

North

t: 0151 933 0328

m: info@baseenergy.co.uk

44 Canal Street
Bootle
Liverpool
L20 8QU

South

t: 020 3286 2016

m: info@baseenergy.co.uk

117 Knyvett House,
Watermans Business
Park, The Causeway,
Staines-upon-Thames,
TW18 3BA

Flood Risk and Surface Water Assessment Rev3

Site Address:

St James C of E Primary School
Clitheroe

Date:

17 September 2021

1. Introduction	4
Development Proposals	5
2. Planning Policy- Flood Risk, and Surface Water Management	7
National Planning Policy Framework	7
Ribble Valley Borough Council	9
Non-Statutory Technical Standards for SuDS	10
3. Sources of Flood Risk	11
Fluvial Flood Risk	11
Groundwater Flooding	14
Surface Water Flooding	15
Sewer Flooding	16
4. Flood Mitigation Measures	17
West Side of the River	17
East Side of the River	17
Flood Alerts	18
Flood Management Plan	19
5. Surface Water and SuDS	20
Surface Water Runoff from the Existing Site	20
Surface Water Runoff from the Redeveloped Site	20
SuDS Maintenance	22
6. Conclusions	23
Appendices	26

Appendices

- Appendix A** - EA Response
- Appendix B** - Site Location Plan
- Appendix C** - Existing Site Layout
- Appendix D** - Topographic Survey
- Appendix E** - Proposed Site Layout
- Appendix F** - Environment Agency Detailed Flood Information
- Appendix G** - Design Life Confirmation
- Appendix H** - British Geology Survey Borehole Record
- Appendix I** - Top of Bank Plan
- Appendix J** - Public Sewer Records
- Appendix K** - ICP SuDS Greenfield Rate of Runoff

Prepared by	Checked by	Date
Carina Hassall BSc (Hons)	Liam Rushton	17 September 2021

This document has been prepared solely as a Flood Risk and Surface Water Assessment for Cassidy & Ashton Ltd. Base Energy accepts no responsibility or liability for any use that is made of this document other than by the Client for the purposes for which it was originally commissioned and prepared.

1. Introduction

A Flood Risk and Surface Water Assessment (Rev2) was prepared to support the planning application for the proposed redevelopment of St James' C of E Primary School, Clitheroe.

Subsequently, as part of the planning application process the Environment Agency (EA) were consulted by Ribble Valley Borough Council. A copy of the EAs response is provided in **Appendix A**.

In particular, the following comments have been made:

At present, the distance the proposed development is away from the top of the bank of the watercourse and from the flood defences is unclear.

Please submit a plan clearly showing 8metres from top of bank and 8metres from the flood defences. Dimensions must also be shown at pinch points.

The planning application was registered on 27th July, as such the new climate change allowances had come into effect when registered. More information can be found on <https://www.gov.uk/guidance/flood-risk-assessments-climatechange-allowances>. The climate change allowance used for this site should be 36% for the 2080s scenario or 29% for the 2050s scenario (the design life of the development has not been confirmed).

The finished floor levels (FFL) should be set 600 mm above the Q100 plus Climate change (CC) allowance level, this should be the higher level of either the defended or undefended levels, unless adequate justification can be provided. At present, the FFL of 72.32m is not 600mm higher than the undefended Q100 level (this has not accounted for an allowance for climate change).

No proposed finished floor levels have been detailed for the various extensions on the building on the left bank of Pendle Water.

Whilst we accept the approach detailed with respect to FFL's, no additional mitigation measures have been proposed to demonstrate the development, including its users, will be safe for its lifetime. A flood management plan has been strongly recommended, however no plan has been submitted to support this application.

There are a number of proposed aspects of the development which could affect ground levels such as car parking areas, and play areas on both sides of the river. It has not been confirmed whether the ground levels will be altered within the 1% AEP plus climate change extent. It is therefore unclear whether the development will result in increased flood risk off site.

This updated report (Rev3) has been prepared to, so far as is practicable, address the comments raised by the EA. For clarity, where the EA's comments have been addressed, the text is in **blue**.

Development Proposals

A site location plan is provided in **Appendix B**.

The existing site layout is shown on the existing site layout plan in **Appendix C**, and on the topographic survey in **Appendix D**.

Proposals are for the redevelopment of the school including:

- Demolition of parts of the existing buildings
- A new infant block
- Redevelopment of the existing buildings
- Hard and soft (grassed) outdoor play areas
- Revised parking and modification of entrances to the school

A copy of the proposed site layout plan is provided in **Appendix E**.

2. Planning Policy- Flood Risk, and Surface Water Management

National Planning Policy Framework

The aim of the National Planning Policy Framework (NPPF) (and accompanying Planning Practice Guidance (PPG)) is to direct development away from areas at highest risk of flooding; where development is necessary, it should be made safe without increasing flood risk elsewhere.

The NPPF states that a Flood Risk Assessment (FRA) is required to support a planning application for developments that are:

- located in Flood Zone 2 and/or Flood Zone 3
- located in Flood Zone 1 and comprise 1ha or above

In some instances, for example where a site is located in Flood Zone 1 and comprises less than 1ha, an FRA may be required if the site is within an area which has critical drainage problems (i.e. a Critical Drainage Area - CDA) as notified to the Local Authority by the Environment Agency (EA).

In order to provide an indication of the flood zone classification of the site, and to ascertain whether an FRA is required, the starting point is the EA flood maps which are available on the EA website.

Environment Agency Flood Map

The EA flood maps show fluvial and tidal flood outlines based on the following:

- Flood Zone 1 - land assessed as having less than 1 in 1000 annual probability of river or sea flooding
- Flood Zone 2 - land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding, or between a 1 in 200 and 1 in 1000 annual probability of flooding from the sea
- Flood Zone 3 - land assessed as having a 1 in 100 or greater annual probability of river flooding, or a 1 in 200 or greater annual probability of flooding from the sea

The flood maps available on the EA website confirm that the site is largely located within the Flood Zone 3 outline (**Figure 1**). The EA flood maps also show that portions of the site are 'defended' and that a flood defence is located at the site.

A detailed assessment of flood risk is provided in the following section.

Sequential and Exception Tests

The aim of the Sequential Test is to steer new development to Flood Zone 1 (areas with a low probability of river or sea flooding).

Where there are no reasonably available sites in Flood Zone 1, local planning authorities in their decision making should take into account the flood risk vulnerability of land uses and consider reasonably available sites in Flood Zone 2 (areas with a medium probability of river or sea flooding), applying the Exception Test if required.

Only where there are no reasonably available sites in Flood Zones 1 or 2 should the suitability of sites in Flood Zone 3 (areas with a high probability of river or sea flooding) be considered, taking into account the flood risk vulnerability of land uses and applying the Exception Test if required.

Under the NPPF, non-residential educational establishments are classified as 'more vulnerable' to the risks of flooding.

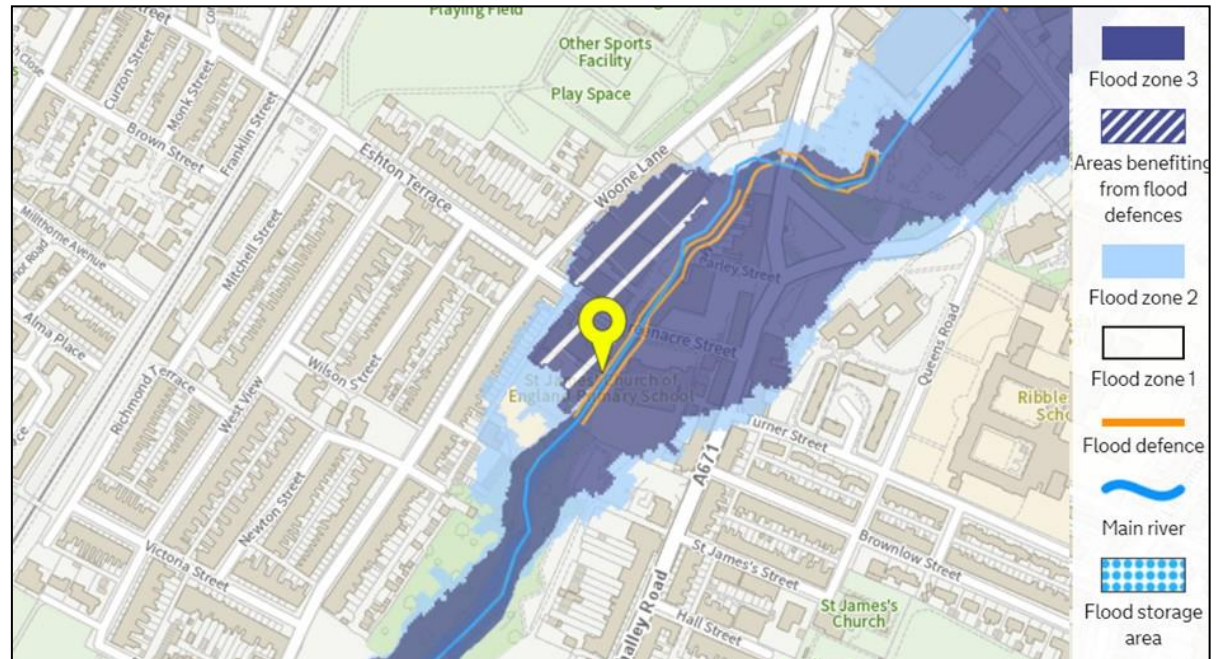


Figure 1 - Environment Agency Flood Map

It should be noted that:

- The proposals are for redevelopment of the existing school. The proposals will enhance the school facilities and provide greater benefits to pupils and staff when compared to the current situation
- The school is well established and is linked to the nearby St James' C of E Church
- The proposals will not result in an increase in hardstanding areas
- Given the scale of what is proposed, it would be unreasonable for alternative sites to be considered, particularly as the existing buildings are being retained.
- This FRA demonstrates how the proposals could be developed safely and how flood risk could be managed over the lifetime of the development.
- The measures proposed in the following sections of this report will provide betterment (in terms of flood risk management)

It is therefore considered that the proposals will meet the requirements of the Sequential and Exception Tests.

Ribble Valley Borough Council

Core Strategy Policy DME6: Water Management

10.17 Development will not be permitted where the proposal would be at an unacceptable risk of flooding or exacerbate flooding elsewhere. applications for development should include appropriate measures for the conservation, protection and management of water such that development contributes to:

- 1. preventing pollution of surface and / or groundwater*
- 2. reducing water consumption*
- 3. reducing the risk of surface water flooding (for example the use of sustainable drainage systems (SuDS))*

As a part of the consideration of water management issues, and in parallel with flood management objectives, the authority will also seek the protection of the borough's water courses for their biodiversity value.

All applications for planning permission should include details for surface water drainage and means of disposal based on sustainable drainage principles. the use of the public sewerage system is the least sustainable form of surface water drainage and therefore development proposals will be expected to investigate and identify more sustainable alternatives to help reduce the risk of surface water flooding and environmental impact.

It is important to ensure the water environment including the use of water, pollution and flood risk can be adequately controlled through the development management process to deliver the development strategy and its strategic framework as envisaged in the core strategy.

Strategic Flood Risk Assessment Level 1 (Revised 2017)

The Level 1 SFRA has been reviewed and the information has been used to inform this report.

Non-Statutory Technical Standards for SuDS

The Non-Statutory Technical Standards for SuDS, (and accompanying Local Authority SuDS Officer Organisation (LASOO) Practice Guidance) sets out the details which should be addressed within a SuDS Report, including:

- Flood Risk Outside of the Development
- Peak Flow Control and Volume Control
- Flood Risk Within the Development
- Runoff Destinations
- Structural Integrity
- Designing for Maintenance Considerations
- Construction

3. Sources of Flood Risk

Fluvial Flood Risk

The site is shown to be located within the Flood Zone 3 outline associated with Mearley Brook. Mearley Brook flows through Clitheroe and passes through the centre of the school grounds.

In order to more accurately refine the risk of fluvial flooding, detailed flooding information including a detailed flood and node location map, and modelled flood levels for a range of events has been obtained from the EA (**Appendix F**). This is summarised below.

Detailed Flood Map

The detailed flood maps confirms that the site is largely located in Flood Zone 3. The portion of the site on the far side of Mearley Brook is located within the defended Flood Zone 3 outline, and Flood Zone 2.

Modelled Flood Levels

The EA has provided 1D and 2D modelled flood levels for a range of events including the 1 in 100 year, 1 in 100 year plus climate change (35% and 70%), and 1 in 1000 year.

As previously noted, the EA has confirmed that the climate change allowance used for this site should be 36% for the 2080s scenario or 29% for the 2050s scenario (the design life of the development has not been confirmed).

As shown in an email from Cassidy Ashton Architects ([Appendix G](#)), the design life is 50+ years. Therefore, based on the EA's comments, a 36% climate change allowance should be used.

In order to clarify how the 36% increase should be calculated, or to ascertain whether the EA hold updated data, Base Energy has tried contacting the EA to discuss. At the time of writing, a response is awaited.

Given the timescales associated with the planning application, a very worst-case scenario is considered below based on 1 defended 1 in 100 year plus 70% allowance for climate change

The 1D **defended** modelled flood levels taken at the node locations just upstream of the site and adjacent to the site are as follows:

Table 1 - 1D DEFENDED (m AOD)

Node	100 year	100 year plus 70%	1000 year
PEBR01_02504	71.62	72.08	72.45
PEBR01_02472	71.49	72.02	72.38
PEBR01_02470	71.28	71.84	72.26
PEBR01_02440	71.25	71.81	72.23

The 2D modelled flood levels at the site are as follows:

West side of the river:

- **1 in 100 year** - NA
- **1 in 100 year plus 70%** - 72.58 and 72.15m AOD
- **1 in 1000 year** – 72.71 and 72.24m AOD

East site of the river:

- **1 in 100 year** – 72.27, 71.54 and 71.17m AOD (defended) / **72.25, 71.59 and 71.18 (undefended)**
- **1 in 100 year plus 70%** - 72.94 and 71.95m AOD
- **1 in 1000 year** – 73.02, 71.89, and 71.73m AOD

Existing Site Levels

As previously noted, a topographic survey of the site is provided in **Appendix D**. In general, site levels are in the region of:

West side of the river:

- ~71.70m AOD at the entrance to the site
- ~71.80m AOD at the existing play area
- ~72.80m AOD at the western boundary of the site
- ~72.10m AOD at the southern boundary of the site

East side of the river

- ~71.30m AOD at the entrance to the site
- ~71.50m AOD at the existing building
- ~71.40m AOD at the southern boundary

Comparison of Modelled Flood Levels and Existing Site Level

West side of the river:

As shown above, the portion of the school located to the west side of the river remains flood free in up the 1 in 100 year event.

During the 1 in 100 year plus 70% allowance for climate change, potential maximum flood depths would be 880mm.

During the 1 in 1000 year modelled flood event, potential maximum flood depths would be 1.01m.

East side of the river:

During the 1 in 100 year event, maximum potential flood depths are up to 970mm, rising to 1.64m during the 1 in 100 year plus 70% allowance for climate change.

During the 1 in 1000 year modelled flood event, maximum potential flood depths would be 1.72m.

It is important to note that the above is a general comparison of 2D defended modelled levels with existing site levels, taking the worst case 2D levels and the lowest site levels. The 2D levels will be used to inform the flood mitigation strategy outlined in Section 4, and will provide a more refined overview of potential flood depths at the specific areas of the site proposed for development.

Groundwater Flooding

Groundwater flooding generally occurs during intense, long-duration rainfall events, when infiltration of rainwater into the ground raises the level of the water table until it exceeds ground levels. It is most common in low-lying areas overlain by permeable soils and permeable geology, or in areas with a naturally high water table.

The Soilscales Maps provided by the National Soil Resources Institute at Cranfield University indicate that the soils at the site and surrounding areas are comprised of 'Slowly permeable seasonally wet acid loamy and clayey soils'.

Reference has been made to the British Geological Survey (BGS) geology maps indicate that the site is underlain by Clitheroe Limestone Formation And Hodder Mudstone Formation (undifferentiated) – Mudstone.

BGS also provide borehole records, and whilst none are available for the school, there are records for a site located on Sun Street to the north. A copy is provided in **Appendix H** which confirms that beneath the made ground (present to depths of approximately 2.4m bgl), the ground is comprised of soft medium brown silty sandy clay, and stiff medium to dark brown and grey silty, sandy clay with some gravel and occasional boulders'.

The record also states that the borehole was visibly moist from 0.50m to 2.40m, and whilst no direct water strike was recorded, there was water standing at 1.75m on removal of temporary casing at the end of the borehole.

The Ribble Valley Borough Council SFRA (Page 17) states that groundwater flooding is not considered by the EA to be a significant flood risk factor.

Based on the above, the risk of groundwater flooding is considered to be low.

Surface Water Flooding

Surface water flooding results from rainfall generated overland flows, before the runoff reaches a watercourse/ drainage system, or where the watercourse/ drainage system is overwhelmed and unable to accept further runoff. Surface water runoff is usually associated with high intensity rainfall events but may also occur with lower intensity rainfall where the ground is saturated, developed or otherwise has low permeability resulting in overland flows and ponding within depressions in the topography.

The EA provide maps on their website which illustrate the risk of surface water flooding along with potential depths and velocities; these show that the site generally ranges from very low to medium risk of surface water flooding, with the central section (Mearley Brook) at high risk.

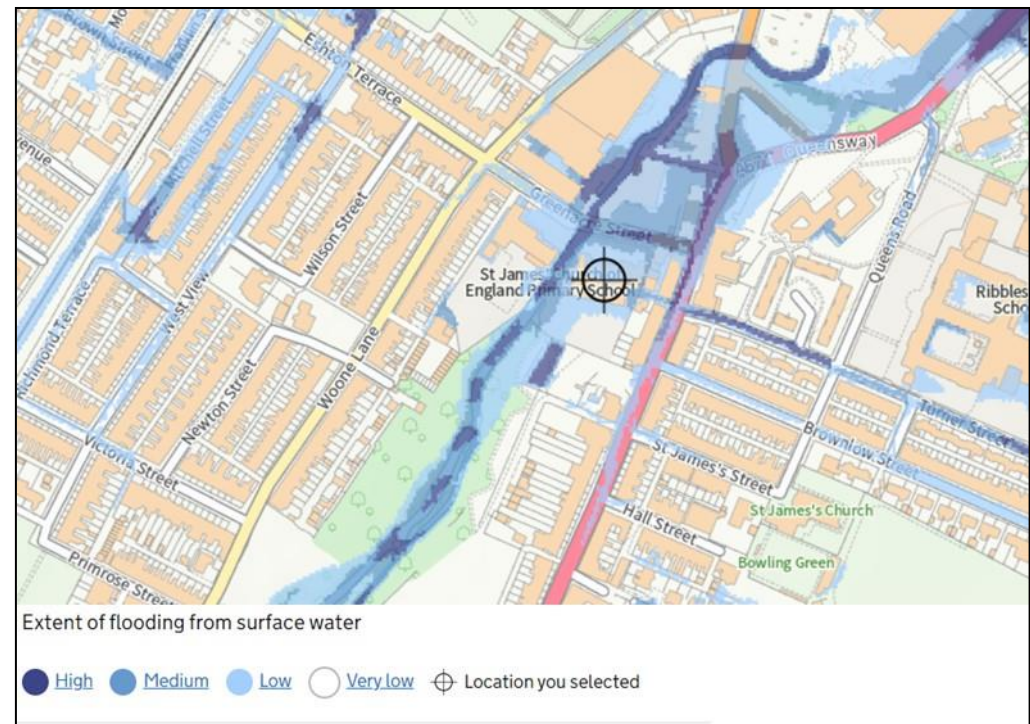


Figure 2 - Environment Agency Surface Water Flooding Map

Section 5 of this report details the surface water drainage strategy for the site, which will ensure that surface water is appropriately managed over the lifetime of the development and will ensure that the proposals will not exacerbate surface water flooding at the site or surrounding areas.

Sewer Flooding

Sewer flooding occurs when the capacity of underground sewerage systems is exceeded, resulting in flooding inside and outside of buildings. Normal discharge of sewers and drains through outfalls may be impeded by high water levels in receiving waters.

There are no known records of sewer flooding at the site location.

4. Flood Mitigation Measures

As previously detailed proposals are for the overall redevelopment of the existing school. The proposals afford the opportunity to incorporate measures to mitigate the risks of flooding at the school ,which will provide betterment when compared to the existing situation.

Additionally, the proposals afford the opportunity for SuDS to be implemented to manage surface water over the lifetime of the development. The SuDS strategy is outlined in the following section.

West Side of the River

Proposals for the portion of the school to the west side of the river include the demolition of parts of the existing building, new parking and modification of the site entrance, and hard and soft outdoor play areas.

There will be no modifications to the existing ground levels; the ground levels will remain as existing. Therefore the proposals will not result in increase flood risk off-site.

East Side of the River

Proposals for the portion of the school to the east side of the river include widening of the existing entrance to the parking area, a hard play area, and a new infant block located in the south of this portion of the site.

Again, there will be no modifications to the existing ground levels; the ground levels will remain as existing. Therefore the proposals will not result in increase flood risk off-site.

Top of Bank

The proposed new building is over 8m away from the top of the bank and therefore meets the requirements of the EA.

Cassidy Ashton Architects has prepared a plan ([Appendix I](#)) which shows the school building as existing with the proposed extension overlaid. Portions of the existing building are located within 8m of the top of the bank, and at the nearest point is approximately 2m away from the top of the bank.

The proposals include an extension to the building of which 4.8m² will be within 8m of the top of the bank. However, given that the existing building is at the nearest point 2m away, the proposed extension will not impact on access to the watercourse.

Finished Floor Levels

At the location of the proposed infant block, the defended 1 in 100 year plus 70% allowance for climate change is 71.95m AOD, and this level is considered to be very worst case.

It is proposed that finished floor levels are set at 72.32m AOD. This provides a 370mm freeboard above the defended 1 in 100 year plus 70% allowance for climate change (and a freeboard of 730mm above the 1 in 100 year undefended water level).

Flood Resilient Construction

In order to mitigate and residual risks, measures in line with current best practice guidance - Communities and Local Government (CLG) Document, *'Improving the Flood Performance of New Buildings: Flood Resilient Construction'*¹ will be incorporated into the proposals.

The Design Team will develop a strategy based on the most appropriate and feasible measures for the proposals.

Flood Alerts

The school is already registered with the EA to receive Flood Alerts.

¹ Improving the Flood Performance of New Buildings: Flood Resilient Construction. Department for Communities and Local Government. May 2007.

Flood Management Plan

A Flood Management Plan will be prepared in consultation with Ribble Valley Borough Council Emergency Planners. This will ensure that the School Management has procedures in place should EA Flood Warning / Alerts be received, or if it is felt necessary that the school is evacuated. The plan should consider safe access and egress routes, how information will be disseminated, and information on how to prepare for a flood event / what to do during and after a flood event. Additionally, the plan should include a list of contact numbers.

This could be a condition of the planning consent.

5. Surface Water and SuDS

The total site comprises approximately 8100m² / 0.81ha.

For the purposes of the SuDS strategy, the site will be split into 2 catchments: 1) west side of the river (~4200m²), 2) east side of the river (~3900m²).

Surface Water Runoff from the Existing Site

A copy of the United Utilities public sewer records is provided in **Appendix J**. These show that public combined sewers are located around the site.

Given the topography of the site, it is also reasonable to assume that flows could connect into the river.

In order to gain an indication of the greenfield rates of surface water runoff from the existing site, the ICP SuDS Method within Micro Drainage has been used, as detailed in **Appendix K**. The flow rates are shown in **Table 2**.

Table 2 –ICP SuDS - Existing Rates of Runoff (greenfield) (l/s)

Return Period	Flow Rate for 0.81ha (l/s)
1 in 1 year	4.9
Qbar	5.7
1 in 30 year	9.6

Surface Water Runoff from the Redeveloped Site

Following redevelopment, there will be no increase in hardstanding areas. The proposed infant block will be located on an existing area of hardstanding.

SuDS Approach

Given that there is no increase in hardstanding areas at the site, there will be no increase in rates of surface water runoff. However, the proposals afford the opportunity for some simple SuDS to be included into the proposals to provide betterment when compared with the existing situation.

In this instance, some simple rain planters could safely and feasibly be incorporated into the proposals.

Rain Gardens

In its simplest form, a rain garden is a shallow depression, with absorbent, yet free draining soil and planted with vegetation that can withstand occasional temporary flooding. Rain gardens are designed to mimic the natural water retention of undeveloped land and to reduce the volume of rainwater running off into drains from impervious areas and treat low level pollution.

Typical Design

- Freeboard – 100mm
- Topsoil – 300mm (ratio of approximately 50% sand, 30% topsoil and 20% compost)
- Subbase – 300mm
- Planting to be shrubs / wildflowers / perennial flowering plants
- The downpipe will feed water directly onto the rain garden. Stones or gravel will be used to dissipate the energy of the water and prevent heavy flows from washing away soil.



Before, during and after the installation of a rain garden at Kingsmead Way, Hackney, London, led by Groundwork London's Green Team and Sanctuary Housing, and planted up by local residents
| Groundwork London



Figure 3 - Example of Rain Garden (taken from UK Rain Garden Guide)

SuDS Maintenance

Rain Garden

Maintenance Schedule	Required Action	Typical Frequency
<i>During Establishment Period (Years 1 and 2)</i>	Watering Weeding Litter picking Pruning and trimming Check / clean channels, inlets and outlets Mulching	Weekly 3 Monthly Annually or as required
<i>Following Establishment Period (Year 3 onwards)</i>	Weeding Litter picking Pruning and trimming Check / clean channels, inlets and outlets Replanting	6 Monthly Annually or as required

6. Conclusions

This Flood Risk and Surface Water Assessment has been prepared to support the planning application for the proposed redevelopment of St James' C of E Primary School, Clitheroe.

Proposals are for the redevelopment of the school including:

- Demolition of parts of the existing buildings
- A new infant block
- Redevelopment of the existing buildings
- Hard and soft (grassed) outdoor play areas
- Revised parking and modification of entrances to the school

Sequential and Exception Tests:

- The proposals are for redevelopment of the existing school. The proposals will enhance the school facilities and provide greater benefits to pupils and staff when compared to the current situation
- The school is well established and is linked to the nearby St James' C of E Church
- The proposals will not result in an increase in hardstanding areas
- Given the scale of what is proposed, it would be unreasonable for alternative sites to be considered, particularly as the existing buildings are being retained.
- This FRA demonstrates how the proposals could be developed safely and how flood risk could be managed over the lifetime of the development.
- The measures proposed in the following sections of this report will provide betterment (in terms of flood risk management)

Flood Risk

The site is shown to be located within the Flood Zone 3 outline associated with Mearley Brook. Mearley Brook flows through Clitheroe and passes through the centre of the school grounds.

Flood Mitigation Measures

West Side of the River

Proposals for the portion of the school to the west side of the river include the demolition of parts of the existing building, new parking and modification of the site entrance, and hard and soft outdoor play areas.

There will be no modifications to the existing ground levels; the ground levels will remain as existing. Therefore the proposals will not result in increase flood risk off-site.

East Side of the River

Proposals for the portion of the school to the east side of the river include widening of the existing entrance to the parking area, a hard play area, and a new infant block located in the south of this portion of the site.

Again, there will be no modifications to the existing ground levels; the ground levels will remain as existing. Therefore the proposals will not result in increase flood risk off-site.

The proposed new building is over 8m away from the top of the bank and therefore meets the requirements of the EA.

Portions of the existing building are located within 8m of the top of the bank, and at the nearest point is approximately 2m away from the top of the bank.

The proposals include an extension to the building of which 4.8m² will be within 8m of the top of the bank. However, given that the existing building is at the nearest point 2m away, the proposed extension will not impact on access to the watercourse.

It is proposed that finished floor levels are set at 72.32m AOD. This provides a 370mm freeboard above the defended 1 in 100 year plus 70% allowance for climate change (and a freeboard of 730mm above the 1 in 100 year undefended water level).

In order to mitigate and residual risks, measures in line with current best practice will be incorporated into the proposals. The Design Team will develop a strategy based on the most appropriate and feasible measures for the proposals.

The school is already registered with the EA to receive Flood Alerts.

A Flood Management Plan will be prepared in consultation with Ribble Valley Borough Council Emergency Planners. This could be a condition of the planning consent.

Surface Water and SuDS

Given that there is no increase in hardstanding areas at the site, there will be no increase in rates of surface water runoff. However, the proposals afford the opportunity for some simple SuDS to be included into the proposals to provide betterment when compared with the existing situation.

In this instance, some simple rain planters could safely and feasibly be incorporated into the proposals.

Appendices

Appendix A - EA Response

Ribble Valley Borough Council
Development Control
Council Offices Church Walk
Clitheroe
Lancashire
BB7 2RA

Our ref: NO/2021/113750/01-L01
Your ref: 3/2021/0731

Date: 16 August 2021

Dear Sir/Madam

REDEVELOPMENT OF THE EXISTING EDUCATIONAL FACILITY INCLUDING PART DEMOLITION OF THE EXISTING INFANT SCHOOL TO PROVIDE A STANDALONE NURSERY FACILITY, TOGETHER WITH THE REMODELLING OF, AND EXTENSION TO, THE EXISTING JUNIOR SCHOOL, AND ERECTION OF A NEW INFANT BLOCK TO THE REAR OF THE BUILDING, ALONGSIDE ADDITIONAL CAR PARKING. SOFT AND HARD LANDSCAPING TREATMENT AND VEHICULAR ACCESS WORKS OFF GREENACRE STREET. ST JAMES C OF E PRIMARY SCHOOL, GREENACRE STREET, CLITHEROE, BB7 1ED.

Thank you for consulting us on the above application which we received 27 July 2021.

Environment Agency position

We object to this application as it involves works within close proximity to Pendle Water and a flood defence. As submitted, it is unlikely that we would grant a flood risk activity permit for this application. In addition, the submitted flood risk assessment (FRA) is inadequate.

Reason(s)

- The proposed development would restrict essential maintenance and emergency access to the watercourse and defences. The permanent retention of a continuous unobstructed area is an essential requirement for future maintenance and/or improvement works.
- The proposed development would obstruct flood flows, thereby increasing the risk of flooding nearby
- The proposed development may adversely affect the construction and stability of the flood defence which will compromise its function.
- The submitted FRA does not comply with the requirements for site-specific flood risk assessments, as set out in paragraphs 30 to 32 of the Flood Risk and Coastal Change section of the Planning Practice Guidance. The FRA does not therefore adequately assess the flood risks posed by the development. In particular, the FRA fails to:
 - consider how people will be kept safe from the identified flood hazards
 - consider how a range of flooding events (including extreme events) will affect people and property

Environment Agency
Lutra House Walton Summit, Bamber Bridge, Preston, PR5 8BX.
Customer services line: 03708 506 506
www.gov.uk/environment-agency

Cont/d..

- consider the requirement for flood emergency planning, including flood warning and evacuation of people for a range of flooding events up to and including the extreme event.

Detailed comments

- At present, the distance the proposed development is away from the top of the bank of the watercourse and from the flood defences is unclear. Please submit a plan clearly showing 8metres from top of bank and 8metres from the flood defences. Dimensions must also be shown at pinch points.
- The planning application was registered on 27th July, as such the new climate change allowances had come into effect when registered. More information can be found on <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. The climate change allowance used for this site should be 36% for the 2080s scenario or 29% for the 2050s scenario (the design life of the development has not been confirmed).
- The finished floor levels (FFL) should be set 600 mm above the Q100 plus Climate change (CC) allowance level, this should be the higher level of either the defended or undefended levels, unless adequate justification can be provided. At present, the FFL of 72.32m is not 600mm higher than the undefended Q100 level (this has not accounted for an allowance for climate change).
- No proposed finished floor levels have been detailed for the various extensions on the building on the left bank of Pendle Water.
- Whilst we accept the approach detailed with respect to FFL's, no additional mitigation measures have been proposed to demonstrate the development, including its users, will be safe for its lifetime. A flood management plan has been strongly recommended, however no plan has been submitted to support this application.
- There are a number of proposed aspects of the development which could affect ground levels such as car parking areas, and play areas on both sides of the river. It has not been confirmed whether the ground levels will be altered within the 1% AEP plus climate change extent. It is therefore unclear whether the development will result in increased flood risk off site.

Overcoming our objection

To overcome our objection, the applicant should submit a revised FRA and plan which addresses the points highlighted above.

If this cannot be achieved, we are likely to maintain our objection. Please re-consult us on any revised FRA submitted and we'll respond within 21 days of receiving it.

Environmental permit - advice to applicant

The Environmental Permitting (England and Wales) Regulations 2016 require a permit or exemption to be obtained for any activities which will take place:

- on or within 8 metres of a main river (16 metres if tidal)
- on or within 8 metres of a flood defence structure or culverted main river (16 metres if tidal)
- on or within 16 metres of a sea defence
- involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert
- in a floodplain more than 8 metres from the river bank, culvert or flood defence structure (16 metres if it's a tidal main river) and you don't already have planning permission

For further guidance please visit <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits> or contact our National Customer Contact Centre on 03708 506

506 (Monday to Friday, 8am to 6pm) or by emailing enquiries@environment-agency.gov.uk.

The applicant should not assume that a permit will automatically be forthcoming once planning permission has been granted, and we advise them to consult with us at the earliest opportunity.

Flood warning and emergency response - advice to LPA

We do not normally comment on or approve the adequacy of flood emergency response procedures accompanying development proposals, as we do not carry out these roles during a flood. Our involvement with this development during an emergency will be limited to delivering flood warnings to occupants/users covered by our flood warning network.

The [planning practice guidance](#) (PPG) to the National Planning Policy Framework states that, in determining whether a development is safe, the ability of residents and users to safely access and exit a building during a [design flood](#) and to evacuate before an extreme flood needs to be considered. One of the key considerations to ensure that any new development is safe is whether adequate flood warnings would be available to people using the development.

In all circumstances where warning and emergency response is fundamental to managing flood risk, we advise local planning authorities to formally consider the emergency planning and rescue implications of new development in making their decisions. As such, we recommend you refer to '[Flood risk emergency plans for new development](#)' and undertake appropriate consultation with your emergency planners and the emergency services to determine whether the proposals are safe in accordance with paragraph 167 of the NPPF and the guiding principles of the PPG.

Flood resistance and resilience - advice to LPA/applicant

We strongly recommend the use of flood resistance and resilience measures. Physical barriers, raised electrical fittings and special construction materials are just some of the ways you can help reduce flood damage.

To find out which measures will be effective for this development, please contact your building control department. If you'd like to find out more about reducing flood damage, visit the Flood Risk and Coastal Change pages of the planning practice guidance.

Further guidance on flood resistance and resilience measures can also be found in: *Government guidance on flood resilient construction*

<https://www.gov.uk/government/publications/flood-resilient-construction-of-new-buildings>

CIRIA Code of Practice for property flood resilience

https://www.ciria.org/Research/Projects_underway2/Code_of_Practice_and_guidance_for_property_flood_resilience.aspx

Yours faithfully

Carole Woosey
Planning Advisor

E-mail clplanning@environment-agency.gov.uk

Appendix B - Site Location Plan

-	First Issue					27.01.2021	
Rev.	Description					Date	
Cassidy+Ashton www.cassidyashton.co.uk C+A Architecture + Building Surveying + Town Planning 7 East Cliff, Preston, Lancashire, PR1 3JE 01772 258 356 10 Hunters Walk, Canal Street, Chester, CH1 4EB 01244 402 900		Client St James CofE Primary School Clitheroe		Drawing Title Location Plan			
		Project Development Planning		Drawn by FH		Checked by AB	Date 27.01.2021
				Status PRELIMINARY		Scale @ A4 1:1250	
		Job no. 10512		Dwg.no. L01		Rev. -	

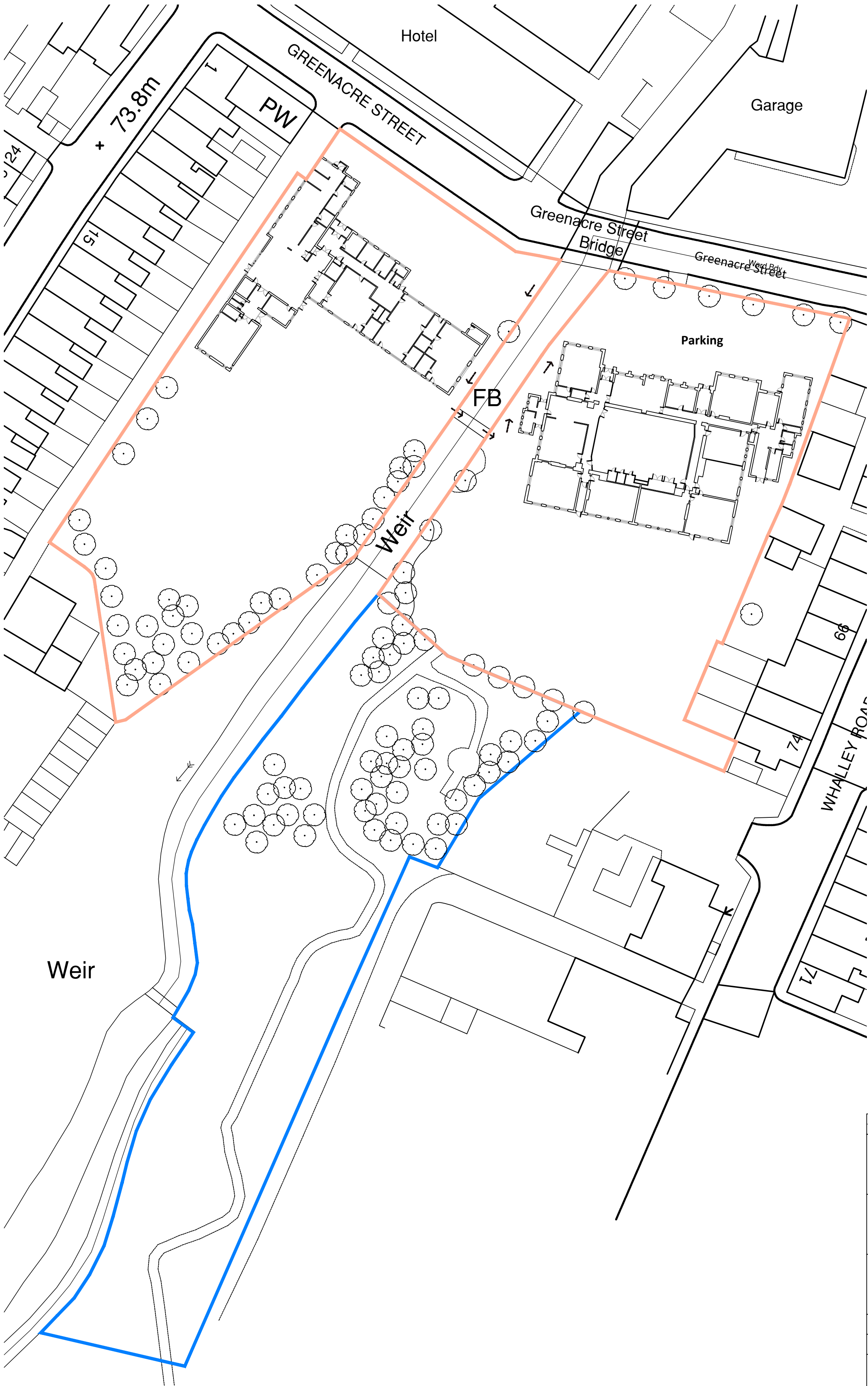
Appendix C - Existing Site Layout



This drawing is subject to copyright and is not to be reproduced in part or whole without approval.
Do not scale this drawing - check all dimensions on site.

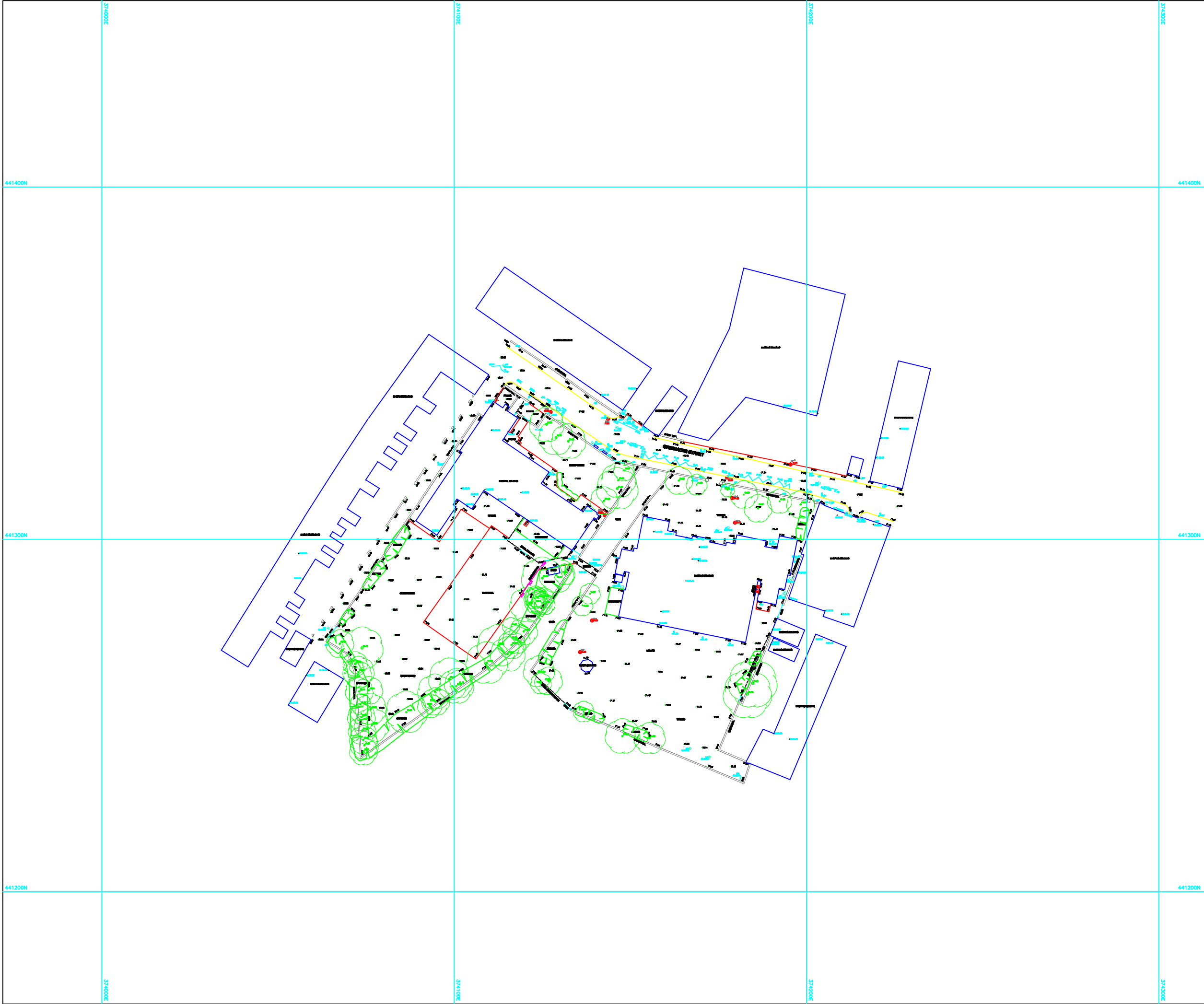
Health & Safety Notes

1. Contractor must ensure that all work on site is carried out in a safe & satisfactory manner, in accordance with Health & Safety At Work Act 1974, COSHH Regulations 2002 & requirements of C.D.M



-	First Issue	16.12.2020
Rev.	Description	Date
Client		
St James CofE Primary School Clitheroe		
Project		
Development Planning		
Drawing Title		
Existing Site Plan		
Drawn by	FH	Checked by AB Date 16.12.2020
Status	PRELIMINARY	Scale @ A2 1:500
Job no.	10512	Dwg.no. E01 Rev. -
Cassidy+Ashton		
www.cassidyashton.co.uk		
Architecture + Building Surveying + Town Planning		
7 East Cliff, Preston, Lancashire, PR1 3JE 10 Hunters Walk, Canal Street, Chester, CH1 4EB		01772 258 356 01244 402 900

Appendix D - Topographic Survey



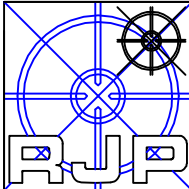
COORDINATED STATIONS			
STATION	EASTING	NORTHING	LEVEL (m)
GPS1	374143.665	441334.202	71.606
GPS2	374195.447	441321.263	71.350
A	374177.438	441317.541	71.265
B	374127.371	441336.178	72.074
C	374179.706	441304.758	71.474
D	374178.911	441311.711	71.293
G	374142.715	441306.863	71.638

ABBREVIATIONS			
AV	AIR VALVE/VENT	IC	INSPECT CHAMBER
BOL	BOLLARD	IL	INVERT LEVEL
BB	BELISHA BEACON	JKW	JAPANESE KNOTT WEED
BM	BENCH MARK	LH	LAMP HOLE
BL	BED LEVEL	LP	LAMP POST
BS	BUS STOP	NP	NAME PLATE
BT	BRITISH TELECOM	MH	MANHOLE
CL	COVER LEVEL	PS	POST/SIGN POST
DI	DILAPIDATED	PB	POST BOX
DIW	DISUSED	PX	UNKNOWN SERVICE
EL	EVES LEVEL	RE	RODDING EYE
ELE	ELEC JUNCT. BOX	RL	RODGE LEVEL
EP	ELECTRICITY POLE	RS	ROAD SIGN
PH	FIRE HYDRANT	ST	STOP TAP
FL	FLOOR LEVEL	TH	TRIAL HOLE
FOS	FULL OF SEDIMENT	TL	TRAFFIC LIGHT
FP	FLAG POLE	TP	TELEGRAPH POLE
G	GULLY	TV	CABLE TV BOX
GM	GAS METER	UI	UNABLE TO LIFT
GV	GAS VALVE	WM	WATER METER

SYMBOLS	
	SURVEY STATION
	O/H ELEC CABLE
	O/H PHONE LINE
	CANOPY/HEDGE
	TREE
	BENCH MARK
	TRIAL PIT
	BOREHOLE

- NOTES**
- A) ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN
- B) O/S USED AND ORIENTATED TO TRUE NORTH
- C) LEVELS IN METRES RELATED TO G.P.S.
- D) DRAINAGE INFORMATION TAKEN FROM LOCAL AUTHORITY RECORDS. INFORMATION MUST BE CHECKED PRIOR TO WORK COMMENCING

Rev	Description	Date
PROPOSED DEVELOPMENT AT GREENACRE ROAD, CLITHEROE		
CASSIDY + ASHTON		
TOPOGRAPHICAL SURVEY		
CA292/T00	Surveyed	A. BAYBUTT
	Drawn	I. GREEN
	Date	JUNE 2021
	Scale	1:500 @ A1



RJP Surveying Consultants Ltd
LAND SURVEYORS & SITE ENGINEERS

AYREFIELD COTTAGE
AYREFIELD ROAD
ROBY MILL
UPHOLLAND
LANCASHIRE
WN8 0QP

TEL: 01257 251554
MOBILE: 07710 308709
WEBSITE : www.rjpsurveyors.co.uk
E-MAIL: mail@rjpsurveyors.co.uk

Appendix E - Proposed Site Layout

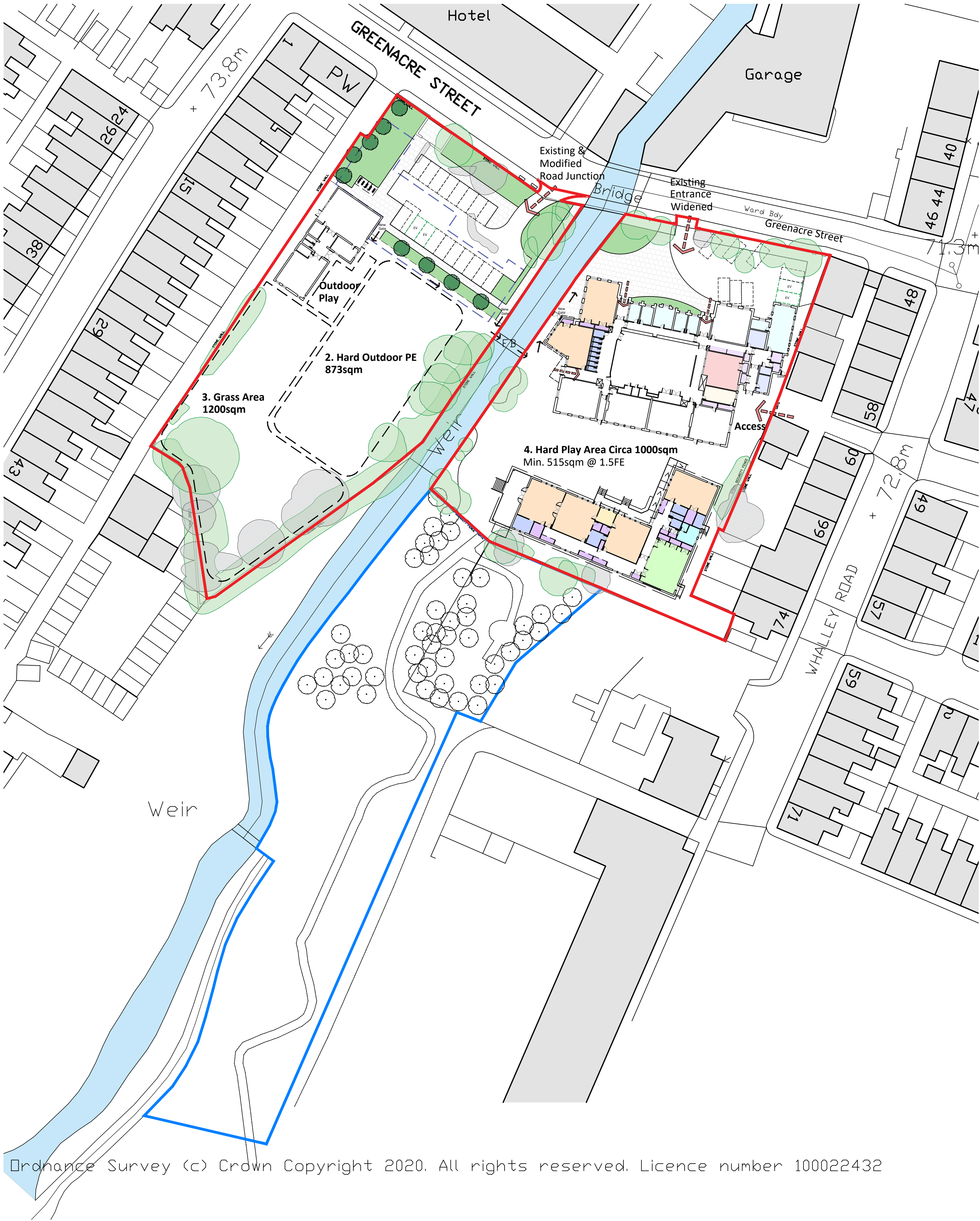


Key

Site Boundary

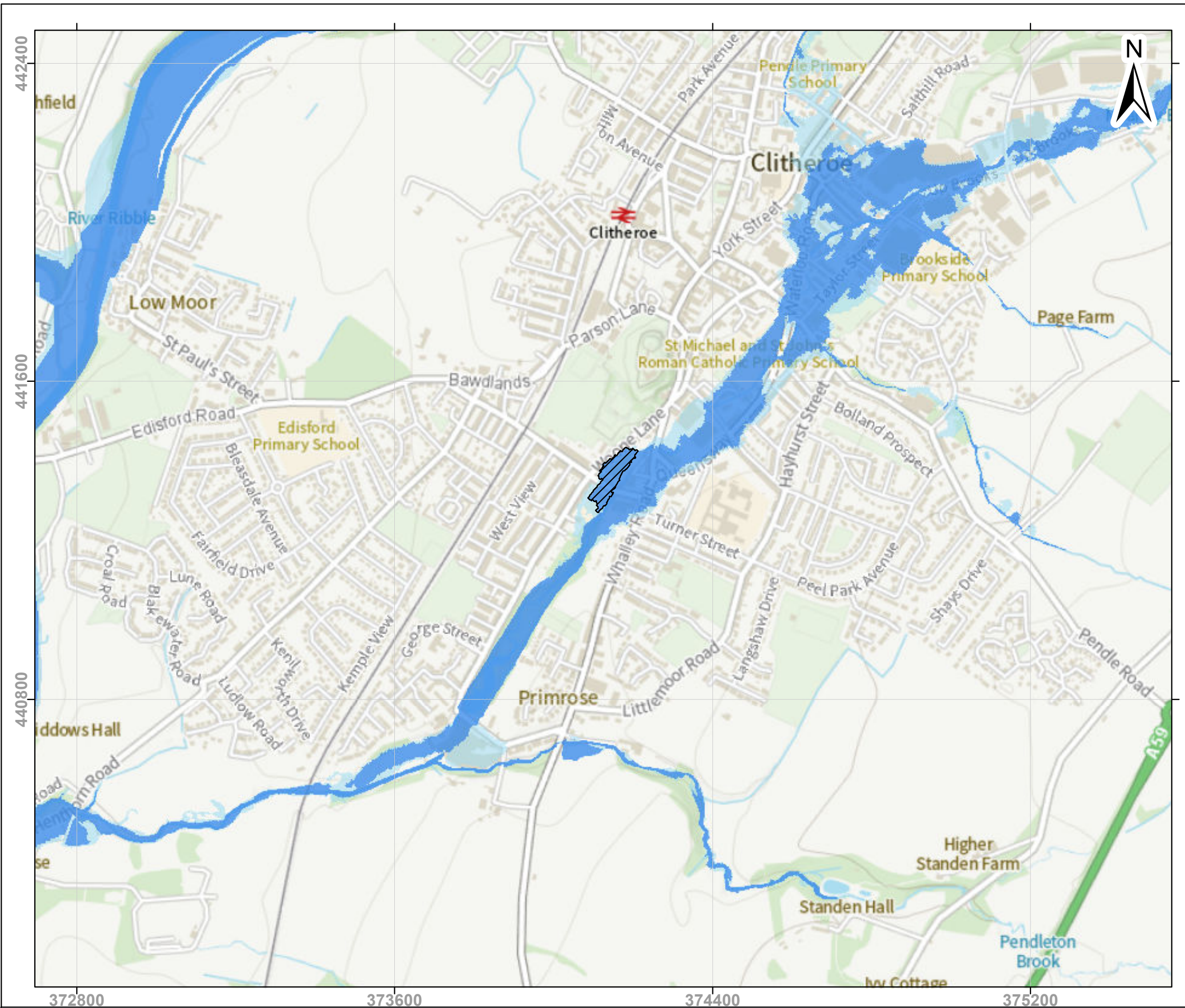
Ownership Boundary

- Trees to be retained
- Trees to be removed
- Proposed Trees
- Demolition
- New
- New Fence Line



Rev.	First Issue	02.06.2021
Rev.	Description	Date
Client	Diocese of Blackburn	
Project	St James C of E Primary School Clitheroe	
Drawing Title	Proposed Site Plan	
Drawn by	FH	Checked by AB Date 02.06.2021
Status	PLANNING	Scale @ A1 As Indicated
Job no.	Dwg no.	Rev.
10512	P01	-
Cassidy+Ashton		
www.cassidyashton.co.uk		
Architecture + Building Surveying + Town Planning		
7 East Cliff, Preston, Lancashire, PR1 3JE 01772 258 356		
10 Hunters Walk, Canal Street, Chester, CH1 4EB 01244 402 900		

Appendix F - Environment Agency Detailed Flood Information



Flood Zones Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

NGR: 374125, 441280

Key

-  Main River
-  Areas Benefiting from Defences
-  Flood Zone 3
-  Flood Zone 2

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

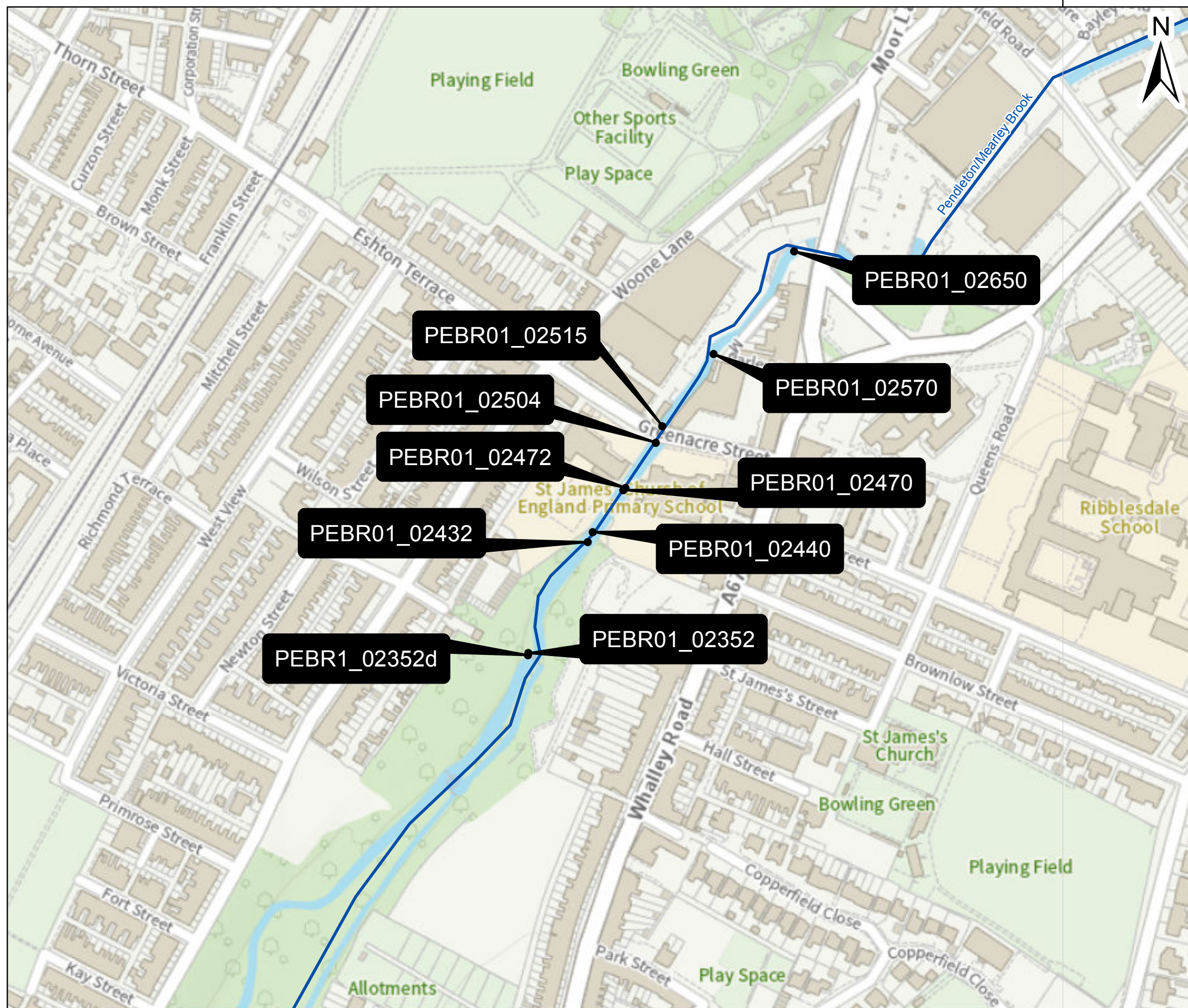
ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Modelled Water Levels Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

NGR: 374125, 441280

Key

-  Node Points
-  Main River

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Node Point	Flood Flow (m³s⁻¹) and Level (mAOD) data for a range of annual probability of flooding													
	0.1%				0.5%		1.0%				5.0%			
	Defended		Undefended		Defended		Defended		Undefended		Defended		Undefended	
Map ID	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
PEBR1_02352d	71.46	60.94	71.46	60.24	71.16	38.05	71.00	31.80	71.02	32.48	70.67	22.18	70.66	21.85
PEBR01_02650	73.00	26.00	72.72	17.48	72.54	25.85	72.26	25.60	72.30	17.28	71.84	21.89	71.77	16.98
PEBR01_02570	73.00	26.41	72.70	19.85	72.53	25.86	72.28	24.69	72.31	15.86	71.82	21.88	71.78	15.92
PEBR01_02515	72.95	28.35	72.69	19.83	72.48	26.32	72.22	25.13	72.25	19.70	71.71	22.19	71.66	19.43
PEBR01_02504	72.17	28.35	72.40	19.83	71.79	26.32	71.62	25.13	71.88	19.70	71.29	22.19	71.33	19.43
PEBR01_02472	72.12	28.83	72.22	38.58	71.71	26.33	71.49	25.13	71.72	27.26	71.07	22.19	71.07	21.62
PEBR01_02470	71.96	28.83	71.86	38.58	71.46	26.33	71.28	25.13	71.46	27.26	71.04	22.19	71.04	21.62
PEBR01_02440	71.93	28.99	71.89	35.86	71.43	26.29	71.25	25.11	71.25	30.28	70.91	22.19	70.90	21.84
PEBR01_02432	71.75	42.01	71.74	42.21	71.35	32.10	71.18	29.24	71.21	31.76	70.90	22.19	70.89	21.85
PEBR01_02352	71.59	60.94	71.58	60.24	71.24	38.05	71.06	31.80	71.09	32.48	70.74	22.18	70.72	21.85
Level data in mAOD (metres above ordnance datum). Flow data in m³ per second														
Data taken from Mearley Brook 2018														

Node Point	Flood Flow (m ³ s ⁻¹) and Level (mAOD) data for a range of annual probability of flooding							
	0.1% + Climate Change (+30%)		1.0% + Climate Change (+70%)		1.0% + Climate Change (+35%)		1.0% + Climate Change (+30%)	
	Defended		Defended		Defended		Defended	
Map ID	Level	Flow	Level	Flow	Level	Flow	Level	Flow
PEBR1_02352d	71.67	76.81	71.38	55.12	71.27	44.52	71.24	41.98
PEBR01_02650	73.24	25.94	72.92	25.97	72.73	25.92	72.67	25.90
PEBR01_02570	73.24	26.32	72.91	26.43	72.70	26.37	72.65	26.21
PEBR01_02515	73.20	28.49	72.87	28.22	72.66	27.32	72.60	26.85
PEBR01_02504	72.45	28.49	72.08	28.22	71.91	27.32	71.87	26.85
PEBR01_02472	72.38	33.45	72.02	28.37	71.84	27.37	71.80	26.88
PEBR01_02470	72.26	33.45	71.84	28.37	71.60	27.37	71.56	26.88
PEBR01_02440	72.23	33.46	71.81	28.47	71.56	27.41	71.52	26.87
PEBR01_02432	72.02	45.66	71.65	40.05	71.47	34.96	71.44	33.94
PEBR01_02352	71.81	76.81	71.49	55.12	71.35	44.52	71.32	41.98
Level data in mAOD (metres above ordnance datum). Flow data in m ³ per second								
Data taken from Mearley Brook 2018								

Modelled 2D Data Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

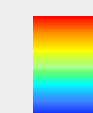
NGR: 374125, 441280

Key

 Main River

0.1% AEP defended

Value



High : 89.911

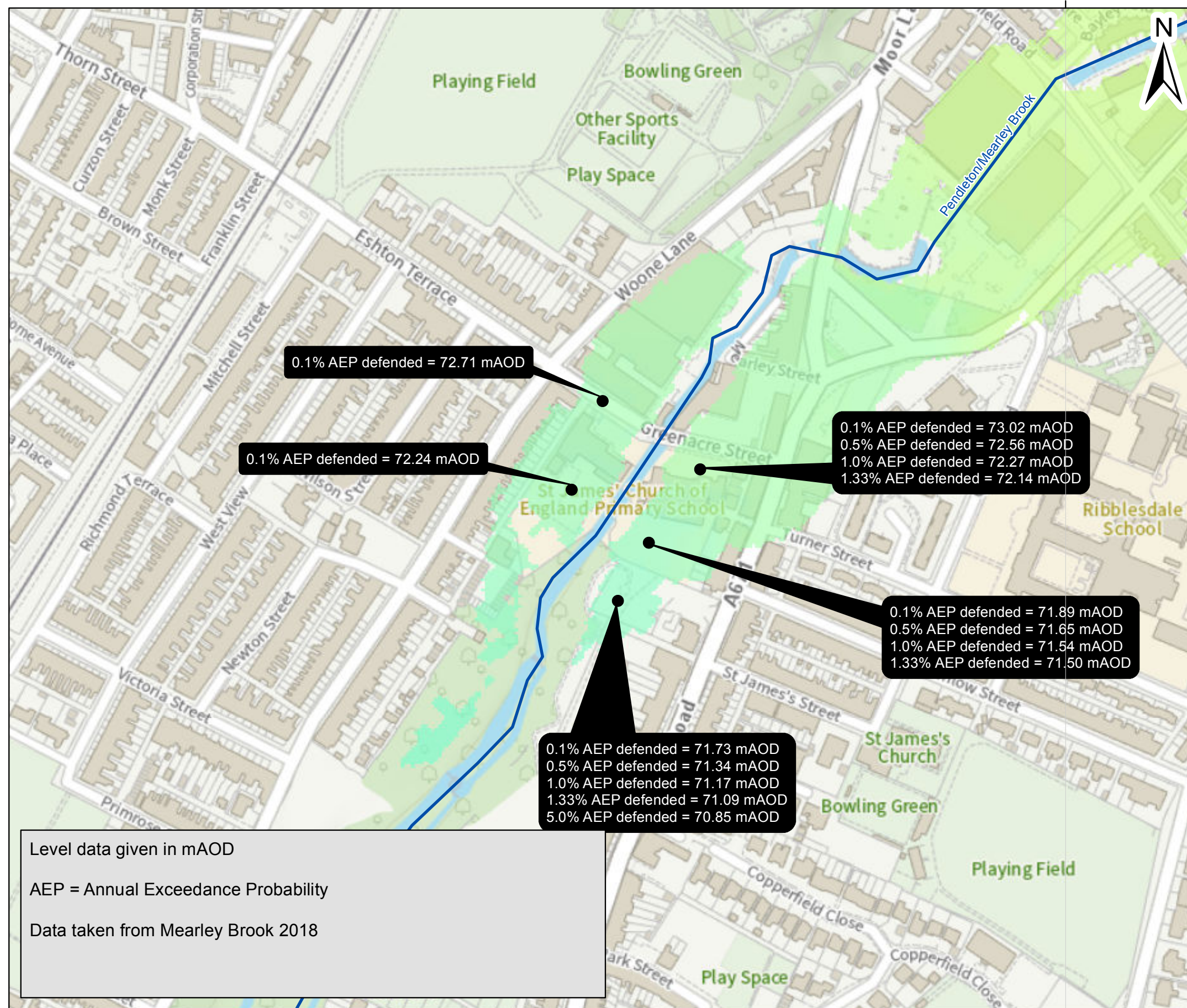
Low : 58.368

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Modelled 2D Data Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

NGR: 374125, 441280

Key

 Main River

0.1% AEP defended + 30% Climate Change

Value



High : 89.991

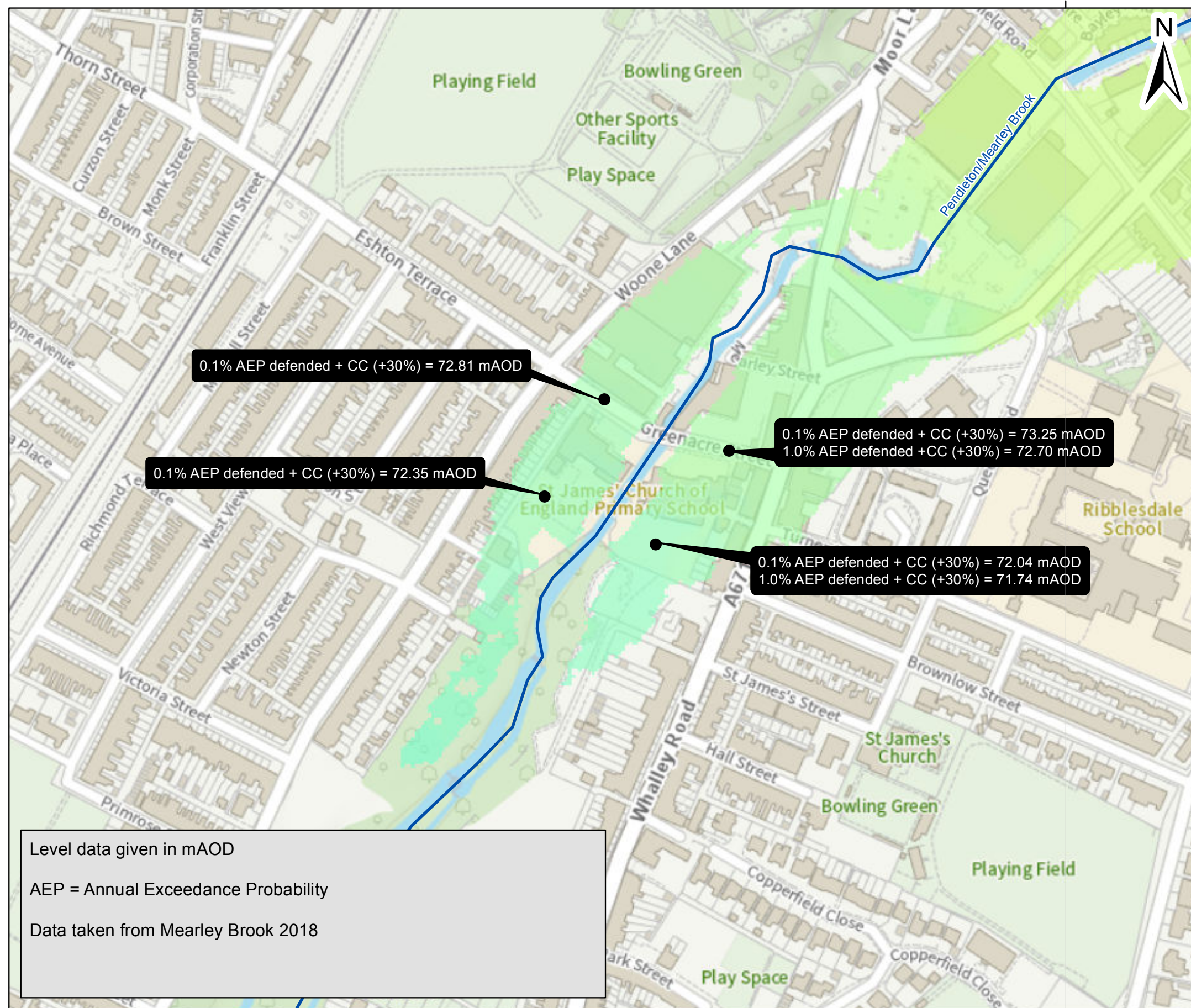
Low : 58.391

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

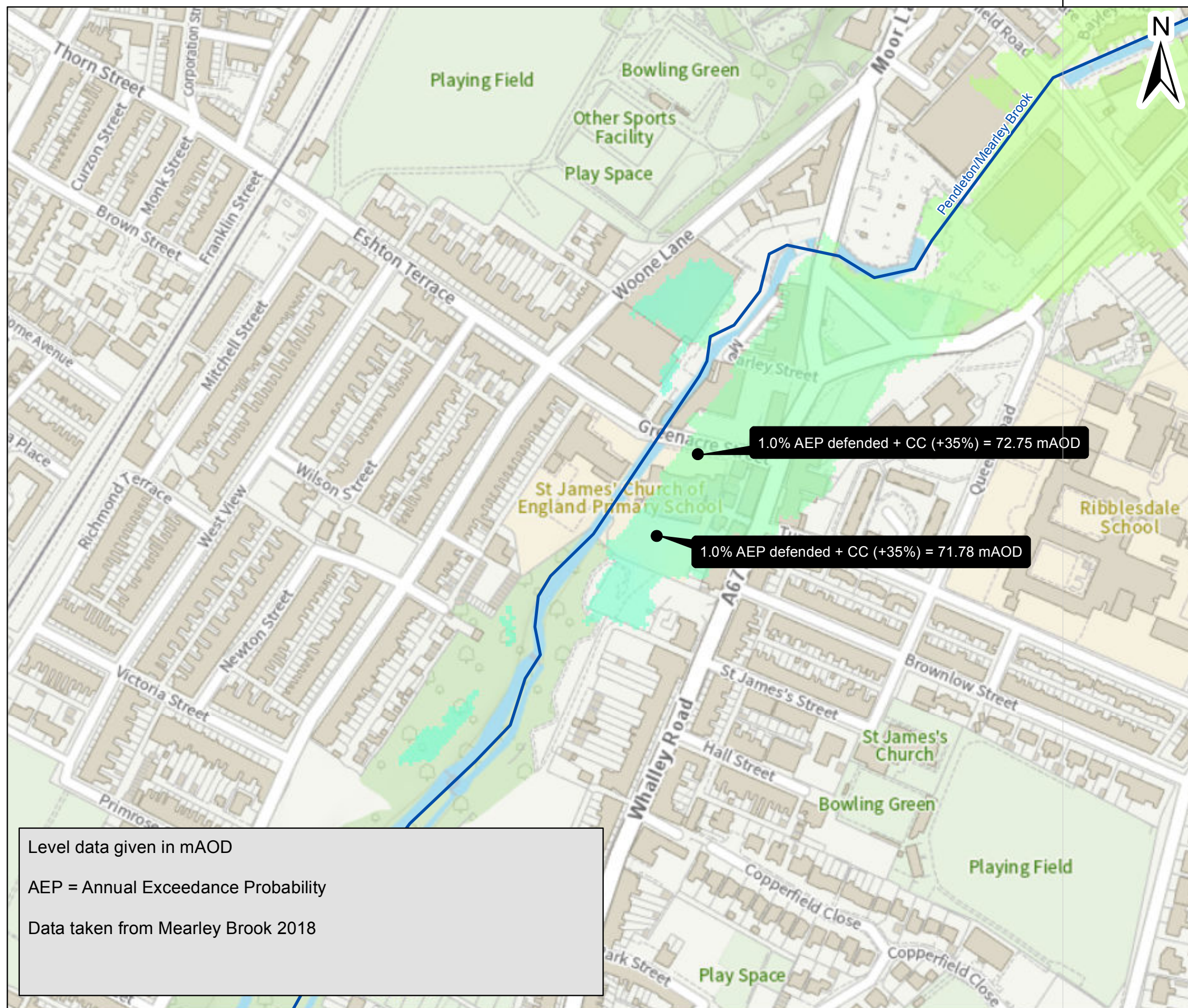
ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Modelled 2D Data Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

NGR: 374125, 441280

Key

Main River

1.0% AEP defended + 35% Climate Change

Value



High : 89.8

Low : 58.799

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

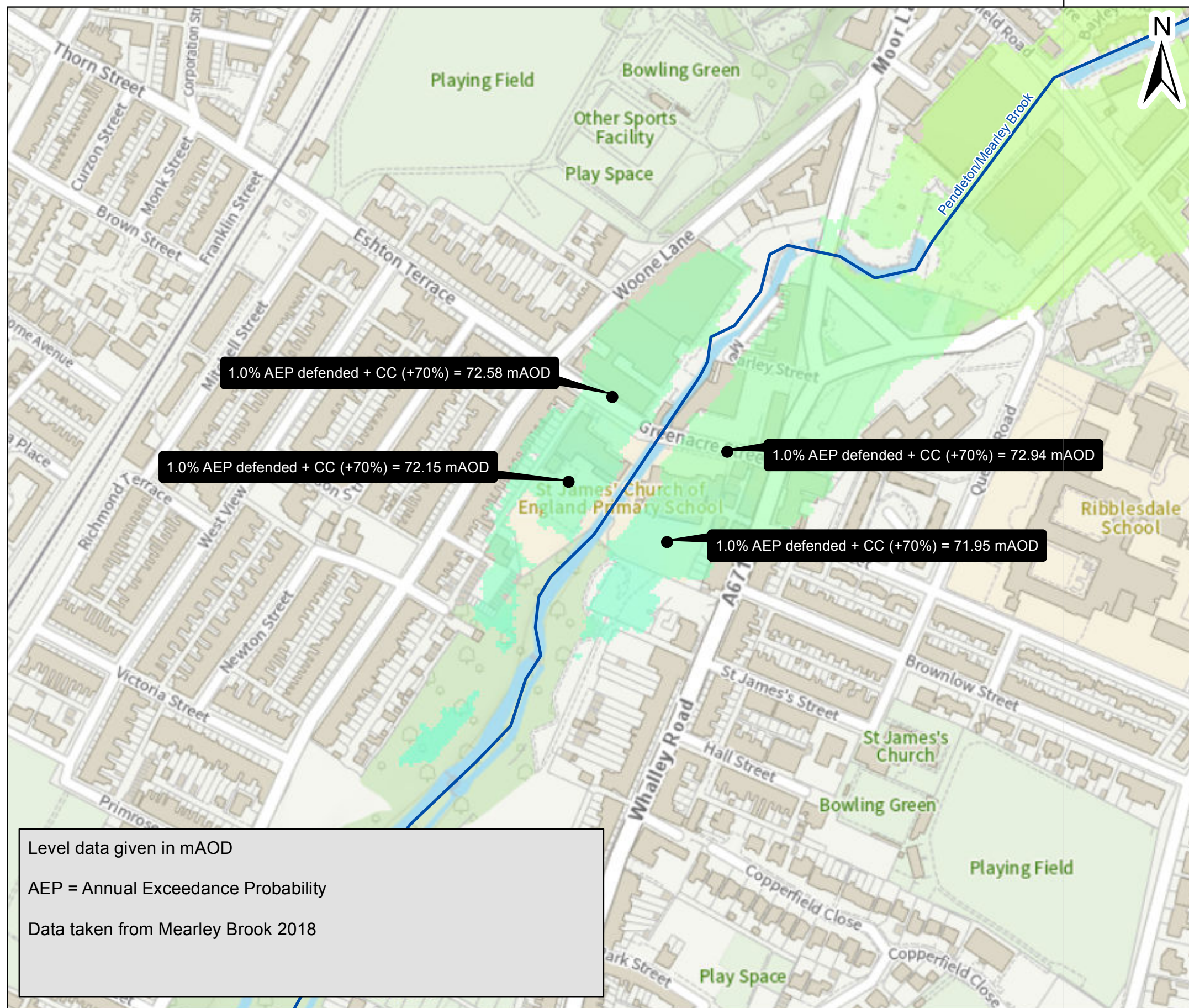
ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Level data given in mAO

AEP = Annual Exceedance Probability

Data taken from Mearley Brook 2018



Modelled 2D Data Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

NGR: 374125, 441280

Key

 Main River

1.0% AEP defended + 70% Climate Change

Value



High : 89.882

Low : 58.805

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

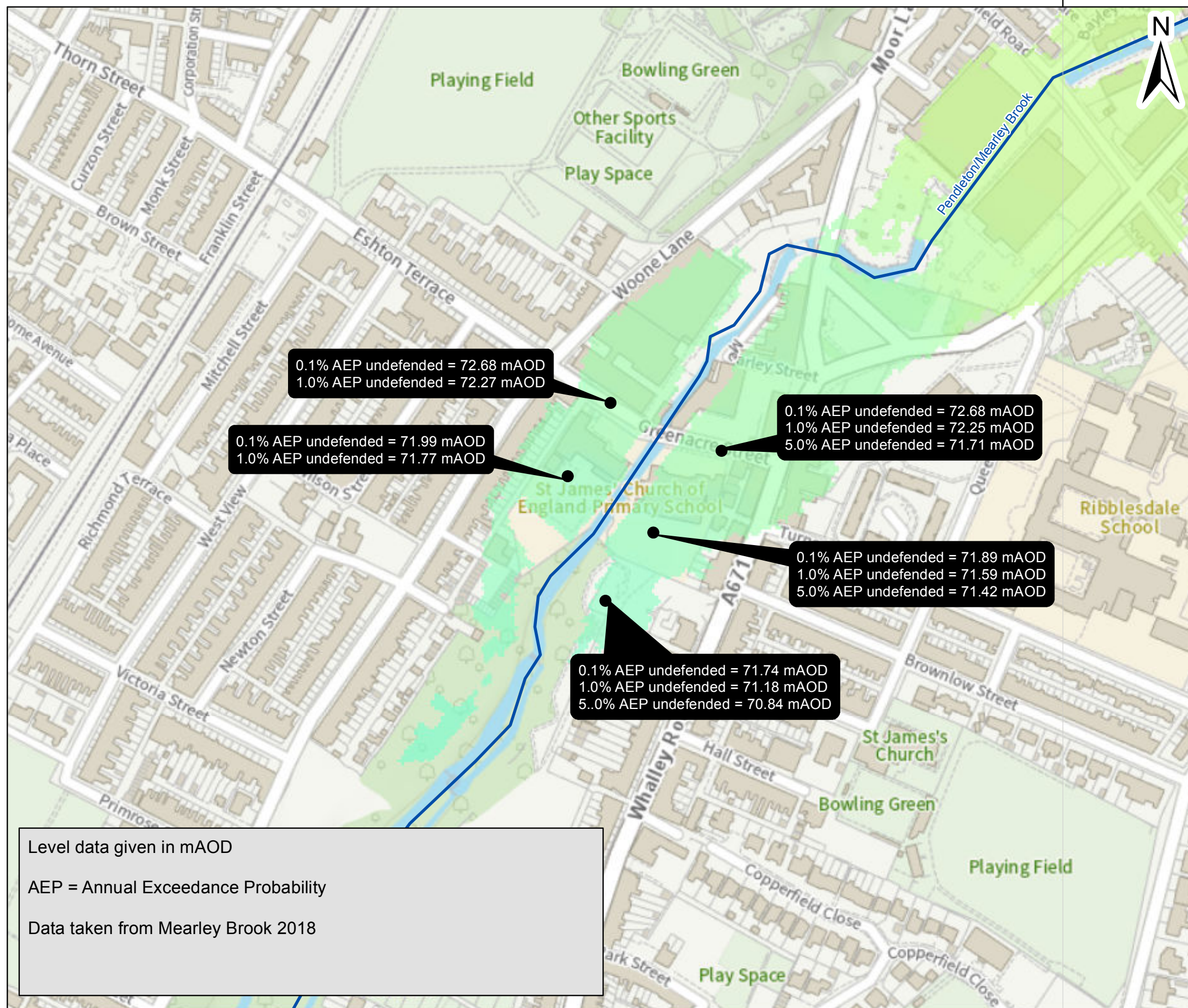
ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Modelled 2D Data Map

St James CoE School, Clitheroe

Produced: 26 May 2021

Our Ref: CL218544

NGR: 374125, 441280

Key

Main River

0.1% AEP undefended

Value



High : 89.9031

Low : 58.3734

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

© Environment Agency copyright and database rights 2021. All rights reserved. © Crown Copyright and database rights 2021. Ordnance Survey licence number 100024198.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Appendix G - Design Life Confirmation

CLIENT SANDERSON WATTS ASSOC.		JOB NO C8840	LOCATION SUN STREET, CLITHEROE.		BOREHOLE NO BH2			
DATE JANUARY 1997		SCALE 1 to 50	BORING METHOD CABLE PERCUSSIVE			Sheet: 1		
Drilling & Casing Progress	SAMPLE/TEST		SPT N - value or COHESION	DESCRIPTION	O D LEVEL	LEGEND		
	Type & No.	Depth(M)						
28TH	B 1	0.30 - 0.80	2	MADE GROUND - Concrete.			0.0	
				MADE GROUND - Stone slab.			0.15	
				MADE GROUND - Compact stone subbase.			0.30	
				MADE GROUND - Soft medium to dark brown very silty clay.			0.50	
	S 2	1.00 - 1.45	3	Soft medium brown silty very sandy CLAY.				2.40
	B 3	1.60 - 2.00	19	Stiff medium to dark brown and grey silty sandy CLAY with some to much fine to coarse gravel, with occasional cobbles and boulders.				3.10
S 4	2.00 - 2.45	95	Light grey very fine grained strong slightly shelly carboniferous LIMESTONE, with occasional micaceous content.		5.80			
S 5	2.90 - 3.35	100			6.20			
D 6	3.30							
28TH	S 7	4.40 - 4.70						
	B 8	5.00 - 5.50						
28TH	D 9 C 10	6.10 6.20 - 6.25						
DUNELM DRILLING COMPANY TEL0191-526-2534 FAX0191-517-0065				BOREHOLE LOGSHEET				
Water Observations, Remarks, Etc Borehole visually moist from 0.50m to 2.40m. No direct water strike recorded, although water standing at 1.75m on removal of temporary casing at end of borehole.				Chiselling concrete and stone slab - 0.75 hr. Chiselling to prove rock from 5.80m to 6.20m - 1.5 hrs.				

Appendix H - British Geology Survey Borehole Record

Carina Hassall

From: Alistair Baines <AlistairBaines@cassidyashton.co.uk>
Sent: 10 September 2021 08:53
To: Carina Hassall
Cc: Jordan Balazs
Subject: Re: St James C of E Primary School, Clitheroe

Hi Carina,

Design life is a difficult one.

I would say the extension to the Junior school built in masonry would be 50+years and whilst the new Modular timber framed building has a 25 year guarantee I would say the design life is similar (50+years).

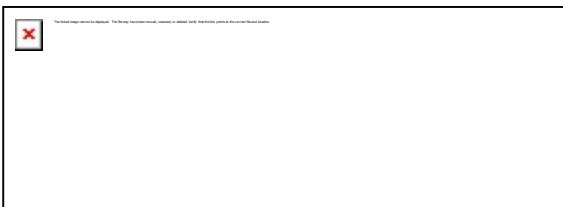
Hope this helps

Alistair

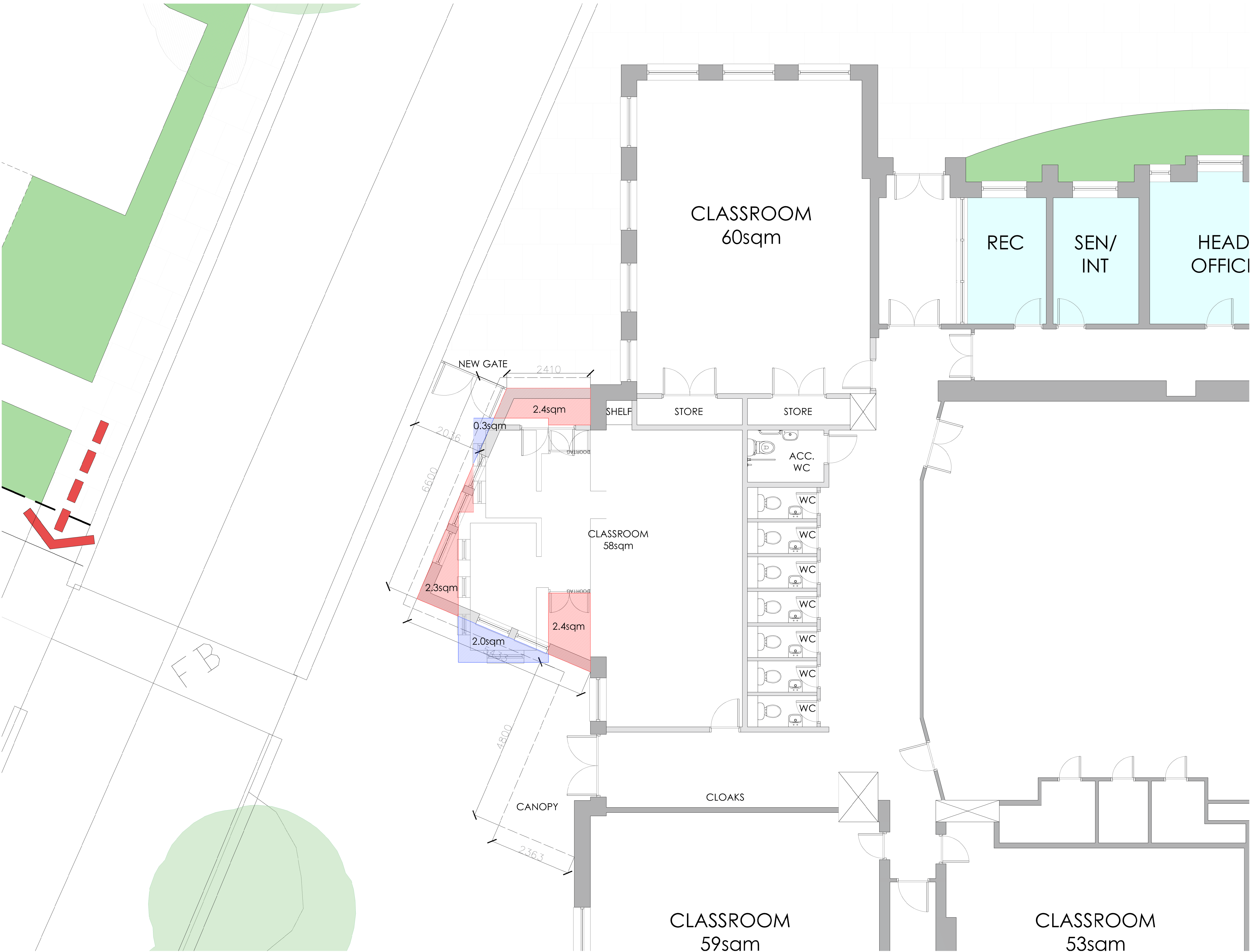
Alistair Baines BA (Hons) BArch RIBA

Chairman

Architect



Appendix I - Top of Bank Plan



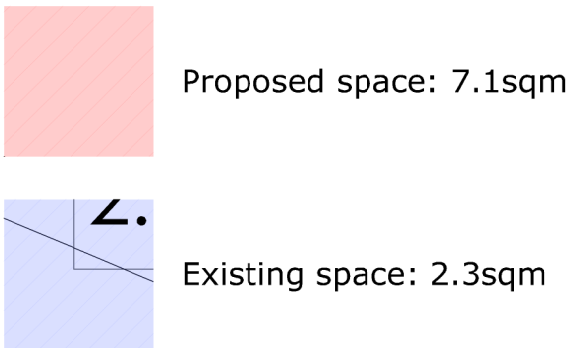
This drawing is subject to copyright and is not to be reproduced in part or whole without approval. Do not scale this drawing - check all dimensions on site.

Health & Safety Notes

1. Contractor must ensure that all work on site is carried out in a safe & satisfactory manner, in accordance with Health & Safety At Work Act 1974, COSHH Regulations 2002 & requirements of C.D.M



Key



Total New Space: **4.8sqm**

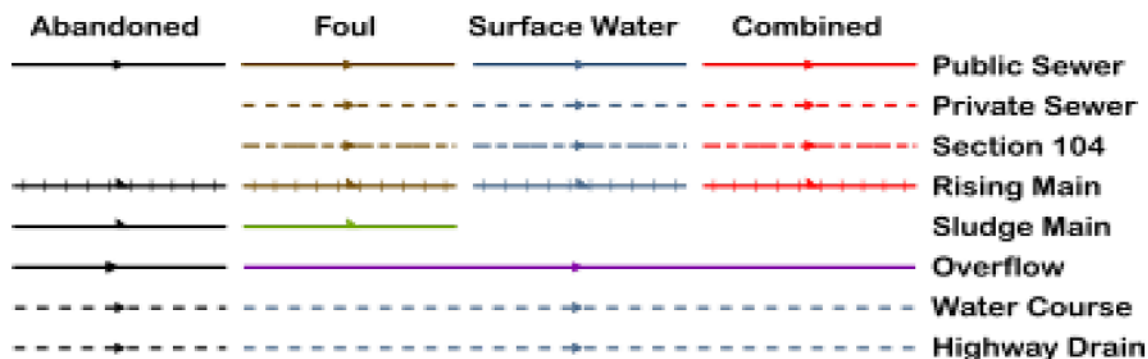
Rev.	First Issue	24.05.2021
Rev.	Description	Date
Client		
Diocese of Blackburn		
Project		
St James C of E Primary School Clitheroe		
Drawing Title		
Proposed Junior School Proposed Floor Space		
Drawn by	FH	Checked by AB Date 24.05.2021
Status	PLANNING	Scale @ A1 1:50
Job no.	10512	Rev. -
Dwg.no.	P02	
Cassidy+Ashton		
Architecture + Building Surveying + Town Planning		
7 East Cliff, Preston, Lancashire, PR1 3JE 01772 258 356		
10 Hunters Walk, Canal Street, Chester, CH1 4EB 01244 402 900		

Appendix J - Public Sewer Records

Base Energy Services Limited		Page 1
44 Canal Street Bootle Liverpool L20 8QU	St James C of E Greenfield Total Site	
Date 25/06/2021 File	Designed by CC Checked by PK	
Micro Drainage Source Control 2019.1		
<u>ICP SUDS Mean Annual Flood</u> Input Return Period (years) 100 Soil 0.450 Area (ha) 0.800 Urban 0.000 SAAR (mm) 1055 Region Number Region 10 Results l/s QBAR Rural 5.7 QBAR Urban 5.7 Q100 years 11.8 Q1 year 4.9 Q30 years 9.6 Q100 years 11.8		
©1982-2019 Innovyze		

Appendix K - ICP SuDS Greenfield Rate of Runoff

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	

