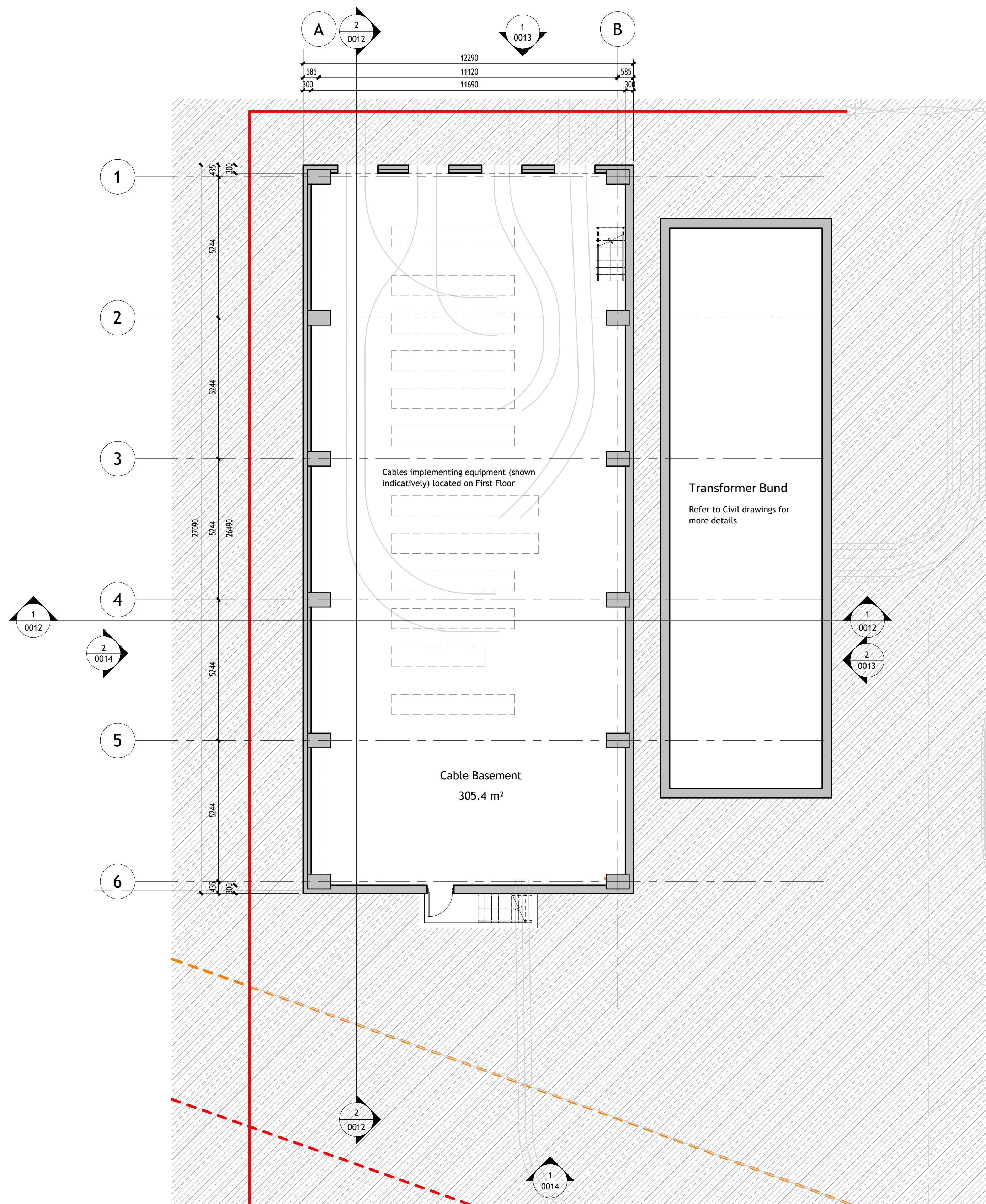
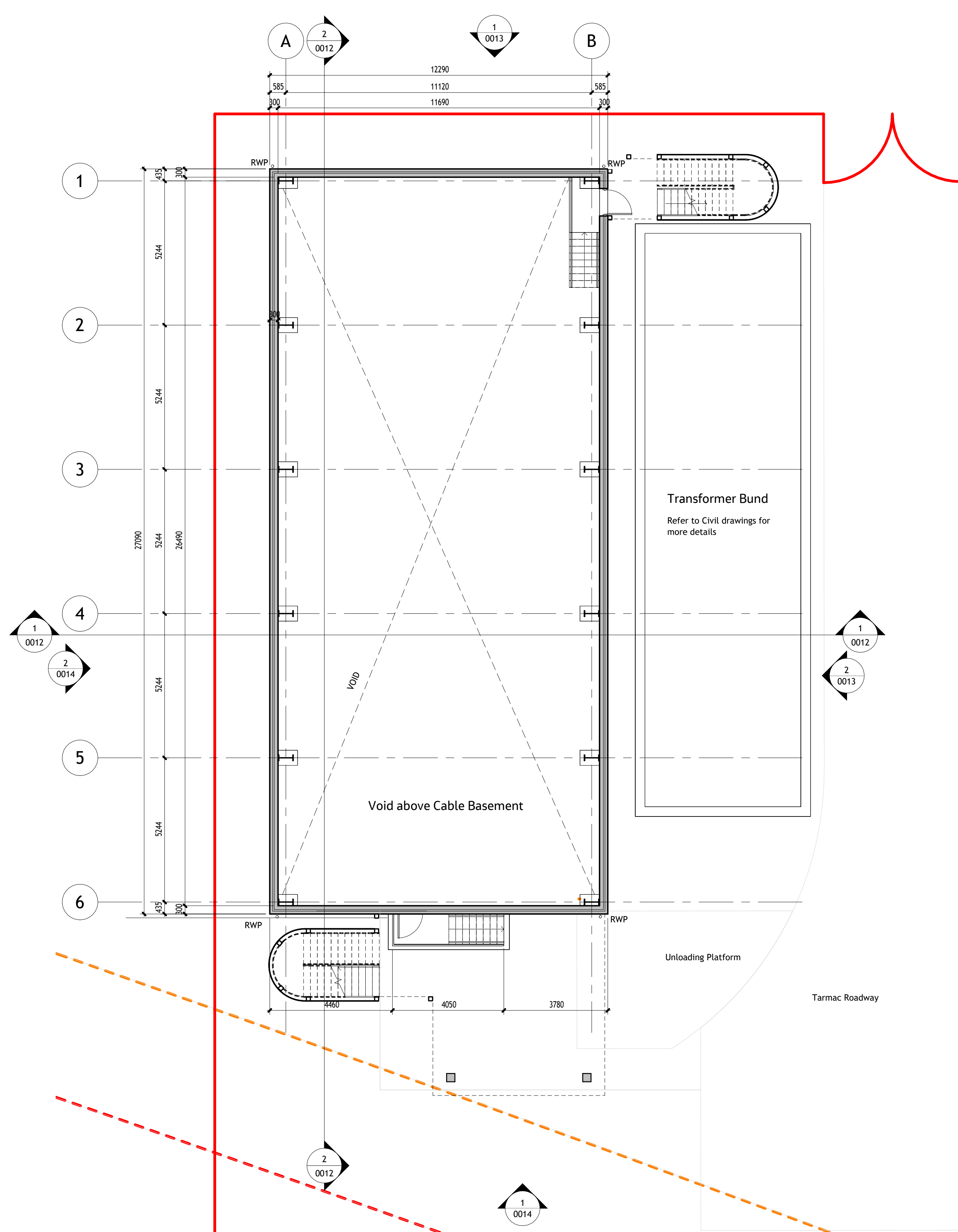




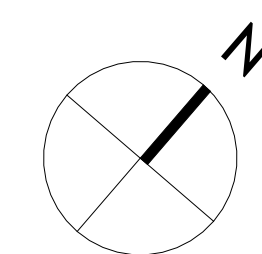
2 Lower Ground Level
1 : 100



1 Upper Ground Level
1 : 100

NOTES

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LEGEND

- PROPOSED
- HIGH VOLTAGE
- FENCE

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Client

Project

IMPERIAL PARK
132 KV GIS SUBSTATION

Drawing title

132kV GIS Building
Lower Ground and Upper Ground Floor Plan

Drawing status

First issue

Suitability

S2

Scale

As indicated @ A1

DO NOT SCALE

Jacobs No.

B2494900

Rev

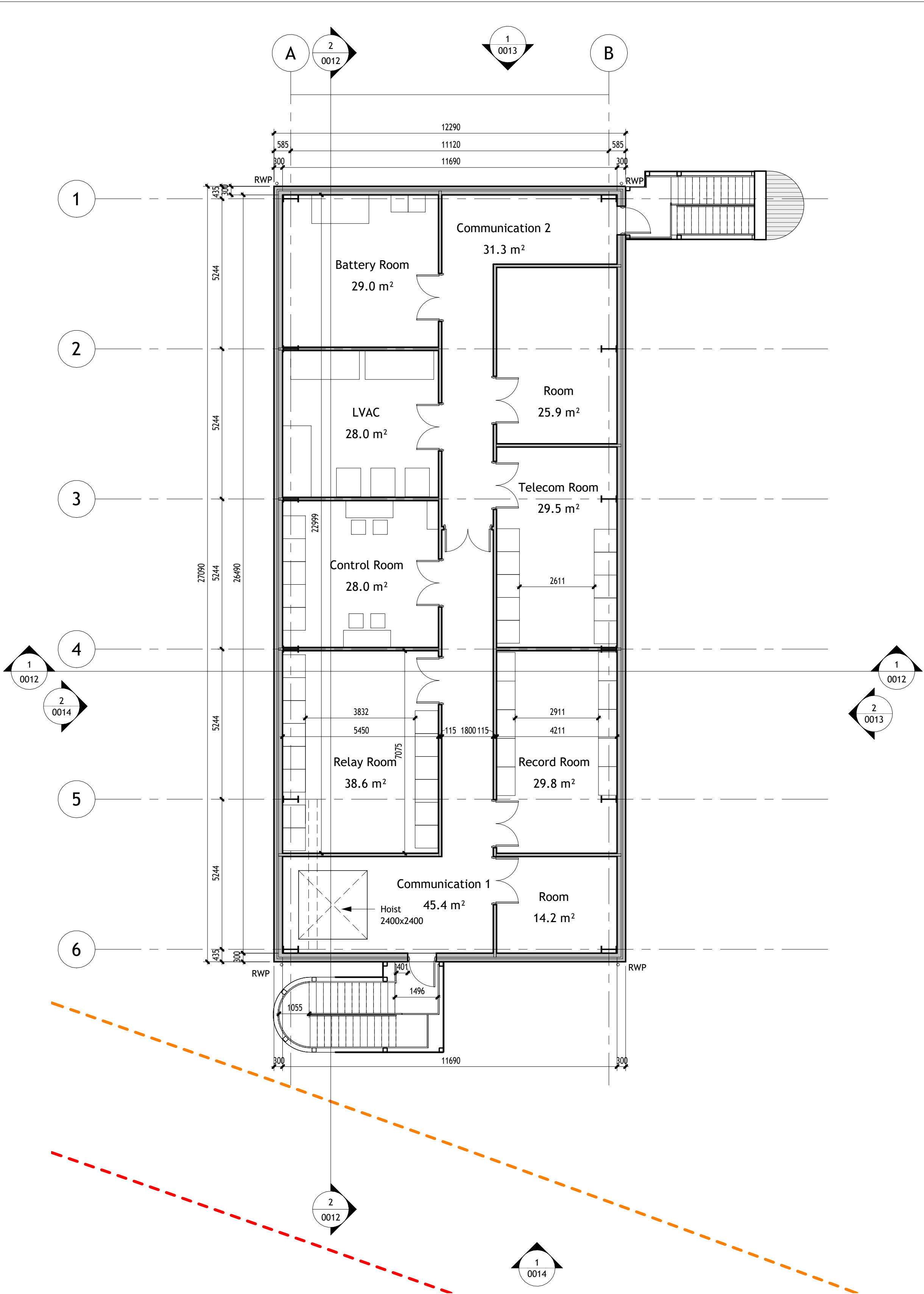
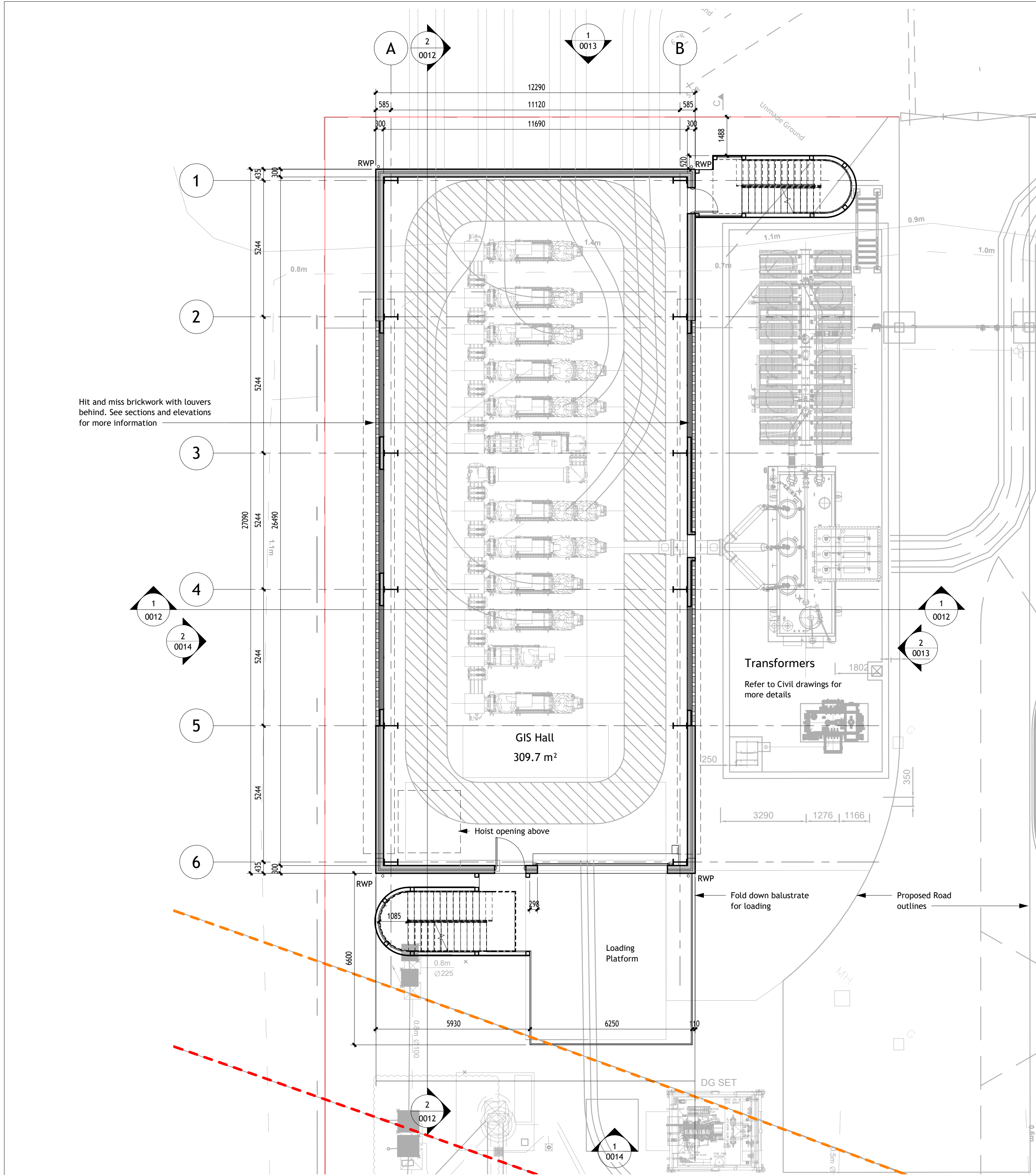
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000006410

P01

Drawing number

B2494900-JAC-ZZ-XX-DR-C-0009

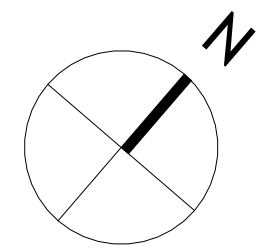


1 First Floor Level
1 : 100

2 Second Floor Level
1 : 100

NOTES

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LEGEND

- PROPOSED
- HIGH VOLTAGE
- FENCE

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Energy Solutions

IMPERIAL PARK
132 KV GIS SUBSTATION

Drawing title

132kV GIS Building
First and Second Floor Plan

Drawing status

First Issue

Suitability

S2

Scale

As indicated @ A1

DO NOT SCALE

Jacobs No.

B2494900

Rev

Client No.

000006410

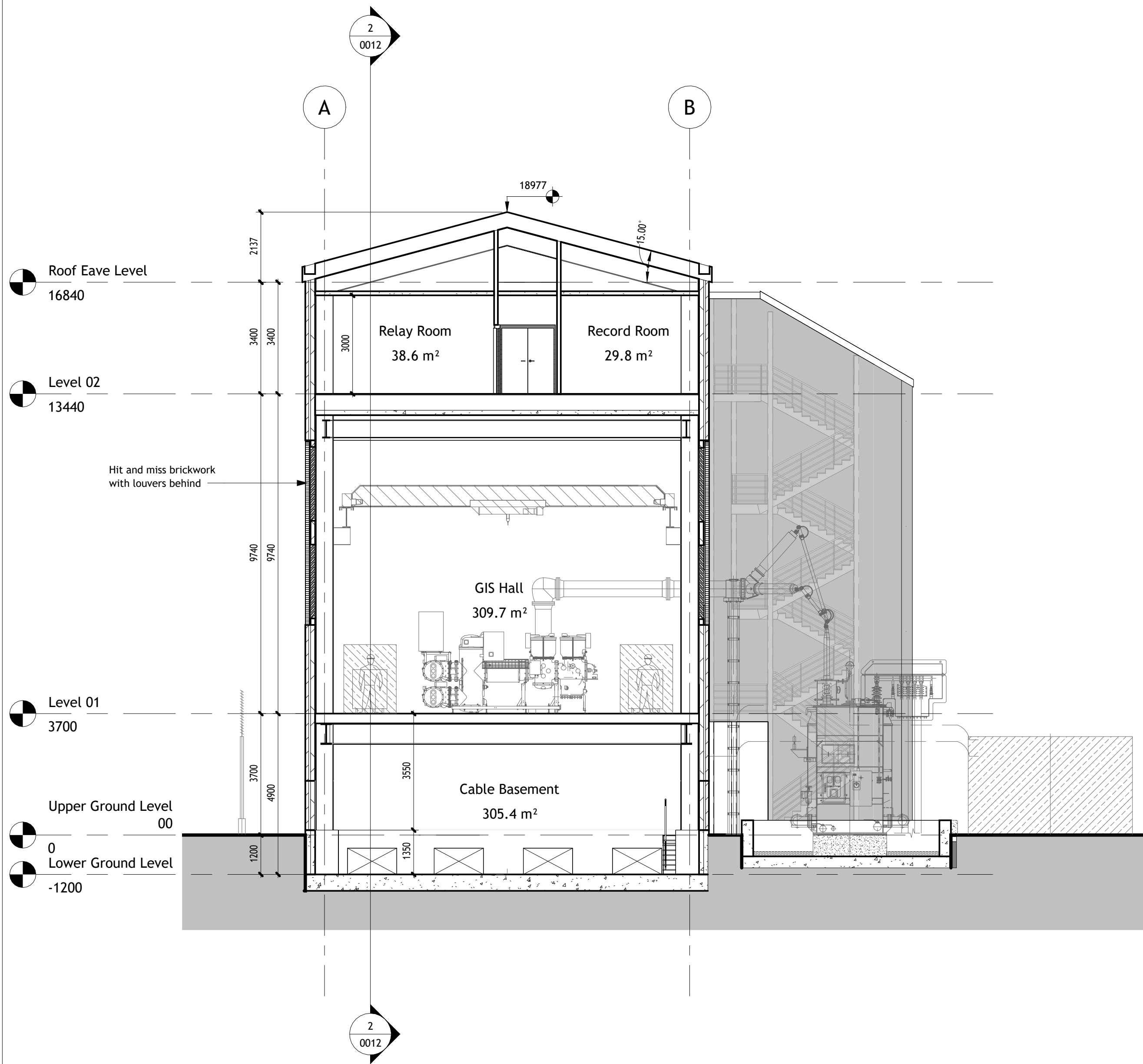
PO1

Drawing number

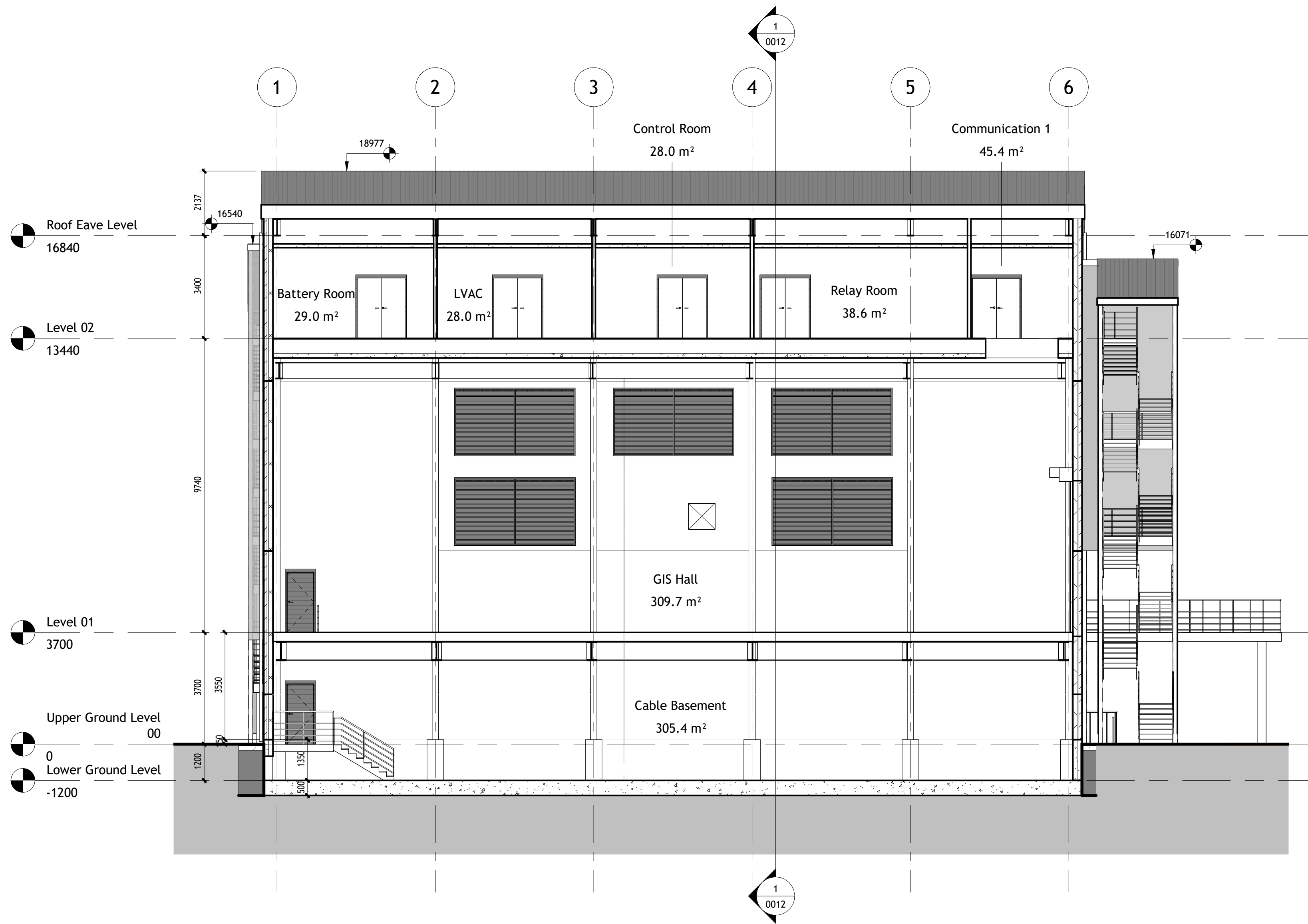
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Rev	Rev. Date	Purpose of revision	Orig	Check'd	Rev'd	Apprv'd
P01	15/05/2025	First Issue	AB	SS	KR	SA

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1 Section 1
1 : 100



2 Section 2
1 : 100

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- TRANSFORMER DETAILS IN BUND OMITTED FOR CLARITY

Rev	Rev. Date	Purpose of revision	Orig	Check'd	Rev'd	Appr'd
P01	15/05/2025	First Issue	AB	SS	KR	SA

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IMPERIAL PARK
132 KV GIS SUBSTATION

Drawing title

132kV GIS Building
Sections

Drawing status

First Issue

Suitability

S2

Scale

1 : 100 @ A1

DO NOT SCALE

Jacobs No.

B2494900

Rev

Client No.

000006410

P01

Drawing number

B2494900-JAC-ZZ-XX-DR-C-0012

Appendix F

Greenfield Runoff Rates

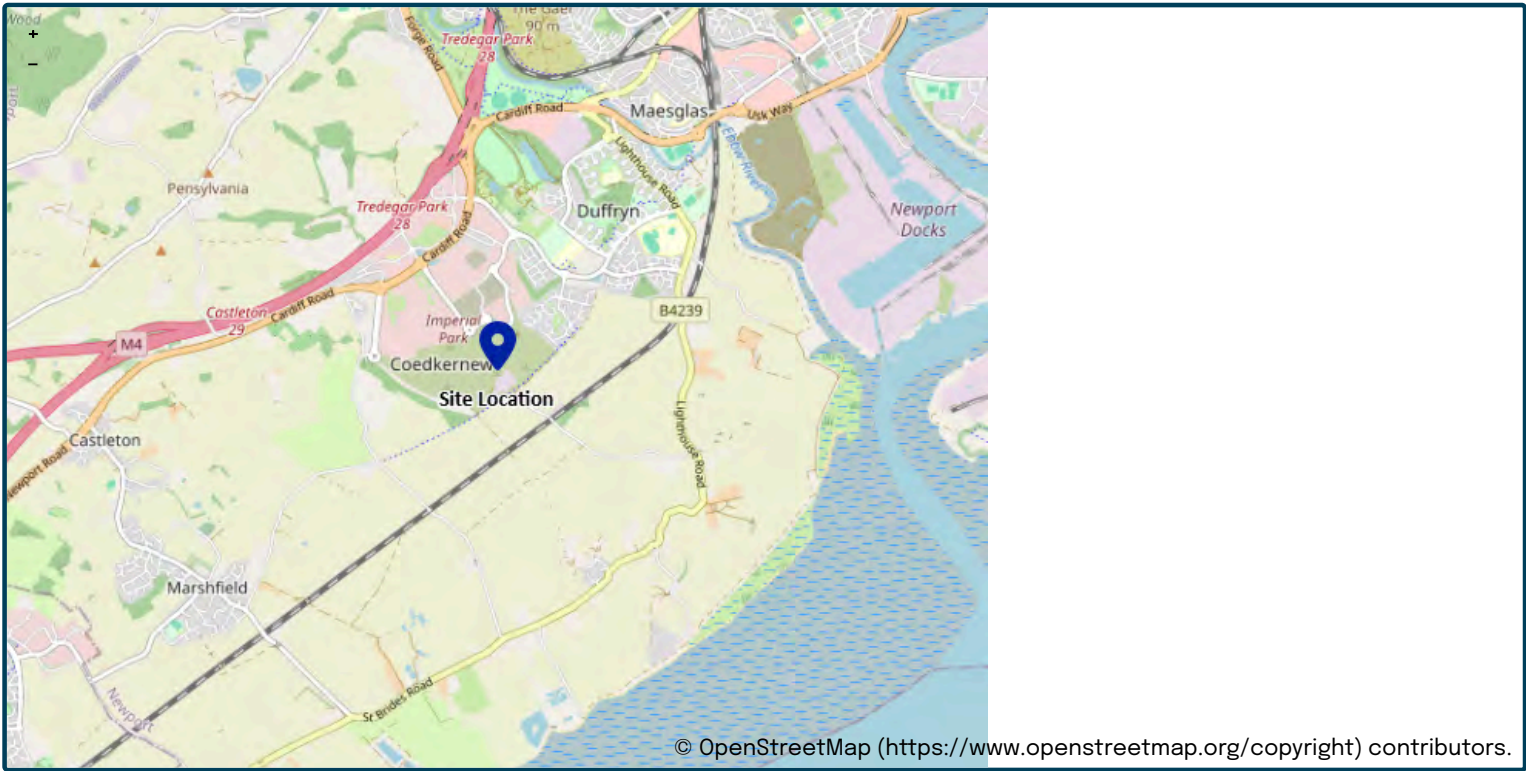
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	23/06/2025
Calculated by	JH
Reference	Imperial Park
Model version	2.0.1

Location

Site name	Imperial Park
Site location	Newport



Site easting	328536
Site northing	183644

Site details

Total site area (ha)	0.062	ha
----------------------	------------------------------------	----

Greenfield runoff

Method

Method	FEH statistical
--------	-----------------

FEH statistical

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	1001	mm	977
BFIHOST	0.703		
QMed-QBar conversion	1.075	☐	1.075
QMed (l/s)	0.192	l/s	
QBar (FEH statistical) (l/s)	0.21	l/s	

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	9	☐	9
1 year growth factor	0.88		
2 year growth factor	0.93		
10 year growth factor	1.42		
30 year growth factor	1.78		
100 year growth factor	2.18		
200 year growth factor	2.46		

Results

Method	FEH statistical	
Flow rate 1 year (l/s)	0.18	l/s
Flow rate 2 year (l/s)	0.19	l/s
Flow rate 10 years (l/s)	0.29	l/s
Flow rate 30 years (l/s)	0.37	l/s
Flow rate 100 years (l/s)	0.45	l/s
Flow rate 200 years (l/s)	0.51	l/s

Disclaimer

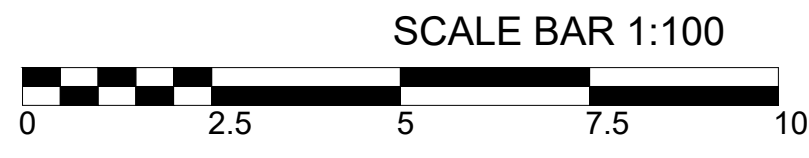
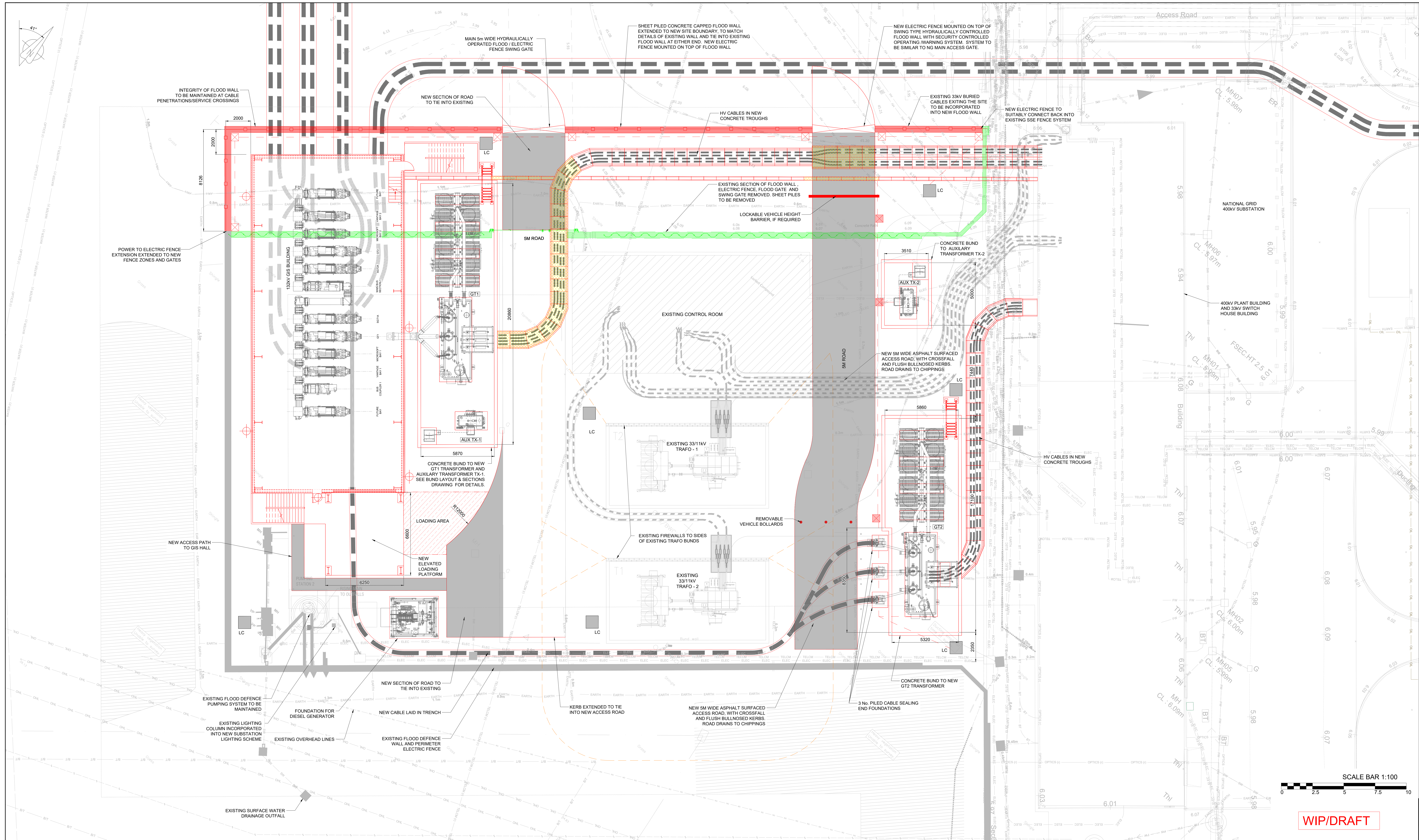
This report was produced using the Greenfield runoff rate estimation tool (2.0.1) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com/) (<https://www.uksuds.com/>).

The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

Appendix G

General Arrangement - Existing

C:\pwworking\jacobs_uk_water\utilities_ssa\praveenkumar.bokkala@jacobs.com\dms94712\B2494900-JAC-ZZ-XX-DR-C-0003.dwg - 5/15/2025 8:08:42 PM - PLAN - BOKKALP



WIP/DRAFT

NOTES:

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- THIS DRAWING IS FOR DEVELOPMENT PURPOSES ONLY.
- ALL CIVIL WORKS ARE CARRIED OUT IN ACCORDANCE WITH SSE TS, NATIONAL GRID SPECIFICATION 2.10 AND 3.10.
- SITE FINISH AROUND ALL FOUNDATIONS SHALL BE MIN 75mm THICK CHIPPINGS OVER MINIMUM OF 300mm SUB-BASE TYPE 3 COMPACTED IN ACCORDANCE WITH SHW.
- FOUNDATION SIZES ARE INDICATIVE ONLY AND ARE SUBJECT TO DETAILED DESIGN. FOR THE BACKGROUND SERVICES INFORMATION PLEASE REFER TO DRG. NO. B2494900-JAC-ZZ-XX-DR-C-0001.
- NEW SITE LIGHTING TO ACHIEVE MAINTAINED AVERAGE 6 LUX THROUGHOUT THE HV COMPOUND. LIGHTING CONTROLS IN THE CONTROL ROOM BUILDING AT ALSO AT THE GATES WHICH SHALL ALSO FEATURE PIR SENSORS.
- ALL AREAS AROUND STRUCTURES AND ROADS ON THE SITE TO BE FINISHED IN 75mm CHIPPINGS ON TOP OF 300mm WELL COMPACTED TYPE 2 MATERIAL.

REFERENCE DRAWINGS

HAZARD PLAN	B2494900-JAC-ZZ-XX-DR-C-0001
CDM PLAN	B2494900-JAC-ZZ-XX-DR-C-0002
SURFACE WATER DRAINAGE LAYOUT	B2494900-JAC-ZZ-XX-DR-C-0005
PLAN LAYOUT	B2494900-JAC-ZZ-XX-DR-E-0002
CABLE LAYOUT	B2494900-JAC-ZZ-XX-DR-E-0010

- INDICATIVE POSITIONS ON NEW 5M GALV STEEL MID HINGED SITE LIGHTING COLUMNS ON NEW RC PAD FOUNDATIONS
- DUCTS & DRAWPITS FOR MULTICORE CABLES
- DUCTS & DRAWPITS FOR ELECTRIC FENCE AND GATE CONNECTIONS AND CONTROLS

LEGEND:

- EXISTING LAYOUT
- NEW CIVIL WORKS
- PROPOSED EQUIPMENT
- EXISTING FENCE
- STRUCTURE TO BE REMOVED
- FIRE DAMAGE ZONE FOR EXISTING TRANSFORMERS T1 & T2
- NEW HV CABLES
- EXISTING DIRECT BURIED 33KV CABLES
- INDICATIVE POSITIONS OF BUILDING MOUNTED EXTERNAL LIGHTING
- HEIGHT BARRIER
- 11T HEAVY DUTY VEHICLE RATED TROUGH LID

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IMPERIAL PARK
132KV GIS SUBSTATION

Drawing title
CIVIL GENERAL ARRANGEMENT
IMPERIAL PARK 132KV GIS

Drawing status	Fit for Information	Suitability	S2
Scale	1:100 @ A0	DO NOT SCALE	
Jacobs No.	B2494900	Rev	
Client No.	000064109		P01

Drawing number
B2494900-JAC-ZZ-XX-DR-C-0003

Appendix H

Conceptual Drainage Strategy

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3. This drawing should be read in conjunction with all other relevant drawings and specifications.

PRELIMINARY SUBJECT TO DETAILED DESIGN

This drawing illustrates a sketch proposal only and as such is subject to detailed site investigation including ground conditions/contaminants, drainage, design and planning/density negotiations. The layout maybe based upon an enlargement of an OS sheet or other small scale plans and its accuracy will need to be verified by Survey. Full risk analysis under the CDM Regulations has not been undertaken.

Total Site Area = 0.200 ha
Total Impermeable Area = 0.062 ha
Q1 Greenfield Runoff Rate = 0.16 l/s
Restriction Rate = 2.0 l/s
Storage volume for the 1 in 100 year +20% Climate Change storm event = 26m³

KEY

- Surface Water Manhole
- Flow Control Manhole / Interceptor
- Surface Water Pipe Line
- Geocellular Crates

P01	First Issue.	JH	JM	23.06.25
Rev	Description	By	Ckd	Date



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Client **SSE**

Project **Imperial Park
Newport**

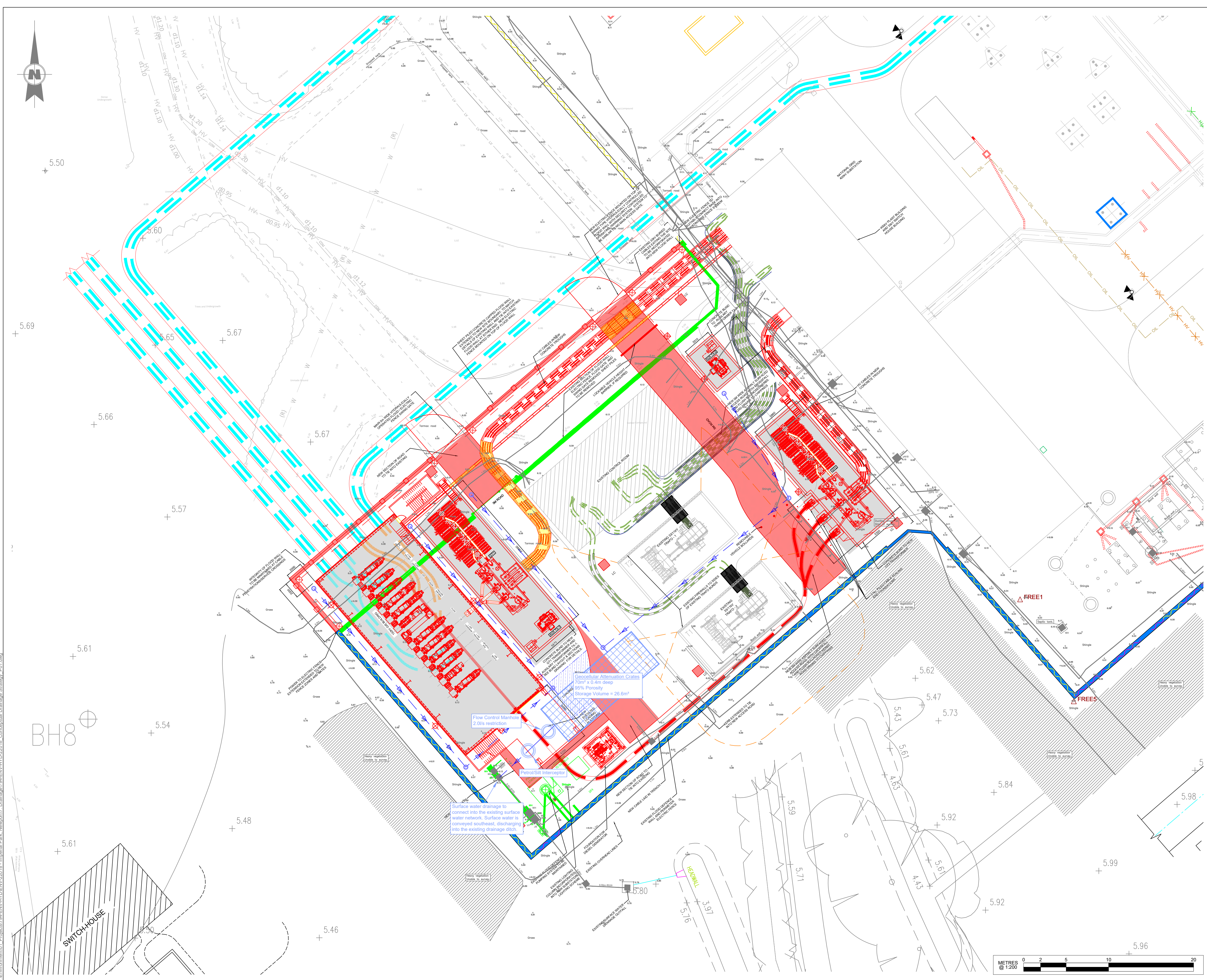
Title **Conceptual Drainage Strategy**

Status **Preliminary** Scale **1:200 @A1** Date Created **23.06.25**
Task Team Manager **JM** Information Author **JH** Task Information Manager **JM**
Document Number **22018-RPS-SD-ZZ-DR-D100-P01**

RPS Project Number
794-ENV-HYD-22018

Revision
P01

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Appendix I

Causeway Flow Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	9.000
CV	1.000	Preferred Cover Depth (m)	1.000
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1-STORAGE	0.062	5.00	100.000	1200	1010.000	1000.000	0.400
2-FC			100.000	1200	1020.000	1000.000	0.500
3-OF			100.000	1200	1030.000	1000.000	0.600

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.001	1-STORAGE	2-FC	10.000	0.600	99.600	99.500	0.100	100.0	225	5.13	50.0
1.002	2-FC	3-OF	10.000	0.600	99.500	99.400	0.100	100.0	225	5.26	50.0

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	2880	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	20	0	0

Node 2-FC Online Hydro-Brake® Control

Flap Valve	✓	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	99.500	Product Number	CTL-SHE-0076-2000-0400-2000
Design Depth (m)	0.400	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node 1-STORAGE Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	99.600
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	200

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	80.0	0.0	0.400	80.0	0.0

Results for 100 year +20% CC 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
120 minute winter	1-STORAGE	116	99.917	0.317	13.5	25.7437	0.0000	FLOOD RISK
120 minute winter	2-FC	110	99.926	0.426	7.0	0.4815	0.0000	FLOOD RISK
15 minute summer	3-OF	1	99.400	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	1-STORAGE	1.001	2-FC	7.0	0.339	0.135	0.3977	
120 minute winter	2-FC	Hydro-Brake®	3-OF	2.1				38.0

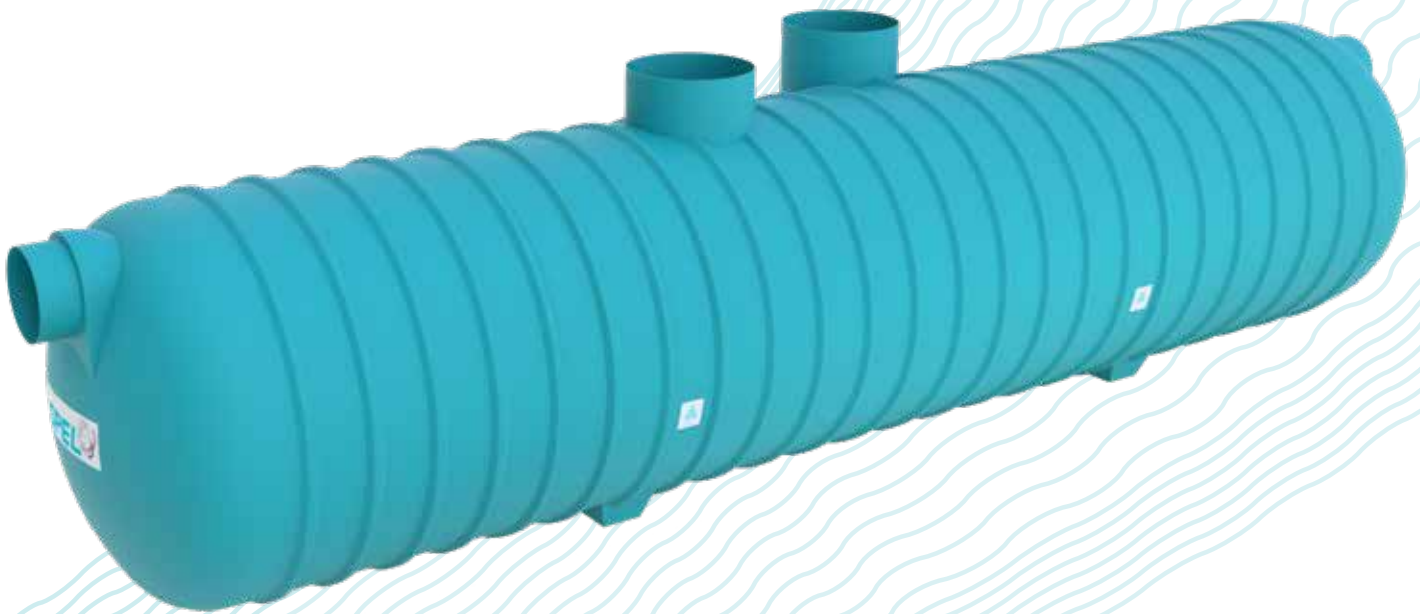
Appendix J

SPEL Management Data Sheet



Quality solutions protecting our global environment

The **safest answer** for **pollution control** and our **environment**



SPEL Stormceptor

ESR (Enhanced Silt Retention)

SuDS Compliant ESR Range

spelproducts.co.uk

SPEL Stormceptor ESR Range

By-Pass System

The **total** treatment solution for SuDS

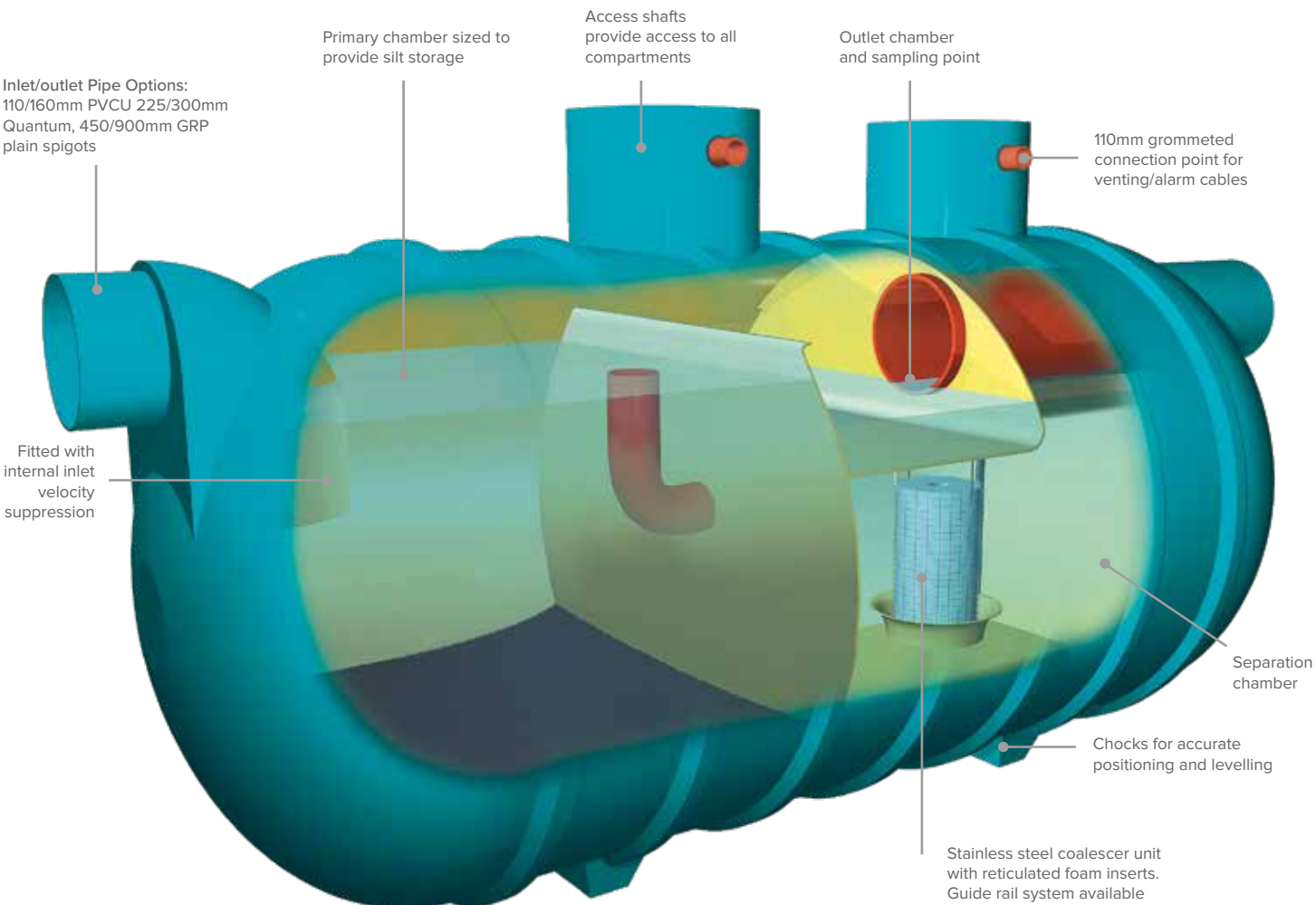
The new SPEL ESR System is fully certified to meet the CIRIA SuDS Mitigation Index. It has been tested by WRc (for TSS and Metals) to the British Water Code of Practice for Manufactured Treatment Devices. This unit is also compliant to the British and European Standard BS EN 858.

SPEL's ESR range is a total treatment system removing Hydrocarbons, Total Suspended Solids (TSS) and Metals (particulate). It's a highly efficient, single unit, water quality SuDS component.

SPEL ESR Stormceptor Certified Mitigation Index

TSS	0.8
Metals	0.6
Hydrocarbons	0.9*

**H R Wallingford test results to BS EN 858*



Appendix K
Maintenance Plan

Flow Control Manhole Suggested Maintenance Schedule

Maintenance schedule	Require Action	Typical Frequency
Regular Maintenance	Inspect vegetation above and around flow control chamber and remove nuisance plants (for first 3 years)	Monthly (at start, then as required)
	Remove sediment from flow control chambers	Annually
	Flow control devices: Check for and clear obstructions	Quarterly
Remedial Actions	Repair of Penstock and flow control device	As required
Monitoring	Inspect structures for evidence of poor operation	Monthly/after large storm
	Inspect structures, flow control and pipework etc. for evidence of physical damage	Monthly/after large storm
	Inspect silt accumulation rates and establish appropriate removal frequencies	Half yearly

Petrol/Silt Interceptor Suggested Maintenance Schedule

Maintenance schedule	Require Action	Typical Frequency
Routine Maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation	Six monthly
	Change the filter media	As recommended by manufacturer
	Remove sediment, oil, grease and floatables	As necessary – indicated by system inspections or immediately following significant spill
Remedial Actions	Replace malfunctioning parts or structures	As required
Monitoring	Inspect for evidence of poor operation	Six monthly
	Inspect filter media and establish appropriate replacement frequencies	Six monthly
	Inspect sediment accumulation rates and establish appropriate removal frequencies	Monthly during first half year of operation, then every six months