

AMBIENTAL

ENVIRONMENTAL ASSESSMENT

Flood Risk Assessment 6351

3-4 Selborne Place,
Selborne Road,
Littlehampton
West Sussex,
BN17 5NH

Ambiental Environmental Assessment
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Site Location: 3-4 Selborne Place, Selborne Road, Littlehampton, West Sussex BN17 5NH

Proposed Development: Change of Use from A3 Restaurant / A4 Drinking Establishment to C3 Dwelling Houses

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1. Summary

- 1.1 Ambiental Environmental Assessment has been appointed to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at 3-4 Selborne Place, Selborne Road, Littlehampton, West Sussex BN17 5NH.
- 1.2 The application site comprises of both No. 3 and No. 4 Selborne Place. The first and second floors of are currently used as flats and are covered within the C3 planning use class. The ground floor of No. 3 is occupied by the Vardar restaurant and the ground floor area of No. 4 is occupied by the VIP club.
- 1.3 The ground floor areas will be converted to become 6no. flats (5 no. 1bed and 1 no. 2bed units). The northern external hard standing will remain as car parking for residents and the rear (southern) garden area will become a communal amenity space for all residential units within the building.
- 1.4 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 3.
- 1.5 Under the principles of the NPPF the previous uses on site would be considered to be 'Less Vulnerable' (restaurant) and 'More Vulnerable' (drinking establishment). The proposed development is for the conversion of the restaurant and club to provide residential use, and therefore the vulnerability classification would be 'More Vulnerable'.
- 1.6 The EA supplied defended tidal flood mapping shows the site to be outside of the modelled flood extent for the 'Present Day' 0.5% AEP and 0.1% AEP tidal flood event and the 0.5% AEP tidal flood event for the 2065 epoch. The site has been shown to partially be affected by the defended 0.5% AEP 2115 tidal flood event.
- 1.7 It is understood that that in the absence of defence breach modelling, the 1:200 year+CC undefended event should be used as the design flood level to inform the risk and mitigation strategy. The December 2019 climate change allowance/ sea level guidance should also be considered.
- 1.8 For reference, the 1:200 year present day (2017) undefended flood level for the site is 3.74mAOD. Based on the latest guidance (December 2019), for the southeast region, a Higher Central (HC) scenario would represent a 1.20m increase in sea levels; an Upper End (UE) scenario would represent a 1.60m increase in sea levels; and a High++ (H++) scenario would represent a 2.19m increase in sea levels. As such, the 1:200 year HC (2125) undefended flood level for the site is 4.94mAOD, the 1:200 year UE (2125) undefended flood level is 5.34mAOD and the 1:200 year H++ (2125) undefended flood level is 5.93mAOD.
- 1.9 The existing building is currently raised above external ground levels by 340mm. Using external reference points (LiDAR), the estimated FFL is set at 3.75mAOD. The ramp access and FFL is to be retained post-development. As such, the ground floor could experience flood depths of up to 1.19m in the 1:200 year HC (2125) event.
- 1.10 The client has confirmed that internal access will be maintained from the ground floor unit up to the first floor. As such, emergency safe refuge could be sought at the first floor in a worst-case event where prior evacuation is not possible. The first floor is set 2.7m above the ground floor finished floor level at 6.45mAOD, approximately 1.51m above the 1:200 year HC (2125) undefended flood level.
- 1.11 The controlling residual flood risk mechanism on site is tidal. Tidal flooding is generally caused by low pressure weather systems creating storm-surges (or storm tides), chiefly via high speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' of water which, if it coincides with high tide, can

generate very high, stormy, water levels. However, because this mechanism is well understood, it is very likely that an early warning will be issued before such an event strikes.

1.12 Section 9.4.1 of the Arun SFRA (2016) states that the lead time for EA Flood Warnings are at least 2 hours, with the aim to provide warnings up to 24 hours in advance for the area of Littlehampton. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning. In a worst-case breach event, emergency safe refuge could be sought at the first floor on site.

1.13 Following the guidelines contained within the NPPF, and given that:

- The development is for the change of use of the existing building within a developed area.
- The development could be considered “More Vulnerable” under the NPPF.
- The site is located in an area that benefits from the presence of flood defences and is within a ‘Hold the Line’ policy unit on the Shoreline Management Plan.
- Internal access will be maintained from the ground floor residential uses to the first floor, which will be above the 1:200 year H++ (2125) undefended flood level.
- The site is located within an EA Flood Warning Area and within an area of tidal flood risk, which could provide sufficient warning to enable prior evacuation.
- Residents to sign up to the EA Flood Warning systems and monitor weather warnings regularly during periods of bad weather.

1.14 Following the guidelines contained within the NPPF, the proposed development is considered to be suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

Development Description	Existing	Proposed
Development Type:	Ground floor shop and club, existing residential first and second floors.	Conversion to residential use
Number of Bedrooms:	N/A ¹	N/A ¹
EA Vulnerability Classification:	Shop – Less Vulnerable Club – More Vulnerable	Residential – More Vulnerable
Ground Floor Level:	Topographic levels on site vary between approximately 3.15mAOD and 3.60mAOD (EA 2m LiDAR data).	No change
Level of Sleeping Accommodation:	N/A	Ground Floor and above
Impermeable Surface Area:	N/A ¹	No change
Surface Water Drainage:	N/A ¹	Change of use – Recommended the discharge surface water runoff as per the existing situation.
Built Footprint:	N/A ¹	N/A ¹
Risk to Development	Summary	Comment
EA Flood Zone:	3	
Flood Source:	Tidal	English Channel
1:200 Year Flood Level:	Defended: Unaffected Un defended: 3.74mAOD	All levels taken from: Arun to Adur Coastal Modelling (2012) with updated defended modelling (2017). Un defended Higher Central level includes Dec 2019 Climate Change.
1:200 Year Flood Level 2115 epoch (Higher Central):	Defended: 3.58mAOD Un defended: 4.94mAOD	
1:1000 Year Flood Level:	Defended: Unaffected Un defended: 4.05mAOD	
Recorded Flood Events in Area:	Yes	
Recorded Flood Events at Site:	No	
SFRA Available:	Yes	Arun District Council SFRA (2016)
Management Measures	Summary	Comment
Ground floor level above extreme flood levels:	No	Internal access from ground to first floor to be maintained to allow for emergency refuge on site in worst case breach/ un defended event. Additional flood resilience measures recommended to be incorporated into the existing dwelling.
Safe Access/Egress Route:	Yes	In combination with EA Flood Warnings
Flood Resilient Design:	Yes	Flood Resilience measures recommended to be incorporated into the existing dwelling.
Site Drainage Plan:	N/A ¹	Recommended the discharge surface water runoff as per the existing situation.
Flood Warning & Evacuation Plan:	Yes	EA Flood Alert and Warning Service
Offsite Impacts	Summary	Comment
Displacement of floodwater:	No	No increase in built footprint
increase in surface run-off generation:	No	Recommended the discharge surface water runoff as per the existing situation.
Impact on hydraulic performance of channels:	No	Does not affect channels

Table 1: Summary of flood risks, impacts and proposed flood mitigation measures.

N/A¹ not required for this assessment; N/A² data not available.

2. Development Description and Site Area

Proposed Development and Location

- 2.1 The proposed development is located at 3-4 Selborne Place, Selborne Road, Littlehampton, West Sussex BN17 5NH (Figure 1 and Figure 2).
- 2.2 The application site comprises of both No. 3 and No. 4 Selborne Place. The first and second floors of are currently used as flats and are covered the C3 planning use class. The ground floor of No. 3 is occupied by the Vardar restaurant and the ground floor area of No. 4 is occupied by the VIP club.
- 2.3 The ground floor areas will be converted to become 6no. flats (5 no. 1bed and 1 no. 2bed units). The northern external hard standing will remain as car parking for residents and the rear (southern) garden area will become a communal amenity space for all residential units within the building.
- 2.4 Topographic levels on site vary between approximately 3.15mAOD and 3.60mAOD (EA 2m LiDAR data). Analysis of the topographic levels indicates that the site relatively flat.

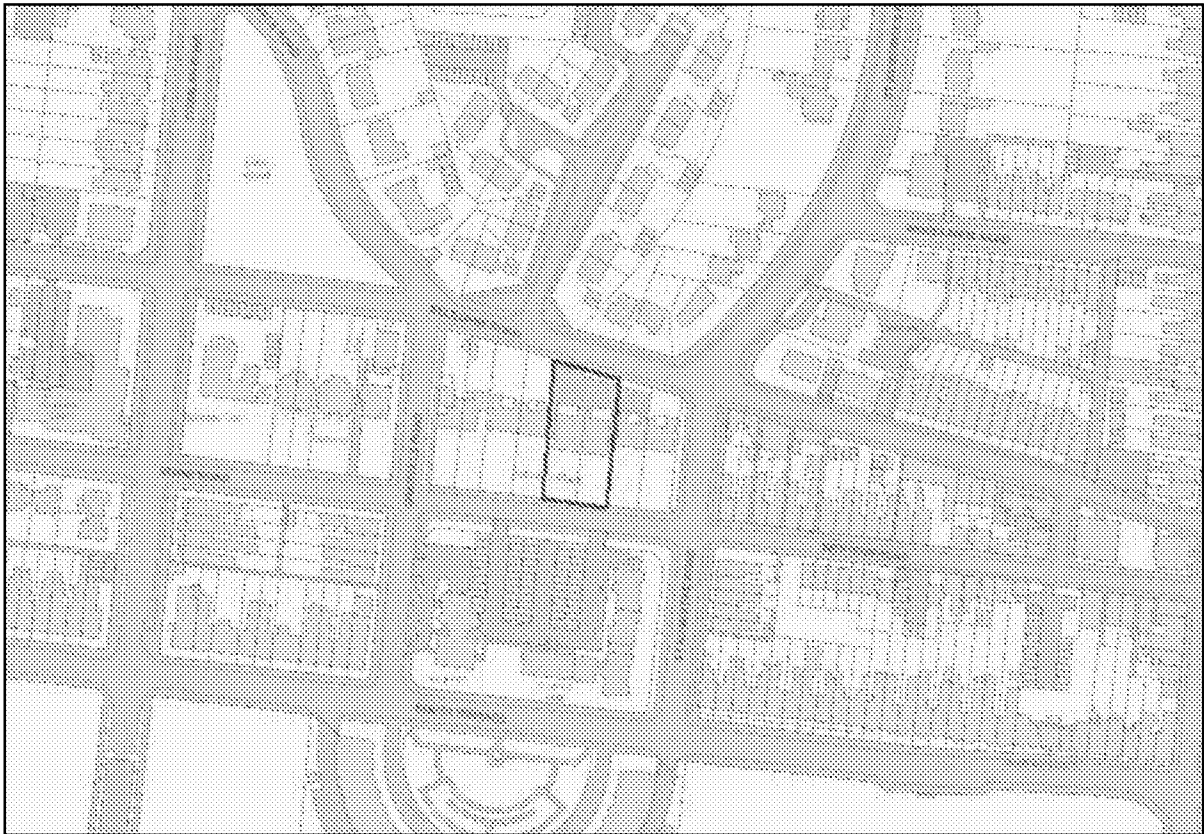


Figure 1: Location Map, identifying the location of the proposed development (Source: OS)



Figure 2: Aerial Map, identifying the location of the proposed development (Source: Google)

Vulnerability Classification

- 2.5 The EA Flood Map for Planning (Figure 3) demonstrates that the proposed development lies within Tidal Flood Zone 3 with a high probability of greater than 1 in 200 (0.5%) of flooding from seas or tidal estuaries in any year. The Arun District Council SFRA (2016) further specifies the site to be contained within Flood Zone 3a. The EA have indicated that there are flood defences within proximity of the site in the form of a wall, with an estimated standard of protection of 1:300 year years (0.3% AEP).
- 2.6 Under the principles of the NPPF the previous uses on site would be considered to be 'Less Vulnerable' (restaurant) and 'More Vulnerable' (drinking establishment). The proposed development is for the conversion of the restaurant and club to provide residential use, and therefore the vulnerability classification would be 'More Vulnerable'.

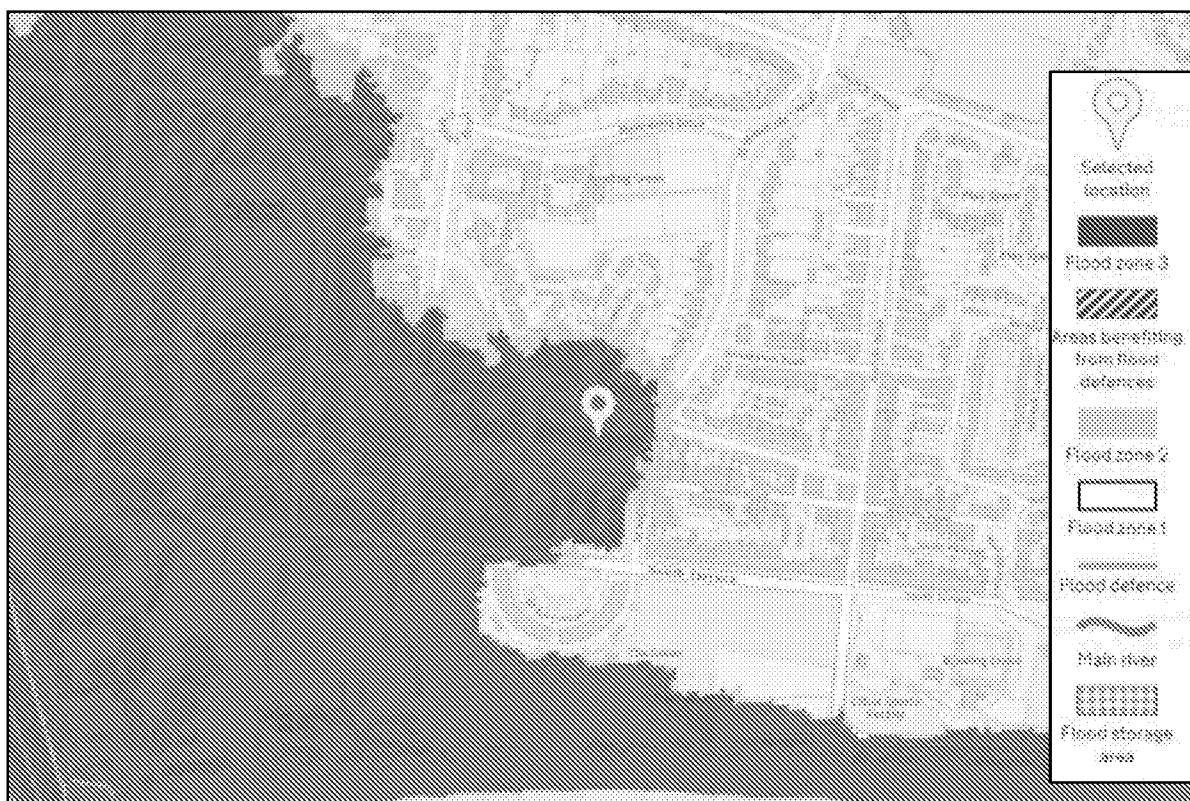


Figure 3: EA Flood Map for Planning (Source: EA)

Geology

- 2.7 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the bedrock underlying the site is Lewes, Seaford, Newhaven, Culver and Portsdown Chalk Formations comprising chalk.
- 2.8 The British Geological Survey (BGS) Geology of Britain Viewer indicates that the superficial deposits underlying the site are Raised Beach Deposits comprising sand and gravel.

3. Sequential Test/Exception Test

- 3.1 Under the NPPF, all new planning applications should undergo a *Sequential Test*. This test should be implemented by local planning authorities with a view to locating particularly vulnerable new developments (e.g. residential, hospitals, mobile homes etc.) outside of the floodplain.
- 3.2 The NPPF *Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table* is reproduced below;

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception Test Required	✓	✓
Zone 3a	Exception Test Required	✓	✗	Exception Test Required	✓
Zone 3b Functional Floodplain	Exception Test Required	✓	✗	✗	✗

Table 2: The Sequential Test: Flood Risk Vulnerability and Flood Zone 'Compatibility' Table as specified by NPPF.
 Please note: ✓ means development is appropriate; ✗ means the development should not be permitted.

- 3.3 Using the principles of the Sequential Test outlined above, the proposed development is "More Vulnerable" and located within Flood Zone 3a (as defined by the Adur District SFRA) and as such, under the NPPF, this development would require implementation of the Exception Test.
- 3.4 However, the NPPF (paragraph 164) states that:
- Applications for some minor development and **changes of use** should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote.*
- 3.5 However, NPPF policy requires all development within a flood zone to be accompanied by an FRA which shows that the development can be achieved in a sustainable manner, with an overall reduction of flood risk to the site and surrounding area.

4. Site Flood Hazards

Sources of Flooding

- 4.1 The proposed development is located within Flood Zone 3 (high risk of flooding) and is considered to be 'More Vulnerable' according to NPPF guidelines. Table 3 summarises the potential sources of flooding to the site:

Source	Description
Tidal	English Channel
Surface	Low risk
Groundwater	Low to moderate risk of groundwater flooding on site
Sewer	Low risk of sewer flooding on site

Table 3: Summary of flood sources.

Mechanisms and History of Flooding

- 4.2 The EA Flood Map for Planning demonstrates the site to be located within Flood Zone 3 (high risk of flooding). It is important to note that the EA Flood Map for Planning shows only the potential floodplain; the mitigating effects of any flood defences currently in place are not considered. However, the EA have indicated that there are flood defences within proximity of the site in the form of a wall, with an estimated standard of protection of 1:300 year years (0.3% AEP).

Tidal

- 4.3 The EA Flood Map for Planning (Figure 3) indicates that the proposed development site is located within Flood Zone 3 which has a greater than 1 in 200 (0.5%) probability of flooding from seas or tidal estuaries in any year. Furthermore, the Arun District Council SFRA (2016) indicates that the site is located within Flood Zone 3a (Figure 4).
- 4.4 The site is approximately 285m north of the Mean High-Water Line of the English Channel and the River Arun is located approximately 550m to the west.
- 4.5 The EA supplied defended tidal flood mapping shows the site to be outside of the modelled flood extent for the 'Present Day' 0.5% AEP and 0.1% AEP tidal flood event and the 0.5% AEP tidal flood event for the 2065 epoch. The site has been shown to partially be affected by the defended 0.5% AEP 2115 tidal flood event (Figure 5).
- 4.6 Therefore, under normal operational conditions, for the baseline scenario the site benefits from flood defences and is at relatively low risk of tidal flooding.
- 4.7 The current EA models represent the present-day scenario (with flood defences in place). Given that the Shoreline Management Plan shows there to be a long term 'Hold the line' policy in the area, it is assumed that the current level of protection will be maintained for the lifetime of the development. It should be noted that the Shoreline Management Plans are currently not funded and there is no guarantee that the defences will be maintained.

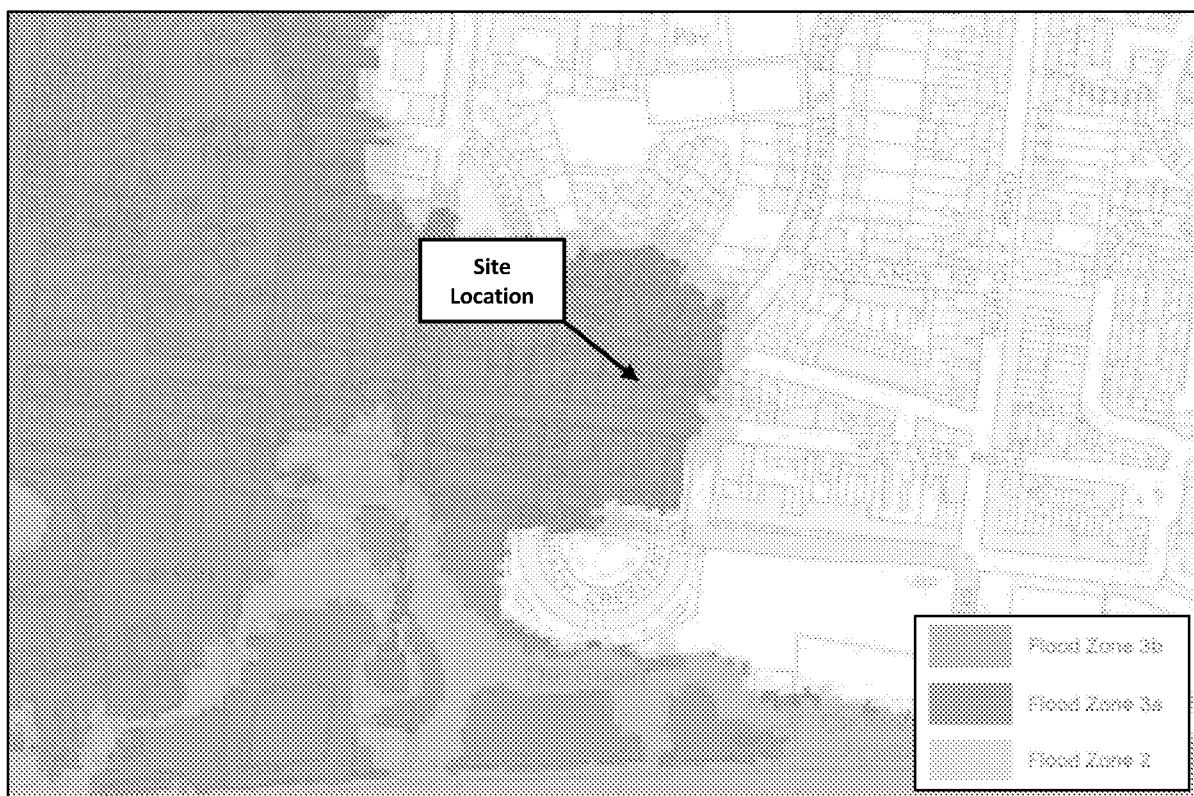


Figure 4: Flood Zone Map (Source: Arun District Council SFRA, 2016)

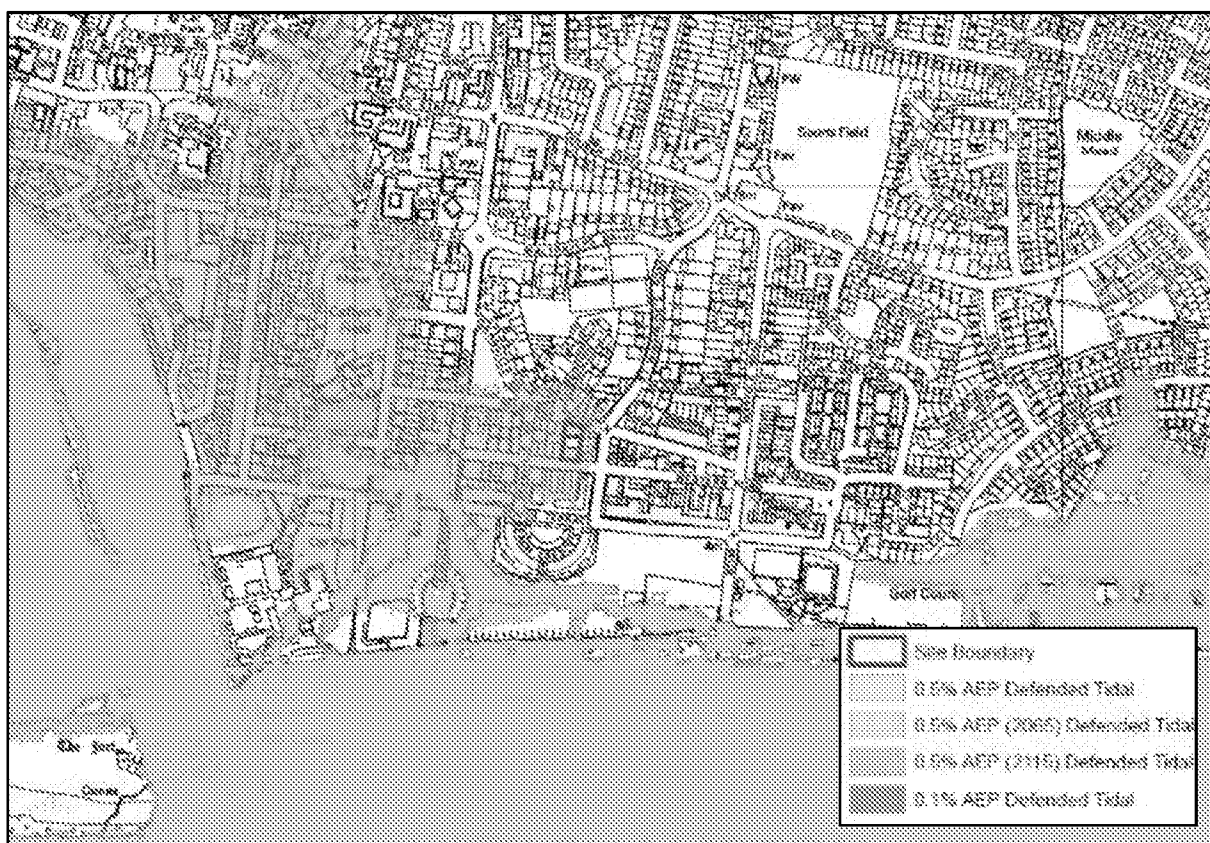


Figure 5: Modelled Deferred Flood Extents (Source: EA)

4.8 It is understood that that in the absence of defence breach modelling, the 1:200 year+CC undefended event should be used as the design flood level to inform the risk and mitigation strategy. The December 2019 climate change allowance/ sea level guidance should also be considered.

- 4.9 For reference, the 1:200 year present day (2017) undefended flood level for the site is 3.74mAOD. Based on the latest guidance (December 2019), for the southeast region, a Higher Central (HC) scenario would represent a 1.20m increase in sea levels; an Upper End (UE) scenario would represent a 1.60m increase in sea levels; and a High++ (H++) scenario would represent a 2.19m increase in sea levels. As such, the 1:200 year HC (2125) undefended flood level for the site is 4.94mAOD, the 1:200 year UE (2125) undefended flood level is 5.34mAOD and the 1:200 year H++ (2125) undefended flood level is 5.93mAOD.
- 4.10 The existing building is currently raised above external ground levels by 340mm. Using an external reference points (LiDAR), the estimated FFL is set at 3.75mAOD. The ramp access and FFL is to be retained post-development. As such, the ground floor could experience flood depths of up to 1.19m in the 1:200 year HC (2125) event.
- 4.11 The client has confirmed that internal access will be maintained from the ground floor unit up to the first floor. As such, emergency safe refuge could be sought at the first floor in a worst-case event where prior evacuation is not possible. The first floor is set 2.7m above the ground floor finished floor level at 6.45mAOD, approximately 1.51m above the 1:200 year HC (2125) undefended flood level.
- 4.12 Furthermore, given that the site is located in an EA Flood Warning Area and given the nature of tidal flooding, it is likely that sufficient warning could be given to site users to enable prior evacuation/ closure of the site before tidal flooding occurs.

Surface Water (Pluvial)

- 4.13 The Environment Agency Flood Risk from Surface Water Map (Figure 6) shows the proposed development to be within an area of 'Very Low' risk of flooding from surface water. There are some small areas of 'Low' risk located along Selborne Road to the north of the site. The following definitions of the annual surface water flood risk labels are given by the EA:
- 'High Risk'; >3.3% AEP (more often than 1 in 30).
 - 'Medium Risk'; 3.3% to 1.1% AEP (between 1 in 30 and 1 in 100).
 - 'Low Risk'; 1% to 0.1% AEP (between 1 in 100 and 1 in 1000).
 - 'Very Low Risk'; <0.1% AEP (less often than 1 in 1000).
- 4.14 The EA Surface Water Flood Depth Maps for the High and Medium Risk Scenarios indicate that the proposed development is not affected in these events. A High-risk scenario is equivalent to the 1:30 year scenario and a Medium risk scenario is equivalent to the 1:100 year scenario. Furthermore, the area to the north, along Selborne Road, would not exceed depths of 300mm.
- 4.15 The EA Surface Water Flood Depth Map for the Low Risk Scenario (Figure 7) indicates that the proposed development site would remain unaffected by flooding. Areas to the north, identified to be at 'Low' risk would not experience flood depths greater than 300mm. The Low risk scenario is equivalent to the 1:1000 year event.
- 4.16 Appendix H of the Arun District Council SFRA maps historic flooding across the District from a range of sources. It can be identified that the closest recorded surface water incident was located approximately 350m west of the proposed development site (Figure 9). There are no records provided that indicate the site has been previously affected by flooding from this source.
- 4.17 Based on the above analysis, the flood risk from surface water can be considered to be relatively low and no specific mitigation measures are proposed.

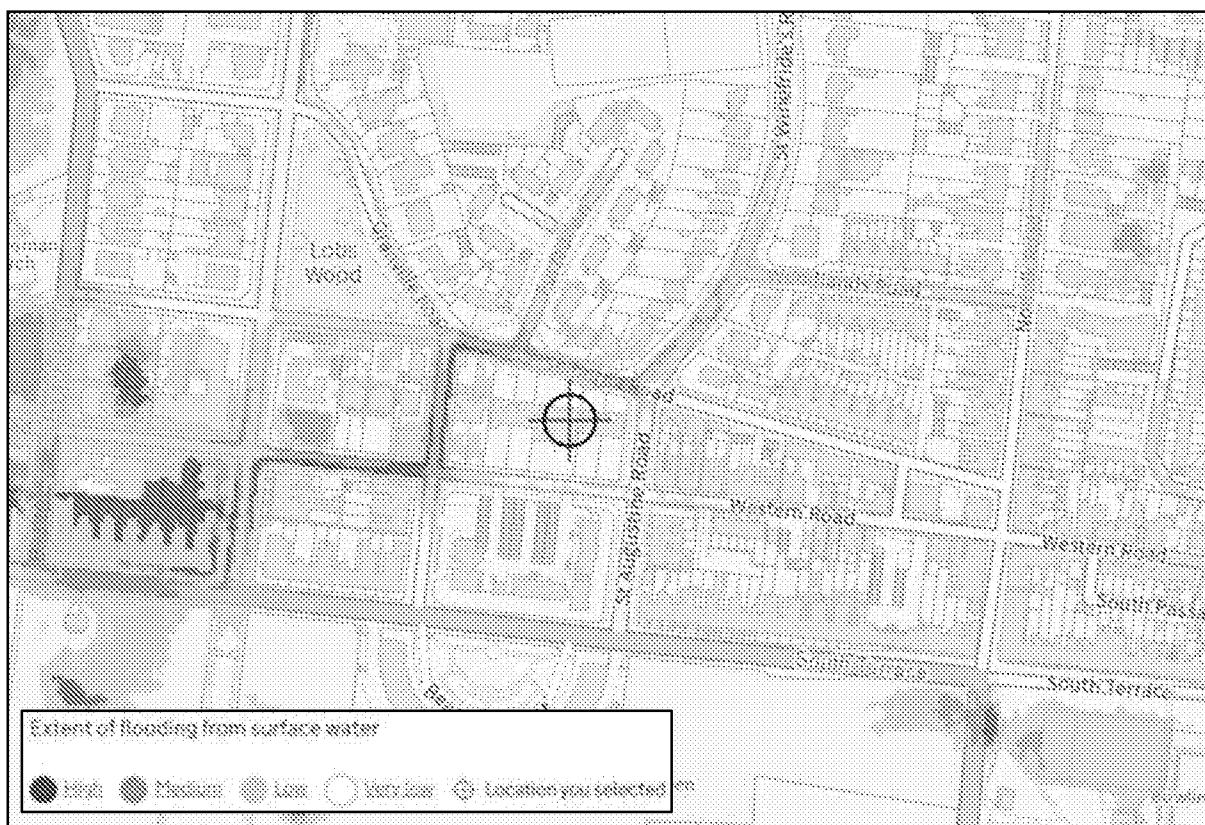


Figure 6 EA Surface Water Flood Risk Map. (Source: EA)

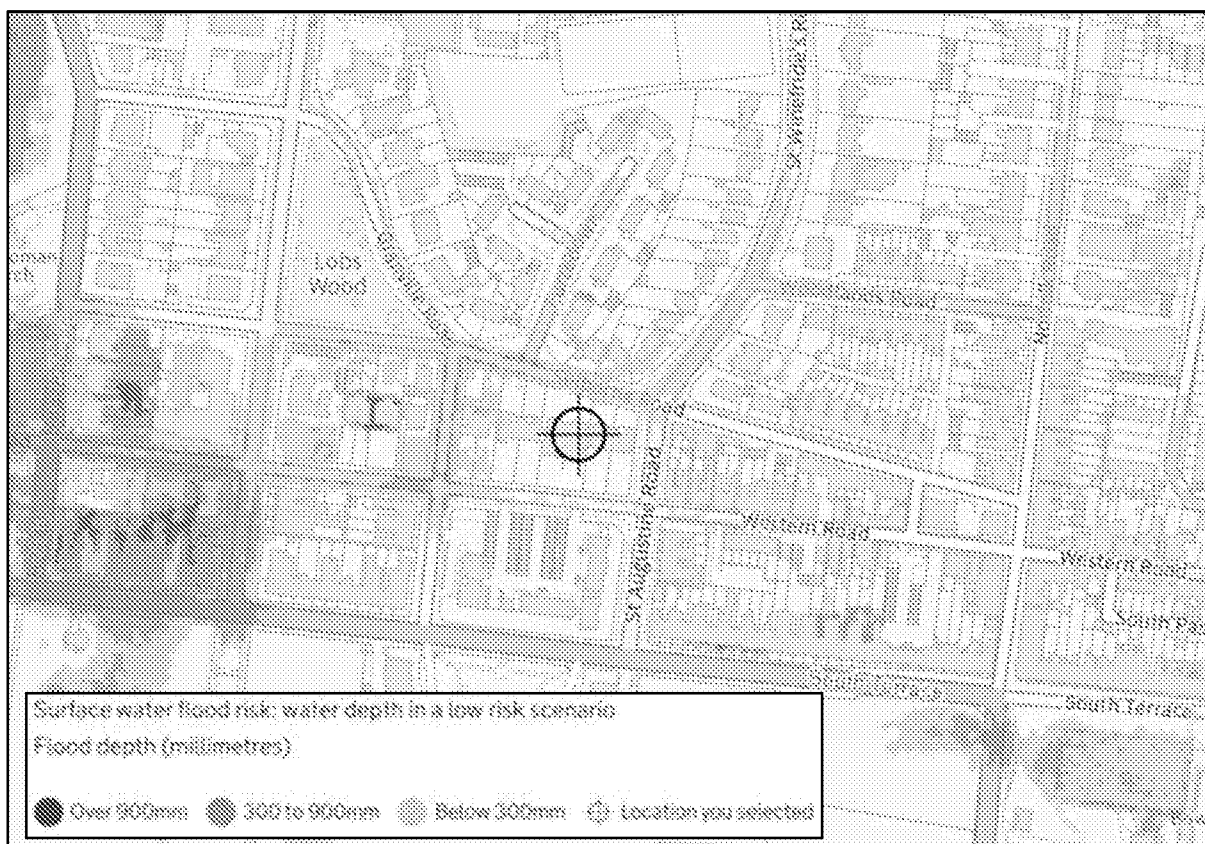


Figure 7 Surface Water Depths for a Low Risk Scenario. (Source: EA)

Groundwater

- 4.18 Appendix F of the Arun District SFRA (2016) 'Areas Susceptible to Groundwater Flooding' map (Figure 9) shows the site to be located in an area (1km² tile) of which between 50% and 75% of the area (tile) is deemed to be susceptible to groundwater flooding.
- 4.19 However, no records could be found in the Arun SFRA (2016) to indicate historic groundwater flooding at the site.
- 4.20 The proposals are for a change of use at the ground floor to residential. No new basement development or below ground spaces are proposed. As such, the risk of flooding can be considered to be relatively low, and no specific mitigation measures are required.

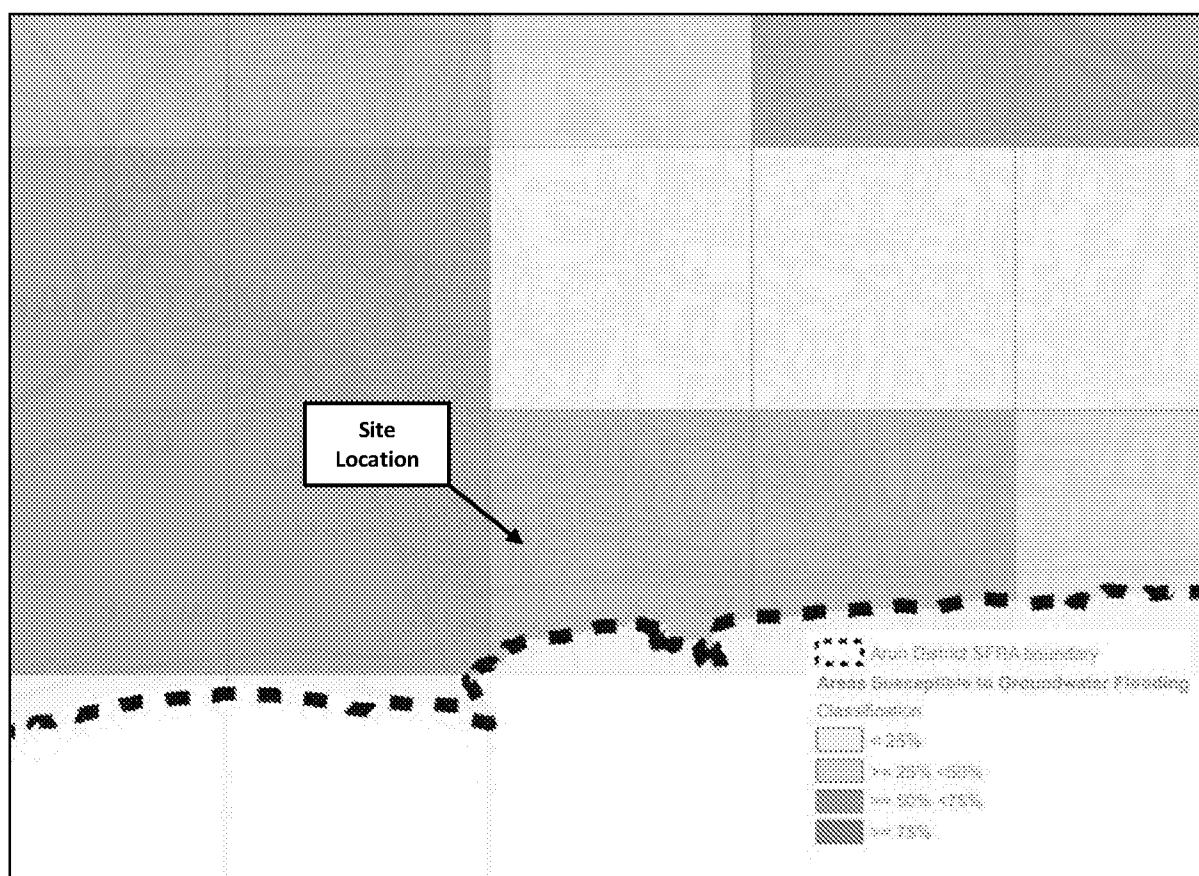


Figure 8 Groundwater Susceptibility (Source: Arun SFRA, 2016)

Sewer

- 4.21 Table 5-2 of the Arun SFRA (2016) indicates that as of 25/02/2016, there had been 22 recorded incidents of sewer flooding within the BN17 5 postcode area, based on DG5 data.
- 4.22 As the DG5 data is published at postcode level, the locations of these recorded incidents with regards to the site itself are unknown. As such, it is unknown whether the site itself has flooded from sewer sources previously.
- 4.23 However, there is no records to indicate that the site itself has been previously affected by flooding from this source and therefore the risk to the proposed development from sewer flooding could be considered to be relatively low. It is recommended that non-return valves are installed on any new sewer connections to prevent back flow and that all new plumbing insulation be of closed-cell design.

Surface Water Drainage Strategy

- 4.24 The proposed development is for an internal change of use. There will be no increase in built footprint or hardstanding as a result of the proposed development.
- 4.25 The proposed development will have a negligible impact on the surface water regime of the site. It is recommended that the developer continues to discharge surface water runoff from the existing building as per the existing situation.

Records of Historical Flooding

- 4.26 Appendix H of the Arun District Council SFRA maps historic flooding across the District from a range of sources. It can be identified that based on the SFRA sources, no records of flooding have been recorded at the site from any source of flooding (Figure 9). One incident of tidal flooding may have occurred on a site adjacent.
- 4.27 However, the EA historic flood map demonstrates that they do not hold any records to indicate that the site, or surrounding area, has been previously affected by flooding from tidal sources.

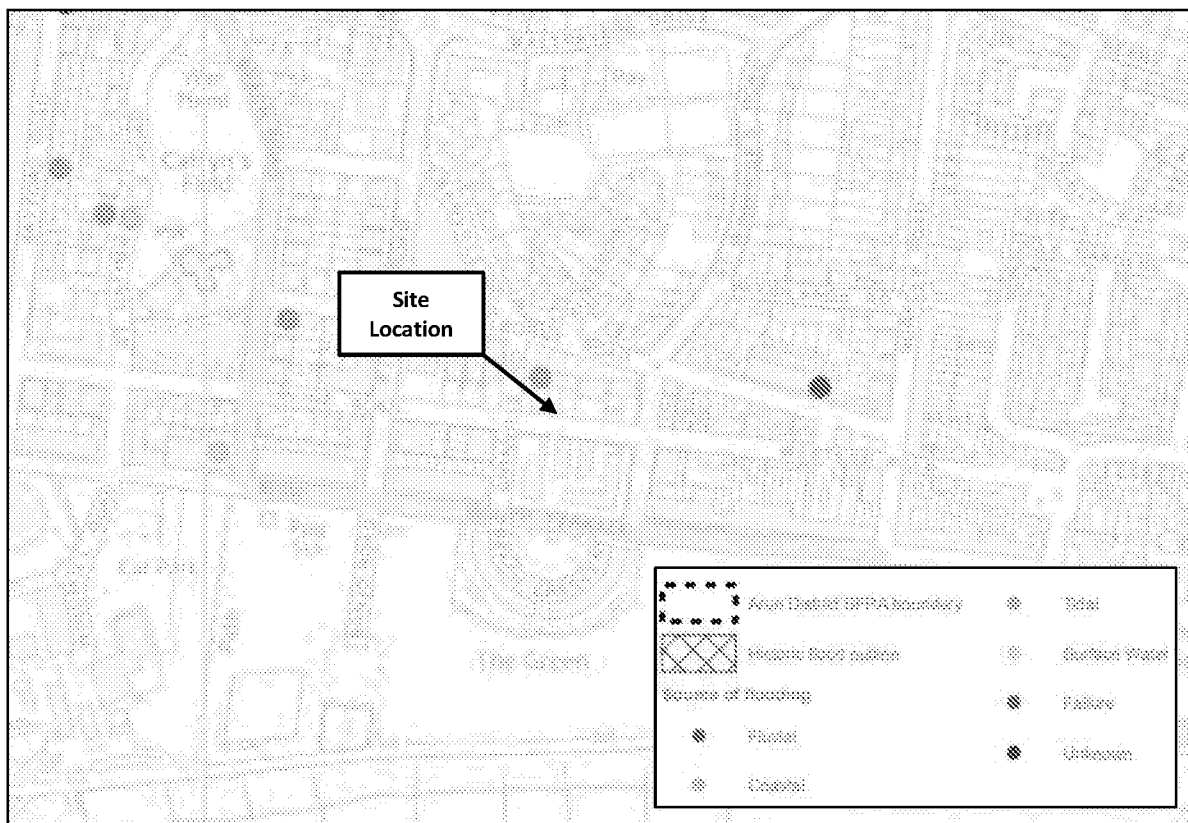


Figure 9 Historical Flooding (Source: Adur and Worthing Councils SFRA Update, 2012)

5. Probability of Flooding

Flood Zones

- 5.1 According to the EA Flood Map for Planning, the site is located within Flood Zone 1 (low risk of flooding).
- 5.2 The EA Flood Map for Planning has been produced in part using a relatively coarse, national scale flood modelling strategy, and in part by detailed modelling. It is important to note that only the potential floodplain is modelled; the mitigating effects of any flood defences currently in place are not considered. For reference, the definition of the NPPF flood risk zones is included below.

Zone	Description
1	Low Probability. This zone comprises land assessed as having a less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%).
2	Medium Probability. This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year.
3a	High Probability. This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.
3b	The Functional Floodplain. This zone comprises land where water has to flow or be stored in times of flood. SFRA's should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1%) flood, or at another probability to be agreed between the LPA and the EA, including water conveyance routes).

Table 4: Definition of the NPPF Flood Zones. (Source: EA)

Climate Change on Site

- 5.3 Climate change is likely to increase the flow in rivers and raise sea levels and storm intensity.
- 5.4 In December 2019, new sea level rise guidance was introduced.
- 5.5 It is understood that that in the absence of defence breach modelling, the 1:200 year+CC undefended event should be used as the design flood level to inform the risk and mitigation strategy. The December 2019 climate change allowance/ sea level guidance should also be considered.
- 5.6 Please see section 4 for further details on climate change impacts.

6. Residual Risks

Identification of Residual Risks

6.1 Residual risks are those remaining after applying the sequential approach to the location of development and taking mitigating actions. Examples of residual flood risk include:

- the failure of flood management infrastructure such as a breach of a raised flood defence, blockage of a surface water conveyance system, overtopping of an upstream storage area, or failure of a pumped drainage system;
- failure of a reservoir; or,
- a severe flood event that exceeds a flood management design standard, such as a flood that overtops a raised flood defence, or an intense rainfall event which the drainage system cannot cope with.

Defence Breach

6.2 While the site is not located within an area benefitting from the presence of defences according to the EA Flood Map for Planning, the EA have indicated that there are flood defences within proximity of the site in the form of a wall, with an estimated standard of protection of 1:300 year years (0.3% AEP).

6.3 This is further supported by the Arun District Council SFRA (2016) that states “A Flood Management Scheme for defences along the eastern bank of the River Arun adjacent to Littlehampton has recently been completed. The new defences, which extend from the coastal frontage of Littlehampton to approximately 500m beyond the A259, are reported by the Environment Agency to have been constructed to a 1 in 300 annual exceedance probability standard of protection”.

6.4 No defence breach data is available from the EA/ SFRA at the time of writing.

6.5 The EA request that the undefended scenario is considered to provide a worst-case approach in the absence of defence breach modelling in Littlehampton.

6.6 This has been discussed in Section 4 of this report.

Reservoir Failure

6.7 The EA Risk from Reservoir Flooding Map demonstrates that the site is outside flood extents in the event of reservoir flooding.

6.8 As such, the residual risk to the proposed development from reservoir flooding could be considered to be **relatively low**.

Drainage Exceedance

6.9 In the event of drainage failure/exceedance, overland flows would be dictated by site topography. External levels should be designed to fall away from ground floor thresholds to direct overland flow away from the property and provide some mitigation against drainage exceedance. It should be noted that the finished floor levels are currently raised circa. 340mm above external ground levels with ramp access. The FFLs and ramp access to remain as existing.

7. Flood Risk Management Measures

Flood Risks

- 7.1 The site is located in Flood Zone 3 (High Risk of flooding as defined in the NPPF) according to the EA Flood Map for Planning, as such the development will require flood mitigation measures.
- 7.2 The controlling residual flood risk mechanism on site is tidal. Tidal flooding is generally caused by low pressure weather systems creating storm-surges (or storm tides), chiefly via high speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' of water which, if it coincides with high tide, can generate very high, stormy, water levels. However, because this mechanism is well understood, it is very likely that an early warning will be issued before such an event. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning. Section 9.4.1 of the Arun SFRA (2016) states that the lead time for EA Flood Warnings are at least 2 hours, with the aim to provide warning up to 24 hours in advance for the area of Littlehampton.
- 7.3 It is not possible to raise the ground floor above the undefended 1:200 year 2115 flood level. As such, the following mitigation measures are recommended:
- The proposed change of use is to have flood resilience measures retrofitted, where possible, in line with current best practice for construction within an area at risk of flooding in line with CLG 2007 'Improving the Flood Performance of New Buildings.
 - Waterproof materials and damp-proof membrane to be utilised in the construction of the extension.
 - Developer to investigate the possibility of retrofitting property level protection measures (i.e. flood doors/demountable barriers).
 - Non-return valves on any new sewer connections to prevent back flow.
 - All new plumbing insulation to be of closed-cell design.
 - The site owner and staff should sign up to the EA Flood Alert/Warning Service and have an evacuation plan.

Flood Warning Service

- 7.4 The EA operate a 5 day county-wide forecast in relation to flood risk. It is recommended that this service is regularly checked to ensure occupants/residents are aware of any possible risks: <https://flood-warning-information.service.gov.uk/5-day-flood-risk>.
- 7.5 The EA operate a Flood Information service which identifies whether any flood warnings or alerts have been issued for a specific postcode or place in England or Wales: <https://flood-warning-information.service.gov.uk/>.
- 7.6 The Met Office issues weather warnings up to 5 days in advance, through the National Severe Weather Warning Service, when severe weather has the potential to bring impacts to the UK. It is also possible to stay up to date with weather warnings through the Met Office app (available on both android and apple), social media (twitter, Facebook) or email alerts. More information can be found at <https://www.metoffice.gov.uk/weather/guides/warnings>.

- 7.7 During periods of bad weather, site users should monitor local weather reports and sign up for the Met Office UK weather warnings. Warnings can be monitored through an Apple/Android app, Twitter or directly via emails. Further information can be found at <https://www.metoffice.gov.uk/>.
- 7.8 The proposed development site is located within an EA Flood Alert/Warning Service Area **Error! Reference source not found.** As such, it is recommended that site users sign up to this service.
- 7.9 Upon receipt of a Flood Warning, site users are advised to evacuate the site to a designated place of safe refuge within Flood Zone 1.
- 7.10 If flood waters along the proposed evacuation route have exceed 25cm, site users are advised, if possible, to seek refuge at the upper floors on site.

What to do if you receive a Flood Alert

- 7.11 A flood alert means you need to prepare, flooding is possible. You should:

- check your flood risk - <https://flood-warning-information.service.gov.uk/long-term-flood-risk>
- sign up for flood warnings - <https://www.gov.uk/sign-up-for-flood-warnings>
- keep up to date with the latest situation - call Floodline on 0345 988 1188 or follow @EnvAgency and #floodaware on Twitter for the latest flood updates
- have a bag ready with vital items like insurance documents and medications in case you need to leave your home
- check you know how to turn off your gas, electricity and water mains supplies
- plan how you'll move family and pets to safety



What to do if you receive a Flood Warning

- 7.12 A flood warning means you need to act, flooding is expected. You should do all the actions for a flood alert but also:

- move vehicles to higher ground if it's safe to do so
- move family and pets to safety
- move important items upstairs or to a safe place in your property, starting with cherished items and valuables, then furniture and furnishings
- turn off gas, electricity and water supplies if it's safe to do so; never touch an electrical switch if you're standing in water
- if you have property protection products such as flood barriers, or air brick covers, use them now
- keep track of the latest situation - <https://flood-warning-information.service.gov.uk/warnings>



What to do if you receive a Severe Flood Warning

- 7.13 A severe flood warning means there is danger to life: you must act now:

- call 999 if you're in immediate danger
- follow advice from the emergency services and evacuate if you're told to do so



- make sure you have an emergency kit including a torch, spare batteries, mobile phone and charger, warm clothes, important numbers like your home insurance, water, food, first aid kit and any medicines and baby care items you may need
- alert neighbours and offer help if it's safe to do so
- avoid driving or walking through flood water: just 30cm (1 foot) of fast flowing water could move your car and even shallow moving water can knock you off your feet
- keep your family and pets away from floodwater – it may contain heavy debris, sharp objects, open manhole covers, sewage and chemicals
- wash your hands if you've been in contact with flood water which may contain toxic substances

Flood Evacuation Plan

- 7.14 Upon receipt of a Flood Warning, site users should exit the site onto Selborne Road and travel east. Site users can then either travel north along Winerfride's Road or stay on Selborne Road, then travel north along Norfolk Road. When following the proposed evacuation route, site users should be in Flood Zone 1 and outside the undefended 1:200 year (2115) flood extents within approximately 150m from leaving the site (along Western Road or St Winefride's Road). The routes are identified in Figure 10.
- 7.15 The controlling residual flood risk mechanism on site is tidal. As this mechanism is well understood, it is very likely that an early warning will be issued before such an event strikes.
- 7.16 Section 9.4.1 of the Arun SFRA (2016) states that the lead time for EA Flood Warnings are at least 2 hours, with the aim to provide warning up to 24 hours in advance for the area of Littlehampton. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning, allowing for site users to evacuate the site and travel approximately 150m north east of the site outside the 1:200 year (2115) undefended flood extent.
- 7.17 The proposed evacuation route and places of safe refuge should be agreed with the Local Planning Authority Emergency Planning Team and should be communicated to all site users.
- 7.18 Section 9.4 of the Arun SFRA (2016) states that:
- "Arun District Council have drafted a Part 2 Multi-Agency Flood Plan for Bognor Regis, Littlehampton, Arundel and Pagham (MAFP). The Part 2 MAFP provides additional detail for the management of a flood incident for Bognor Regis, Littlehampton, Arundel and Pagham. The plan is owned by Arun District Council Emergency Planning Services and should be reviewed by the council at least every three years.*
- The aim of the MAFP is to set out the procedures for the multi-agency response and management to a flooding incident, as well as to provide site specific information to assist the implementation of evacuation if required. The plan applies for flooding from pluvial, sewer, groundwater and coastal sources. It aims to facilitate effective response to the threat of flooding by initiating a multi-agency response at the earliest possible stage.*
- The multi-agency response is divided into two levels: 'standby' and 'full activation'. The MAFP sets out the roles and responsibilities of Arun District Council, Sussex Police, West Sussex County Council and the Environment Agency under each of these levels."*
- 7.19 The MAFP sets out the Littlehampton Swimming and Sports Centre as an allocated emergency rest centre to provide temporary accommodation to those displaced in an extreme event. This rest centre is located in Flood Zone 3. However, the rest centre could be utilised by site users seeking emergency rest (once the EA

lift the Flood Warning and it is deemed safe to do so), if the property is flooded. This rest centre is located approximately 1.5km southeast of the development site, on Sea Road. In the first instance, site users should seek to follow the proposed evacuation route to the proposed places of safe refuge in Flood Zone 1/ outside the 1:200 year (2115) undefended flood extent, and then seek emergency rest at the Littlehampton Swimming and Sports Centre once Flood Warnings have been lifted, if alternative accommodation cannot be sought.

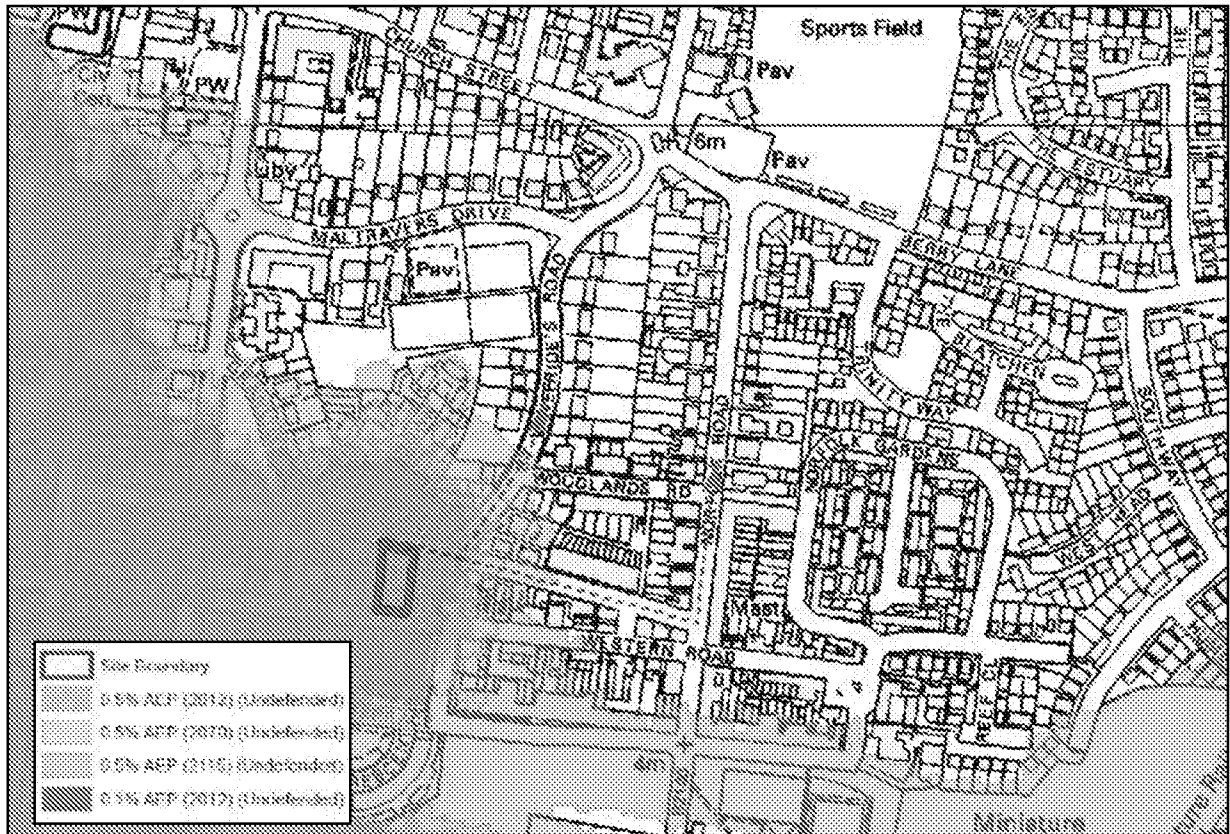


Figure 10: Proposed evacuation route overlain with Un defended Flood Extents (Source: CA)

8. Off Site Impacts

Flood Water Displacement

- 8.1 The proposed development is for an internal change of use. The proposed development will not increase built footprint on site and therefore there is not requirement to provide any additional floodplain compensation.

Generation of Runoff

- 8.2 The proposed development is for an internal change of use. There will be no increase in built footprint or hardstanding as a result of the proposed development.
- 8.3 The proposed development will have a negligible impact on the surface water regime of the site. It is recommended that the developer continues to discharge surface water runoff from the existing building as per the existing situation.

9. Conclusion

- 9.1 Ambiental Environmental Assessment has been appointed to undertake a National Planning Policy Framework (NPPF) compliant Flood Risk Assessment (FRA) for the proposed development at 3-4 Selborne Place, Selborne Road, Littlehampton, West Sussex BN17 5NH.
- 9.2 The application site comprises of both No. 3 and No. 4 Selborne Place. The first and second floors of are currently used as flats and are covered the C3 planning use class. The ground floor of No. 3 is occupied by the Vardar restaurant and the ground floor area of No. 4 is occupied by the VIP club.
- 9.3 The ground floor areas will be converted to become 6no. flats (5 no. 1bed and 1 no. 2bed units). The northern external hard standing will remain as car parking for residents and the rear (southern) garden area will become a communal amenity space for all residential units within the building.
- 9.4 With reference to the Environment Agency (EA) Flood Map for Planning, the proposed development is located within Flood Zone 3.
- 9.5 Under the principles of the NPPF the previous uses on site would be considered to be 'Less Vulnerable' (restaurant) and 'More Vulnerable' (drinking establishment). The proposed development is for the conversion of the restaurant and club to provide residential use, and therefore the vulnerability classification would be 'More Vulnerable'.
- 9.6 The EA supplied defended tidal flood mapping shows the site to be outside of the modelled flood extent for the 'Present Day' 0.5% AEP and 0.1% AEP tidal flood event and the 0.5% AEP tidal flood event for the 2065 epoch. The site has been shown to partially be affected by the defended 0.5% AEP 2115 tidal flood event.
- 9.7 It is understood that that in the absence of defence breach modelling, the 1:200 year+CC undefended event should be used as the design flood level to inform the risk and mitigation strategy. The December 2019 climate change allowance/ sea level guidance should also be considered.
- 9.8 For reference, the 1:200 year present day (2017) undefended flood level for the site is 3.74mAOD. Based on the latest guidance (December 2019), for the southeast region, a Higher Central (HC) scenario would represent a 1.20m increase in sea levels; an Upper End (UE) scenario would represent a 1.60m increase in sea levels; and a High++ (H++) scenario would represent a 2.19m increase in sea levels. As such, the 1:200 year HC (2125) undefended flood level for the site is 4.94mAOD, the 1:200 year UE (2125) undefended flood level is 5.34mAOD and the 1:200 year H++ (2125) undefended flood level is 5.93mAOD.
- 9.9 The existing building is currently raised above external ground levels by 340mm. Using an external reference points (LiDAR), the estimated FFL is set at 3.75mAOD. The ramp access and FFL is to be retained post-development. As such, the ground floor could experience flood depths of up to 1.19m in the 1:200 year HC (2125) event.
- 9.10 The client has confirmed that internal access will be maintained from the ground floor unit up to the first floor. As such, emergency safe refuge could be sought at the first floor in a worst-case event where prior evacuation is not possible. The first floor is set 2.7m above the ground floor finished floor level at 6.45mAOD, approximately 1.51m above the 1:200 year HC (2125) undefended flood level.
- 9.11 The controlling residual flood risk mechanism on site is tidal. Tidal flooding is generally caused by low pressure weather systems creating storm-surges (or storm tides), chiefly via high speed winds. These winds (and to a certain extent, the low pressure) create a 'bulge' of water which, if it coincides with high tide, can

generate very high, stormy, water levels. However, because this mechanism is well understood, it is very likely that an early warning will be issued before such an event strikes.

9.12 Section 9.4.1 of the Arun SFRA (2016) states that the lead time for EA Flood Warnings are at least 2 hours, with the aim to provide warnings up to 24 hours in advance for the area of Littlehampton. As such, it is very unlikely that the site would be subject to tidal flooding without several hours of early warning. In a worst-case breach event, emergency safe refuge could be sought at the first floor on site.

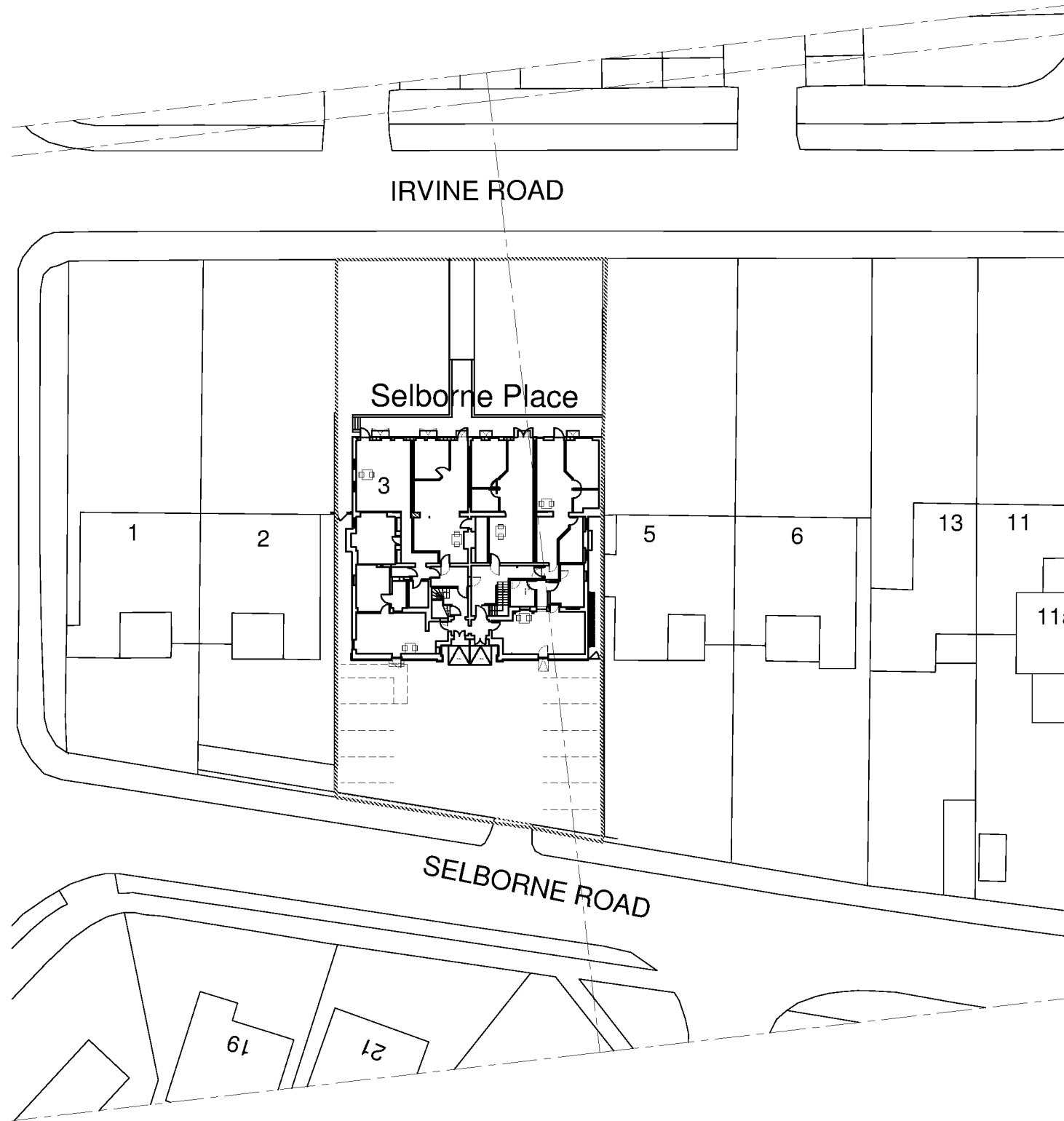
9.13 Following the guidelines contained within the NPPF, and given that:

- The development is for the change of use of the existing building within a developed area.
- The development could be considered “More Vulnerable” under the NPPF.
- The site is located in an area that benefits from the presence of flood defences and is within a ‘Hold the Line’ policy unit on the Shoreline Management Plan.
- Internal access will be maintained from the ground floor residential uses to the first floor, which will be above the 1:200 year H++ (2125) undefended flood level.
- The site is located within an EA Flood Warning Area and within an area of tidal flood risk, which could provide sufficient warning to enable prior evacuation.
- Residents to sign up to the EA Flood Warning systems and monitor weather warnings regularly during periods of bad weather.

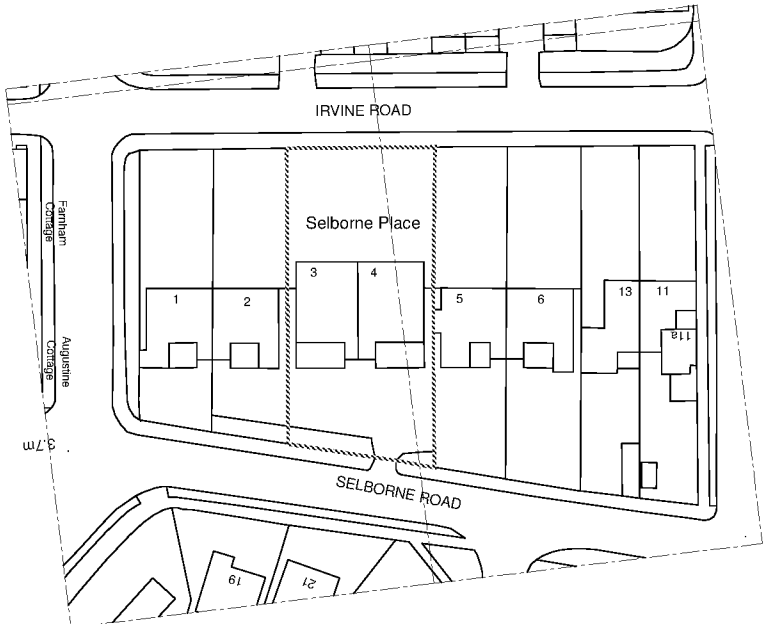
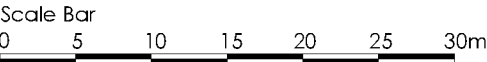
9.14 Following the guidelines contained within the NPPF, the proposed development is considered to be suitable assuming appropriate mitigation (including adequate warning procedures) can be maintained for the lifetime of the development.

Appendix I - Site Plans

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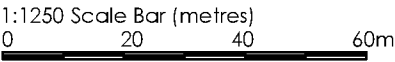


Block Plan
Scale 1:500



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Location Plan
Scale 1:1250



~ 21/05/21 JM Drawing created

REV DATE BY DESCRIPTION



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Client
Mr & Mrs Stojanovski

Location
3-4 Selbourne Place
Selbourne Road
Littlehampton, BN17 5NH

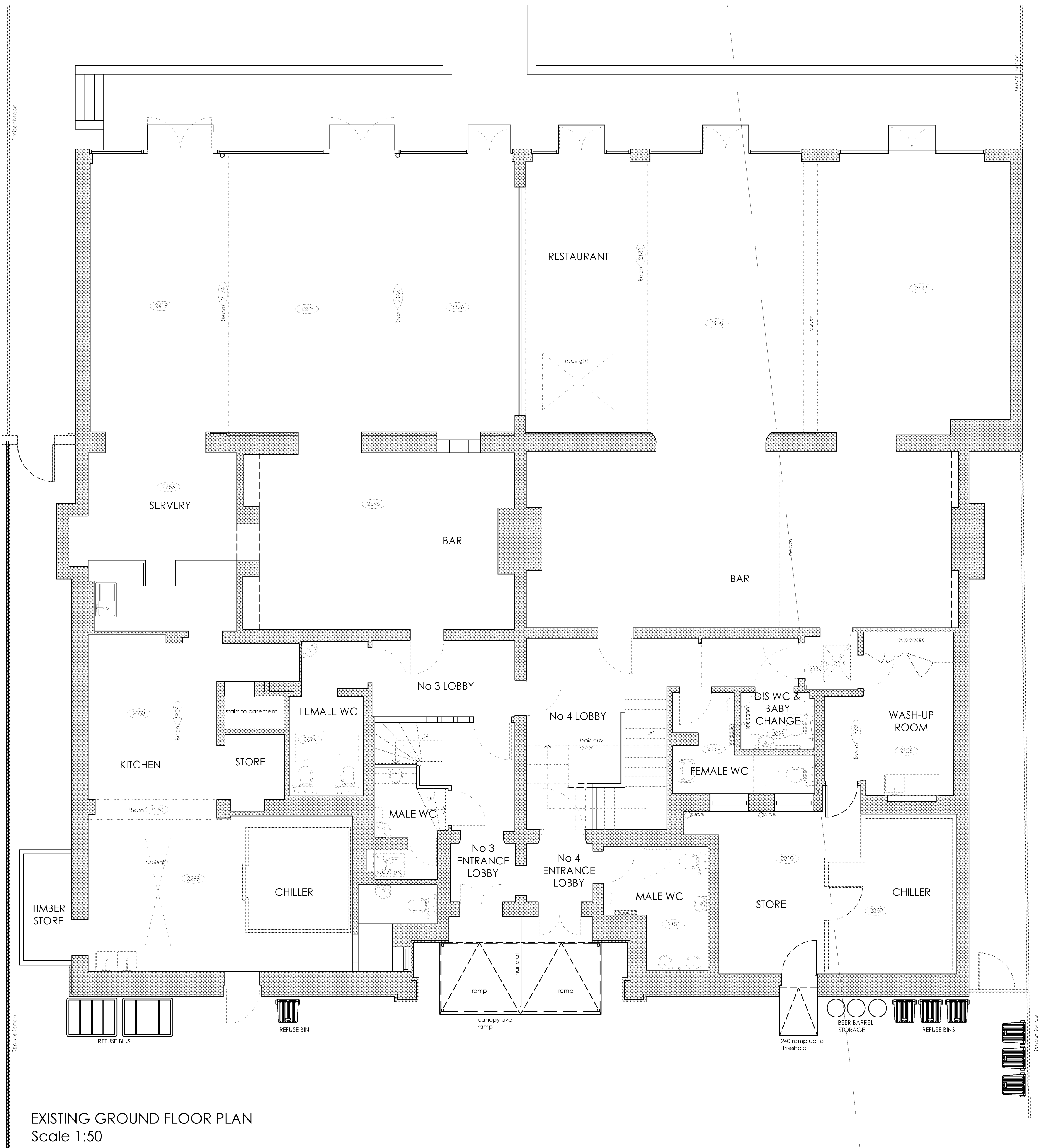
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Block and Location plan

Date	Drawn By	Scale
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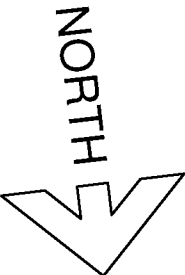
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PLANNING



EXISTING GROUND FLOOR PLAN
Scale 1:50



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Client
Mr & Mrs Stojanovski

Location
3-4 Selbourne Place
Selbourne Road
Littlehampton BN17 5NH

Drawing Title

Existing Ground Floor Plans

Date	Drawn By	Scale
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CAD file name
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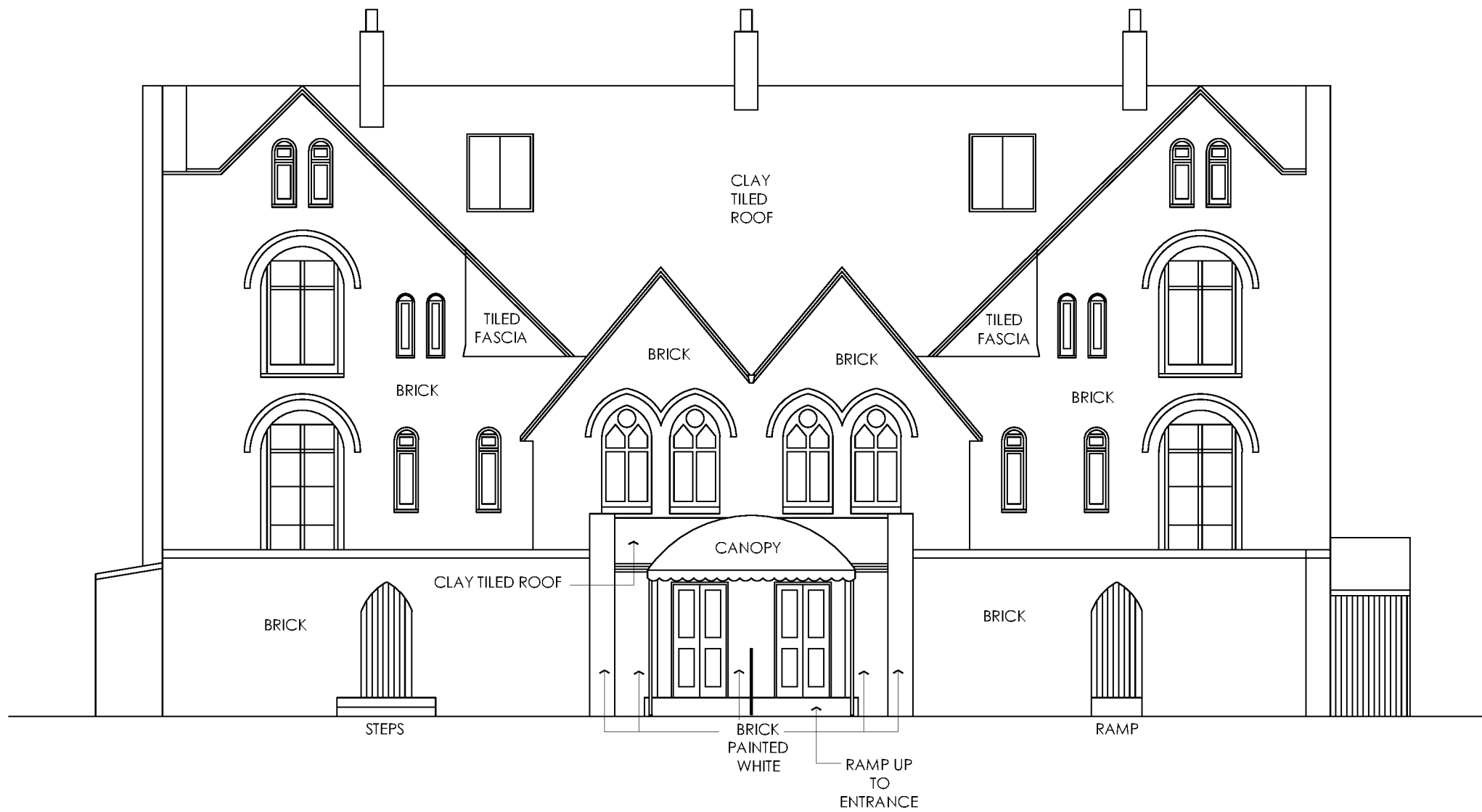
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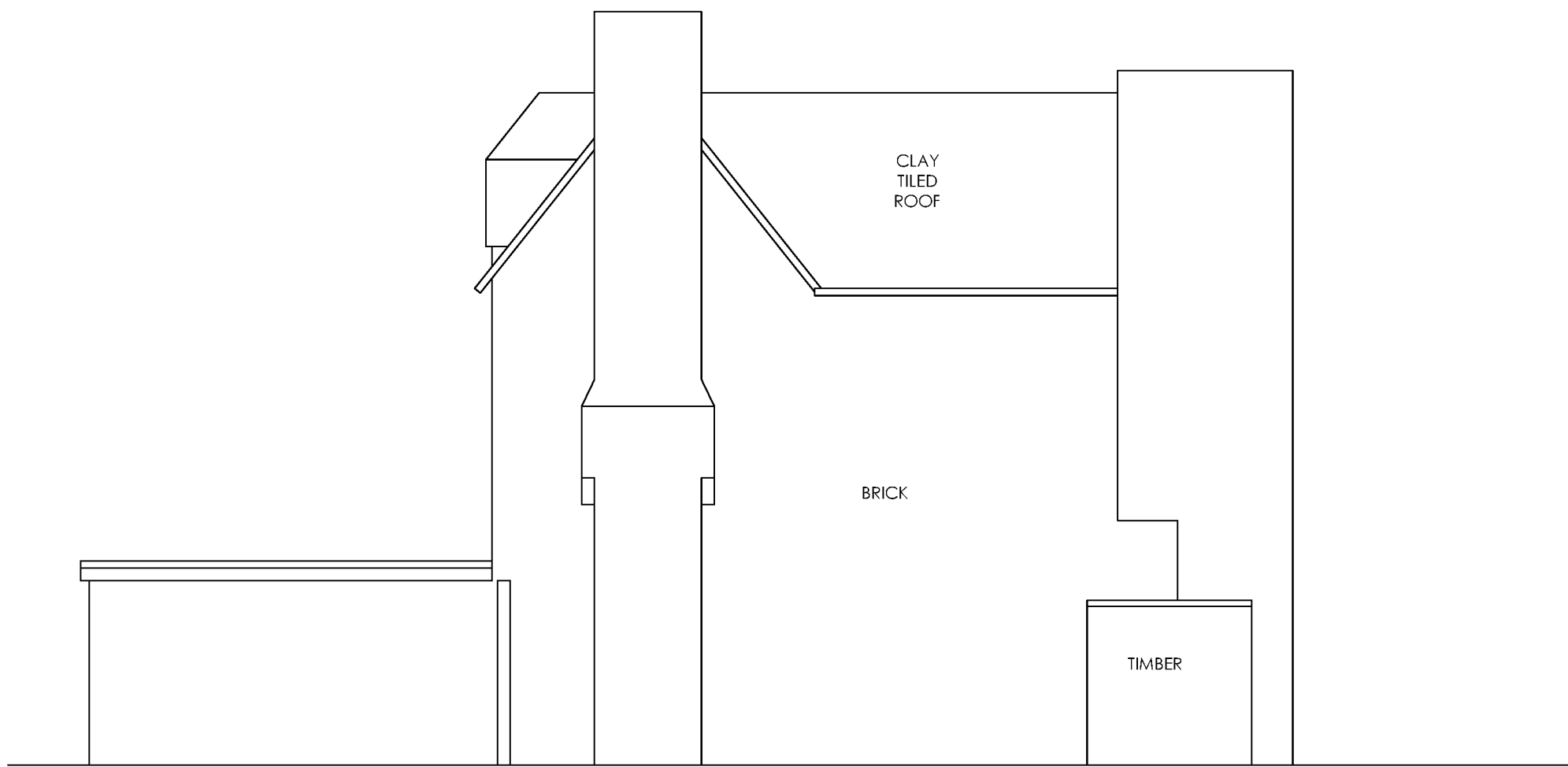
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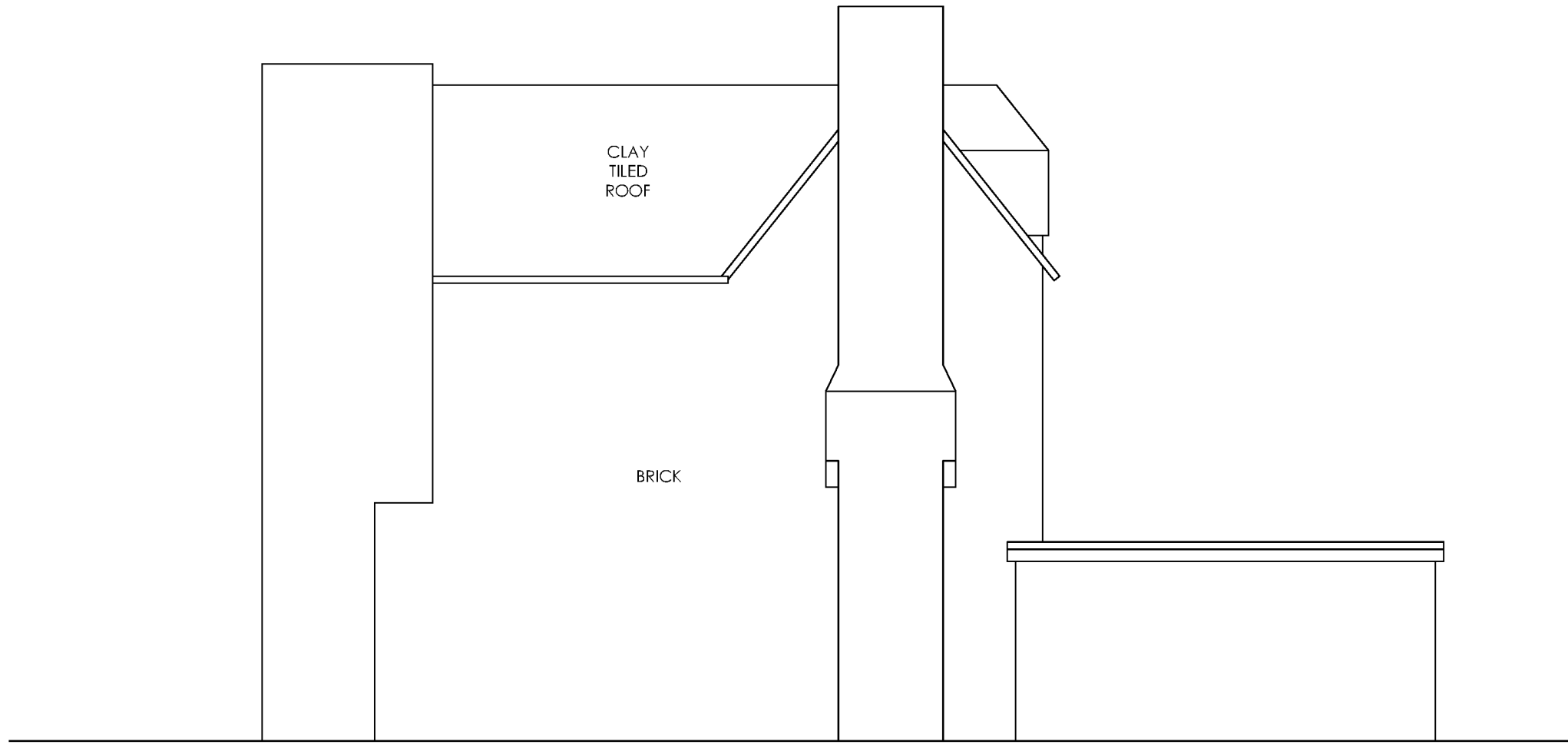
South (Rear) Elevation



North (Front) Elevation



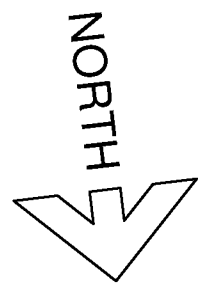
East Elevation



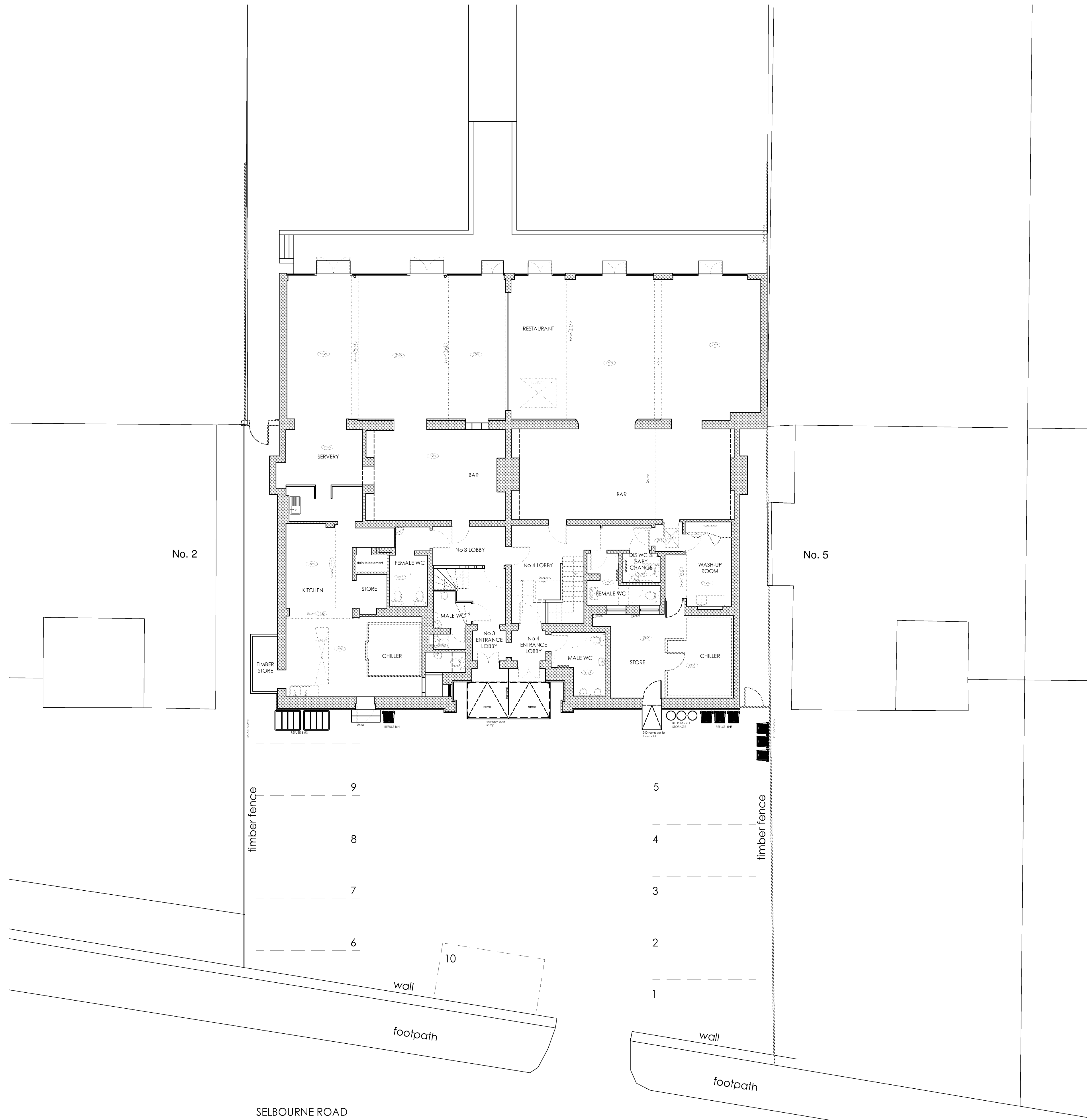
West Elevation

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Location 3-4 Selbourne Place Selbourne Road Littlehampton BN17 5NH			
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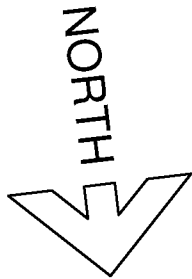
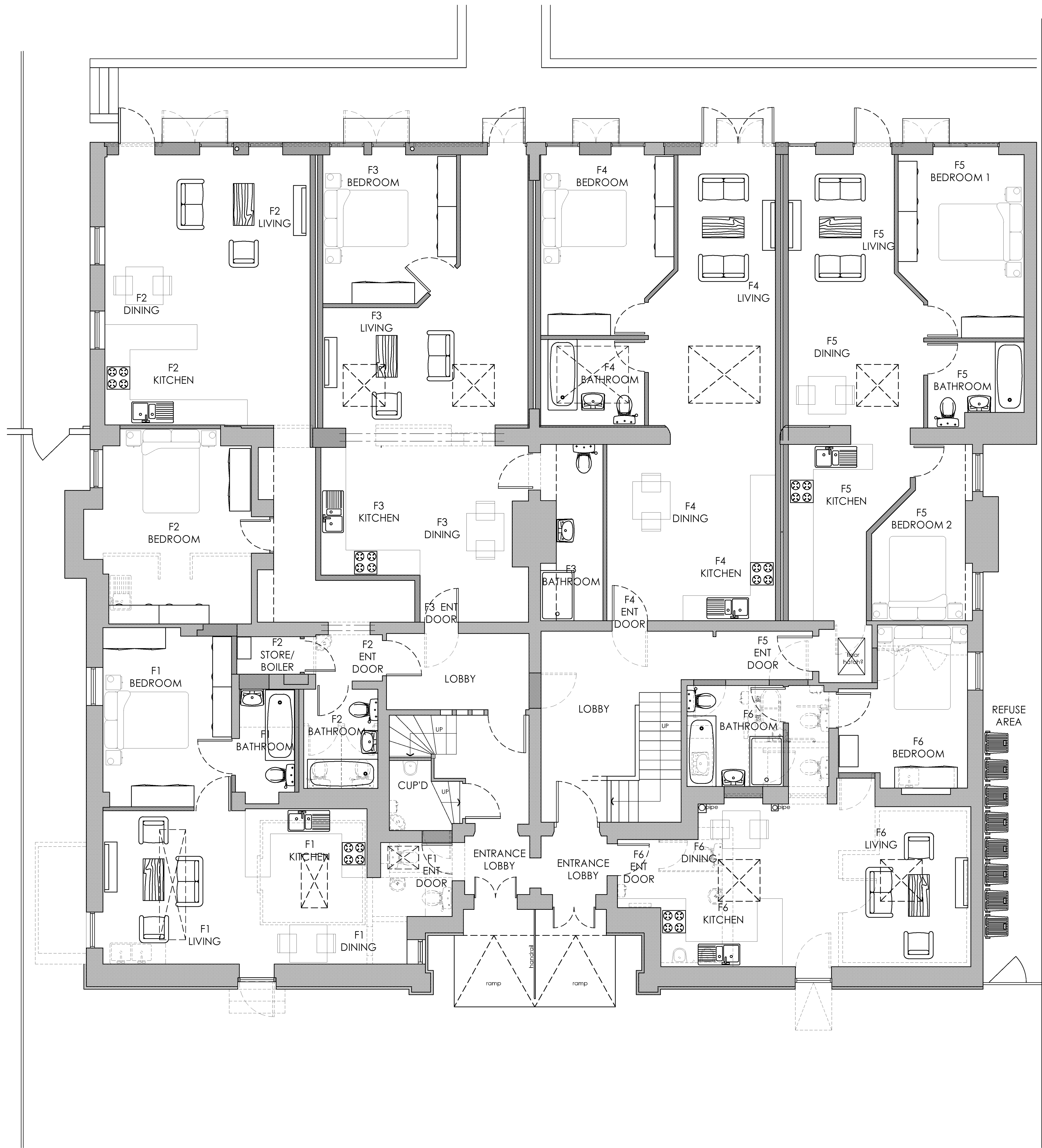


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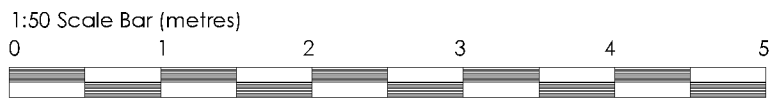


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Location 3-4 Selbourne Place Selbourne Road Littlehampton BN17 5NH			
Drawing Title Existing Site Plan			
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Legend	
	Existing walls & columns
	Proposed brick/blockwork walls
	Proposed internal stud walls
	Items removed

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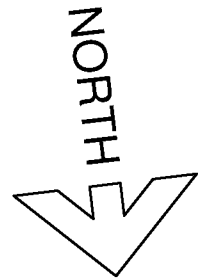
Client
Mr & Mrs Stojanovski

Location
3-4 Selbourne Place
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Littlehampton BN17 5NH

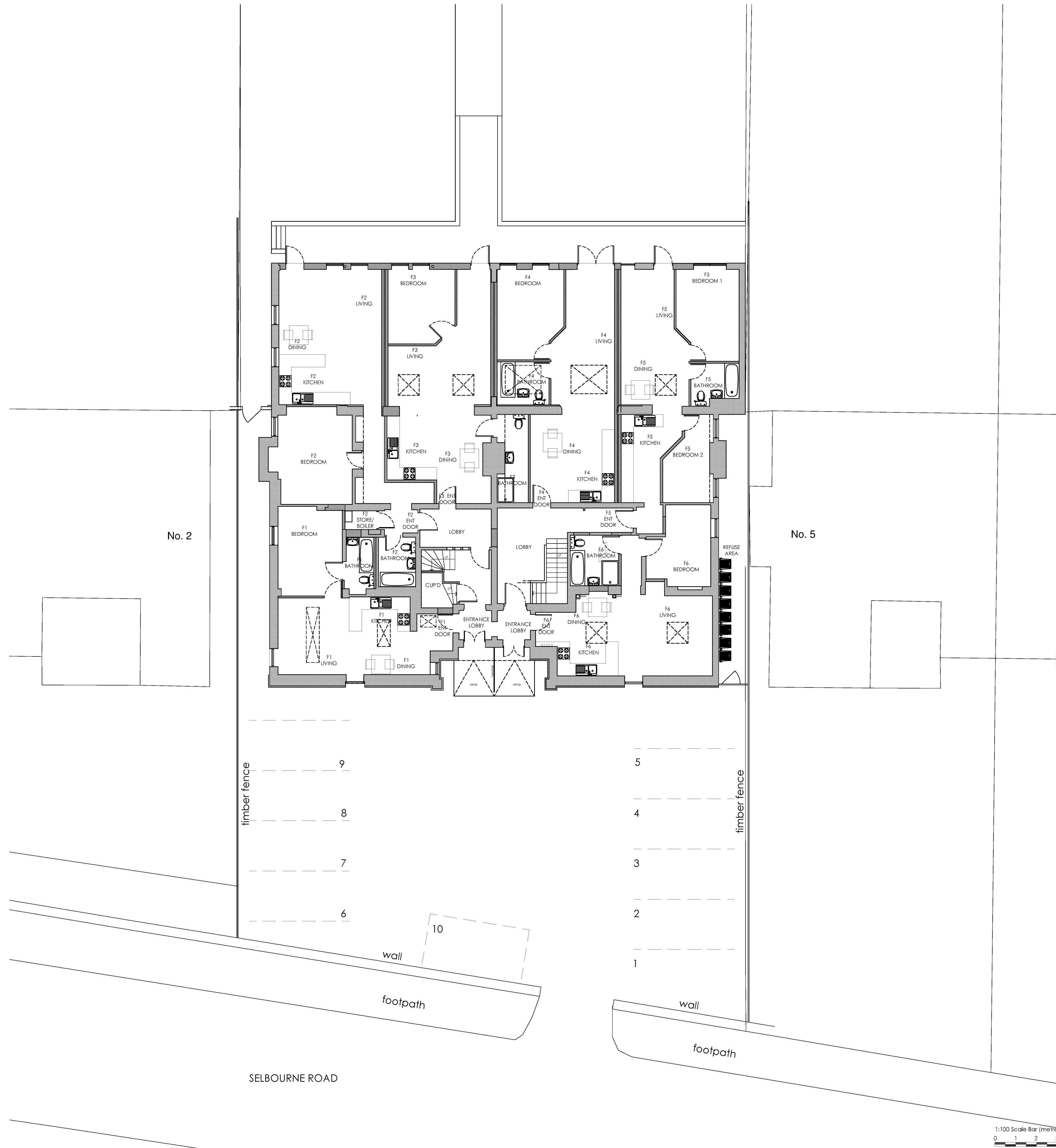
Drawing Title
Proposed Ground Floor Layout Plan

Date May 2021	Drawn By JM	Scale 1:50 @ A1
CAD file name 1779-Vardeir - Planning Rev00.dwg		
Drawing No 1779-P-02	Revision A	

PROPOSED



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Client Mr & Mrs Stojanovski			
Location 3-4 Selbourne Place Selbourne Road Littlehampton BN17 5NH			
Drawing Title Proposed Site Plan			
Date May 2021	Drawn By JM	Scale 1:50 @ A1	
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Drawing No 1779-P-05		Revision ~	

Appendix II - EA Data

Lydia Sayers
Ambiental Consulting
Science Park Square
Brighton
BN1 9SB

Our ref: SSD222364
Date: 01/07/2021

Dear Lydia,

Enquiry Regarding Product 4 for Flood Risk Assessment for 3-4 Selborne Place, Selborne Road, Littlehampton, BN17 5NH.

Thank you for your enquiry which was received on 08 June 2021.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. The information is attached.

The information on Flood Zones in the area relating to this address is as follows:

The site is in an area located within Flood Zone 3 as shown on our Flood Map for Planning (Rivers and Sea).

Note - This information relates to the area that the above named property is in and is not specific to the property itself as it is influenced by factors such as the height of door steps, air bricks or the height of surrounding walls. We do not have access to this information and is not currently used in our flood modelling.

Flood Defences

There is a privately maintained flood wall along the east side of the River Arun with effective height of 4.8m (Asset ID: 156334). It is estimated to be in good condition.

Model Information

The model used was the Arun to Adur Coastal Modelling which was completed by JBA Consulting in 2012, with updated defended modelling (2017).

Flood History

We hold no record of previous flooding events affecting this site.

Please note our records are not comprehensive and may not include all events. I recommend contacting the Lead Local Flood Authority, **West Sussex County Council** or the Local Authority, **Arun District Council** for a more comprehensive flood history check.

FRA advisory text

Name	Product 4
Description	Detailed Flood Risk Assessment Map for 3-4 Selborne Place, Selborne Road, Littlehampton, BN17 5NH.
Licence	<u>Open Government Licence</u>
Information Warnings	The flood risk data provided is based on existing EA hydraulic models for existing 0.5% annual probability events with an allowance for climate change. Please note the climate change allowances provided are not up to date. These were updated on 17 December 2019. You should refer to ' <u>Flood risk assessments: climate change allowances</u> ' for the most up to date allowances. You will need to undertake further assessment of future flood risk using different allowances to ensure your assessment of future flood risk is based on best available evidence.
Information Warning - OS background mapping	<i>The mapping of features provided as a background in this product is © Ordnance Survey. It is provided to give context to this product. The Open Government Licence does not apply to this background mapping. You are granted a non-exclusive, royalty free, revocable licence solely to view the Licensed Data for non-commercial purposes for the period during which the Environment Agency makes it available. You are not permitted to copy, sub-license, distribute, sell or otherwise make available the Licensed Data to third parties in any form. Third party rights to enforce the terms of this licence shall be reserved to OS.</i>
Attribution	Contains Environment Agency information © Environment Agency and/or database rights. Contains Ordnance Survey data © Crown copyright 2021 Ordnance Survey 100024198.

Data Available Online

Many of our flood datasets are available online:

- Flood Map For Planning ([Flood Zone 2](#), [Flood Zone 3](#), [Flood Storage Areas](#), [Flood Defences](#), [Areas Benefiting from Defences](#))
- [Risk of Flooding from Rivers and Sea](#)
- [Historic Flood Map](#)
- [Current Flood Warnings](#)

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Yours sincerely,

Edward Conway
Partnership and Strategic Overview - West Sussex
Environment Agency, Guildbourne House, Chatsworth Road, Worthing, West
Sussex, BN11 1LD

Legend

Please see page 2 for asset symbology



Structures

-  Control Gate
-  Draw Off Tower
-  Fish Pass
-  Hydrobrake
-  In Channel Stoplogs
-  Inspection Chamber
-  Jetty
-  Outfall
-  Screen
-  Spillway
-  Stilling Basin
-  Weir

Beach Structures

-  Breakwater
-  Ramp
-  Slipway
-  Steps
-  Groyne

Instruments

-  Active Monitoring
-  Passive Monitoring

Channel Crossings

-  Bridge
-  Utility Services

Aids to Navigation

-  Beacon
-  Buoy
-  Dolphin
-  Signage
-  Signal

Building Assets

-  Pump House

Major Civils

-  Abutment
-  Central Pier

Defences

-  Embankment
-  Wall
-  Flood Gate
-  Demountable defence
-  Bridge abutment
-  High Ground
-  Beach
-  Barrier Beach
-  Promenade
-  Quay
-  Cliff
-  Dunes

Channels

-  Open channel
-  Simple culvert
-  Complex culvert

Land

-  Mudflats
-  Saltmarsh
-  Washland

Sites

-  Amenity
-  Control Structure
-  Erosion Protection
-  General
-  Harbour
-  Monitoring
-  Navigation Lock
-  Pumping Station
-  Reservoir
-  Tidal Barrier



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Legend

 Site Nodes

 Site Boundary

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:1,000

00.02250.045

Kilometers



Product 4 Flood Risk Data Requested by: Ambiantal Consulting

Site: 3-4 Selborne Place, Selborne Road, Littlehampton, BN17 5NH

Table 1: Water Levels: Tidal Undefended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2065)	0.5% (2115)	0.1%
1	503301	101653	3.74	4.36	4.96	4.05
2	503316	101648	3.74	4.36	4.96	4.05
3	503307	101635	3.74	4.36	4.96	4.05
4	503305	101621	3.74	4.36	4.96	4.05

Table 2: Water Levels: Tidal Defended

Node Ref	NGR		Modelled Flood Levels in Metres AOD			
	Eastings	Northings	Defended Annual Exceedance Probability			
			0.5%	0.5% (2065)	0.5% (2115)	0.1%
1	503301	101653	-	-	3.54	-
2	503316	101648	-	-	3.58	-
3	503307	101635	-	-	-	-
4	503305	101621	-	-	3.55	-

Table 3: Water Depths: Tidal Undefended

Node Ref	NGR		Modelled Flood Depths in Metres			
	Eastings	Northings	Undefended Annual Exceedance Probability			
			0.5%	0.5% (2065)	0.5% (2115)	0.1%
1	503301	101653	0.39	1.01	1.61	0.71
2	503316	101648	0.21	0.82	1.42	0.52
3	503307	101635	0.18	0.81	1.41	0.51
4	503305	101621	0.68	1.30	1.90	0.99

Table 4: Water Depths: Tidal Defended

Node Ref	NGR		Modelled Flood Depths in Metres Defended Annual Exceedance Probability			
	Eastings	Northings	0.5%	0.5% (2065)	0.5% (2115)	0.1%
1	503301	101653	-	-	0.19	-
2	503316	101648	-	-	0.04	-
3	503307	101635	-	-	-	-
4	503305	101621	-	-	0.49	-

All levels taken from: Arun to Adur Coastal Modelling (2012) with updated defended modelling (2017)

Produced on: 01/07/2021

There is no additional information or health warnings for these levels/depths or the model from which they have been produced.





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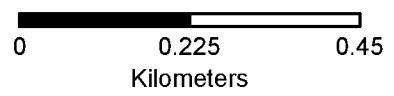
N
▲

Legend

- Site Boundary
- 0.5% AEP Defended Tidal
- 0.5% AEP (2065) Defended Tidal
- 0.5% AEP (2115) Defended Tidal
- 0.1% AEP Defended Tidal

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

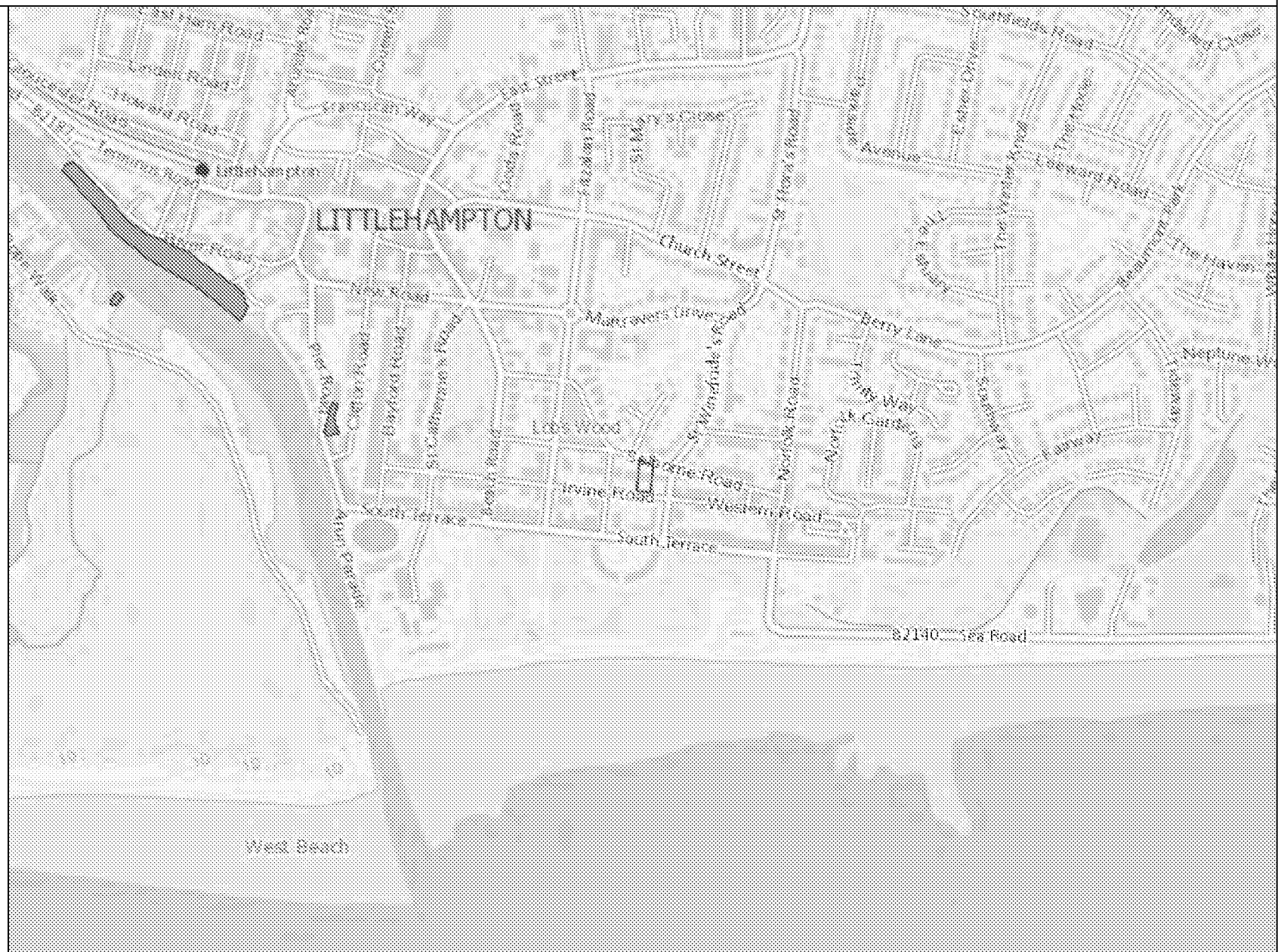
Scale: 1:10,000



Recorded Flood Outlines. Centred BN17 5NH. Created 01/07/2021.

Legend

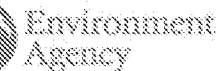
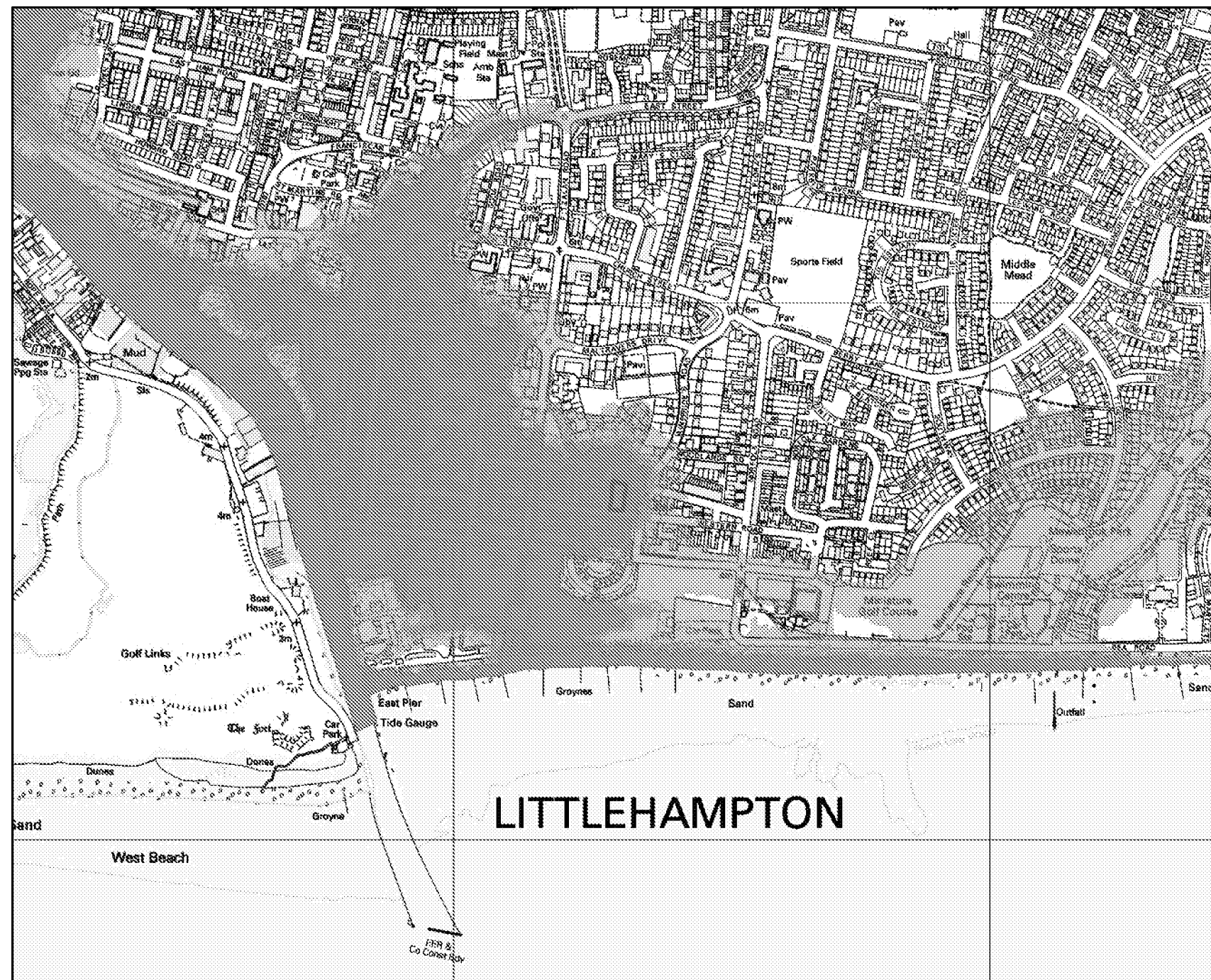
 All recorded flood outlines



1: 10,000

0 250
Metres



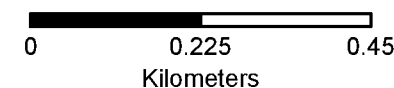


Legend

-  Site Boundary
 0.5% AEP (2012) (Undefended)
 0.5% AEP (2070) (Undefended)
 0.5% AEP (2115) (Undefended)
 0.1% AEP (2012) (Undefended)

Annual Exceedance Probability (AEP) The probability of a flood of a particular magnitude, or greater occurring in any given year.

Scale: 1:10,000



Appendix III - Supporting Information