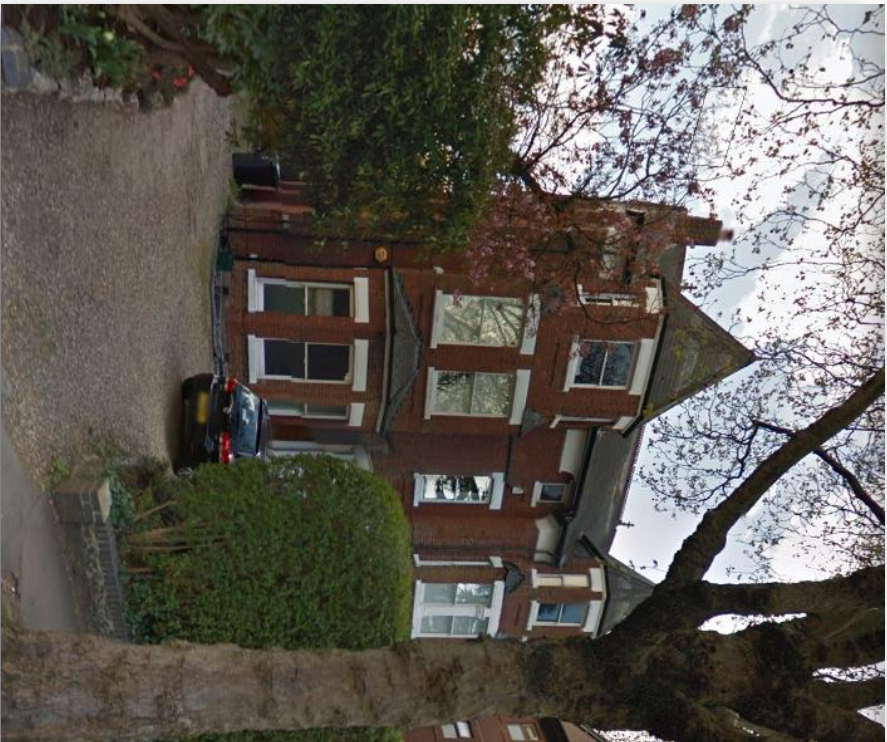




42 Shepherd's Hill LONDON, N6 5RR

REAR AND BASEMENT EXTENSION

Basement Impact Statement for Subterranean Development

December 2020 – Planning Issue – P1

1.0 PREAMBLE

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2.0 PREMISE

42 Shepherd's Hill is a five-storey detached house in Haringey, North London built at the beginning of the 20th century and as other residential developments at the time is of load bearing solid masonry walls, supporting timber floor joists and timber roof, boarded and clad with slate tiles. The walls are most likely founded on corbelled brickwork and mass concrete strip footings. The building has a partial basement, towards to the rear, and here the foundations are expected to be deeper.

Under the development proposed, the house is to be remodelled to the rear, and to have the existing single storey basement made deeper and extended towards the rear garden.

This Basement Impact Assessment report describes the structural solution for constructing this development, the interaction of the subterranean construction with the local geology and hydrogeology and its impact on surrounding buildings. Construction techniques are highlighted along with requirements for temporary works and excavations. This report has been put together as part to the planning submission to Haringey London.

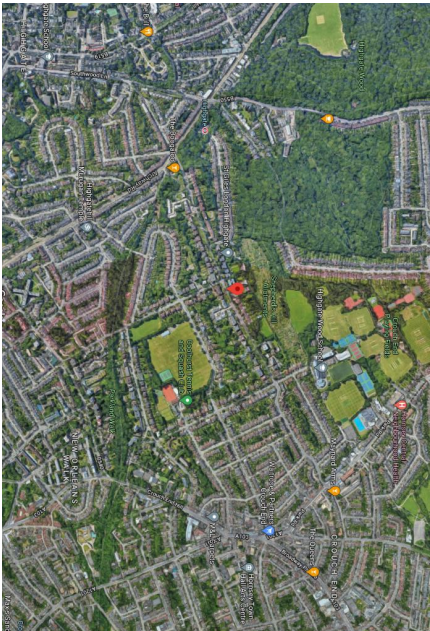


Figure 1: Plan view of site, between Highgate and Crouch End, Google Maps.

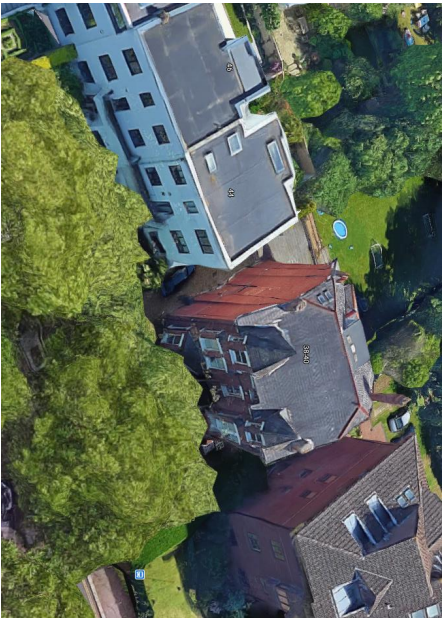


Figure 2: 3D view showing the plot at no. 42 with the block of flats to the left, Google Maps.

3.0 THE SITE AND AREA

The site is in Highgate within the London Borough of Haringey, roughly 1 mile south of Alexandra Palace. Alexandra Palace Gardens and Common. The site within 42 Shepherd's Hill where the proposed single dwelling building is to be constructed occupies a rectangular plot approximately 22m by 5.5m, is bounded to the south by Shepherd's Hill and to the north by the main house garden. There will be a change in level between the two gardens, whereby the main garden will be approximately 1.6m below the main garden level.

Highgate is divided among three London boroughs: Haringey in the north, Camden in the south and west, and Islington in the south and east. The postal district is N6 and it is located at the northeastern corner of Hampstead Heath, with Crouch End to the west. The map of London Environs, dated 1800, shows Highgate as an area of minor development and although Hampstead Heath and Crouch End are already identified, the adjacent area we know as Alexandra Palace has not yet been identified. See Figure 3. The Groom's Map of Middlesex 1883, Figure 4, suggests that there was little development in the Highgate area outside of the main roads.

The map in Figure 5, Bartholomew's Handy Reference Atlas of London & Suburbs, dated 1908 gives a street layout to Shepherd's Hill similar to the present day. Figure 6 shows further development in the street that would have included number 42 and similar buildings adjacent to it. Figure 7 shows the current street layout from Google maps.

These maps summarise that the property at 42 Shepherd's Hill was built in the early 1900s, which is consistent with the style of the property.

London was heavily bombed during WWII and many areas suffered ordnance damage. A search of Bomb Sight, <http://bombsight.org>, indicates that there were several incidents near no. 42, which might explain why the adjacent blocks of flats to the site are of a post war, modern construction.



Figure 3: Map of London Environs, 1800.

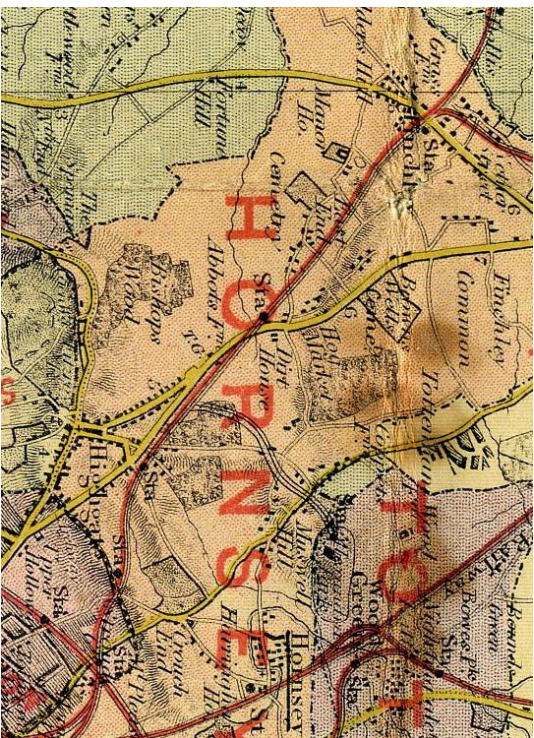


Figure 4: Groom's new map of Middlesex, 1883.

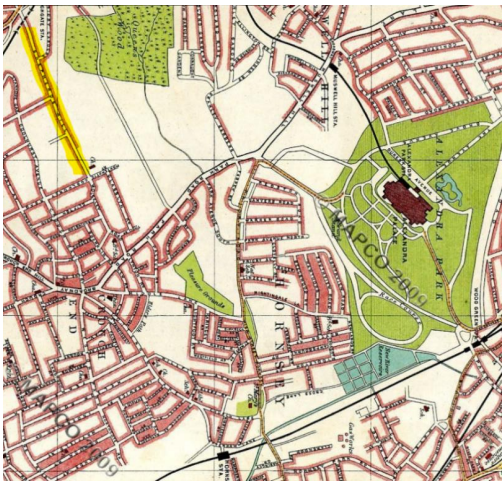


Figure 5: Shepherd's Hill highlighted in yellow, southeast of Alexandra Palace. Bartholomew's Handy Reference Atlas of London & Suburbs 1908

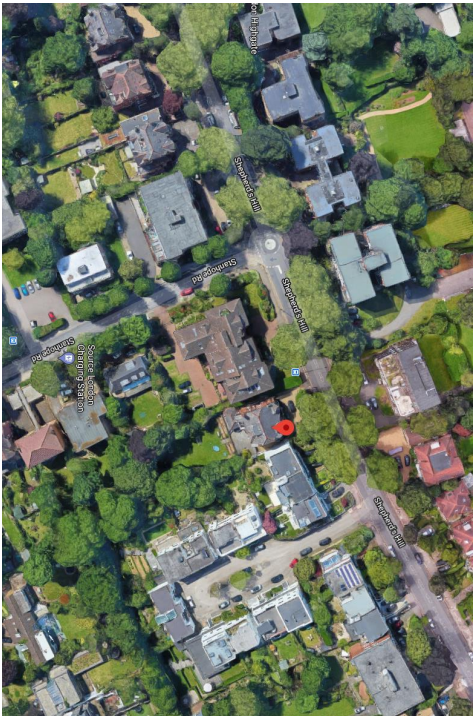


Figure 7: Extract from Google Maps, showing present day layout of the streets

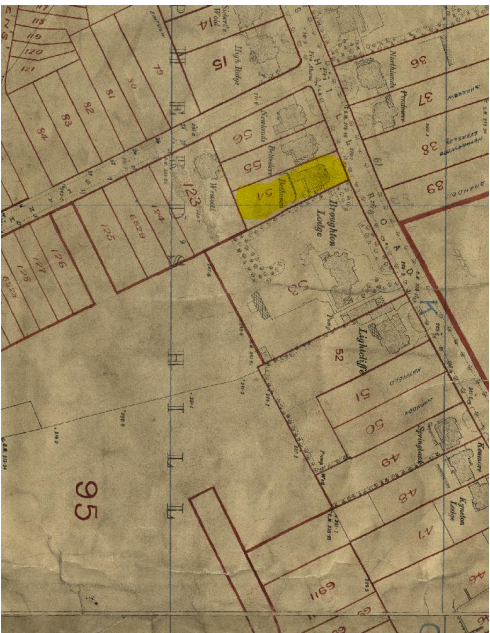


Figure 6: Extract from Inland Revenue Valuation Office Survey map, dated 1910, showing the development at Shepherd's Hill and in particular the building at no.42, highlighted in yellow.

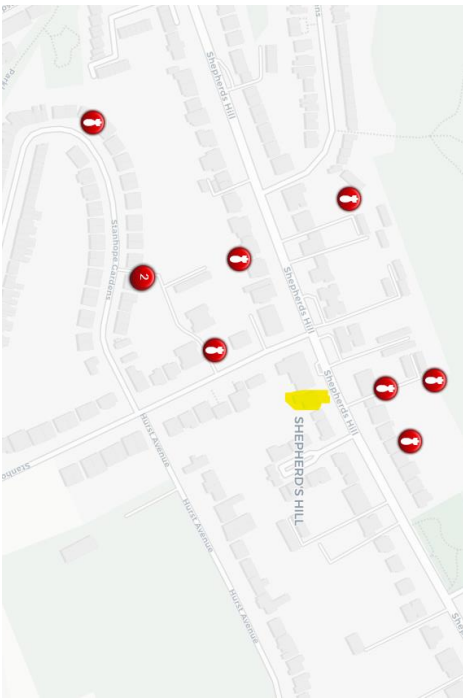


Figure 8: Bombsight WW2 records of the area

4.0 LOCAL GEOLOGY & HYDROGEOLOGY

The British Geological Survey Map indicates that this area of London is underlain by London Clay. A borehole carried at no. 5 Shepherd's Hill corroborates this information (Figure 10). This borehole also denotes the presence of groundwater 1.2ft (approx. 4m) below ground level. Further trial pits and site investigations will be carried within the property post planning to ascertain the existing foundation profiles on both buildings that the new dwelling will adjoin, soil properties and the presence of groundwater. The depth of the proposed basement will not affect The London Aquifer which is to be found around 100m below the London Clay.

If the groundwater encountered at no. 5 is representative of the situation at no.42, the water level is approx. 0.5m below the proposed basement level. As such, active groundwater is not expected to be a primary design feature for the depth of the basement proposed for this site, however it will be designed to the current design standards (British or Euro) which require the water table to be *considered* at ground level, so allowing for the impact and influence of burst water mains etc. and the basement will be designed for a ½ depth of water for similar reasons. However it should be noted that the level of the basement is going to match the garden level at the rear, which continues to slope away from the property to the south. Therefore the impact of any groundwater on the overall basement is negligible.

The Environment Agency's Flood Map for planning, indicates that the land and property at 42 Shepherd's Hill lies within Flood Zone 1 and is considered Low Risk, having a less than 1 in 1,000 annual probability of river or sea flooding and therefore does not require a full Flood Risk Assessment (FRA) for planning, refer to Figure 11 and Appendix B of this report. The site is also within a zone of Very Low Risk of flooding from surface water, see Figure 12, extract from Environmental Agency site.

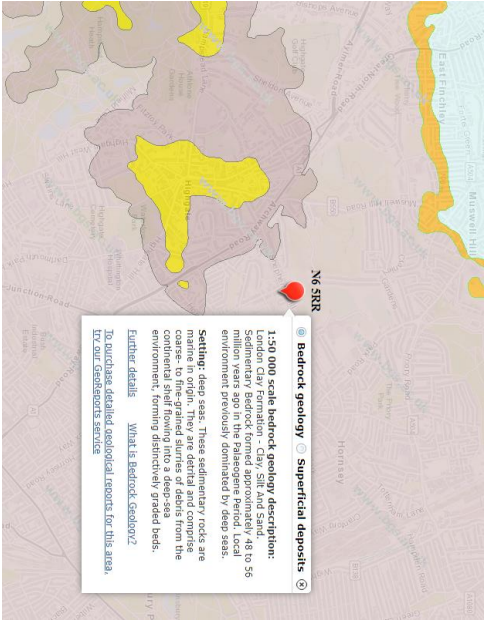


Figure 9: British Geological Survey (BGS) map, for 42 Shepherd's Hill postcode.

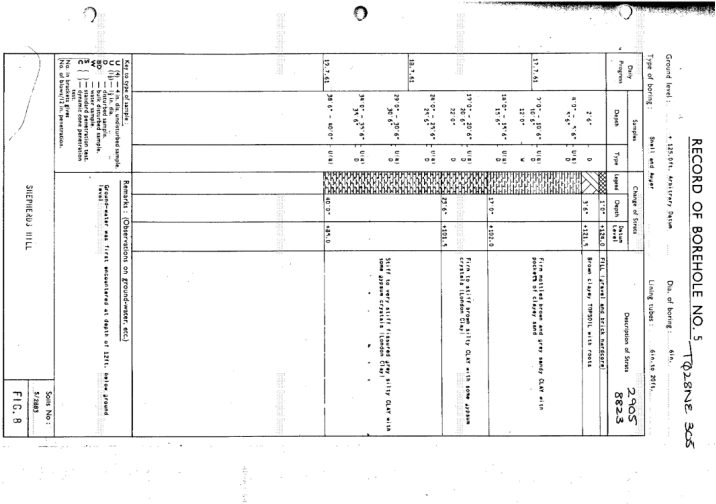


Figure 10: Borehole at no. 5 Shepherd's Hill, BGS.

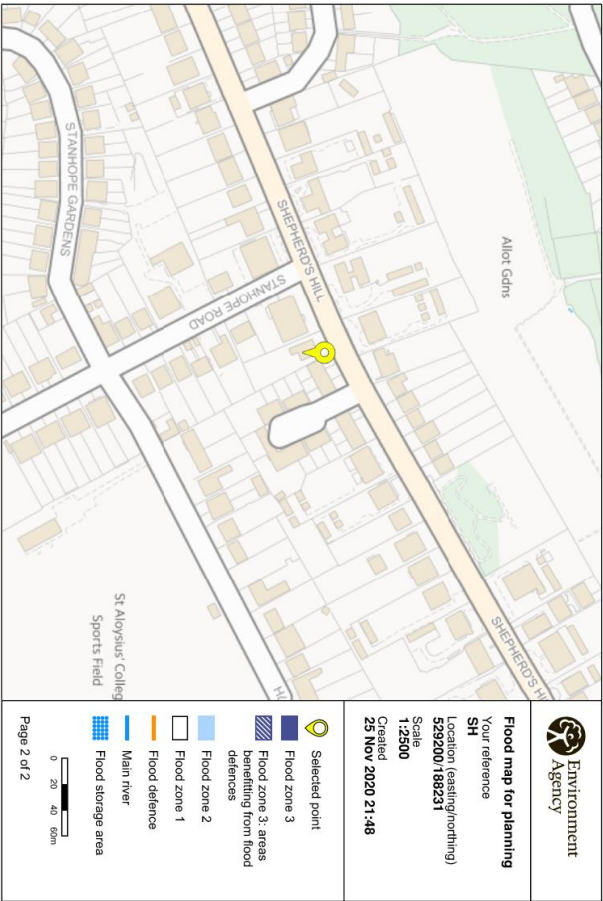


Figure 11: Extract from Environmental Agency flood maps.

<https://flood-map-for-planning.service.gov.uk/confirm-location?easting=529113&northing=190095&placeOfPostcode=n10%202ld>



Figure 12: Extract from Environmental Agency Surface flood maps.

<https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?easting=529201&northing=188238&map=SurfaceWater>

5.0 THE EXISTING BUILDING

According to the desk study conducted on the site, the existing building within 42 Shepherd's Hill is more than likely the first and only on this site, and if not then is certainly the most substantial. Given its age, the property is of solid load bearing masonry walls, supporting timber floor joists and timber gable ended cut purlin roof, boarded and clad with slate tiles. This is consistent with Edwardian Construction, a period from 1901 to 1910 was short and heavily influenced by The Arts and Crafts Movement and as an evolution from the previous Victorian era, refer Figure 14.

The building is in apparent good condition and there is no evidence of distress or damage to the construction or fabric of the building, such as bulges, cracks, significant ingress of water or decay, the floors are level and the walls are plumb and sound. The new development to the rear will aim to minimise the impact on this existing building as discussed below.

The adjacent block of flats, seen in Figure 13, is of modern construction which can be composed of either loadbearing cavity walls with RC slabs, or a complete RC frame. The foundations for these types of buildings along the perimeter are typically spread or pad RC footings, which will be located and identified during the next stages of design with trial pits.

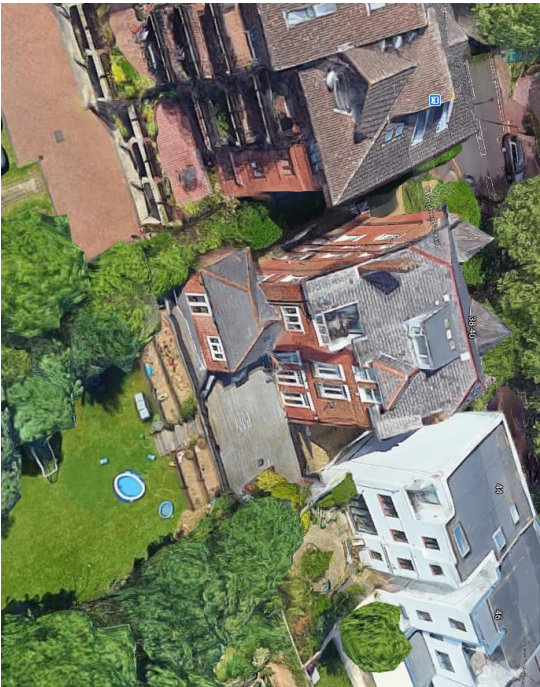


Figure 13: 3D view of the rear of the property, showing some localised modern intervention at roof level.

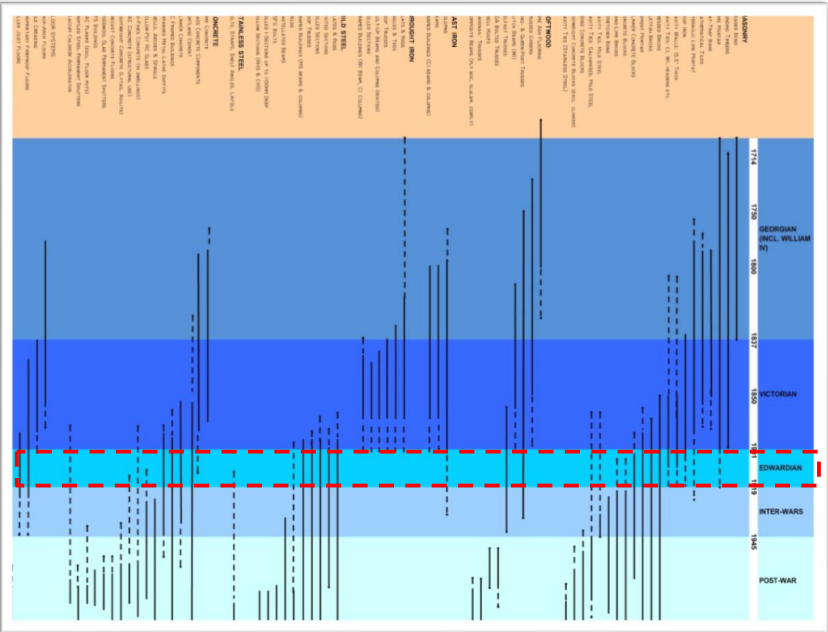


Figure 14: Construction timeline.

6.0 THE PROPOSED DEVELOPMENT

The proposed development comprises the extension of the existing basement and construction of a new kitchen extension, with some internal refurbishing of the existing property.

Below the original house and the rear extension exists an existing Lower Ground Floor, Basement, which has a reduced headroom. It is proposed to extend this down in two of the main areas by approximately 1 m in the outer rooms which will be connected to the proposed basement extension and which will have a more generous headroom. The proposed extended basement volume lies entirely within the curtilage of the site not exceeding in width the existing building being approximately 3.5m and 5m from the adjacent blocks of flats to either side of no.42. Therefore, the depth of the excavation will still invoke the Party Wall Act in relation to the neighbouring properties and the construction of this basement will have to be undertaken with care and due consideration to these walls. In particular to no. 44 where the excavation will be deeper to accommodate the new swimming pool.

The walls at the interface between the new and existing basements will have to be underpinned to match the proposed new levels on both the pool and general areas. For these areas, achieving the new basement will be more straightforward to realise.

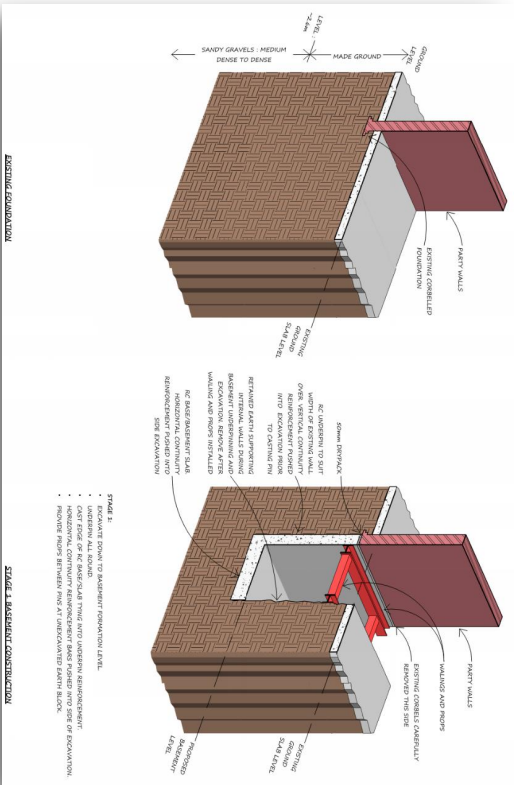
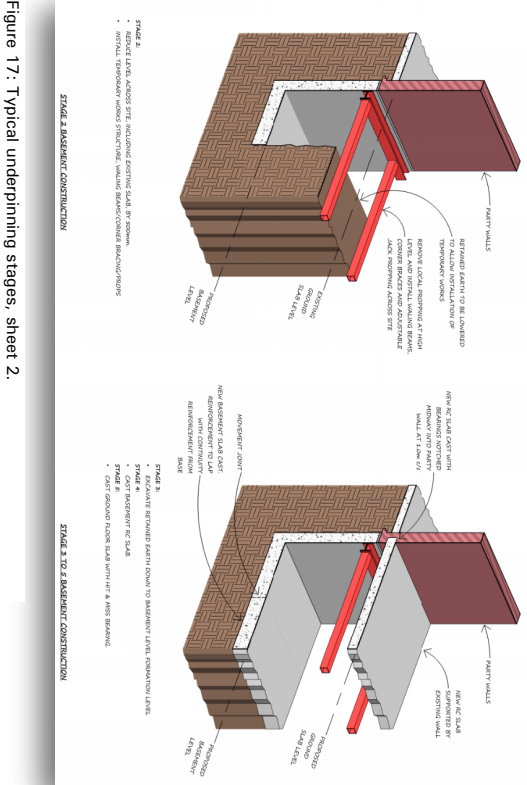
BELOW GROUND LEVEL

Removing approximately 3.5m at the front and 1.5m at the rear of underlying soil to accommodate the basement will relieve some of the pressure on the underlying London Clay. However, there will be the weight of the new construction imposed around the perimeter and we estimate that this relief will not be significant, will not lead to noticeable swelling of the clay and so will not impact significantly on the surrounding buildings and foundations. , which has been our experience empirically and theoretically in similar developments in this area of London. There are no known buried services in the area but a survey before works commence will be required to identify, establish and protect if necessary, during the construction process.

The new basement will be constructed in reinforced concrete. Although expected to be above the prevailing groundwater level the new construction will be provided with either *Type A (barrier)*, *Type B (structurally integrated)* or *Type C (Drained)* protection against ingress of water, as defined by BS 8102:2009 and constructed and detailed to achieve a Grade 3 Level of Performance, as defined by BS 8102:2009.

Table 2 Grades of waterproofing protection

Grade	Example of use of structure A)	Performance level
1	Car parking; plant rooms (excluding electrical equipment); workshops	Some seepage and damp areas tolerable, dependent on the intended use B) Local drainage might be necessary to deal with seepage
2	Plant rooms and workshops requiring a drier environment (than Grade 1); storage areas.	No water penetration acceptable Damp areas tolerable; ventilation might be required
3	Ventilated residential and commercial areas, including offices, restaurants etc.; leisure centres	No water penetration acceptable Ventilation, dehumidification or air conditioning necessary, appropriate to the intended use
A) The previous edition of this standard referred to Grade 4 environments. However, this grade has not been retained as its only difference from Grade 3 is the performance level related to ventilation, dehumidification or air conditioning (see BS 5454 for recommendations for the storage and exhibition of archival documents). The structural form for Grade 4 could be the same or similar to Grade 3.		
B) Seepage and damp areas for some forms of construction can be quantified by reference to industry standards, such as the ICS's <i>Specification for piling and embedded retaining walls</i> [1].		



We propose that this construction is achieved using a combination of retained excavations and underpinning techniques and sequencing to build in the walls in stages, horizontally and vertically. The basement wall to the rear may be constructed in open excavation in a controlled sequence, with the ground held back with trench sheeting and props.

Although a lengthy process, underpinning by hit-&miss (1, 3, 5, 2, 4) sequence is a low-impact technique that permits the maximum space to be achieved and has the least impact on existing constructions, boundaries and the like. Casting the wall in pins controls the extent of soil exposed, avoids extensive temporary works and they can be controlled in size and sequence to reflect and accommodate the condition. The material removed will be made ground and silty clay and while their excavation will relieve pressure on the underlying, stiffer London Clay, our determination and expectation are that this relief will not lead to noticeable swelling of the clay and so will not impact significantly on the surrounding buildings and foundations. Such heave that may occur will mostly, i.e. >50%, occur immediately on excavation, much of the remainder during the works leaving a small residual pressure that the new construction will accommodate.

It is expected that there is no active groundwater within the proposed construction zone but to achieve Grade 3 Performance. The architect will put forward proposals for the primary protection layer, and the further drained cavity liner to the walls and new basement slab.

The new RC basement slab will be a thick, reinforced concrete raft cast on a suitable sub-base and will be formed off the underlying London Clay, a construction that will allow bearing pressure to be generated evenly across the plot.

ABOVE GROUND LEVEL

The basement walls will be propped at the base by the raft slab and, at the top, by the ground floor slab, the level of which will be similar to the existing ground level. It is proposed to form this slab of composite decking spanning onto steel beams, which will be supported off the new RC wall to no.44 side and new internal walls to be constructed within the new basement space. Steel frames will be also be installed at areas where large openings are proposed, such as the rooflight to the swimming pool. The existing retaining walls will be re-used where possible for this scheme and the interface with the new basement walls will be confirmed with trial pits, to be carried at the next stages of design.

The drawings included in Appendix D outline the proposed structural scheme for this development.

7.0 FLOODING & DRAINAGE

As demonstrated in Section 4 of this report, the property is in Flood Zone 1 (with < 0.1% chance of flooding a year), also refer to Appendix B.

We have carried out a study on the local Watercourses and identified that the River Thames runs approximately 9 Km away to the south of the property, therefore has no impact. We have looked at "The Lost Rivers of London", which does not cover this area, however the Haringey Council Strategic Flood Risk Assessment shows the watercourses which have been considered "lost", i.e., culverted and no longer superficial. Shepherd's Hill is between two branches of the Moselle, currently culverted, however not close enough that these will have an impact on the proposed works (Figure 18).

The new foul waste arriving at the revised basement level and drainage serving the pool will be handled by a pumped drainage system. Similarly, the drained cavity waterproofing system will be handled by a separate pumped system. Both systems will be protected by non-return valves and be pumped up to be discharged via an inspection chamber, de pressurised, and then pass into the existing gravity system and out to the sewer, all in accordance with the statutory requirements. A CCTV drainage survey will be carried out before the commencement of the works to ensure that this system is in a satisfactory condition. The current owners of the property occupy and use the system and we have no knowledge of any local problems.

The rear garden slopes away from the property and there are no local ponds or streams that have been identified as close enough to impact the proposed works.

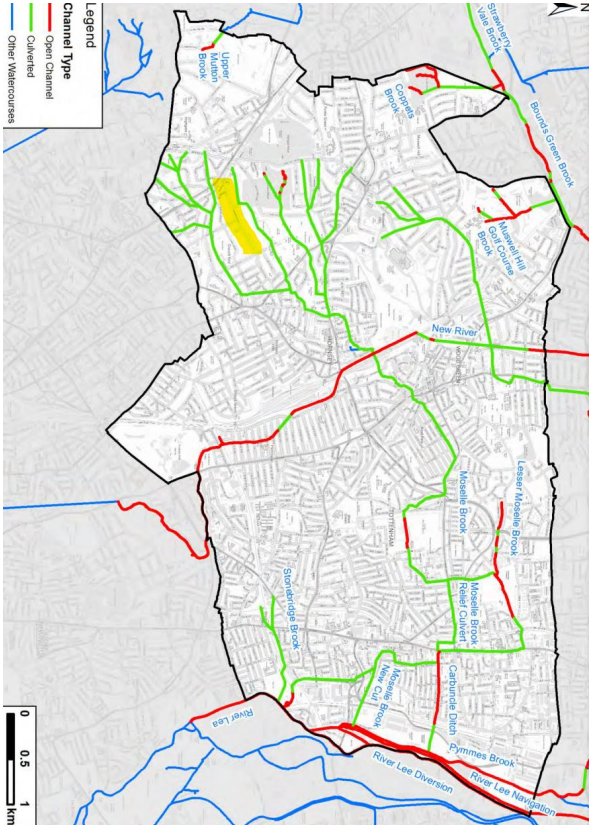


Figure 18: Channel type for Haringey "watercourses" (lost rivers), with Shepherd's Hill highlighted in yellow. Haringey Council Strategic Flood Risk Assessment

8.0 RISKS TO & IMPACT ON SURROUNDING BUILDINGS

The proposed development is a relatively low-level, low-density construction and will incorporate the existing boundaries in its envelope.

The surrounding buildings fall in to Group 2 defined by BS ISO 4866:2010, i.e. **Modern Buildings and Structures** and Group 1a defined by BS ISO 4866:2010, i.e. **Ancient, Historical or Old**. The foundations to the new building fall in to Classes B & C and the soil as Type e: from Table B1 of BS ISO 4866 the surrounding buildings fall within Category 5 and 6 and can be considered to have a medium resistance to vibration. From Table B.2 of BS ISO 4866 the surrounding buildings fall into Class 5-6, which are deemed to have a medium level of resistance to vibration and, conversely, to require no or little protection against vibration for the types of works intended.

- Although the construction will be further below ground level than the existing building it will not be significantly deeper than the lowest level of the surrounding buildings.
- The basement construction is expected not to be lower than the prevailing groundwater level in this area for the majority of the footprint so is not expected to interfere with the natural flow of the groundwater.
- The building will be formed off the stiff underlying London Clay, which has a significant bearing capacity, and the foundations will be designed to reflect the recommended permissible pressures and ensure they will not be compressed by more than 25mm.
- Removal of the existing construction will generate little or no relief and consequent heave in the underlying London Clay
- The boundary walls on two sides can be retained safely and easily following industry-standard practices and, by following a pre-determined sequence will allow the basement wall to be constructed without detriment to the existing, surrounding construction.
- Excavations for the pins that will form the new basement walls can be undertaken using a small excavator, which will be low-impact technique and known not to generate excessive vibration.

Adopting a controlled and sequenced work process will limit any damage to surrounding buildings to Category 0, or 1 on The Burland Scale, Hairline or Very Slight cracks, easily repaired with filling & decoration, Figure 19.

The contractor will be required to monitor ground movements during the works to check the validity of the ground movement analysis and the performance of the installed temporary works and methodology. The usual process for this is for a “Traffic light” system of **Green**, **Amber 7mm**, and **Red 10mm**, trigger values, each being assigned a set of actions to be taken by the contractor. Figure 20.

Summary:

Trigger Level	Action
Green/Amber 7mm	Immediately notify the engineers. Increase frequency of monitoring to a daily basis.
Amber/Red 10mm	Contractor to stop all works and immediately notify the engineers. Contractor and project engineer to put forward proposals, such as additional propping, to limit further movement to an acceptable level.

Monitoring of the surrounding buildings will be carried out during the works and reported back to the interested parties through the mechanics of the Party Wall Award, that will be agreed between the parties before the proposed extension to the existing basement can proceed on site.

Damage Category	Description of Typical Damage	Approximate Individual Crack Width
Very Slight (1)	Hairline cracks	< 0.1 mm
Slight (2)	Very slight damage includes fine cracks which can be easily treated during normal decoration, perhaps on isolated slight fracture in building, and cracks in external walls, some loss of bearing in beams, and disrupted service pipes.	1 mm
Moderate (3)	Slight damage includes cracks which can be easily filled and redecoration would probably be required, several slight fractures may appear showing the inside of the building, cracks which are visible externally and some repointing may be required, and doors and windows may stick.	< 5 mm
Severe (4)	Moderate damage includes cracks that require some opening up and can be patched by a mason, recurrent cracks that can be masked by suitable linings, repointing of external brickwork and possibly a small amount of brickwork replacement may be required, doors and windows stick, service pipes may fracture, and weather-tightness is often impaired.	5 mm to 15 mm
Very Severe (5)	Severe damage includes large cracks requiring extensive repair work, involving breaking-out and replacing sections of walls (especially over doors and windows), distorted windows and door frames, noticeably sloping floors, leaning or bulging walls, some loss of bearing in beams, and disrupted service pipes.	15 mm to 25 mm
	Very severe damage often requires a major repair job involving partial or complete rebuilding, beams lose bearing, walls lean and require shoring, windows are broken with distortion, and there is danger of structural instability.	> 25 mm

Table 1: Severity of Cracking Damage^{4,5}

Figure 19: Damage scale, red zone is non-structural damage.

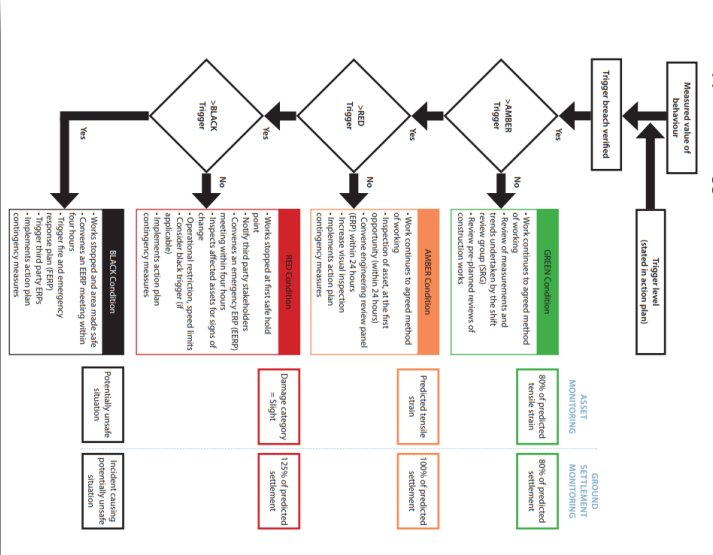


Figure 20: Monitoring Action plan

9.0 CONSTRUCTION METHODS & SEQUENCE

The excavation for, and construction of the basement will need to be completed without involving or disturbing the surrounding buildings. The sequence of the works for the excavation and construction phases of this project will, ultimately, be prepared by the contractor who will undertake the works, but we expect and will guide them towards a sequence similar to the following:

- Sequenced construction of the perimeter retaining wall* and partial underpinning of the existing interface between new and existing basement (* open dig possible for rear retaining wall by battering back soil at a safe angle of repose),
- Pins to start at four or five locations reducing to one at completion, following a traditional 1 3 5 2 4 sequence
- Arisings removed by conveyor to skips or wagons. The contractor may opt to store arisings temporarily before removal from site,
- Break out existing patio at the front and initial excavation,
- Installation of temporary support to retaining walls,
- Bulk excavation of basement volume down to formation level
- Cast basement floor slab,
- Construction of new ground floor slab,
- Removal of temporary props.

By adopting an underpinning technique and following a hit-&-miss sequence it will be possible to construct the basement without extensive temporary works. Local props and sheeting may be required to support excavations and at the conclusion of the perimeter walls. Vertical continuity reinforcement between the pins will not be required as the depths of the underpins means that they can be carried out in a single "Drive". Horizontal continuity between pins will be provided.

Shepherd's Hill is a significant two wall road connecting A1201 Park Road with the main A1 Archway Road. It has parking on both sides but will accommodate construction traffic. The site has space within its boundary for temporary material storage. However, a Contractor's traffic management plan will still be necessary to manage construction traffic and deliveries and storage of construction materials on site.



Conveyor to Remove Excavation Arisings



Small wagon



Temporary storage of arisings



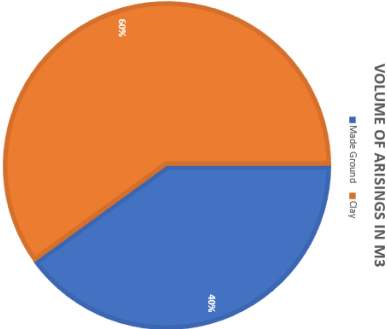
Shored Excavation for an underpin

10.0 NOISE & NUISANCE

Construction works generally are a source of noise and nuisance which can affect both operatives with the work site as well as neighbours and passing members of the public. Demolition and excavation works are particular sources of this potential harm so it will be necessary during these works at 42 Shepherd's Hill for the contractor to mitigate the extent and impact of noise, dust, traffic and vibration.

- Noise:** Generated by the mechanical equipment used to demolish existing construction and excavate for the new basement; Mitigated by using electrical equipment where possible and mufflers or attenuators on diesel engines or generators, by working only within agreed and designated hours;
- Dust:** Generated by excavation works and the transfer of arisings from the works area to the disposal skip or wagon; Mitigated by damping conveyors when in operation, by installing a weatherproof cover over the rear of the site, by washing-down vehicle wheels before leaving site;
- Traffic:** Generated by delivery and removal vehicles travelling to and from site; Mitigated by establishing a traffic management plan, by identifying and using routes appropriate to the vehicles, by scheduling vehicle movements to avoid peak traffic periods, by ensuring vehicles are low-emission standard
- Vibration:** Generated by use of heavy breakers for sustained periods and by heavy vehicles Mitigated by using light, hand-held and electrical breakers, by avoiding excessively heavy vehicles.
- Protection:** Robust hoarding will be erected around the site, front rear and sides, to secure the site from intrusion as well as provide protection to neighbours and passing public from noise, dust and material arisings

The works will cover around 120m² and excavate to an average of 2.5m over the area, which will generate almost 385m³ of spoil as follows, assuming a 1m layer of made ground and 2.5m of clay, as suggested by the information shown in Figure 10:



Small Excavator used near Boundaries



11.0 CONCLUSIONS

The proposed development of 42 Shepherd's Hill can be achieved using standard construction techniques and materials. The new construction is not expected to be beneath the prevailing groundwater level. The new basement can be constructed using relatively light techniques, in controlled and pre-determined sequences and without the need for a large open excavation before construction can start and consequent extensive temporary works. Where mechanical means are necessary to construct permanent works, these can be of a type that generates low vibrations to which the surrounding buildings have a form and construction that is robust and resistant to.

- As outlined in Section 8 above, the construction of the subterranean basement will not affect the integrity of the surrounding building stock, will not disturb underlying hydrogeology or overload the near-surface geology.
- The site is on relatively level ground in any case but, notwithstanding this, the construction techniques and sequences proposed minimises the risk of instability, ground slip and movement.
- There are no critical utilities or infrastructure beneath the site that cannot be relocated easily to accommodate the construction and, the property constitutes a single-family house so there will minimal impact on the local infrastructure.
- The excavation for and construction of the basement extension will need to be completed without involving or disturbing the surrounding buildings. Underpinning will be cast in 1m-sections of mass or reinforced concrete. By adopting an underpinning technique and following a hit&-miss, 1 3 5 2 4 , sequence, as described above it will be possible to construct the extension to the existing basement to the extent required in a carefully sequenced and managed process without extensive temporary works.
- The subterranean works are in a position so as not to have any impact to nearby trees, this has been confirmed by a separate arboriculturist report.
- Any temporary works needed will be designed by the Contractor to current British Standards.
- The surrounding roads are wide enough and without tight bends or corners that will hinder or prevent site traffic and will not cause site traffic to hinder or delay local and residential traffic

Post planning, Michael Barclay Partnership will be appointed as consulting Civil and Structural engineers by the owner of the property for the next stages of the project. This appointment will encompass both the design and construction stages of the project and we will be making regular visits to the site throughout the works to monitor that they are being carried out in accordance with our drawings and specifications.

Report Version	Issue Date	Prepared By
P1	11/12/2020	Ana Aquino MSc CEng MICE
	Checked by	Tony Hayes BSc(Hons) CENG
		MIStructE



APPENDIX A: Borehole log for 5 Shepherd's Hill

RECORD OF BOREHOLE NO. 5 ~~TQ28NE 305~~

Ground level: 4.125.0ft. Arbitrary Datum Dia. of boring: 6in.
Type of boring: Split and Auger Lining tubes: 6in. to 20ft.

Samples Program	Depth	Type	Change of Strata		Description of Strata
			Legend	Depth Level	
2'-6"		D		1'-0"	2905 8823
4'-0" - 4'-6"		U (U)		3'-6"	FILL (gravel and brick masonry)
12'-0"		U		+121.5	Brown clay, TOPSOIL with roots
17'-7.5ft		U (U)			Fine mottled brown and grey sandy CLAY with pockets of clayey sand
18'-0" - 18'-6"		U (U)		17'-0"	+102.0
20'-0" - 20'-6"		U (U)			Fine to stiff brown silty CLAY with some brown crystals (London Clay)
22'-0"		D		23'-6"	+101.5
24'-0" - 24'-6"		U (U)			
25'-0" - 25'-6"		U (U)			
29'-0" - 29'-6"		U (U)			
30'-0" - 30'-6"		U (U)			
34'-0" - 34'-6"		U (U)			
35'-0" - 35'-6"		U (U)			
38'-0" - 38'-6"		U (U)			
40'-0"		U (U)			
40'-0"		U (U)			

Key to type of sample:
U (U) - 4 in. dia. undisturbed sample
D (D) - bulk disturbed sample
BD - bulk disturbed sample
S (S) - standard penetration test
C (C) - dynamic cone penetration
No. in brackets
No. of blows/12 in. penetration.

Remarks: (Observations on ground-water, etc.)

Ground-water was first encountered at depth of 12ft. below ground level.

SHEPHERD'S HILL

Soils No.:
5/2883

FIG. 8

APPENDIX B: EA FLOOD MAP ASSESSMENT

Flood map for planning

Your reference
SH

Location (easting/northing)
529200/188231

Created
25 Nov 2020 21:48

Your selected location is in flood zone 1, an area with a low probability of flooding.

This means:

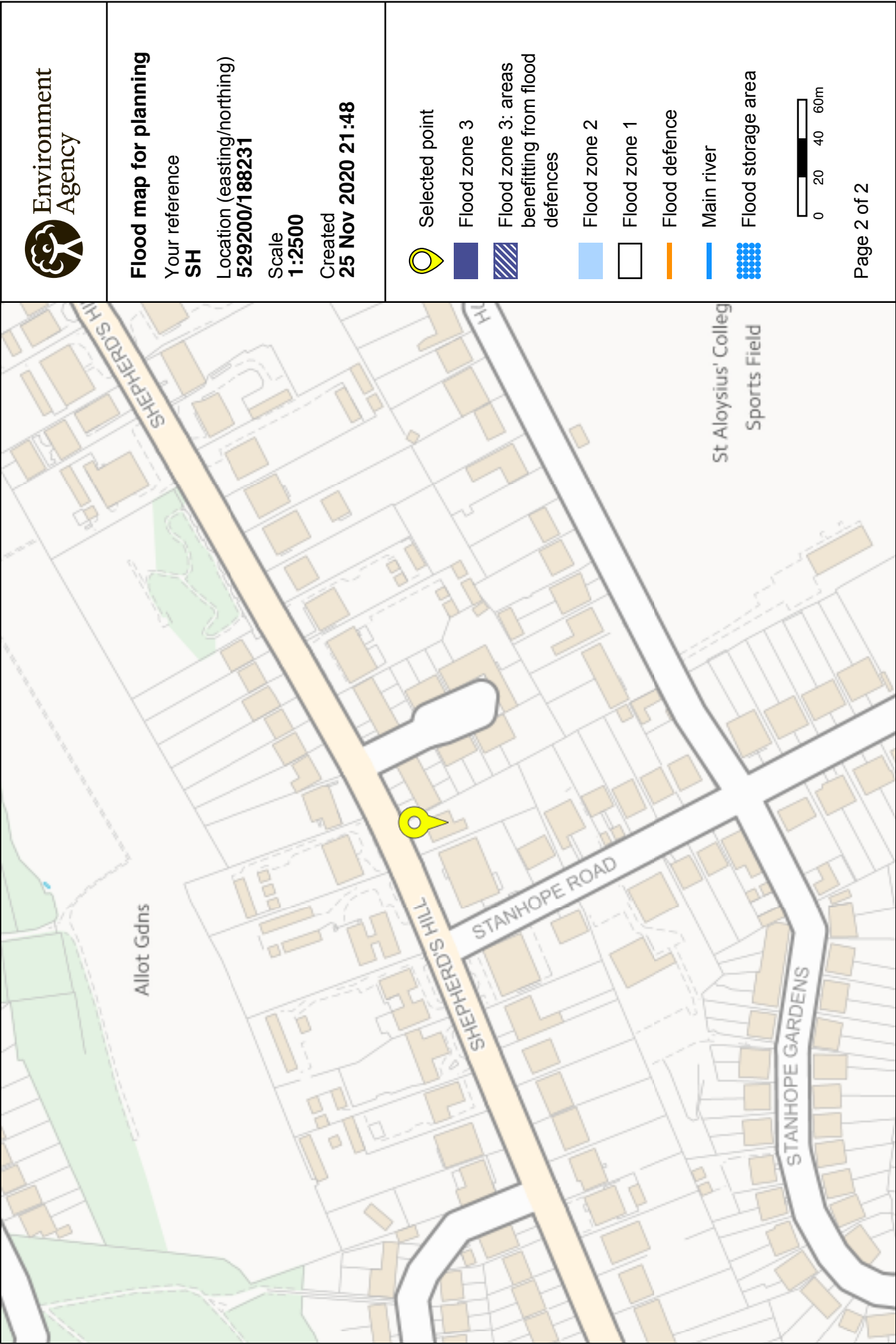
- you don't need to do a flood risk assessment if your development is smaller than 1 hectare and not affected by other sources of flooding
- you may need to do a flood risk assessment if your development is larger than 1 hectare or affected by other sources of flooding or in an area with critical drainage problems

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.

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



APPENDIX C: PROCEDURES FOR CONTROL OF NOISE, DUST & NUISANCE

To control the disturbance due to noise and vibrations, all works on site will be restricted to the hours of Monday to Friday 8am to 6pm, Saturdays 8am to 1pm. Works that create excessive noise and/or vibration are prohibited, as are any works on Sundays and the bank holidays. The contractor employed to undertake the work will be a member of the considerate constructor scheme.

Appropriate measures will be taken to keep dust pollution to a minimum. These measures are compliant with the local authority's Basements SPD. Such measures will include the use of water to suppress dust and soil being excavated from basement level, covers for conveyors and skips, and barriers installed around dusty activities that are undertaken externally.

All work will be carried out in accordance with BS 5228-1:2009 and BS 5228-2:2009. All works will employ Best Practicable Means as defined by section 72 of the Control of Pollution Act 1972 to minimise the effects of noise and vibration. All means of managing and reducing noise and vibration which can be practicably applied at reasonable cost will be implemented.

The following measures will be taken:

- Consultation/ communication with neighbours/affected others prior to the start of the works.
- Use only of modern, quiet and well-maintained equipment, all of which will comply with the EC Directives and UK regulations set out in BS 5228-1:2009
- Use of electrically powered hand tools rather than air powered tools and a compressor will be used for to the minimum extent practicable
- Avoidance of unnecessary noise (such as engines idling between operations or excessive engine revving, no radios, no shouting)
- Use of screws and drills rather than nails for fixing hoarding.
- Careful handling of materials, so no dropping off materials from an excessive height (no more than 2m) into skip etc.
- Ensuring that the conveyor is well maintained with rollers in good working order and well oiled.
- Isolating the neighbouring properties from vibration /breaking out work where practicable.
- Collection /delivery times will be as given in the CTMP

Collection/delivery vehicles will not loiter/wait in the area before the allowed times

- No site run-off of water or mud until the water has been left to settle and is free from particles
- During Demolition:
- Special Care to ensure the site is closed over
- Dust suppression with water if necessary (if needed (recommended)
- Cutting equipment to use water suppressant or local extraction & ventilation

If measures to control dust are unsuccessful works will be stopped and alternative methods proposed and implemented

A detailed CTMP will be prepared by the contractor undertaking the works

APPENDIX D: STRUCTURAL SCHEME

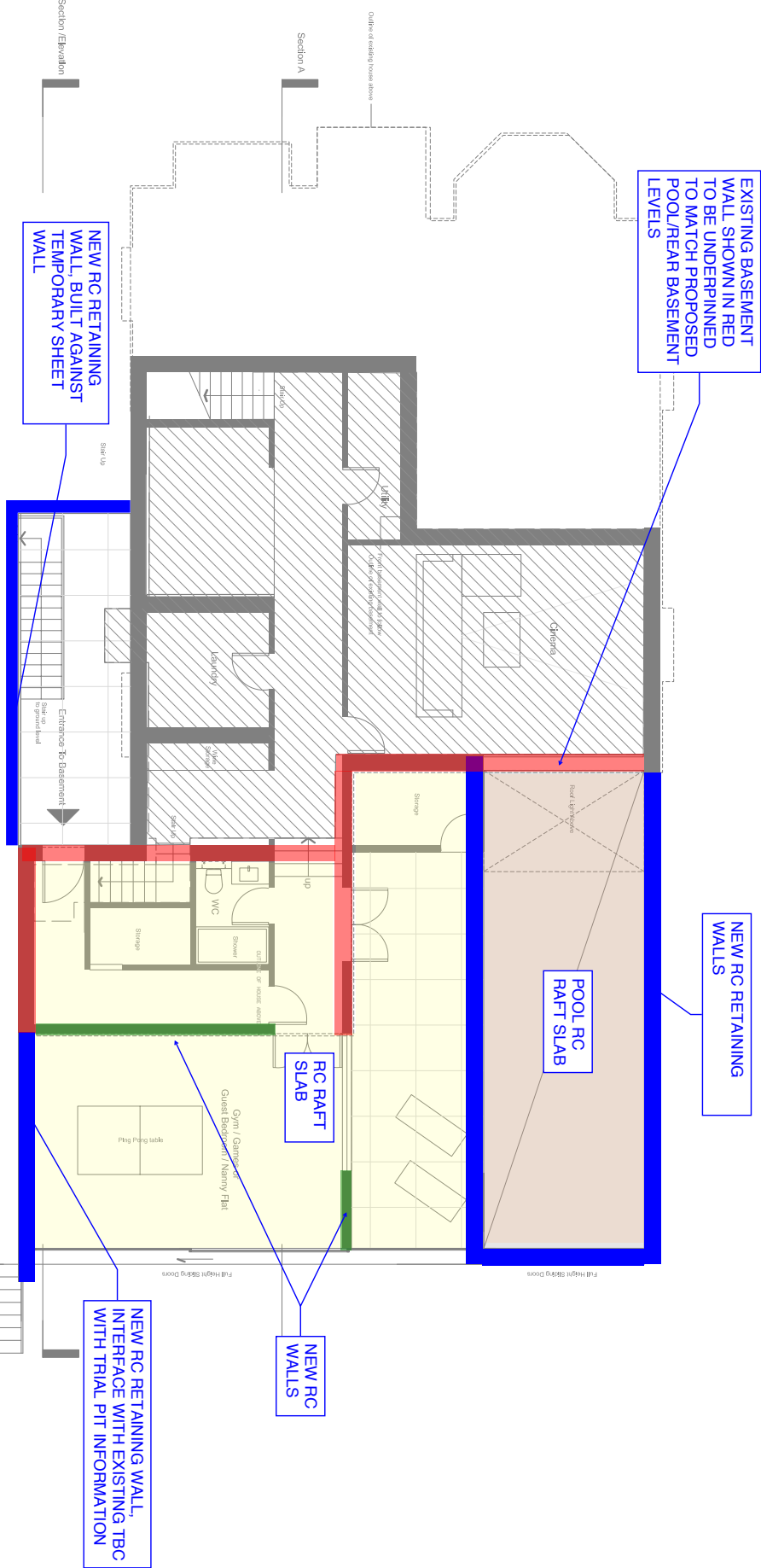
Hatched area is existing basement



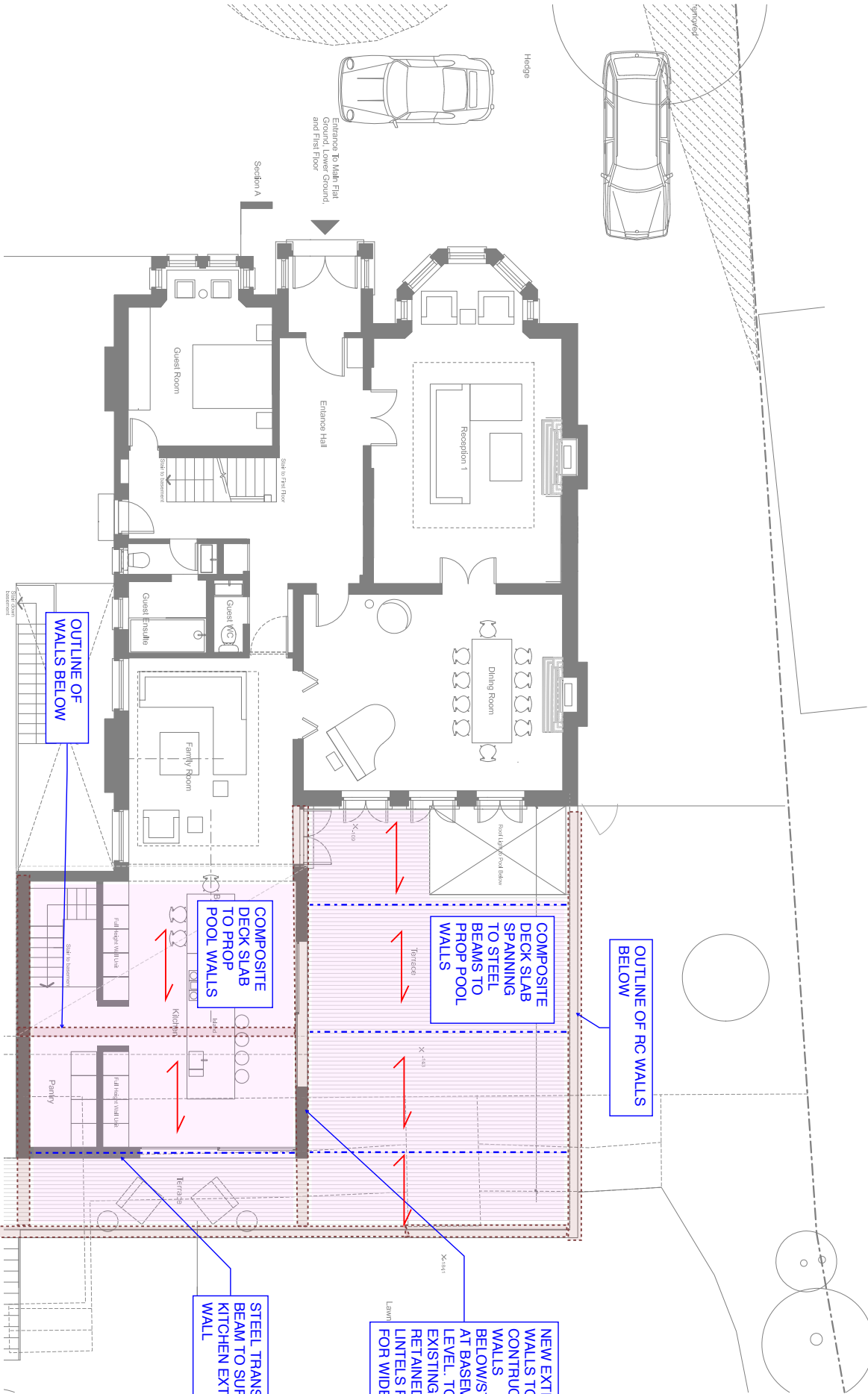
Do not scale your drawings.
Errors in the woodwork attributable to the Architect.
To be read in conjunction with all adjacent Architect's,
Structural and Structural Engineers' drawings.
All existing info. not and building information has been corrected for
different sources. All alterations to be checked on file.

[illegible]

JASON GOOD



MBP Michael Barclay Partnership consulting engineers	
Chronicle House, 72 - 74 Fleet Street London EC4Y 1HY T 020 7240 1191 E london@mbp-uk.com W mbp-uk.com	Job 42 SHEPHERD'S HILL Title PROPOSED BASEMENT SCHEME Drawing Number MBP / 8168 / SK101 Revision P1
Scale NTS Date DEC20 By AA Checked TH	Rev P1 Date 09.12.20 Description PRELIMINARY By AA Status PRELIMINARY

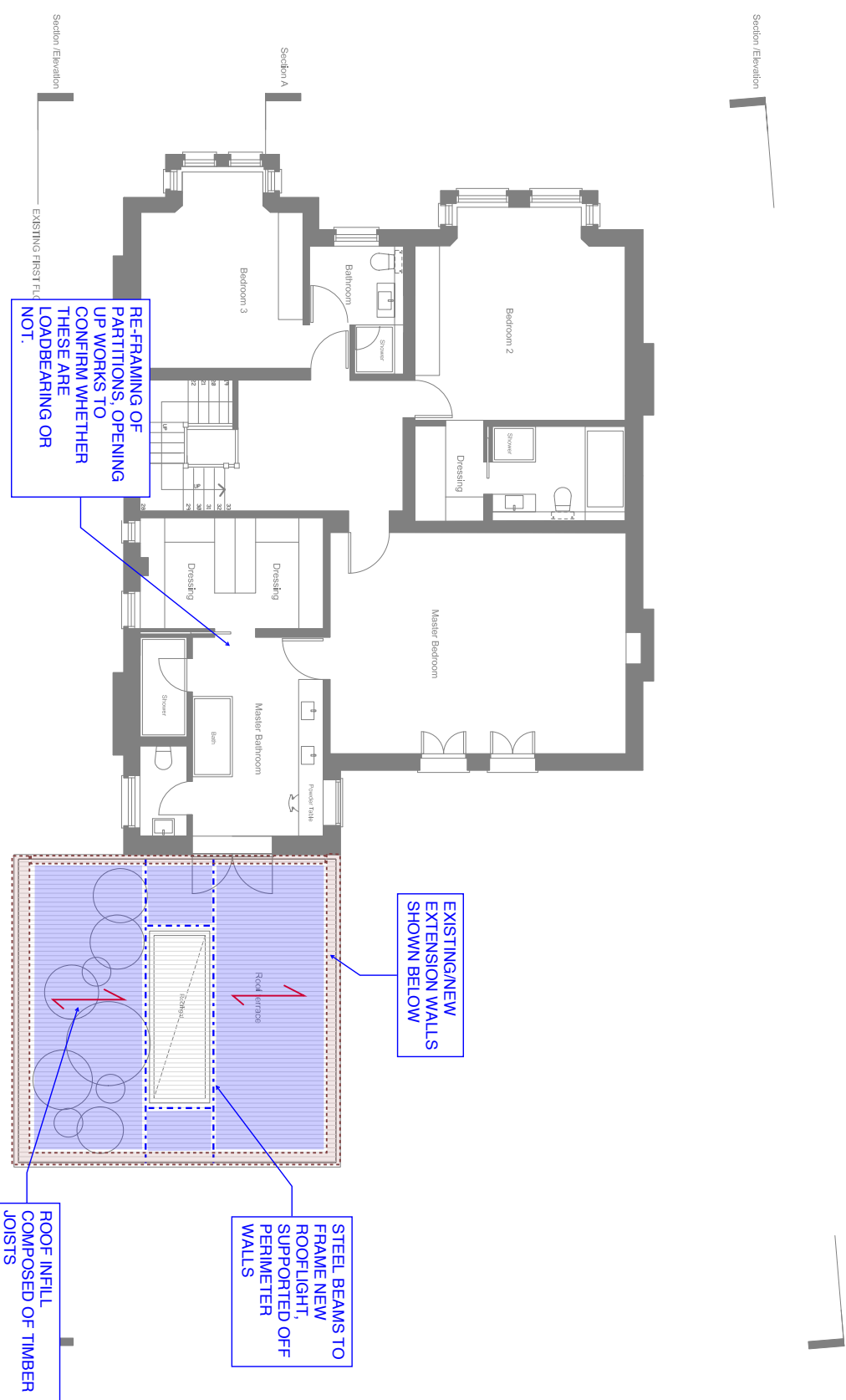


Rev	Date	Description	By
P1	09.12.20	PRELIMINARY	AA

Job	42 SHEPHERD'S HILL
Scale	NTS
Date	DEC20
By	AA
Checked	TH
Status	PRELIMINARY

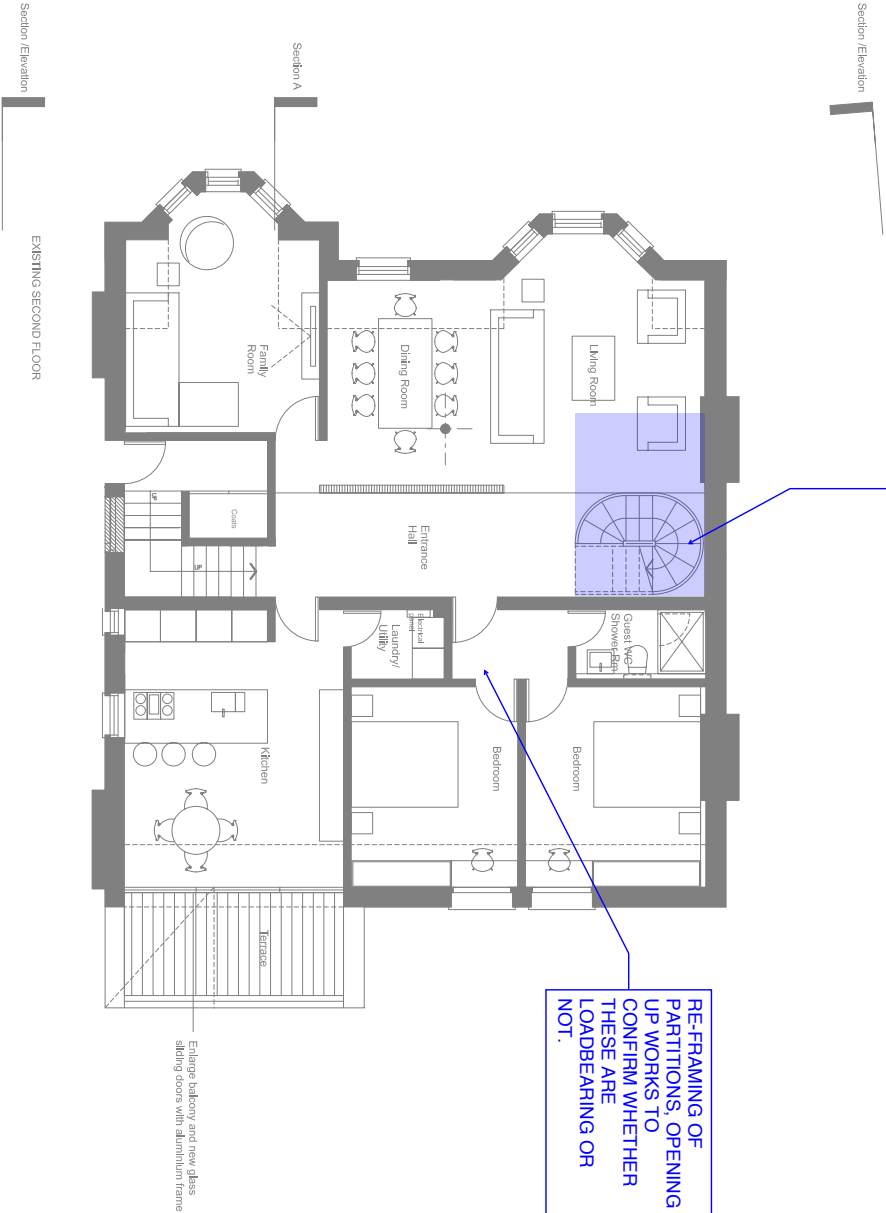
Title	PROPOSED GROUND FLOOR SCHEME
Drawing Number	MBP / 8168 / SK102
Revision	P1

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LOCALISED STRENGTHENING OF FLOOR TO ACCOMMODATE NEW STAIRCASE. TO BE CONFIRMED WITH OPENING UP WORKS

RE-FRAMING OF PARTITIONS, OPENING UP WORKS TO CONFIRM WHETHER THESE ARE LOADBEARING OR NOT.



Section Elevation

EXISTING SECOND FLOOR

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OPTIONAL NOTES

Scale: 1:500, 1:1000, 1:2000, 1:5000, 1:10000

North Arrow

Notes:

1. This drawing is a preliminary design and is not to be used for construction purposes.

2. All dimensions are given in millimetres unless otherwise stated.

3. The client is responsible for obtaining all necessary permissions and consents for the proposed works.

4. The client is responsible for ensuring that the proposed works do not conflict with any existing planning or building regulations.

5. The client is responsible for ensuring that the proposed works do not conflict with any existing covenants or easements.

6. The client is responsible for ensuring that the proposed works do not conflict with any existing rights of way or access.

7. The client is responsible for ensuring that the proposed works do not conflict with any existing rights of light or ventilation.

8. The client is responsible for ensuring that the proposed works do not conflict with any existing rights of support or protection.

9. The client is responsible for ensuring that the proposed works do not conflict with any existing rights of burial or interment.

10. The client is responsible for ensuring that the proposed works do not conflict with any existing rights of burial or interment.

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APPENDIX E: LONDON BOROUGH OF HARINGEY SUBTERRANEAN DEVELOPMENT DM18 CHECKLIST

a. Will not adversely affect the structural stability of the application building, neighbouring buildings and other infrastructure, including the adjoining highway, having regard to local geological conditions	Included
b. Does not increase flood risk to the property and nearby properties from any source (see Policy DM24)	Included
h. Will not cause harm to pedestrian, cycle, vehicular and road safety, adversely affect bus or other transport operations, significantly increase traffic congestion, nor place unreasonable inconvenience on the day to day life of those living, working or visiting nearby	Included
i. Will minimise construction impacts such as noise, vibration and dust for the duration of the works.	Included

The contractor will monitor the adjacent structures and party walls for movements throughout the principal demonstration & construction works and, in the event of any movements exceeding the agreed target levels the method of works will be reviewed and altered as necessary.

- The monitoring regime and frequency proposed is:

Target monitoring will monitor the party walls and front and rear elevations with an accuracy of ± 2 mm. The results of the monitoring are to be recorded and issued by email to the project engineer, CA and engineers for the adjoining properties, on the day that the results are taken. The results are to be presented both in table and graphical form with the graphs for each point plotting the readings taken against time. The following actions will be taken if the trigger levels are exceeded:

Appendix F: trigger level and actions

```

graph TD
    A[Measured value of water level] -- No --> B[Trigger level  
(based on action plan)]
    A -- Yes --> C[Trigger breach verified]
    C --> D{>A40ER  
Trigger}
    D -- Yes --> E[Work continue to agreed method  
Review of measurements and trends undertaken by the shift  
Review pre-planned reviews of construction works  
ASSET CONDITION  
80% of predicted residual stress  
MONITORING  
80% of predicted settlement  
SETTLEMENT MONITORING]
    D -- No --> F[Work continue to agreed method  
Review of measurements and trends undertaken by the shift  
Review pre-planned reviews of construction works  
ASSET CONDITION  
80% of predicted residual stress  
MONITORING  
80% of predicted settlement  
SETTLEMENT MONITORING]
    E --> G{>AED  
Trigger}
    F --> G
    G -- Yes --> H[Work continue to agreed method  
Review of measurements and trends undertaken by the shift  
Review pre-planned reviews of construction works  
ASSET CONDITION  
80% of predicted residual stress  
MONITORING  
80% of predicted settlement  
SETTLEMENT MONITORING]
    G -- No --> I[Work continue to agreed method  
Review of measurements and trends undertaken by the shift  
Review pre-planned reviews of construction works  
ASSET CONDITION  
80% of predicted residual stress  
MONITORING  
80% of predicted settlement  
SETTLEMENT MONITORING]
    H --> J{>BLACK  
Trigger}
    I --> J
    J -- Yes --> K[Work stopped at first sign load capacity has been reached  
Identify third party stakeholders  
Commence an emergency EEP (EEP) meeting within four hours  
Operational restriction, speed limits  
Contingency measures  
BLACK CONDITION  
Work stopped and new made safe within four hours  
Trigger fire and emergency  
Trigger third party EEPs  
Implementers action plan  
Contingency measures]
    J -- No --> L[Work stopped and new made safe within four hours  
Trigger fire and emergency  
Trigger third party EEPs  
Implementers action plan  
Contingency measures]
  
```

The flowchart illustrates the trigger level and actions for different conditions. It starts with a decision diamond 'Measured value of water level'. If 'No', it leads to 'Trigger level (based on action plan)'. If 'Yes', it leads to 'Trigger breach verified'. From 'Trigger breach verified', it goes to a decision diamond '>A40ER Trigger'. If 'Yes', it leads to 'Work continue to agreed method', then 'Review of measurements and trends undertaken by the shift', then 'Review pre-planned reviews of construction works', then 'ASSET CONDITION', then '80% of predicted residual stress', then 'MONITORING', then '80% of predicted settlement', then 'SETTLEMENT MONITORING'. If '>A40ER Trigger' is 'No', it leads to 'Work continue to agreed method', then 'Review of measurements and trends undertaken by the shift', then 'Review pre-planned reviews of construction works', then 'ASSET CONDITION', then '80% of predicted residual stress', then 'MONITORING', then '80% of predicted settlement', then 'SETTLEMENT MONITORING'. From 'SETTLEMENT MONITORING', it goes to a decision diamond '>AED Trigger'. If 'Yes', it leads to 'Work continue to agreed method', then 'Review of measurements and trends undertaken by the shift', then 'Review pre-planned reviews of construction works', then 'ASSET CONDITION', then '80% of predicted residual stress', then 'MONITORING', then '80% of predicted settlement', then 'SETTLEMENT MONITORING'. If '>AED Trigger' is 'No', it leads to 'Work continue to agreed method', then 'Review of measurements and trends undertaken by the shift', then 'Review pre-planned reviews of construction works', then 'ASSET CONDITION', then '80% of predicted residual stress', then 'MONITORING', then '80% of predicted settlement', then 'SETTLEMENT MONITORING'. From 'SETTLEMENT MONITORING', it goes to a decision diamond '>BLACK Trigger'. If 'Yes', it leads to 'Work stopped at first sign load capacity has been reached', then 'Identify third party stakeholders', then 'Commence an emergency EEP (EEP) meeting within four hours', then 'Operational restriction, speed limits', then 'Contingency measures', then 'BLACK CONDITION', then 'Work stopped and new made safe within four hours', then 'Trigger fire and emergency', then 'Trigger third party EEPs', then 'Implementers action plan', then 'Contingency measures'. If '>BLACK Trigger' is 'No', it leads to 'Work stopped and new made safe within four hours', then 'Trigger fire and emergency', then 'Trigger third party EEPs', then 'Implementers action plan', then 'Contingency measures'.