



JP Structural Design

DRAINAGE STRATEGY REPORT

THE OAK TREE TAVERN
RUABON ROAD, WREXHAM

JOB NO: 07555

REF: DR01

REV: P01

JP Structural Design Ltd

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1.0 INTRODUCTION

1.1 COMMISSION

APCA Capital appointed JP Structural Design (JPS) to undertake this Drainage Strategy Report in support of a Full Detailed Planning Application for the conversion of the Oak Tree Tavern public house and associated out buildings to 5 residential dwellings.

1.2 EXISTING SITE

The site covers an area adjacent to Ruabon Road of approximately 1060m² as shown on the Site Information drawing in Appendix 4.1

The site comprises the public house, car parking area, various outbuildings and a small 'beer garden' and is calculated to have 970m² of impermeable area or 91% of the total site area.

1.3 EXISTING DRAINAGE

On-site investigations have confirmed that there is an existing combined public sewer system serving the development which runs across the back of the public house before turning down the access drive to the combined Public Sewer network in Ruabon Road.

Appendix 4.2 contains a copy of the public sewer record drawing and 4.3 a sketch of the existing site drainage system.

1.4 EXISTING FLOOD RISK

As stated above, the site covers an area of approximately 0.097 Ha, of which the vast majority is currently impermeable surfacing. In accordance with the NRW Developers Advice Maps (shown in Appendix 4.1) the site is located within Flood Zone 1 – Land having less than 1 in 1000 annual probability of river or sea flooding. The NRW Flood Risk Map is also shown and has confirmed the site to be free from any flood concerns.

Due to the topography of the area, the risk of flooding from adjoining properties or roads is considered minimal, and therefore, the management of the surface water run-off generated by the post development site will be the principle flood risk associated with this scheme.

1.5 PROPOSED DEVELOPMENT

The scheme consists of the renovation of the existing public house and former stable blocks into residential dwellings. The car park area is to be converted into private and communal gardens with parking provision for the residents.

Based upon the latest development plans the final hard paved area generated by the proposals will be approximately 1.820 as shown on the areas plan, although this will be managed in various means detailed later in the report.

2.0 DRAINAGE PROPOSALS

2.1 FOUL DRAINAGE

The foul drainage peak discharge will increase slightly following completion of the scheme with the creation of 5 residential properties as opposed to a Public House.

Using an average occupancy of 2.7 persons per unit would equate to a total population of 14 people, and a subsequent foul peak discharge of 0.4 l/s (Based upon 200 l/person/day residential usage rate, a 12 hour day and a peaking factor of 6, as suggested in the British Water Code of Practice's Table of Loadings for Sewerage Disposal Facilities).

For the foul design proposals, we would therefore advocate re-using the existing public sewer / private system to serve the proposed development and connections to the existing network.

2.2 SURFACE WATER DRAINAGE

In accordance with the Welsh Assembly Government's implementation of Schedule 3, the Surface Water Drainage strategy adheres to the principles of;

- Reducing Flood Risk
- Improving Water Quality
- Protecting and Improving the Environment
- Ensuring the Stability & Durability of Drainage Systems

The drainage proposals drawings are contained in appendices 4.4 and surface water drainage calculations and infiltration tests are contained in Appendix 4.5 & Appendix 4.6.

The site will be subject to a SAB application and the detailed Full-Application Advice form is therefore contained in Appendix 4.7 to fully outline the surface water proposals.

Furthermore, an O&M manual for the scheme is contained in Appendix 4.8.

3.0 RECOMMENDATIONS & CONCLUSIONS

3.12 CONCLUSIONS

The proposed site is free from any existing flood risk and there are suitable points of connection for the disposal of the foul effluent and surface water run-off generated by the proposed development which will form a significant betterment to the existing arrangements.

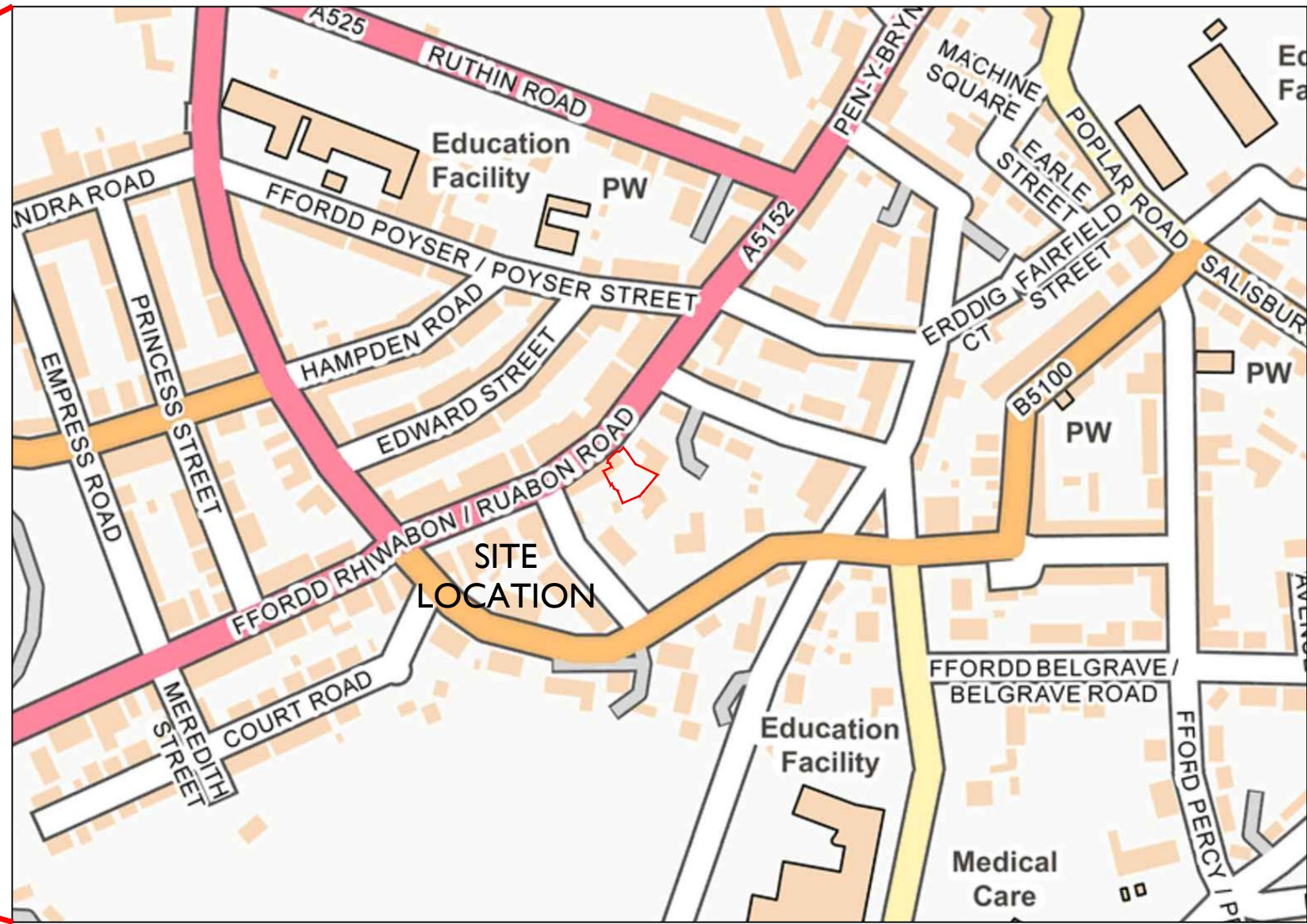
We would expect the proposed development to be free from general objections in respect to draining the site but anticipate that the use of infiltration techniques will only be possible for specific elements of the scheme as is likely to be expected with a renovation type project. There will also be suitable conditions imposed to ensure that the drainage proposals are designed and constructed in accordance with relevant statutory requirements.

4.0 APPENDICES

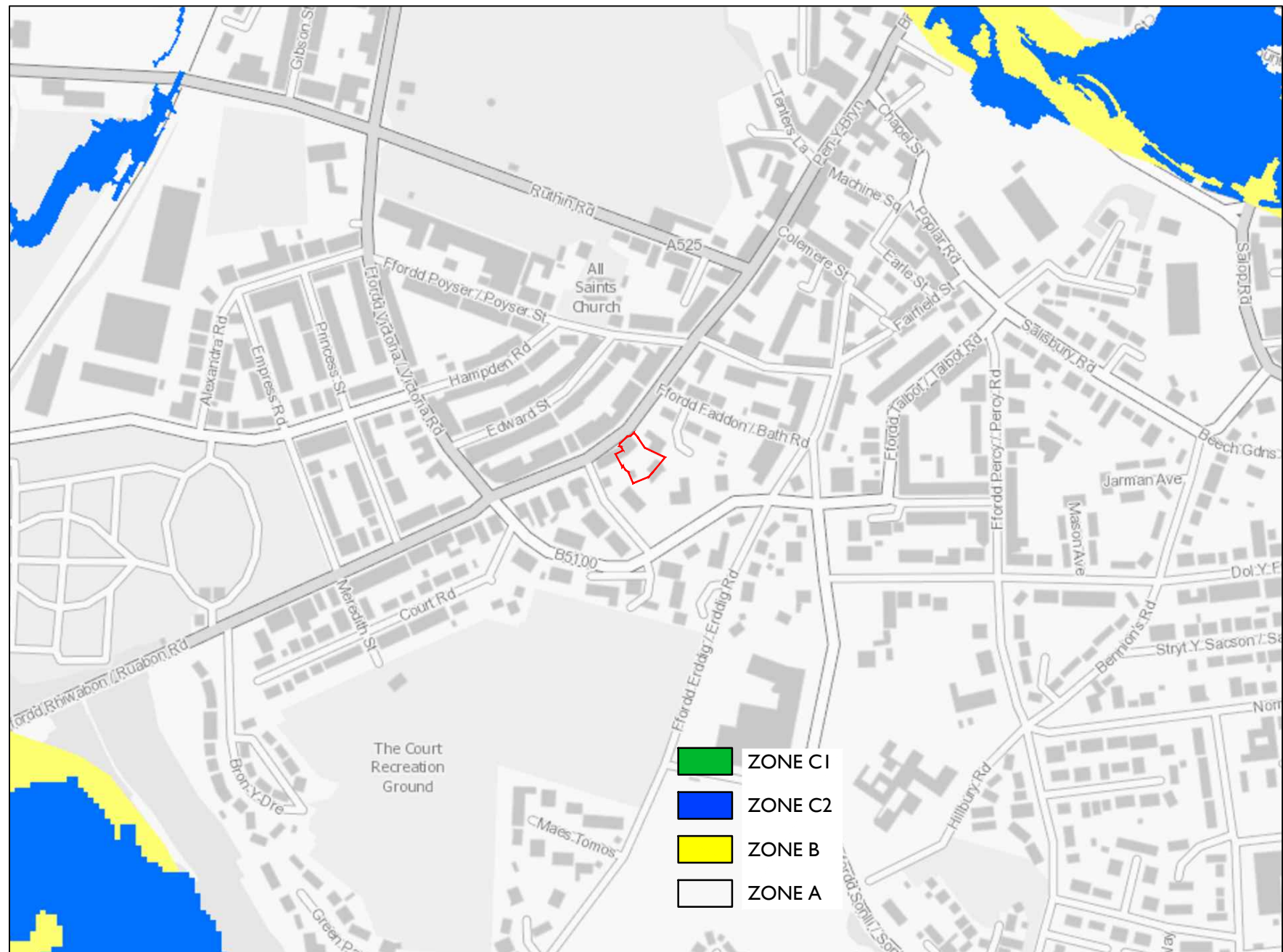
- 4.1 - Site Information Drawing
- 4.2 - Public Sewer Records
- 4.3 - Existing Site Drainage Sketch
- 4.4 - Proposed Drainage Drawings
- 4.5 - Infiltration Calculations
- 4.6 - Surface Water Calculations
- 4.7 - SABs Pre-Application Advice Form
- 4.8 – O&M Manual



APPROX SCALE 1:150,000



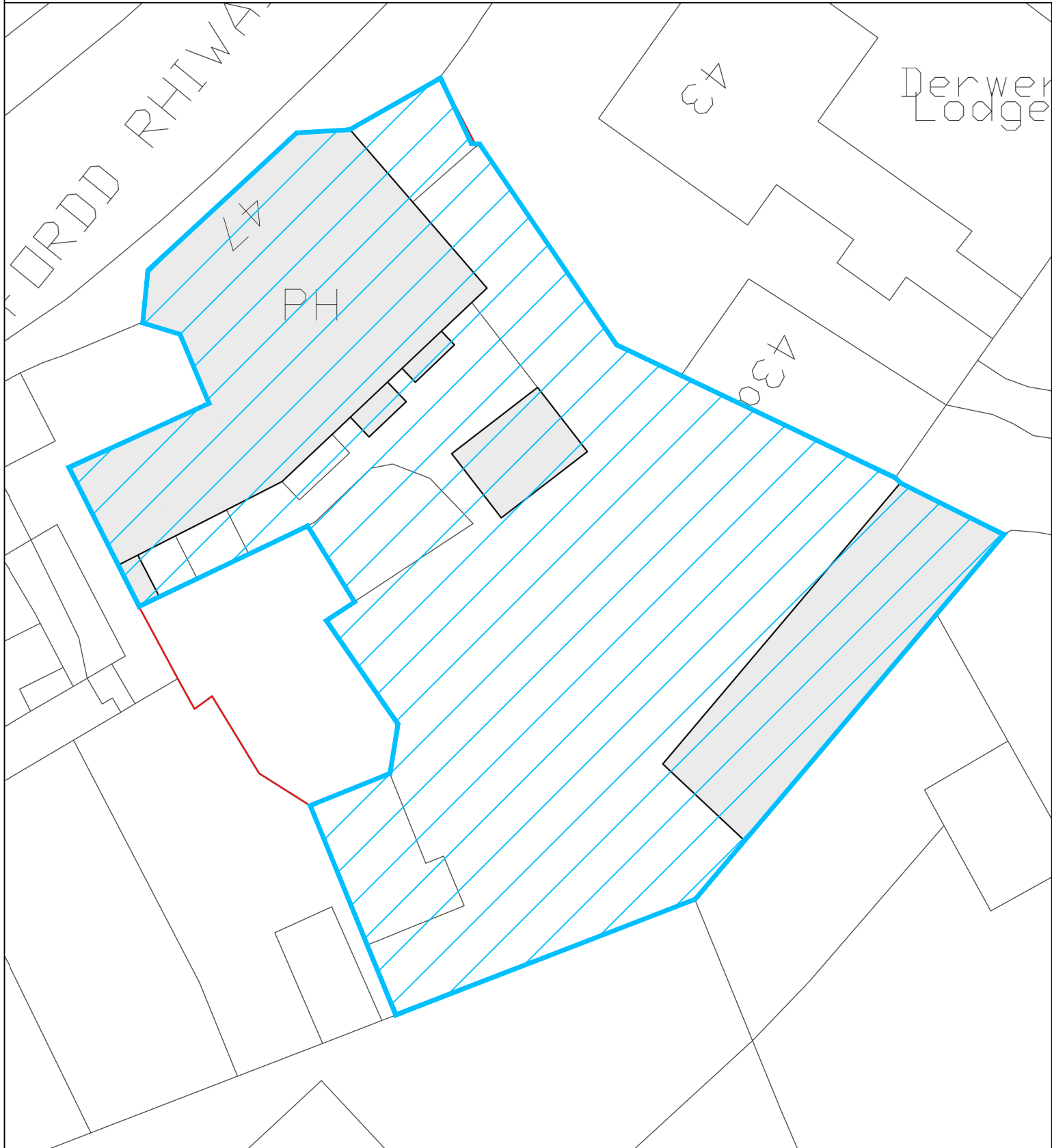
APPROX SCALE 1:10,000



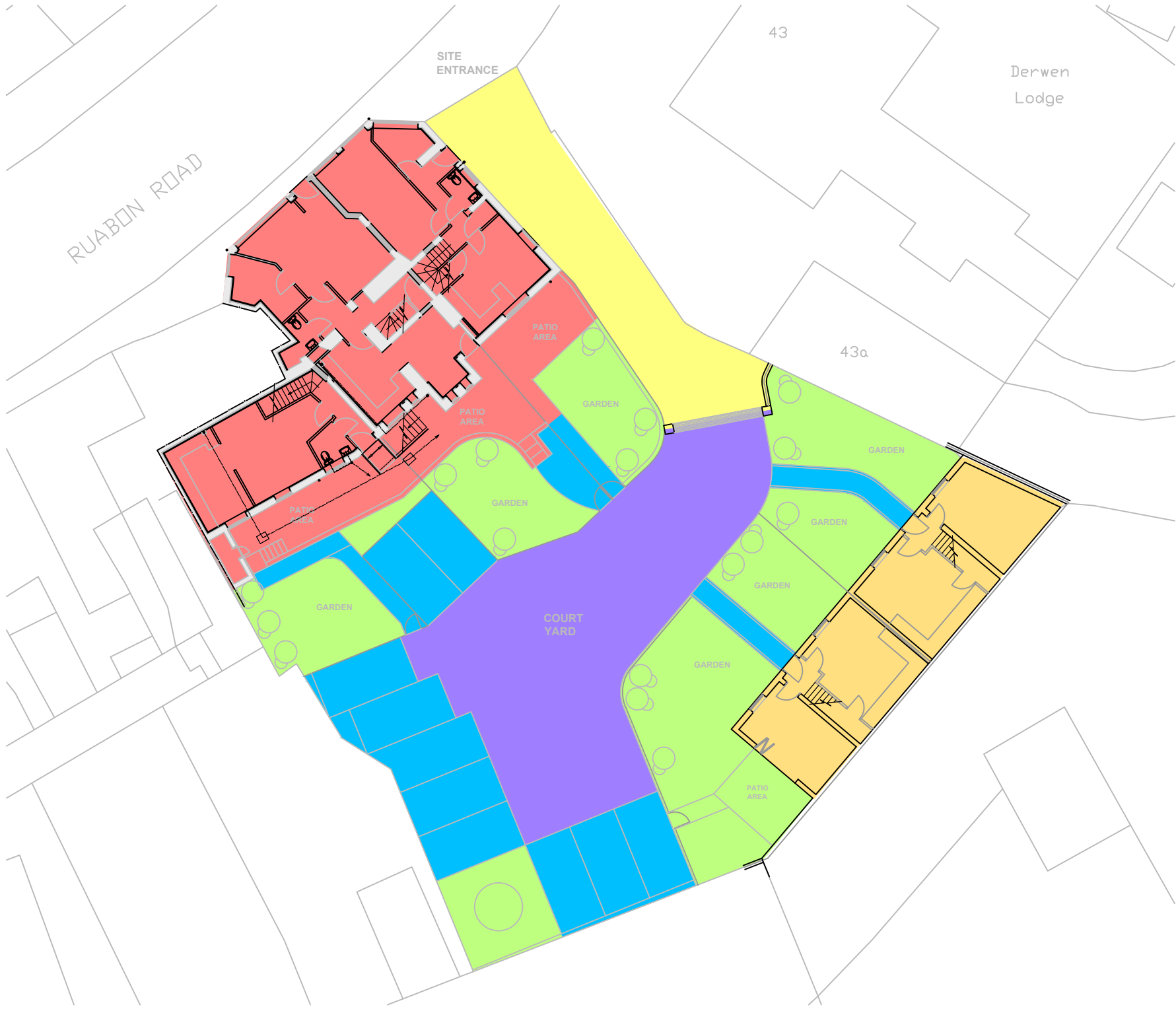
DEVELOPMENT ADVICE MAP
APPROX SCALE 1:5,000



FLOOD RISK MAP
APPROX SCALE 1:5,000



PROPOSED IMPERMEABLE AREA
APPROX SCALE 1:250



EXISTING SATELLITE IMAGE
APPROX SCALE 1:500

SITE CO-ORDINATES

OS X (Eastings) 333134
OS Y (Northings) 349698
Nearest Post Code LL13 7PN
Nat Grid SJ331496 / SJ331449698



AREAS

- SITE BOUNDARY 1,060 SQ M
- EXISTING IMPERMEABLE AREA 970 SQ M
- PUBLIC HOUSE AREA 275 SQ M
- STABLE BLOCK AREA 100 SQ M
- ACCESS ROAD AREA 85 SQ M
- COURT YARD AREA 175 SQ M
- PERMEABLE PAVING AREAS 155 SQ M
- SOFT LANDSCAPING AREA 270 SQ M

BOREHOLE RECORD SHEET No. 011

Geo - Civil
Date 15.11.20
Scale 1:500
Job No. 07555
Location 45-47 Ruabon Road, Wrexham
Client APCA Capital

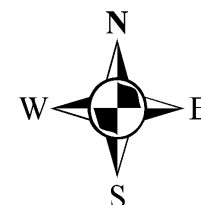
Description of Strata	Layer	Depth	Thick- ness	SPT Value	Water Table and General Remarks
TURF		0.00	0.00		
SOFT DARK SOIL WITH ROOTS TO LARGE GRAVEL		0.00	0.00	SPT 0.6 13	
				SPT 1.0 13	
				SPT 2.0 11	
				SPT 3.0 11	
				SPT 4.0 11	
				SPT 5.0 11	
				SPT 6.0 11	
				SPT 7.0 11	
				SPT 8.0 11	
				SPT 9.0 11	
				SPT 10.0 11	
				SPT 11.0 11	
				SPT 12.0 11	
				SPT 13.0 11	
				SPT 14.0 11	
				SPT 15.0 11	
				SPT 16.0 11	
				SPT 17.0 11	
				SPT 18.0 11	
				SPT 19.0 11	
				SPT 20.0 11	

HISTORICAL BOREHOLE

PO2	UPDATED AS PER LATEST PROPOSALS	MNM	RAH	JP	03.11.2020
REV	DESCRIPTION	BY	CHK	APR	DATE



PURPOSE OF ISSUE	PRELIMINARY	STATUS	P
PROJECT	OAK TREE TAVERN 45-47 RUABON ROAD WREXHAM		
TITLE	DRAINAGE SITE INFORMATION		
CLIENT	APCA CAPITAL		
DRAWN BY	MNM	CHECKED BY	RAH
DATE	28.10.2020	APPROVED BY	JP
DRAWING NUMBER	500	SCALE (@ A1)	1:100
REV	P02	PROJECT NUMBER	07555



LEGEND(Representative of most common features)

	Foul chamber		Outfall
	Surface water chamber		Lampole
	Combined chamber		Storm Overflow
	Combined sewer overflow		Rising main
	Special purpose chamber		Gravity sewer
	Treatment works		Private sewer
	Pumping station		Private sewer subject to Sect. 104 adoption agreement
			Private Sewer Transfer
			Lateral Drain
			Inspection Chamber

NB: Sewer symbol colour indicates the type.
RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former S24 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation.

Dŵr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus. The onus of locating apparatus before carrying out any excavations rests entirely on you. The information which is supplied by the Company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

EXACT LOCATIONS OF ALL APPARATUS
TO BE DETERMINED ON SITE.

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Map Ref: 333148,349710
Map scale: 1:1250
Printed by: Emma John
Printed on: 17 Nov 2020

EXISTING DRAINAGE NOTES

THE LOCATION LINE & LEVEL OF ALL KNOWN EXISTING DRAINAGE SERVICES INDICATED ON THIS DRAWING IS APPROPRIATE AND FOR GUIDANCE PURPOSES ONLY.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THEIR EXACT LINE AND LEVEL, BY WAY OF HAND EXCAVATED TRIAL PITS, PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION WORKS ON SITE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND MAINTAIN THE STRENGTH AND INTEGRITY OF ALL EXISTING AND BELOW GROUND SERVICE INSTALLATIONS.

KEY

- EXISTING FOUL WATER SEWER
- EXISTING SW SEWER
- EXISTING COMBINED SEWER
- EXISTING HIGHWAY DRAIN
- EXISTING FOUL DRAIN
- EXISTING SV DRAIN
- EXISTING COMBINED FLOW DRAIN

REV	DESCRIPTION	BY	CHK	APP	DATE

JP Structural Design

PURPOSE OF ISSUE	STATUS
PRELIMINARY	P

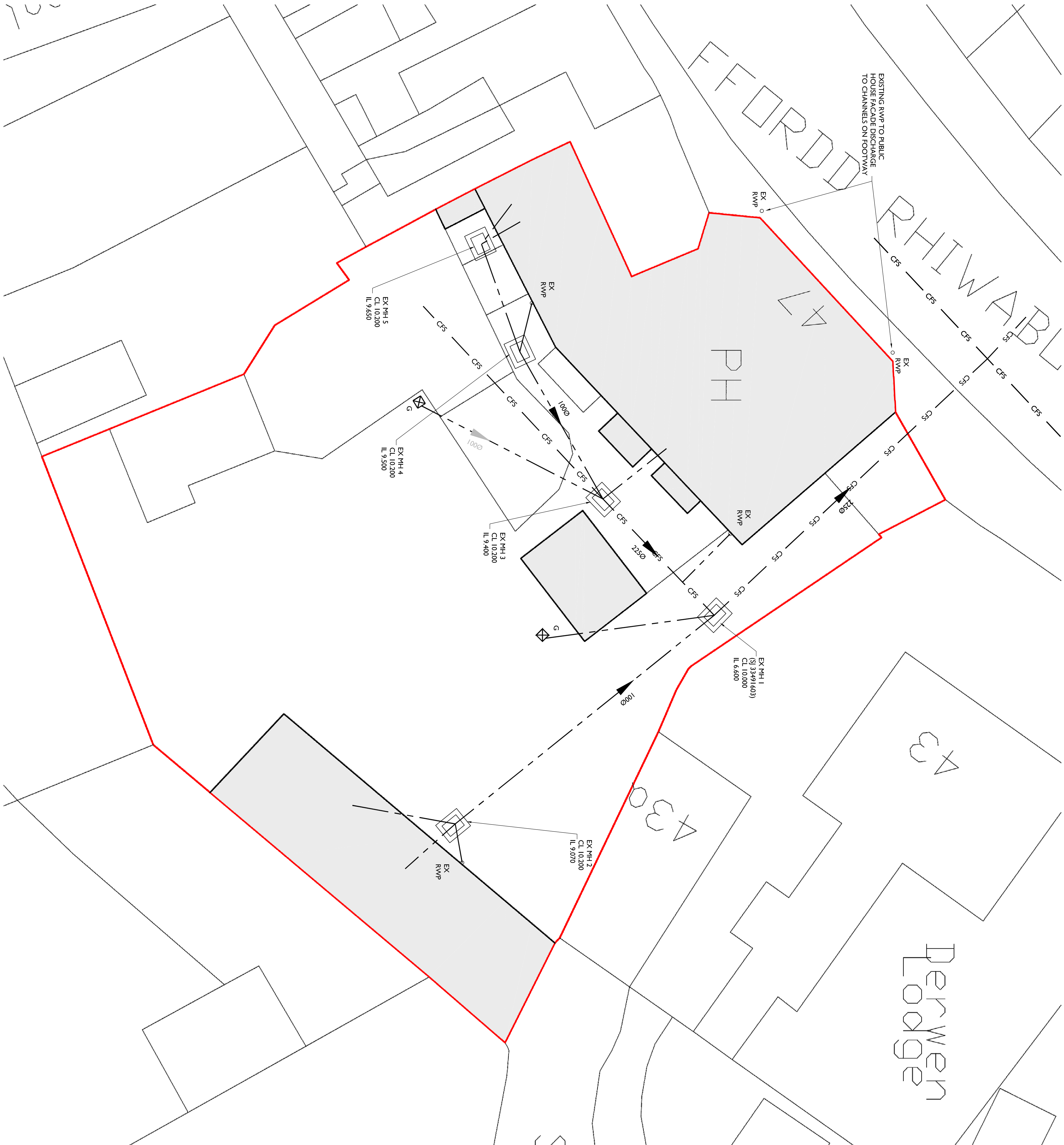
PROJECT
OAK TREE TAVERN
45-47 RUBON ROAD
WREXHAM

TITLE
DRAINAGE
EXISTING LAYOUT

CLIENT
APCA CAPITAL

DRAWN BY	CHECKED BY	APPROVED BY
MNM	RAH	JP
DATE 28.10.2020	SCALE (@ A1) 1:100	PROJECT NUMBER 07555

DRAWING NUMBER	REV
501	P01



NOTES

1. THE WORKS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS: NATIONAL BUILDING SPECIFICATION (NBS) AND SEWERS FOR ADOPTION, 7TH EDITION.
2. THE DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS DRAWINGS, ARCHITECTS DRAWINGS, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS.
3. THE LOCATION, LINE & SIZE OF ALL KNOWN EXISTING BURIED SERVICE MAINS AND DRAINAGE NETWORK INDICATED ON THE DRAWINGS ARE APPROXIMATE AND FOR GUIDANCE PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT LOCATION, LINE & SIZE OF ALL EXISTING SERVICE MAINS PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION WORKS ON SITE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO MAINTAIN THE STRUCTURAL INTEGRITY OF ALL INSTALLATIONS.
4. THE CONTRACTOR MUST COMPLY WITH ALL CURRENT LEGISLATION RELATING TO HEALTH & SAFETY.
5. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY WORKS AND IS ALSO RESPONSIBLE FOR THE SAFE REMOVAL AND STABILITY OF EXISTING BUILDINGS AT ALL TIMES.
6. THE MAIN CONTRACTOR IS RESPONSIBLE FOR THE MITIGATION OF ALL OCCURRENCES OF GROUND WATER DURING THE CONSTRUCTION PERIOD.
7. THE CONTRACTOR SHALL MAKE ALLOWANCE FOR DRAINING / LOWERING ALL EXISTING ACCESS COVERS & FRAMES TO SIFT NEW FINISHED LEVELS.
8. ALL SOFT / UNPAVED AREAS AFFECTED BY THE WORKS SHALL BE FULLY REINSTATED UPON COMPLETION OF THE WORKS. ALL SURFACE MARKINGS DAMAGED BY THE WORKS SHALL BE FULLY REINSTATED.
9. ALL SURPLUS EXCAVATED MATERIAL SHALL BE DISPOSED OF OFF SITE.
10. ALL LEVELS ARE TO ORDNANCE DATUM

KEY

- EXISTING COMBINED FLOW SEWER
- EXISTING COMBINED DRAIN
- PROPOSED FOLL DRAIN
- PROPOSED SW DRAIN
- PROPOSED SOAKAWAY
- PROPOSED PERMEABLE PAVING
- LINEAR DRAINAGE CHANNEL
- PROPOSED FOLL OUTLET
- PROPOSED RAIN WATER DOWN PIPE
- PROPOSED TRAPPED ROAD GULLY
- PROPOSED WATER BUTT



REV	DESCRIPTION	BY	CHK	APP	DATE
P02	UPDATED AS PER LATEST PROPOSALS	JPMH/RAH	JP		03/11/2020

PROJECT	STATUS
PRELIMINARY	P

OAK TREE TAVERN
45-47 RUABON ROAD
WREXHAM

DRAINAGE
PROPOSED LAYOUT

APCA CAPITAL

DRAWN BY	CHECKED BY	APPROVED BY
MNM	RAH	JP
DATE	SCALE (@ A1)	PROJECT NUMBER
28.10.20	1:100	07555

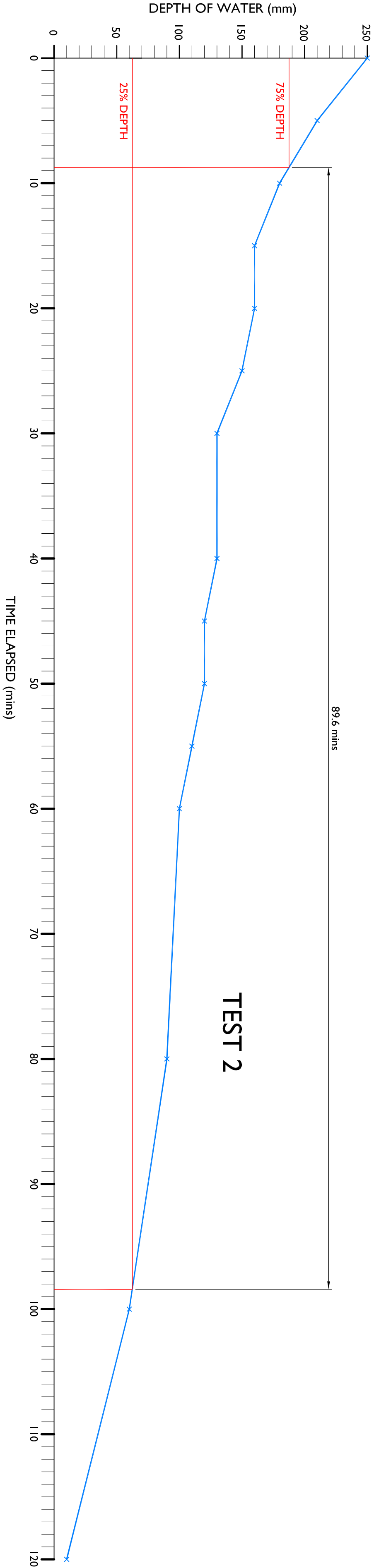
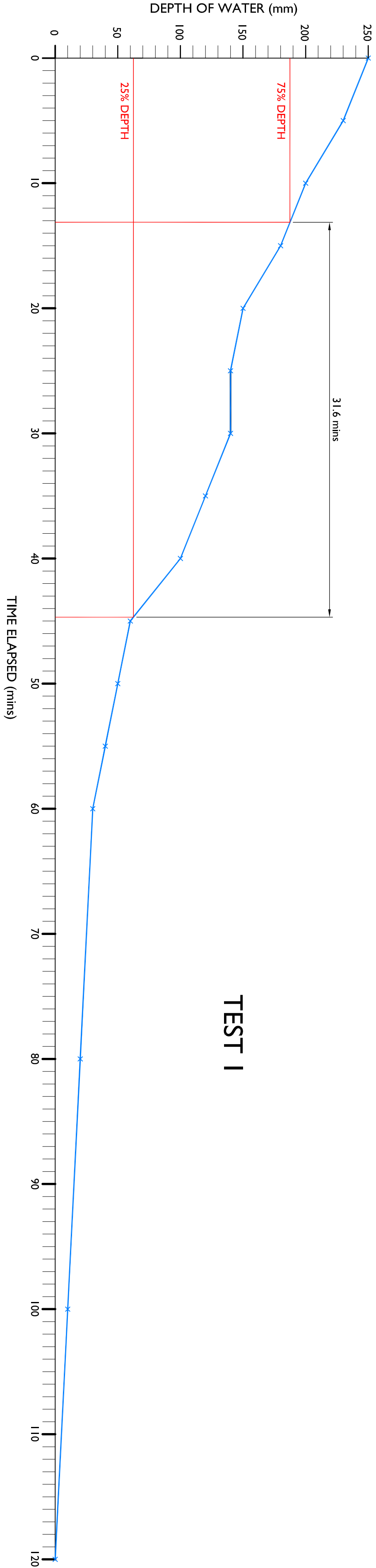
DRAWING NUMBER	REV
502	P02

BRE 365 TEST SHEET

DETAILS				TEST PT (mm)	
Ref :	7355	Number :	1		
Project :	Oak Tree Tavern - Wrexham	Length :	2000		
Date :	25/06/2020	Width :	300		
Conditions :	Warm / Sunny	Depth :	1500		
Substrata :	-	Effective Depth :	250		

RUN 1		RUN 2		RUN 3	
Time (min)	Depth (mm)	Time (min)	Depth (mm)	Time (min)	Depth (mm)
0	250	0	250		
5	230	5	210		
10	200	10	180		
15	180	15	160		
20	150	20	160		
25	140	25	150		
30	140	30	130		
35	120	40	130		
40	100	45	120		
45	60	50	120		
50	50	55	110		
55	40	60	100		
60	30	80	90		
80	20	100	60		
100	10	120	10		
120	0				

Calculations	
Run 1	
Time to Drop from 75% - 25%	Minutes
Run 2	
Time to Drop from 75% - 25%	Minutes
Run 3	
Time to Drop from 75% - 25%	Minutes
Average Tp (75-25)	(mins)
Vp (75-25)	(m)
A550	(m)
Infiltration Rate	
m/s	0.0000176
m/s	1.76E-05
m/hr	0.063



	System A total infiltration	System B partial infiltration	System C no infiltration
permeability of subgrade (10^{-1} to 10^{-7})	✓	✓	✓
permeability of subgrade (10^{-1} to 10^{-7})	✓	✓	✓
permeability of subgrade (10^{-1} to 10^{-7})	✓	✓	✓
highest recorded water table within 1000mm of formation level	✓	✓	✓
pollutants present in subgrade	✓	✓	✓

Table 1: Guidance on selection of a pavement system.

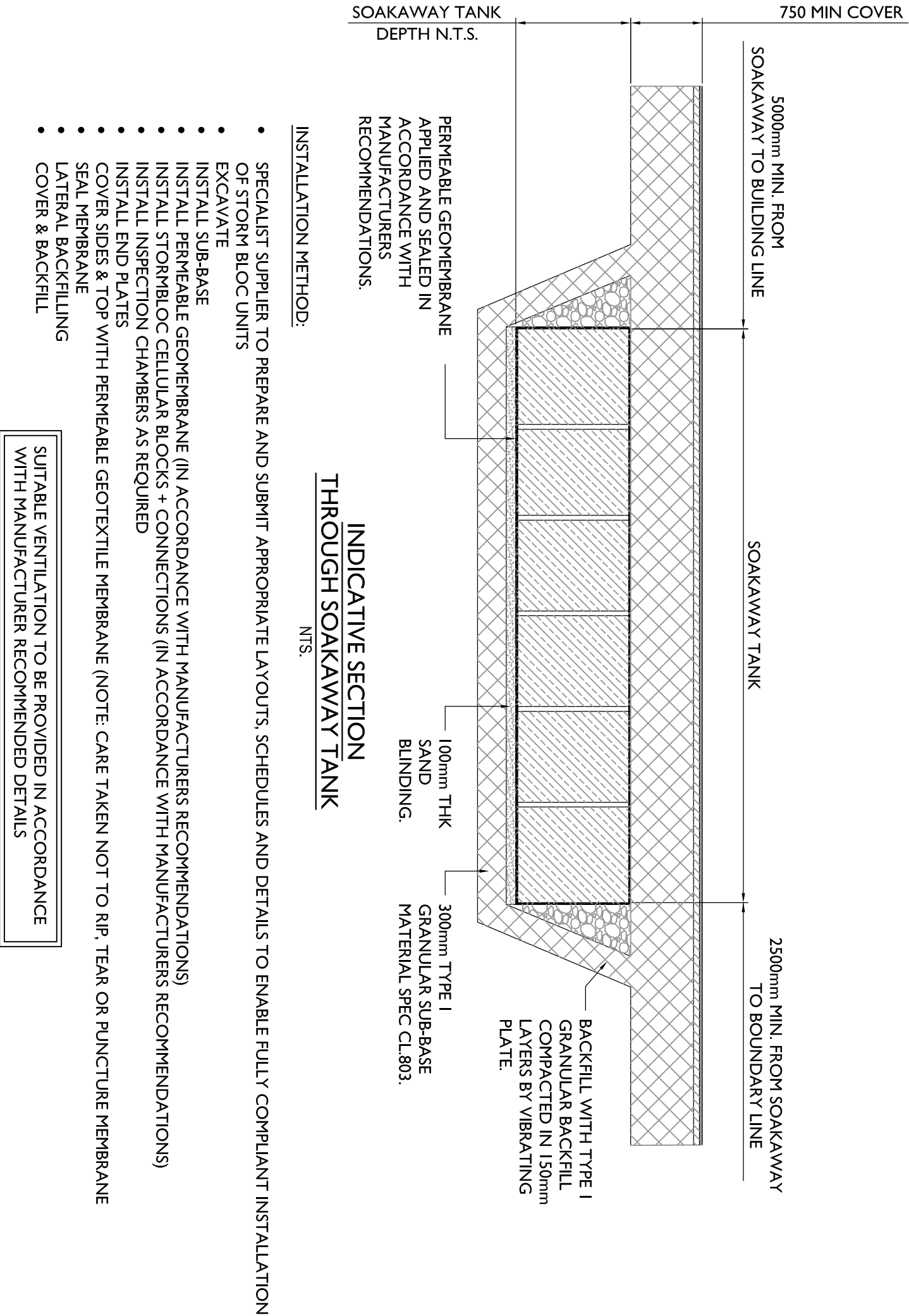
FORMPAVE PERMEABLE PAVING SYSTEM
(SUBJECT TO ARCHITECT'S APPROVAL)
80mm AQUA FLOW PERMEABLE PAVING
50mm LAYING COURSE 2.5mm CLEAN
SAND
1 LAYER OF INBETEX GEOTEXTILE
REFER TO AQUA FLOW SUB BASE NOTES*

Aqua Flow Sub-base specification*
All granular sub-base material shall comprise crushed clean stone, rock or concrete possessing well defined edges. It must be sound, clean, non friable and free from clay or other deleterious matter. The material shall be non plastic when tested in accordance with BS1377 Test No. 4
The crushed stone used for the laying course and sub-base must have a minimum 10% fines value of 150kN when tested in accordance with BS172 Part 111.
The sub-base shall be soaked and be oven dried and should be soaked in water at room temperature for 48 hours before the test.
The 100mm deep upper layer of sub-base material should be graded 5mm-20mm to BS EN 1242: 2002.
BS EN Sieve size % passing
80mm 100
63mm 90-100
40mm 60-80
20mm 10-50
10mm 0-5

Depth of Sub-base
A total depth sub-base depth of 350mm should be used on a layer of INBETEX AP SC 1000 geotextile.
Capping layer
The subgrade will need to achieve a minimum CBR 4.15% prior to the sub-base being installed. The sub-base should be made of material in accordance with clause 613 of the Highway Agency specification is to be used in accordance with the table below

SUBGRADE CBR (%) RANGE	> 2	2.5 - 3	4 - 5	5 - 7.5	7.5 - 10	10 - 12.5	12.5 - 15
CAPPING LAYER	600	450	400	350	300	250	200

* 4.15% MINIMUM SPECIFICATION TO BE DISCUSSED WITH ENGINEER



REV	DESCRIPTION	BY	CHK	APP	DATE

PRELIMINARY

P

PURPOSE OF ISSUE	STATUS
PRELIMINARY	P

PROJECT	OAK TREE TAVERN 45-47 RUABON ROAD WREXHAM				
TITLE	DRAINAGE INFILTRATION CALCULATIONS				
CLIENT	APCA CAPITAL				
DRAWN BY	MNM	CHECKED BY	RAH	APPROVED BY	JP
DATE	28.10.2020	SCALE (@ A1)	1:100	PROJECT NUMBER	07555
DRAWING NUMBER	503	REV	P01		



JP Structural Design

SOAKAWAY CALCULATIONS

THE OAK TREE TAVERN
RUABON ROAD, WREXHAM

JOB NO: 07555

REF: DR02

REV: P01

JP Structural Design Ltd

Regus House, Chester Business Park, CH4 9QR

Tel: 01244893430

www.jpstructural.co.uk

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Soakaway 1	0.018	4.00	0.0	2.000	1.000	183.706	1.500

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	17.000	Drain Down Time (mins)	240
Ratio-R	0.300	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	30	10	0

Node Soakaway 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.06300	Invert Level (m)	0.500	Depth (m)	1.200
Side Inf Coefficient (m/hr)	0.06300	Time to half empty (mins)	603	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.000	Number Required	1
Porosity	0.95	Pit Length (m)	3.000		

Results for 100 year +30% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	Soakaway 1	344	1.681	1.181	1.5	10.4118	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
360 minute winter	Soakaway 1	Infiltration	0.2

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	40	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Add Inflow (l/s)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
Soakaway 1	0.012	4.00	0.0	2.000	1.000	183.706	1.500

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	17.000	Drain Down Time (mins)	240
Ratio-R	0.300	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
100	30	10	0

Node Soakaway 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.06300	Invert Level (m)	0.500	Depth (m)	1.200
Side Inf Coefficient (m/hr)	0.06300	Time to half empty (mins)	554	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	2.500	Number Required	1
Porosity	0.95	Pit Length (m)	2.500		

Results for 100 year +30% CC +10% A Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	Soakaway 1	540	1.606	1.106	0.6	6.7597	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
720 minute winter	Soakaway 1	Infiltration	0.2

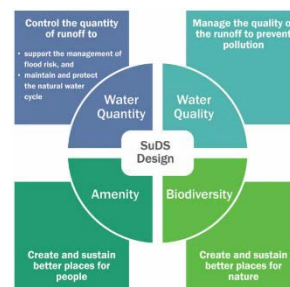


**SuDS Approving Body
Flood & Water Management Team
Environment Department
Wrexham County Borough Council
Abbey Road South
Wrexham
LL13 9PW**

Flood & Water Management Act 2010

Schedule 3 Sustainable Drainage

SuDS Scheme Application for SuDS Approving Body (SAB) Approval – Wales



Application Form for Full Application Approval of SuDS on new developments in accordance with The Sustainable Drainage (Approval and Adoption Procedure) (Wales) Regulations 2018

Full Application Structure	
<u>Full Application Form</u>	<i>(To complete & return)</i>
<u>Guidance on Completing the Full Application Form</u> – including specific information and evidence required to support the application.	<i>(For guidance)</i>

(Use hyperlinks above to directly access the Form and Guidance)

Full Application Form

This form is based on the requirements provided by Welsh Government for the sole purpose of submitting information to the SuDS Approving Body (SAB) in accordance with the legislation detailed on this form and other relevant items of primary and subordinate legislation.

Please be aware that once you have downloaded this form, the SAB and Welsh Government will have no access to the form or the data you enter into it. Subsequent use of this form is solely at your discretion, including the choice to complete and submit it to the SAB in agreement with the declaration section.

Upon receipt of this form and any supporting information, it is the responsibility of the SAB to inform you of its obligations in regard to the processing of your application. Please refer to its website for further information on any legal, regulatory and commercial requirements relating to information security and data protection of the information you have provided.

Please Note:

- 1. This form is for a Full SuDS Scheme Application for SAB approval ONLY;**
2. Approval of this application will be based on compliance with the [Statutory National Standards for Sustainable Drainage Systems \(SuDS\) for Wales](#) and [Statutory Instruments](#);
3. Once this application is made to SAB, it will be determined solely on the written technical and other information submitted with the full application;
4. You are strongly advised to have previously submitted a Pre-Application form to SAB, and engaged early, and directly, with the SAB, the LPA and all other relevant organisations that may have an interest in your SuDS scheme proposal, including the SAB statutory consultees listed below:
 - a. Sewerage undertaker
 - b. National Resources Wales
 - c. Highway Authority
 - d. Canal & River Trust
 - e. Internal Drainage Districts (NRW);
- 5. For a valid SuDS Scheme Full Application to the SAB, all sections of this form MUST be fully completed; and**
- 6. You are also required to provide technical information as indicated in the [Guidance](#) (or as otherwise directed by the SAB during Pre-Application discussions).**

We will process the information you provide so that we can deal with your application. We may also process or release the information to offer you documents or services relating to environmental matters and consult the public, public organisation and other organisations; provide information from the public register to anyone who asks or prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken and take any action that is needed, and respond to requests for information under the Freedom

of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows).

Please ensure that the information you submit is accurate and correct and does not include personal or sensitive information. If you require any further clarification, please contact the SAB directly.

If printed, please complete using block capitals and black ink prior to submitting to the SAB.

Please read through the [Guidance](#) and complete this application form carefully ensuring all boxes are completed fully. If you fill in the application form correctly first time, the SAB can process it quicker.

Prior to the submission of this Full Application, applicants are strongly advised to make a Pre-Application submission to discuss their proposals with the SAB and ensure that an acceptable SuDS scheme is submitted. Please note that pre-application fees may apply.

Submissions made in support of this application shall be based upon current legislation and industry best practice including documents referenced in [Guidance on Making SuDS Applications for SAB Approval](#).

Proposals submitted should be developed by a competent and suitability qualified professional, experienced in drainage/ SuDs / flood risk management design.

Where applicable, the LPA planning reference or unique identifier must be included.

Applicants should complete this form and submit it, together with the necessary supporting documents, to Wrexham County Borough Council SuDs Approving Body.

Details for the payment of the Full Application fee will be provided upon confirmation of receipt of a valid application. This confirmation will include a unique reference (SAB/FUL/20XX/XXX) that must be quoted on all future correspondence. Your valid application will not be processed until the application fee is received and cleared in full.

When you have completed the application form please submit the form and associated documents to:

Electronically:	SAB@wrexham.gov.uk
Postal:	SuDS Approving Body Flood & Water Management Team Environment Department Wrexham County Borough Council Abbey Road South Wrexham, LL13 9PW

If you are not sure about anything contained in the application form, please contact us.

Content

ALL sections of this form MUST be fully completed

- 1. Applicant Details**
- 2. Site Details**
- 3. Interest in Land**
- 4. Application**
- 5. Application Fee**
- 6. Environmental Impact Assessment (EiA) Statement**
- 7. Compliance with Statutory National Standards for Sustainable Drainage Systems (SuDS)**
- 8. Assessment of Flood Risk**
- 9. Surface Water Discharge Hierarchy**
- 10. Infiltration Assessment**
- 11. Non-performance Bond, Adoption, Operation & Maintenance**
- 12. SuDS Scheme Application Checklist**
- 13. Declaration**

1. Applicant Details**Applicant Name and Address**

Title and Name		Brian Waudby
Company		APCA Capital
Suffix (unit/name/number)		4 th Floor
Address line 1		Salt Quay House
Address line 2		6 North East Quay
Address line 3		
Town		Plymouth
County		Devon
Postcode		PL4 0HP
Phone number	Mobile	07832295092
	Works	
	Home	
e-mail address		bw@apca.capital

Agent Name and Address

Title and Name		Russell Hardy
Company		JP Structural Design
Suffix (unit/name/number)		Regus House
Address line 1		Chester Business Park
Address line 2		
Address line 3		
Town		Chester
County		Cheshire
Postcode		CH4 9QR
Phone number	Mobile	07711107672
	Works	01244893430
	Home	
e-mail address		russell@jpstructural.co.uk

Preferred contact	Applicant ☐	Agent ☒
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2. Site Details

A general description of site location supported by a plan specifying the construction area and the extent of the drainage system for which approval is sought MUST be submitted. Plans shall be at a scale of 1:2500. All plans MUST show the direction of North.

Name of proposed development	Former Oak Tree Tavern
-------------------------------------	------------------------

Grid Reference (E/N)	333134	349698
Suffix (unit/name/number)	Oak Tree Tavern	
Address line 1	Ruabon Road	
Address line 2		
Address line 3		
Town	Wrexham	
County		
Postcode	LL13 7PN	

Description of proposed development	Renovation of former public house and associated outbuildings into residential units	
Total application site area (Ha)	0.106	
Is the existing site currently developed i.e. Brownfield or is it currently undeveloped i.e. Greenfield?	Brownfield The site is currently occupied by the Public House, outbuildings, car parking and access provision as well as a small beer garden / patio area	
Existing use	Public House	
Proposed use	Residential	
Does the site cross more than one SAB area?	Yes ☐	No ☒
If "Yes", please confirm the proportionate area in each SAB below: (The main contact will be the SAB that has most of the surface water drainage system within its boundary.)		

SAB	% of Site Area

3. Interest in the Land

What interest do you have in the land?		
Owner	Yes ☒	No ☐
Prospective Owner	Yes ☐	No ☐
Other (please provide details)		

4. Application

Has any prior advice been sought from the SAB about this application?		Yes ☐	No ☒
If Yes, please complete the following information about the advice you were given. This will help the SAB to deal with this application more efficiently.			
Officer Name			
Reference number		Date	DD MM YYYY

Does this application relate to any other SAB application already made?		Yes ☐	No ☒
If "Yes", please provide SAB Reference number			
Is this application part of a phased approach to development of the site, or one of multiple applications for the same site?		Yes ☐	No ☒
If "Yes", please provide brief details			



Is this application one of two or more applications made at the same time, each setting out an alternative proposal for construction of a drainage system		Yes ☐	No ☒
If "Yes", please provide details of other applications made at the same time (include SAB Reference number if available)			



5. Application Fee

It is recommended you contact the SAB directly to ensure the correct fee is paid with the application.

		Area of Land (Ha)	Fraction	Fees
Application fee		N/A	N/A	£350.00
Each 0.1ha or fraction of 0.1ha, for first 0.5ha	£70.00	0.1	1	£70.00
Each 0.1ha or fraction of 0.1ha, from 0.5ha up to and including 1ha	£50.00	0	0	0
Each 0.1ha or fraction of 0.1ha, from 1ha up to and including 5ha	£20.00	0	0	0
Each additional 0.1ha or fraction of 0.1ha above 5Ha.	£10.00	0	0	
Is the applicant a town/community council?		If yes, application fee is half the amount		☐
If applicable – reduction of 50% application fee due to this being an alternative proposal made at the same time.				
If applicable – application fee adjustment due to cross-SAB area approvals needed.				
			Total Fees	£420

6. Environmental Impact Assessment (EiA) Statement

Does this application relate to a development that is the subject of an EiA application under the Town & Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017(1)?	Yes ☐	No ☒
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7. Compliance with Statutory National Standards for Sustainable Drainage Systems (SuDS)

All sustainable drainage systems **MUST** comply with the [Statutory National Standards for Sustainable Drainage Systems \(SuDS\) for Wales](#). You are advised to refer to the detailed text in the Standards that relate to the information required below. The Standards are re-produced, in the [Guidance](#) to assist in completing this application form.

Standard Principles

The Principles listed below will underpin the design of surface water management schemes to meet the Statutory National Standards. Please provide a brief summary in each of the boxes below relating to each of the bulleted Standard Principles and itemised Standards 1 to 6, showing how your proposed drainage scheme complies with this statutory requirement.

Compliance with Standard Principles
My proposed surface water drainage scheme will comply in the following way/s: In accordance with the Welsh Assembly Government's implementation of Schedule 3, the Surface Water Drainage strategy adheres to the principles of; • Reducing Flood Risk • Improving Water Quality • Protecting and Improving the Environment • Ensuring the Stability & Durability of Drainage Systems The proposed scheme represents the renovation of an existing public house and traditional stable block into 5 residential units. The existing drainage arrangements comprised a single combined drainage system. The combined drain discharges to the public foul sewer system within Ruabon Road. The NRW Flood risk maps have been consulted and the site is not at any risk of flooding. The ground is also therefore known to have good characteristics for infiltration measures. In keeping with the ideology of a SUDs Management Train we have therefore incorporated the following; Prevention It is proposed that the new car parking bays shall be constructed of a permeable paving system and that soakaways shall be installed for the court yard areas and stable block roof drainage. The existing public house drainage is to remain as is. The front façade is direct to the highway where RWPs discharge to fluted channels across the footway. The rear RWPs pass through retaining walls etc which makes it extremely impracticable to improve upon for a renovation project. Good Housekeeping Measures It is intended to install rain water butts as a measure for harvesting an element of rainwater which can then be used for plant irrigation, cleaning etc.

The installation of permeable paving will also act as filters, removing many pollutants through collection and biodegradation before returning cleansed water to the natural environment. Runoff from the roofs and courtyard is considered to be a low risk in terms of pollution controls.

Local Source Controls

The local source controls are implemented at the site by the use of various soakaways to discharge the surface water generated where possible.

Site Source Controls

There are no site source controls as the majority of surface water will now be managed within the site. The impermeable area connecting to the public sewer system has been reduced from 91% of the total site area to 37%.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance **MUST** be listed below, and all relevant material submitted.

1. Supporting Information Drawings 500
2. Existing Drainage Layout Drawing 501
3. Proposed Drainage Layout Drawing 502
4. Soakaway Drawing 503
5. Drainage Calculations Report DR01

Standards 1 to 6

Compliance with Standard S1 - Surface water runoff destination

My proposed surface water drainage scheme will comply in the following way/s:

In determining a suitable methodology for disposal of surface water flows from this development, it is necessary to explore the technical options outlined under Standard S1 of the SNSSUDS 2018 document published by Welsh Government. This states that disposal should be made through the hierarchical approach which are, in order of preference; surface water runoff collected for use, infiltration methods, discharge to surface water body, discharge to a surface water sewer, highway sewer or another drainage system and finally discharge to a combined sewer. Each of these options are considered below.

Collected for Use

Due to the nature of the development as a renovation of an existing building, it was considered impracticable for grey water harvesting type solutions to be considered, although rainwater butts will be provided as means of capturing rainwater for irrigation and washing purposes.

Infiltration Methods

As outlined on the Site Information and infiltration test plans, the area is known to comprise a sand / gravel substrata with bands of clay. Insitu infiltration tests were undertaken at the site, which recorded reasonable results to ensure that permeable paving solutions can be utilised for the car parking and soakaway features can be provided for the stable roof water run-off and court yard.

Discharge to Sewer

As this is a renovation, it was considered impracticable to diver the surface water collected by the public house roof and it therefore will continue to discharge to sewer via the combined flow system and by fluted channel to the highway.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance **MUST** be listed below, and all relevant material submitted.

- 1.Supporting Information Drawings 500
- 2.Existing Drainage Layout Drawing 501
3. Proposed Drainage Layout Drawing 502
4. Soakaway Drawing 503
5. Drainage Calculations Report DR01

Compliance with Standard S2 - Surface water runoff hydraulic control

My proposed surface water drainage scheme will comply in the following way/s:

In accordance with statutory guidelines, the development of this site should not increase flood risk elsewhere and as such, all runoff should be contained within the site boundary for up to and including a 1 in 100-year design period storm, plus a 40% allowance for climate change as agreed with the SAB prior to detailed design.

Soakaway design calculations have therefore been provided to ensure that there is a suitable storage within the system and the proposal significantly reduce the impermeable area connected to the public sewer system by circa 54%.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance **MUST** be listed below, and all relevant material submitted.

- 1.Supporting Information Drawings 500
- 2.Existing Drainage Layout Drawing 501
3. Proposed Drainage Layout Drawing 502
4. Soakaway Drawing 503
5. Drainage Calculations Report DR01

Compliance with Standard S3 – Water Quality

My proposed surface water drainage scheme will comply in the following way/s:

As stated previously, The installation of permeable paving will also act as filters, removing many pollutants through collection and biodegradation before returning cleansed water to the natural environment. Runoff from the roofs and courtyard is considered to be a low risk in terms of pollution controls

.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance **MUST** be listed below, and all relevant material submitted.

1. Proposed Drainage Layout Drawing 502

Compliance with Standard S4 – Amenity

My proposed surface water drainage scheme will comply in the following way/s:

The proposed drainage system will maximise the amenity of the proposals by converting a hard paved car park to private and communal gardens with the new car park incorporating elements of permeable paving and soakaways.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance **MUST** be listed below, and all relevant material submitted.

1. Proposed Drainage Layout Drawing 502

Compliance with Standard S5 – Biodiversity

My proposed surface water drainage scheme will comply in the following way/s:

Biodiversity elements were difficult to incorporate into a small urban renovation project, although it is considered, that reducing the hard paved car park to replace with a significant amount of soft landscaped area will provide a far more pleasant environment. Waterbutts are also being provided for irrigation purposes for the residents.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of

this Guidance **MUST** be listed below, and all relevant material submitted.

1. Proposed Drainage Layout Drawing 502

Compliance with Standard S6 – Design of drainage for Construction and Maintenance and Structural Integrity

My proposed surface water drainage scheme will comply in the following way/s:

The existing / proposed system will not be offered for adoption, however, it will still be designed to the standards set out in Ciria C753 & Sewers for Adoption 7th Edition. The proposed drainage scheme consists of predominantly standard products and methods of construction that should not concern a suitably experienced and qualified contractor.

An O&M manual will also be provided to the school in due course, including the final 'As Built' constructions drawings and a maintenance schedule for the drainage system.

A preliminary maintenance schedule is enclosed.

Relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown [Table A](#) and [Table B](#) of this Guidance **MUST** be listed below, and all relevant material submitted.

1. Oak Tree O&M Manual

8. Assessment of Flood Risk

Is the site within an area at risk of flooding? Refer to Natural Resources Wales Development Advice maps. (Natural Resources Wales / Development and flood risk)	Yes ☐	No ☒
If the proposed development is within the area at risk of flooding, you will need to consider whether it is appropriate to submit a flood consequences assessment. (Refer to Technical Advice Note 15 (TAN15)).		

Is the site located within an area susceptible to surface water flooding? Refer to NRW Surface Water Flood Maps .	Yes ☐	No ☒
Is the site located within an area susceptible to groundwater flooding?	Yes ☐	No ☒
Is there a watercourse (as defined under Section 72 Land Drainage Act 1991) located within 20m of the proposed development?	Yes ☐	No ☒



9. Surface Water Discharge Hierarchy

Surface water drainage arrangements shall demonstrate the proposed surface water drainage complies with National SuDS Standards. As much of the runoff as possible should be discharged to each hierarchy element before a lower hierarchy element is considered. Collection and infiltration methods of drainage are required to be considered in the first instance. With reference to the hierarchy levels below, please indicate your proposed drainage arrangements.

Level	Yes	No
1. Collect for use		☒
2. Infiltration	☒	
3. To watercourse		☒
a. Is it an Ordinary Watercourse?		☒
b. Is it a Main River?		☒
4. To surface water sewer		☒
a. Is it a Highway drain?		☒
b. Is it a public sewer?		☒
c. Is it a private sewer?		☒
4. Other		☒
5. To combined sewer	☒	

Has advice been sought from the asset owners?	Yes	No ☒
Has advice been sought from the land owners	Yes	No ☒

10. Infiltration Assessment

Where infiltration drainage is proposed, testing should be carried out to a methodology agreed with the SAB e.g. [Infiltration Drainage - Manual of Good Practice \(CIRIA R156\)](#) and [BRE Soakaway Design \(DG 365 – 2016\)](#), and be used to inform the design, construction, maintenance, testing and assessment of infiltration systems.

Has infiltration testing been carried out?		Yes ☒		No ☐	
Analysis of development Geology (including both bedrock and superficial deposits where known)		The Infiltration tests was undertaken on 25/06/2020 by the contractor and the results and calculations are contained on drawing 503. The substrata in the area of the car park are gravelly sands			
Depth to groundwater (metres)		Ground Water was not encountered to 3.5m depth			
Borehole testing	Reference	BH1			
	Date	19	11	1975	
Has a Contaminated Land Assessment been undertaken?		Yes ☒		No ☐	
Is the infiltration drainage proposed on contaminated land?		Yes ☐		No ☒	
Infiltration test result		1.76 X 10 ⁻⁵			

11. Non-performance Bond, Adoption, Operation & Maintenance

What are your proposals regarding cost of works, adoption and maintenance of the SuDS scheme?

**Non-performance
Bond – Estimated
cost of work**

£0

**Adoption (including
land agreements etc)**

£0

**Funded Maintenance
Plan for the lifetime
of the development**

£0

12. SuDS Scheme Application Checklist

Please complete the following checklist and make sure you have read the Guidance on Making SuDS Applications for SAB Approval, the Guidance on completing the Full Application Form, and provided all the necessary information in support of your application:	
Correct Full Application fee.	We would be grateful if the fee could be confirmed
Completed, signed and dated Full Application form.	Yes ☒
Plan/s specifying the construction area and the extent of the drainage system for which approval is sought. All plan/s shall be at a scale of 1:2500 and MUST show the direction of North.	Yes ☒
Taken account of SAB Guidance on technical information to be submitted to enable SAB to assess your Full Application.	Yes ☒

13. Declaration

I/ we hereby apply for SuDS Approval as described in this form and the accompanying plans/drawings and additional information. I confirm that I have read and complied with the National SuDS Standards and, to the best of my knowledge, any facts stated are true and accurate and any opinions given are the genuine opinions of the persons giving them.

This form has been completed using evidence from the Flood Consequences Assessment where applicable, surface water drainage strategy and site plans and associated documents.

This form has been completed using accurate information. It can be used as a summary of the detailed surface water drainage proposals on this site, and clearly shows that these drainage proposals conform to the National SuDS Standards for Wales.

Form completed by	Russell Hardy
Signature	
Qualification of person responsible for signing off this application	BSc (Hons) Civil Engineering
Company	JP Structural Design
On behalf of (Client's details)	APCA Capital
Date	28/10/2020

Disclaimer

Information provided on this form and in supporting documents may be published on the SABs SuDS register and website and be made publicly available.

For information as to how Wrexham County Borough Council handles personal data, please see our Privacy Notices on our website: www.wrexham.gov.uk

**Former Oak Tree Tavern,
Ruabon Road
Wrexham**

**Drainage System
Maintenance Plan**

Rev: P01

October 2020



Table 1: SuDS Maintenance Inspection Checklist

GENERAL INFORMATION			
Site ID	Former Oak Tree Tavern		
Site Location and co-ordinates (GIS if appropriate)	Ruabon Road, Wrexham, LL13 7PN (SJ331496)		
Elements forming the SuDS scheme	Permeable Paving / Soakaways	Approved Drawing Reference(s)	07555-502
Inspection frequency	Annual	Approved Specification Reference	-
Type of development	Residential	Specific purpose of any parts of the scheme (e.g. biodiversity, wildlife and visual aspects)	-
Agreements Restrictions			
Discharge Type	Connection	Outflow	Agreement
Surface Water	To 2 No Soakaways		-
Foul	To Existing Combined System	0.4 l/s	-



	Inspection date				Inspection date			
	Details	Y/N	Action required	Date Completed	Details	Y/N	Action required	Date Completed
GENERAL INSPECTION ITEMS								
Is there any evidence of erosion, channelling, ponding (where not desirable) or other poor hydraulic performance?								
Is there any evidence of accidental spillages, oils, poor water quality, odours, nuisance insects?								
Have any health and safety risks been identified to either the public or maintenance operatives?								
Is there any deterioration in the surface of permeable or porous surfaces (e.g. rutting, spreading of blocks or signs of ponding water)?								



	Inspection date				Inspection date			
	Details	Y/N	Action required	Date Completed	Details	Y/N	Action required	Date Completed
SILT/SEDIMENT ACCUMULATION								
Does permeable or porous surfacing require sweeping to remove silt?								
SYSTEM BLOCKAGES / LITTER BUILD UP								
Is there evidence of litter accumulation in the system? If yes, is this a blockage risk?								
Is there any evidence of any other clogging/blockage of outlets or drainage paths?								



	Inspection date				Inspection date			
	Details	Y/N	Action required	Date Completed	Details	Y/N	Action required	Date Completed
VEGETATION								
Is there any evidence of invasive species becoming established? If yes, state action required.								



	Inspection date				Inspection date			
	Details	Y/N	Action required	Date Completed	Details	Y/N	Action required	Date Completed
INFRASTRUCTURE								
Is there evidence of any accidental damage to the system (e.g. wheel ruts?)								
Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the Attenuation Tanks?								
Are Attenuation tank vents clear?								
Are gullies/channels/kerb drainage clear of debris/detritus?								
Are Rainwater Down Pipes and gutters clear of debris /detritus?								
Are there any other matters that could affect the performance of the system in relation to the design objectives for hydraulic, water quality, biodiversity and visual aspects? (Specify.)								



OTHER OBSERVATIONS								
Information appended (e.g. photos)								



	Inspection date				Inspection date			
	Details	Y/N	Action required	Date Completed	Details	Y/N	Action required	Date Completed
SUITABILITY OF CURRENT MAINTENANCE REGIME								
Continue as current								
Increase maintenance								
Decrease maintenance								
NEXT INSPECTION								
Proposed date for next inspection								

Additional Notes