

MW Consult Ltd

Civil & Structural Engineering Consultancy

Drainage Strategy

Project: **Proposed External Works at
6 Prettyman Drive, Llandarcy Village
Neath, Neath Port Talbot, SA10 8HZ**

Project Ref: 24/087 **Revision:** C

Client: **Julieanna Tranta**

Prepared by:	Issue Date:
Mike Wyatt BEng (Hons) CEng MStructE	03/05/2024

Revision:	Amendment:	Issue Date:
A	Minor amendments to reflect comments from the SAB at the SAB pre application process.	07/06/2024
B	Appendices amended at the request of SAB	07/08/2024
C	Amended after receipt of percolation test results	17/03/2025

 07802 502 785

 mikewyatt.mw@outlook.com

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Also refer to the drainage drawings

1.0 Introduction

Brief and Objectives

- 1.1 MW Consult Ltd has been instructed by Julieanna Tranta (hereafter referred to as the client), to prepare a drainage strategy in relation to recently undertaken external works at the rear garden of 6 Prettyman Drive, Llandarcy, Neath Port Talbot.
- 1.2 As the works had a total area exceeding 100m², the council have asked for a SAB (SuDS Approving Body) application to be submitted to the SAB (i.e. Neath Port Talbot Council)
- 1.3 The main objectives of this report are:
 - To undertake an assessment of the existing storm drainage infrastructure within the site boundary and in the vicinity of the development site.
 - To identify any constraints relevant to the drainage solutions.
 - To develop a strategy for surface water disposal from the site in accordance with the requirements of the Welsh Government statutory “Sustainable Drainage Systems Standards for Wales” (SDSSW); TAN15, and SuDS best practice.
- 1.4 The client has undertaken percolation testing and supplied the results to MW Consult Ltd

Limitations

- 1.5 This drainage appraisal report has been prepared for the client with the purpose of supporting a planning application. It is not intended for, and should not be relied upon, by any third party and no responsibility is accepted to any third party who may rely upon it.
- 1.6 The information, views and conclusions drawn concerning the site are based, in part, on information supplied to MW Consult Ltd by other parties. This may include percolation test results, topographical surveys, proposed architectural drawings and existing drainage drawings etc. MW Consult Ltd has proceeded in good faith, on the assumption that this information is accurate and accepts no liability for any inaccurate assumptions or conclusions made resulting from inaccurate information supplied to us from others.
- 1.7 This report is based on information which was available at the time of its preparation. Should additional or amended information become available in the future which affects the conclusions drawn in this report, then MW Consult Ltd cannot be held responsible.
- 1.8 This document must not be reproduced and/or made public by print, photocopy or any other means without prior written consent from MW Consult Ltd.

2.0 Development

- 2.1 The proposed development is located to the north-western end of Prettyman Drive. A location plan is shown in Figure 1, and an existing aerial photograph shown in Figure 2.
- 2.2 A topographical survey of the site has been undertaken which shows that the site slopes gradually downwards from the north to south.
- 2.3 The recently undertaken works involved changes to the rear garden area.

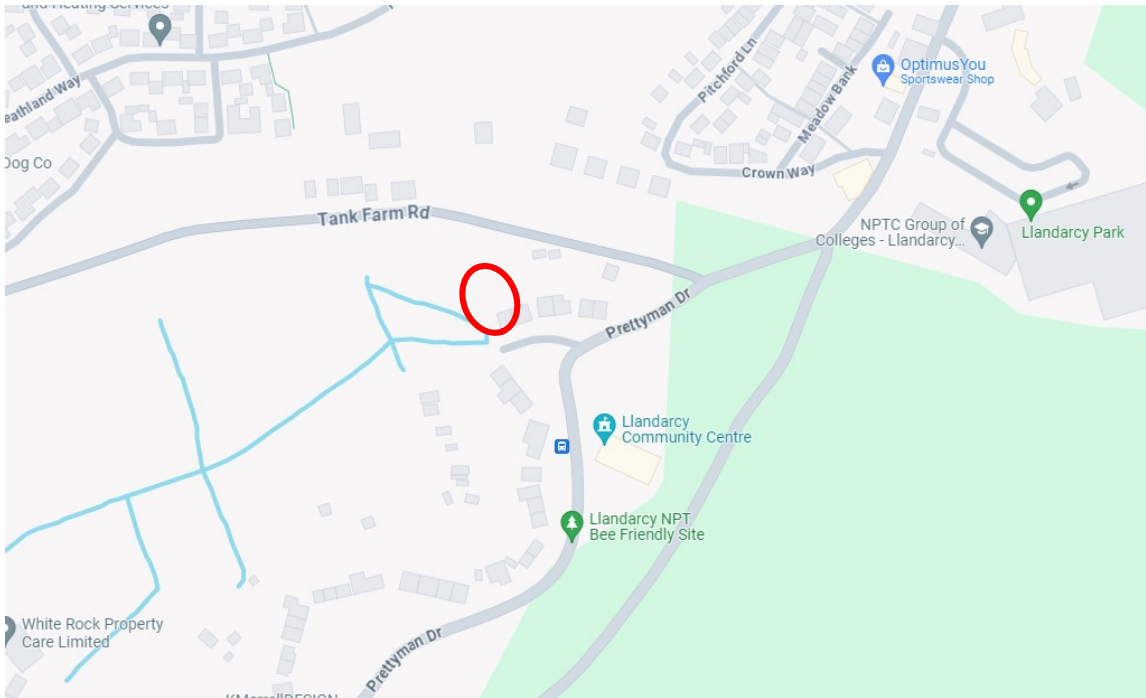


Figure 1: Site Location Plan (approximate site position circled red).



Figure 2: Aerial Photograph (approximate site position circled red).

3.0 Existing Drainage

Surface Water

- 3.1 The area was originally a grassed garden without any below ground drainage systems.

Flood Risk

- 3.2 The NRW flood map shows that the southern part of the plot is at risk of surface water flooding. However, this part of the site has not been amended during the recent works.

4.0 Proposed Surface Water Drainage

- 4.1 The primary objective of the proposed development's surface water strategy is to mimic the drainage characteristics of the existing site as far as it practicable, and adopt the principles of water management schemes as stated in Section 2 of the SDSSW document.

- 4.2 From the 7th January 2019, the Flood and Water Management Act 2010 (Schedule 3) has been implemented by the Welsh Government. This requires any development of more than 1 unit or where the construction area is greater than 100m² to comply with the SuDS Approving Bodies (SAB's) design guidance and the SuDS standards listed below:

- S1 – Surface Water Runoff Destination
- S2 – Surface Water Runoff Hydraulic Control
- S3 – Water Quality
- S4 – Amenity
- S5 – Biodiversity
- S6 – Design of Drainage for Construction, Operation & Maintenance

- 4.3 The storm-water flows from the development shall be disposed of in accordance with the hierarchical approach presented in Part H of the Building Regulations and in line with the SDSSW document and SuDS best practice. The flows shall therefore be disposed of by one of the following methods, in order of preference:

- Infiltration via soakaways located on site.
- Discharge to the nearest watercourse or land drainage culvert.
- Discharge to the nearest highway drain or surface water sewer.
- Discharge to the nearest public sewer (with attenuation).

- 4.4 The recent changes which have been made to the site are summarised below:

- Grassed areas changed to gravel
- Small areas of grass changed to paving slabs.
- Small areas of grass changed to concrete.
- A small timber garden shed has been constructed.
- A small timber gazebo has been constructed.
- Two low-level retaining walls have been constructed.

- 4.5 The introduction of the retaining walls, shed and gazebo will not result in any meaningful increase in rainwater run-off onto the adjacent grassed and gravel areas whatsoever.

- 4.6 The paving slab and concrete slab areas are relatively small in comparison to the adjacent gravel and grassed areas. Rainwater falling onto the slab areas will simply drain onto the adjacent gravel and grassed areas and percolate through into the ground beneath.

- 4.7 Rainwater falling onto the new gravel areas will soak through the gravel and into the ground, in the same manner as would have been the case when these areas were grassed. In fact, the depth of gravel will provide a degree of betterment by slowing the rate at which the rainwater enters the original ground by providing a degree of rainwater storage.
- 4.8 We understand that percolation testing was conducted at the property on the 1st of March 2025 at two positions as shown in Appendix D of this report. The ground was a sandy clay. The pits were 0.5m wide by 2m long by 1.5m deep and were filled to 500mm depth of water. Three tests were conducted one after the other in each of the pits, with the longest time duration for the water to drain from 75% to 25% being recorded at 115 minutes. This is a good result and demonstrates that rainwater will have no problem in percolating through the grass and gravel areas into the underlying soils. The slowest test result yields an infiltration rate of 1.61×10^{-5} m/s.
- 4.9 In terms of water quality, the water falling onto the various areas will not be polluted. The finishes used will not cause any detrimental effect to water quality in the vicinity.
- 4.10 Due to the ground levels to the rear of the site, any exceedance flows will drain through the ground to the wetland area and stream located to the west of the existing house. This will therefore be the same situation as before any of the recent works were undertaken.
- 4.11 The ground has been found to be very permeable and as such we are not envisaging any exceedance flows on a regular basis. It has now been in the region of 18 months since the works were undertaken, and we are advised by the client that there have been no issues whatsoever in terms of flooding, ponding of water or saturated ground across the site. There has been very wet weather over the last 18 months and as such it is considered that there are no drainage issues on the site as a result of the works which were undertaken.

5.0 Amenity & Biodiversity

- 5.1 The development comprises a small residential plot and therefore there is a somewhat limited scope available on site for incorporating amenity and biodiversity features.
- 5.2 The nature of the site will not change from how it is currently.
- 5.3 Rainwater butts will be used to allow storage of rainwater for watering gardens etc. The client has as of March 2025 installed a gutter and rainwater butt to each side of the shed.

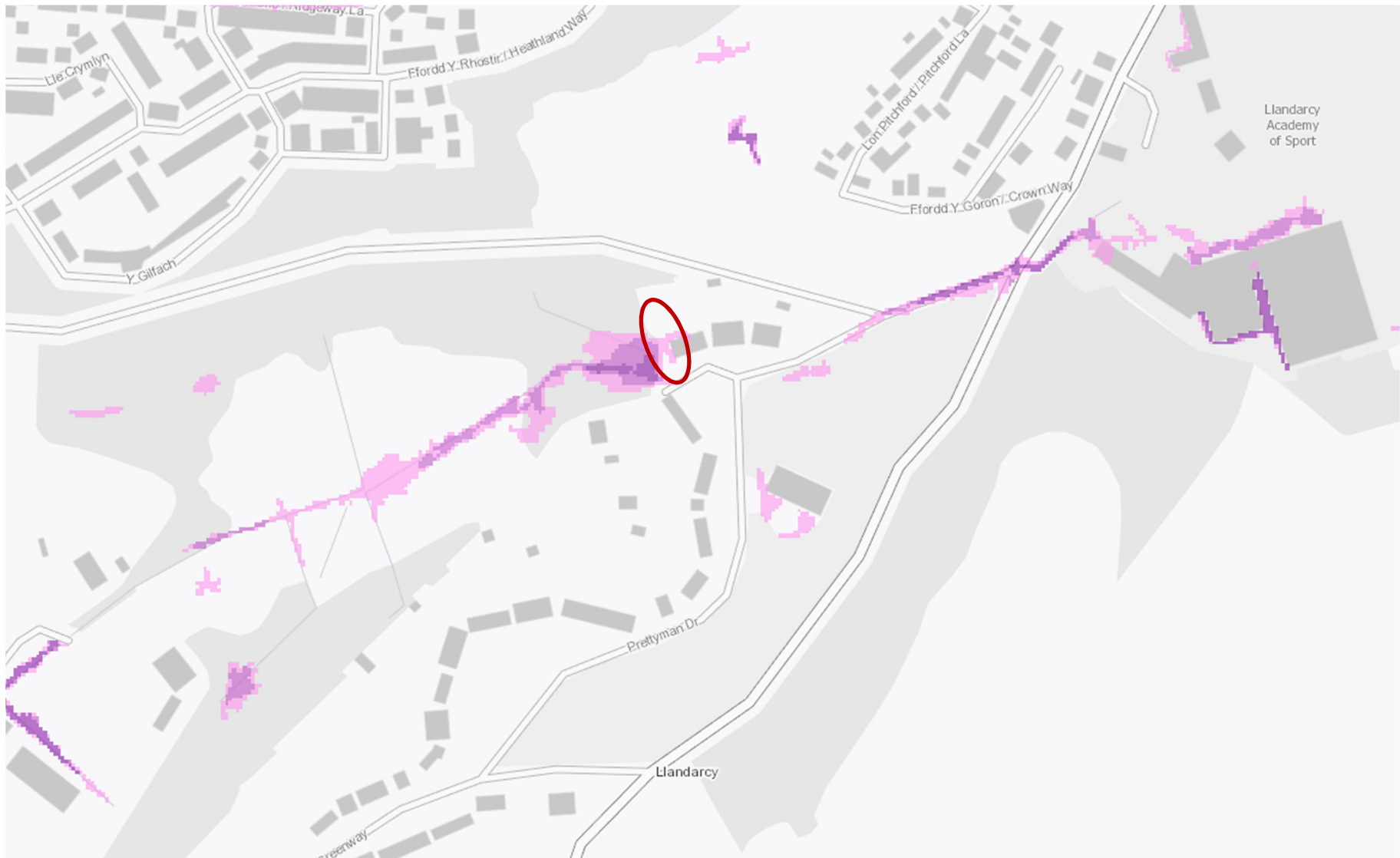
6.0 Construction Stage

- 6.1 The contractor will need to obtain existing drainage, services and utilities plans before commencing on site. They will also need to allow for locating all existing services and utilities on the site, scanning with a cable avoidance tool before breaking the ground.
- 6.2 It is the responsibility of the contractor to determine their own sequencing of works. Before commencing with any site works, the contractor shall prepare all necessary risk assessments and method statements (RAMS) in order to comply with the latest CDM Regulations. Similarly, the contractor shall also prepare a programme and a construction and environmental management plan (CEMP), before commencing with any site works.
- 6.3 All works must be undertaken by a competent and suitably experienced contractor. It is the responsibility of the principal contractor to appoint suitable subcontractors.

7.0 Maintenance Requirements

- 7.1 The drainage infrastructure will need to be maintained on a periodic basis to ensure that the systems work as intended and do not block or fail, as this could lead to flooding.
- 7.2 There is nothing unusual about the drainage systems or products specified in the design. Where products have been specified, these are manufactured by industry leaders who have a proven track record for supplying quality products which are not prone to issues.
- 7.3 We have appended a maintenance strategy to this report. It is the property owner's responsibility for ensuring that the maintenance strategy is complied with in perpetuity.

Appendix A
Development Advice Flood Maps
(site location circled red)



Appendix B

Maintenance Strategy

Responsibilities

The property owner is responsible for maintaining the storm-water drainage system at the property.

Gravel Areas

- Any significant loose debris (e.g. household rubbish, sticks, leaves) to be removed immediately.
- Undertake regular raking to keep gravel level and regular weeding, say on a quarterly basis.
- Treat the surface with a suitable herbicide a couple of times a year.
- Use new gravel to top up any potholes or low-points as and when necessary.
- Provide a fresh layer of gravel periodically, say on an annual basis.

Pipework & Manholes

The below-ground drainage has been designed to suitable gradients and with manhole chambers provided on junctions to facilitate access and rodding. We do not envisage any blockages occurring in the system, but any that do can be CCTV surveyed and rodded from the manhole chambers.

Linear Drains & Gulleys

Any linear (Aco) drains to paths and patios will need to be de-silted as and when required. Allow for inspecting three-monthly and potentially de-silting once or twice a year. Ensure that any leaves or branches falling on paths/patios are cleared away to prevent them from entering drainage systems.

Lawn Mowing

The grassed garden area will need to be cut periodically using a suitable lawn mower.

We recommend that the lawn is cut every fortnight during summer months, or more regularly if so required by the client. The length of the lawn is to be kept relatively short and free from any weeds. We recommend that an electric lawn mower is used as this would be more environmentally friendly than a petrol or diesel lawn mower.

We recommend that a mower with a grass box is used to allow grass cuttings to be easily collected. Any loose grass cuttings not gathered in the grass box will need to be suitably raked up using a rake. All grass cuttings must be suitably disposed of. This could be done by loading the cuttings into a garden waste bag and transporting them in a car or van to a suitable local refuse centre, or leaving outside the front of the property for the refuse collectors to collect at the appropriate date and time. All lawn cutting must be done in a suitable and safe manner, with due care and consideration being taken and appropriate clothing including footwear worn at all times.

Appendix B

Maintenance Strategy

Pruning Strategy

For a successful pruning strategy focus on removing dead, diseased, or damaged wood, and prune during the dormant season (late winter/early spring) before new growth emerges, while also considering the specific needs of each plant type.

1. Timing is Key:

- **Dormant Season Pruning:**

Most trees and shrubs benefit from pruning during their dormant season (late winter/early spring) before new growth begins. This minimizes stress and allows for robust spring growth.

- **Avoid Pruning During Frost:**

Avoid pruning any plant when frost is forecast within three days, as the cut ends of the stems can be damaged before they have a chance to dry and seal off.

- **Post-Bloom Pruning:**

Some flowering trees and shrubs should be pruned immediately after they finish blooming in spring to prevent cutting off the buds that will produce the next season's flowers.

2. What to Remove:

- **Dead, Dying, and Diseased Wood:** Remove any dead, dying, or diseased branches as soon as you see them. Dead stems attract insects and invite diseases.
- **Damaged Branches:** Remove any branches that are broken, rubbed, or otherwise damaged.
- **Crossing and Rubbing Branches:** Remove any branches that are crossing or rubbing together, as this can lead to disease and damage.
- **Water Sprouts and Suckers:** Remove vigorous upright growing shoots that form on trunks or side branches (water sprouts) and vigorous shoots that develop near or from below ground (suckers).
- **Old or Weak Growth:** Thin out old or weak stems to encourage strong new growth.

3. Pruning Techniques:

- **Make Clean Cuts:**

Use sharp tools (pruning shears or saws) to make clean, smooth cuts.

- **Cut Above a Bud:**

When pruning branches, cut just above a bud (or node) that is facing in the direction you want new growth to go.

- **One-Third Rule:**

As a general rule, it's best to remove no more than 1/3 of a plant's foliage or branches at a time.

- **Target Pruning:**

Make the pruning cuts as small as possible to allow the plant to heal quickly.

4. Consider Plant-Specific Needs:

- **Flowering Plants:**

Prune flowering plants after they finish blooming to avoid removing flower buds.

Appendix B

Maintenance Strategy

- **Fruit Trees:**

Prune fruit trees in the late winter or early spring to encourage fruit production.

- **Shrubs:**

Prune shrubs to maintain their shape and size, and to remove dead or diseased wood.

- **Trees:**

Prune trees to improve their structure, health, and safety.

5. **Observe and Learn:**

- **Observe Your Plants:**

Pay attention to how the plants grow, when they bloom, and where they naturally develop growth.

- **Learn from Experience:**

Pruning is a skill that improves with practice.

In summary, a successful pruning strategy involves understanding the specific needs of your plants, timing your pruning appropriately, and using proper techniques to promote healthy growth and a beautiful garden.

Appendix C
Water Quality Report

Please refer to the following pages for index based approach.

SIMPLE INDEX APPROACH:
SUMMARY TABLE 1
Rain Falling Directly onto Grass



Project: Tuf Treads Plot 12 Cross Hands	Client: Tuf Treads
Project Number: 22-315	Date: 16/01/2023
Work Element: Water Quality Assessment	Prepared By: MW

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Domestic Garden - Grass Surface				
Pollution Hazard Level	Very Low / Negligible				
Pollution Hazard Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
SuDS components proposed					
Component 1	None				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SIMPLE INDEX APPROACH:
SUMMARY TABLE 1
Rain Falling Directly onto Gravel Areas



Project: Tuf Treads Plot 12 Cross Hands	Client: Tuf Treads
Project Number: 22-315	Date: 16/01/2023
Work Element: Water Quality Assessment	Prepared By: MW

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Domestic Garden - Gravel Surfacing				
Pollution Hazard Level	Very Low / Negligible				
Pollution Hazard Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
SuDS components proposed					
Component 1	None				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SIMPLE INDEX APPROACH:

SUMMARY TABLE 1

Rain Falling onto Patios / Concrete Slabs



Project: Tuf Treads Plot 12 Cross Hands	Client: Tuf Treads
Project Number: 22-315	Date: 16/01/2023
Work Element: Water Quality Assessment	Prepared By: MW

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Domestic Garden - Patio Slabs / Concrete Slabs				
Pollution Hazard Level	Very Low / Negligible				
Pollution Hazard Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
SuDS components proposed					
Component 1	None				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

**SIMPLE INDEX APPROACH:
SUMMARY TABLE 1**

Rain Falling on Shed, Gazebo & Kennel Roof



Project: Tuf Treads Plot 12 Cross Hands	Client: Tuf Treads
Project Number: 22-315	Date: 16/01/2023
Work Element: Water Quality Assessment	Prepared By: MW

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Domestic Garden - Shed, Gazebo & Kennel Roofs				
Pollution Hazard Level	Very Low / Negligible				
Pollution Hazard Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
SuDS components proposed					
Component 1	None				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Groundwater protection type	None				
Groundwater protection Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices					
TSS	0.05				
Metals	0.05				
Hydrocarbons	0.05				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

Test Recording Sheet

Please fill in the relevant information below and return to MW Consult Ltd.

1. Test pit number 1
2. Test pit location on site 1 (Ideally provide a site plan showing test pit numbers).
3. Specify the size of the percolation test pit:
Width = 0.5 m Length = 2.0 m Height (from ground level to pit base) = 1.5 m
4. Specify the water depth, D. (This is the starting level from the base of the pit) = 0.5 m
5. Specify the type of ground encountered (e.g. sandy clay or clayey gravel)
SANDY CLAY
6. Ensure that photos are taken of the empty pit, the full pit and the pit when finished.

Below is a table for you to input the data (times) recorded in the percolation testing.
State the time taken (in minutes) for the water to drop to the stated levels.

Test Number	75% full	25% full	75% full to 25% full
1	11:30	13:30	100 mins
2	3:10	5:05	115 mins
3	8:20	10:05	110 mins

Key:

75% full – the time taken for the water level to fall from starting level to the 75% level.

25% full – the time taken for the water level to fall from starting level to the 25% level.

75% full to 25% full – the time taken for the water level to fall from 75% full to 25% full.

Test conducted by:

Name: D. Rook

Date: 01/03/25

Signature: [Signature]

Important: If percolation tests are to be undertaken at multiple locations on the same site, use separate test recording sheets for each test locations, with each sheet referencing the location.

Once completed, email the test results to: **mikewyatt.mw@outlook.com**

Test Recording Sheet

Please fill in the relevant information below and return to MW Consult Ltd.

1. Test pit number 2
2. Test pit location on site 2 (Ideally provide a site plan showing test pit numbers).
3. Specify the size of the percolation test pit:
Width = 0.5 m Length = 2.0 m Height (from ground level to pit base) = 1.5 m
4. Specify the water depth, D. (This is the starting level from the base of the pit) = 0.5 m
5. Specify the type of ground encountered (e.g. sandy clay or clayey gravel)
SANDY CLAY
6. Ensure that photos are taken of the empty pit, the full pit and the pit when finished.

Below is a table for you to input the data (times) recorded in the percolation testing.
State the time taken (in minutes) for the water to drop to the stated levels.

Test Number	75% full	25% full	75% full to 25% full
1	11:45	13:15	90 mins
2	2:40	4:30	110 mins
3	5:10	7:00	110 mins

Key:

75% full – the time taken for the water level to fall from starting level to the 75% level.

25% full – the time taken for the water level to fall from starting level to the 25% level.

75% full to 25% full – the time taken for the water level to fall from 75% full to 25% full.

Test conducted by:

Name: D. Cook

Date: 01/03/25

Signature: [Signature]

Important: If percolation tests are to be undertaken at multiple locations on the same site, use separate test recording sheets for each test locations, with each sheet referencing the location.

Once completed, email the test results to: **mikewyatt.mw@outlook.com**

Appendix D
Percolation Test Photos



Appendix D
Percolation Test Photos



Appendix E

Typical Rainwater Butt Detail

Typical rain water butt as shown below.



Great low price

Ward 100L Slimline Water butt

Sold & shipped by B&Q
Item in stock for Home Delivery

★★★★★ (166)

Was £35 **Save £7**

£28

Check availability
Enter your postcode and we'll provide you with your delivery options

<    >

Product details

Product information

Using rainwater in your garden can help to improve your home's water efficiency

- Ideal for conserving water by collecting rainwater
- Comes with Lid, tap, stand & filler kit
- Green star claim - Collecting rainwater to use in the garden can help use less mains water. *

Features and benefits

- Collecting rainwater is good for the environment – especially during times of water shortage – and it is also better for garden plants than tap water
- Made using recycled materials
- Made in the UK
- Holds up to 100L litres
- Made from HDPE, Hardwearing to withstand the elements

Specifications

Assembly required	Assembly required
Colour	Black
Made in	UK
Material	High-density polyethylene (HDPE)
Model name/number	GN339
Product height	960mm
Product weight	3kg
Product width	360mm
Product code	5021711045437

Appendix E

Typical Rainwater Butt Detail

Rain water butt used to the gazebo roof is shown below.

12:41

Wood Brown

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Rustic Oak Barrel Appearance Water Butt Kit With Tap, Diverter And Bio Cleaner - 250L Plastic Rain Water Collector for Garden - H36.6 x D 25.6 in (93x65cm) Wood Texture Imitation in Brown





Colour Name: **Wood Brown**

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