

SuDS Construction Management & Phasing

Plan For:

New Build Classrooms,
Ty Dysgu Primary School,
Market Street, CF48 2AJ

Prepared for:

**Merthyr Tydfil County
Borough Council**

REF: 16691-CMP Iss 1

Document Control

Project	New Build Classrooms, Ty Dysgu Primary School, Market Street, CF48 2AJ
Client	Merthyr Tydfil County Borough Council
Vale Consultancy Ref:	16691 - CMP

Document Checking:

Prepared By: R Melvin

Signed:



Checked By: S Hardacre

Signed:



Verified By: S Hardacre

Signed:



Issue	Date	Status
01	26.04.2023	First issue

CONTENTS

1	INTRODUCTION	3
1.1	Site Location	3
1.2	Description of the works	4
2	SITE ACCESS	4
3	SITE PLANS AND SCHEME DRAWINGS	4
4	CONSTRUCTION PHASING OF SUDS FEATURES	4
5	SITE-SPECIFIC ECOLOGICAL ISSUES OR FEATURES THAT REQUIRE PROTECTION OR CONSIDERATION	6
5.1	Existing Site Review	6
6	EROSION CONTROL	7
7	SEDIMENT & POLLUTION CONTROL	8
7.1	Sediment Control	8
8	SITE DRAINAGE DURING CONSTRUCTION	8
9	CONSTRUCTION AND HANDOVER INSPECTION	8
	APPENDIX A: Site Plans & Details	9

1 INTRODUCTION

The construction management plan has been produced at SAB approval stage, and required to advise the appointed contractor responsible for construction of the SuDS system on; where the development is (including access), what components are to be constructed, any required phasing of SuDS components, site-specific ecological issues or features that require protection and/or consideration, pollution and sediment, and site surface water management during construction.

The proposed surface water drainage scheme has been designed in accordance with the Welsh Ministers Statutory Standards for SuDS which became mandatory on 7th January 2019. As such the development will require SAB approval before construction can commence and subsequent inspection and approval of the constructed SuDS features by the local SAB board during the construction period, and upon scheme completion.

This document should be used as a basis by the appointed Contractor developed in more detail prior to the start of construction works, coordinating with all other non-SuDS construction included in the development as whole, e.g. foundations retaining walls and superstructure, and relevant project sub-contractors. It could be as an inclusion to an overall construction management plan.

1.1 Site Location

The site is an existing primary school however the site of the new build classrooms is currently unused grassland. The below satellite image from 2020 shows the site of the new build classrooms within the boundaries of the existing school.

Refer to Figure 1 below.



Figure 1 - Site Location Plan

1.2 Description of the works

The proposed development consists of one new building to provide three new classrooms and their associated facilities for the school.

The development will be sited at ground level to the north of the existing school building.

2 SITE ACCESS

The wider site access route is via either the A465 (Heads of The Valleys Road) or via the A470 and A4060 (Cardiff) which provides access from the M4 near Coryton, Cardiff. The site can then be accessed from the A465 roundabouts in Dowlais Top, then via local road network to Market Street, where the site can be accessed from an access lane which leads to the gates of the school.

The school site is located within close proximity to residential buildings, thus deliveries times should be discussed with the neighbouring property owners to determine any particular times they require access through the day and also to advise neighbours of when critical site activities are taking place, i.e. concrete pours etc.

3 SITE PLANS AND SCHEME DRAWINGS

The SAB scheme drawings are listed below and included in Appendix A.

16691_C100_Topographic Survey
16691_C500_Drainage Layout
16691_C502_Drainage Catchments and Exceedance Flows Plan
16691_C503_Drainage Details Sheet 1 of 2
16691_C504_Drainage Details Sheet 2 of 2

4 CONSTRUCTION PHASING OF SUDS FEATURES

The SAB drainage systems comprises a number of SuDS component types, which are listed below.

- Rain gardens
- Infiltration Basin
- Gravel Strip Drain
- Geocellular crate attenuation Soakaway
- Catch pits
- ACO Linear Drainage Channels and Kerb Outlets
- Concrete Dished Channels

The location and construction of each SuDS component type is specified and detailed within the SAB scheme drawings. **Refer to Appendix A.**

Planted SuDS features will be constructed as early as possible within the construction programme to allow planting to establish before flows are connected/discharged to the feature.

The programming of works relating to the stripping of any soil will be done “just in time” for any work activities required in that area. Soil will not be stripped as a whole, thus eliminating mud, silt and run off.

The principal contractor along with the groundworks supervisor will be responsible for the control of the programme, construction, and completing of the SuDS scheme. They will also act as point of contact for SAB inspections.

If and where required, sediment traps / basins can be installed at appropriate locations.

All materials used will be in accordance with all specifications for each SuDS component.

The local SAB authority will be informed of the commence of works and jointed inspection undertaken with the SAB inspector at the agreed milestones.

There is a 1% risk of surface water flooding at the site and hence it is envisaged that there may be a requirement to deal with SW flow routes during construction to prevent erosion, sediment build-up and potential contamination. There is no recorded risk of ground water flooding, pluvial or fluvial flooding, or flooding from reservoirs. However, should these be identified during the construction period then a suitable temporary water management strategy will be developed by the principal contractor, which should reflect the particular issue encountered.

No connection to any live watercourse or drainage network is proposed for the surface water drainage within the development and as such no specific mitigation measure are required for sediment and erosion control relating to these.

There are existing drainage assets within the site boundary. To the East of the proposed new classrooms building lies a MTCBC culverted watercourse with a redundant spur connecting onto the culvert from the West via chamber connection. There is also an existing DCWW combined sewer that also runs from North to South to the East of the culvert however this was not identified in the utilities survey conducted by Alpine in February 2023.

The principal contractor, sub-contractors and operatives will need to have general understanding of SuDS and purpose of specific SuDS components being used on site to ensure the appropriate construction practice and component protection is used, and also to construct all SuDS components in accordance with the approved SAB scheme.

All principal contractors and relevant sub-contractors’ personnel will be briefed on site to the sequence and protection measures for the SuDS features.

Storage of material on site be in accordance with COSHH regulations and stored away from any proposed or existing drainage features.

All material will be stored in bunded and lined areas to prevent any spillages leaching into the ground or SuDS features. Only material for current activities should be stored, with no longer term storage provided. All plant and vehicles will be stored on plant nappies to capture any fuel/hydrocarbon spillages.

As far as practicable, no construction vehicles will be allowed to traffic the drainage blanket or any SUDS features. Suitable barriers will be provided where practicable to prevent vehicle access.

The contractor will also ensure spill kits are located at suitable points within the construction area to ensure and minor spills can be dealt with immediately.

5 SITE-SPECIFIC ECOLOGICAL ISSUES OR FEATURES THAT REQUIRE PROTECTION OR CONSIDERATION

5.1 Existing Site Review

The site is currently considered brownfield due to its historical use however, it is considered that there are no specific ecological issues or existing site SuDS features that require specific protection or consideration as the site investigation revealed that contaminants levels were not elevated and within government guidelines.

5.2 Areas intended for infiltration/attenuation and attenuation.

From the four types of SuDS features, three features provide infiltration prior to attenuation and one provides attenuation.

Infiltration/Attenuation

Components are listed below:

- Infiltration Basin
- Geocellular Crate Soakaway

These systems will have horizontal geotextile membranes within each system (as shown on the construction detail drawing, allowing infiltration through each feature. Each system will also be wrapped with vertical and horizontal impermeable membranes to the sides and base to prevent encroachment of sediment, and water egress/ingress from the existing ground and formation into the specified SuDS material. Where material types vary horizontally, each layer should be inspected prior to the next layer of geotextile being laid. Rain gardens near the carriageway will be lined with impermeable membrane vertically and horizontally to the base and sides to prevent water egress into the adjacent carriageway construction. The permeable driveway will be tanked acting as an attenuation component rather than infiltration, with flows being directed towards the soakaway via fin drain and catchpit.

The SuDS features should be segregated with temporary barriers etc, to prevent damage from construction plant or material storage, and material contamination.

Temporary geotextile membranes may be required to ensure permeable materials are not contaminated during construction. On project completion the SuDS features should be snagged and any corrective action taken.

No runoff from the construction site will be allowed into the above listed components, so all surface water during construction will be diverted/over pumped (if required) to ensure no run off enters excavations during construction. Where required settlement ponds can be constructed to capture run off.

Surface water runoff from completed areas will be allowed to discharge to the new SuDS features, i.e. roof and driveway areas if sufficient measures are taken to prevent contamination entering the system. Surface water run-off from roof areas in particular should not have any significant contamination risk even at construction stage.

- **Infiltration Basin**

The infiltration basin, will only receive flows from the proposed classrooms building's roof via stone rills. The basin will have a horizontal geotextile membrane between each component to prevent encroachment of the existing ground and formation into the basin and its freely draining gravelly soil layer, and allow infiltration through the base and sides of the basin. Following the excavation to the formation level the basin should be constructed in accordance with the drainage construction detail drawings, with a layer of geotextile membrane directly after laying each basin component layer. On completion of installation, the basin location should be segregated with temporary barriers etc, to highlight its location and mitigate potential health and safety risks.

- **Geocellular crate soakaway tank**

The geocellular crate soakaway system, will only receive piped flows from other SuDS components. The crate will be fully encapsulated in a geotextile membrane to prevent encroachment of the existing ground and formation into the crate system, and allow infiltration through the base and sides of the crate system. Following the excavation to the formation level the crates should be installed in accordance with the drainage construction detail drawings, with the crates wrapped in geotextile membrane directly after laying, and excavation back filled to specification. The crate specification reflects the proposed tank location, with the crates located to the east of the proposed classrooms building under open grass and providing a minimum 5m easement from any buildings. On completion of installation, the tank location should be segregated with temporary barriers etc, to highlight the tank's location and prevent excessive loading, from construction plant or material storage.

No runoff from the construction site will be allowed into the soakaway tank or infiltration basin, so all surface water during construction will be diverted/over pumped (if required) to ensure no run off enters the excavations during construction. Where required settlement ponds can be constructed to capture run off.

6 EROSION CONTROL

As per the guidance contained within Chapter 31 of the SuDS Manual (CIRIA C753), erosion control activities that should be considered during construction include the following:

- Schedule construction activities to minimise the total amount of soil exposed at any given time.
- Establish temporary or permanent cover on area that has been disturbed as soon as possible.
- Construct temporary or permanent facilities to limit the flow of water to non-erosive velocities.
- Stabilise areas of disturbed land with permanent vegetative cover as quickly as possible.

- Proposed roads or hardstanding areas should be covered with the appropriate bound layer as early as possible.
- Diversion ditches or silt fences/straw bales should be provided around stock piles and the base of slopes if necessary.

7 SEDIMENT & POLLUTION CONTROL

7.1 Sediment Control

Straw bales and silt fences can be used to control sediment. These can be placed at the base of slopes or at the lowest point of a disturbed area to act as a sediment barrier.

Straw bales are temporary in nature so, if necessary, will likely need to be replaced every few weeks or months. Silt fences are made of a woven synthetic material and tend to last longer. If installed and maintained properly can last for more than one season.

Where some sediment loads are likely to be transported into the construction drainage system, sediment basins should be provided to trap sediments and facilitate easy removal.

Properties and roads adjacent to the construction site need to be protected from sediment being transported onto them. If necessary, a vehicle wash down should be provided at site exits. If this is not practical then the roads or properties should be cleaned at least daily or as required to keep them clear of mud.

8 SITE DRAINAGE DURING CONSTRUCTION

The site of the proposed classrooms building currently does not have any surface water management, with runoff currently being unfettered.

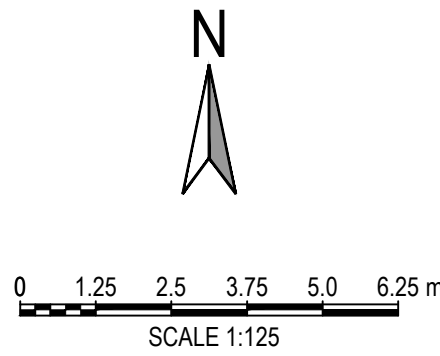
Surface water runoff from completed areas will be allowed to discharge to the new SuDS features, i.e. roof and footpath areas if sufficient measures are taken to prevent contamination entering the system. Surface water run-off from roof areas in particular should not have any significant contamination risk even at construction stage.

Drainage during construction should be kept away or directed around vegetated SuDS features for as long as possible to allow planting to establish.

9 CONSTRUCTION AND HANDOVER INSPECTION

In accordance with the statutory standards, an inspection schedule will be agreed and implemented with the local SAB authority. All key SuDS features will be inspected during construction with a final inspection and sign off undertaken prior to practical completion of the works.

APPENDIX A: Site Plans & SuDS Construction Details



GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.
3. DO NOT SCALE FROM THE DRAWING. USE FIGURED DIMENSIONS ONLY.
4. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
5. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
6. EXISTING SERVICES HAVE NOT BEEN SHOWN BUT ARE PRESENT - THE CONTRACTOR IS TO LIAISE WITH ALL STATUTORY AUTHORITIES PRIOR TO THE COMMENCEMENT OF ANY WORKS.
7. TEMPORARY WORKS DESIGN BY OTHERS.
8. DESIGN RISK ASSESSMENTS AND METHOD STATEMENTS ARE TO BE PROVIDED TO THE PRINCIPLE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY WORKS.

PRELIMINARY

01	RM	SH	SH	24.03.23	PRELIMINARY

rev.	drawn	chekd	approved	date	description
------	-------	-------	----------	------	-------------

Client
MERTHYR TYDFIL COUNTY
BOROUGH COUNCIL

Project
NEW BUILD CLASSROOMS
TY DYSGU PRIMARY SCHOOL,
DOWLAIS

Title
TOPOGRAPHICAL SURVEY



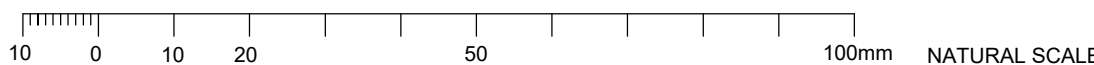
29 Bocam Park, Old Field Road, Pencoed, Bridgend CF35 5LJ.
Phone: 01656 863794 Email: enquiries@vale-consultancy.co.uk

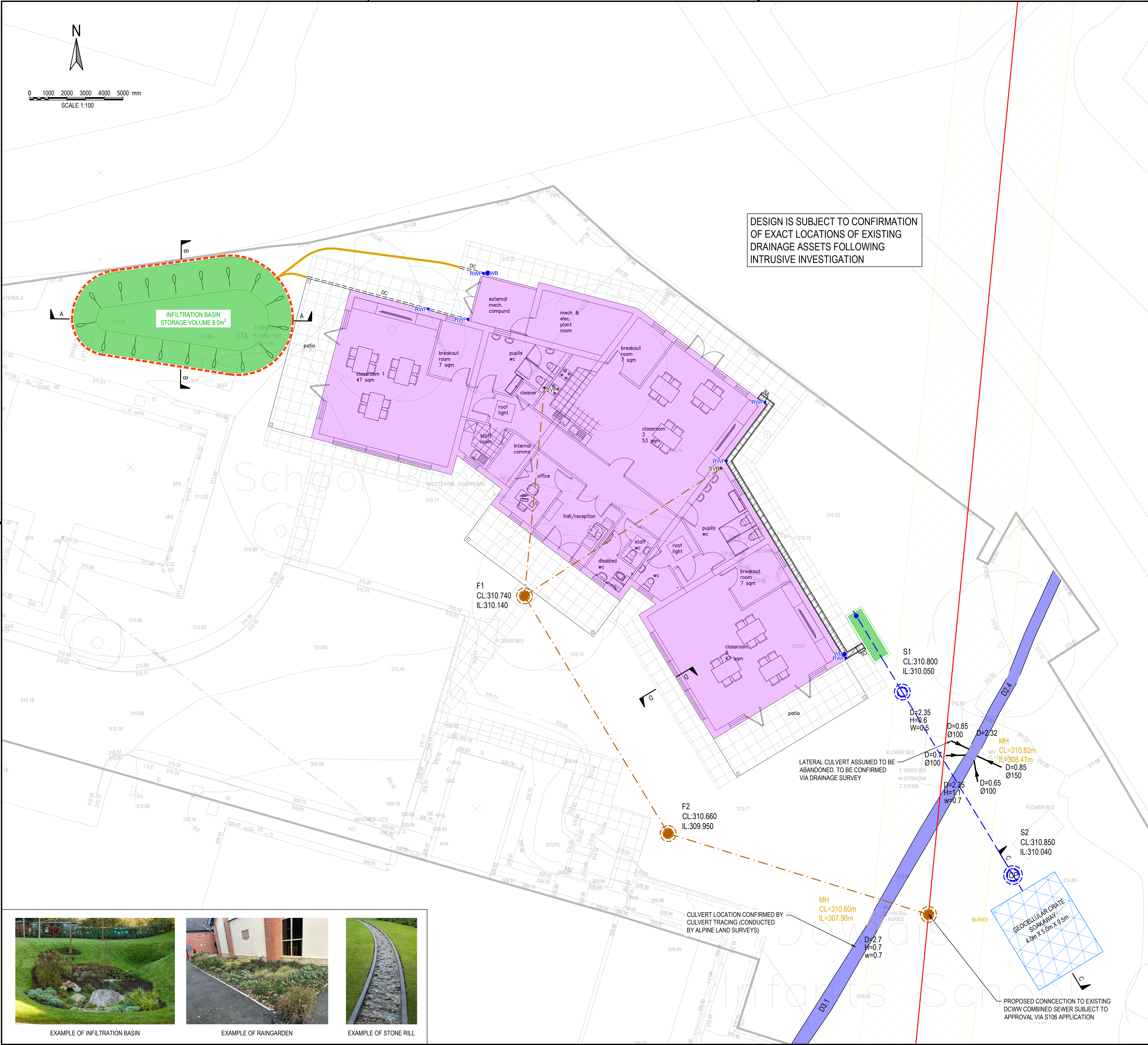
date	drawn	checked	approved
24.03.23	RM	SH 24.03.23	SH 24.03.23

scale @ A1	project no.
1:125	16691

status	drg. no.	rev.
P	16691/C101	01

DRAWING STATUS
A - Approval, AB - As-Built, C - Construction, D - Draft, P - Preliminary, T - Tender





LEGEND

- PROPOSED SURFACE WATER DRAINAGE
- PROPOSED FOUL WATER DRAINAGE
- PROPOSED RAINWATER PIPE
- PROPOSED WATER BUTT
- PROPOSED SOIL & VENT PIPE
- DENOTES CATCH PIT
- PROPOSED ACO DRAINAGE CHANNEL
- DENOTES RAINWATER PIPE DOWN TO PRECAST CONCRETE DISHED CHANNEL
- GEO-CELLULAR TANK 1 IN 100 YEAR EVEN WITH ACCESS POINTS
- STONE RILL
- RAIN GARDEN WITH OVERFLOW/RODDING PIPE AND PERFORATED COLLECTOR PIPE
- INFILTRATION BASIN
- FENCE AROUND INFILTRATION BASIN
- EXISTING DCWW COMBINED SEWER WITH EXISTING EASEMENT
- EXISTING CULVERT, LOCATION CONFIRMED ON SITE BY ALPINE LAND SURVEYORS VIA TRACING

GENERAL NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- ALL LEVELS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.
- DO NOT SCALE FROM THE DRAWING. USE FIGURED DIMENSIONS ONLY.
- ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
- EXISTING SERVICES HAVE NOT BEEN SHOWN BUT ARE PRESENT - THE CONTRACTOR IS TO LIAISE WITH ALL STATUTORY AUTHORITIES PRIOR TO THE COMMENCEMENT OF ANY WORKS.
- TEMPORARY WORKS DESIGN BY OTHERS.
- DESIGN RISK ASSESSMENTS AND METHOD STATEMENTS ARE TO BE PROVIDED TO THE PRINCIPLE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY WORKS.

DRAINAGE STRATEGY NOTES:

- PROPOSALS SUBJECT TO FULL SAB APPLICATION.
- DESIGN IS BASED ON INFILTRATION RATE OF 8.30×10^{-5} m/s.
- ATTENUATION DESIGNED FOR Q100 + 30% EVENT.
- TOTAL CATCHMENT AREA = $323m^2$.
- DIVERSION OF CULVERT TO BE APPROVED VIA ORDINARY WATERCOURSE CONSENT.
- NO ALLOWANCE FOR URBAN CREEP AS DEVELOPMENT TO MAXIMISE SPACE AVAILABLE.

APPROVAL

04	RM	SH	SH	CROSS-SECTION ANNOTATIONS ADDED. INFILTRATION BASIN BATTERS AMENDED TO SUIT LEVEL DIFFERENCES
03	RM	SH	SH	NEW SITE LAYOUT, RWP POSITIONS CONFIRMED AND DRAINAGE AMENDED TO SUIT. ISSUE FOR SAB APPROVAL
02	RM	SH	SH	CULVERT TRACING INFORMATION ADDED (FROM ALPINE LAND SURVEYS) AND AMENDMENT TO INFILTRATION BASIN DIMENSIONS.
01	RM	SH	SH	PRELIMINARY

rev.	drawn	chd.	appd.	date	description
------	-------	------	-------	------	-------------

Client
MERTHYR TYDFIL COUNTY BOROUGH COUNCIL

Project
NEW BUILD CLASSROOMS
TY DYSGU PRIMARY SCHOOL,
DOWLAIS

Title
DRAINAGE LAYOUT



date	drawn	checked	approved
03.02.23	RM	SH	SH
scale @ A1	1:100	project no.	16691

status	drg. no.	rev.
A	16691/C500	04



0 1000 2000 3000 4000 5000 mm
SCALE 1:100

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. ALL LEVELS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.
3. DO NOT SCALE FROM THE DRAWING. USE FIGURED DIMENSIONS ONLY.
4. ANY DISCREPANCIES TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
5. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.
6. EXISTING SERVICES HAVE NOT BEEN SHOWN BUT ARE PRESENT - THE CONTRACTOR IS TO LIAISE WITH ALL STATUTORY AUTHORITIES PRIOR TO THE COMMENCEMENT OF ANY WORKS.
7. TEMPORARY WORKS DESIGN BY OTHERS.
8. DESIGN RISK ASSESSMENTS AND METHOD STATEMENTS ARE TO BE PROVIDED TO THE PRINCIPLE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY WORKS.

LEGEND

CATCHMENT 1
= 122m²

CATCHMENT 2
= 201m²

TOTAL IMPERMEABLE AREA
= 323m²

TOTAL SITE AREA
= 2203m²

EXCEEDANCE FLOWS

APPROVAL

rev.	drawn	chd.	appd.	date	description
02	RM	SH	SH	08.02.23	CATCHMENTS AMENDED TO SUIT CONFIRMED RWP POSITIONS. ISSUE FOR SAB APPROVAL
01	RM	SH	SH	06.02.23	PRELIMINARY

rev.	drawn	chd.	appd.	date	description
02	RM	SH	SH	08.02.23	CATCHMENTS AMENDED TO SUIT CONFIRMED RWP POSITIONS. ISSUE FOR SAB APPROVAL
01	RM	SH	SH	06.02.23	PRELIMINARY

Client
MERTHYR TYDFIL COUNTY BOROUGH COUNCIL

Project
NEW BUILD CLASSROOMS
TY DYSGU PRIMARY SCHOOL,
DOWLAIS

Title
CATCHMENTS AND EXCEEDANCE
FLOWS PLAN



29 Bocam Park, Old Field Road, Pencoed, Bridgend CF35 5LJ.
Phone: 01656 863794 Email: enquiries@vale-consultancy.co.uk

date	drawn	checked	approved
06.02.23	RM	SH 08.02.23	SH 08.02.23

scale @ A1	project no.
1:100	16691

status	drg. no.	rev.
A	16691/C502	02



- APPROVAL**

status	drg. no.	rev.
A	16691/C503	02

