WWW.RABCONSULTANTS.CO.UK
enquiries@rabconsultants.co.uk

Rolleston Scout HQ, Station Road, Rolleston-on-Dove, DE13 9AB

FLOOD RISK ASSESSMENT

26/03/2020

Version 1.0

RAB: 2431L

Second Floor, Cathedral House, Beacon Street, Lichfield WS13 7AA
T. 01543 547 303

Unit 5, St Stephens Court, Willington, Crook, County Durham DL15 0BF
T. 01388 748 366

Kingsbrook House, 7 Kingsway, Bedford, Bedfordshire MK42 9BA
T. 01234 363 582

Unit 10, Beta Centre, Stirling University, Innovation Park, Stirling, FK9 4NF
T. 01786 611 022

Revision History

Version	Date	Amendments	Issued to
1.0	26/03/2020	First Issue	Mark Reynolds

Quality Control

Action	Signature	Date
Prepared	N. Parsons	26/03/2020
Checked	T. Haskey	26/03/2020
Approved	G. M. Wilson	26/03/2020

Disclaimer

RAB Office

Lichfield Office
Cathedral House
Beacon Street
Lichfield
WS13 7AA

This page intentionally left blank

Contents

This page intentionally left blank

1.0 Introduction

RAB Consultants has prepared this Flood Risk Assessment (FRA) in support of the proposed extension to Rolleston Scout HQ, Rolleston-on-Dove.

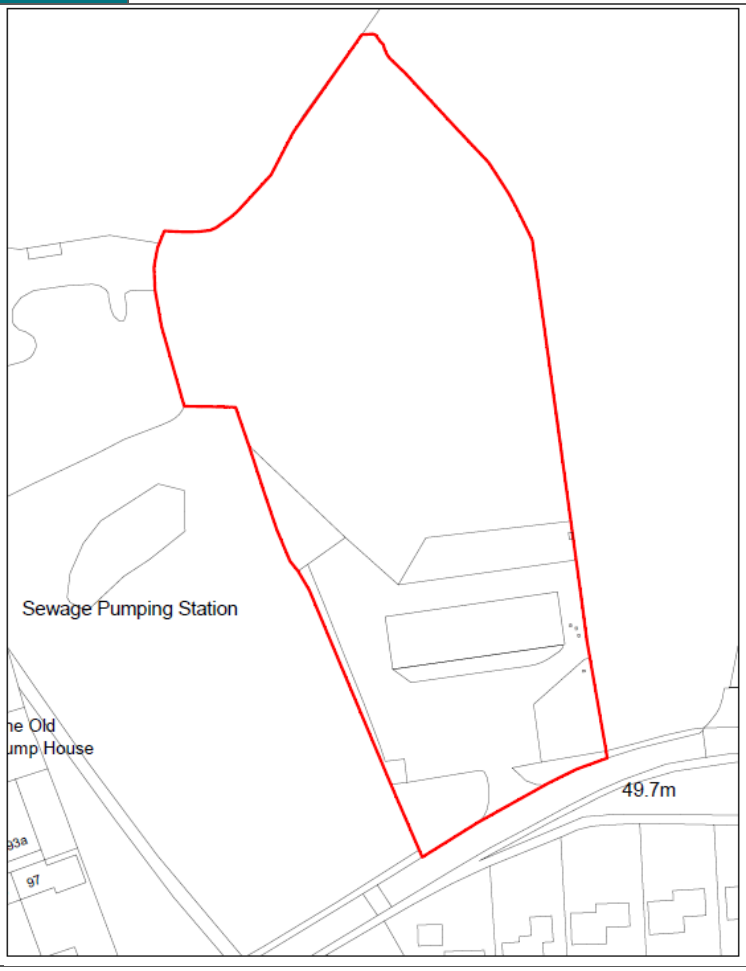
The development site is located in Flood Zone 3 according to the Environment Agency's Flood Map for Planning (Rivers and Sea). As such, a Flood Risk Assessment for this site is required under the Planning Practice Guidance for the National Planning Policy Framework (NPPF). The site-specific FRA is required to ensure that the development is safe from flooding and will not increase the risk of flooding elsewhere.

2.0 Site details

2.1 Site location

TABLE 1: SITE LOCATION

Site address:	Rolleston Scout Hut, Rolleston-on-Dove, DE13 9AB
Site area:	Approximately 0.80 ha
Existing land use:	Scout Hut and adjacent land
OS NGR:	SK 24241 27842
Local Planning Authority:	East Staffordshire Borough Council



2.2 Site description

The site comprises a single building used as a scout hut with associated hardstanding car park to the south and grass area to the north. The majority of the area where the extension is proposed to be constructed is currently impermeable hardstanding. Access to the site is through the car park via Station Road from the South.

TABLE 2: SITE PHOTOGRAPHS

FIGURE 1: FRONT OF THE SCOUT HUT FROM STATION ROAD*

FIGURE 2: LOOKING WEST ALONG STATION ROAD*

**Photos taken from Google Street View.*

2.3 Development proposal

It is proposed to add an extension on to the existing building on the site (Appendix A). The extension in total is approximately 460m^2 and is made up of two parts: a canopy and covered area, which is approximately 350m^2, covering open space below, and a 110m^2 two-storey building extension.

3.0 Flood Risk

3.1 Sequential test

According to the Environment Agency's Flood Map for Planning the site lies in Flood Zone 3, which is described in the NPPF as land having a 1 in 100 or greater annual probability of river flooding (1% or greater Annual Exceedance Probability, AEP); or land having a 1 in 200 or greater annual probability of sea flooding (0.5% AEP or greater).

The NPPF follows a sequential risk-based approach in determining the suitability of land for development in flood risk areas, with the intention of steering all new development to the lowest flood risk areas. NPPF Planning Practice Guidance (PPG) Table 2 confirms the 'Flood risk vulnerability classification' of a site, depending upon the proposed usage. This classification is subsequently applied to Table 3 'Flood risk vulnerability and flood zone compatibility' to determine whether:

- The proposed development is suitable for the flood zone in which it is located; and
- Whether an Exception Test is required for the proposed development.

The proposed development is classed as a ‘less vulnerable’ development in accordance with NPPF PPG. The development is therefore appropriate for the Flood Zone. A sequential test would normally be required in accordance with Table 3; however, it is not possible by definition to build an extension to the existing scout hut at any other location. The site has already proven to be sustainable over an extended period of use, therefore the proposal passes the sequential test.

3.2 Flooding history

The 2013 East Staffordshire Strategic Flood Risk Assessment notes that Station Road in Rollestone-on-Dove has previously flooded in 2012 from ‘Watercourse flooding’. However, the location, extent and depth of flooding is not stated.

The Environment Agency hold recorded flood and historic flood outlines. The site is not located in either of these datasets.

Internet searches reveal Station Road flooded in November 2000 and more recently in March 2018. However, the exact source and location of flooding along Station Road is unknown.

Internet searches also reveal that the grass land north of the Scout Hut building flooded in the recent floods in October 2019. It is assumed the River Dove was the driver of this flooding. Figure 3 below shows a picture of this flooding with water approaching the Scout Hut from the north. The location of the proposed extension is not flooded in this picture. The flood level in the picture is estimated to be 49.0mAOD.

FIGURE 3: LOOKING SOUTH EAST AT THE SCOUT HUT DURING THE OCTOBER 2019 FLOODS

3.3 Fluvial (Rivers)

The site is located in Flood Zone 3 on the Environment Agency's Flood Map for Planning. The River Dove lies 700m north-east of the site. The Mill Fleam branches from the River Dove 1.5km North West of the site, flows alongside the Dove and re-connects to it 800m North East of the site. The Mill Fleam lies 300m north at of the site at its closest approach.

The Environment Agency has provided flood data for the Mill Fleam. The full data is included within Appendix B. It can be seen from the data that there is very little change in flood levels with varying return periods of the Fleam. It is expected that the Dove dominates risk, with the same downstream boundary condition on the Dove being used for all of the Mill Fleam modelled scenarios. The small changes in flood level reflects the small effect that the Mill Fleam flows contribute, with the River Dove the main driver of flood risk.

Therefore, flood data from a hydraulic model of the River Dove will be used to assess fluvial risk to the site.

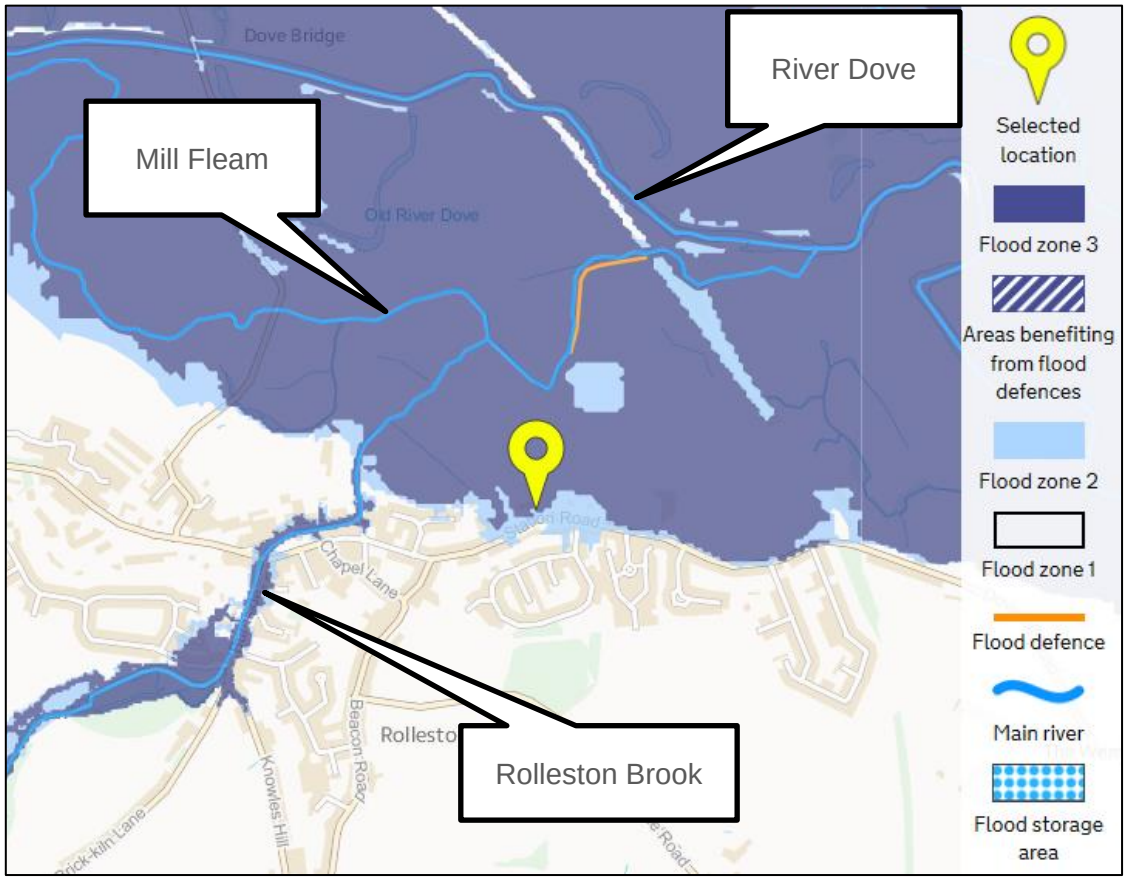


FIGURE 4: SCREENSHOT OF FLOOD MAP FOR PLANNING TAKEN 12/03/2020

The Environment Agency have previously provided the output layers from the 2009 1D-2D linked hydraulic model of the River Dove for a range of return periods.

No topographic survey of the site is available; therefore the latest Environment Agency LiDAR data has been used to assess risk. The adjacent land north of the existing building has a level of 49.15mAOD. The ground floor level of the existing building has been estimated to be 49.53mAOD. This level has been estimated from the CAD drawings (Appendix A) which show the ground floor of the existing building to be 0.38m above the surrounding ground (49.15 + 0.38 = 49.53).

LiDAR data shows the site slopes south to north and that the ground level at the proposed location of the extension to be 49.07 – 49.16mAOD.

In the 1%AEP event, a peak flood level of 49.31mOAD is expected at the site from the River Dove modelled data. This means the location of the proposed building is expected to flood to a depth of 0.15 – 0.24m, with the ground floor of the existing building expected to remain dry.

A peak flood level of 49.42mAOD is expected during the 1%AEP plus climate change (20%) event, giving approximate flood depths of 0.26 – 0.35m at the location of the proposed extension. The ground floor of the existing building is not expected to flood in this scenario. Figure 5 below shows the flood extent at the site for the 1% AEP plus climate change (20%) event.

The grassland to north of the site is expected to flood within the 5% AEP event with a peak level of 49.12mAOD. The location of the proposed extension can expect a maximum depth of 0.03m in this scenario. The ground floor of the existing building is 0.41m higher than this peak level and so is also expected to stay dry.

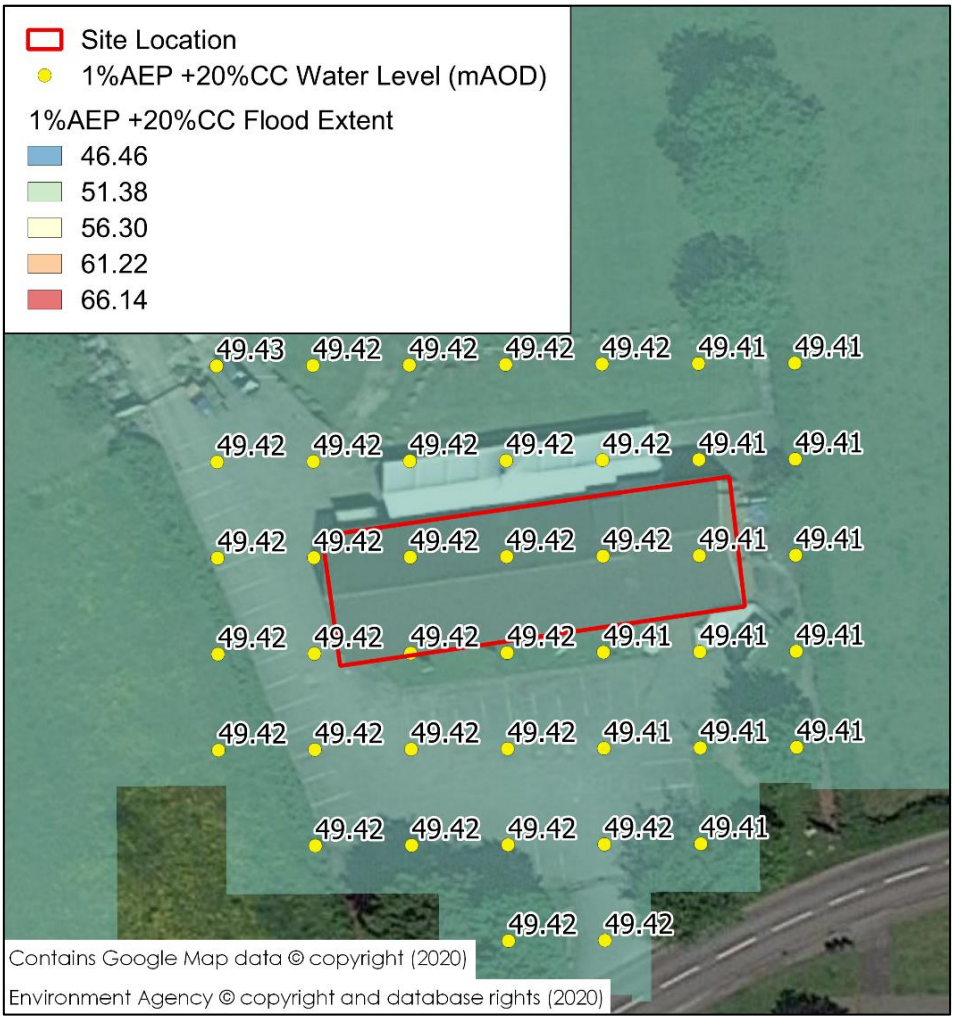


FIGURE 5: RIVER DOVE 1%AEP +20% CLIMATE CHANGE FLOOD EXTENT

3.3.1. Climate Change Impact on Fluvial Risk

The Environment Agency guidance document 'Flood risk assessments: climate change allowances' was released in February 2016 and included statistical increases in peak fluvial flows by river basin district and allowance categories based on epochs and development vulnerability classification. Referring to the NPPF PPG, the development is classified as 'less vulnerable' and has an expected lifetime of 100 years; therefore the ''central" and "higher central" allowance categories apply. These equate to an increase of '20%' and '30%' respectively for the Humber Basin.

The flood risk data in Section 3.3 includes a climate change allowance of 20%.

3.4 Flood defence breach or overtopping

3.4.1. Breach risk

The site is not protected by flood defences and so there is no risk of breach failure.

3.4.2. Overtopping risk

The site is not protected by flood defences and so there is no risk of overtopping failure.

3.5 Coastal/tidal

The site is not influenced by tidal or coastal flooding.

3.6 Pluvial (Surface water)

The Environment Agency surface water flood map below identifies that the site is at 'very low' risk of flooding from this source. Areas of increased risk are confined to Station Road heading east and west away from the site.

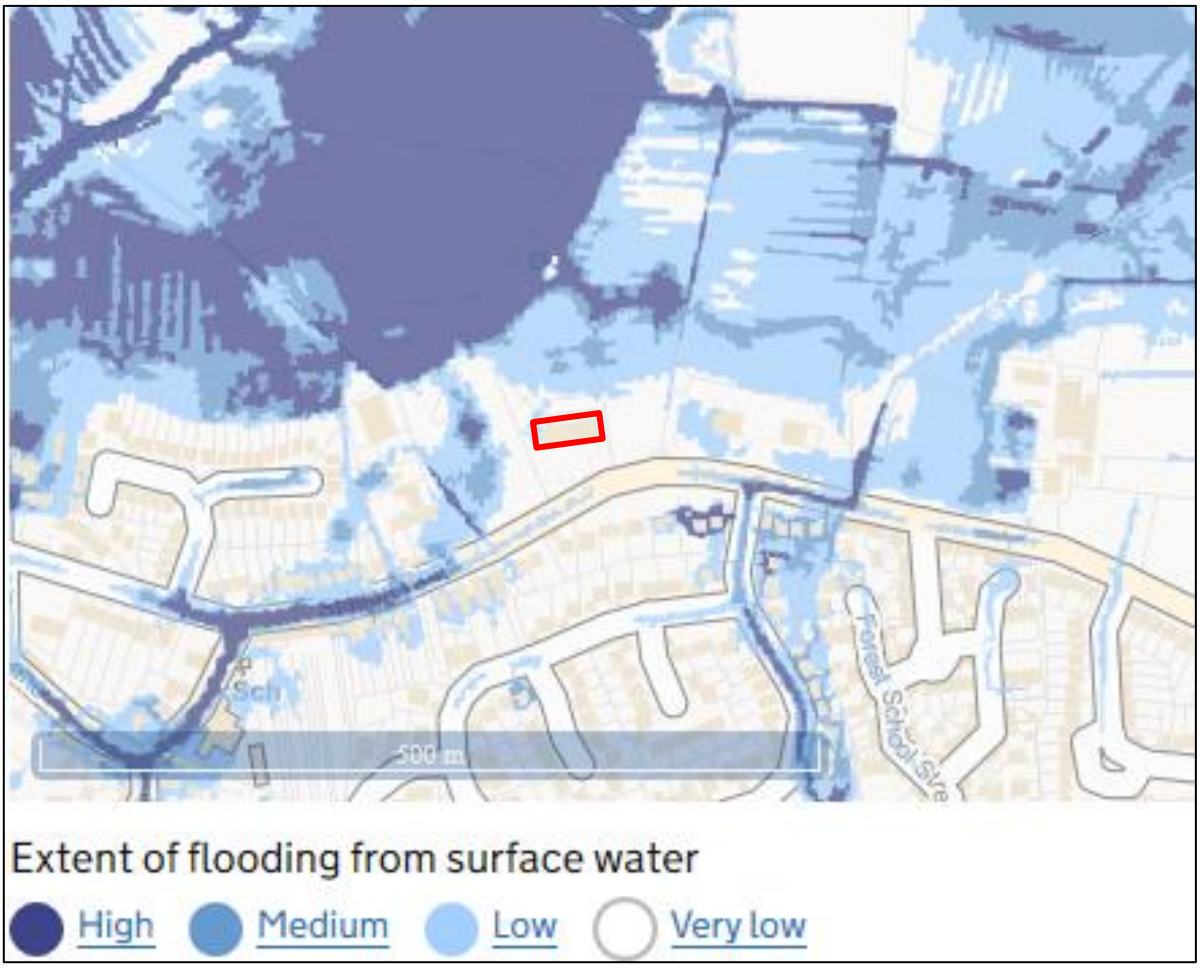


FIGURE 6: SCREENSHOT OF ENVIRONMENT AGENCY'S SURFACE WATER MAP TAKEN 12/03/2020

TABLE 3: ENVIRONMENT AGENCY SURFACE WATER RISK CATEGORIES

Surface Water Risk Category	Surface water flooding Annual Exceedance Probability
Very Low	< 0.1%
Low	Between 1% and 0.1% (1 in 100 years and 1 in 1000 years)
Medium	Between 1% and 3.3% (1 in 100 years and 1 in 30 years)
High	> 3.3% (1 in 30 years)

3.7 Artificial water bodies

The Environment Agency Reservoir flood map identities that the site is at risk of flooding from this source. The expected depth of flooding at the site is between 0.3 – 2.0m. with velocities Between 0.5 and 2m/s.

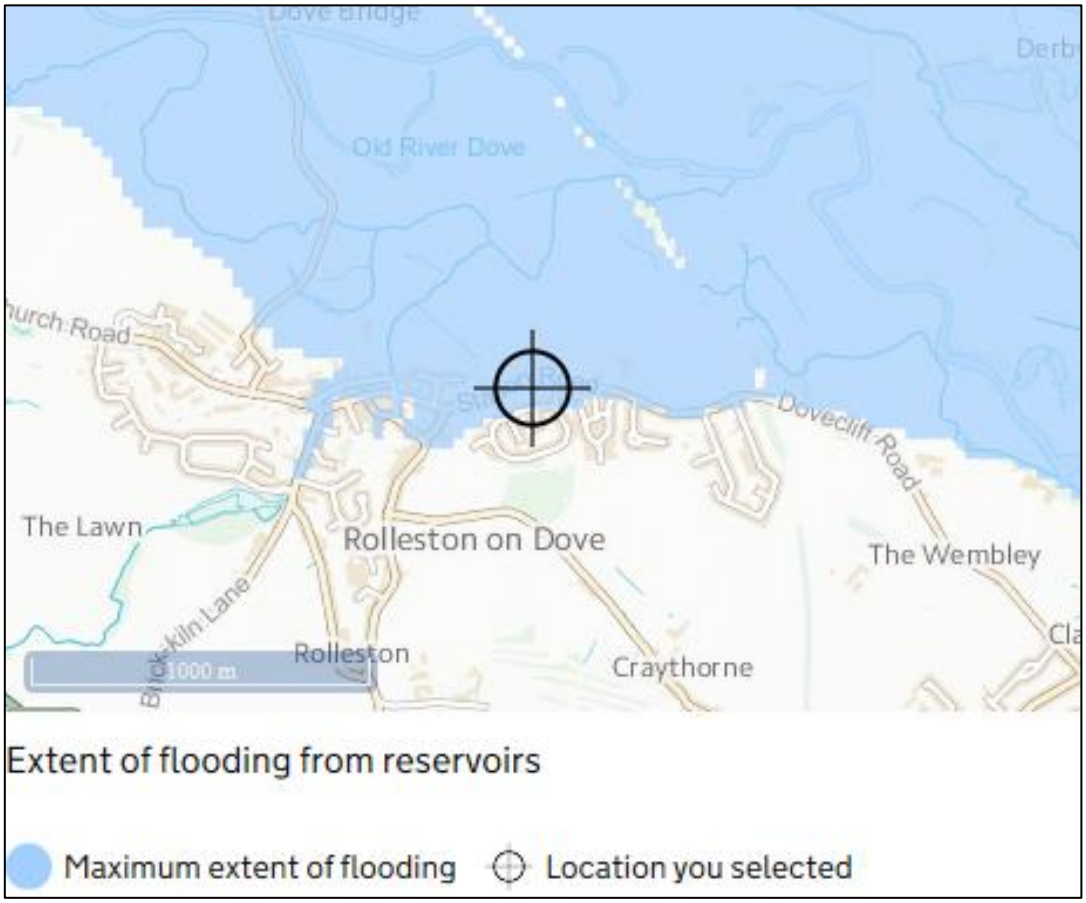


FIGURE 7: ENVIRONMENT AGENCY FLOOD MAP FROM RESERVOIRS – SCREENSHOT CAPTURED ON 12/03/2020

Reservoir flooding is extreme unlikely to happen. The Environment Agency as the enforcement authority for the Reservoirs Act 1975, ensures that reservoirs are inspected regularly, and essential safety work is carried out. The risk of flooding reservoirs is therefore considered to be lower than fluvial risk overall which has been assessed in Section 3.3.

3.8 Groundwater

British Geological Survey (BGS) records indicate that the proposed development site overlies bedrock composed of Mercia Mudstone Group – mudstone. This is overlain (superficial deposits) by River Terrace Deposits - sand and gravel. Mudstone is impermeable therefore would likely provide a barrier to rising groundwater. Sand and gravel are permeable therefore may not provide a barrier.

Soilscapes describes the natural soils as 'Loamy soils with naturally high groundwater'.

With the site being within close proximity to the River Dove and Mill Fleam, groundwater will be closely linked to fluvial water. Any groundwater is expected to essentially match river levels for which the risk has been assessed in Section 3.3 of this report.

3.9 Sewers

Severn Trent Water are responsible for the adopted surface and foul sewer networks within the Borough and maintain a DG5 register of sites affected by sewer flood incidents on a post code basis. The 2013 SFRA records show no sewer flooding for the site. The site owner has no knowledge of sewer flooding affecting the site. Based on these findings and the low risk shown on the Environment Agency's surface water risk map, a more detailed assessment of sewer flood risk is not considered appropriate.

It is important to note that previous sewer flood incidents, or the lack thereof, do not indicate the current or future risk to the site. Upgrade work could have been carried out to alleviate any issues or conversely, in areas that have not experienced sewer flooding incidents, the local drainage infrastructure could deteriorate leading to future flooding.

4.0 Mitigation measures

4.1 Risk to buildings

4.1.1. Finished floor levels

In order to afford a level of protection against flooding it is normally recommended that finished floor levels are set 0.6m above the modelled 1% AEP plus climate change design flood level.

In this case, the proposal involves a ground floor extension at the rear. Level access is required to connect the existing building with the rear extension; therefore the extension will be set level with the existing ground floor level of 49.53mAOD.

With a 1% AEP plus climate change design flood level of 49.42mOAD, the ground floor of the building is expected to stay dry during this event, however the floor level will be just 0.11m above the design flood.

Further measures will be required to mitigate the residual risk.

4.1.2. Flood resistance

Flood resistance is a strategy of temporary or permanent measures taken to reduce the amount of flood water that will enter buildings.

A strategy of flood resistance should be considered given the existing and proposed floor level will be less than 0.6m above the design flood level. This should be informed by a detailed Property Flood Resilience survey of the whole building (flood resistance to the extension alone would be ineffective without undertaking a water exclusion approach for the whole building).

4.1.3. Flood resilience

Given the floor level of the extension is not 0.6m above the 1%AEP plus climate change flood level, and that it cannot be raised due to internal access requirements, flood resilience measures should be used in the ground floor extension in order to mitigate the residual risk of flooding. Flood resilience measures are designed to reduce damage to the structure, fittings and items contained within the building when flood waters enter a building.

The following resilience measures should be considered for incorporated into the extension and should also be considered for any future refurbishment of the existing ground floor:

- Water-compatible final coating on floors (e.g. resin surface or specialised treated wood or tiles).
- Water-compatible plaster (e.g. lime-based) in conjunction with masonry internal wall construction (if appropriate).
- Water-compatible internal wall insulation (closed-cell insulation) to internal lining of external walls and party wall partitions (if appropriate).
- Utilising water compatible fixtures, fittings and furnishings.
- Store high-value water sensitive items above the flood level

More detailed information about flood resilience can be found in the following documents:

- Environment Agency publication: 'Prepare your property for flooding'

  https://www.gov.uk/government/publications/prepare-your-property-for-flooding
- Ciria publication: 'Improving the flood performance of new buildings'

  http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf
- RAB Consultants publication: 'Homeowners guide to flood resilience'

  http://www.knowyourfloodrisk.co.uk/sites/default/files/FloodGuide_ForHomeowners.pdf

4.2 Risk to occupiers

4.2.1. Safe access/egress

The site is expected to flood during a 1%AEP +CC design event; depths of water up to 0.3m and velocities of 0.1m/s are expected around the front entrance and the car park to the south of the building. This equates to a 'Danger for some' rating as per Table 13.1 of Defra / Environment Agency R&D Technical Report FD2320/TR2.

Risk to users will not increase as a result of the development given the proposal is for an extension to an existing building. Flood risk will be managed by users registering to receive Environment Agency Flood Warnings and implementing a Flood Warning and Evacuation Plan (an outline plan is given in Appendix C).

4.2.2. Flood warning and evacuation plan

The Environment Agency provides flood warnings for the area. The Flood Warnings System is a free service, which sends you a direct message when flooding is expected and may affect your property. Future users should sign up for flood warnings online using the channels identified in Table 4 below and implement a flood warning and evacuation plan as outlined within Appendix C.

TABLE 4: FLOOD WARNING INFORMATION

Channel	Details
Live information	https://flood-warning-information.service.gov.uk/
Register for warnings	https://www.gov.uk/sign-up-for-flood-warnings
Floodline	0345 988 1188
Typetalk	0845 602 6340

4.3 Risk to others

4.3.1. Floodplain compensation

Environment Agency guidance states there must be no loss of flood storage capacity for flooding up to the 1% AEP plus climate change event.

The proposed extension to the existing building is 460m^2 in size. However, 350m^2 of this extension is canopy and covered areas where water will be able to freely move underneath, not impacting on the floodplain storage. Only the remaining 110m^2 of the extension will take up flood storage capacity.

Given the enclosed element of the extension is just 110m^2 and flooding to a depth of just 0.3m is expected, in the context of the wide floodplain at this location any impact on floodplain storage volume will be very small.

4.3.2. Surface water run-off

Current surface water run-off arrangements include downpipes from building roofs, which are expected to drain into the local sewer system. It is assumed the extension will be connected into the same system.

The majority of the extension is proposed to be constructed on top of already drained impermeable tarmac. There will be an overall increase of approximately 170m^2 to the drained area.

Information surrounding potential methods to further reduce surface water run-off, such as through the incorporation of incorporate Sustainable Drainage Systems (SuDS), can be found within section 4.4 below

4.4 SuDS feasibility

The SuDS Manual (2015), discusses the SuDS approach to managing surface water runoff which is intended to mimic the natural catchment process as closely as is possible. The approach sets out the design objectives in respect of SuDS:

- Use of surface water runoff as a resource;
- Manage rainwater close to where it falls (at source);
- Manage runoff on the surface (above ground);
- Allow rainwater to soak into the ground (infiltration);
- Promote evapotranspiration;
- Slow and store runoff to mimic natural runoff rates and volumes;
- Reduce contamination of runoff through pollution prevention and by controlling the runoff at source; and

- Treat runoff to reduce the risk of urban contaminants causing environmental pollution.

Depending on the characteristics of the site and local requirements, these may be used in conjunction and to varying degrees. Table 5 presents the functions of the SuDS components (from which a management train can be created) and their feasibility in respect of the site.

TABLE 5: FEASIBILITY OF SUDS TECHNIQUES AT THE DEVELOPMENT SITE

Technique	Description	Feasibility Y / N / M (Maybe)
Good building design and rainwater harvesting	Components that capture rainwater and facilitate its use within the building or local environment.	**Y –** While it is beyond the scope of the proposed extension to incorporate formal water harvesting, water butts could be added to downpipes.
Porous and pervious surface materials	Structural surfaces that allow water to penetrate, thus reducing the proportion of runoff that is conveyed to the drainage system (green roofs, pervious paving).	**M** – If there are any exterior alterations to the property then porous and pervious surface material could be considered.
Infiltration Systems	Components that facilitate the infiltration of water into the ground. These often include temporary storage zones to accommodate runoff volumes before slow release to the soil.	**N –** The site is included in the floodplain of the River Dove. Soilscapes identifies this site as 'Loamy soils with naturally high groundwater', so it is unlikely infiltration will manage surface water.
Conveyance Systems	Components that convey flows to downstream storage systems (e.g. swales, watercourses).	**N** – It is beyond the scope of the proposed building extension.
Storage Systems	Components that control the flows and, where possible, volumes of runoff being discharged from the site, by storing water and releasing it slowly (attenuation). These systems may also provide further treatment of the runoff (e.g. ponds, wetlands, and detention basins).	**N** – It is beyond the scope of the proposed building extension.
Treatment Systems	Components that remove or facilitate the degradation of contaminants present in the runoff.	**N** – This is not feasible due to the nature of development.

As a result of the majority of the proposed development being constructed on top of already drained tarmac, the overall drained impermeable area will increase by 170m^2.

The recommended hierarchy for discharging surface water (ref. The SuDS Manual, CIRIA C753) is:

1. Infiltration to the maximum extent practical.
2. Discharge into surface water.

3. Discharge to surface water sewer.
4. Discharge to combined sewer.

Discharge to the ground via infiltration is unlikely to be feasible given the site lies within the floodplain of the River Dove and that soils are describes as 'Loamy with naturally high groundwater' according to Soilscapes.

Available online mapping suggests that there is a drainage ditch close to the west boundary of the site which could enable discharge to the nearby watercourses. Land ownership rights would need to be investigated to assess the viability of this option.

Most likely the rooftop of the extension would be most appropriately drained into the existing drainage system.

The development provides the opportunity of betterment by the incorporation of water butts on downpipes and creation of additional small landscaped areas.

5.0 Conclusion

Planning permission is sought for an extension to the Scout Hut at Rolleston on Dove. The site is identified to be in Flood Zone 3 according to the Environment Agency's Flood Map for Planning. While the Mill Fleam watercourse is closest to the site, flood risk is dominated by the River Dove, latest modelled data for the River Dove has therefore been used to assess fluvial risk.

The ground floor extension must maintain the same finished floor level as existing, in order to provide usable access within the building. The existing / proposed ground floor level is higher than the design flood level, however there is a residual risk of water entry. This residual risk will be managed through a combination of a flood resistance (lead by a detailed property flood resilience survey) and flood resilience within the new construction.

The access route is expected to flood in the 1%AEP +CC event; however, the overall risk profile of the site will not change as the proposal is for an extension to an existing facility. Risk to users will be improved from existing through the implementation of the flood warning and evacuation plan as outlined in Appendix C.

The proposal is expected to have a minimal if any impact on the surrounding floodplain given the size of the enclosed element of the extension.

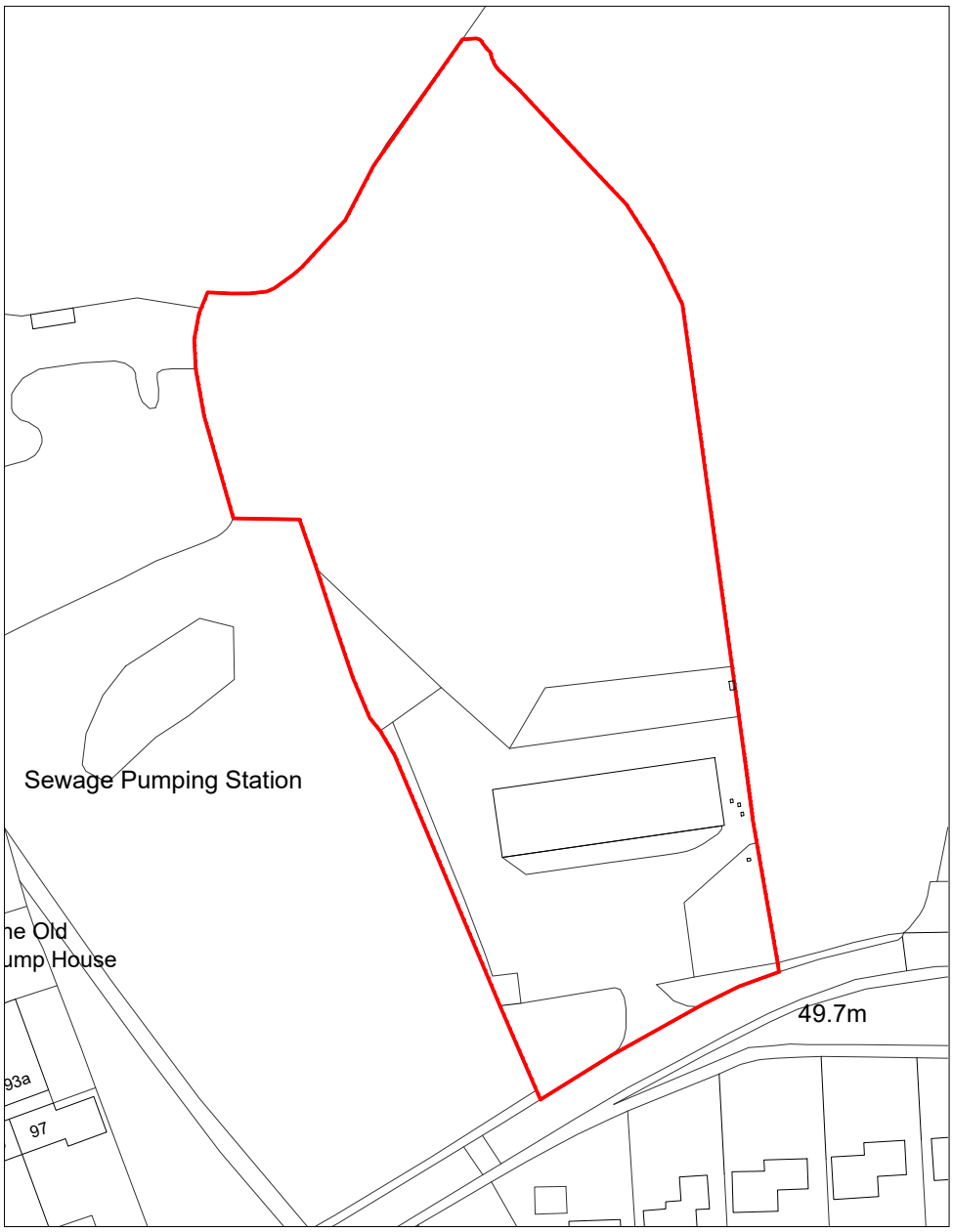
No significant change to the existing surface water run-off is anticipated given the nature of the development, as the majority of the extension is proposed to be constructed on top of already drained tarmac. Betterment could be achieved by the use of water butts on downpipes and the creation of additional small landscaped areas.

It is concluded that the proposed development is appropriate for the flood risk and is not expected to increase the risk of flooding elsewhere.

6.0 Recommendations

- The finished floor level of the extension should be no lower than the existing floor level.
- Incorporate flood resilience measures to the ground floor extension as set out in Section 4.1.3.
- Undertake a detailed Property Flood Resilience survey and incorporate a flood resistance strategy into the existing building and the proposed extension as appropriate.
- Implement a Flood Warning an Evacuation Plan in line with the outline plan given in Appendix C.

Appendix A – Development Proposals



Rolleston Scout Hut
Location Plan

1:1250 25m 50m 75m 100m 125m

©

Project
Proposed two storey side and rear extension at Rolleston Scout Hut,
Station Road,
Rolleston-On-Dove
Burton-On-Trent
DE13 9AB

Disc.
Site Location Plan

N

Drawn	JAK	**Scale**	1:1250 @ A4
Date	30.09.19	**Status**	Planning

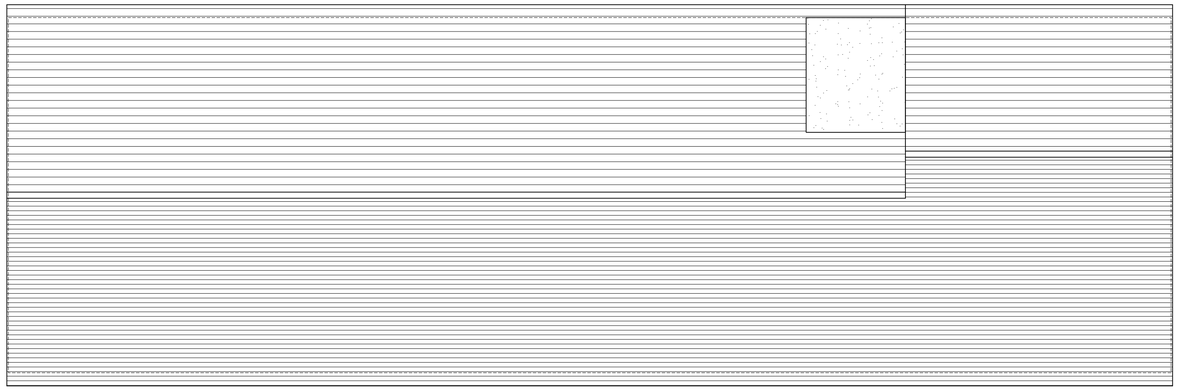
drg.no. 50355-2019-RSG-01

Rev.	Description	Date

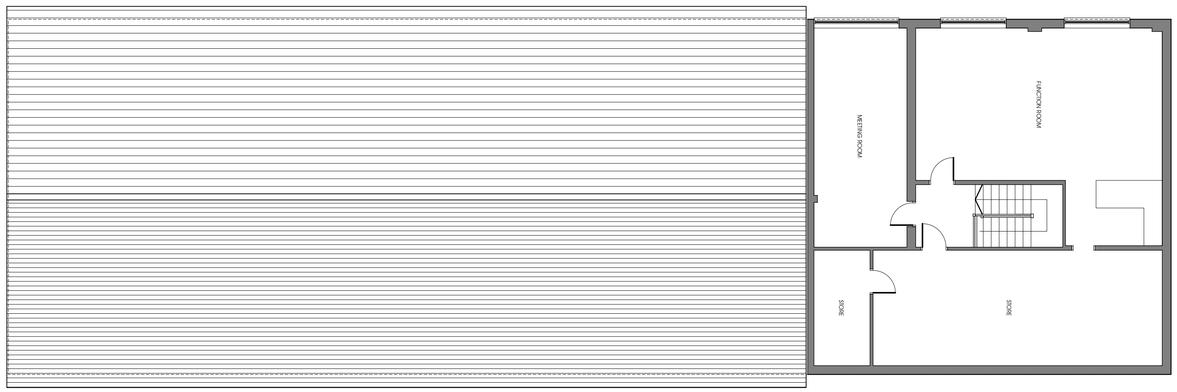
Suite 2a, Anson Court,
Horninglow Street,
Burton on Trent,
Staffordshire
DE14 1NG

tel: 01283 515155
email: info@markreynoldsarchitect.com

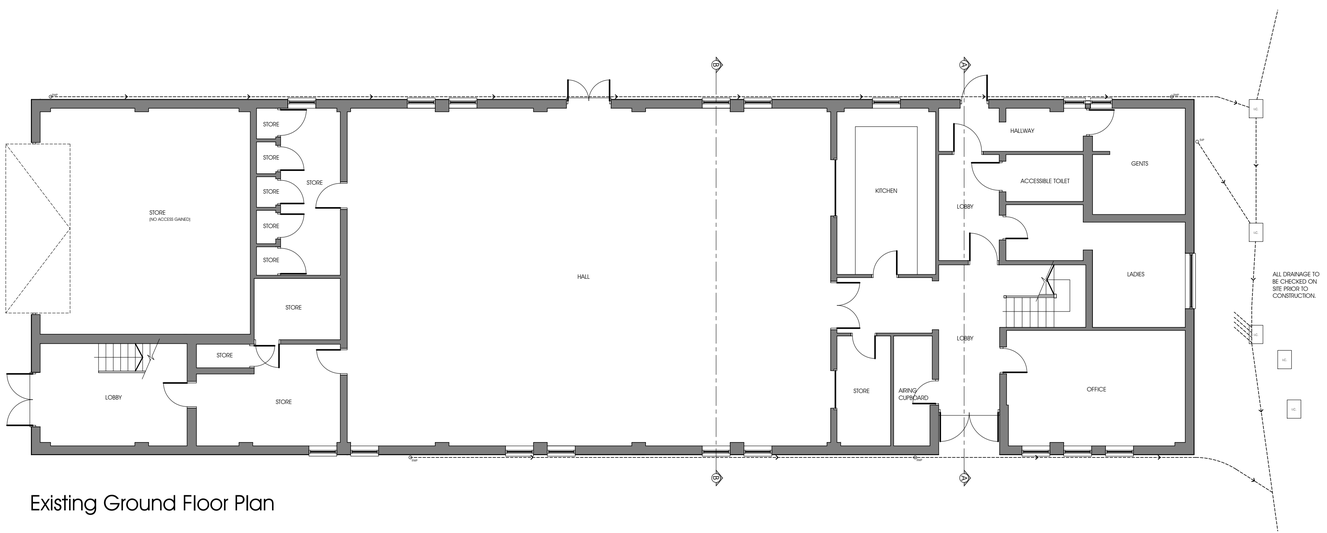
mark reynolds architect



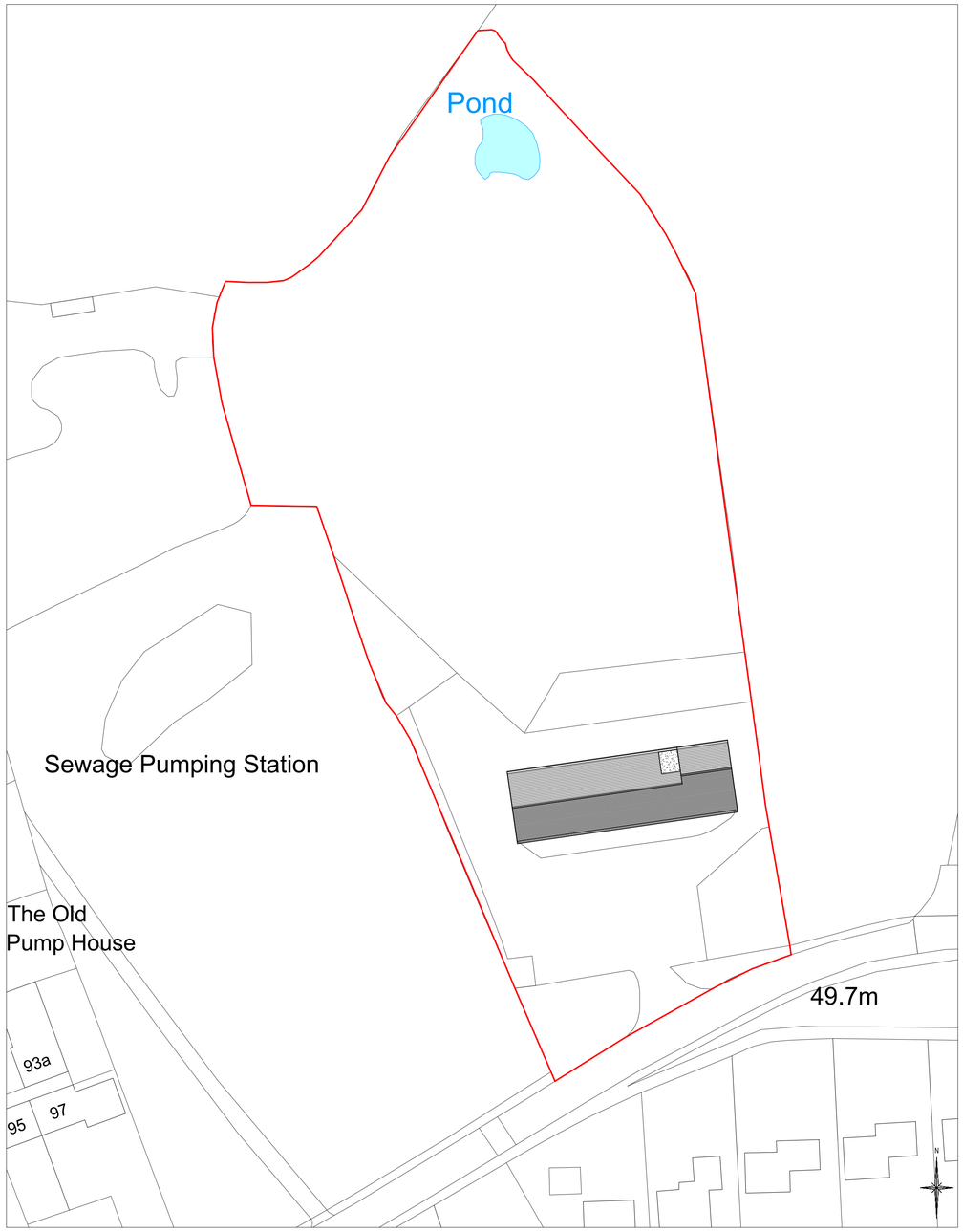
Existing Roof Plan



Existing First Floor Plan



Existing Ground Floor Plan



Existing Site Layout 1:500

1:100 2m 4m 6m 8m 10m

Project
Proposed two storey side and rear extension at Rolleston Scout Hut,
Station Road,
Rolleston-On-Dove
Burton-On-Trent
DE13 9AB

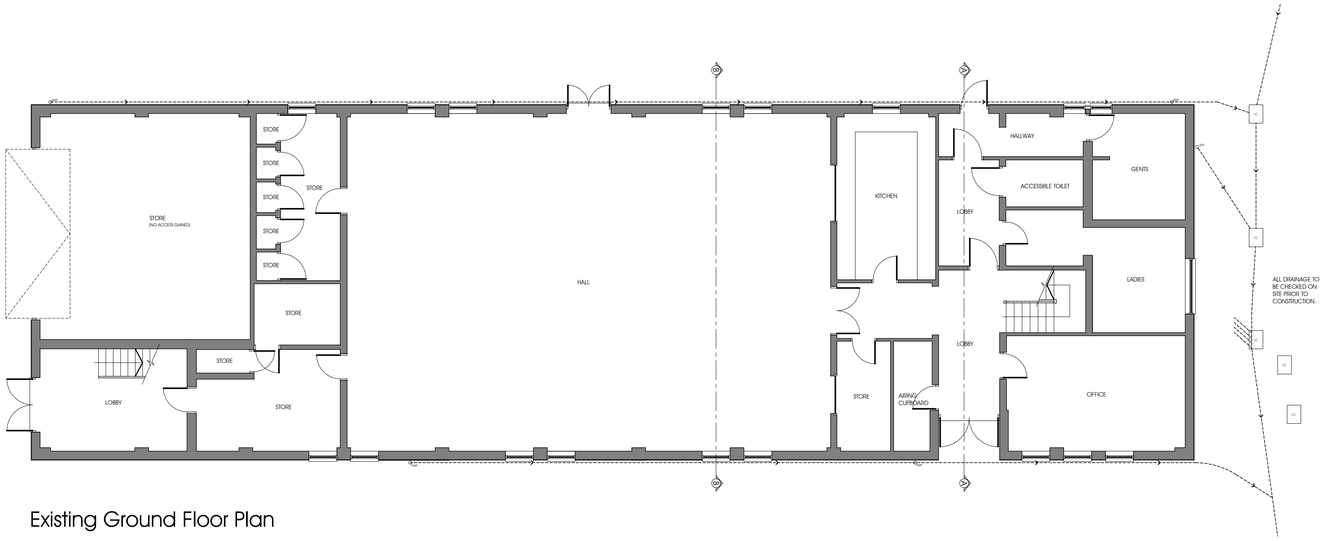
Disc.
Existing Site Layout
Existing Floor Plans
Existing Roof Plan

Drawn JAK **Scale** 1:100, 1:500 @ A1
Date 30.09.19 **Status** Planning

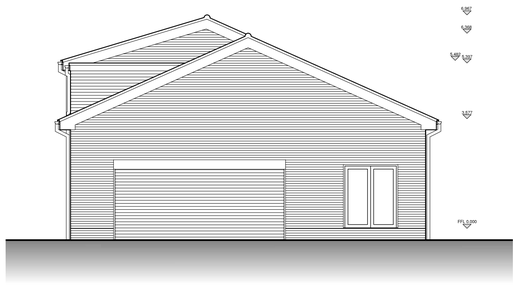
drg.no. 50355-2019-RSG-02

Rev.	Description	Date

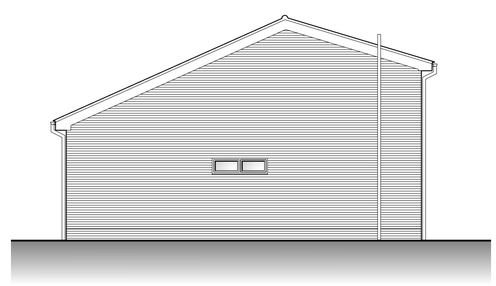
Suite 3's, Anson Court,
Horninglow Street,
Burton on Trent,
Staffordshire
DE14 1NG
tel: 01283 515155
email: info@markreynoldsarchitect.com



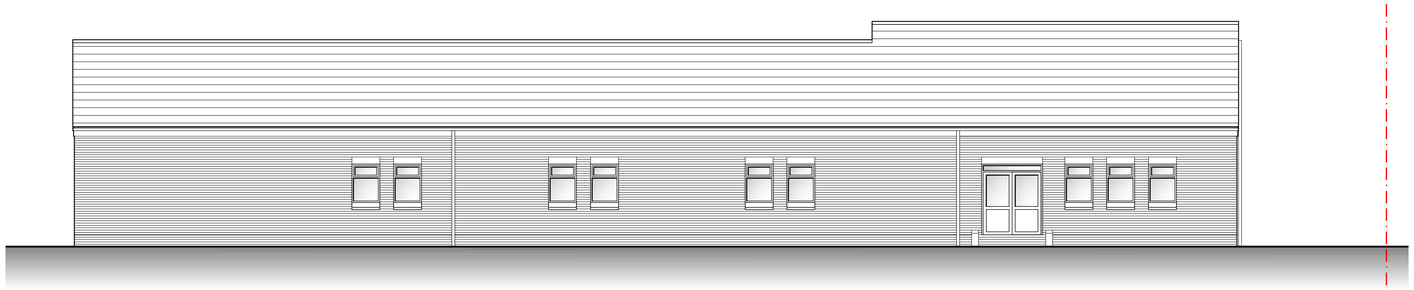
Existing Ground Floor Plan



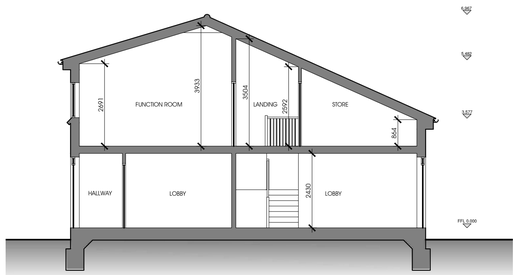
Existing West Elevation



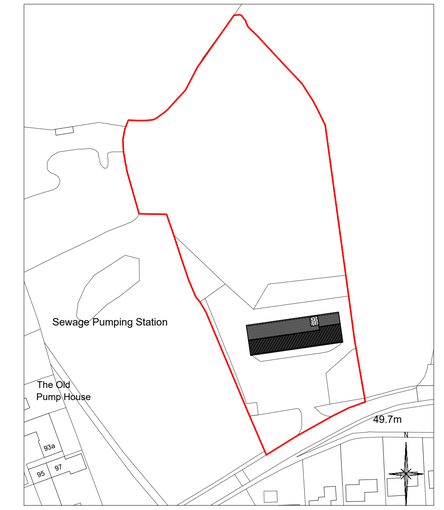
Existing East Elevation



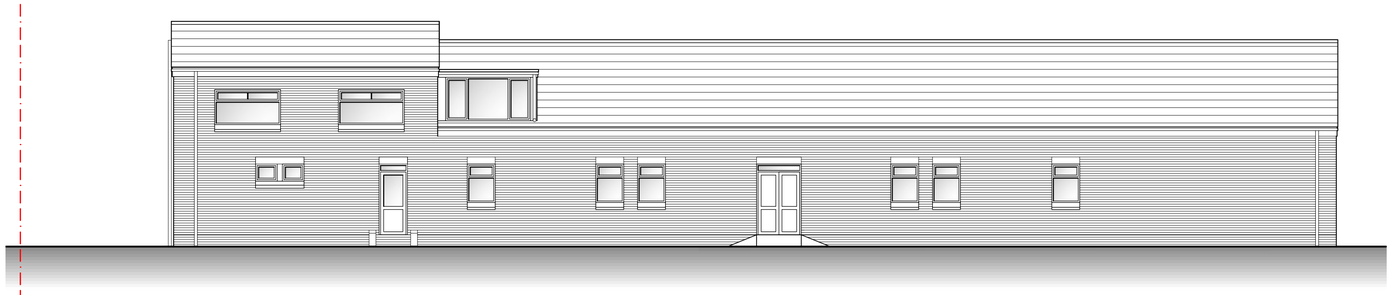
Existing South Elevation



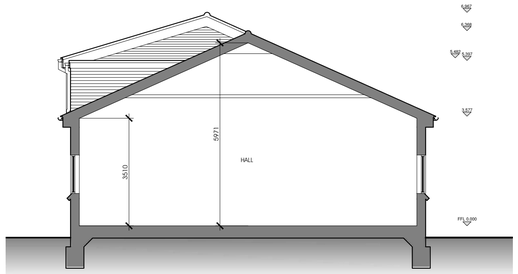
Existing Section A-A



Existing Site Layout 1:1250



Existing North Elevation



Existing Section B-B

Notes:

Contractor to satisfy themselves that all dimensions, drainage and services positions and materials are determined and correct prior to construction. Existing sub structure to be check and verified as suitable prior to any works being undertaken.

Materials:

All Materials to Match Existing.

Walls:
Red brickwork.

Roof:
Marley Mendip Roof Tiles.

Windows and Doors:
White UPVC.

Gutters & Fascias:
Black UPVC gutters & downpipes. White UPVC fascias.

1:100 2m 4m 6m 8m 10m

Project Proposed two storey side and rear extension at Rolleston Scout Hut, Station Road, Rolleston-On-Dove Burton-On-Trent DE13 9AB

Disc. Existing Site Layout
Existing Floor Plan
Existing Elevations
Existing Sections

Drawn JAK **Scale** 1:100, 1:1250 @ A1
Date 30.09.19 **Status** Planning

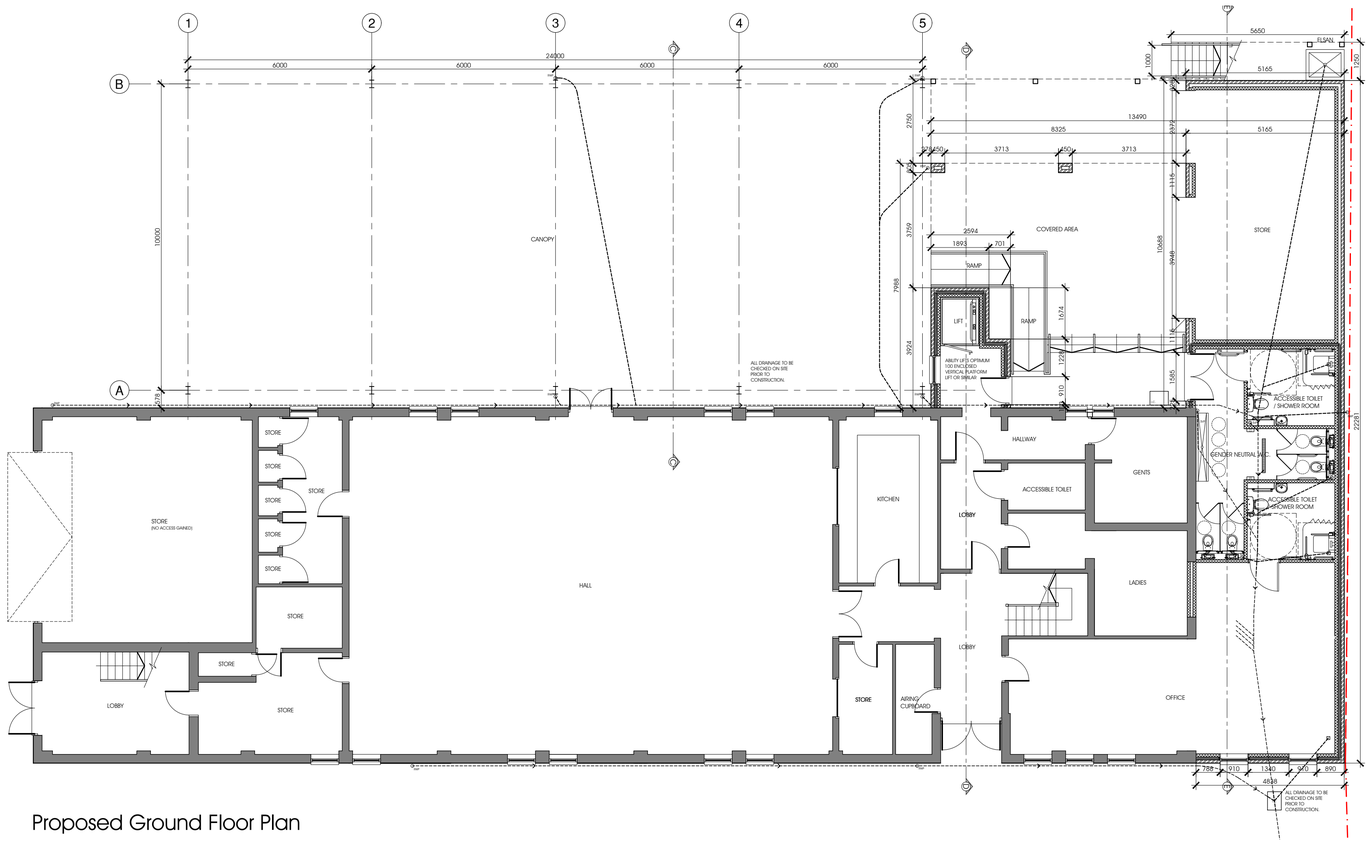
drg.no. 50355-2019-RSG-03

Rev.	Description	Date

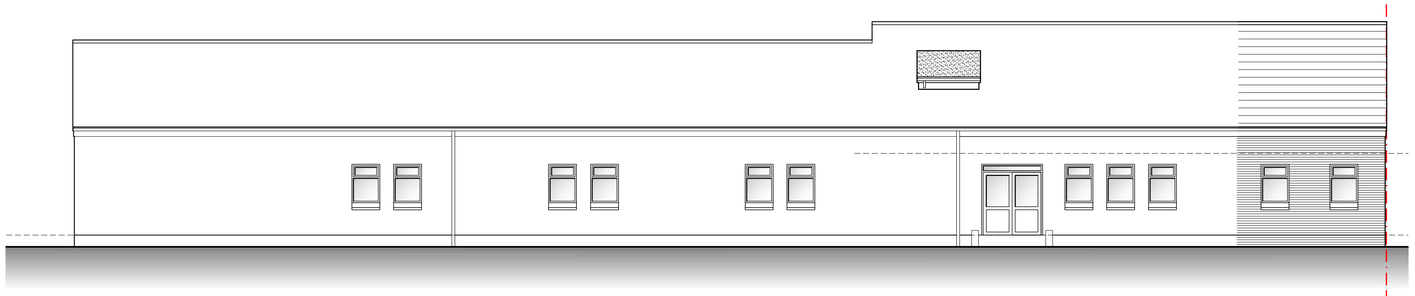
Suite 3a, Anson Court,
Horninglow Street,
Burton-on-Trent,
Staffordshire
DE14 1NG
tel: 01283 515155
email: info@markreynoldsarchitect.com

arb RIBA

mark reynolds architect

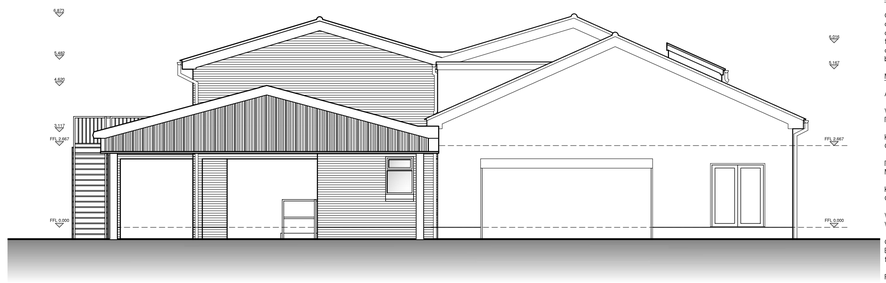


Proposed Ground Floor Plan

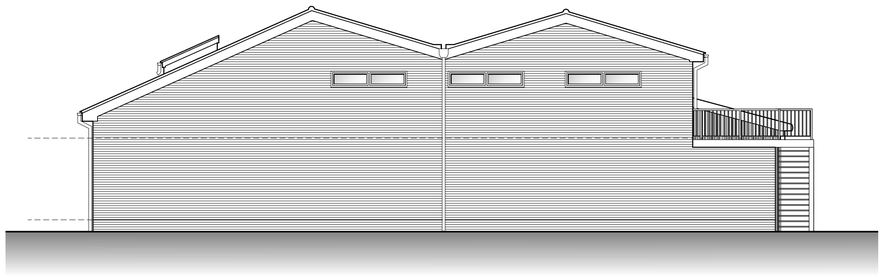


Proposed South Elevation

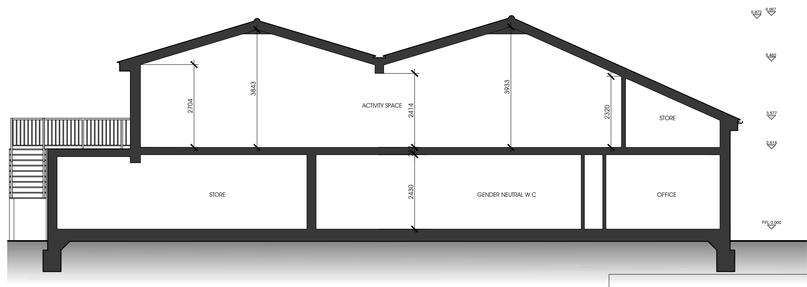
Proposed North Elevation



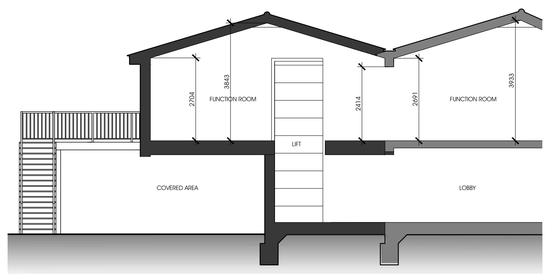
Proposed West Elevation



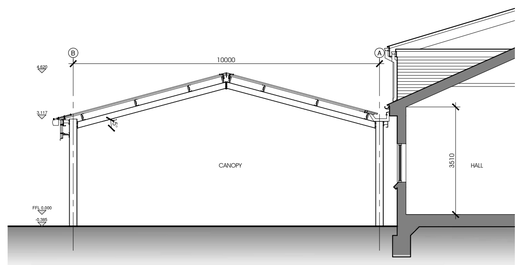
Proposed East Elevation



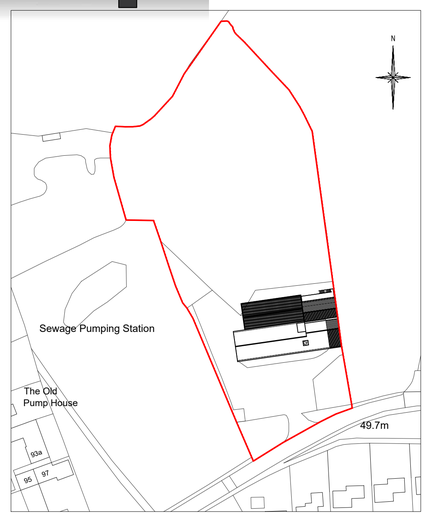
Proposed Section E-E



Proposed Section D-D



Proposed Section C-C



Proposed Site Layout 1:1250

Notes:

Contractor to satisfy themselves that all dimensions, drainage and services positions and materials are determined and correct prior to construction. Existing sub structure to be check and verified as suitable prior to any works being undertaken.

Materials:

All Materials to Match Existing.

Walls:
Red brickwork to match existing.

Kingspan KS1000 RW cladding to Canopy.
Colour Olive Green or Similar approved.

Roof:
Marley Mendip Roof Tiles.

Kingspan KS1000 RW cladding to Canopy.
Colour Goosewing Grey.

Windows and Doors:
White UPVC.

Gutters & Fascias:
Black UPVC gutters & downpipes. White UPVC fascias.

Flashings to Canopy to match cladding.

1:100 2m 4m 6m 8m 10m

Project Proposed two storey side and rear extension at Rolleston Scout Hut, Station Road, Rolleston-On-Dove Burton-On-Trent DE13 9AB

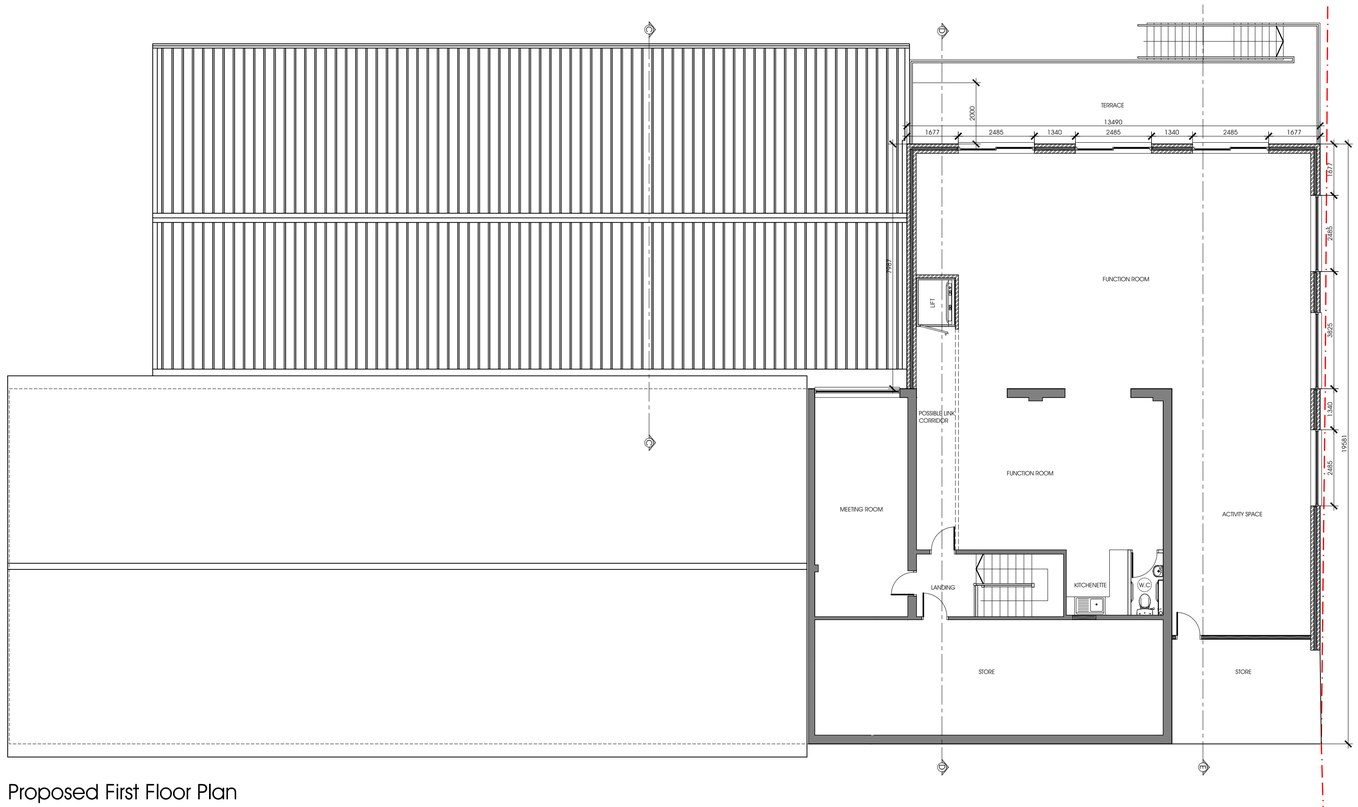
Disc. Proposed Site Layout
Proposed Ground Floor Plan
Proposed Elevations
Proposed Sections

Drawn MPR **Scale** 1:100, 1:1250 @ A1
Date 02.12.19 **Status** Planning

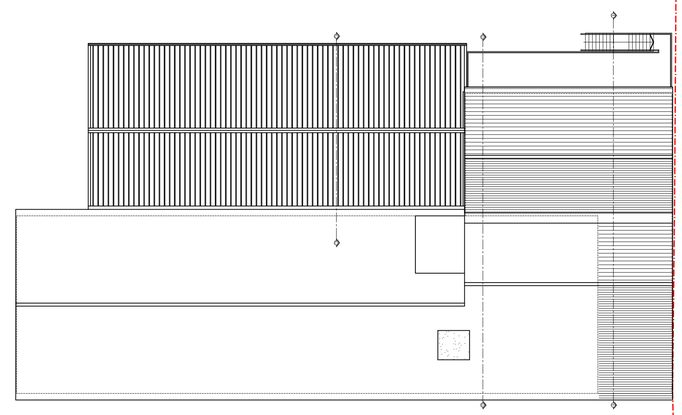
drg.no. 50355-2019-RSG-05C

Rev.	Description	Date

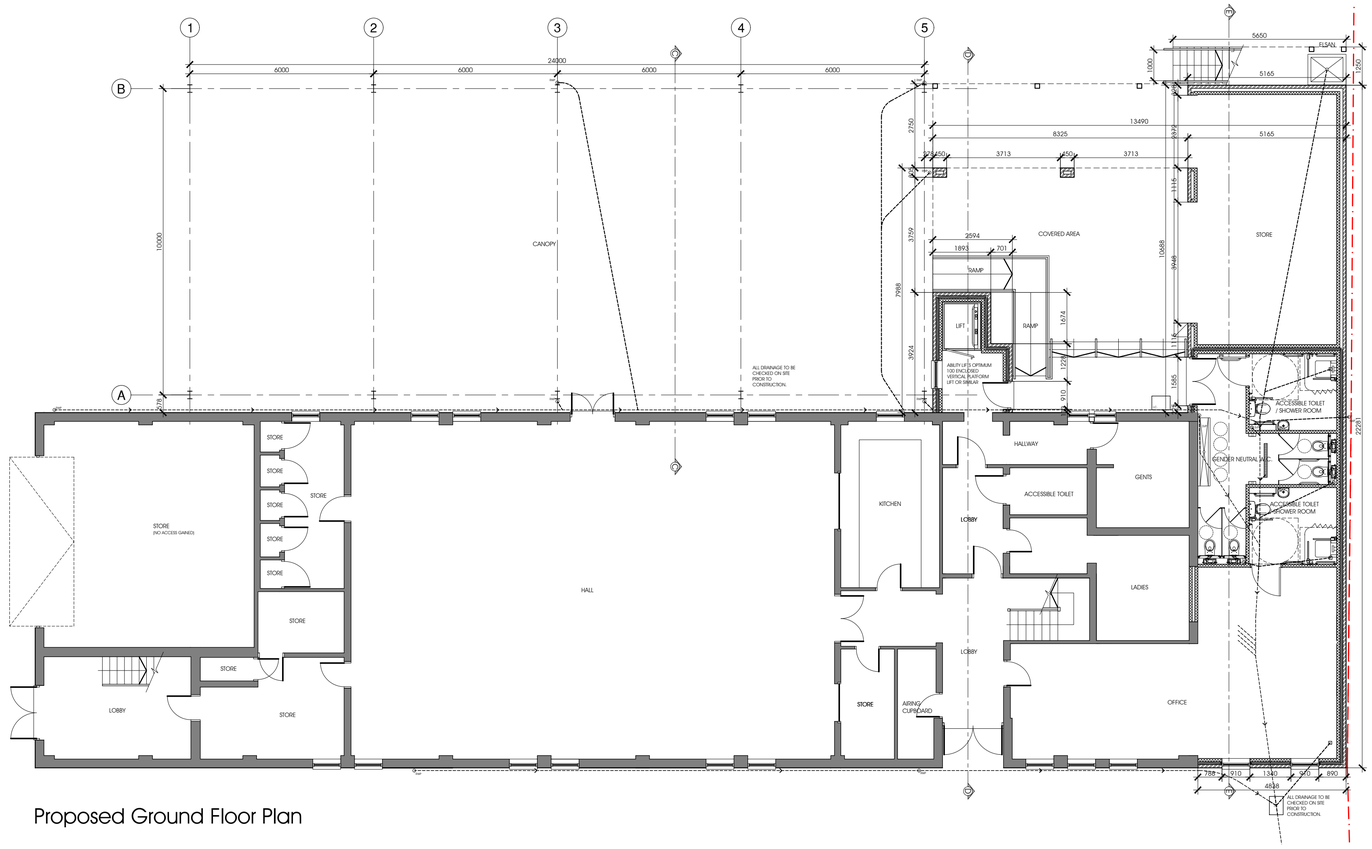
Suite 2a, Anson Court,
Horninglow Street,
Burton on Trent,
Staffordshire
DE14 1NG
tel: 01283 515155
email: info@markreynoldsarchitect.com



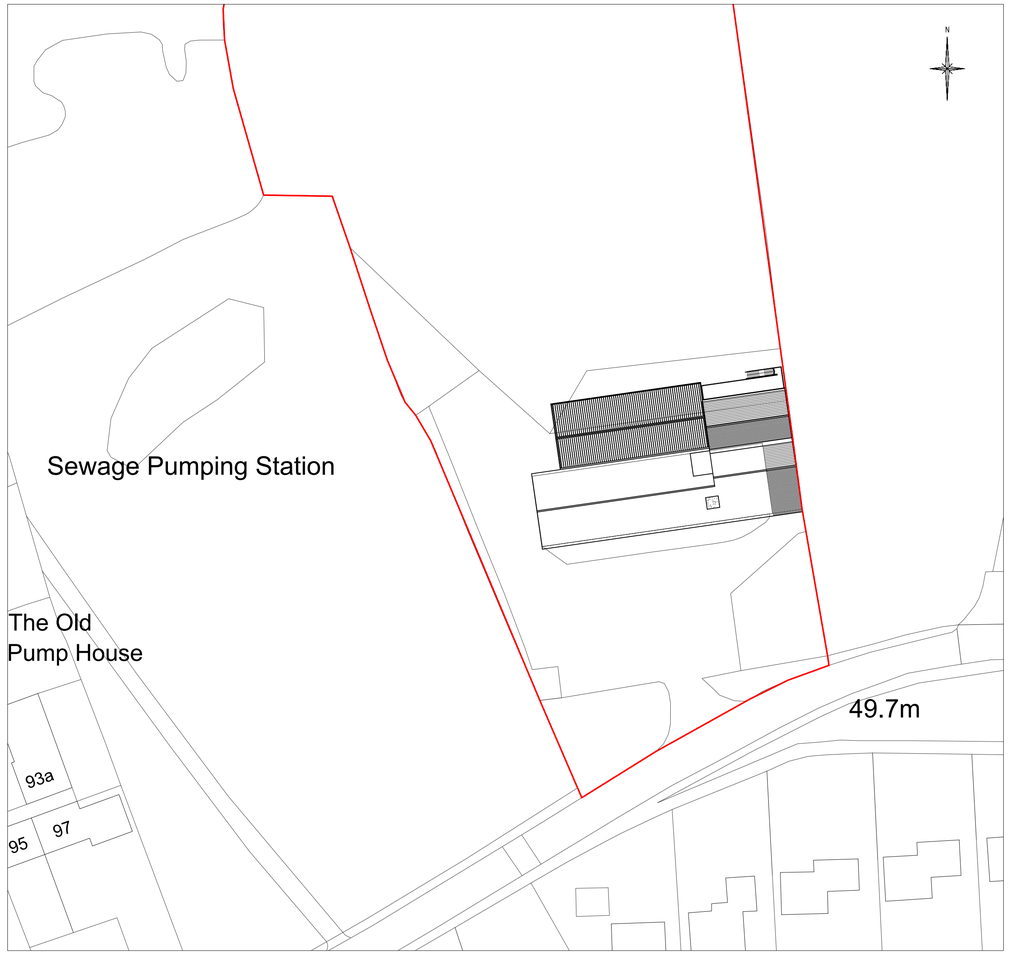
Proposed First Floor Plan



Proposed Roof Plan



Proposed Ground Floor Plan



Proposed Part Site Layout 1:500

© mark reynolds architect

Project Proposed two storey side and rear extension at Rolleston Scout Hut, Station Road, Rolleston-On-Dove, Burton-On-Trent, DE13 9AB

Disc. Proposed Site Layout, Proposed Floor Plans

Drawn MPR **Date** 02.12.19 **Scale** 1:100, 1:200, 1:500 @ A1 **Status** Planning

drg.no. 50355-2019-RSG-06D

Rev.	Description	Date

Suite 2a, Anson Court, Horninglow Street, Burton on Trent, Staffordshire DE14 1NG
tel. 01283 515155
email. info@markreynoldsarchitect.com

Appendix B – Environment Agency Data

Product 4 (Detailed Flood Risk Data) for
Station Road, Rolleston on Dove

Reference number: 161893
Date of issue: 09 March 2020

Model Information

The following information and attached maps contain a summary of the modelled information relevant to the area of interest. The information provided is based on the best available data as of the date of issue.

Model Name	Release Date
River Dove Tributaries Study	**2011**

Flood Map for Planning (Rivers and Sea)

The Flood Map for Planning (Rivers and Sea) indicates the area at risk of flooding, **assuming no flood defences exist**, for a flood event with a 0.5% chance of occurring in any year for flooding from the sea, or a 1% chance of occurring in any year for fluvial (river) flooding (Flood Zone 3). It also shows the extent of the Extreme Flood Outlines (Flood Zone 2) which represents the extent of a flood event with a 0.1% chance of occurring in any year, or the highest recorded historic extent if greater. The Flood Zones refer to the land at risk of flooding and **do not** refer to individual properties. It is possible for properties to be built at a level above the floodplain but still fall within the risk area.
This Flood Map only indicates the extent and likelihood of flooding from rivers or the sea. It should also be remembered that flooding may occur from other sources such as surface water, sewers, road drainage, etc.

To find out which flood zone a location is in please use: https://flood-map-for-planning.service.gov.uk/

Definition of flood zones

- **Zone 1** - The area is within the lowest probability of flooding from rivers and the sea, where the chance of flooding in any one year is less than 0.1% (i.e. a 1000 to 1 chance).
- **Zone 2** - The area which falls between the extent of a flood with an annual probability of 0.1% (i.e. a 1000 to 1 chance) fluvial and tidal, or greatest recorded historic flood, whichever is greater, and the extent of a flood with an annual probability of 1% (i.e. a 100 to 1 chance) fluvial / 0.5% (i.e. a 200 to 1 chance) tidal. (Land shown in light blue on the Flood Map).
- **Zone 3** - The chance of flooding in any one year is greater than or equal to 1% (i.e. a 100 to 1 chance) for river flooding and greater than or equal to 0.5% (i.e. a 200 to 1 chance) for coastal and tidal flooding.

Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore also be made to the Strategic Flood Risk Assessment when considering location and potential future flood risks to developments and land uses.

Areas Benefitting From Defences

Where possible we show the areas that benefit from the flood defences, in the event of flooding:

- from rivers with a 1% (1 in 100) chance in any given year, or;
- from the sea with a 0.5% (1 in 200) chance in any given year.

If the defences were not there, these areas would flood. Please note that we do not show all areas that benefit from flood defences.
The associated Dataset is available here: https://data.gov.uk/dataset/flood-map-for-planning-rivers-and-sea-areas-benefiting-from-defences

Climate Change

In February 2016 the 'Flood Risk Assessments: Climate Change Allowances' were published on GOV.UK. This is in replacement of previous climate change allowances for planning applications. The data provided in this product does not include the new allowances. You will need to consider this data and factor in the new allowances to demonstrate the development will be safe from flooding. The fluvial climate change factors are now more complex and a single uplift percentage across England cannot be justified.
The Environment Agency will incorporate the new allowances into future modelling studies. For now, it remains the applicant's responsibility to demonstrate through their proposal and flood risk assessments that new developments will be safe in flood risk terms for its lifetime.

Recorded Flood Outlines

Following examination of our records of historical flooding we have no record of flooding in the area. The absence of coverage for an area does not mean that the area has never flooded, only that we do not currently have records of flooding in this area. It is also possible that the pattern of flooding in this area has changed and that this area would now flood or not flood under different circumstances.
You may also wish to contact your Local Authority or Internal Drainage Board, to see if they have other relevant local flood information.

Flood Defences

Flood defences do not completely remove the chance of flooding. They can be overtopped by water levels which exceed the capacity of the defences.

If flood defences are located in your area, you can access this data here:
https://data.gov.uk/dataset/spatial-flood-defences-including-standardised-attributes

Planning development/s

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments. You can also request pre application advice:
https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

Supporting Information

Surface Water

Managing the risk of flooding from surface water is the responsibility of Lead Local Flood Authorities. The 'risk of flooding from surface water' map has been produced by the Environment Agency on behalf of government, using information and input from Lead Local Flood Authorities.

You may wish to contact your Local Authority who may be able to provide further detailed information on surface water.

It is not possible to say for certain what the flood risk is but we use the best information available to provide an indication so that people can make informed choices about living with or managing the risks. The information we supply does not provide an indicator of flood risk at an individual site level. Further information can be found on the Agency's website:

https://flood-warning-information.service.gov.uk/long-term-flood-risk

Flood Risk from Reservoirs

The Flood Risk from Reservoirs map can be found on the Long Term Flood Risk Information website:

https://flood-warning-information.service.gov.uk/long-term-flood-risk/map?map=Reservoir

Flood Alert & Flood Warning Area

We issue flood alert/warnings to specific areas when flooding is expected. If you receive a flood warning you should take immediate action.

You can check whether you are in a Flood Alert/Warning Area and register online using the links below:

https://www.gov.uk/check-flood-risk

https://www.gov.uk/sign-up-for-flood-warnings

If you would prefer to register by telephone, or if you need help during the registration process, please call Floodline on 0345 988 1188.

The associated dataset for flood warning areas is available here:

https://data.gov.uk/dataset/flood-warning-areas3

The associated dataset for flood alert areas is available here:

https://data.gov.uk/dataset/flood- alert-areas2

Flood Risk Activity Permits

We now consider applications for works, which may be Flood Risk Activities, under Environmental Permitting Regulations. This replaces the process of applying for a Flood Defence Consent. You may need an environmental Permit for flood risk activities if you want to do work:

- in, under, over or near a main river (including where the river is in a culvert)
- on or near a flood defence on a main river
- in the flood plain of a main river
- on or near a sea defence

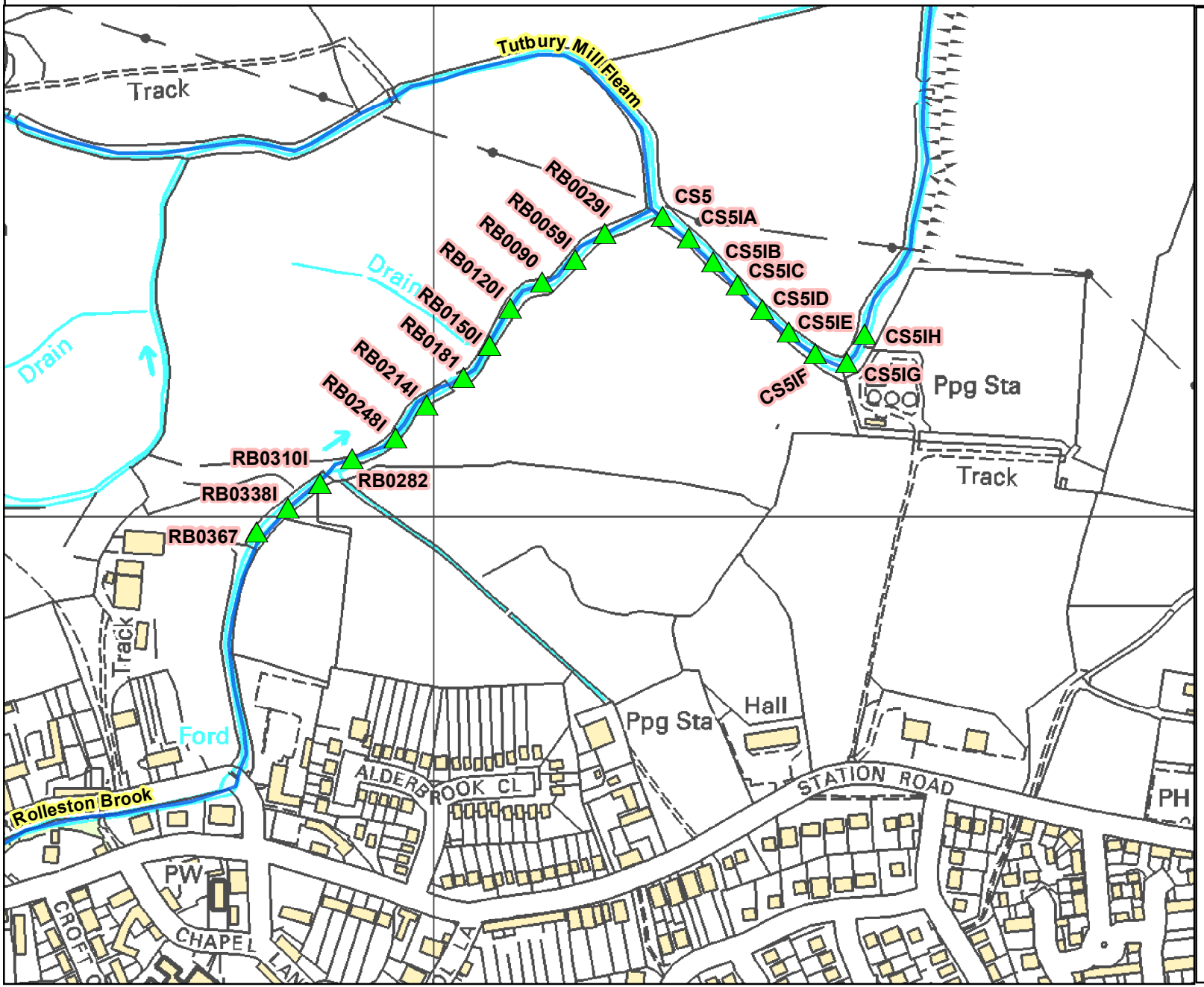
Please go to this website to find out more about how to apply: https://www.gov.uk/guidance/flood-risk-activities-environmental-permits
Please be aware that Bespoke and Standard Rules permits can take up to 2 months to determine and will incur a charge.

Further details about the Environment Agency information supplied can be found on the GOV.UK website:
https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

Encl.
Modelled Nodes Map

Modelled Levels Data

Modelled Nodes Map, centred on Grid Ref: SK 24242 27845 created March 2020.



Legend

- Modelled Nodes
- Main Rivers

Scale 1:4,000

N W E S

West Midlands Area

Node Data/ Modelled Levels

The attached map will show a selection of 2D model node points near to your site. The fluvial levels for these node points are shown below.

Fluvial Flood Levels (mAOD)-Defended

The modelled levels are given in m AOD (N), m AOD indicates metres Above Ordnance Datum (Newlyn). The information is taken from the model referenced above and does not include the updated climate change figures.

				Annual Exceedance Probability - Maximum Water Levels (mAOD)- Defended										
Node Label	**Model**	**Easting**	**Northing**	**50% (1 in 2)**	**20% 1 in 5)**	**10% (1 in 10)**	**5% (1 in 20**	**4% (1in 25)**	**2% (1 in 50)**	**1.33% (1 in 75)**	**1% (1 in 100)**	**1% (1 in 100) inc 20% Climate Change**	**0.5% (1 in 200)**	**0.1% (1 in 1000)**
CS5	Dove Tribs Study 2011	424162	328212	0.00	0.00	0.00	49.38	**n/a**	49.39	49.39	49.39	49.39	49.39	49.40
CS5IA	Dove Tribs Study 2011	424181	328197	0.00	0.00	0.00	49.39	**n/a**	49.39	49.40	49.40	49.40	49.40	49.40
CS5IB	Dove Tribs Study 2011	424198	328180	0.00	0.00	0.00	49.38	**n/a**	49.39	49.38	49.39	49.39	49.40	49.41
CS5IC	Dove Tribs Study 2011	424215	328163	0.00	0.00	0.00	49.39	**n/a**	49.39	49.39	49.39	49.39	49.39	49.40
CS5ID	Dove Tribs Study 2011	424233	328146	0.00	0.00	0.00	49.38	**n/a**	49.38	49.38	49.39	49.40	49.39	49.40
CS5IE	Dove Tribs Study 2011	424251	328130	0.00	0.00	0.00	49.40	**n/a**	49.41	49.41	49.40	49.43	49.42	49.41
CS5IF	Dove Tribs Study 2011	424270	328115	0.00	0.00	0.00	49.36	**n/a**	49.36	49.37	49.36	49.38	49.38	49.37
CS5IG	Dove Tribs Study 2011	424292	328109	0.00	0.00	0.00	49.37	**n/a**	49.37	49.37	49.38	49.38	49.38	49.38
CS5IH	Dove Tribs Study 2011	424305	328128	0.00	0.00	0.00	49.36	**n/a**	49.37	49.37	49.37	49.37	49.37	49.38
RB0029I	Dove Tribs Study 2011	424121	328200	0.00	0.00	0.00	49.41	**n/a**	49.42	49.42	49.42	49.42	49.42	49.43
RB0059I	Dove Tribs Study 2011	424100	328182	0.00	0.00	0.00	49.40	**n/a**	49.40	49.41	49.41	49.42	49.41	49.41
RB0090	Dove Tribs Study 2011	424077	328166	0.00	0.00	0.00	49.41	**n/a**	49.41	49.42	49.42	49.42	49.42	49.42
RB0120I	Dove Tribs Study 2011	424054	328147	0.00	0.00	0.00	49.42	**n/a**	49.42	49.43	49.43	49.43	49.43	49.44
RB0150I	Dove Tribs Study 2011	424039	328120	0.00	0.00	0.00	49.41	**n/a**	49.41	49.41	49.41	49.41	49.41	49.42
RB0181	Dove Tribs Study 2011	424021	328098	0.00	0.00	0.00	49.41	**n/a**	49.41	49.42	49.42	49.43	49.42	49.43
RB0214I	Dove Tribs Study 2011	423994	328079	0.00	0.00	0.00	49.41	**n/a**	49.41	49.41	49.42	49.42	49.42	49.42
RB0248I	Dove Tribs Study 2011	423973	328055	0.00	0.00	0.00	49.41	**n/a**	49.41	49.42	49.42	49.42	49.42	49.42
RB0282	Dove Tribs Study 2011	423942	328040	0.00	0.00	0.00	49.40	**n/a**	49.41	49.41	49.42	49.42	49.42	49.43
RB0310I	Dove Tribs Study 2011	423919	328023	0.00	0.00	0.00	49.43	**n/a**	49.44	49.45	49.45	49.46	49.46	49.47
RB0338I	Dove Tribs Study 2011	423897	328006	0.00	0.00	0.00	49.44	**n/a**	49.45	49.45	49.45	49.45	49.45	49.46
RB0367	Dove Tribs Study 2011	423874	327988	0.00	0.00	0.00	49.44	**n/a**	49.44	49.45	49.45	49.45	49.45	49.46

Appendix C – Flood Warning and Evacuation Plan

Flood Risk

Rolleston Scout HQ is located in an area at risk of flooding from the River Dove. Flood depths of approximately 0.3m are expected with annual exceedance probability 1 in 100.

How Flood Warnings will be provided

The Environment Agency provides a free flood warning dissemination service 'Floodline Warnings Direct' for this area of Rolleston-on-Dove, which offers a minimum 2-hour flood warning lead time before the onset of flooding at the site. The manager of Rolleston Scout HQ will need to contact the Environment Agency to register to this service by calling Floodline on **0345 988 118**.

After a receipt of a flood warning, you are recommended to call the Environment Agency Floodline 'dial and listen' service to hear further information. After dialing **0345 988 118** you will be given the option of entering a quick dial code for the flood warning area that relates to you.

The quick dial code that relates to you is **308120**. This will give you an automated response regarding any flood warnings that have been issued for this area. If you wish to speak to someone about flooding in relation to this area you need to state that it is the **Rolleston Brook and River Dove at Rolleston**.

The manager of Rolleston Scout HQ will be able to choose how they are contacted by the Environment Agency in the event of a flood, such as an automated telephone call, fax or email.

The Environment Agency use flood warning codes, each with specific public information / advice relating to it:

FLOOD ALERT

Definition: *Flooding is possible, and you need to be prepared.*

What this means for Rolleston Scout HQ.

The River Dove is rising but the risk of flooding at Rolleston Scout HQ is considered to be very low.

What you should do:

- Be prepared to act on your flood plan.
- Monitor local news and weather forecasts.
- Be aware of water levels near Rolleston Scout HQ and adjacent roads. You can now see river levels on the Environment Agency's website. This information will show you what's happening to water levels in https://flood-warning-information.service.gov.uk/river-and-sea-levels
- Call Floodline on 0845 988 1188 / 0345 988 1188.
- Prepare a flood kit of essential items.

FLOOD WARNING

Definition: *Flooding is expected, and you should take immediate action. You should take action when a flood warning is issued and not wait for a severe flood warning.*

What this means for Rolleston Scout HQ.

The River Dove is still rising, and flooding of roads near Rolleston Scout HQ is expected. You should implement your flood warning and evacuation plan now.

What you should do:

- Evacuate the site as advised to do so by the emergency services.
- If flooding has occurred and evacuation is not possible, users should stay in a high place with means of an escape.
- Ring Floodline and monitor water levels.
- Turn off gas, electricity and water supplies if it is safe to do so. If you lose utility services, evacuate to the designated rest centre.

- Avoid walking or driving through floodwater, there could be hidden dangers, such as raised manhole covers (so have the potential to fall down a manhole).
- If in danger call 999 immediately.
- Listen to emergency services.

SEVERE FLOOD WARNING

Definition: There is severe flooding and danger to life. These are issued when flooding is posing significant risk to life or disruption to communities.

What this means for Rolleston Scout HQ.

Flooding from the River Dove is now posing a significant risk to life or disruption to the local community. Flooding of roads near Rolleston Scout HQ is expected.

What you should do:

- Act as with a Flood Warning.
- Evacuate the site as advised to do so by the emergency services.
- If flooding has occurred and evacuation is not possible, users should stay in a high place with means of an escape.
- Ring Floodline and monitor water levels.
- Turn off gas, electricity and water supplies if it is safe to do so. If you lose utility services, evacuate to the designated rest centre.
- Avoid walking or driving through floodwater, there could be hidden dangers, such as raised manhole covers (so have the potential to fall down a manhole).
- If in danger call 999 immediately.
- Listen to emergency services.

Emergency Flood Plan for Rolleston Scout HQ

<table>
<tr><td rowspan="6">A list of useful telephone numbers:

Personal numbers (for owners to include):</td><td>Environment Agency:
Floodline

Environment Agency – General Enquires</td><td>
0845 988 1188 / 0345 988 1188

(08708) 506506</td></tr>
<tr><td>Emergency Services:
Staffordshire Fire and Rescue

Staffordshire Police

West Midlands Ambulance</td><td>
08451 22 11 55

101

01384 215555</td></tr>
<tr><td colspan="2">In an emergency, dial 999</td></tr>
<tr><td>East Staffordshire Council</td><td>01283 508 000</td></tr>
<tr><td>Insurance Company</td><td></td></tr>
<tr><td>Neighbours</td><td></td></tr>
<tr><td>A Flood Kit:

(This should be collected and stored in a place where it can be easily accessed).</td><td colspan="2">This should include:
Any key personal documents (Register, Insurance details, etc);
Torch (with spare batteries);
Battery or wind-up radio;
A mobile phone (with the useful telephone numbers already stored and a full battery);
Rubber gloves;
Wellington boots;
Waterproof clothing;
First aid kit;
Blankets.</td></tr>
<tr><td>Medication:</td><td colspan="2">Do you need regular medication?</td></tr>
<tr><td>Valuable belongings:</td><td colspan="2">Get into the habit of storing these in a high place.</td></tr>
<tr><td>Flood boards / sandbags:</td><td colspan="2">Have a few flood boards and sandbags prepared to block doorways and airbricks.</td></tr>
<tr><td>Gas, Electricity and Water:</td><td colspan="2">Ensure that you know how to turn these off, be aware that you may need to do this in the dark.</td></tr>
<tr><td>Motor Vehicles:</td><td colspan="2">Is there anywhere that vehicle(s) could be stored (garage?) so that they do not cause any damage if they are moved by floodwaters?</td></tr>
</table>

Evacuation:	If flooding is severe, you may be evacuated. Think about what you need to take with you.
DON'T WAIT FOR A FLOOD TO SEE IF YOUR FLOOD PLAN WORKS TEST IT NOW!	