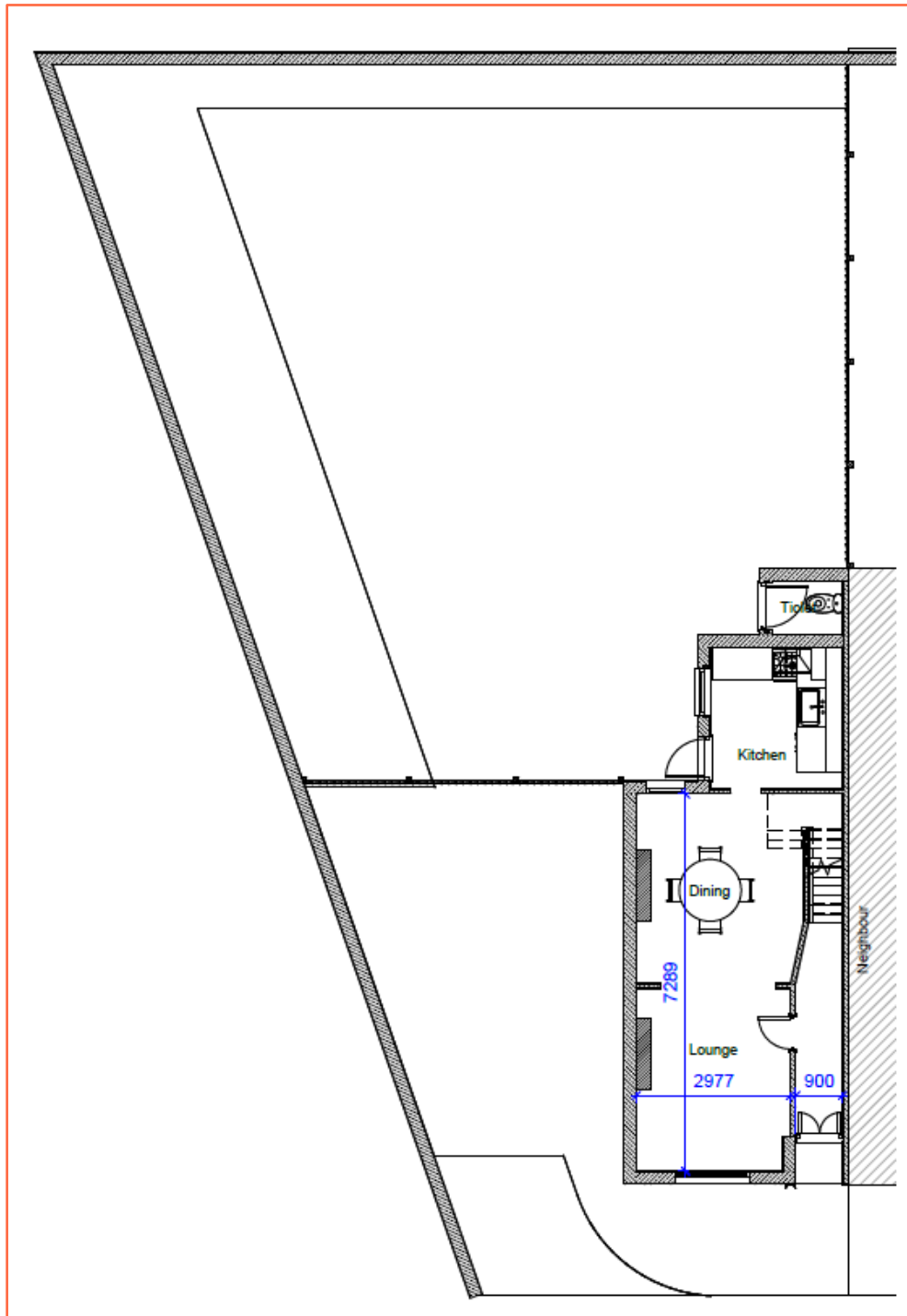


Figure 3: Existing ground floor plan (Source: Archimedes Design)

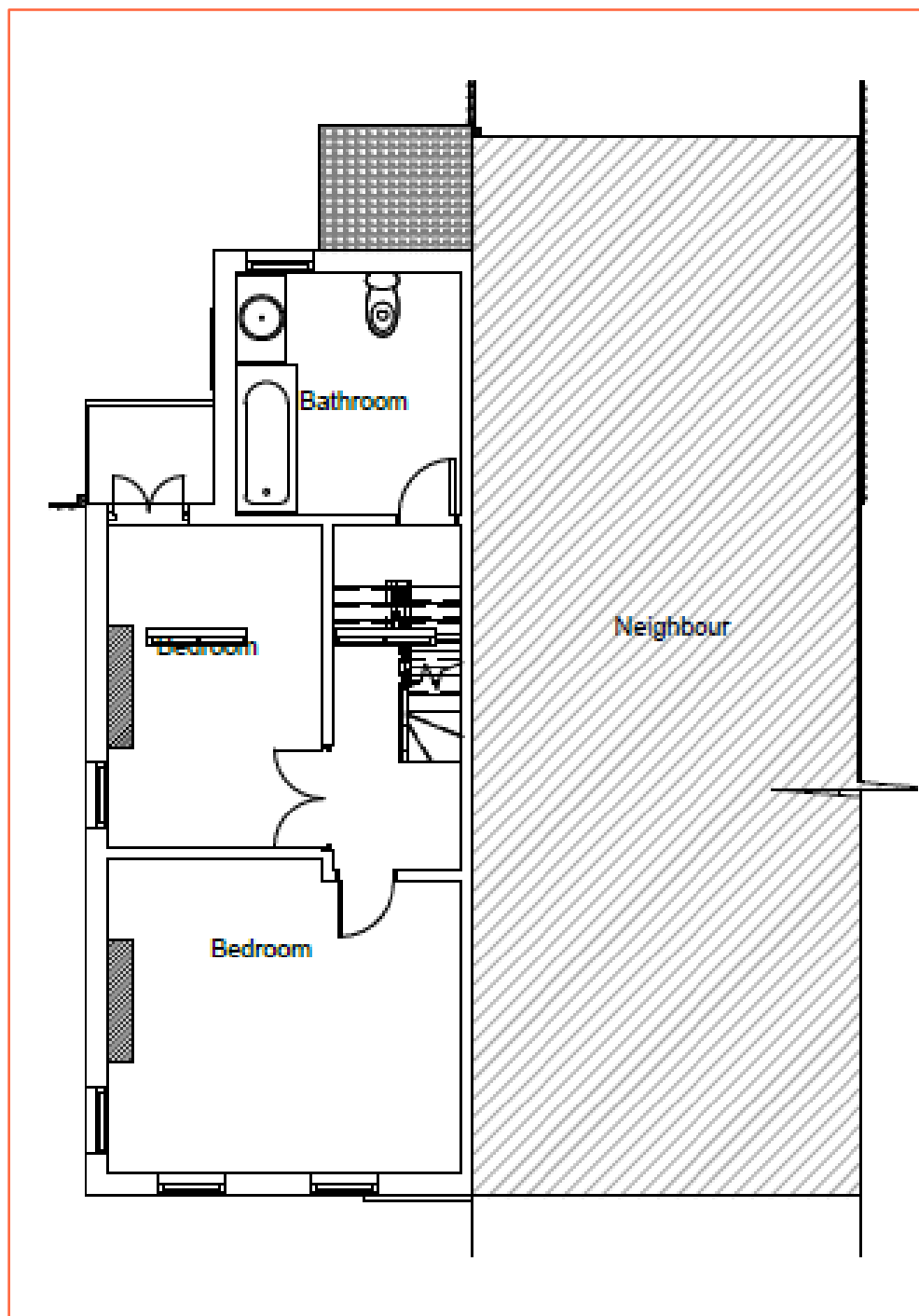


Figure 4: Existing first floor plan (Source: Archimedes Design)

Site Topography:

- 3.5. Environment Agency LiDAR has been used to assess the topography across the site and wider area. Light Detection and Ranging (LiDAR) is an airborne mapping technique, which uses a laser to measure the distance between the aircraft and the ground surface. Up to 100,000 measurements per second are made of the ground, allowing highly detailed terrain models to be generated at high spatial resolutions. The EA's LiDAR data archive contains digital elevation data derived from surveys carried out by the EA's specialist remote sensing team. Accurate elevation data is available for over 70% of England. The LiDAR technique records an elevation accurate to +/-5cm to 15cm with spatial resolutions ranging from 25cm to 2 metres. This dataset is derived from a combination of the full dataset which has been merged and re-sampled to give the best possible coverage. The dataset can be supplied as a Digital Surface Model (DSM) produced from the signal returned to the LiDAR (which includes heights of objects, such as vehicles, buildings and vegetation, as well as the terrain surface) or as a Digital Terrain Model (DTM) produced by

removing objects from the Digital Surface Model. 1.0m horizontal resolution DTM LiDAR data has been used for the purposes of this study.

- 3.6. LiDAR remotely sensed digital elevation data suggests that the ground topography on site ranges from approximately 5.10mAOD to 5.90mAOD.

Existing Ground Conditions:

- 3.7. The 1:50,000 BGS map shows that the bedrock underlying the site is Seaford Chalk Formation – Chalk.
- 3.8. The BGS mapping shows no superficial deposits underlying the site.

Nearby Watercourses / Drainage Features:

- 3.9. The nearest watercourse is Gravesend Reach, part of the tidal Thames River extent, approximately 35m north of the site.

4. Development Proposal

- 4.1. The proposed planning application is for the erection of single storey rear/side extension (to remain a single dwelling).
- 4.2. The proposed application is for a residential extension which does not exceed 250m².
- 4.3. There will be no increase in vulnerability classification. The site will remain a single dwelling.
- 4.4. There will be no new basements, lowering of floor levels, additional units or bedrooms on the ground floor. In addition, permanent means of internal access will be provided from the ground floor to the upper floors.
- 4.5. Proposed plans are provided in the report Appendix.



Figure 5: Proposed block plan (Source: Archimedes Design)

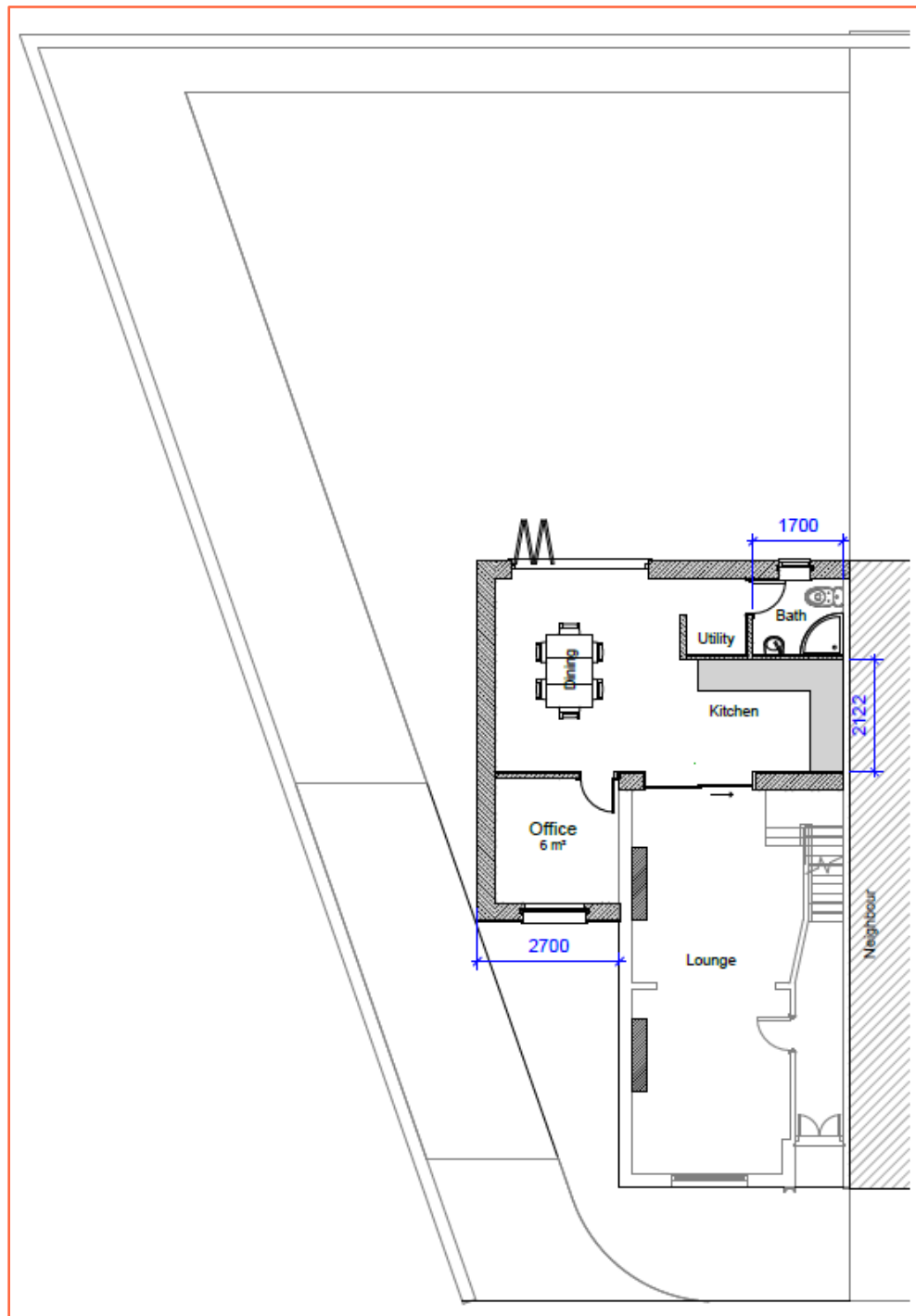


Figure 6: Proposed ground floor plan (Source: Archimedes Design)

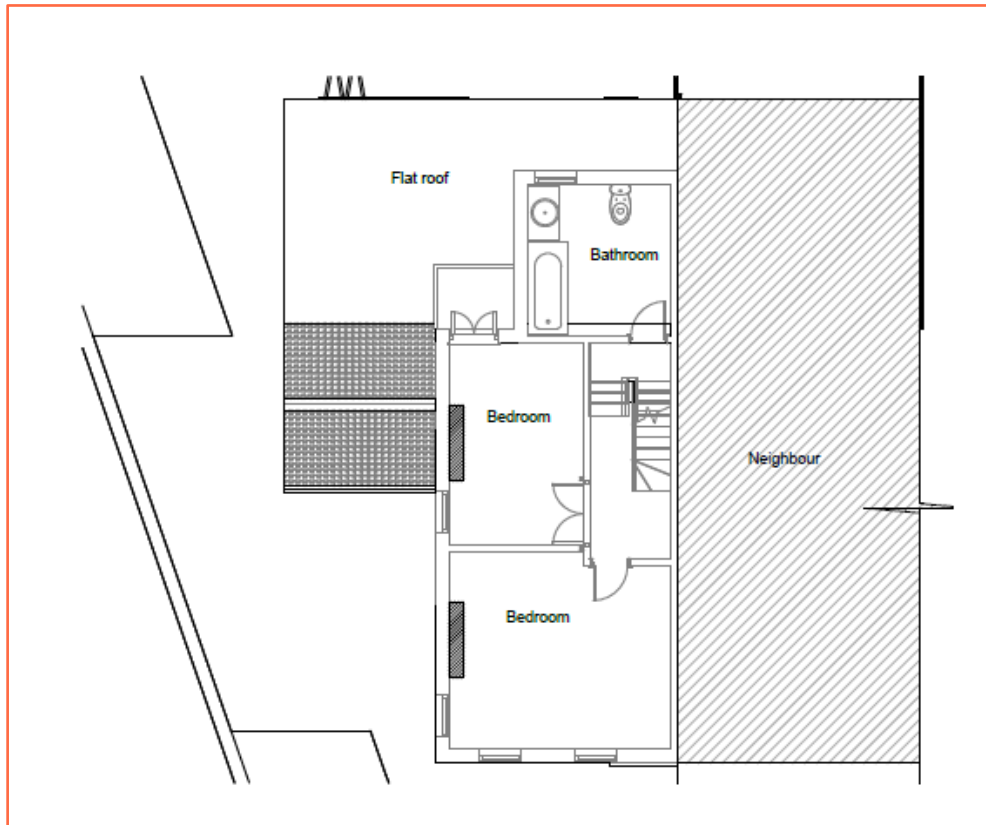


Figure 7: Proposed first floor plan (Source: Archimedes Design)

5. Flood Risk Assessment

Flood Zones:

- 5.1. Within planning, Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences. They are shown on the Environment Agency's Flood Map for Planning (Rivers and Sea), available on the Environment Agency's website.

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea flooding. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise: - land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or - land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)

Table 1: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

- 5.2. The Flood Zones are created using local flood model outputs, recorded flood outlines and national flood model information. These are combined to generate extents of land at flood risk, with the aim of using the best available flood risk information in any one location. The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding.

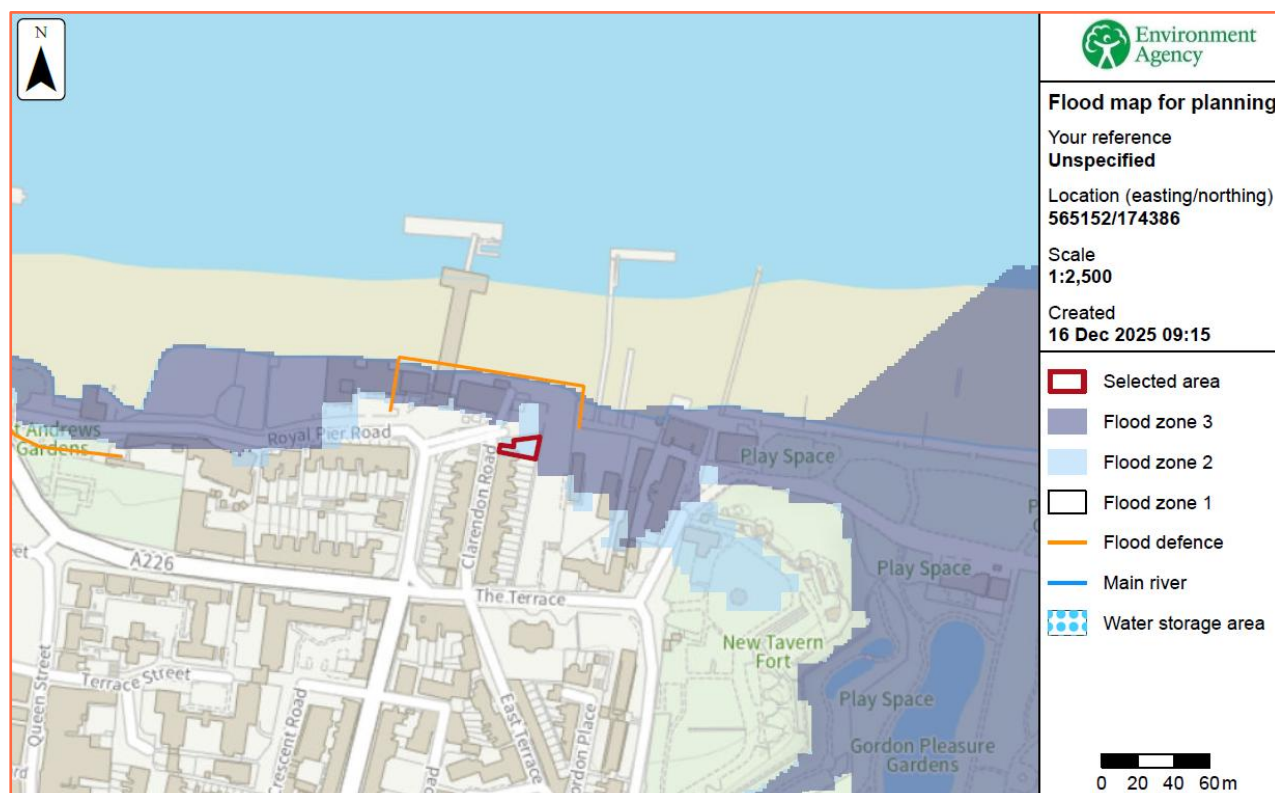


Figure 8: Environment Agency Flood Map for Planning (Rivers and Sea) (Source: EA)

- 5.3. The site is located within Flood Zone 2 (Medium Probability), which means it is defined as land having between a 1 in 100 and 1 in 1,000 annual probability of river and sea flooding and within Flood Zone 3 (High Probability), which means it is defined as land having a 1:100 or greater annual probability of fluvial flooding; or having a 1:200 or greater annual probability of tidal flooding.
- 5.4. The risk would appear to be predominantly tidal and originate from the River Thames.
- 5.5. It should be noted that the majority of the site, including the proposed built footprint is located within Flood zone 2.

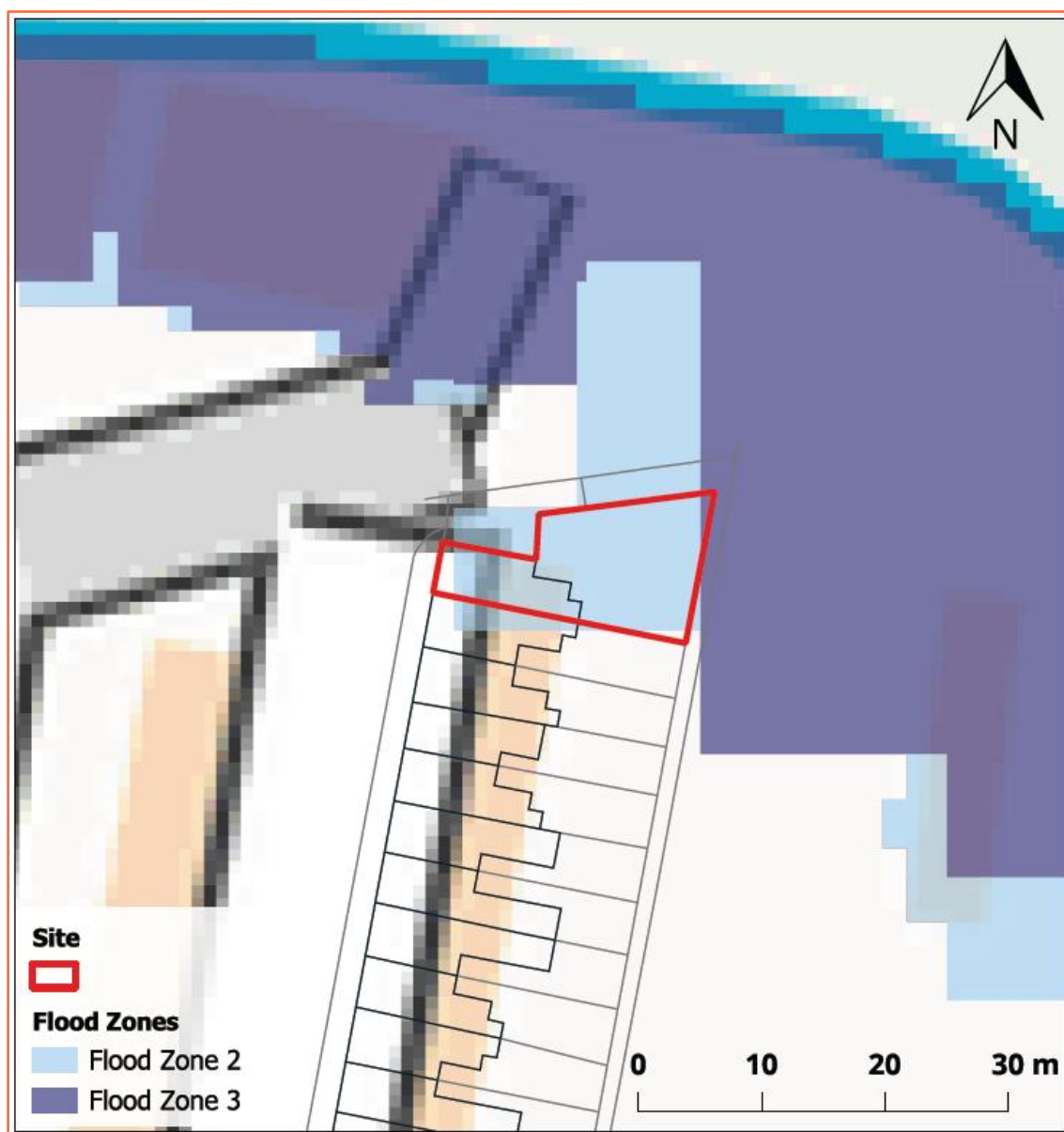


Figure 9: Flood Zones with existing built footprint (Source: EA, OS mapping)

EA Flood Zones plus Climate Change:

- 5.6. The Flood Zones plus climate change dataset shows how the combined extent of Flood Zones 2 and 3 could increase with climate change over the next century, ignoring the benefits of any existing flood defences. The EA have assumed no changes to flood defences or land-use that could occur in future. The effects of climate change on flood risk which may be seen in the future could be different to those currently considered.

- 5.7. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5.
- 5.8. The datasets shown on Flood Map for Planning are aimed at supporting planners and developers to make long-term decisions about the location and design of development and the use of land. Such decisions need to account for the full anticipated lifetime of the development being planned.
- 5.9. The EA have therefore chosen:
- The 'Central' allowance for the 2080s epoch (2070-2125) for risk of flooding from rivers
 - The 'Upper End' allowance for risk of flooding from the sea, accounting for cumulative sea level rise to 2125
- 5.10. The Flood Zones plus climate change dataset is created using local flood model outputs, recorded flood outlines and national flood model information, and by adding climate change scenarios from local and national modelling, using the maximum extents from:
- Rivers and sea with defences 3.3%, 1%/0.5% and 0.1% AEPs
 - Rivers and sea without defences 1%/0.5% and 0.1% AEPs
- 5.11. The extents are merged to create a single outline.
- 5.12. The site is shown to be within the EA Flood Zones plus climate change (2070 to 2125) extent.

Alternative Flood Zones:

- 5.13. Within their Strategic Flood Risk Assessment (SFRA), 2009 Kent Thameside differentiates Flood Zone 3a from Flood Zone 3b, the functional floodplain.
- 5.14. The mapping in the SFRA identifies this Flood Zone as land which would flood with a 5% chance in each and every year (a 1 in 20-year annual exceedance probability (AEP) defended scenario), where detailed modelling exists.
- 5.15. Since the 2009 Kent Thameside SFRA was completed in 2009, the definition of Flood Zone 3b (Functional Floodplain) as defined in the Planning Practice Guidance now comprises:
- land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or
 - land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding).
- 5.16. The site is shown to be within Flood Zone 3a, entirely outside of Flood Zone 3b (functional floodplain).

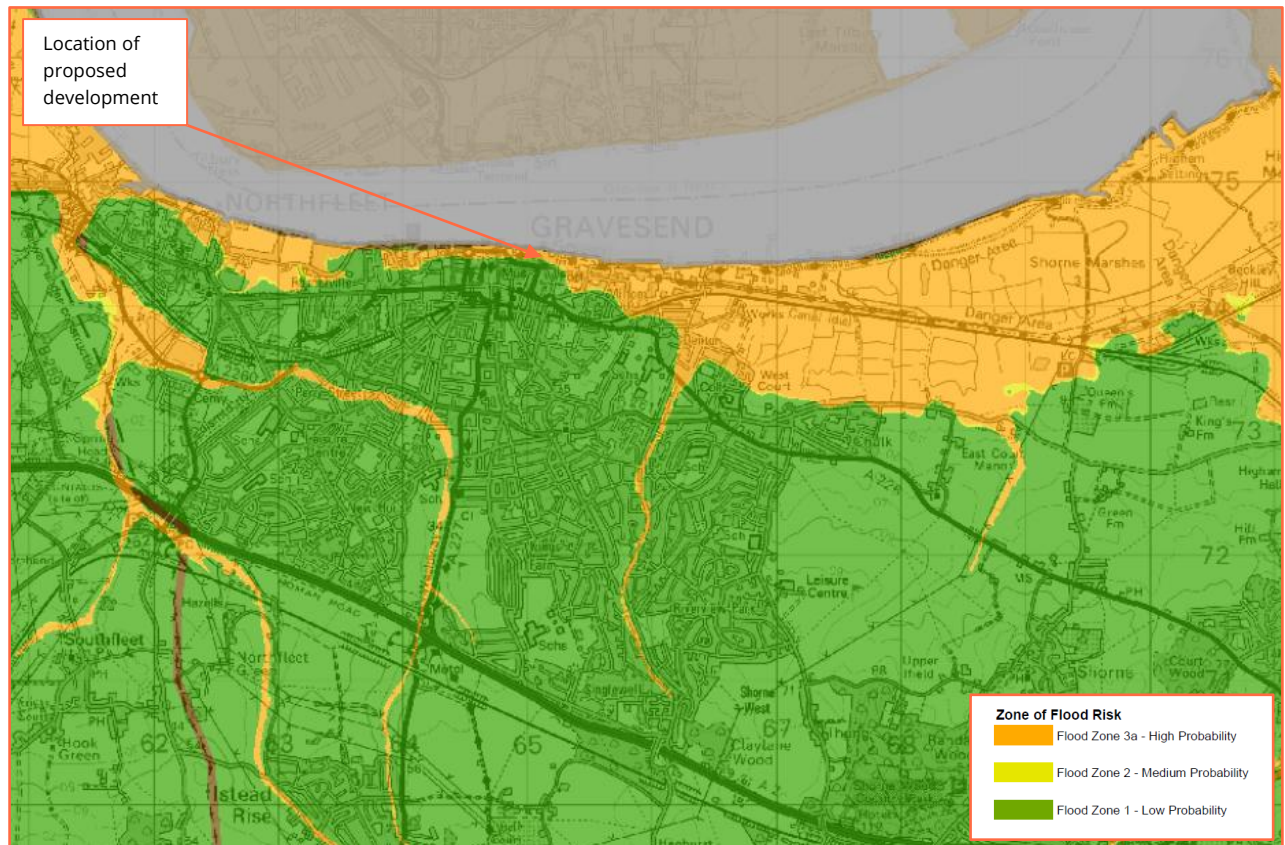


Figure 10: Flood Zones (Source: 2009 Kent Thameside SFRA)

Tidal (River Thames Estuary):

- 5.17. The River Thames flows through southern England, most notably through London. At 346 km, it is the longest river entirely in England and the second longest in the United Kingdom, after the River Severn. It also flows through Oxford (where it is called Isis), Reading, Henley-on-Thames and Windsor. The lower reaches of the river are called the Tideway, derived from its long tidal reach up to Teddington Lock. It rises at Thames Head in Gloucestershire, and flows into the North Sea via the Thames Estuary. The Thames drains the whole of Greater London. The site falls into the Thames River Basin District (RBD) (as defined by the Environment Agency) and is located in the Environment Agency Thames Region.
- 5.18. The River Thames is predominantly tidal in the vicinity of the site.

Detailed Flood Modelling:

- 5.19. In-channel modelled flood levels for use within this report have been requested from the EA. The data is from the Thames Estuary 2100 (TE2100) study completed by HR Wallingford in 2008. The TE2100 plan is now live and within it are a set of levels on which the flood risk management strategy is based. The plan is the overarching flood management strategy for the Thames Estuary and therefore any development planning should be based on the same underlying data.
- 5.20. TE2100 takes into account operation of the Thames Barrier when considering future river levels. The Thames Barrier requires regular maintenance and with additional closures the opportunity for maintenance will be reduced. When this happens, river levels which would normally shut the barrier will have to be allowed through to ensure that the barrier is not shut too often. For this reason, levels upstream of the barrier will increase and the tidal walls will need to be heightened to match.

- 5.21. The levels upstream of the barrier are the highest levels permitted by the operation of the Thames Barrier. If levels and flows are forecast to be any higher, the Thames Barrier would shut, ensuring that the tide is blocked and the river maintained to a low level. For this reason the probability of any given water level upstream of the Barrier is controlled and therefore any associated return period becomes irrelevant. The Thames Barrier and associated defence system has a 1 in 1000 year standard which means it ensures that flood risk is managed up to an event that has a 0.1% annual probability. The probability of water levels upriver is ultimately controlled by the staff at the Thames Barrier.
- 5.22. In west London there is a heavy influence from upstream flows (fluvial flows). The flood defences are built to manage tidal flood risk only. With very high fluvial flows, the river levels in west London could be above the 0.1% annual probability tidal level. The climate change levels are assessed to determine the future tidal defence levels. For this reason they only account for extreme tidal events and not extreme fluvial flow events. The present day levels include extreme flows from upstream (fluvial events) as well as extreme tidal events.
- 5.23. The following maximum extreme flood levels relevant to the site have been provided by the EA:

Node / Event	Present Day (mAOD)	2100 (mAOD)
3.25	5.81	6.47

Table 2: TE2100 modelled in-channel flood levels

- 5.24. The closest node to the site is node 3.25. An extreme water level of 5.81mAOD has been provided for the present day, rising to 6.47mAOD in 2100.
- 5.25. Comparison of these modelled flood levels with topographic site levels (5.10mAOD to 5.90mAOD) has shown that the site is partially below the in-channel River Thames tidal flood levels. The River Thames is however defended to the 1:1000 year standard.

Flood Storage Areas:

- 5.26. Flood Storage Areas are areas that act as a balancing reservoir, storage basin or balancing pond. Their purpose is to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel. It may also delay the timing of a flood peak so that its volume is discharged over a longer time interval. Flood storage areas do not completely remove the chance of flooding and can be overtopped or fail in extreme weather conditions.
- 5.27. According to EA data, there are no Flood Storage Areas located in close proximity to the site.

Flood Defences:

- 5.28. London is defended from tidal flooding from the River Thames to a high standard. These defences include the Thames Barrier. The Thames Barrier is one of the largest movable flood barriers in the world. The EA runs and maintains the Thames Barrier as well as London's other flood defences.
- 5.29. The Thames Barrier spans 520m across the River Thames near Woolwich, and it protects 125km² of central London from flooding caused by tidal surges. It has 10 steel gates that can be raised into position across the River Thames. When raised, the main gates stand 15m high, and 61.5m wide. Each main gate weighs 3,300 tonnes.
- 5.30. The barrier is closed under storm surge conditions to protect London from flooding from the sea. It may also be closed during periods of high flow over Teddington Weir to reduce the risk of river flooding in some areas of west London including Richmond and Twickenham.
- 5.31. The Thames Barrier will then remain closed over high water until the water level downstream of the Thames Barrier has reduced to the same level as upstream. This is a managed process to provide for different circumstances, and

takes approximately 5 hours. The Thames Barrier is then opened, allowing the water upstream to flow out to sea with the outward-bound tide.

- 5.32. The EA has closed the Thames Barrier 221 times since it became operational in 1982 (correct as of November 2025). Of these closures, 119 were to protect against tidal flooding and 102 were to alleviate river flooding. The frequency of closures has increased over recent decades:
- In the 1980s there were 4 closures;
 - In the 1990s there were 35 closures;
 - In the 2000s there were 80 closures;
 - In the 2010s there were 74 closures
 - In the 2020's there were 28 closures (as of November 2025).
- 5.33. In addition to the Thames Barrier, the site benefits from the presence of raised man-made flood defences either side of the main River Thames channel. These raised defences act to prevent direct inundation of the site and surrounding area during high tides and periods of high fluvial flow.
- 5.34. The design standard of protection of the flood defences in this area of the Thames is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event. The defences are all raised, man-made and privately owned.

Residual Risk (breach or overtopping of flood defences):

- 5.35. Breaching of flood defences can cause rapid inundation of areas behind flood defences as flow in the river channel discharges through the breach. A breach can occur with little or no warning, although they are much more likely to occur with extreme river levels or tides when the stresses on flood defences are highest. Flood water flowing through a breach will normally discharge at a high velocity, rapidly filling up the areas behind the defences, resulting in significant damage to buildings and a high risk of loss of life. Breaches are most likely to occur in soft defences such as earth embankments although poorly maintained hard defences can also be a potential source of breach.
- 5.36. Overtopping of flood defences occurs when water levels exceed the protection level of raised flood defences. The worst case occurs when the fluvial or tidal levels exceed the defence level as this can lead to prolonged flooding. Less severe overtopping can occur when flood levels are below defence levels, but wave action causes cyclic overtopping, with intermittent discharge over the crest level of the defence. Flood defences are commonly designed with a freeboard to provide protection against overtopping from waves. The risk from overtopping due to exceedance of the flood defence level is much more significant than the risk posed by wave overtopping. Exceedance of the flood defence level can lead to prolonged and rapid flooding with properties immediately behind the defences at highest risk.
- 5.37. The EA has provided data from the Thames Barrier Downriver Breach Inundation Modelling Study 2018 completed by Atkins Ltd. in May 2018.
- 5.38. The EA have developed a modelling approach where all downriver breach locations along the Thames are equitably modelled, to ensure a consistent approach across London. This modelling simulates continuous tidal breaches along the entire extent of the Thames between the Thames Barrier and east of Gravesend on the south bank and east of Tilbury on the north bank. For hard and composite defences breaches are set at 20 m wide; for soft defences, breaches are 50 m wide. In both cases, the defence breach scour distance was assumed to extend into the floodplain by the same distance as the breach width.
- 5.39. Based on the 2008 TE2100 in-channel levels, the 0.5% (1 in 200 year) and 0.1% (1 in 1000 year) annual probability of exceedance tidal events were modelled for all breach locations downriver of the Thames Barrier. These were modelled for the current year epoch, as well as 2115 epoch which include allowances for climate change.

- 5.40. The site is shown to be partially outside of the 1:200 year and 1:1000 year modelled breach extents for 2005.
- 5.41. The site is shown to be partially within the 1:200 year and 1:1000 year modelled breach extents for 2115.

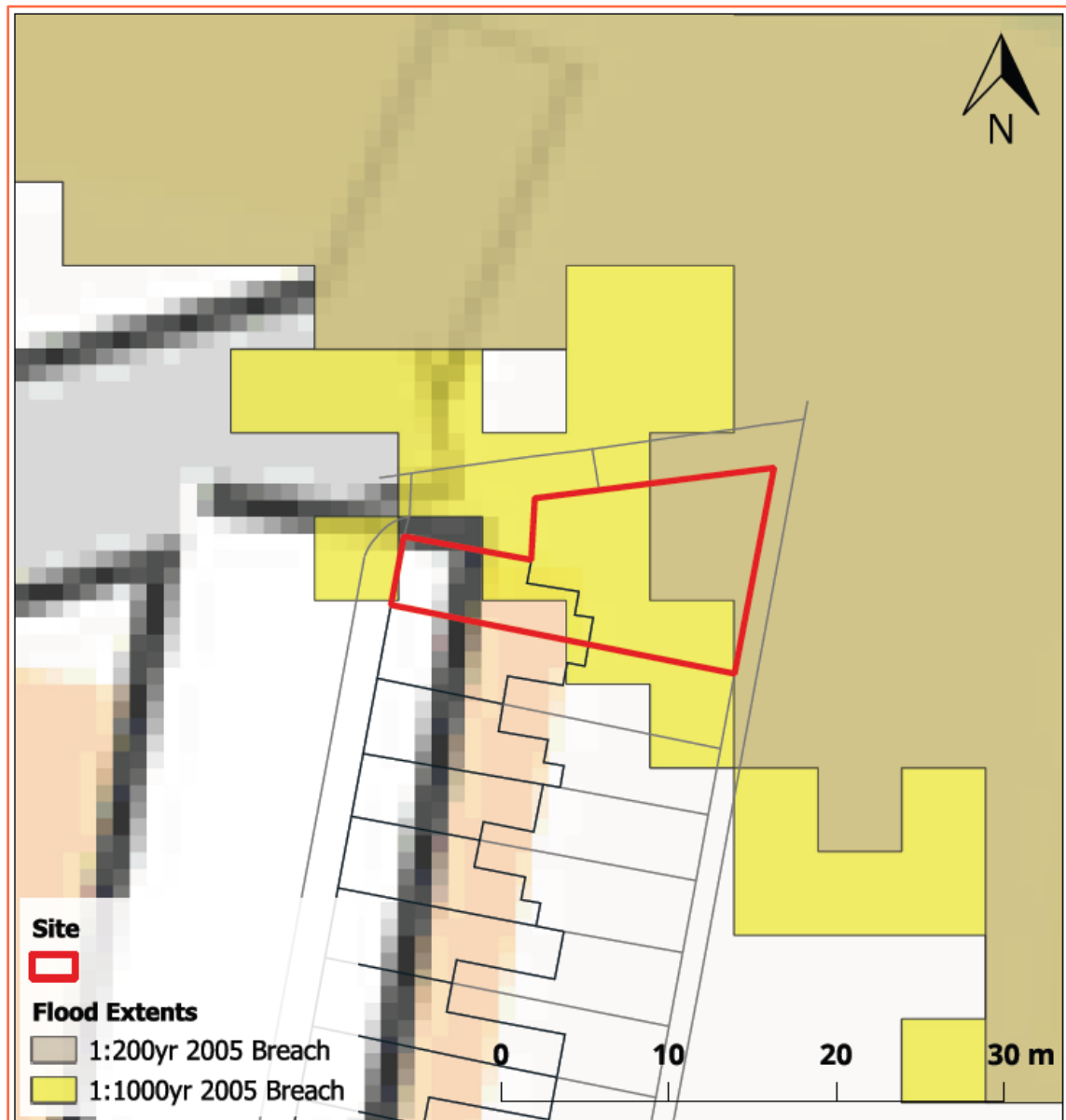


Figure 11: Environment Agency maximum 2005 breach flood extents from downriver breach inundation modelling study with site plan overlain (Source: EA, OS)

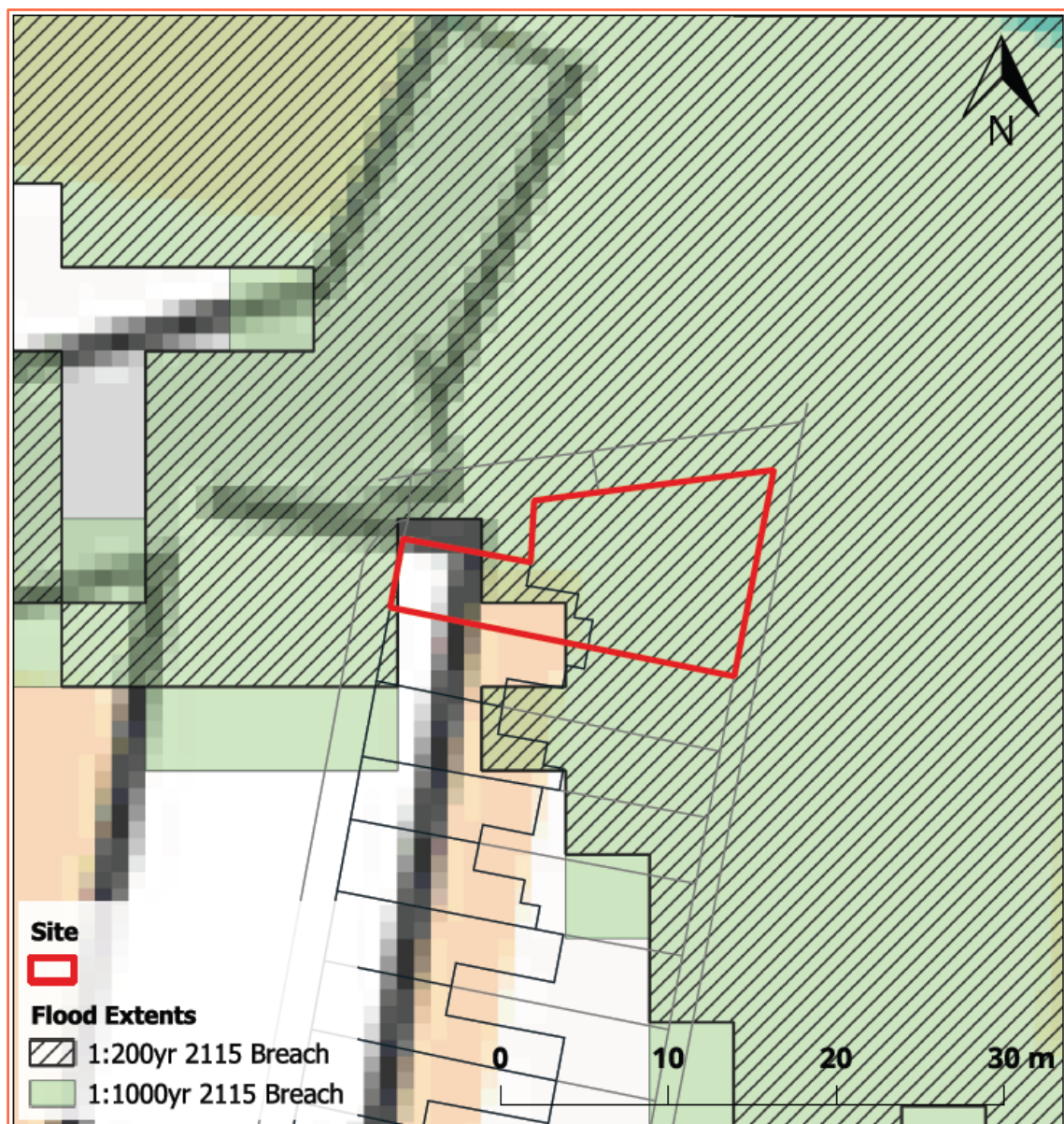


Figure 12: Environment Agency maximum 2115 breach flood extents from downriver breach inundation modelling study with site plan overlain (Source: EA, OS)

5.42. Modelled on-site breach flood levels have been extracted at node point locations across the site.

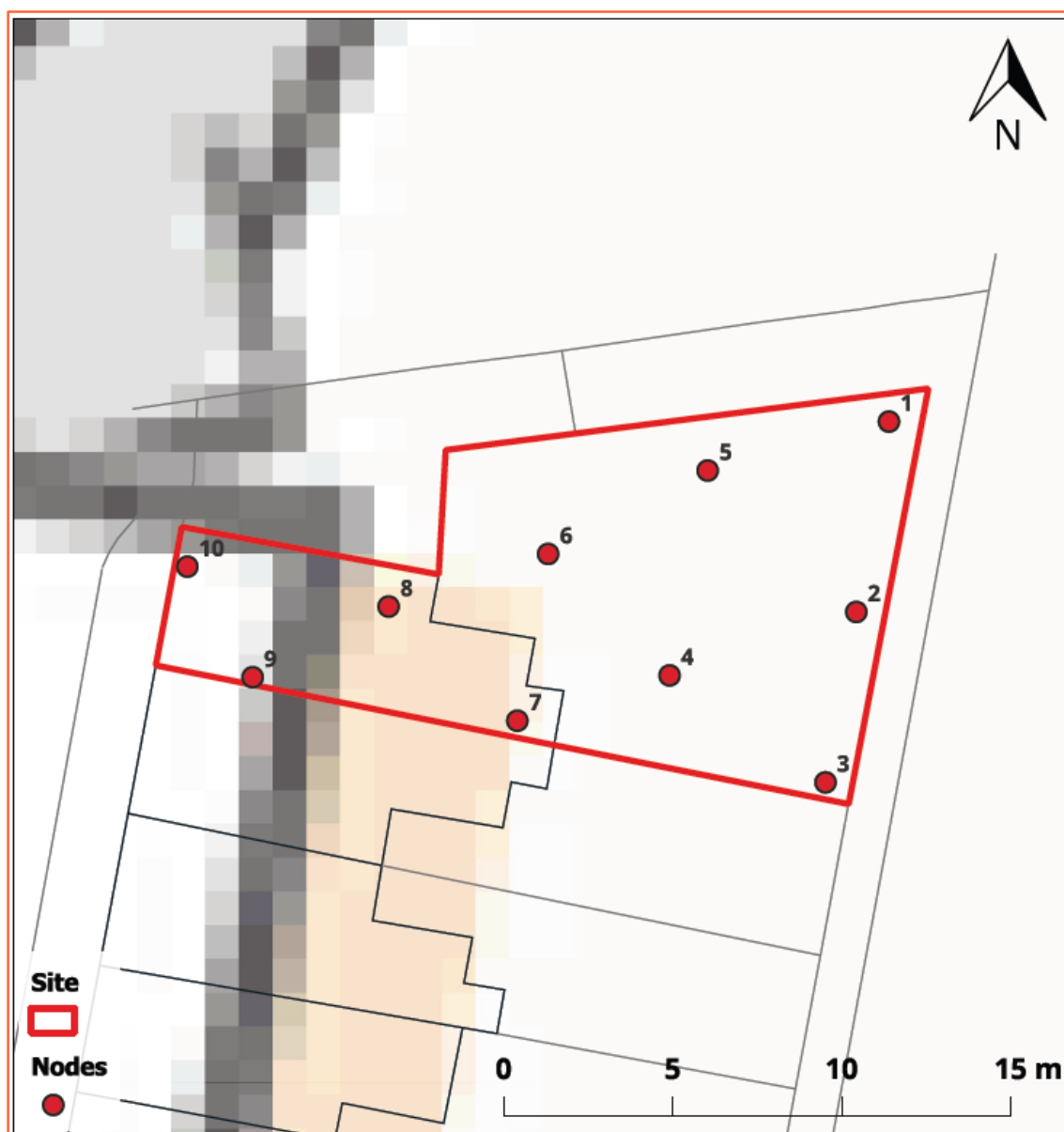


Figure 13: OS Mapping and Mastermap showing site node points where breach flood levels are extracted
(Source: OS)

Node ID	x	y	2005 1:200yr breach flood level (mAOD)	2005 1:1000yr breach flood level (mAOD)	2115 1:200yr breach flood level (mAOD)	2115 1:1000yr breach flood level (mAOD)
1	565161	174391	5.33	5.70	6.25	6.62
2	565160	174386	5.33	5.70	6.25	6.62
3	565159	174381	N/A	5.70	6.25	6.62
4	565154	174384	N/A	5.70	6.25	6.61
5	565155	174390	N/A	5.70	6.25	6.62
6	565151	174388	N/A	5.70	6.25	6.62
7	565150	174383	N/A	5.70	6.25	6.61
8	565146	174386	N/A	5.70	6.25	6.63
9	565142	174384	N/A	N/A	N/A	N/A
10	565140	174387	N/A	N/A	N/A	N/A

Table 3: Selected on-site nodes for 1:200 year and 1:1000 year 2005 and 2115 breach flood levels (Source: EA)

- 5.43. Comparison of the maximum modelled breach flood levels (6.63mAOD) with topographic site levels (5.10mAOD to 5.90mAOD) shows that the site lies between 1.53m to 0.73m below the 1:1000 year 2115 breach flood level.

Pluvial (Surface Water):

- 5.44. Pluvial (surface water) flooding occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.
- 5.45. The mapping below shows the Risk of Flooding from Surface Water (RoFSW). Please note that the EA do not consider this information suitable to be used to identify the risk to individual properties or sites. It is useful to raise awareness in areas which may be at risk and may require additional investigation. This information tells you the flood risk of the land around a building, not the building itself.
- 5.46. The RoFSW products are an assessment of where surface water flooding may occur.
- 5.47. The mapping shows the following likelihood categories, for the present day risk of flooding from surface water, and the climate change scenarios have been produced to indicate the predicted impacts of climate change on future flood risk.
- High - greater than or equal to 1 in 30 (3.3%) chance of flooding in any year.
 - Medium – Less than 1 in 30 (3.3%) but greater than or equal to 1 in 100 (1%) chance of flooding in any given year.
 - Low – Less than 1 in 100 (1%) but greater than or equal to 1 in 1000 (0.1%) chance of flooding in any given year.
- 5.48. The climate change allowances are based on the latest UK Climate Projections (UKCP18) from the Met Office, using the Representative Concentration Pathway (RCP) 8.5. A near-term epoch (2040 – 2060 “2050s” epoch) and central allowances are being used initially, to support short and medium-term decisions informed by the highest flood likelihood projections.
- 5.49. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” to “Low” chance of flooding from surface water.
- 5.50. The EA Risk of Flooding from Surface Water mapping shows the site to be at “Very Low” to “Medium” chance of flooding between 2040 and 2060.

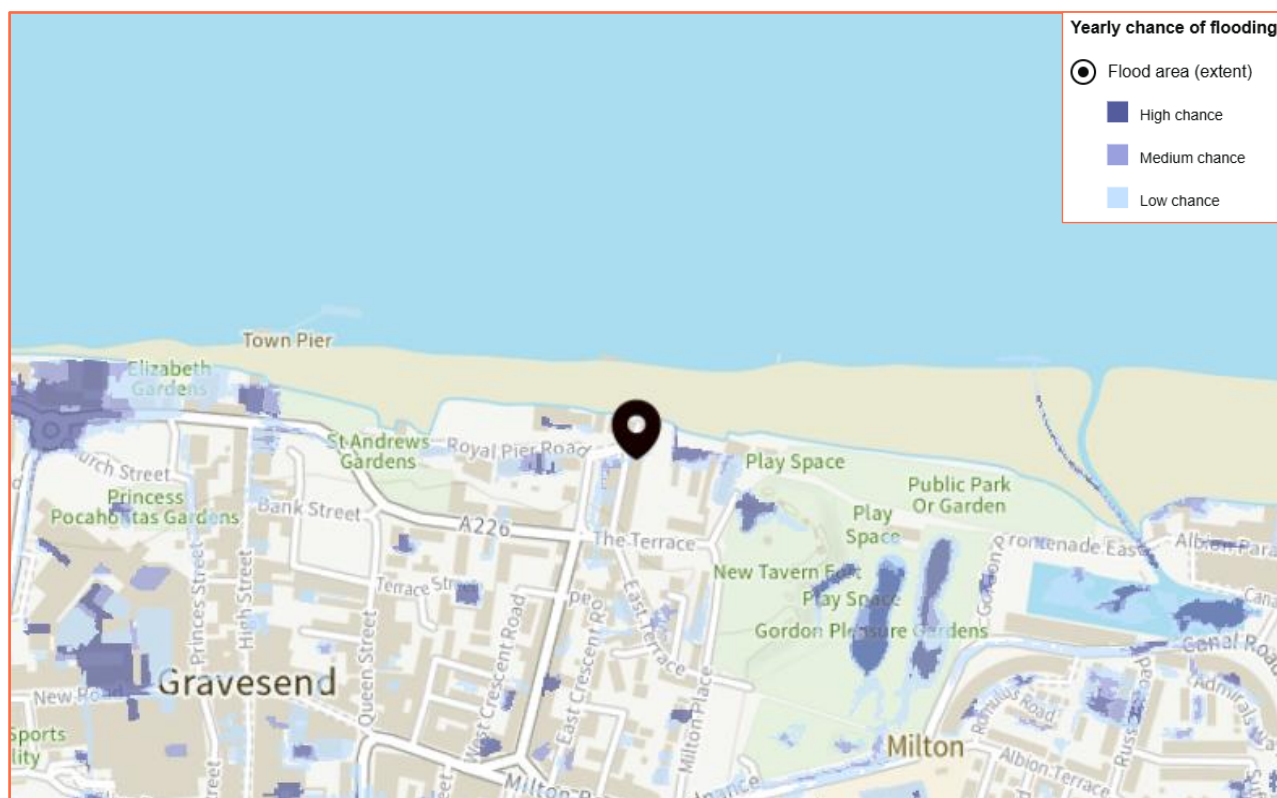


Figure 14: Extract from EA Risk of Flooding from Surface Water mapping – present day (Source: EA)

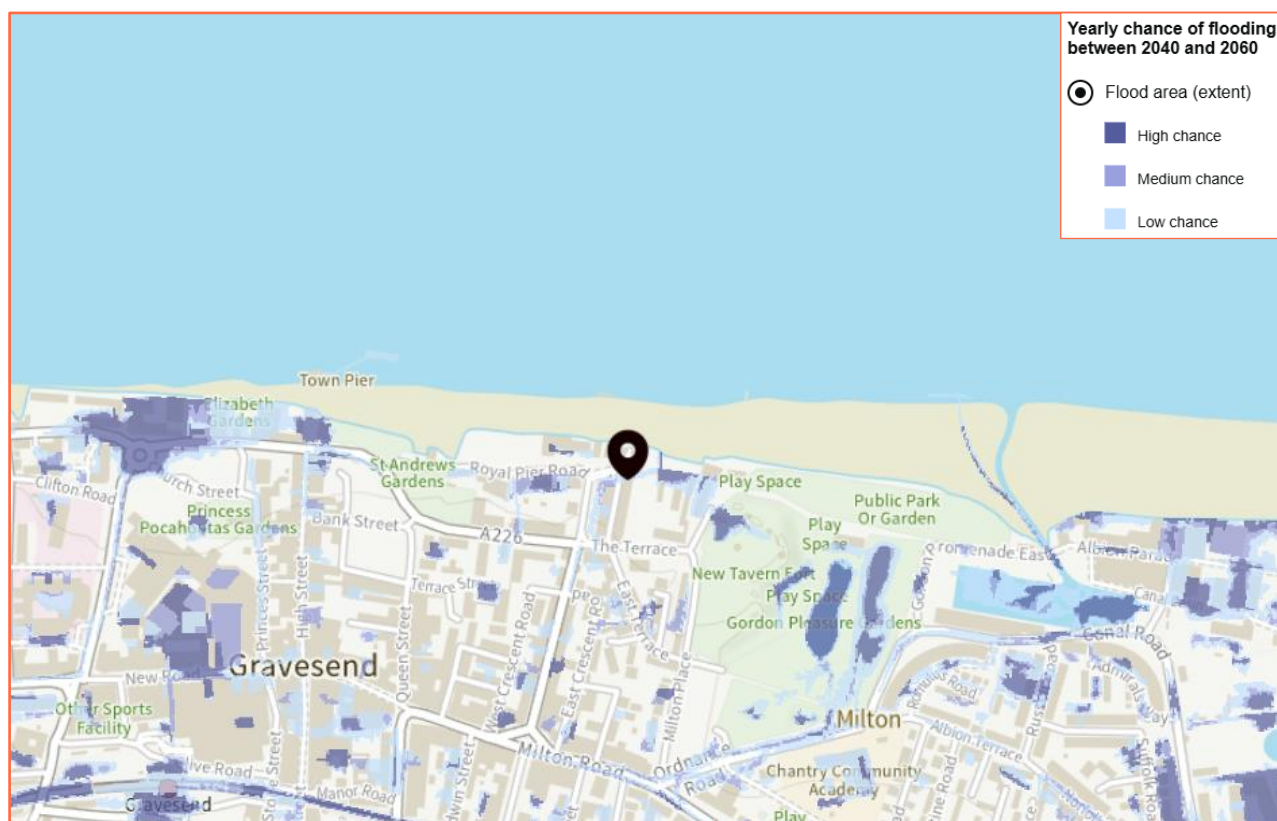


Figure 15: Extract from Environment Agency RoFSW map – between 2040 and 2060 (Source: EA)

Internal Drainage Board:

- 5.51. Each Internal Drainage Board (IDB) is a public body that manage water levels in an area, known as an internal drainage district, where there is a special need for drainage. The Board maintains many miles of watercourses, rivers and associated infrastructure such as pumping stations and other structures. IDBs undertake works to reduce flood risk to people and property, and manage water levels for agricultural and environmental needs within their district.
- 5.52. The site is located within the North Kent Marshes Internal Drainage Board area.
- 5.53. The North Kent Marshes Internal Drainage Board states:

No Obstructions within 8 Metres of the Edge of the Watercourse

No person without the previous consent of the Board shall erect any building or structure, whether temporary or permanent, or plant any tree, shrub, willow or other similar growth within 8 metres of the landward toe of the bank where there is an embankment or wall or within 8 metres of the top of the batter where there is no embankment or wall, or where the watercourse is enclosed within 8 metres of the enclosing structure.

- 5.54. The proposed development is not located within 8 metres of an IDB drain.

Groundwater:

- 5.55. Groundwater flooding occurs as a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained high rainfall. Higher rainfall means more water will infiltrate into the ground and cause the water table to rise above normal levels. Groundwater tends to flow from areas where the ground level is high, to areas where the ground level is low. In low-lying areas the water table is usually at shallower depths anyway, but during very wet periods, with all the additional groundwater flowing towards these areas, the water table can rise up to the surface causing groundwater flooding.
- 5.56. Groundwater flooding is most likely to occur in low-lying areas underlain by permeable rocks (aquifers). These may be extensive, regional aquifers, such as chalk or sandstone, or may be localised sands or river gravels in valley bottoms underlain by less permeable rocks. Groundwater flooding takes longer to dissipate because groundwater moves much more slowly than surface water and will take time to flow away underground.
- 5.57. The EA states that this location is outside of a groundwater flood alert area.
- 5.58. No information has been provided to suggest that the site has flooded historically due to groundwater.

Sewer:

- 5.59. Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Temporary problems such as blockages, siltation, collapses and equipment or operational failures can also result in sewer flooding.
- 5.60. All Water Companies have a statutory obligation to maintain a register of properties/areas which have reported records of flooding from the public sewerage system, and this is shown on the DG5 Flood Register. This includes records of flooding from foul sewers, combined sewers and surface water sewers which are deemed to be public and therefore maintained by the Water Company. The DG5 register records of flood incidents resulting in both internal property flooding and external flooding incidents. Once a property is identified on the DG5 register, water companies can typically put funding in place to address the issues and hence enable the property to be removed from the register. It should be noted that flooding from land drainage, highway drainage, rivers/watercourses and private sewers is not recorded within the register.

- 5.61. No information has been presented to suggest that the site is susceptible to sewer flooding.

Other Sources:

- 5.62. Reservoirs with an impounded volume in excess of 25,000 cubic metres (measured above natural ground level) are governed by the Reservoirs Act and are listed on a register held by the Environment Agency. The site is located partially within the maximum inundation extent on the EA Reservoir Inundation Map when there is also flooding from rivers. The EA also advise on their website that reservoir flooding is extremely unlikely. There has been no loss of life in the UK from reservoir flooding since 1925. All major reservoirs have to be inspected by specialist dam and reservoir Engineers. In accordance with the Reservoirs Act 1975 in England, these inspections are monitored and enforced by the EA themselves. The risk to the site from reservoir flooding is therefore minimal and is far lower than that relating to the potential for fluvial / tidal flooding to occur. The Environment Agency Reservoir Flood Map illustrated below, illustrates the largest area that might be flooded if the storage area were to fail and release the water it is designed to hold during a flood event.
- 5.63. Records of flooding from reservoirs and canals are erratic as there is no requirement for the Environment Agency to provide information on historic flooding from canals and raised reservoirs on plans. In particular, the NPPF does not require flood risk from canals and raised reservoirs to be shown on the Environment Agency flood zones.
- 5.64. Overflows from canals can be common as they are often fed by land drainage, and often do not have controlled overflow spillways. Occasionally, major bank breaches also occur, leading to rapid and deep flooding of adjacent land.
- 5.65. No information has been provided to suggest that the site is susceptible to flooding from other sources.

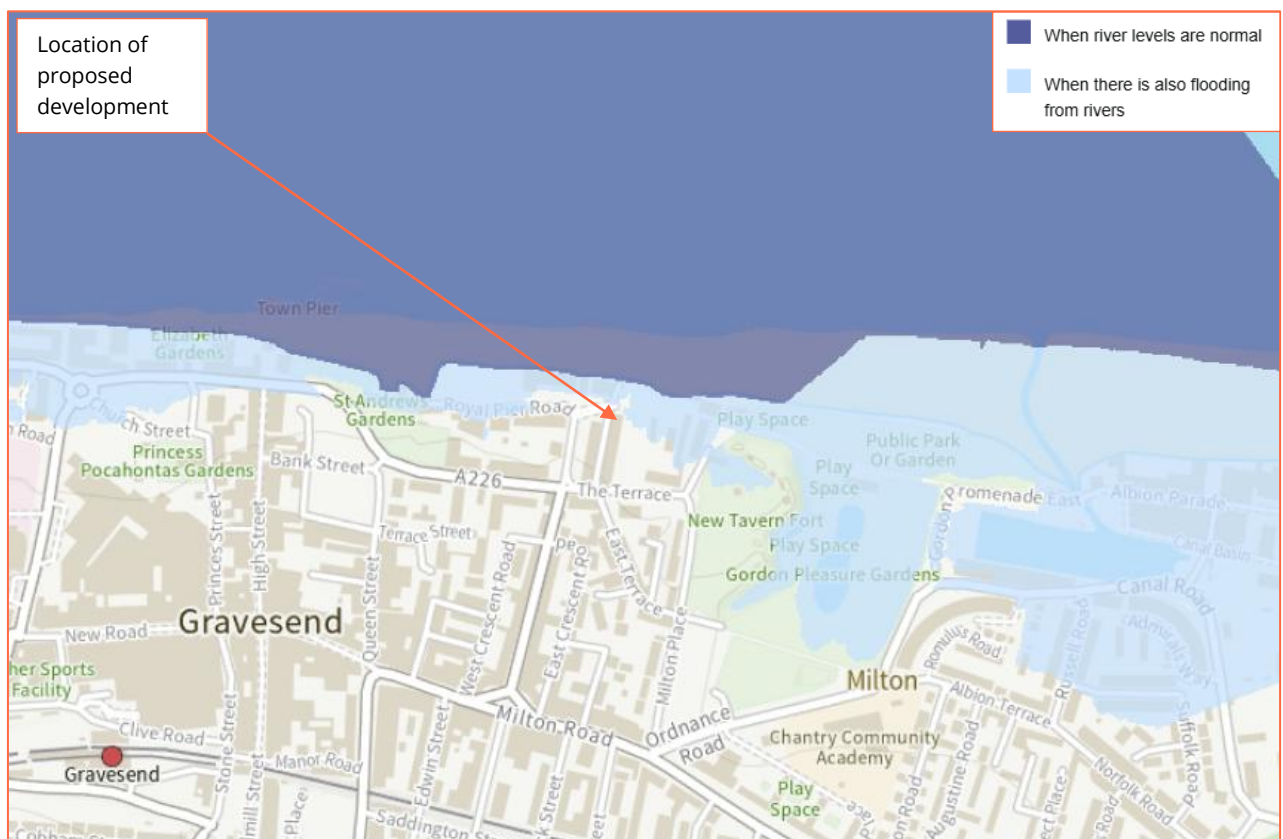


Figure 16: Extract from Environment Agency Reservoir Flood Map (Source: EA)

Historical Flood Events:

- 5.66. The EA hold records of historic flood events from rivers and the sea. The EA map flooding to land, not individual properties. Their historic flood event record outlines are an indication of the geographical extent of an observed flood event. Their historic flood event outlines do not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.
- 5.67. The EA hold no records of historic flooding having affected the site or surrounding area.
- 5.68. The EA historical flood records are not comprehensive, and they advise that further enquiries locally are made with specific reference to flooding at the location.

6. Flood Risk Management

Vulnerability to Flooding:

- 6.1. The NPPF classifies property usage by vulnerability to flooding.
- 6.2. The existing site usage is classified as “more vulnerable” (residential).
- 6.3. Post development, the site will remain “more vulnerable” (residential), as the application is for erection of single storey rear/side extension (to remain a single dwelling).
- 6.4. There will be no new basements, lowering of floor levels, additional units or bedrooms on the ground floor. In addition, permanent means of internal access will be provided from the ground floor to the upper floors.
- 6.5. Accordingly, it is considered that the vulnerability of the site as a whole will not increase post development.

EA Standing Advice for Minor Extensions:

- 6.6. EA Standing Advice guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250m². It should not be applied if an additional dwelling is being created, e.g. a self-contained annexe or additional commercial unit.
- 6.7. The EA Standing Advice guidance also recommends floor levels are set at least 600 millimetres (mm) above the estimated flood level with flood resistant materials up to at least 600mm above the estimated flood level. This can be reduced to 300mm if there is a high level of certainty about the estimated flood level and conversely increased if there is a particularly high level of uncertainty.
- 6.8. If constraints are present which do not allow the raising of floor levels to 600mm, extra flood resistance and resilience measures will need to be incorporated to protect the development.
- 6.9. Given the nature of the proposed development, the finished floor levels will be set no lower than existing, and therefore extra flood resistance and resilience measures will be incorporated into the proposed development 600mm above the estimated flood level.
- 6.10. As such, the development as a whole is considered to fit within EA standing advice for domestic extensions.

Physical Design Measures:

- 6.11. The site is located within Flood Zones 2 and 3 according to the EA Flood Map for planning (Rivers and the Sea).
- 6.12. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” to “Low” chance of flooding from surface water for the present day and “Very Low” to “Medium” chance between 2040 and 2060.
- 6.13. The EA Standing Advice states that the design should be appropriately flood resistant and resilient by:
 - Using flood resistant materials that have low permeability to at least 600mm above the estimated flood level;
 - Making sure any doors, windows or other openings are flood resistant to at least 600mm above the estimated flood level;
 - Using flood resilient materials (for example lime plaster) to at least 600mm above the estimated flood level;

- By raising all sensitive electrical equipment, wiring and sockets to at least 600mm above the estimated flood level;
 - Making it easy for water to drain away after flooding such as installing a sump and a pump;
 - Making sure there is access to all spaces to enable drying and cleaning;
 - Ensuring that soil pipes are protected from back-flow such as by using non-return valves.
- 6.14. To help protect against flooding during extreme events, the applicant has agreed to implement flood resistant design measures into the development where practical and feasible, in consultation with the Local Authority building control department. These measures can include the following:
- Solid concrete ground floor slab, with waterproof membrane;
 - Waterproof screed used on ground floors;
 - Closed-cell foam used in wall cavities;
 - Waterproof ground floor internal render;
 - External walls rendered resistant to flooding to at least 600mm above ground floor level;
 - Exterior ventilation outlets, utility points and air bricks fitted with removable waterproof covers;
 - Electrical incomer and meter situated at least 600mm above ground floor level;
 - Boilers, control and water storage / immersion installed at least 600mm above ground floor level;
 - Gas meter installed at least 600mm above ground floor level;
 - Plumbing insulation of closed-cell design;
 - Non-return valves fitted to all drain and sewer outlets;
 - Manhole covers secured;
 - Kitchen units of solid, water resistant material at ground floor level;
 - Use of MDF carpentry (i.e. skirting, architrave, built-in storage) avoided at ground floor level;
 - Stairs of solid hardwood construction with wood faces treated to resist water penetration at ground floor level.
- 6.15. A flood proof door should be installed for external ground floor level doors, or demountable flood defence barriers to defend lower ground level doorways and low windows if a flood door is not practical or other planning constraints prevent it.

Safe Escape:

- 6.16. The Flood Risk and Coastal Change Planning Practice Guidance (PPG) states that access considerations should include the voluntary and free movement of people during a design flood, as well as the potential for evacuation before a more extreme flood, considering the effects of climate change for the lifetime of the development. Emergency access and escape plans are needed if any part of a development is below the estimated design flood level, which connects the site to an area away from current or future flood risk.
- 6.17. The site is situated within Flood Zones 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea).
- 6.18. Tidal flooding from storm surges is well understood and tidal storm surges are monitored and predicted. As such, it is unlikely that the site would flood unexpectedly without sufficient flood warning for evacuation.
- 6.19. The tidal cycles generally dictate 6 hours between the peak and trough of the tidal cycle, and as such after a likely maximum of 6 hours water will be able to drain from the site. The duration of any tidal flooding would be likely to be limited to a period of a few hours around high water.
- 6.20. Flood warning notices will be erected around the site to inform site users of the risk of flooding, and the flood warning and evacuation measures. In the event of a flood event without warning, site users should take refuge on the first floor of the property.

- 6.21. In case of an extreme flood event without warning, residents and users should seek refuge on the upper floors of the building. The applicant has agreed that internal access will be maintained from the ground floor to the upper floors of the dwelling.
- 6.22. Safe escape will be provided by a formal flood warning and evacuation plan, which will be prepared in liaison with the Emergency Planners and tied in with the existing Emergency Plans for the area.
- 6.23. Site users should follow the warning and evacuation procedure detailed in the following section.

Flood Warning:

- 6.24. The EA is responsible for issuing flood warnings. Flood warnings are issued to the emergency services and local authorities. Both private individuals and organisations can sign-up to receive warnings via phone, text or email. This system of receiving warnings is currently voluntary.
- 6.25. Advice regarding severe flood warnings will generally be given during weather forecasts on local radio and TV. In the case of extreme events, warnings can also be disseminated via door to door visits by the police or locally appointed flood wardens.
- 6.26. The applicant has agreed to subscribe to the EA's flood warning service.
- 6.27. The EA issue flood warnings/alerts to specific areas when flooding is expected. The site lies within the Gravesend and Northfleet Flood Warning Area.

Flood Warning	Flood Alert	Flood Warning	Severe Flood Warning
			
What it means?	Flooding is possible. Be prepared.	Flooding is expected. Immediate action required.	Severe flooding. Danger to life.
When it's used?	Two hours to two days in advance of flooding.	Half an hour to one day in advance of flooding.	When flooding poses a significant threat to life.
What to do?	Be prepared to act on your flood plan. Prepare a flood kit of essential items. Monitor local water levels and the flood forecast on our website.	Move family, pets and valuables to a safe place. Turn off gas, electricity and water supplies if safe to do so. Put flood protection equipment in place.	Stay in a safe place with a means of escape. Be ready should you need to evacuate from your home. Co-operate with the emergency services. Call 999 if you are in immediate danger.

Table 4: EA Flood Warning Service

Flood Plan:

- 6.28. It is recommended that the applicant and future owners, occupiers and Landlords of the property prepare a flood plan to protect life and property during a flood event:

Action	
Before a flood	- Find out if you are at risk of flooding. - Find out if you can receive flood warnings. - Prepare and keep a list of all your important contacts to hand or save them on your mobile phone. - Think about what items you can move now and what you would want to move to safety during a flood such as pets, cars, furniture, and electrical equipment. - Know how to turn off gas, electricity and water supplies. - Prepare a flood kit of essential items and keep it handy. It can include copies of important documents, a torch, a battery-powered or wind-up radio, blankets and warm clothing, waterproofs, rubber gloves and a first aid kit including all essential medication. - Consider buying flood protection products such as flood boards and airbrick covers to help reduce flood water getting into your property.
During a flood	- Tune into your local radio station on a battery or wind-up radio. - Fill jugs and saucepans with water. - Grab your flood kit - if you have prepared one. - Collect blankets, torch, first aid kit, medication and food. - Move important documents, personal items, valuables, and lightweight belongings upstairs or to high shelves. - Raise large items of furniture, or put them in large bags if you have them. - Move people, outdoor belongings, cars and pets to higher ground. - Switch off water, gas and electricity at mains when water is about to enter your home. Do not touch sources of electricity when standing in water. - Fit flood protection products, if you have them, for example flood boards, airbrick covers, sandbags. - Put plugs in sinks and baths. Weigh them down with a pillowcase or plastic bag filled with soil. - If you do not have non-return valves fitted, plug water inlet pipes with towels or cloths. - Move your family and pets upstairs or to a high place with a means of escape. - Listen to the advice of the emergency service and evacuate if told to do so. - Avoid walking or driving through flood water. Six inches of fast-flowing water can knock over an adult and two feet of water can move a car.
After a flood	- If you have flooded, contact your insurance company as soon as possible. - Take photographs and videos of your damaged property as a record for your insurance company. - If you don't have insurance, contact your local authority for information on grants and charities that may help you. - Flood water can contain sewage, chemicals and animal waste. Always wear waterproof outerwear, including gloves, wellington boots and a face mask. - Have your electrics, central heating and water checked by qualified engineers before switching them back on.

Table 5: Flood plan**Off Site Impacts:****Fluvial Floodplain Storage:**

- 6.29. The NPPF requires that where development is proposed in undefended areas of floodplain, which lie outside of the functional floodplain, the implications of ground raising operations for flood risk elsewhere needs to be considered. Raising existing ground levels may reduce the capacity of the floodplain to accommodate floodwater and increase the risk of flooding by either increasing the depth of flooding to existing properties at risk or by extending the floodplain to cover properties normally outside of the floodplain. Flood storage capacity can be maintained by lowering ground levels either within the curtilage of the development or elsewhere in the floodplain, in order to maintain at least the same volume of flood storage capacity within the floodplain.
- 6.30. In undefended tidal areas, raising ground levels is unlikely to impact on maximum tidal levels so the provision of compensatory storage should not be necessary.

- 6.31. For development in a defended flood risk area, the impact on residual flood risk to other properties needs to be considered. New development behind flood defences can increase the residual risk of flooding if the flood defences are breached or overtopped by changing the conveyance of the flow paths or by displacing flood water elsewhere. If the potential impact on residual risk is unacceptable then mitigation should be provided.
- 6.32. The site is situated within an area at tidal flood risk.
- 6.33. As such, there will be no unacceptable loss of flood storage post development.

Surface Water Drainage:

- 6.34. The development will utilise Sustainable drainage systems (SuDS) design in accordance with the NPPF for Planning Applications and the drainage hierarchy as follows:
 - 1. Store rainwater for later use;
 - 2. Infiltration techniques;
 - 3. Attenuate rainwater by storing in tanks for gradual release;
 - 4. Discharge rainwater direct into watercourse;
 - 5. Discharge rainwater into surface water sewer;
 - 6. Discharge rainwater into a combined sewer.
- 6.35. Due to the small scale of the development, a full Surface Water Drainage Strategy is not required at this stage of planning. However, SuDS features will be incorporated into the development where practically possible or will utilise the existing arrangement on site, if appropriate.

7. Sequential and Exception Test

- 7.1. The Sequential Test aims to ensure that development does not take place in areas at high risk of flooding when appropriate areas of lower risk are reasonably available.
- 7.2. The Sequential Test is applied to developments in areas identified as being at risk of any source of flooding now or in the future. The Sequential Test ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.
- 7.3. The sequential approach is designed to ensure that areas at little or no risk of flooding from any source are developed in preference to areas at higher risk. This means avoiding, so far as possible, development in current and future medium and high flood risk areas considering all sources of flooding including areas at risk of surface water flooding. Other forms of flooding need to be treated consistently with river and tidal flooding in mapping probability and assessing vulnerability, so that the sequential approach can be applied across all areas of flood risk.
- 7.4. The site is situated within Flood Zones 2 and 3 when using the Environment Agency Flood Map for Planning (Rivers and Sea). The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” to “Low” chance of flooding from surface water for the present day and “Very Low” to “Medium” chance between 2040 and 2060.
- 7.5. Post development, the site remain classified as “more vulnerable” as the proposed application is for the erection of single storey rear/side extension.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential Infrastructure	Highly Vulnerable	More Vulnerable	Less Vulnerable	Water Compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a	Exception Test required	X	Exception Test required	✓	✓
Zone 3b	Exception Test required	X	X	X	✓

Table 6: Flood risk vulnerability and flood zone ‘compatibility’ (Source: NPPF Table 3 Technical Guidance)

- 7.6. Using the table above, the proposed application is considered to be suitable within Flood Zones 2 and 3. The Sequential and Exception Tests do not need to be applied to minor developments and changes of use (this application is for a minor development – residential extension).

8. Discussion and Conclusion

- 8.1. Unda Consulting Limited have been appointed by OMG EIS Ltd (hereinafter referred to as “the applicant”) to undertake a Flood Risk Assessment for the proposed development at 18 Clarendon Road, Gravesend, DA12 2BP. The purpose of the study is to support a planning application for the proposed development.
- 8.2. The existing site is a residential dwelling. The site is understood to have lawful planning permission for residential use. The surrounding area is characterised by residential properties.
- 8.3. The proposed planning application is for the erection of a wraparound residential extension. The property will remain a single dwelling.
- 8.4. The proposed application is for a residential extension which does not exceed 250m².
- 8.5. There will be no new basements, lowering of floor levels, additional units or bedrooms on the ground floor. In addition, permanent means of internal access will be provided from the ground floor to the upper floors.
- 8.6. As such, there will be no increase in vulnerability classification.
- 8.7. The site is located within Flood Zone 2 (Medium Probability), which means it is defined as land having between a 1 in 100 and 1 in 1,000 annual probability of river and sea flooding and within Flood Zone 3 (High Probability), which means it is defined as land having a 1:100 or greater annual probability of fluvial flooding; or having a 1:200 or greater annual probability of tidal flooding.
- 8.8. The site is shown to be within the EA Flood Zones plus climate change (2070 to 2125) extent.
- 8.9. The risk would appear to be predominantly tidal and originate from the River Thames.
- 8.10. According to the 2009 Kent Thameside SFRA, the site is shown to be within Flood Zone 3a, entirely outside of Flood Zone 3b (functional floodplain).
- 8.11. In-channel modelled flood levels for use within this report have been requested from the EA. The data is from the Thames Estuary 2100 (TE2100) study completed by HR Wallingford in 2008 and the Thames Barrier Downriver Breach Inundation Modelling Study 2018 completed by Atkins Ltd. in May 2018.
- 8.12. The closest node to the site is node 3.25. An extreme water level of 5.81mAOD has been provided for the present day, rising to 6.47mAOD in 2100.
- 8.13. Comparison of these modelled flood levels with topographic site levels (5.10mAOD to 5.90mAOD) has shown that the site is partially below the in-channel River Thames tidal flood levels. The River Thames is however defended to the 1:1000 year standard.
- 8.14. The site is shown to be partially outside of the 1:200 year and 1:1000 year modelled breach extents for 2005.
- 8.15. The site is shown to be partially within the 1:200 year and 1:1000 year modelled breach extents for 2115.
- 8.16. Comparison of the maximum modelled breach flood levels (6.63mAOD) with topographic site levels (5.10mAOD to 5.90mAOD) shows that the site lies between 1.53m to 0.73m below the 1:1000 year 2115 breach flood level.
- 8.17. The EA Risk of Flooding from Surface Water Map suggests that the site is located within an area at “Very Low” to “Low” chance of flooding from surface water for the present day and “Very Low” to “Medium” chance between 2040 and 2060.

- 8.18. The site is located within the North Kent Marshes Internal Drainage Board area. The proposed development is not located within 8 metres of an IDB drain.
- 8.19. The EA states that this location is outside of a groundwater flood alert area.
- 8.20. Risk to the site from groundwater and sewer surcharge would appear to be very low. No information has been provided to suggest that the site has flooded historically from these sources.
- 8.21. The site is located partially within the maximum inundation extent on the EA Reservoir Inundation Map when there is also flooding from rivers. The EA also advise on their website that reservoir flooding is extremely unlikely.
- 8.22. The EA hold no records of historic flooding having affected the site or surrounding area.

In Summary:

- The proposed application is for the Erection of single storey rear/side extension (to remain a single dwelling).
- The proposed application is for a residential extension which does not exceed 250m².
- There will be no increase in vulnerability classification. The site will remain a single dwelling.
- There will be no new basements, lowering of floor levels, additional units or bedrooms on the ground floor.
- Internal access will be maintained from the ground floor to the upper floors of the dwelling.
- The proposed development fits within Standing Advice for Minor Extensions.
- Post development, the site will be classified as "more vulnerable" (residential).
- Flood proofing of the development will be incorporated, where appropriate.
- There will be no loss of fluvial floodplain storage.
- The applicant will register with the free Environment Agency Floodline Alert Direct service.

Assuming accordance with these flood risk management measures, Unda Consulting Limited consider the proposed application to be suitable in flood risk terms.

**Unda Consulting Limited
February 2026**

Appendix

A – Development Plans:

- Site location, existing and proposed plans – Archimedes Design.

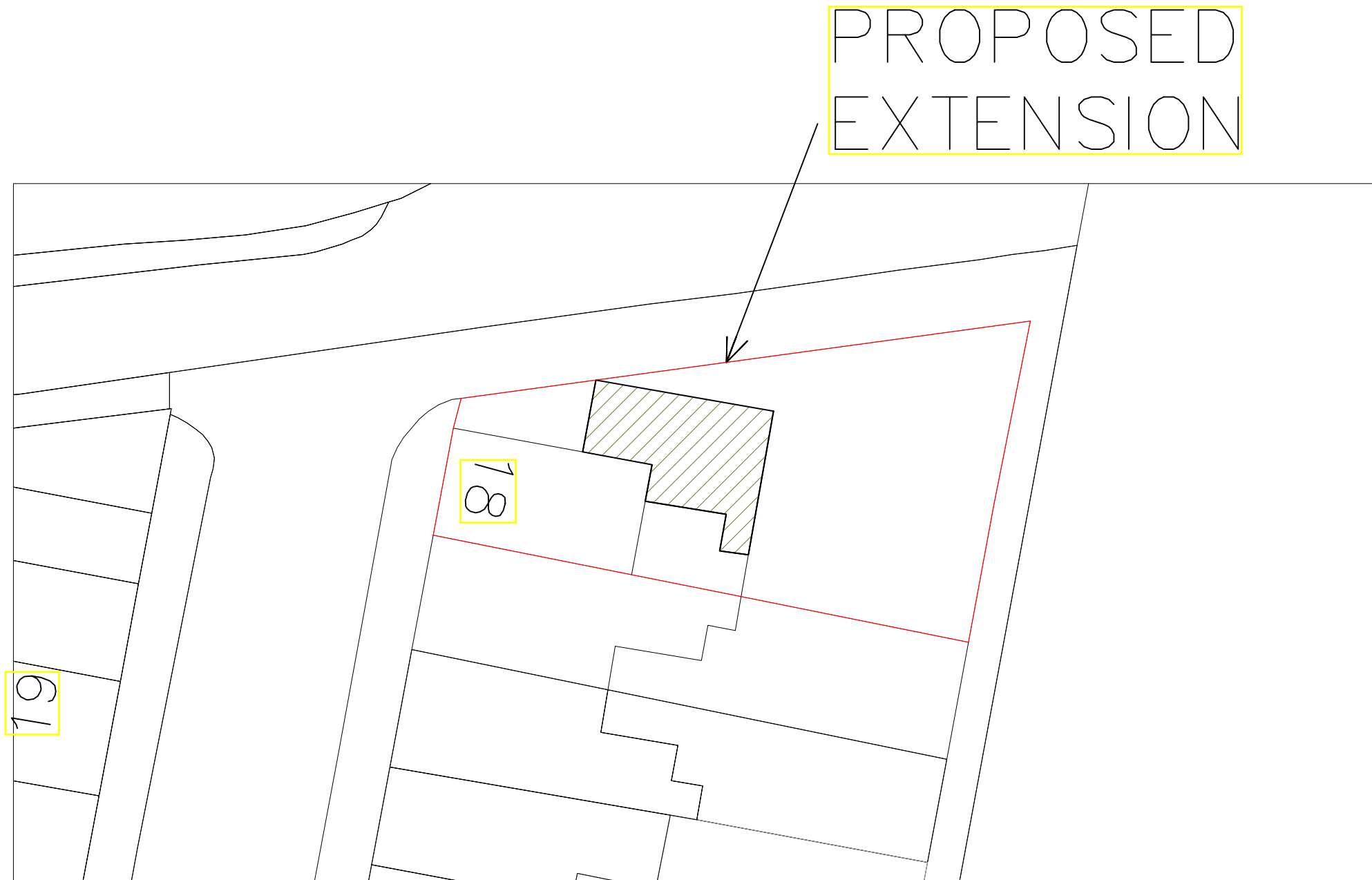
B – EA Flood Map for Planning:

- Flood Map for Planning – Environment Agency.

C – NPPF Annex 3:

- NPPF Annex 3: Flood risk vulnerability classification table.

Appendix A

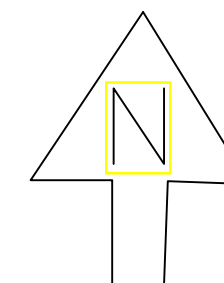


PROPOSED BLOCK PLAN

NOTES:

DISCLAIMER:

ALL DIMENSIONS IN MM UNLESS OTHERWISE STATED. CONTRACTORS TO CONFIRM ALL DIMENSIONS ON SITE. ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS.



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Rev	Date	Details Of Issue	Initials
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Status

Planning

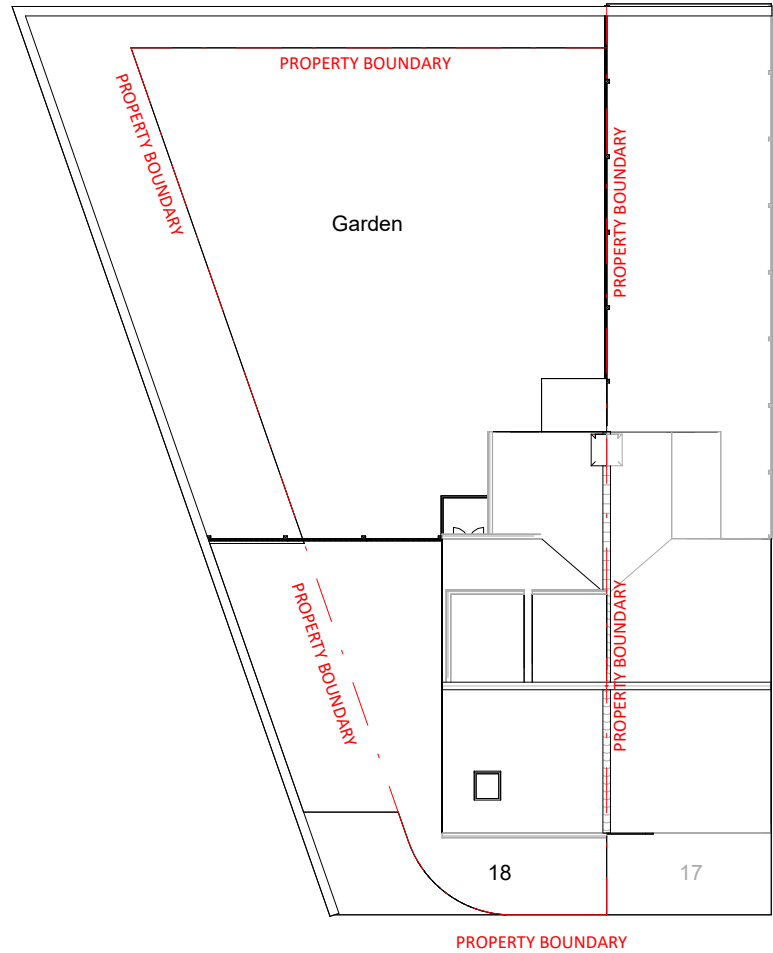
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Gravesend
DA12 2BP

Client:
Mr Jamal

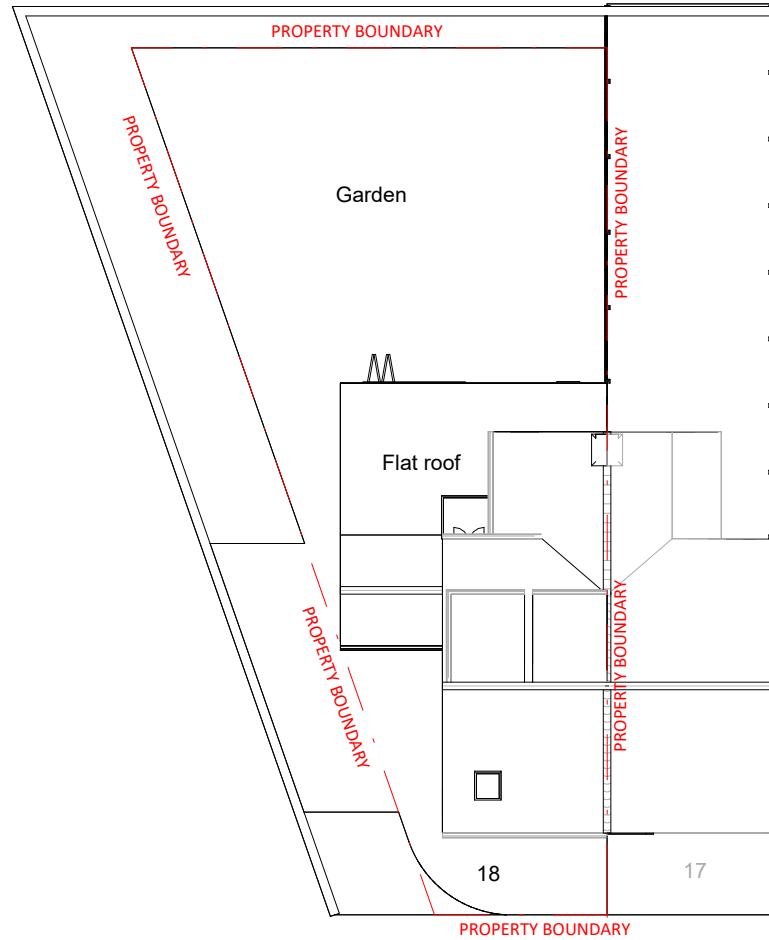
Project:

Drawn GP	Date: 27/01/2026	Scale (at A3) 1:200
Dwg no. 18-08	Revision No. A	





1 Existing Site
1 : 200



2 Proposed Site
1 : 200



NOTES:

DISCLAIMER:
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CONTRACTORS TO CONFIRM ALL DIMENSIONS ON SITE. ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS.



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Rev	Date	Details Of Issue	Initials
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Status

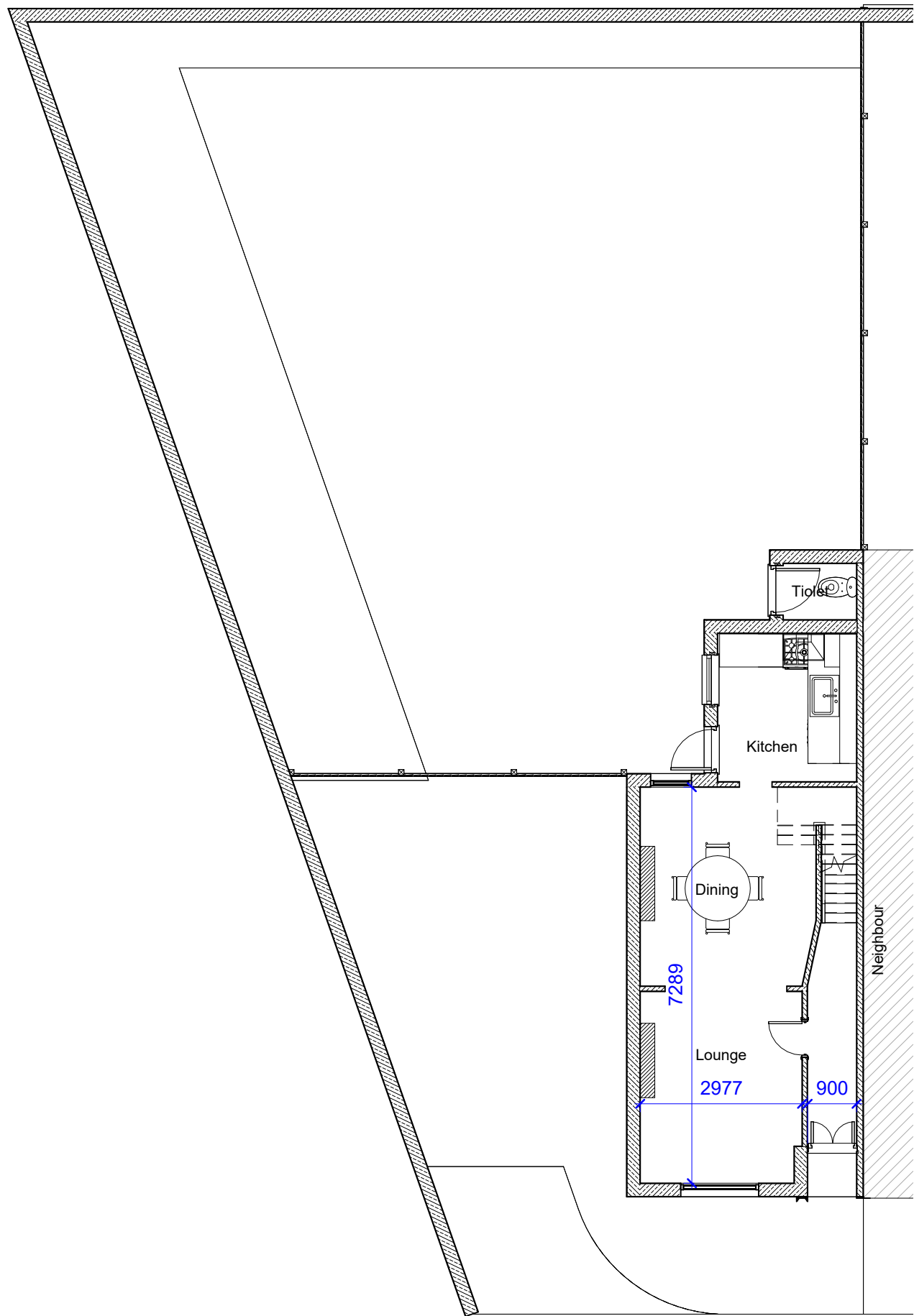
Site Plan

Site Address:
18 Clarendon Road,
Gravesend DA12 2BP

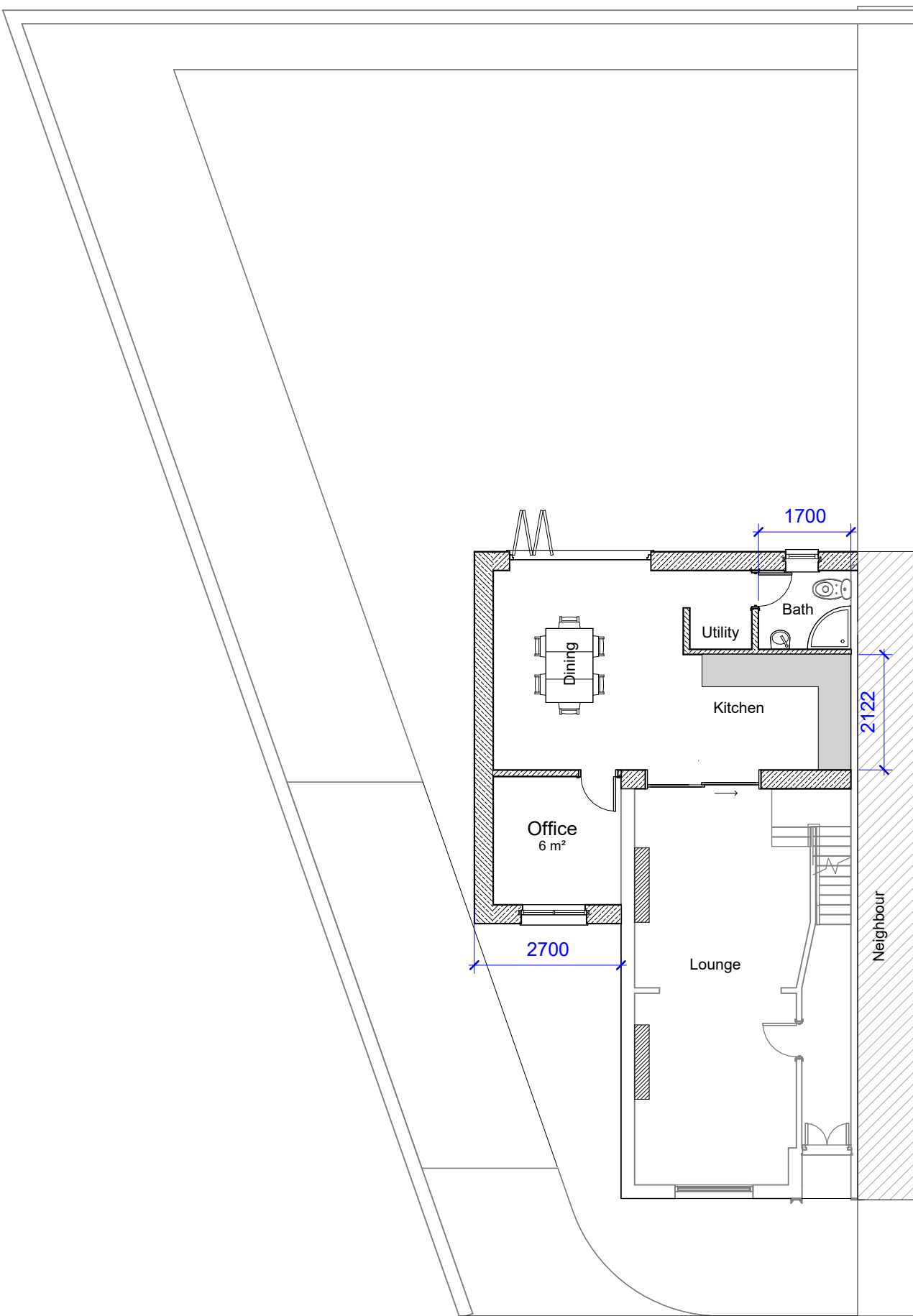
Client:
Jamal Miah

Project:
18 Clarendon Road, Gravesend
DA12 2BP

Drawn	Date: 13/01/2026	Scale (at A3): 1 : 200
Drg no.	Revision No. B	



1 Existing Ground Floor
1 : 100



2 Proposed Ground Floor
1 : 100

NOTES:

DISCLAIMER:
ALL DIMENSIONS IN MM UNLESS OTHERWISE STATED.
CONTRACTORS TO CONFIRM ALL DIMENSIONS ON SITE. ALL DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS.



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Rev	Date	Details Of Issue	Initials
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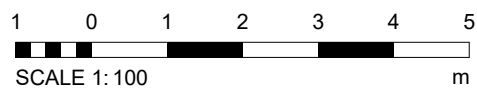
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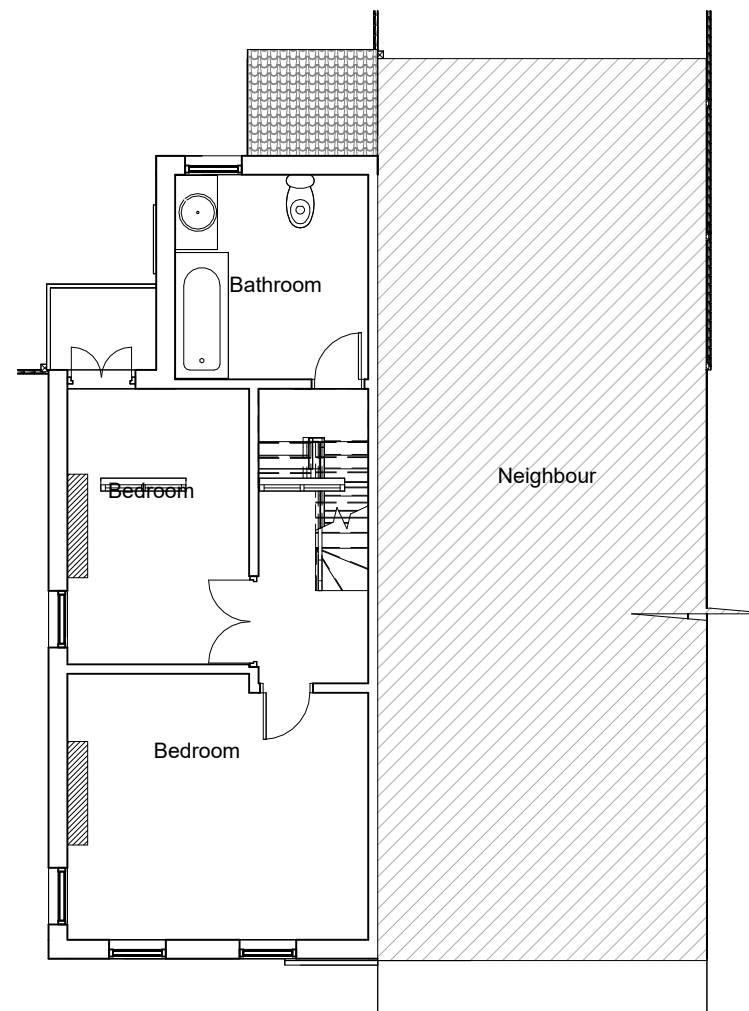
Site Address:
18 Clarendon Road, Gravesend DA12 2BP

Client:
Jamal Miah

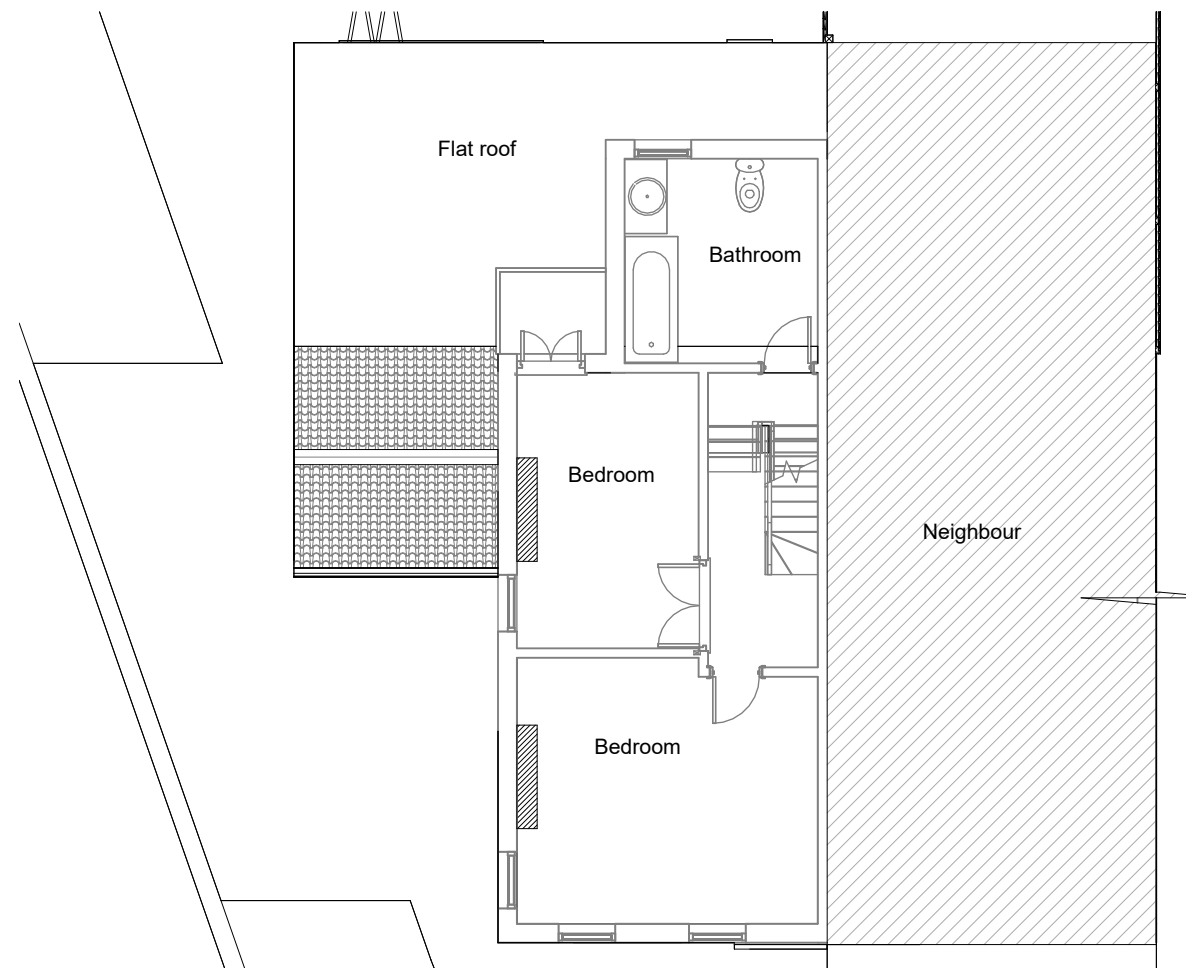
Project:
18 Clarendon Road, Gravesend DA12 2BP

Drawn	Date:	Scale (at A3)
Drg no.	13/01/2026	1 : 100
		Revision No. B

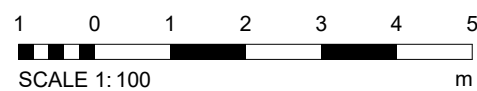




1 Existing First Floor
1 : 100



2 Proposed First Floor
1 : 100



NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

First Floor

Site Address:

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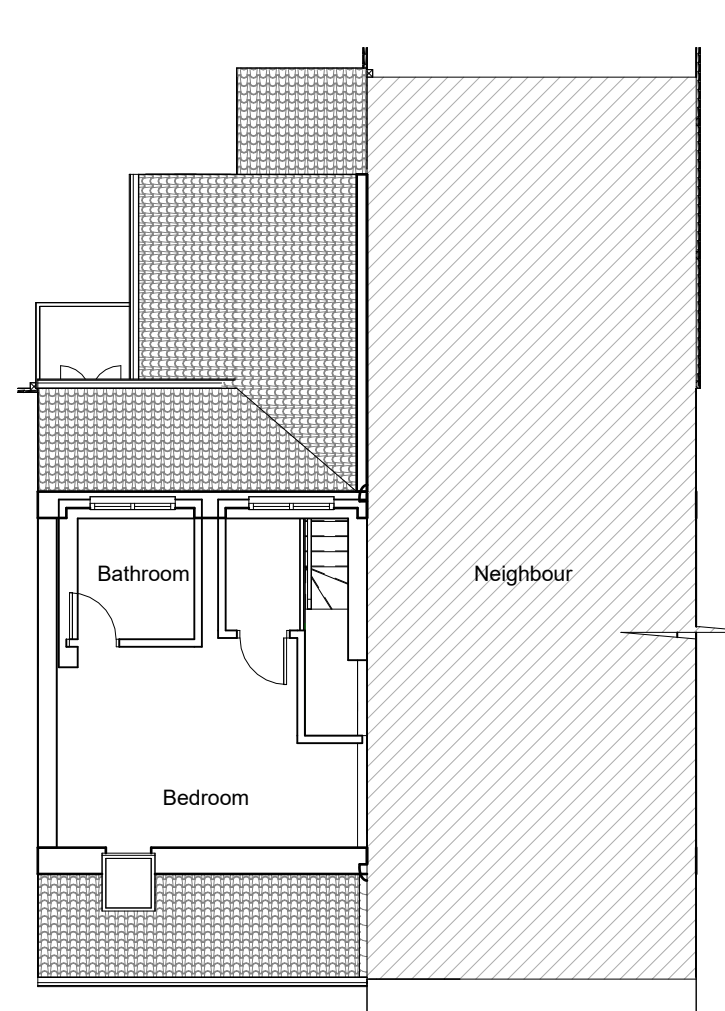
Client:

Jamal Miah

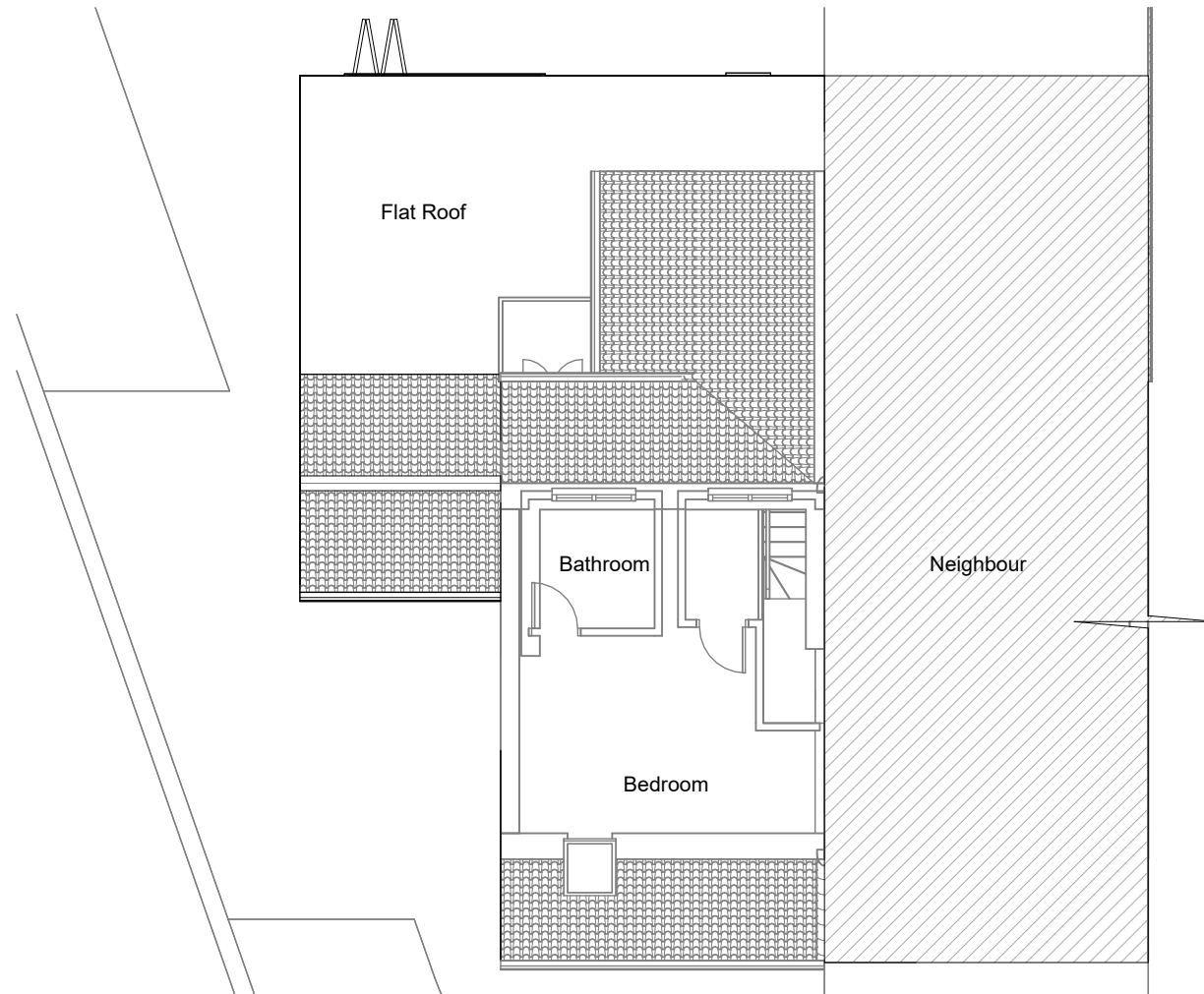
Project:

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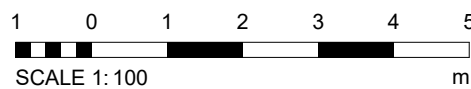
Drawn	Date: 13/01/2026	Scale (at A3): 1 : 100
Drg no.	Revision No. B	



1 Existing Loft
1 : 100

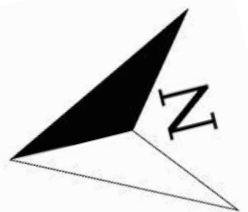


2 Proposed Loft
1 : 100



NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

Loft

Site Address:

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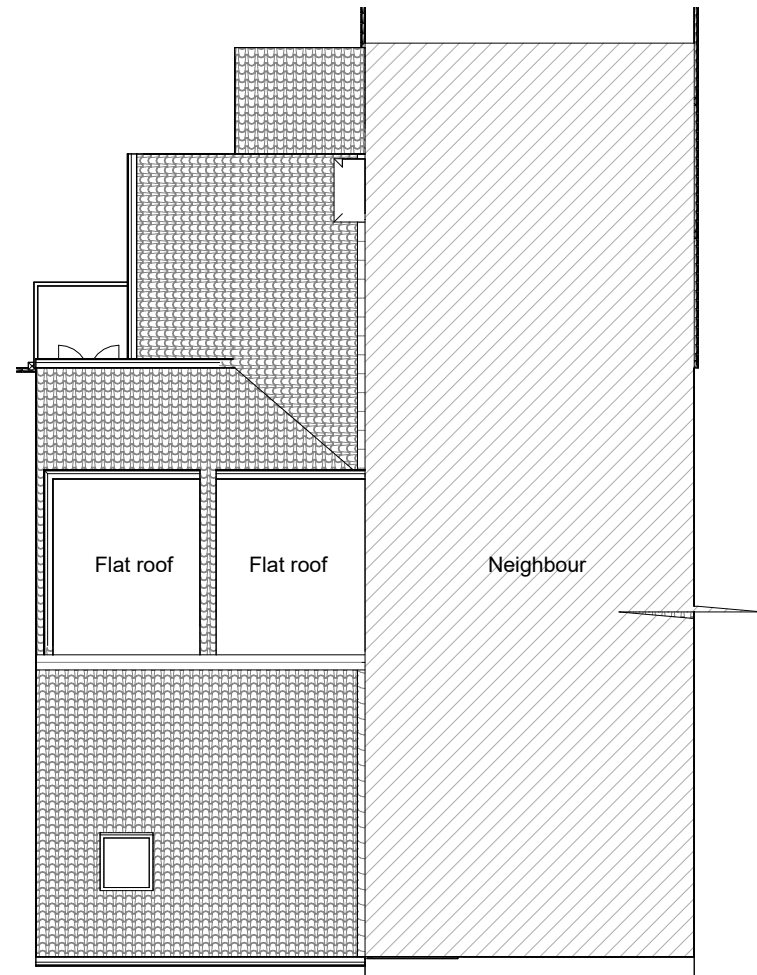
Client:

Jamal Miah

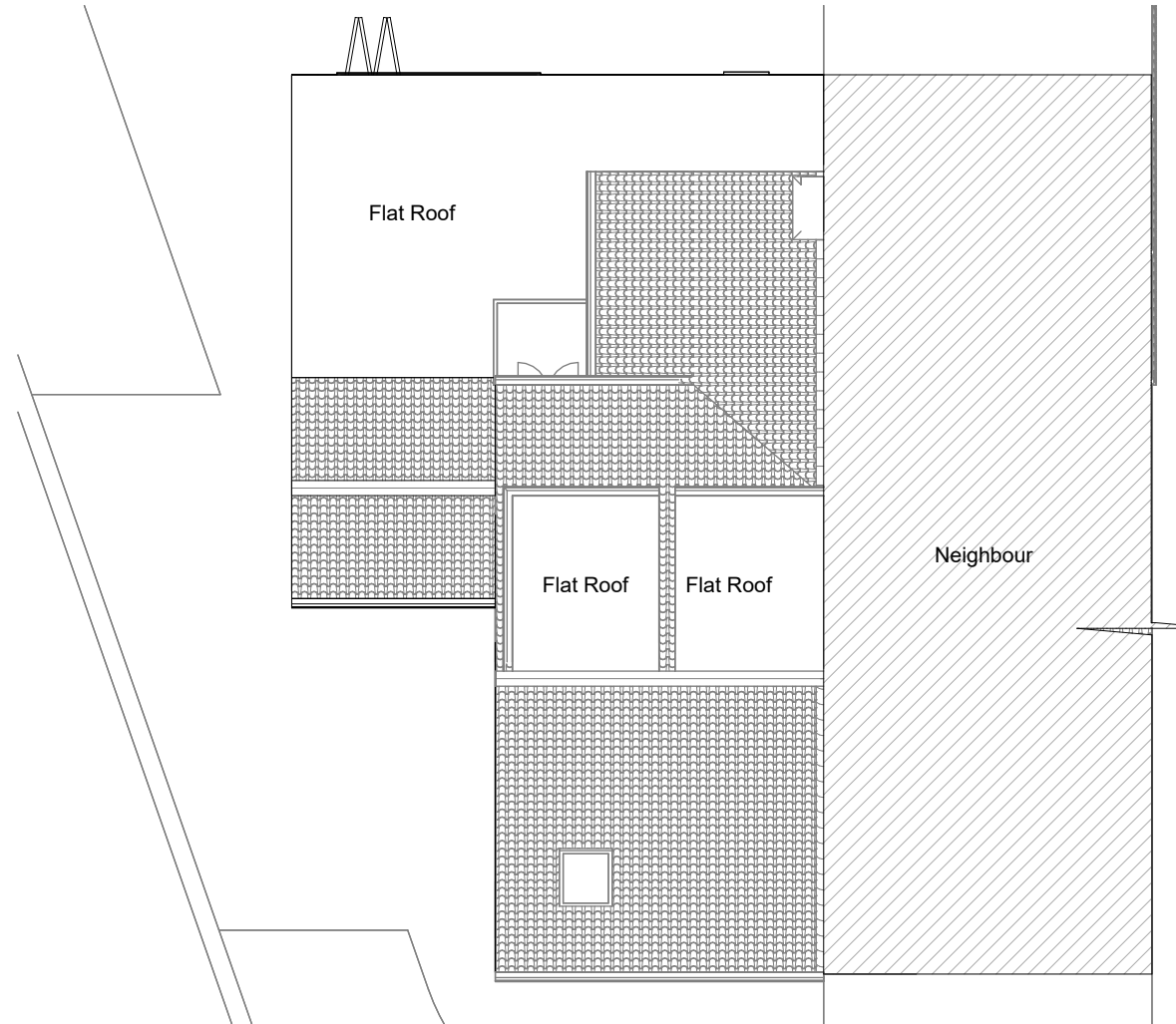
Project:

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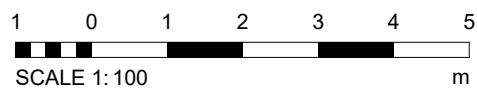
Drawn	Date: 13/01/2026	Scale (at A3): 1 : 100
Drg no.	Revision No. B	



1 Existing Roof
1 : 100



2 Proposed Roof
1 : 100



NOTES:

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Rev	Date	Details Of Issue	Initials
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Status
Roof

Site Address:
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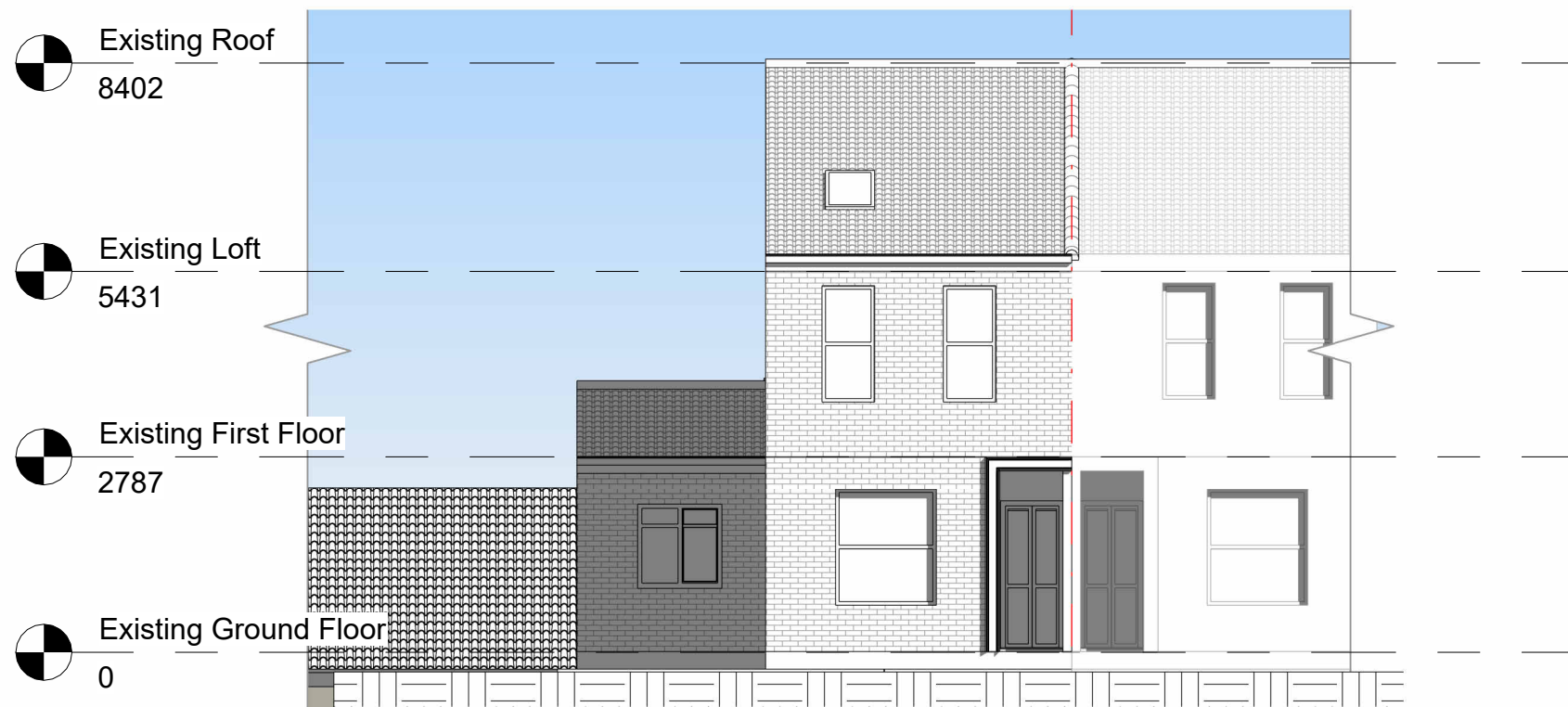
Client:
Jamal Miah

Project:
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Drawn	Date:	Scale (at A3)
Drg no.	13/01/2026	1 : 100
		Revision No. B



1 Existing Front Elevation
1 : 100



2 Proposed Front Elevation
1 : 100



NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

Front Elevation

Site Address:

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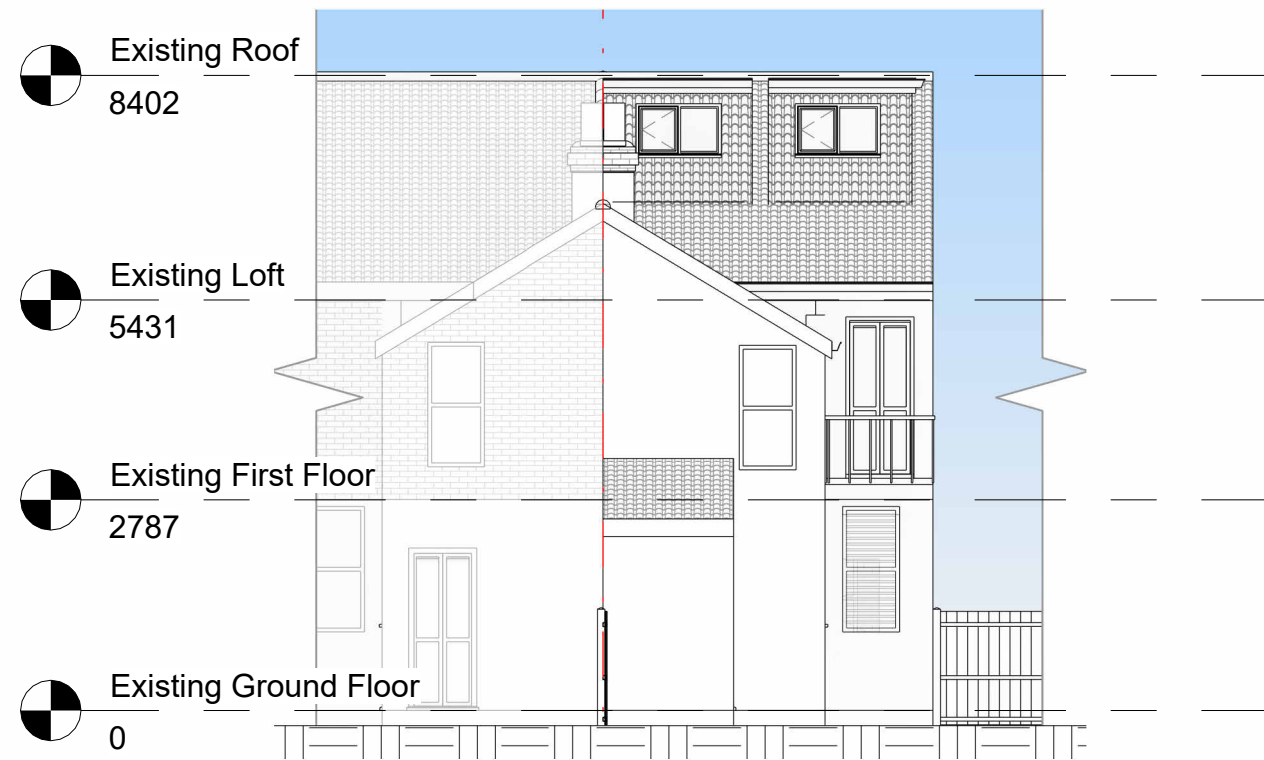
Client:

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Project:

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Drawn	Date: 13/01/2026	Scale (at A3): 1 : 100
Drg no.	Revision No. B	



1 Existing Rear Elevation
1 : 100



2 Proposed Rear Elevation
1 : 100



NOTES:

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Status

Rear Elevation

Site Address:

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Client:

Jamal Miah

Project:

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Drawn	Date: 13/01/2026	Scale (at A3): 1 : 100
Drg no.	Revision No. B	



1 Existing Left Elevation
1 : 100



2 Proposed Left Elevation
1 : 100

1 0 1 2 3 4 5
SCALE 1:100 m

NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

Left Elevation

Site Address:

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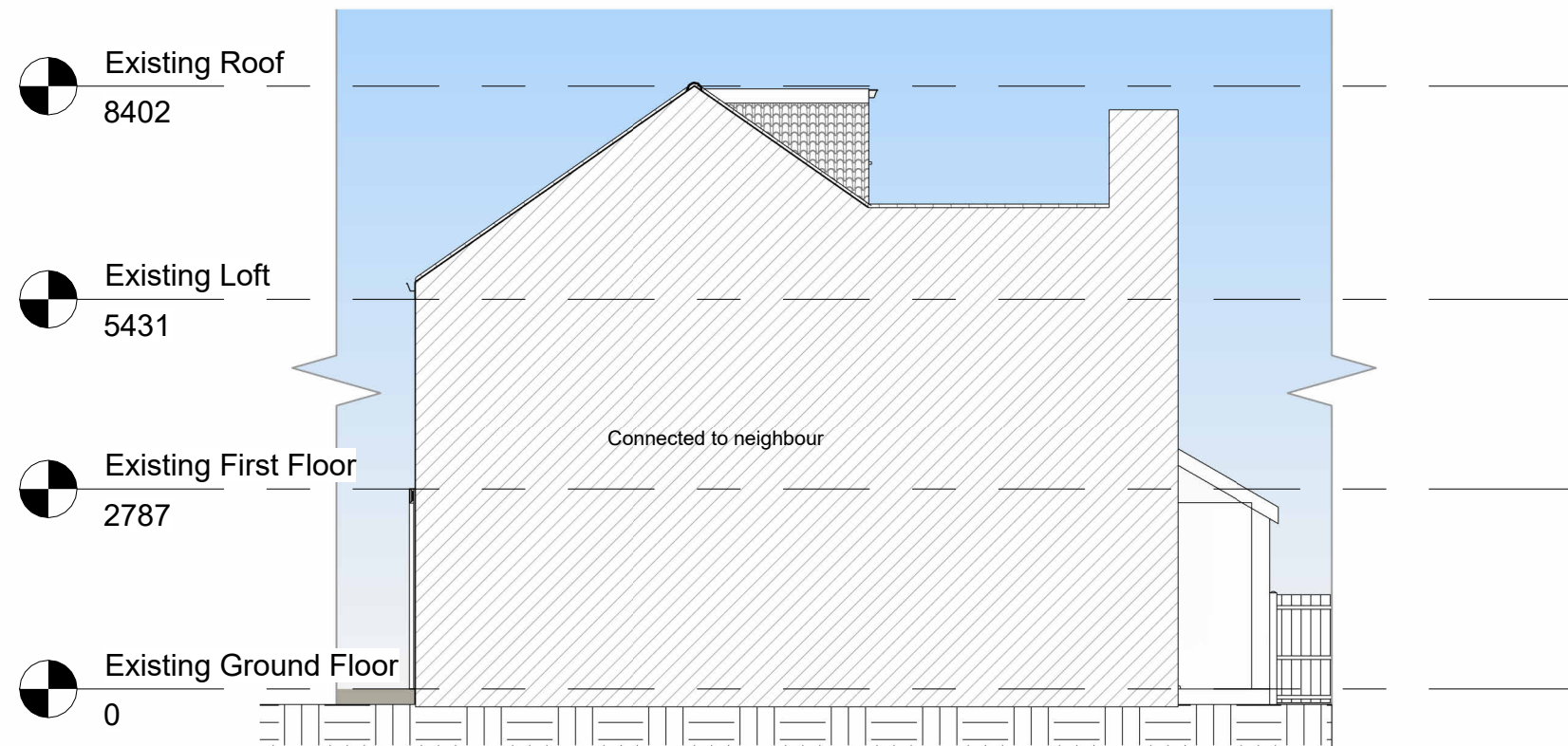
Client:

Jamal Miah

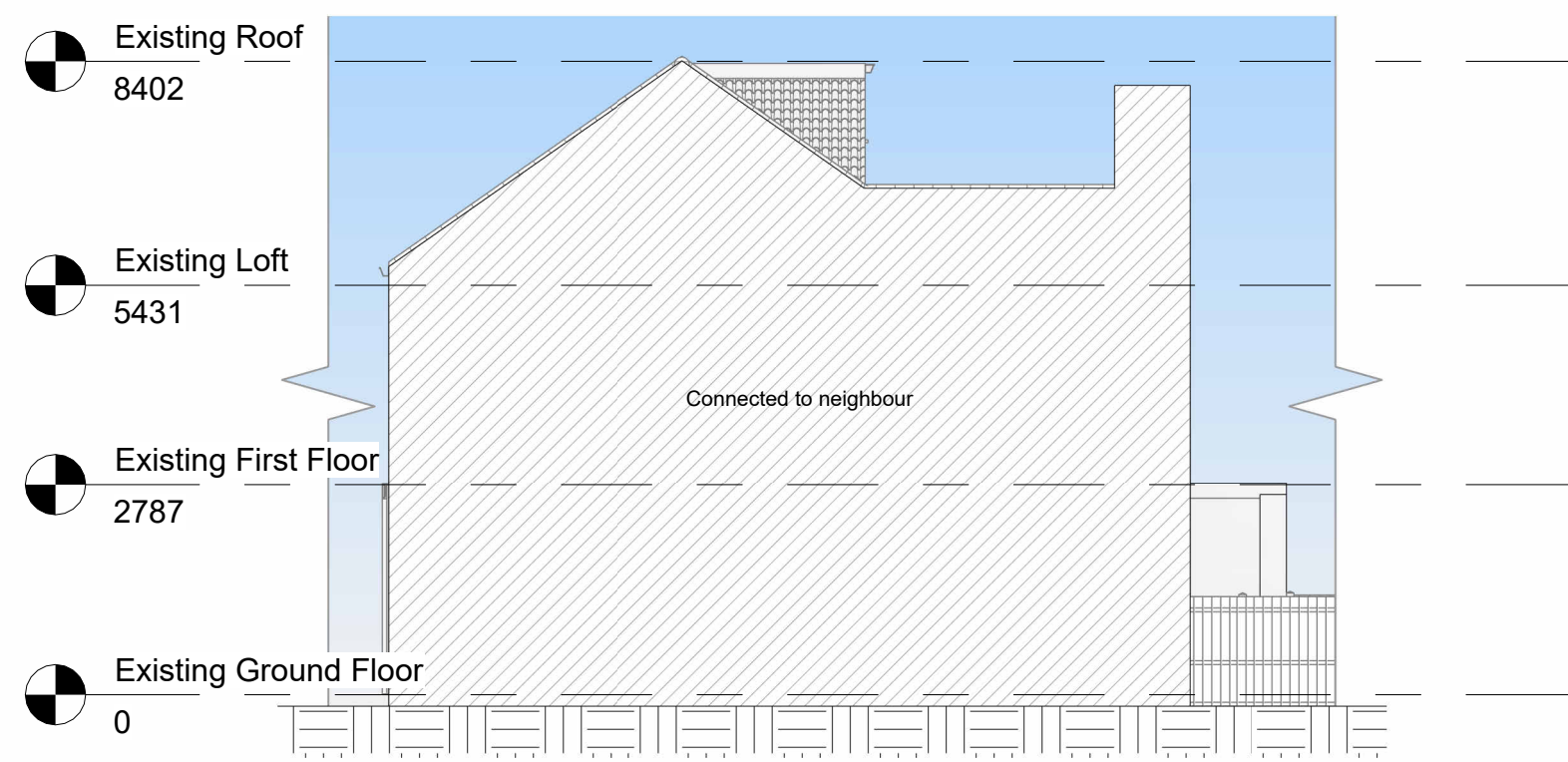
Project:

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Drawn	Date:	Scale (at A3)
Drg no.	13/01/2026	1 : 100
		Revision No. B



1 Existing Right Elevation
1 : 100



2 Proposed Right Elevation
1 : 100



NOTES:

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Rev	Date	Details Of Issue	Initials

Status

Right Elevation

Site Address:

18 Clarendon Road,
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Client:

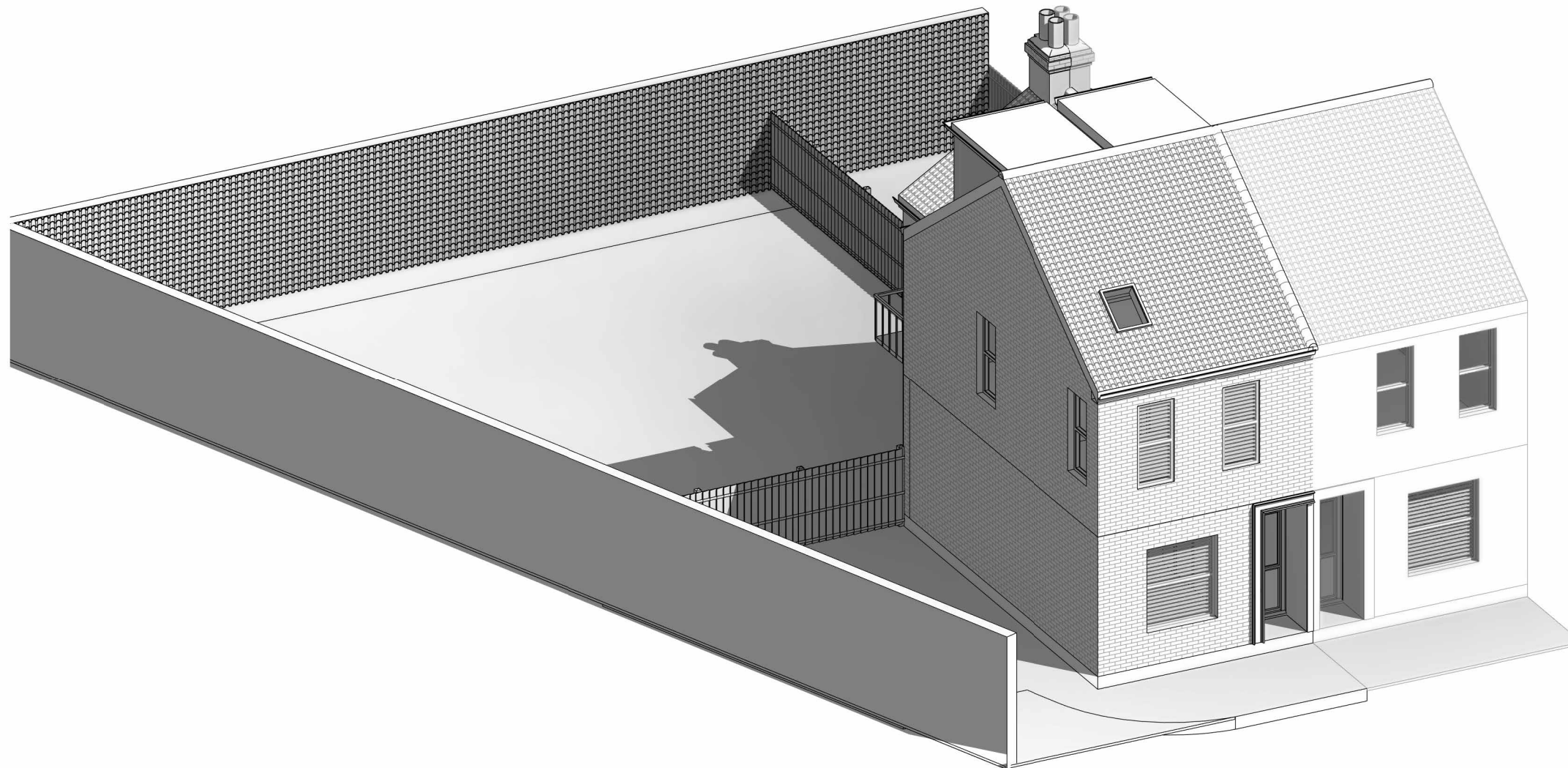
Jamal Miah

Project:

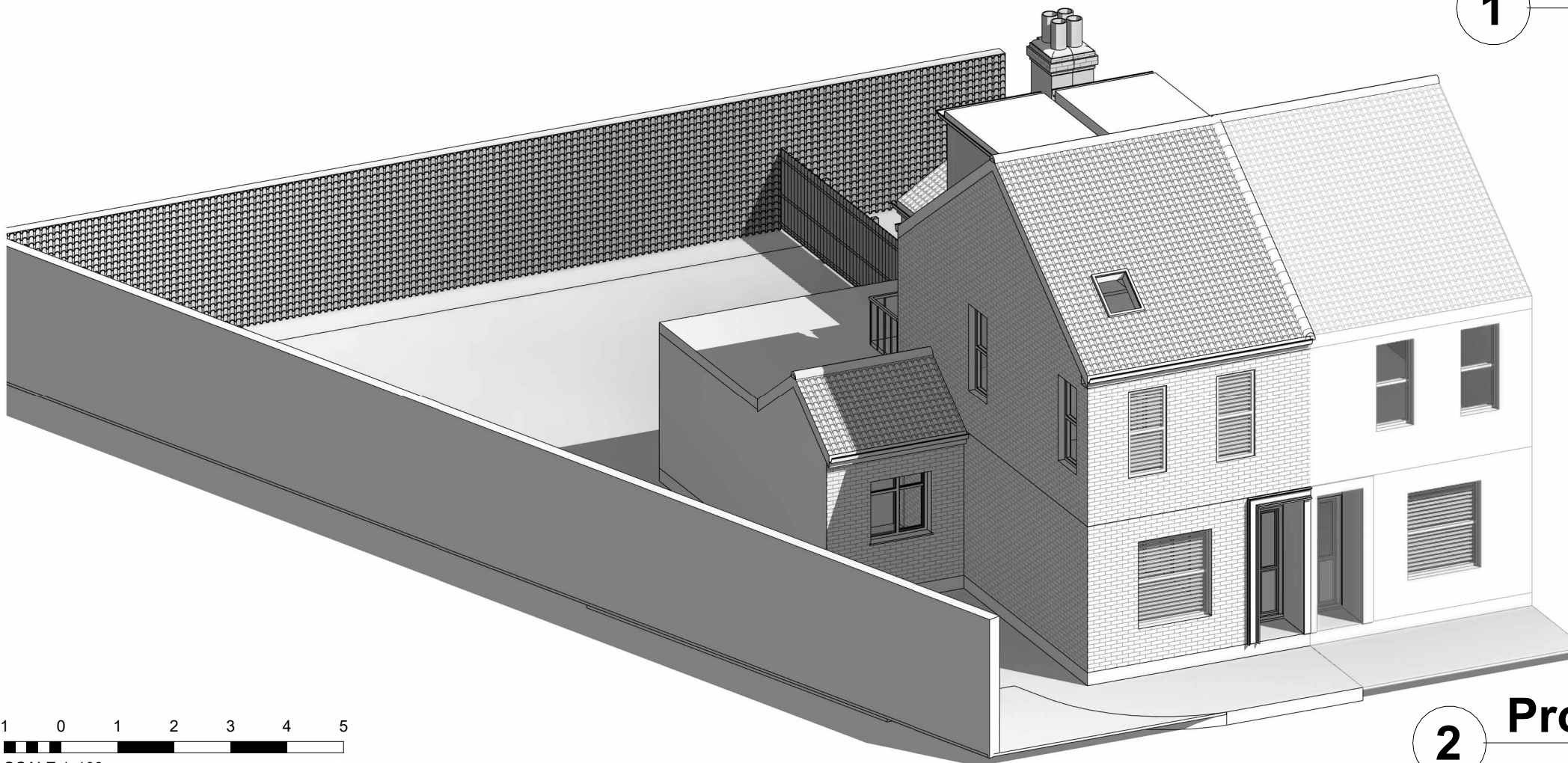
18 Clarendon Road, Gravesend
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Drawn	Date:	Scale (at A3)
	13/01/2026	1 : 100

Drg no.	Revision No.
	B



1 Existing 3d Front



2 Proposed 3d Front



NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

3d Front

Site Address:

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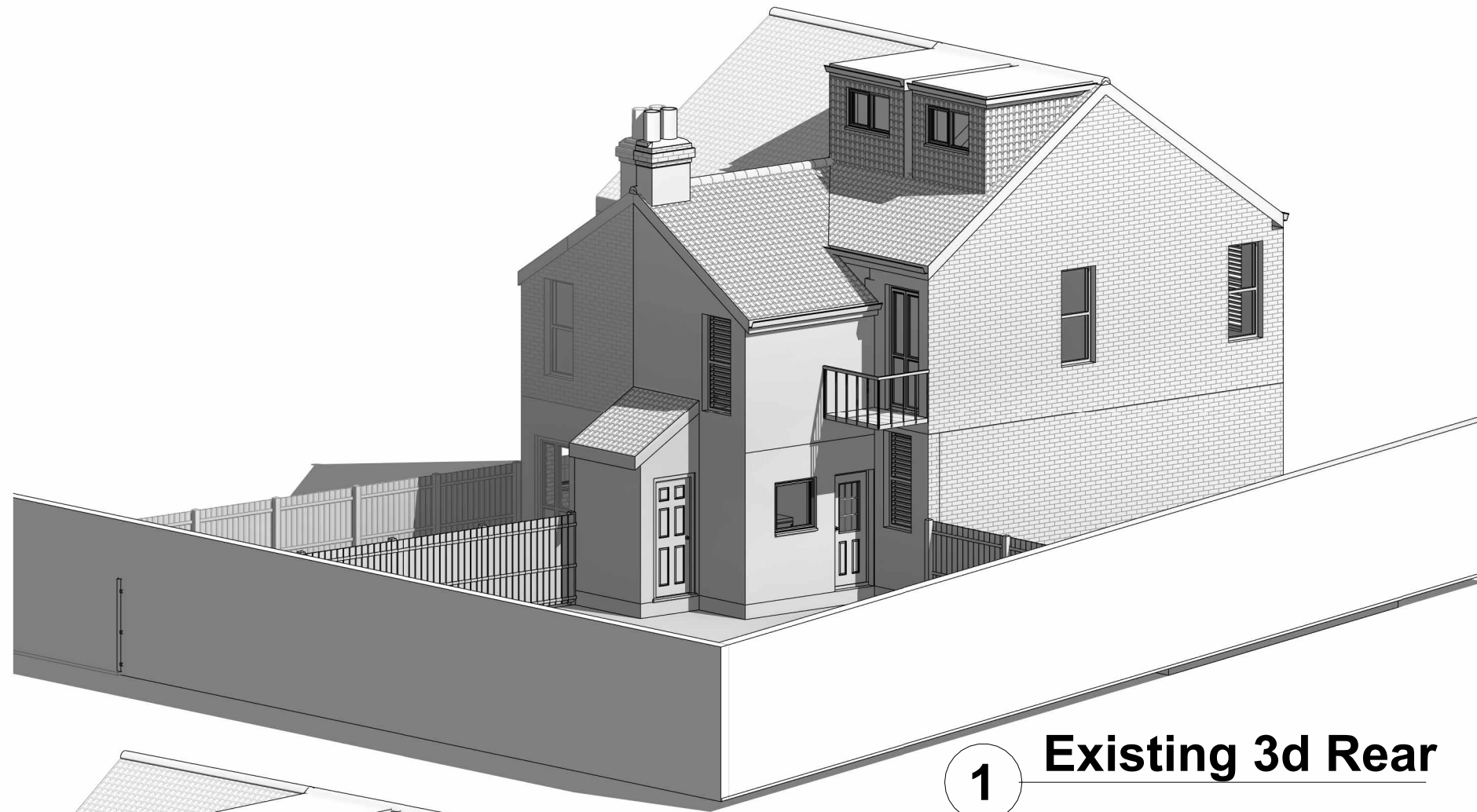
Client:

Jamal Miah

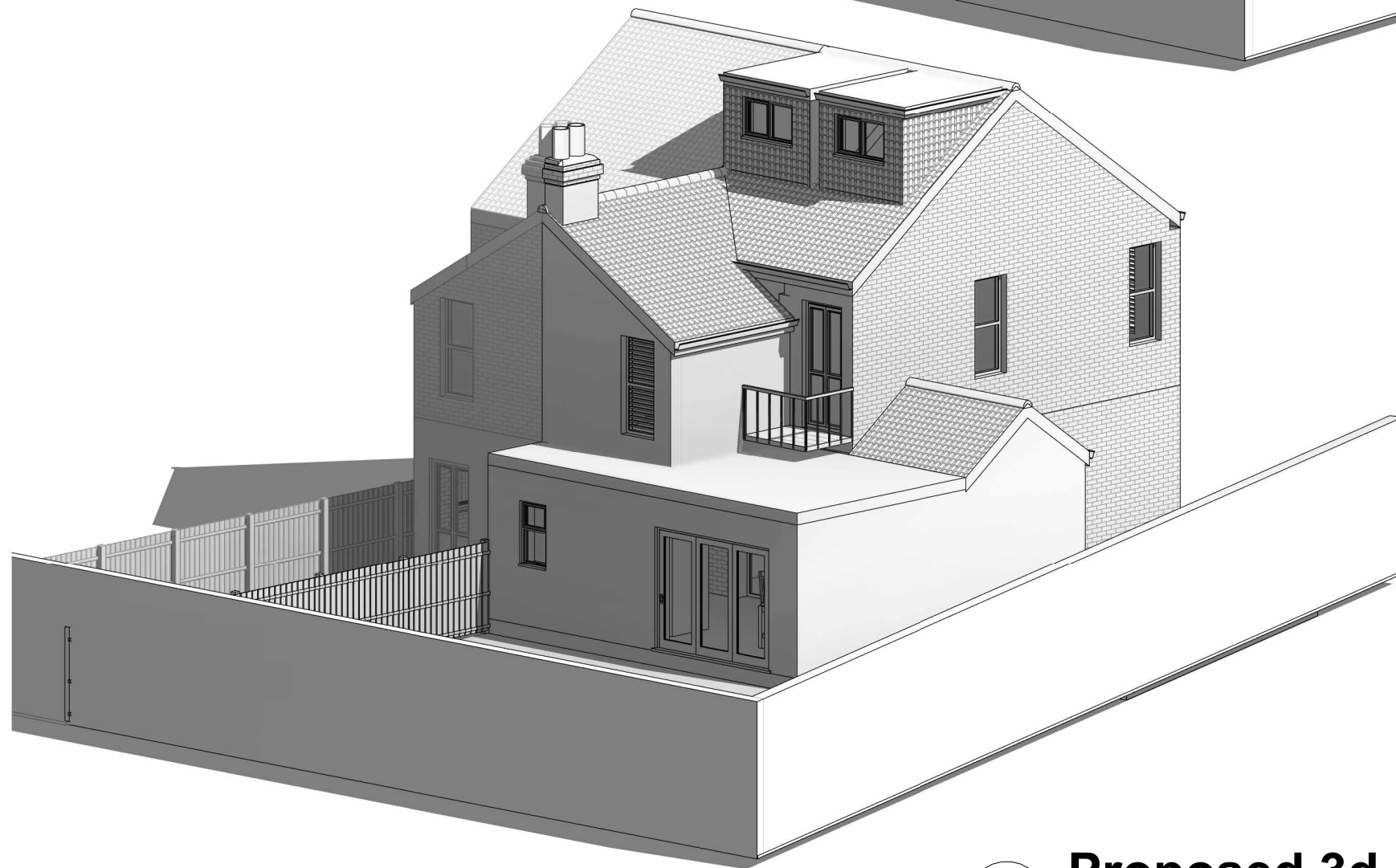
Project:

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DA12 2BP

Drawn	Date: 13/01/2026	Scale (at A3)
Drg no.		Revision No. B



1 Existing 3d Rear



2 Proposed 3d Rear

1 0 1 2 3 4 5
SCALE 1: 100 m

NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

3d Rear

Site Address:

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Gravesend DA12 2BP

Client:

Jamal Miah

Project:

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Drawn	Date: 13/01/2026	Scale (at A3)
Drg no.	Revision No. B	



1 Existing Section 1
1 : 100



2 Proposed Section 1
1 : 100



NOTES:

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Rev	Date	Details Of Issue	Initials
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Status

Sections

Site Address:

18 Clarendon Road,
Gravesend DA12 2BP

Client:

Jamal Miah

Project:

18 Clarendon Road, Gravesend
DA12 2BP

Drawn	Date: 13/01/2026	Scale (at A3): 1 : 100
Drg no.	Revision No. B	

Appendix B

Flood map for planning

Your reference	Location (easting/northing)	Created
Unspecified	565152/174386	16 December 2025 09:15

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see <https://www.gov.uk/guidance/flood-risk-assessment-standing-advice>)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2025 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)
565152/174386

Scale
1:2,500

Created
16 Dec 2025 09:15

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area



0 20 40 60m

Appendix C

Annex 3: Flood Risk Vulnerability Classification	
Essential Infrastructure:	• Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk. • Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood. • Wind turbines. • Solar farms.
Highly Vulnerable:	• Police and ambulance stations; fire stations and command centres; telecommunications installations required to be operational during flooding. • Emergency dispersal points. • Basement dwellings. • Caravans, mobile homes and park homes intended for permanent residential use. • Installations requiring hazardous substances consent. (Where there is a demonstrable need to locate such installations for bulk storage of materials with port or other similar facilities, or such installations with energy infrastructure or carbon capture and storage installations, that require coastal or water-side locations, or need to be located in other high flood risk areas, in these instances the facilities should be classified as 'Essential Infrastructure'.)
More Vulnerable: * Landfill is as defined in Schedule 10 of the Environmental Permitting (England and Wales) Regulations 2010	• Hospitals. • Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels. • Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels. • Non-residential uses for health services, nurseries and educational establishments. • Landfill* and sites used for waste management facilities for hazardous waste. • Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable:	• Police, ambulance and fire stations which are not required to be operational during flooding. • Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure. • Land and buildings used for agriculture and forestry. • Waste treatment (except landfill* and hazardous waste facilities). • Minerals working and processing (except for sand and gravel working). • Water treatment works which do not need to remain operational during times of flood. • Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place. • Car parks.
Water-Compatible Development:	• Flood control infrastructure. • Water transmission infrastructure and pumping stations. • Sewage transmission infrastructure and pumping stations. • Sand and gravel working. • Docks, marinas and wharves. • Navigation facilities. • Ministry of Defence installations. • Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. • Water-based recreation (excluding sleeping accommodation). • Lifeguard and coastguard stations. • Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. • Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.

National Planning Policy Framework Annex 3: Flood risk vulnerability classification