

# FLOOD RISK ASSESSMENT

EXTENSION OF EXISTING HOUSE AND PROVISION OF A GARDEN  
STUDIO

AT  
THE MOORINGS, EEL PIE ISLAND, TWICKENHAM, TWI 3DY

JUNE 2019

**CLIVE CHAPMAN**  
**ARCHITECTS**  
SUSTAINABILITY CONSULTANTS

4 EEL PIE ISLAND  
TWICKENHAM MIDDX  
■■■■ TWI 3DY ■■■■  
TELEPHONE 020 8891 4837  
EMAIL INFO@CCAR.CO.UK  
WEBSITE WWW.CCAR.CO.UK

1.0	INTRODUCTION.....	2
2.0	POLICY CONTEXT.....	2
3.0	EXISTING SITE & PROPOSALS.....	2
3.1	SITE LOCATION.....	2
3.2	SURVEYS.....	3
3.3	SITE DESCRIPTION.....	3
3.4	PROPOSALS.....	4
3.5	WATERCOURSE AND EXISTING FLOOD DEFENCES.....	4
3.6	SAFE ACCESS ARRANGEMENTS AND FLOOD WARNING SERVICE.....	5
3.7	FLOW ROUTES AND FLOOD STORAGE.....	5
3.8	FLOOD RESILIENT MEASURES.....	6
4.0	CONCLUSION.....	6

## 1.0 INTRODUCTION

This Flood Risk Assessment (FRA) has been prepared by Clive Chapman Architects to support a planning application for the extension of the existing house and provision of a garden studio at 'The Moorings' on Eel Pie Island.

## 2.0 POLICY CONTEXT

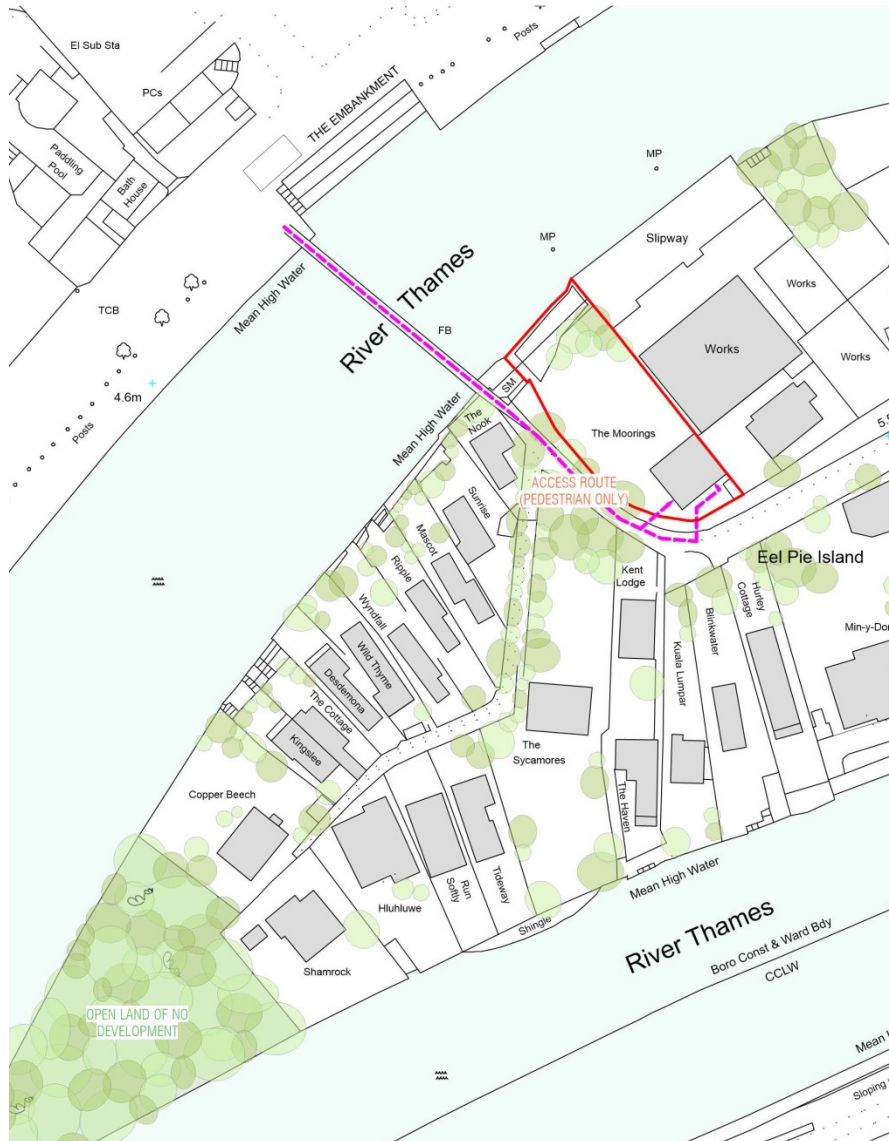
This report has followed advice provided for householders and other extensions within Flood Zones 2 and 3. The advice for minor extensions states that the floor levels of the extension should remain the same as the existing dwelling.

See **Appendix I**: EA Guidance: Householder and other minor extensions in Flood Zones 2 and 3

## 3.0 EXISTING SITE & PROPOSALS

### 3.1 SITE LOCATION

The site is located at the North side of Eel Pie Island, Twickenham, which is accessed via a footbridge from The Embankment.



See **Appendix 2** – TM2019-01 Site Location Plan

### 3.2 SURVEYS

See **Appendices 3 & 4** for the Topographical Survey of the site, showing existing site levels and elevations (both prepared by Twickenham Surveys).

### 3.3 SITE DESCRIPTION

The site comprises a single storey dwelling with a room in the roof which was built in the 1980s. The house is not a Building of Townscape Merit but does lie in a Conservation Area.

The finished floor level of the existing house is 5.515m AODN and unlike other properties on the island it is not protected by a flood defence wall. The ground levels around the existing building vary between 4.85 m AOD and 5.27 m AOD.

The dwelling's rear elevation is 26 metres away from the River Thames.

### 3.4 PROPOSALS

The proposed planning application comprises the extension of the existing house and construction of a garden studio. See **Appendix 5** for the proposed plans and elevations prepared by Clive Chapman Architects.

The proposed works will not alter the existing floor levels and the level of the extension will remain the same as the existing dwelling. The proposed extension is 30 m<sup>2</sup>.

The garden studio is proposed to have an area of 18m<sup>2</sup> and it is to be raised of the ground by 400mm to allow water flow underneath the structure.

### 3.5 WATERCOURSE AND EXISTING FLOOD DEFENCES

Eel Pie Island is situated in the River Thames, downstream of Teddington Weir. The Island is impacted by tidal flooding.

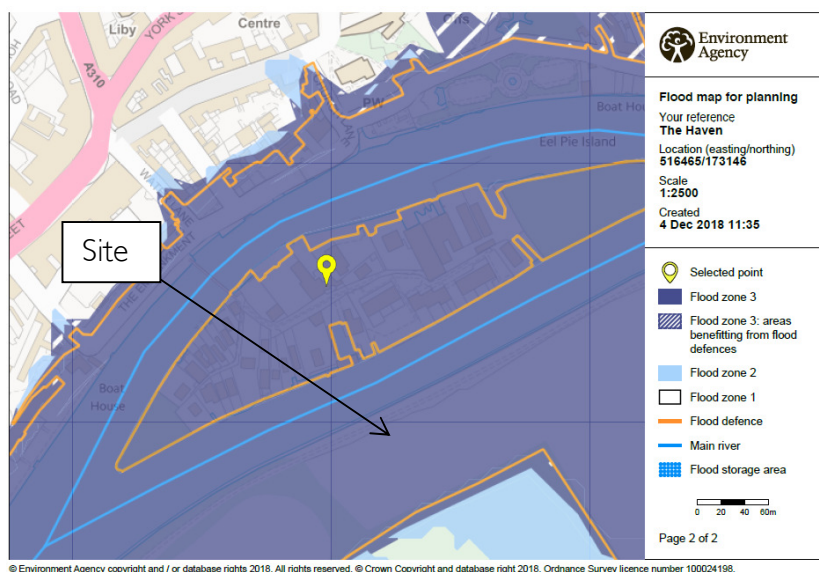


Fig 04 – Environment Agency flood map

It can be seen from the Environmental Agency Flood Zone Map that the site lies within Flood Zone 3 'High Probability'; Flood Zone 3 is 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.<sup>1</sup>

Following the receipt of a Product 4 request from the Environment Agency, however, (see **Appendix 6**), they consider that the site is "at extreme low residual risk of tidal flooding only", and that the published Flood Map for Planning (fig.04), does not take into consideration the Thames Barrier or embankment defences.

### 3.6 SAFE ACCESS ARRANGEMENTS AND FLOOD WARNING SERVICE

Access and egress to Eel Pie Island is provided via a pedestrian footbridge connecting to Twickenham Embankment. During a severe flood event, it is likely that this route will be impacted by tidal flood water; this means that occupants of 'The Moorings' will need to have a managed evacuation, prior to flood water impacting this means of escape.

The EA provide a comprehensive warning service for flooding for the River Thames through *Flood Warnings Direct*. The pedestrian route from the site to the across the footbridge to the embankment has a walking time of approx. 2 minutes. Therefore it is considered that occupants would be able to evacuate the property safely in advance of a flood event following receipt of a flood warning being issued from the EA.

### 3.7 FLOW ROUTES AND FLOOD STORAGE

The proposed new studio will be elevated above the ground level with a void underneath with openings in line with the current Environmental Agency guidance. This ensures that there will be no loss of floodable area as a result of the addition existing flow route across the site will be maintained.

---

<sup>1</sup> Environment Agency Flood Map for Planning Risk: <http://apps.environment-agency.gov.uk/wiyby/cy/151263.aspx> accessed 05/12/2018

### 3.8 FLOOD RESILIENT MEASURES

In accordance with the advice for minor extensions flood proofing measures will be considered where necessary during the detailed design stage.

## 4.0 CONCLUSION

This flood risk assessment has been prepared to support an application for the extension of the existing residential dwelling and the construction of a new garden studio at 'The Moorings' on Eel Pie Island.

It is concluded that the floor levels within the proposed development will be set no lower than existing levels and, flood proofing of the proposed development will be incorporated where appropriate.

---

#### List of appendices

- 1 EA Guidance: Householder and other minor extensions in Flood Zones 2 and 3
- 2 HEPI-01 Site Location Plan 1 to 500 at A3
- 3 Topographical Survey
- 4 Elevations of Existing
- 5 Proposed Floor Plan
- 6 Product 4

Route to this page -->Step by Step-->non-res < 250m2-->No culvert/20m-->Flood Zone 2

Restart

Print Form

## Householder and other minor extensions in Flood Zones 2 and 3

**This guidance is for domestic extensions and non-domestic extensions where the additional footprint created by the development does not exceed 250 sq. metres. It should NOT be applied if an additional dwelling is being created, e.g. a self contained annex. In this instance consult the Environment Agency.**

We recommend that:

### Planning Authorities:

- 1) Refer the applicant to the standing advice pages on the Environment Agency website or provide them with a copy of this page for them to include as part of the planning application submission.
- 2) Check the planning application to ensure that one or other of the mitigation measures from the table below has been incorporated.

### Applicants:

Complete the table below and include it with the planning application submission. The table, together with the supporting evidence, will form the Flood Risk Assessment (FRA) and will act as an assurance to the Local Planning Authority (LPA) that flood risk issues have been adequately addressed.

Applicant to choose one or other of the flood mitigation measures below	Applicant to provide the LPA with the supporting Information detailed below as part of their FRA	Applicant to indicate their choice in the box below. Enter 'yes' or 'no'
Either ;  Floor levels within the proposed development will be set no lower than existing levels AND, flood proofing of the proposed development has been incorporated where appropriate.	Details of any flood proofing / resilience and resistance techniques, to be included in accordance with ' <i>Improving the flood performance of new buildings</i> ' CLG (2007)	YES
Or;  Floor levels within the extension will be set 300mm above the known or modelled 1 in 100 annual probability river flood (1%) or 1 in 200 annual probability sea flood (0.5%) in any year. This flood level is the extent of the Flood Zones	This must be demonstrated by a plan that shows finished floor levels relative to the known or modelled flood level. All levels should be stated in relation to Ordnance Datum <sup>1</sup>	

### Subterranean/basement extensions

Due to the risk of rapid inundation by floodwater basements should be avoided in areas at risk of flooding. The LPA may hold additional guidance for basement extensions.

Self-contained basement dwellings are 'highly vulnerable' development and should not be permitted in Flood Zone 3. We are opposed to these developments.

### Continued...

<sup>1</sup> Ordnance Datum or the abbreviation 'OD' is the mean level of the sea at Newlyn in Cornwall from which heights above sea level are taken. The contour lines on Ordnance Survey maps measure heights above OD for example, though these are not accurate enough for a flood risk assessment..



## Cumulative impact of minor extensions and the removal of Permitted Development rights.

There is potential for cumulative impact of minor extensions to have a significant effect on flood risk. Where local knowledge (Strategic Flood Risk Assessment held by the LPA/information provided by the parish council) suggests this is the case the guidance contained in FRA guidance note 2 should be applied. FRA guidance note 2 can also be applied where permitted development rights have been removed for flood risk reasons. The Environment Agency does not usually comment on minor development in this category.

### Permeable paving and changes to permitted development rights for householders

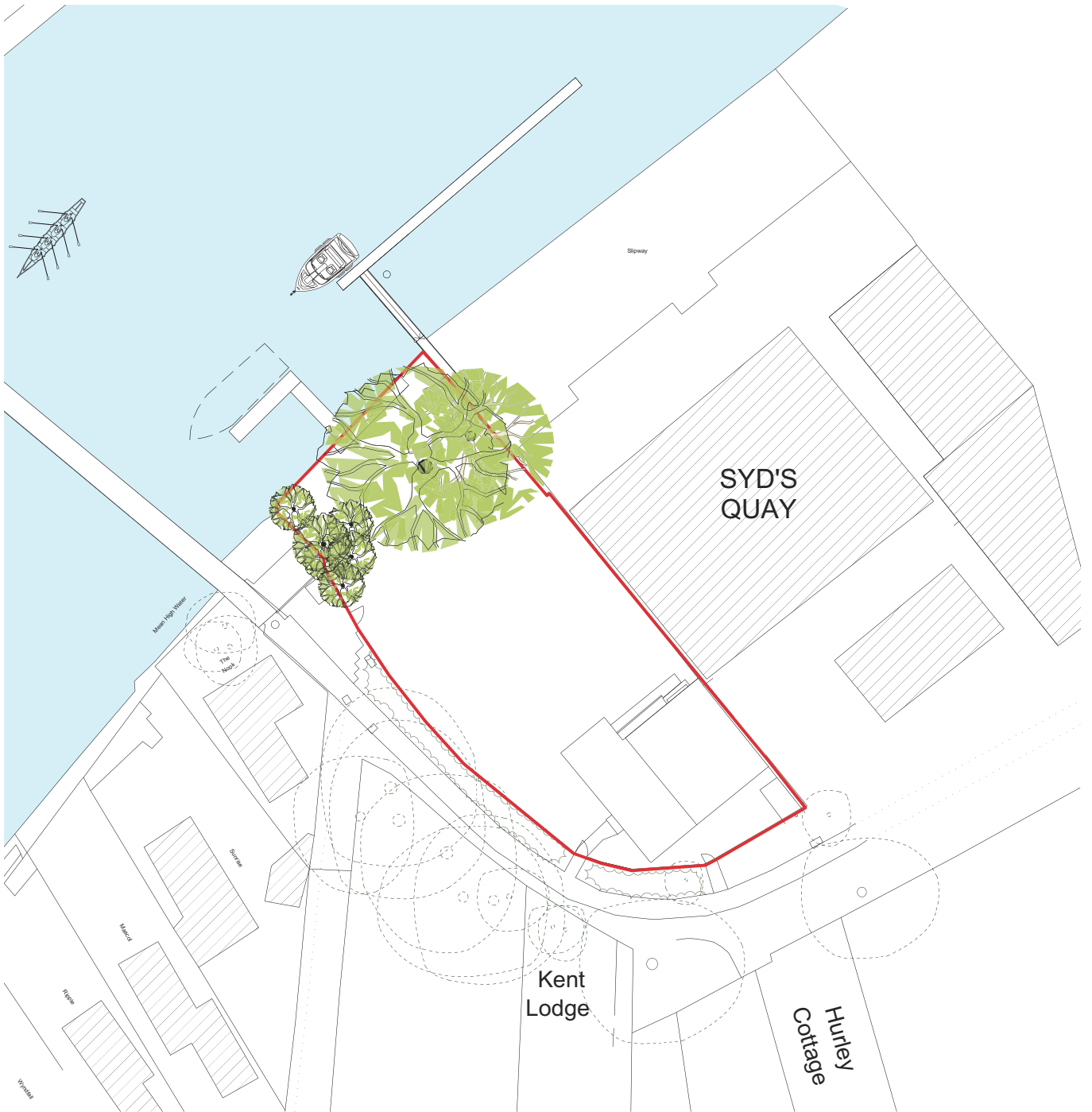
On the 1<sup>st</sup> October 2008 the General Permitted Development Order (GPDO) in England was amended by the Government (Statutory Instrument 2008 No. 2362).

One of the changes introduced by the GPDO amendment is the removal of permitted development rights for householders wishing to install hard surfacing in front gardens which exceeds 5sq. metres (i.e. 1m x 5 m) without making provision to ensure permeability. This means that use of traditional materials, such as impermeable concrete, where there is no facility in place to ensure permeability, requires an application for planning permission.

In order to help and advise householders of the options for achieving permeability and meeting the condition for permitted development status the Department for Communities and Local Government (CLG) has produced guidance on permeable paving which can be found on the following link <http://www.communities.gov.uk/publications/planningandbuilding/pavingfrontgardens>

The Environment Agency supports the GPDO amendment as it is in line with the recommendations of the Pitt Report regarding the need to better tackle the impact of surface water flooding. However, Local Planning Authorities should determine these applications in accordance with the CLG guidance **without** consulting the Environment Agency.

**End of comment**



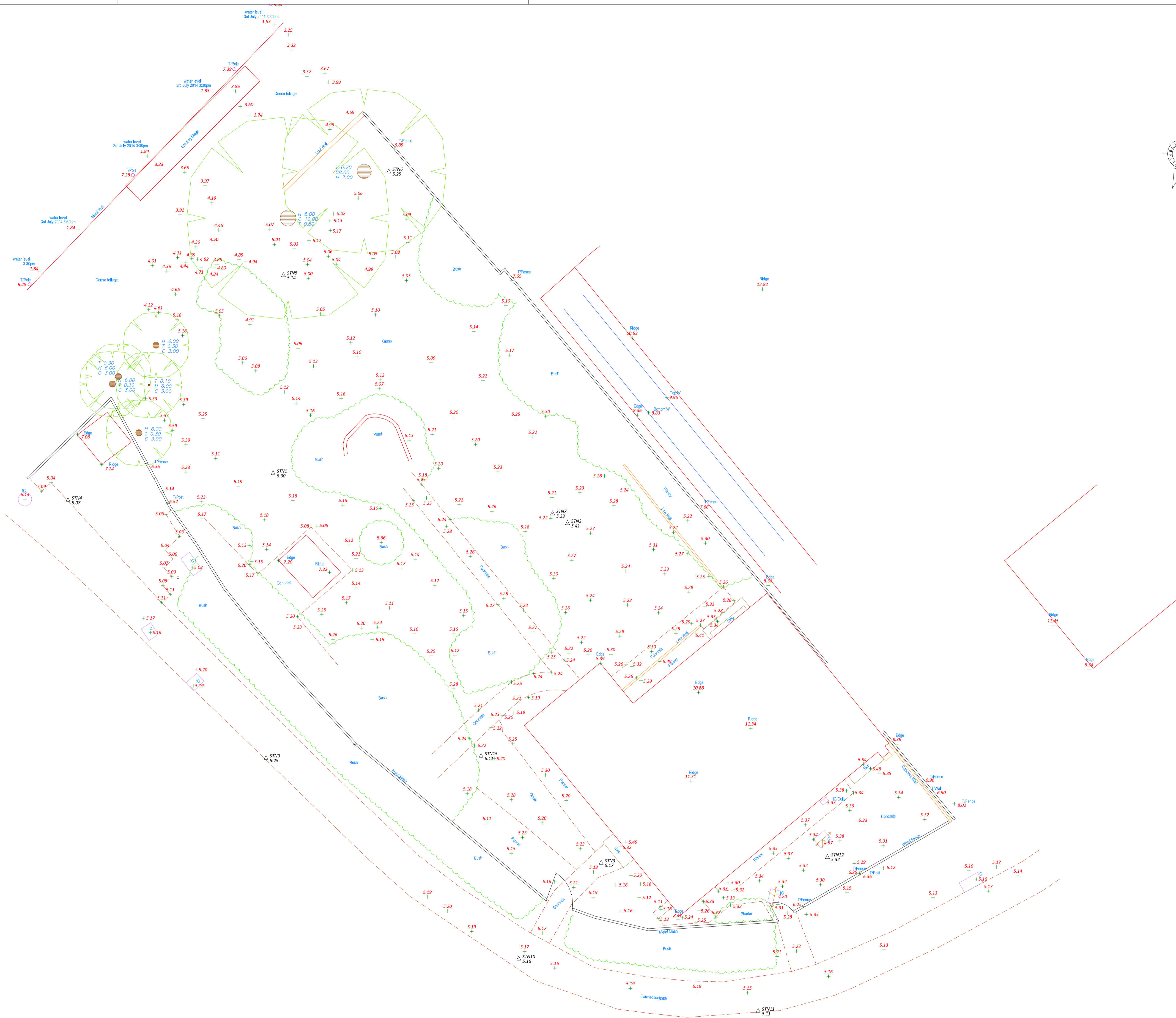
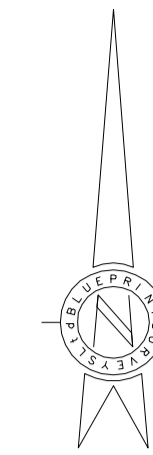
1:500 SCALE BAR



# PLANNING

Project THE MOORINGS, EEL PIE ISLAND		
Drawing SITE LOCATION PLAN		
Drawing No. TM2019 - 01	Scale 1:500 @ A4	Date 06.06.2019

**CLIVE CHAPMAN**  
**ARCHITECTS**  
 SUSTAINABILITY CONSULTANTS  
 4 EEL PIE ISLAND  
 TWICKENHAM MIDDX  
 TW1 3DY  
 TELEPHONE 020 8891 4837  
 EMAIL INFO@CCAR.CO.UK  
 WEBSITE WWW.CCAR.CO.UK



Site Legend:

AB	Air Brick	GV	Gas Valve
ACU	Air Conditioning Unit	IC	Inspection Cover
ASP	Artificial Stone Paving	IL	Invert level
BT	British Telecom	LP	Lamp Post
CL	Cover Level	MKR	Marker (Service)
DYL	Double Yellow Line	MP	Metal Post
EL	Electricity	OH	Overhead
FAI	Fresh Air Inlet	OST	Oil Storage Tank
FB	Flower Bed	PB	Post Box
FH	Fire Hydrant	PL	Pavement Light
G	Gully	RE	Rodding Eye
		RS	Road Sign
		SNP	Street Name Plate

Building Legend:

SYL	Single Yellow Line	CA	Centre of Arch	RWP	Rain Water Pipe
TCB	Telephone Call Box	CH	Ceiling Height	SA	Spring of Arch
TP	Telegraph Pole	CWT	Cold Water Tank	SCH	Suspended Ceiling Height
TW	Top of Wall	DH	Door Head	SD	Sliding Door
TF	Top of Fence	ESP	Electricity Switch Panel	SP	Soil Pipe
UTL	Unable To Lift	F	Frame Height	SVP	Soil and Vent Pipe
VP	Vent Pipe	GDH	Glazed Door Height	USB	Underside of Beam
WV	Water Valve	GRL	Glazed Roof Light	WP	Waste Pipe
CP	Concrete Post	HWT	Hot Water Tank	WST	Water Storage Tank
WP	Wooden Post	RSD	Roller Shutter Door		
/CB	Close Boarded Fence				
/IW	Interwoven Panel				
/VB	Vertical Board				

Levels:

Level data has been obtained with Kinematic GPS corrections via the Ordnance Survey's network, OS Net.

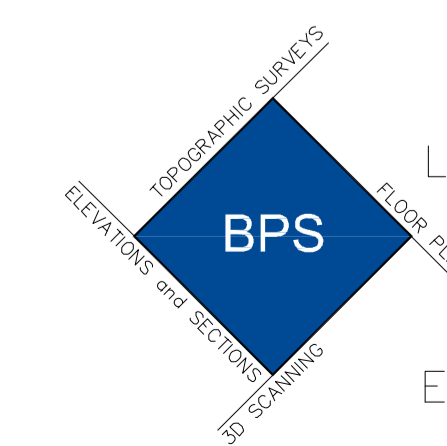
Project: The Moorings. Eel Pie Island. TW1 3DY

Drawing Title: Site Plan

Scale: 1:100 @ A1

Date: July 2014

Drawing No: BPS1119.01 of 05



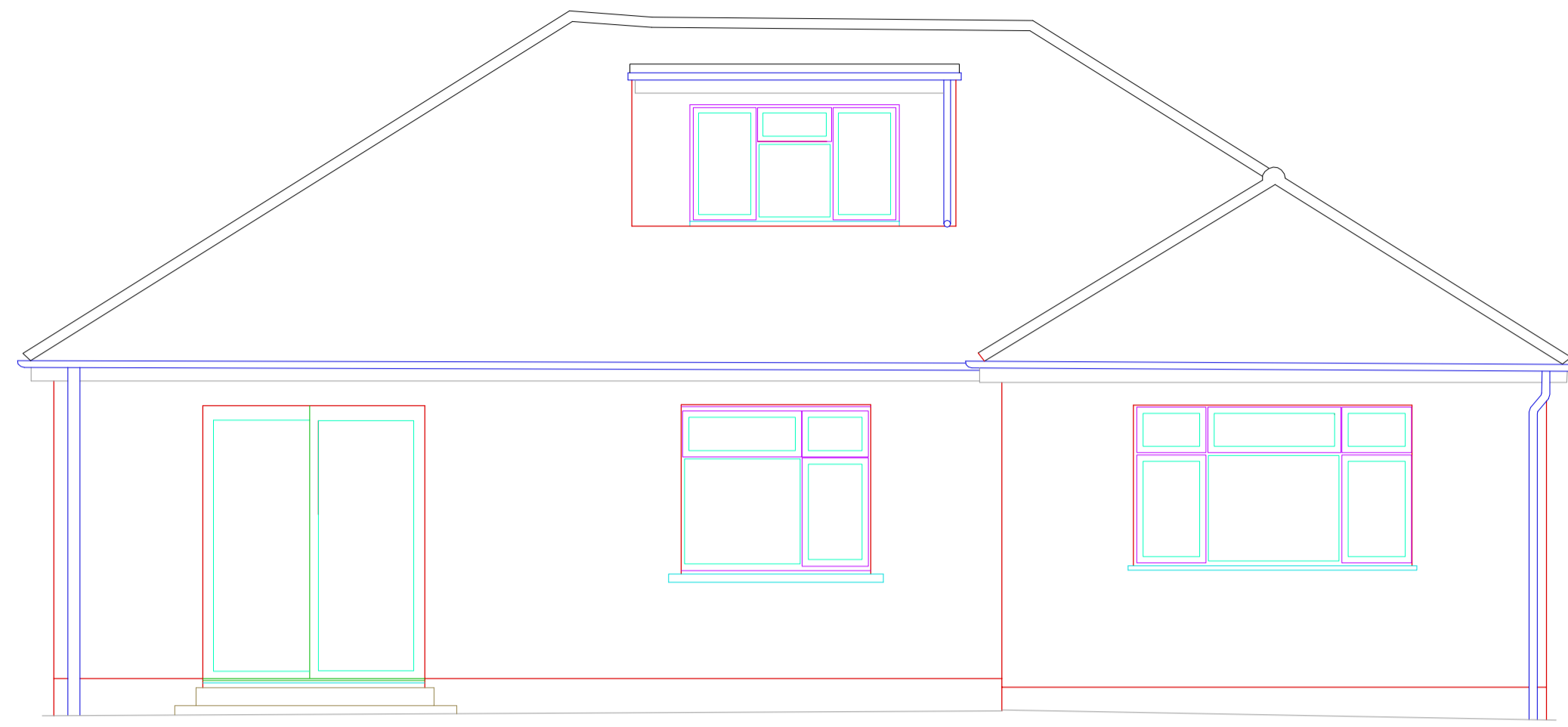
Blueprint Surveys Ltd

Land and Measured Building Surveys

Tel: 020 8339 6125

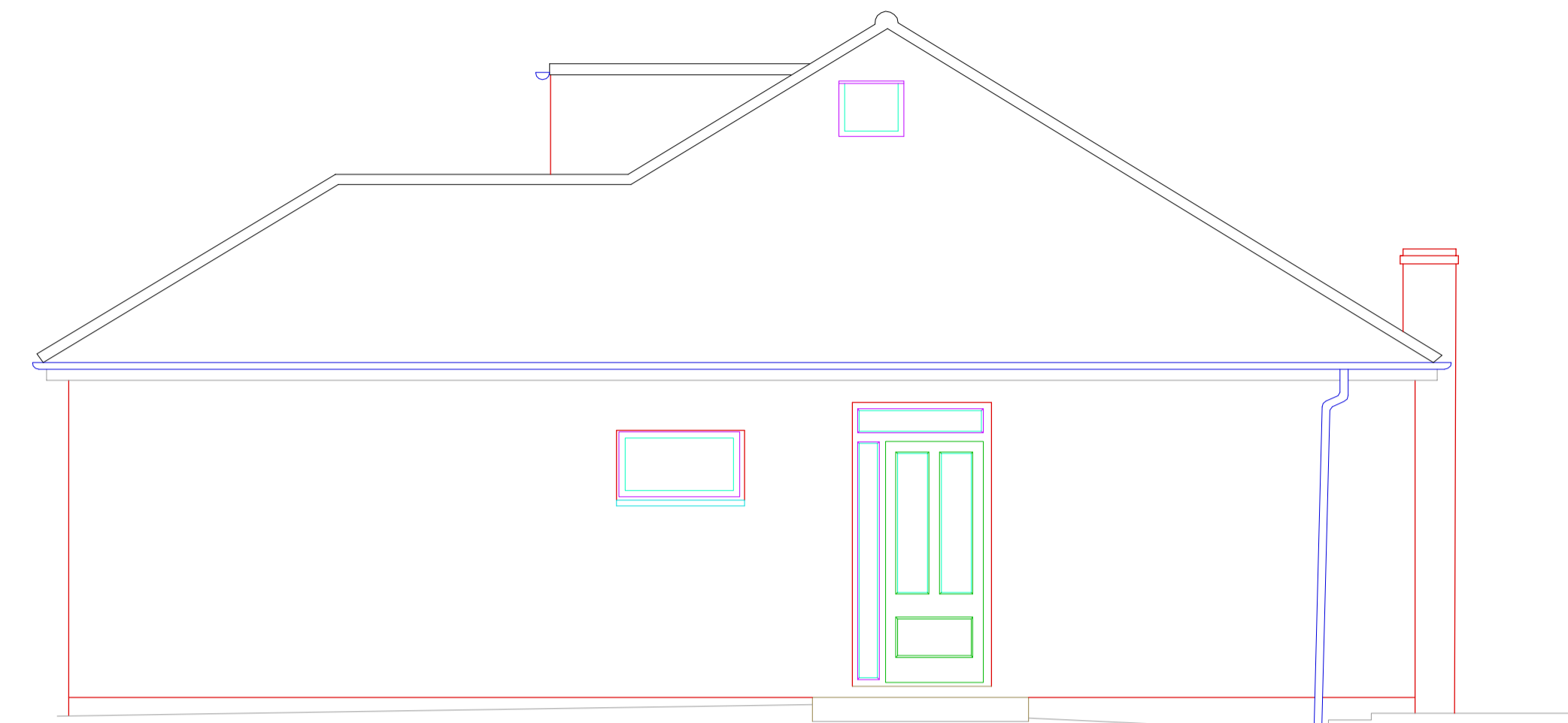
E Mail: admin@blueprintsurveys.co.uk

10.000m



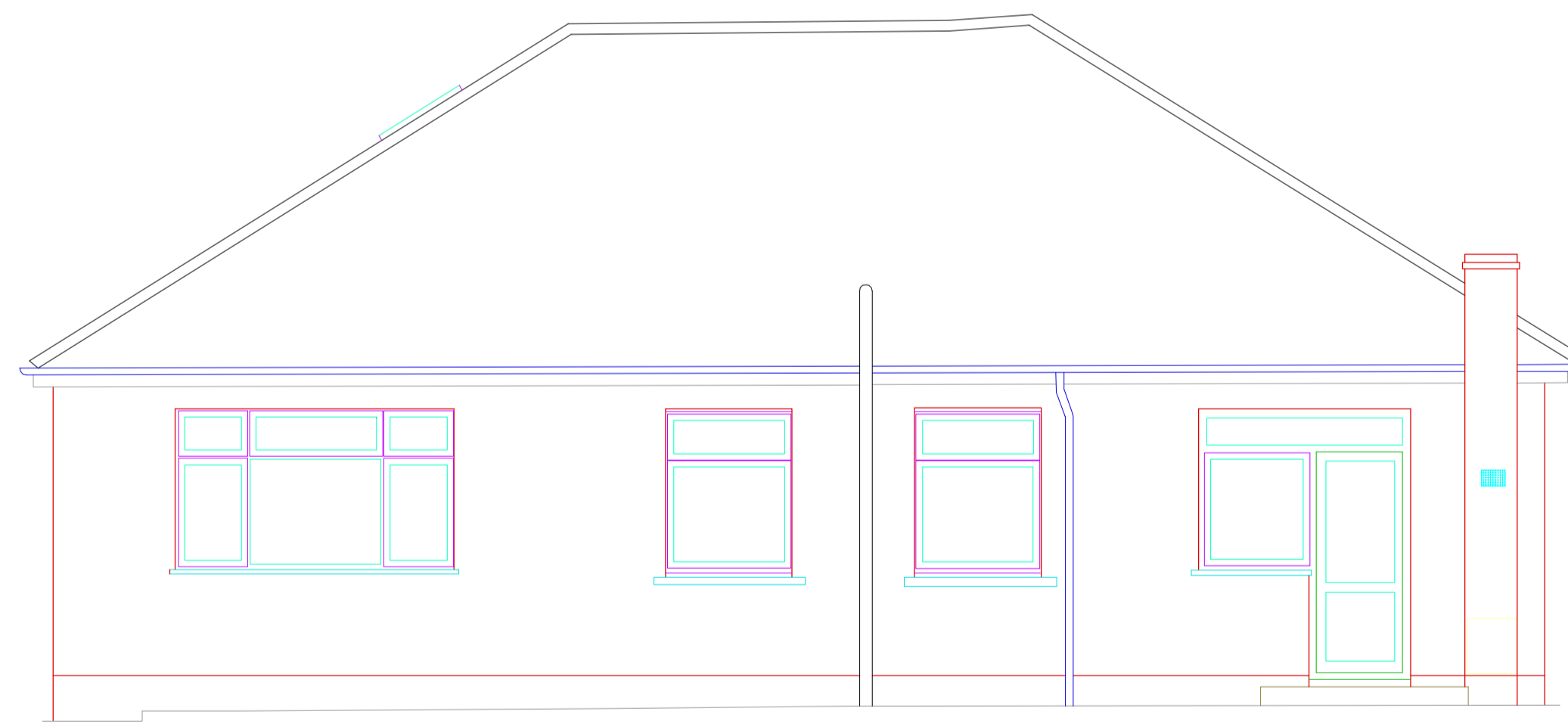
North Elevation

DATUM 5.000m



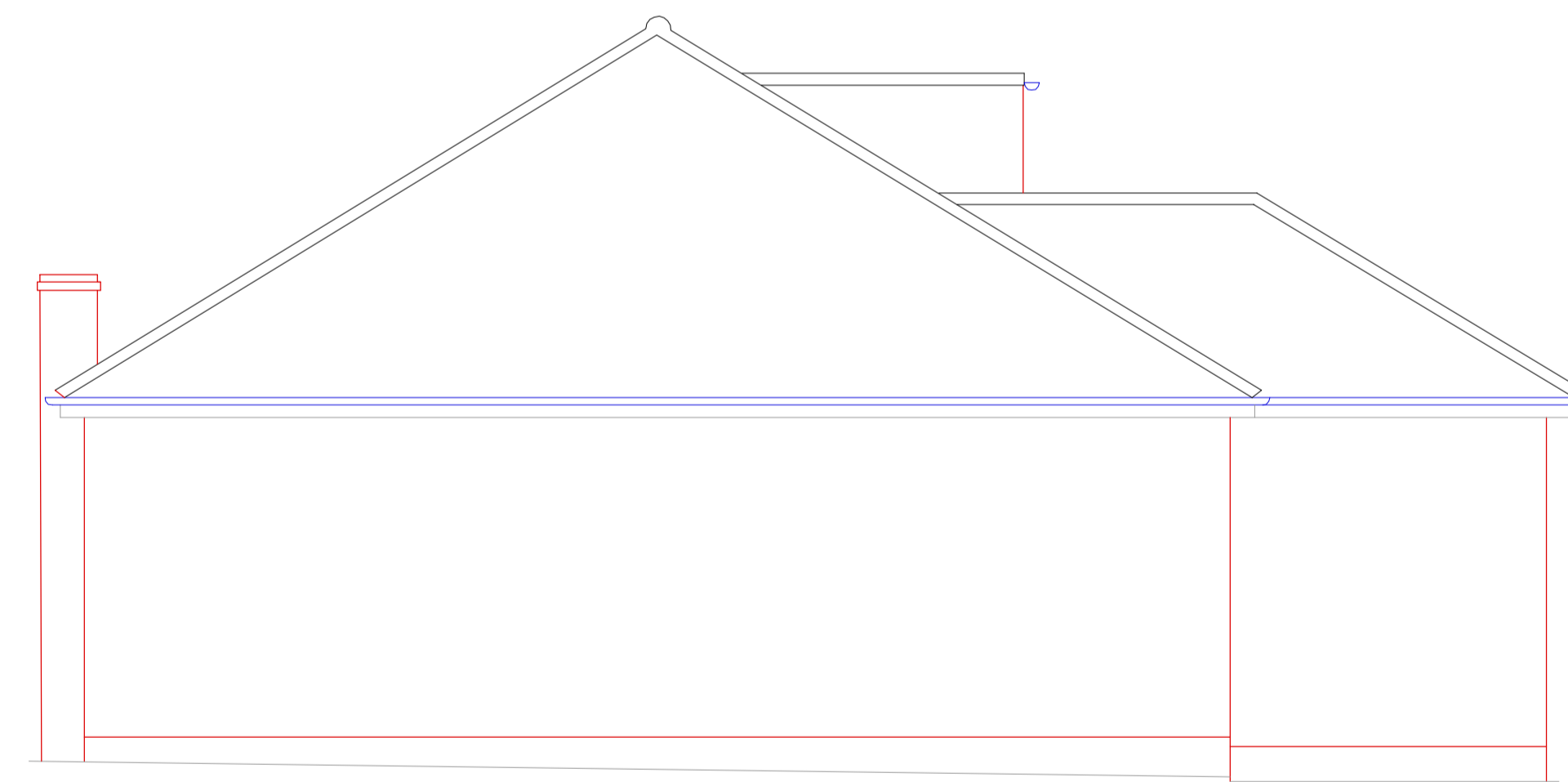
West Elevation

15.000m



South Elevation

DATUM 5.000m



East Elevation

Site Legend:

AB	Air Brick
ACU	Air Conditioning Unit
ASP	Artificial Stone Paving
BT	British Telecom
CL	Cover Level
DYL	Double Yellow Line
EL	Electricity
FAI	Fresh Air Inlet
FB	Flower Bed
FH	Fire Hydrant
G	Gully

GV	Gas Valve
IC	Inspection Cover
IL	Invert level
LP	Lamp Post
MKR	Marker (Service)
MP	Metal Post
OH	Overhead
OST	Oil Storage Tank
PB	Post Box
PL	Pavement Light
RE	Rodding Eye
RS	Road Sign
SNP	Street Name Plate

Building Legend:

SYL	Single Yellow Line	CA	Centre of Arch	RWP	Rain Water Pipe
TCB	Telephone Call Box	CH	Ceiling Height	SA	Spring of Arch
TP	Telegraph Pole	CWT	Cold Water Tank	SCH	Suspended Ceiling Height
TW	Top of Wall	DH	Door Head	SD	Sliding Door
TF	Top of Fence	ESP	Electricity Switch Panel	SP	Soil Pipe
UTL	Unable To Lift	F	Frame Height	SVP	Soil and Vent Pipe
VP	Vent Pipe	GDH	Glazed Door Height	USB	Underside of Beam
WV	Water Valve	GRL	Glazed Roof Light	WP	Waste Pipe
CP	Concrete Post	HWT	Hot Water Tank	WST	Water Storage Tank
WP	Wooden Post	RSD	Roller Shutter Door		
/CB	Close Boarded Fence				
/IW	Interwoven Panel				
/VB	Vertical Board				

Levels:

Level data has been obtained with Kinematic GPS corrections via the Ordnance Survey's network, OS Net.

Project: The Moorings, Eel Pie Island, TW1 3DY

Drawing Title: Elevations

Scale: 1:50 @ A1

Date: July 2014

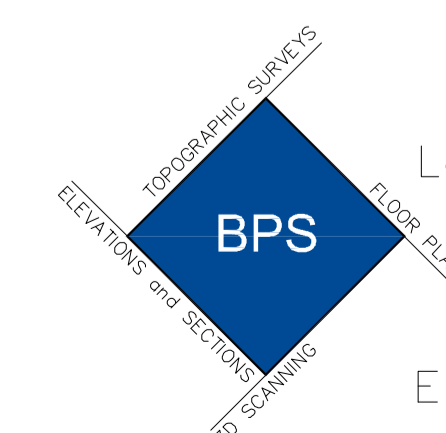
Drawing No: BPS1119.05 of 05

Blueprint Surveys Ltd

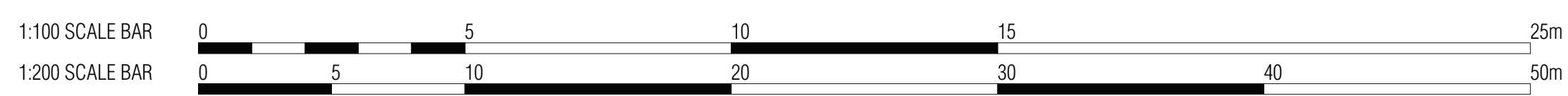
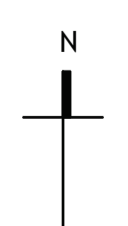
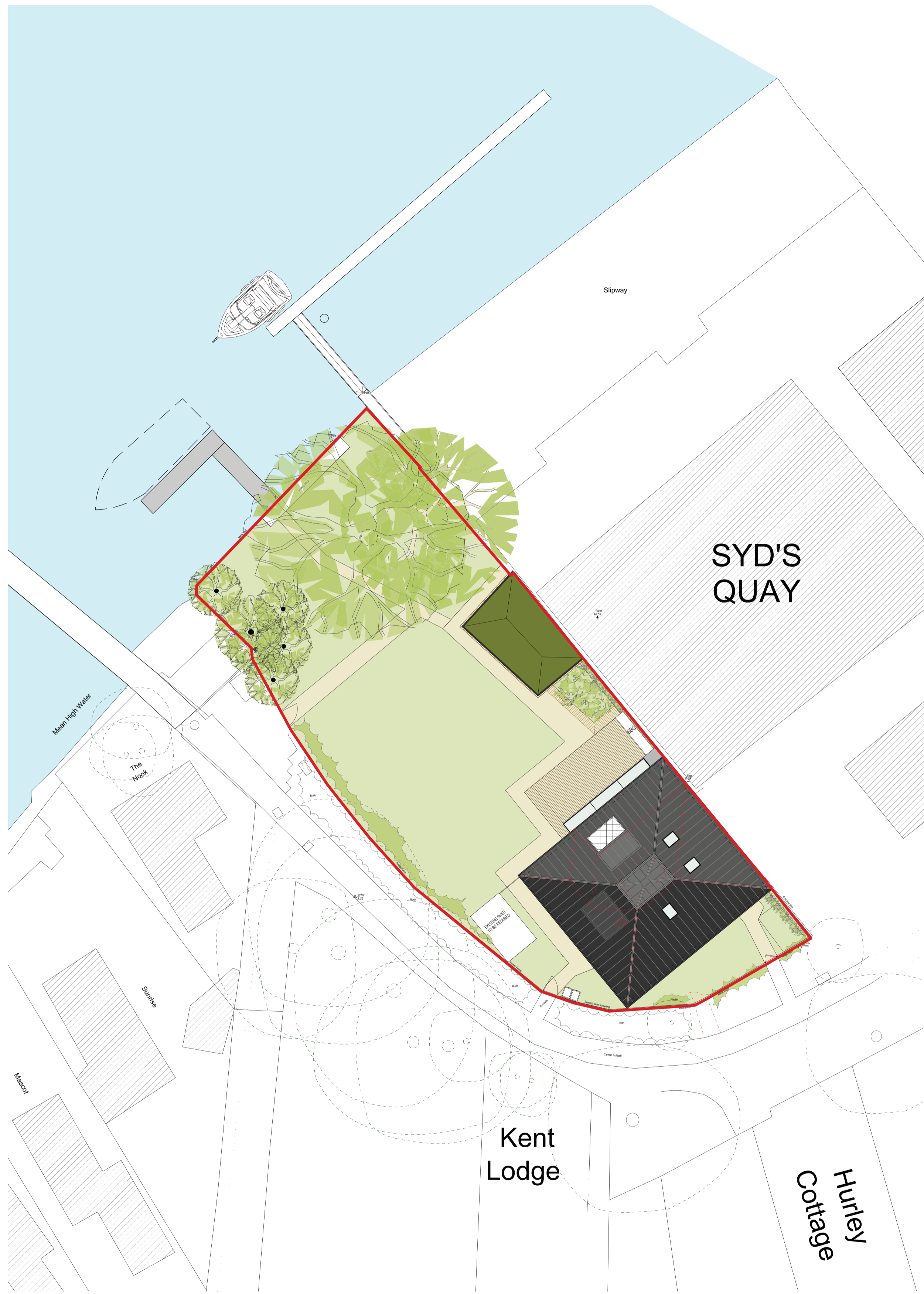
Land and Measured Building Surveys

Tel: 020 8339 6125

E Mail: admin@blueprintsurveys.co.uk



SITE PLAN & ROOF PLAN  
1:200

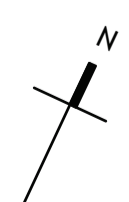
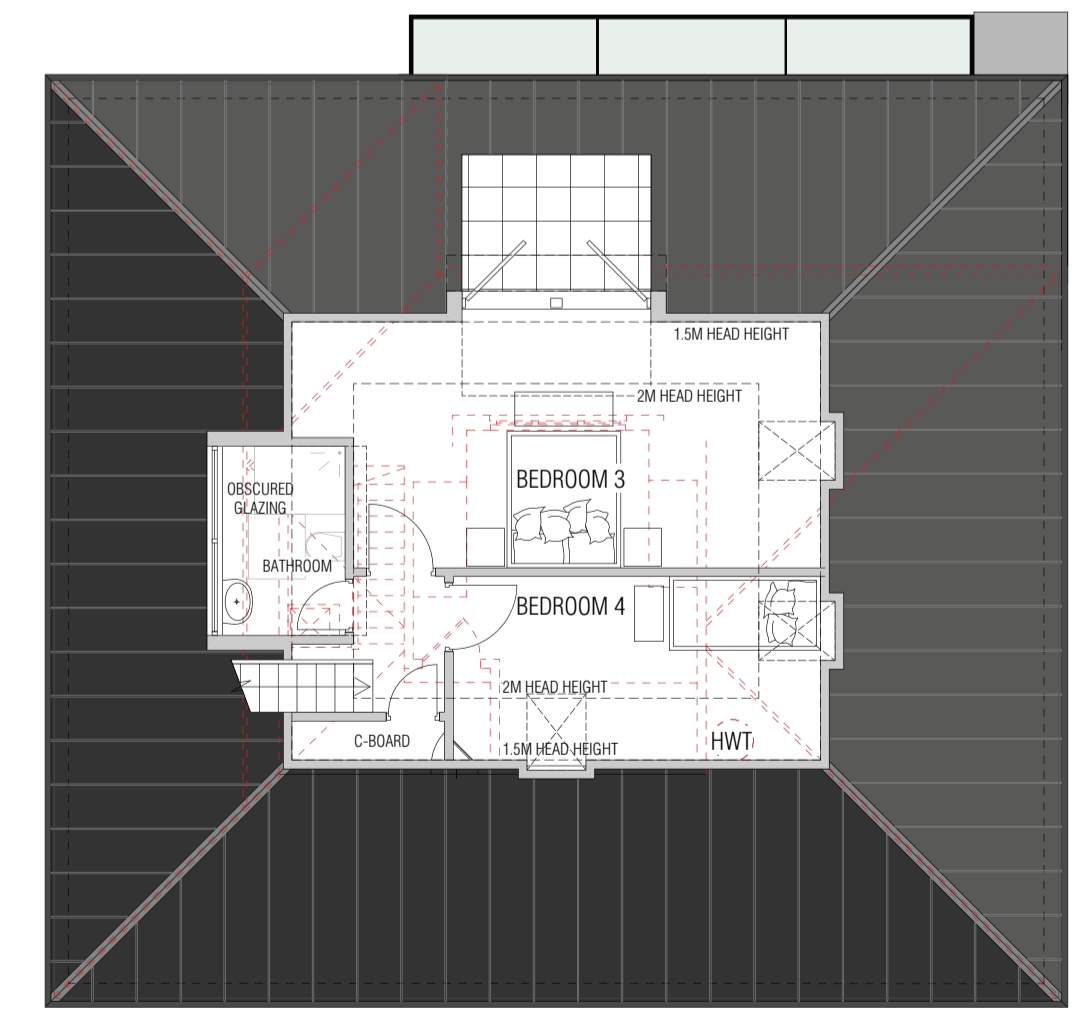


GROUND FLOOR PLAN  
1:100



- KEY
- PLANNING APPLICATION BOUNDARY
  - EXISTING TREES
  - EXISTING TREES OUTSIDE THE APPLICATION BOUNDARY
  - SOFT LANDSCAPING
  - HARD LANDSCAPING - PERMEABLE PAVING
  - TIMBER DECKING
  - ZINC STANDING SEAM
  - TIMBER CLADDING
  - EXISTING BOUNDARY FENCING RETAINED
  - WINDOWS - POLYESTER POWDER COATED ALUMINIUM - BLACK
  - FRONT DOOR - SOLID TIMBER

FIRST FLOOR PLAN  
1:100



**PLANNING**

Project <b>THE MOORINGS, EEL PIE ISLAND</b>		
Drawing <b>PROPOSED FLOOR PLANS AND ELEVATIONS</b>		
Drawing No. <b>TM2019 - 02</b>	Scale <b>1:100, 1:200 @ A1</b>	Date <b>06.06.2019</b>

## Lucy Arrowsmith

---

**From:** KSL Enquiries <KSLE@environment-agency.gov.uk>  
**Sent:** 04 June 2019 11:54  
**To:**  
**Subject:** FW: KSL 126611 KB 190508/jf23 Product 4 Request  
**Follow Up Flag:** Follow Up  
**Flag Status:** Flagged  
**Categories:** Red Category

---

**From:** KSL Enquiries  
**Sent:** 29 May 2019 13:34  
**Subject:** KSL 126611 KB 190508/jf23 Product 4 Request

Dear Lucy,

KSL 126611 KB - **The Moorings, Eel Pie Island, Twickenham, TW1 3DY**

Thank you for your request for information that was received on 02 May 2019.

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

### **Thames Tidal Upriver Breach Inundation Modelling 2017**

We have determined that your site falls outside of the combined extents of all of our new 2017 tidal breach modelling, and therefore we have no modelled breach flood levels to provide. We consider your site to be at extreme low residual risk of tidal flooding only.

From June 2017, we have begun using model data for the tidal Thames floodplain, as a replacement for modelling created by CH2M in March 2015 for those areas upriver of the Thames Barrier. This modelling also replaces the previous Upstream Inundation modelling (UIM), also created by CH2M in March 2015. Due to the methodology applied in the UIM study, maximum flood extents and levels are generally significantly greater when compared to our new breach modelling. The 2017 upriver breach modelling extents are also significantly smaller than those created as part of our flood zones 2 and 3, as provided as part of our published Flood Map for Planning.

The Flood Map for Planning has been produced by modelling the tidal Thames assuming no walls or embankment defences, and no operation of the Thames Barrier.

We have developed a modelling approach where all upriver breach locations along the Thames are equitably modelled, to ensure a consistent approach across London. Our new approach incorporates the operation of the Thames Barrier, as well as the existence of raised tidal defences. However, the modelling then simulates continuous tidal breaches of the defences along the entire extent of the Thames from Teddington to the Thames Barrier.

For breaches upriver of the Thames Barrier, there is no return period for modelled levels as the levels are controlled by barrier closures. The levels used are referred to as Maximum Likely Water Levels (MLWLs). Therefore 2014 and 2100 epochs were modelled on that basis. This model has

been designed for catchment wide flood risk mapping. It should be noted that it was not created to produce flood levels for specific development sites within London.

### **Areas Benefiting from Flood Defences**

This site is within an area benefiting from flood defences, as shown on our published Flood Map for Planning available externally at <https://www.gov.uk/check-flood-risk>

Areas benefiting from flood defences are defined as those areas which benefit from flood defences specifically in the event of flooding from rivers with a 1% (1 in 100) chance in any given year, or flooding from the sea with a 0.5% (1 in 200) chance in any given year. The design standard of protection of the flood defences in this area of the Thames is 0.1% AEP; they are designed to defend London up to a 1 in 1000 year tidal flood event.

If the defences were not there, these areas would be flooded. An area of land may benefit from the presence of a flood defence even if the defence has overtopped, if the presence of the defence means that the flood water does not extend as far as it would if the defence were not there.

There are no planned improvements in this area. Please see the 'Thames Estuary 2100' document on our website for the short, medium and long term Flood Risk Management strategy for London:

<https://www.gov.uk/government/publications/thames-estuary-2100-te2100>

You may be interested in the following guidance / information publically available:

- 'Planning Practice Guidance' - provides information about planning considerations in areas at risk of flooding. <http://planningguidance.planningportal.gov.uk/>
- 'Planning applications: assessing flood risk' - information about completing Flood Risk Assessments. <https://www.gov.uk/planning-applications-assessing-flood-risk>
- 'Site specific flood risk assessment: Checklist' – a checklist to help ensure you have considered all the relevant factors in your flood risk assessment. <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/site-specific-flood-risk-assessment-checklist/>

We recommend that you discuss your proposals with the Local Planning Council at the earliest opportunity. They will be able to advise you on a wide range of planning matters in addition to flood risk.

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

I trust this information is of use. If you have any further questions, please contact us and we will be happy to help.

If you have any further queries or if you'd like us to review the information we have provided under the Freedom of Information Act 2000 and Environmental Information Regulations 2004 please contact us within two months and we will happily do this for you.

We would be really grateful if you could spare five minutes to help us improve our service. Please click on the link below and fill in our survey – we use every piece of feedback we receive: <http://www.smartsurvey.co.uk/s/EnvironmentAgencyCustomerSurvey/?a=KSL>

Kind regards,

Kate

Kate Belmore  
Environment Agency | 02084 746848  
Customers and Engagement Team | Kent South London & East Sussex  
Orchard House | Endeavour Park | London Road | West Malling | Kent | ME19 5SH



---

**From:** Lucy Arrowsmith \_\_\_\_\_  
**Sent:** 02 May 2019 09:28  
**To:** Enquiries, Unit <[enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)>  
**Cc:** Hannah Griffiths \_\_\_\_\_  
**Subject:** 190508/jf23 Product 4 Request

Dear Sir/Madam

Please could you provide me with Product 4 information for the site below? Please find the site location plan attached.

The Moorings  
Eel Pie Island  
Twickenham  
TW1 3DY

Rgds,

**Lucy Arrowsmith**  
**Office Manager/PA**

**CLIVE CHAPMAN**  
**A R C H I T E C T S**  
SUSTAINABILITY CONSULTANTS

020 8891 4837 [www.ccar.co.uk](http://www.ccar.co.uk)

This email is confidential. If you have received it by mistake, please advise us and then delete it from your system: you should not copy, disclose, distribute or act in reliance on its contents



Virus-free. [www.avg.com](http://www.avg.com)

This message has been scanned and no issues were discovered.  
Click [here](#) to report this email as spam



Information in this message may be confidential and may be legally privileged. If you have received this message by mistake, please notify the sender immediately, delete it and do not copy it to anyone else.

We have checked this email and its attachments for viruses. But you should still check any attachment before opening it.

We may have to make this message and any reply to it public if asked to under the Freedom of Information Act, Data Protection Act or for litigation. Email messages and attachments sent to or from any Environment Agency address may also be accessed by someone other than the sender or recipient, for business purposes.

Click [here](#) to report this email as spam