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10th December 2019

## **PROPOSED RESIDENTIAL DEVELOPMENT, RAILWAY TERRACE, SEASCALE**

### **FLOOD RISK ASSESSMENT**

Further to our appointment, we have undertaken a flood risk assessment associated with the proposed redevelopment of the site at Railway Terrace, Seascale.

We have reviewed the available information and this flood risk assessment is produced using available information at the time of the report.

### **SITE LOCATION**

The site is located adjacent to Railway Terraces, off Albert Street, Seascale. The existing site is a workshop, with the area around the site developed as residential. There is little undeveloped space around the site and it is proposed to demolish the existing workshop and construct 3no. terrace dwellings within the available space.

### **INITIAL FLOOD RISK**

An initial flood risk assessment was undertaken adopting mapping available at <https://flood-map-for-planning.service.gov.uk/> and this identified the eastern area of the site to be within a Flood Zone 1 and the area to the north of the within a Flood Zone 2.

In relation to the above available data, it should be understood that the data is modelled not on a site by site basis but as a best estimate of the risks associated with flooding and a limited data set in respect to topographic levels.

19-399r001

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An extract of the summary is presented by the Environment Agency<sup>1</sup> is replicated below.

*The Flood Map for Planning (Rivers and Sea) includes several layers of information. This dataset covers Flood Zone 2 and should not be used without Flood Zone 3. It is our best estimate of the areas of land at risk of flooding, when the presence of flood defences are ignored and covers land between Zone 3 and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year. This dataset also includes those areas defined in Flood Zone 3.*

*The information indicates the flood risk to areas of land and is not sufficiently detailed to show whether an individual property is at risk of flooding, therefore properties may not always face the same chance of flooding as the areas that surround them. This is because we do not hold details about properties and their floor levels. Information on flood depth, speed or volume of flow is not included.*

## **Detailed Flood Risk Assessment**

### ***Flood Risk Assessment Criteria***

A Flood Risk Assessment Report was requested from the Environment Agency and identified that the site is not considered in a flood zone associated with streams and rivers. The Environment Agency also had no history of flooding present on the site.

The Flood Zone classifications are as follows :

- Flood Zone 1 - land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).
- Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1,000 annual probability of river flooding (1% – 0.1%), or between a 1 in 200 and 1 in 1,000 annual probability of sea flooding (0.5% – 0.1%) in any year.
- Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river

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<sup>1</sup>

<https://data.gov.uk/dataset/cf494c44-05cd-4060-a029-35937970c9c6/flood-map-for-planning-rivers-and-sea-flood-zone-2>

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flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

In respect to the proposed development, this is classified as More Vulnerable and as such the flood risk assessment is required to address :

- Surface water management
- Access and evacuation
- Floor levels

### ***Historic Flooding***

The Environment Agency indicates that the site has no records of surface water flooding or a history of flooding on the site. It is understood that properties and infrastructure nearby may have been affected from flooding from the Whitrigg Beck but the site remained flood free.

### ***Sources of Flooding***

As part of the risk assessment, consideration shall be given to the following sources of flooding and what effect these could have on the development:

#### ***Flooding from Rivers / Watercourses***

The potential sources of flooding from rivers and watercourses are from the Whitrigg Beck located to the north east of the site.

The Beck is located north of the Seascale Sewage Treatment Works before entering a culvert to the east of the site, and the culvert then carries the beck in a south westerly direction before discharging into the Solway across Seascale beach.

The culvert appears to pass closest to the site at the end of Railway Terrace and is approx 75m from the site. There is no open ditches or other open water courses connected to the culvert.

Therefore, we consider the risk associated with flooding from rivers and watercourses to be **LOW**.

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***Flooding from Reservoirs***

We consider that there are no reservoirs within the location of the site, therefore we consider the risk associated with flooding from reservoirs to be **LOW**.

***Flooding from the Sea***

We consider that the site is significantly elevated from the sea and therefore consider the risks associated with flooding from the sea to be **LOW**.

***Flooding from the Land***

The area around the site is developed, therefore we consider the risk associated with flooding from the land to be **LOW**.

***Flooding from Groundwater***

The site has been developed over a number of years and any affect on groundwater would be negligible. Therefore, we consider the flood risk associated with groundwater to be **LOW**.

***Flooding from Sewers***

The site benefits from good sewers location in the area of the site, with sufficient capacity to discharge to the nearby Sewage Works, therefore we consider the risk of flooding from sewers to be **LOW**.

***Summary***

The following table indicates a summary of the risks and control measures required:

Source of Flooding	Risk	Control Measures
Rivers / Watercourses	Low	Flood resilience measures to be considered in the construction of the property due to the presence of the adjacent flood zones. See later section within this report.
Reservoirs	n/a	
Sea	Low	-
Land	Low	Ensure flood routes are maintained around the site and properties consider flood resilience measures.

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Groundwater	Low	Ensure flood routes are maintained around the site and properties consider flood resilience measures.
Sewers	Low	Ensure that the existing sewer network is adequately maintained and up-sized to accommodate the proposed residential development if required.

### ***Increase to Off Site Flooding***

New developments should be designed to limit the surface water runoff to existing surface water discharge flow rates or better.

The proposed development shall be residential, it is therefore recommended that suitable systems are adopted in the design of the structure and its infrastructure, based around the principles of Sustainable Drainage Systems (SuDS). It is therefore considered that any final design solutions would be provided within the development following the hierarchy of drainage requirements as laid out in the approved Document H of the Building Control Regulations with respect to SuDS and CIRIA C753 The SuDS Manual.

The following destinations must be considered for surface runoff in order of preference :

- Discharge to ground
- Discharge to surface water body
- Discharge to surface water sewer
- Discharge to combined sewer

By implementing the above hierarchy and limiting proposed discharge flows to match existing discharge from the site, this will limit the risk of flooding downstream.

### ***Flood Risk Vulnerability***

#### ***Assessment***

The vulnerability of the proposed development is assessed in accordance with the Technical Guidance to the National Planning Policy Framework published by the Ministry of Housing, Communities and Local Government published on 27 March 2012 and updated on 19 February 2019.

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The report should consider if the development is acceptable for the Flood Zone Classification in accordance with Table 3 within the NPPF. The proposed development is residential and therefore classified as ‘More Vulnerable’, based on the Environment Agency's Flood Map data the western area of the site is within a Flood Zone 1 and the eastern area of the site is within a Flood Zone 2.

National Planning Policy Framework (NPPF) - Table 3

**Flood Risk Vulnerability and Flood Zone ‘Compatibility’**

Flood risk vulnerability classification see table D2	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1	√	√	√	√	√
Zone 2	√	√	Exception test required	√	√
Zone 3a	Exception test required	√	X	Exception test required	√
Zone 3b ‘functional flood plain’	Exception test required	√	X	X	X

√ Development is appropriate

X Development should not be permitted

From Table 3 presented in the NPPF, we consider the development should reduce the overall level of flood risk in the area through the layout and form of the development and appropriate application of sustainable drainage systems.

We consider that the use of appropriate flood compatible construction techniques allow the development to be accommodated on the proposed site.

**Managing Compatibility / Flood Resilience Measures**

As part of the assessment, the following development constraints require consideration and recommendations made as to how to mitigate any flood risk appropriately.

**Finished Floor Levels**

The proposed development for the site is for residential use. The finished floor levels will be set once a formal site layout has been agreed. Given the fact that the majority of the site is within a Flood Zone 1 and the adjacent properties have not experienced flood events, we consider that the

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flood risk posed to the proposed property is LOW and therefore we consider that the site and overall finished floor level may benefit from being raised by 250-300mm from the existing ground level.

### **Existing Flood Volumes**

At present, the site is developed as a workshop and impermeable areas are present across the site. There are no records to indicate the site has experienced the passage of flood waters in the past and therefore will not affect flood routing across the site.

### **Flood Routing**

There are no records that the site has experienced the passage of flood waters in the past.

### **Emergency Access**

It is considered that access to the development will continue to adopt the adjoining local infrastructure which is located in a flood zone 1.

### **Summary**

The following represents:

1. It is understood that the initial flood risk assessment placed the site within a Flood Zone 1 with a Flood Zone 2 present adjacent to the site. These records do not consider that the Whitrigg Beck is culverted from the entry point adjacent to the Seascale Sewage Treatment works to the beach at Seascale.
2. The site has not experienced historic flooding previously.
3. There is no historic flood data shown to affect the site.
4. The adoption of SuDS best practice on site will minimise the displacement of flood waters and flood routing around the site boundary.

We trust this is satisfactory for your needs at present and please do not hesitate to contact us if you require any further information.

Yours Sincerely



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***Enclosed***

- Environment Agency Flood Data
- Drawings from Architect

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# Flood map for planning

Your reference  
**19-399**

Location (easting/northing)  
**303776/500921**

Created  
**26 Sep 2019 16:11**

**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.

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<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>











**Flood map for planning**

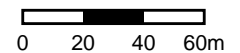
Your reference  
**19-399**

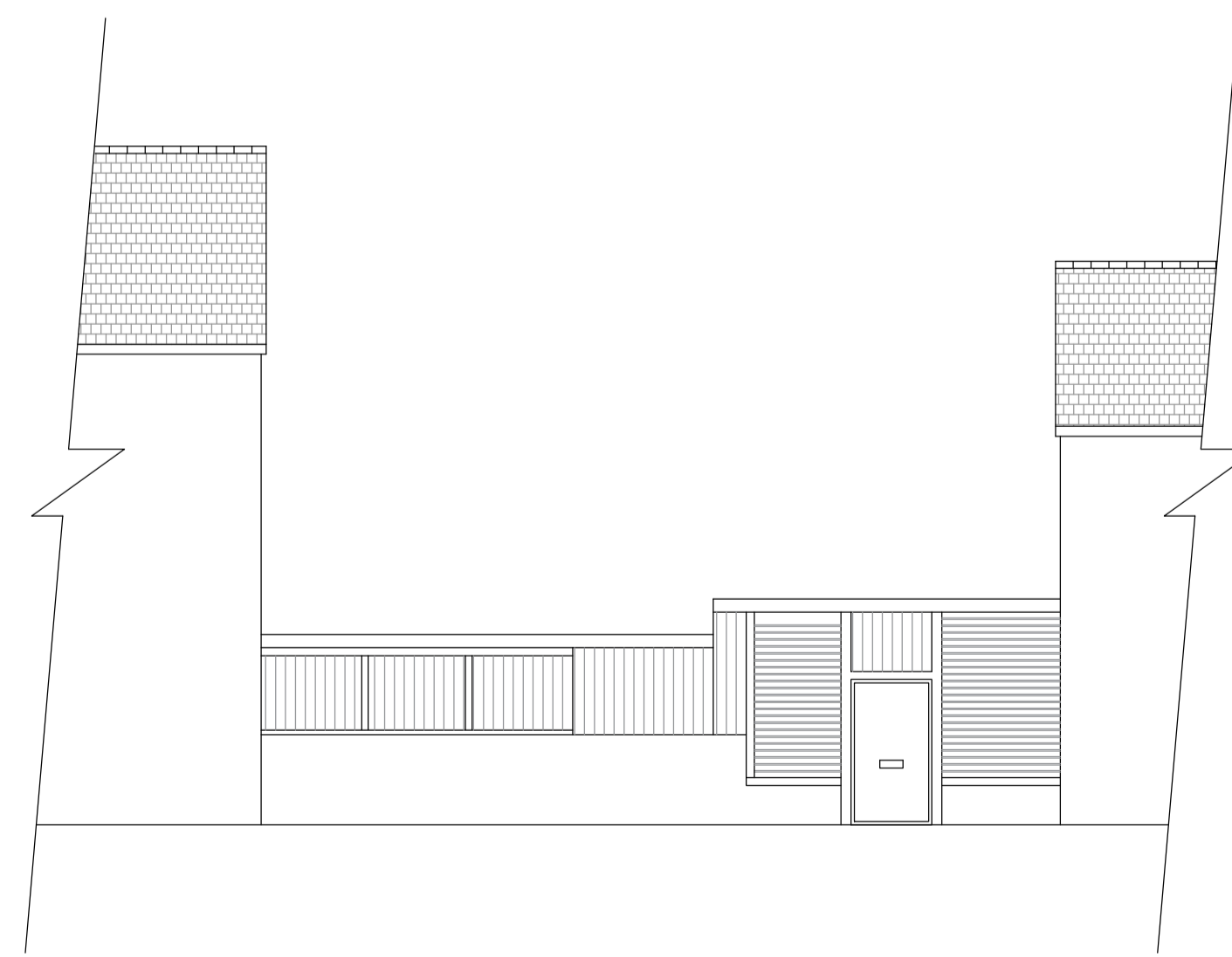
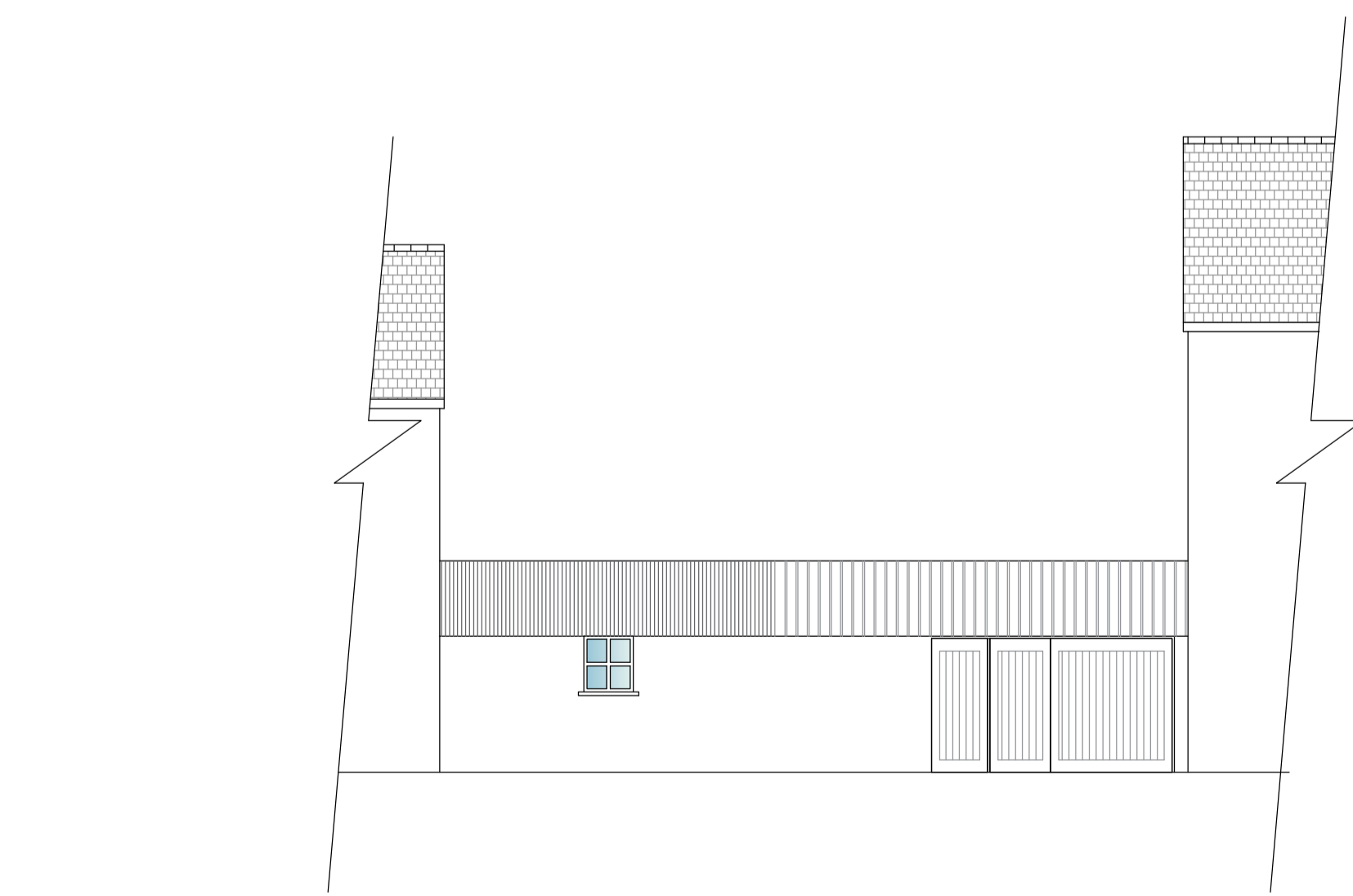
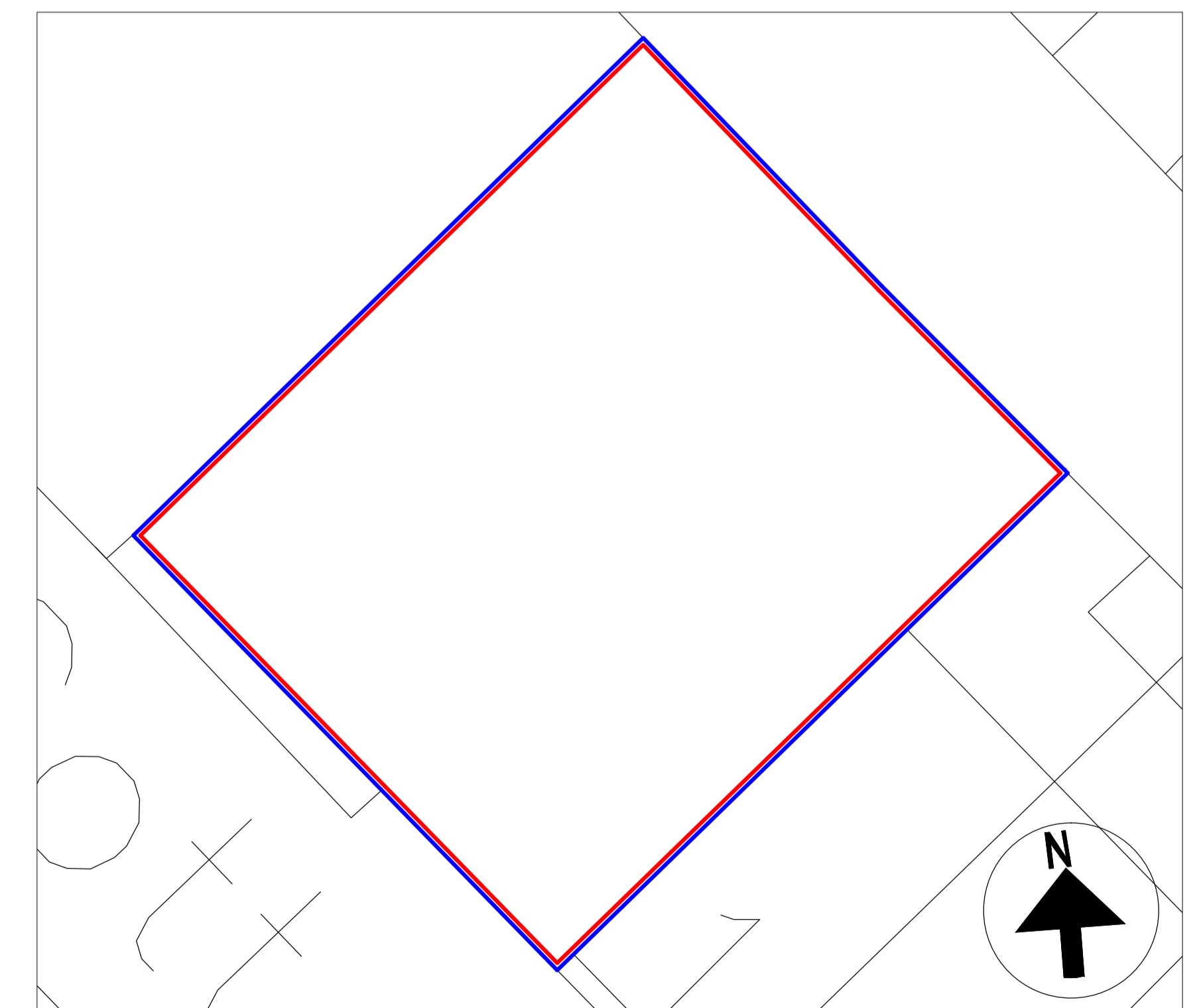
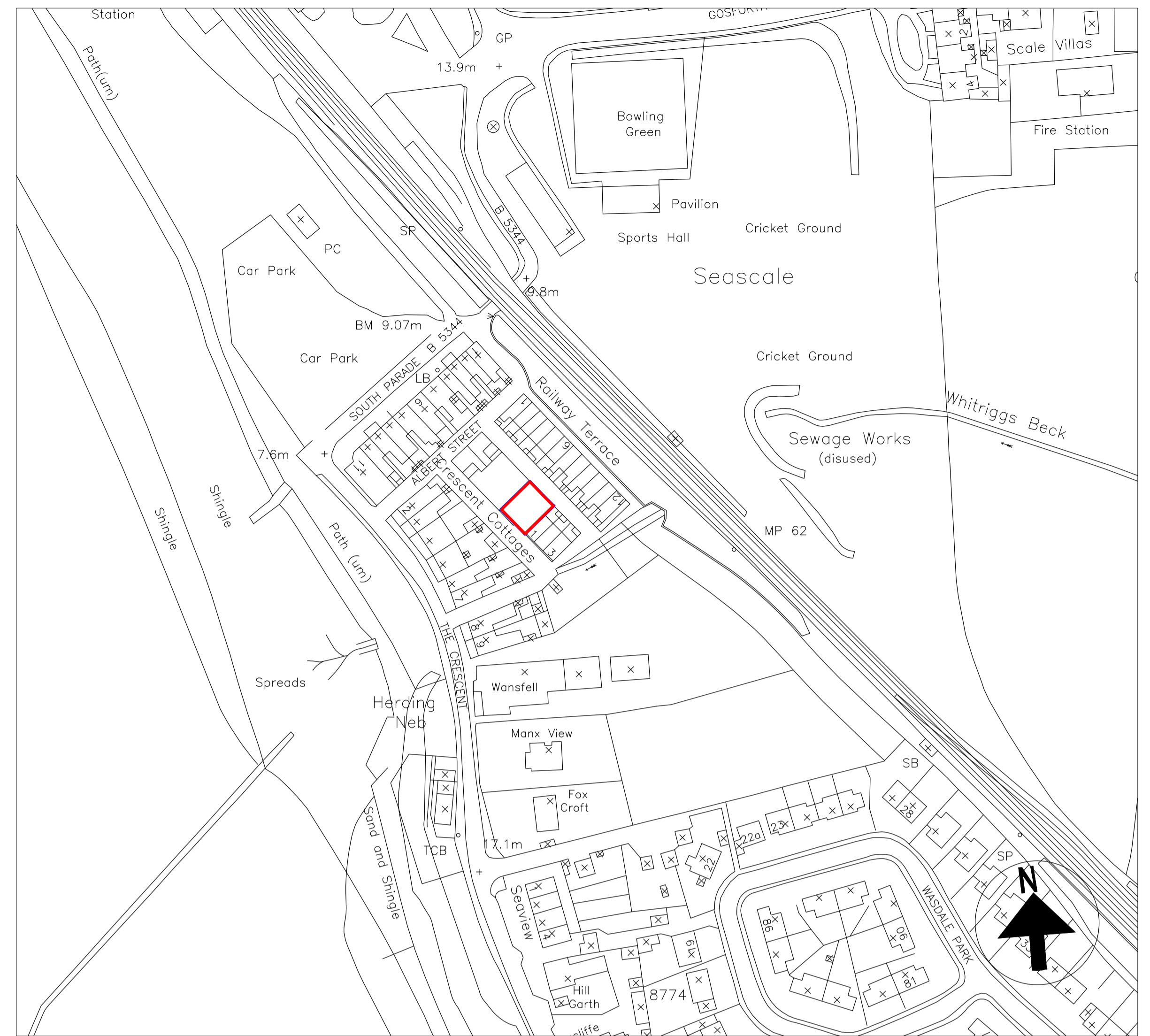
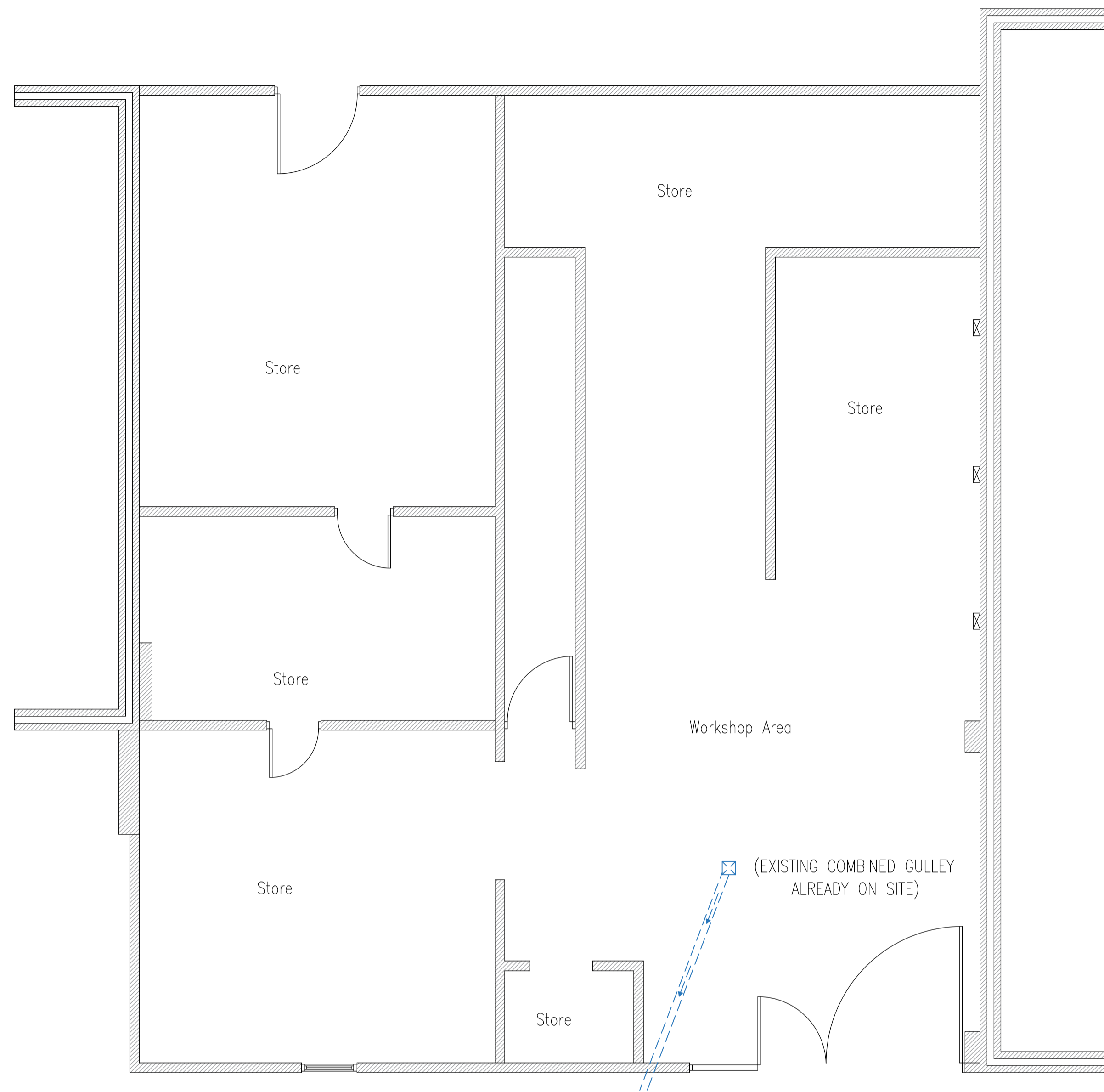
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**303776/500921**

Scale  
**1:2500**

Created  
**26 Sep 2019 16:11**

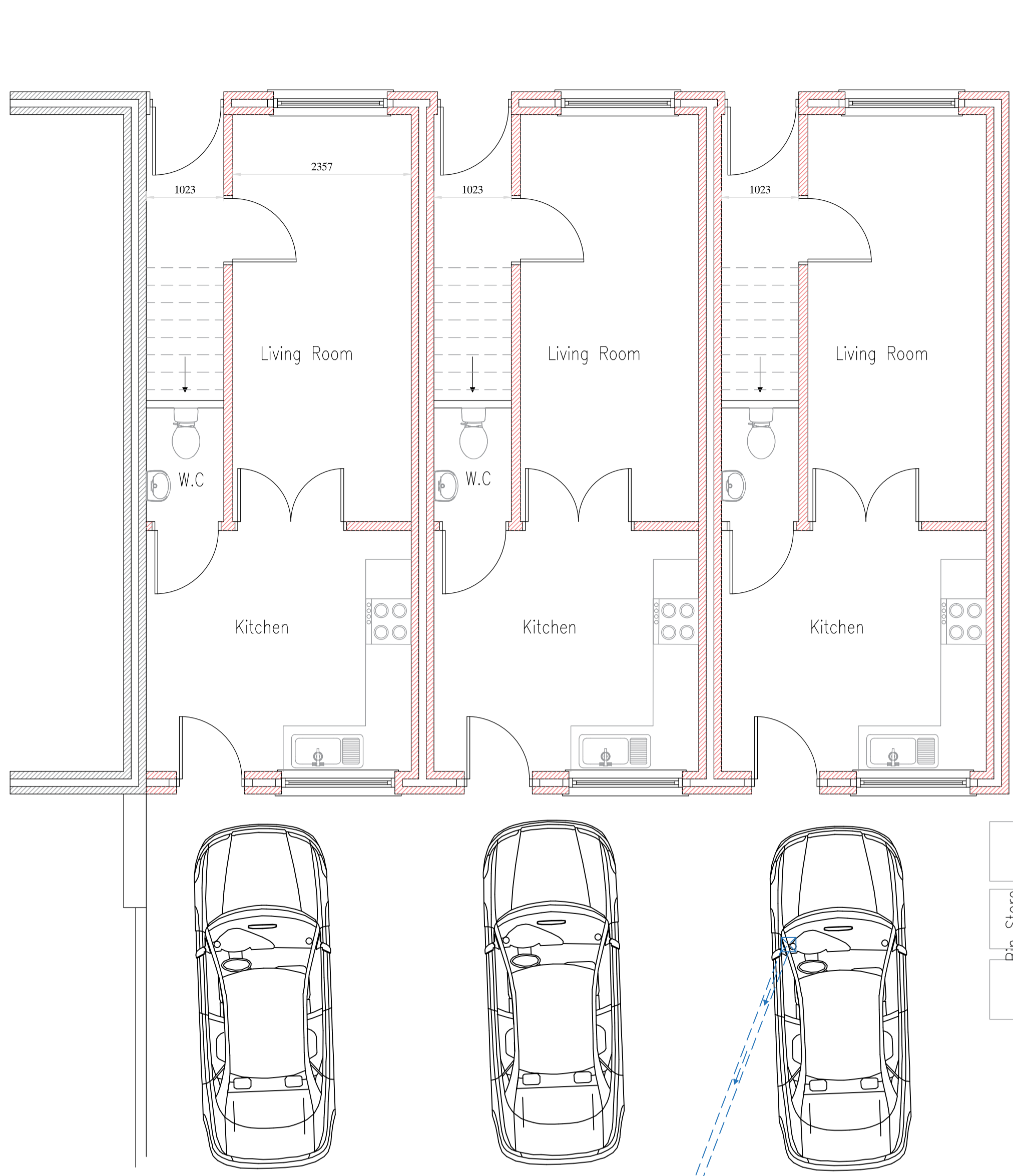
-  Selected point
-  Flood zone 3
-  Flood zone 3: areas benefitting from flood defences
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Flood storage area



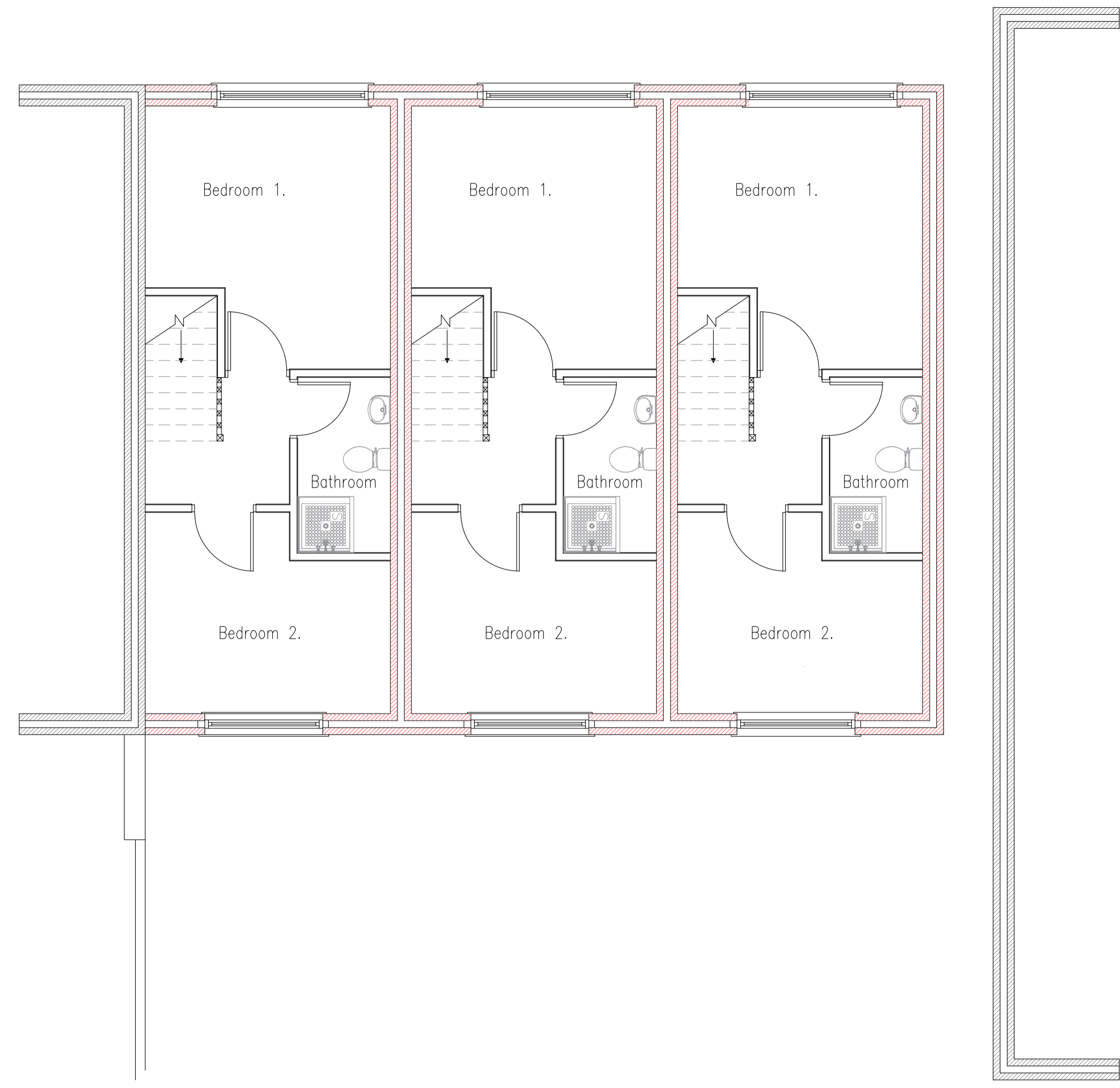


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	Title	Existing Plans DWG01
	Project	3 New Dwellings Planning Application Drawing
	Address	Land adjacent Railway Terrace, Seascale
	Scale	1/50, 1/100 & 1/1250



Proposed Ground Floor Plans



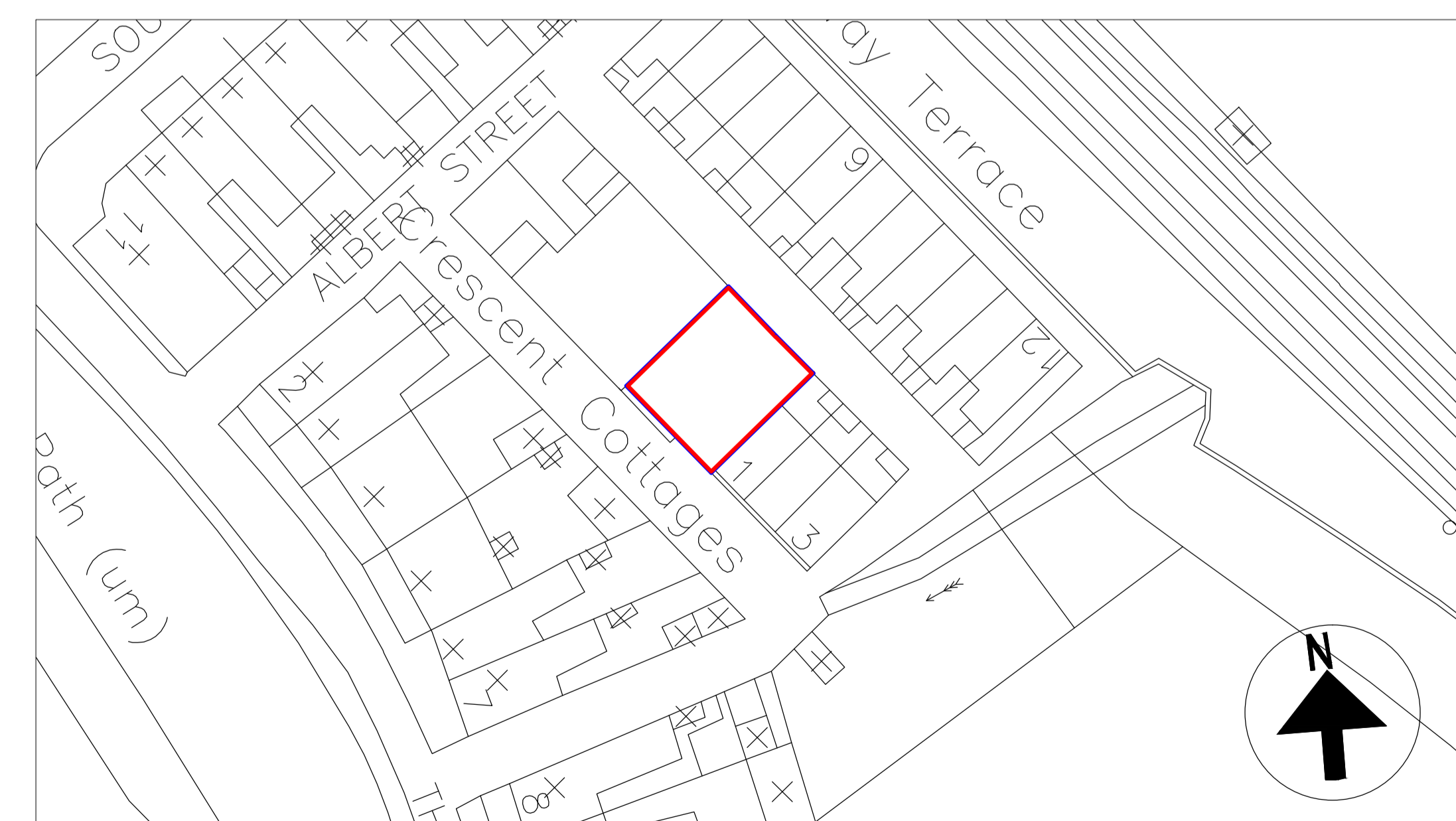
Proposed First Floor Plans



Proposed Rear (South West) Elevation



Proposed Front (North East) Elevation



Location Plan  
Scale 1/500

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	Address	Land adjacent Railway Terrace, Seascale
	Title	Proposed Plans DWG02
	Project	3 New Dwellings Planning Application Drawing
	Scale	1/50, 1/100 & 1/500