S1358/200923/WB/JG

BAILEY
JOHNSON
HAYES
CONSULTING ENGINEERS

CATALYST BICESTER, WENDLEBURY ROAD, BICESTER

SUSTAINABLE URBAN DRAINAGE (SuDS) MAINTENACE & MANAGEMENT PLAN

Bailey Johnson Hayes
Consulting Engineers

Tel: 01727 841172
Fax: 01727 841085
Email: wb@bjh.co.uk

S1358/September 2020
Issue 1

CATALYST BICESTER
SUSTAINABLE URBAN DRAINAGE (SuDS) MAINTENACE & MANAGEMENT PLAN

CONTENTS PAGE

APPENDICES

1 Introduction

1.1 This document sets out the principles for the long-term management and maintenance of the Sustainable Drainage Systems (SuDS). This is a "Live Document" which currently includes; enabling works to the David Lloyd site and Phase 1 (units 1-4, estate road and s278 works). Later phases will be added to this report until completion of the entirety of Catalyst Bicester, Wendlebury Road.

1.2 SuDS are a new environmentally friendly approach to managing rainfall that uses landscape features to deal with surface water. SuDS aim to:

- Control the flow, volume and frequency of water leaving a development area,
- Prevent pollution by intercepting silt and cleaning runoff from hard surfaces,
- Provide attractive surroundings for the community,
- Create opportunities for wildlife

1.3 The purpose of this document is to set out the basis of the development SuDS Maintenance Plan and to ensure that the adopting management company is entrusted with a robust inspection and maintenance programme, ensuring the optimum operation of the surface water drainage network is continually maintained for the lifetime of the development and to prevent the increased risk of flooding both on and offsite in accordance with the National Planning Policy Framework (NPPF).

1.4 A detailed Flood Risk Assessment (FRA) was undertaken in February 2020 by Bailey Johnson Hayes. Details of the existing drainage regime, proposed drainage strategy and risk assessment can be found online under planning application reference No. 19/01740/HYBRID & No. 19/01746/OUT.

1.5 The activities listed in this document are generic to the relative SuDS types and represent the minimum maintenance and inspection requirements, however additional tasks or varied maintenance frequency may be instructed by the maintenance company as required. Specific maintenance needs of the SuDS elements should be monitored, and maintenance schedules adjusted to suit requirements.

1.6 All those responsible for maintenance should follow relevant Health and Safety legislation (Health and Safety at Work Regulations, 1999) for all activities listed within this report including lone working, if relevant, and risk assessments should always be undertaken.

1.7 Any contractor employed by the Management Company shall carry out periodic maintenance of all such SuDS in accordance with the schedules listed in this report. Inspection checks shall be carried out by a qualified and competent person, at the minimum intervals listed within the schedules and the appropriate work carried out.

2 Managing the SuDS Features

2.1 The surface water drainage strategy for the proposed development utilises SuDS features to intercept and convey all surface water runoff. The design of the system aims to only attenuate runoff. Unfortunately, the site is not considered suitable for infiltration. There are also flood compensation basins which are designed to store water in extreme river flooding events. These should be treated like SuDS features for maintenance and management purposes.

2.2 The proposed surface water system consists of the following SuDS components:

- Swales;
- Storage Basins;
- Pervious Pavements.

2.3 In addition to the storm water SuDS systems, the proposed flood water system consists of the following components:

- Flood Compensation Basins;
- Existing Ditches;
- Existing Watercourses.

2.3 There are three categories of maintenance activities referred to in this report:

- **Regular maintenance** (including inspections and monitoring).
  Consists of basic tasks done on a frequent and predictable schedule, including vegetation management, litter and debris removal, and inspections.

- **Occasional maintenance**
  Comprises tasks that are likely to be required periodically, but on a much less frequent and predictable basis than the routine tasks (sediment removal is an example).

- **Remedial actions**
  Comprises intermittent tasks that may be required to rectify faults associated with the system, although the likelihood of faults can be minimised by good design. Where remedial work is found to be necessary, it is likely to be due to site-specific characteristics or unforeseen events, and as such timings are difficult to predict.

2.5 The following section will specifically address SuDS Management and Maintenance items for the Catalyst Bicester site.

3 Site Specific Drainage Features

3.1 Specific details of the Surface Water & Flood water drainage regime can be found in **Appendix A**. In accordance with the concept surface water drainage scheme, the SuDS at Catalyst Bicester have been designed for easy maintenance to comprise of:

3.2 Storage Basin (1) is in the south west corner of the site. This landscaped dry basin is approx. 170m long, 20m wide and 1.5m deep. It is designed with maximum 1:3 banks to encourage plants and wildlife to live and grow near water features. This basin services the run-off generated by Units 10-13 roofs, car parks and yards.

Flow routes from the car parks are via collection pipes which run under the car parks towards flow control devices before being discharged via headwalls into Basin 1. Roof water flows in traditional sealed pipes, close to buildings, are transmitted with unrestricted flows into Basin 1 via headwalls. Surface water collected in the yards is collected by large line drains or gullies which is then pre-treated in by-pass petrol interceptors, before discharge into Basin 1 via headwalls.

Surface water collected in Basin 1 then flows into a single, flow-control manhole, before outletting into an existing watercourse, adjacent to Promised Land Farm. An overflow facility is provided in failure conditions of the SuDS feature. Discharge limited to greenfield rates is into the tributary watercourse which conveyances the water into the larger Langford Brook river.

3.3 Storage Basin (2) is in the center of the site and considered the main SuDS feature. This landscaped dry basin is approx. 200m long, 30m wide and 1.7m deep. It is designed with maximum 1:3 banks to encourage plants and wildlife to live and grow near water features. This basin services the run-off generated by Units 1-9 roofs, car parks, yards, estate roads and landscaping. Additionally, it is designed to take a maximum restricted outflow from the David Lloyd site of 60 litres / sec.

Flow routes from the car parks are via collection pipes which run under the car parks towards flow control devices before being discharged into Basin 2 via headwalls. Roof water flows in traditional sealed pipes, close to buildings, with unrestricted flows into Basin 2 via headwalls. Surface water collected in the yards is collected by large line drains or gullies which is then pre-treated in by-pass petrol interceptors, before discharging into Basin 2 via headwalls. A large common drainage run from the David Lloyd site via Units 1-4 underneath the estate road collects run-off from the road via gullies or kerb drains.

Surface water collected in Basin 2 then flows into a single, flow-control manhole, before outletting into an existing ditch to the east of the site. An overflow facility is provided in case of failure of the SuDS feature. Discharge limited to greenfield rates flows into the tributary ditch which conveyances the water into the larger Langford Brook river.

3.4 Car parks are to be either fully or partially constructed out of pervious block paving. Surface water will be directed toward porous blocks where it will infiltrate into underlaying open graded stone, attenuating and treating run-off to reduce contamination and create storage volume. It is collected by porous pipes and transferred to flow-controlled manholes creating smaller sub-catchments.

3.5 All yards are constructed out of normal reinforced concrete and therefore are considered non-porous hard standing. These are drained traditionally via underground pipes into common drainage corridors.

3.6 Flood compensation basins are to be created in order to provide additional flood storage volume on-site as detailed in the Flood Risk Assessment (FRA). These are to be constructed in a similar manor to attenuation basins with, maximum 1:3 banks to encourage plants and wildlife to live and grow, enhancing biodiversity, while providing practical flood storage. Landscape banks are constructed to raise the development above the 1 in 100 + climate change level. These building pads are to be provided in order to protect the development and direct surface water into landscape areas away from the development.

4 Off-Site Drainage Features

4.1 The following items are to be adopted by the local authority (Cherwell District Council) and will be subject to separate management and maintenance regime:

`

- A new roundabout where storm water is intercepted by gullies or kerb drains. Storm water conveyance is then into an existing ditch adjacent to Wendlebury road and discharged at greenfield runoff rates via flow control.
- In the event of large rainfall events water is stored in attenuation creates or a dry swale. Flow is normally through the attenuation creates with off-line storage available in the swale for extreme events.
- A new 3m wide footpath adjacent to Wendlebury Road and the A41. Run-off generated by the new footpath will drain into existing ditches locally via new gullies fitted during Section 278 works.
- A new entrance/exit bell mouth for the David Lloyd development drained via gullies into the existing ditch adjacent to Wendlebury Road.

4.2 The following items are to be solely managed and maintained by David Lloyd:

- All drainage infrastructure for surface water runoff generated by the car park, roofs and tennis courts. Any attenuation features required in exceedance events above the 60 litres / sec agreed outlet into the wider Catalyst development.

5 Traditional Drainage – Maintenance Schedule

5.1 The drainage elements are designed to cater for 1 in 30-year storm conditions without any flooding. In order to ensure that no contamination enters the water courses, silt traps and petrol interceptors are provided at appropriate positions. The main SuDS features have been designed to cater for the 1 in 100-year storm conditions with overland flows directed away from buildings. In designing the System due reference has been given to the CIRIA SuDS Manual, 2015.

5.2 **Gullies** - Inspect and de-sludge at least once a year.

5.3 **Line Drains** – Inspect and de-sludge silt boxes as necessary. Maintain strictly in accordance with the Manufacturer's instructions but at least once a year. Check slotted grating for any blockages removing as necessary.

5.4 **Kerb Drains** – Inspect and de-sludge silt boxes as necessary. Maintain strictly in accordance with the Manufacturer's instructions but at least once a year. Check openings for any blockages removing as necessary.

5.5 **Catch Pits** - Inspect and de-sludge at least once a year.

5.6 **Petrol Interceptors** – Maintain strictly in accordance with the Manufacturer's instructions but at least once each year. Major refurbishment should be considered on a 15-year cycle, if required.

5.7 **Pipe Works** – Inspect and jet clean as necessary but at least once each year.

5.8 **Headwalls/Outlets** – These must be inspected and cleaned as necessary but at least twice each year. All gratings/screens and fixings should be checked and secured as necessary.

5.9 **Landscaping** – The landscaping is to be planted/managed/maintained as attached Re-Form Management & Maintenance Plan in **Appendix C**, as agreed with Oxfordshire County Council and attached.

6 Swales – Maintenance Schedule

Swales are linear, flat bottomed grassed or vegetated channels that convey water from one place to another which can also store water and allow it to soak into the ground. Maintenance of swales is relatively straightforward for landscape contractors. Adequate access is provided in the design of the swales for appropriate equipment and vehicles.

The major maintenance requirement for dry swales is mowing. Mowing should ideally retain grass lengths of 75-150mm across the main "treatment" surface, to assist in filtering pollutants and retaining sediments. However, longer vegetation lengths, where appropriate, are not considered to pose a significant risk. Grass clippings should be disposed appropriately away from the swale (SuDS Manual, 2015).

Table 1 – Operation and maintenance requirements for swales

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly, or as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding > 48 hours	Monthly, or as required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish silt removal prog.	Half yearly
Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required, or if bare soil if exposed over 10% of swale area
Remedial Actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

7 Storage Basins – Maintenance Schedule

Basins, ponds and wetlands are depressions in the ground where water is stored and treated. Water levels rise after rain and then drops to the normal level as the excess soaks into the ground or is released slowly to a watercourse or drain. Some water maybe held back as a pond for final treatment, amenity or wildlife interest.

The major maintenance requirement for storage basins is mowing. Mowing should ideally retain grass lengths of 75-150mm across the main "treatment" surface. Regular mowing in and around basins is only required along maintenance routes, amenity areas (e.g. footpaths), across any embankment and across the main storage area. The remaining areas can be managed as "meadow" unless otherwise required.

Table 2 – Operation and maintenance requirements for Storage Basins

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes and/or meadow grass in basin	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly, (at start then as required)
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc. for evidence of physical damage	Monthly
	Inspect inlets and facility surface for silt accumulation, establish silt removal prog.	Half yearly
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove minor sediments from inlets, outlets and forebays	Annually
	Manage wetland plants in outlet pool - where provide	Annually
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years
	Remove major sediment from inlets, outlets forebay and main basin when required	Every 5 years
Remedial Actions	Repair erosion or other damage by re-turfing or reseeding	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Realignment of rip-rap	As required
	Repair/restore of inlets, outlets and overflows	As required

8 Pervious Pavements – Maintenance Schedule

Permeable surfaces such as permeable block paving, porous Asphalt, gravel or free draining soils that allow rain to percolate through the surface into underlying drainage layers. They must be protected from silt, sand, compost, mulch, etc. Many of the specific maintenance activities can be undertaken as part of a general site cleaning contract.

Generally, pervious pavements require less frequent gritting in winter to prevent ice formation. There is also less risk of ice formation after snow melt, as the melt water drains directly into the underlying sub-base. A slight frost might occur on block paving.

Table 3 – Operation and maintenance requirements for Pervious Pavements

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequency's	Annually
	Monitor inspection chambers	Annually
	Brushing and vacuuming (Standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced based on manufacturers recommendations – pay particular attention to areas where water runs onto pervious surface from nearby impervious area as this area is most likely to collect the most sediment
Occasional Maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised within 50mm of the level of paving	As required
	Remedial work to depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)

9 Management Guidance

9.1 The following details can be found in **Appendix A**:

- Details of the site that identifies runoff sub-catchments, SuDS components, critical water levels, control structures, flow routes (including exceedance routing) and outfalls.

- The extent of the adopted area along with easements and rights of way for access to carry out maintenance.

9.2 The following details can be found in **Appendix B**:

- The access that is required to each surface water management component for maintenance purposes and a plan for the safe and sustainable removal and disposal of waste periodically arising from the drainage system.

- The maintenance specification details the materials to be used and the standard of work required. The specification describes how the work should be carried out and contains clauses giving general instructions to the maintenance contractor.

- The maintenance checklist itemises the tasks to be undertaken and the frequency at which they should be performed so that an acceptable long-term performance standard is secured. This schedule can then be priced, checked on site and form the basis of an inspection log where appropriate. The checklist should act as a living document as it may change, where inspections advise changes to the scheme maintenance requirements.

9.3 The following details can be found in **Appendix C**:

- The landscaping plan, regime, planting schedule and maintenance & management plan. This is provided by the landscape architect and is to be read and implemented in conjunction with the recommendations in this report.

9.4 The following details can be found in **Appendix D**:

- Photographic records of the inspections to be used by the management company. This can pick up long-term changes that might not be apparent on a single visit, especially where inspections are carried out by different members of staff.

9.5 The appointed management company will be fully responsible for all maintenance works. The management company shall appoint a professional management surveying company to ensure all infrastructure and SuDS are properly maintained and managed.

10 Spillage – Emergency Action

10.1 Most spillages on development sites are of compounds that do not pose a serious risk to the environment if they enter the drainage in a slow and controlled manner with time available for natural breakdown in a treatment system. Therefore, small spillages of oil, milk or other known organic substances should be removed where possible using soak mats as recommended by the Environment Agency with residual spillage allowed to bio-remediate in the drainage system.

10.2 In the event of a serious spillage, either by volume or of unknown or toxic compounds, then isolate the spillage with soil, turf or fabric and block outlet pipes from chamber(s) downstream of the spillage with a bung(s). (A bung for blocking pipes may be made by wrapping soil or turf in a plastic sheet or close woven fabric.)

Contact the Environment Agency immediately.

11 Queries Regarding Design Features

In the event of a concern or failure of a SuDS design feature contact:

Bailey Johnson Hayes Ltd
Suite 4, Phoenix House,
63 Campfield Road,
St. Albans,
Hertfordshire,
AL1 5FL

Tel: (01727) 841172

Email: wb@bjh.co.uk

www.bjh.co.uk/

…… ……

J Griffiths,
MSc, BEng, G.I.C.E
On behalf of Bailey Johnson Hayes

W Bailey C.Eng.,
F.I.Struct.E., M.I.C.E.
On behalf of Bailey Johnson Hayes

Bailey Johnson Hayes
Consulting Engineers
S1358/September 2020

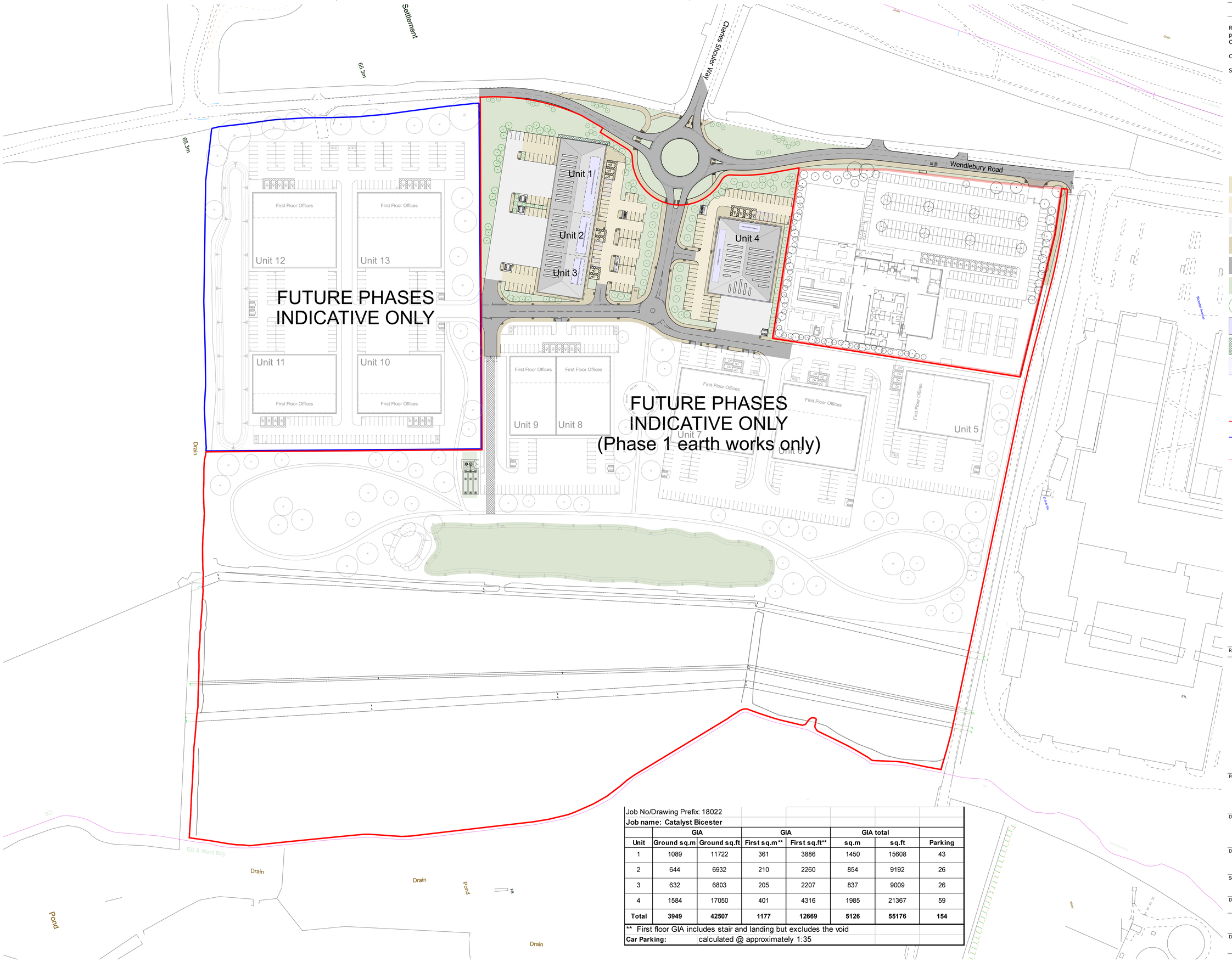
APPENDIX A

Drainage Layout Plans, Easement Plans and SuDS Details

By BJH & Cornish Architects

APPENDIX A.1

PHASE 1 PLANS



NOTES

Subject to Statutory Approvals.

N

- Concrete block paving to parking spaces
- Concrete block paving to parking circulation
- Brushed concrete road/yards
- Concrete block paving to footpaths
- Tarmac
- Soft landscape as Reform information
- Trees as Reform information
- PV array
- Ground-guard or similar (gravel filled)
- EV charging point
- Dropped kerb with tactile paving

- RMA Phase 1 Boundary
- Other Land - Farm site Boundary
- Health & Raquet Club Site

Job No/Drawing Prefix: 18022

Job name: Catalyst Bicester

	GIA		GIA		GIA total		
Unit	**Ground sq.m**	**Ground sq.ft**	**First sq.m****	**First sq.ft****	**sq.m**	**sq.ft**	**Parking**
1	1089	11722	361	3886	1450	15608	43
2	644	6932	210	2260	854	9192	26
3	632	6803	205	2207	837	9009	26
4	1584	17050	401	4316	1985	21367	59
Total	**3949**	**42507**	**1177**	**12669**	**5126**	**55176**	**154**

** First floor GIA includes stair and landing but excludes the void

Car Parking: calculated @ approximately 1:35

Rev	Description	Chk	Date

Peer House
8 -14 Verulam Street
London WC1X 8LZ

tel +44(0)20 7400 2120

enquiries@cornisharchitects.com
www.cornisharchitects.com

RIBA Chartered Practice

cornisharchitects

Project Title.

CATALYST
BICESTER

Drawing Title.

PHASE 1 PROPOSED
SITE & FINISHES
PLAN

Drawing Status.

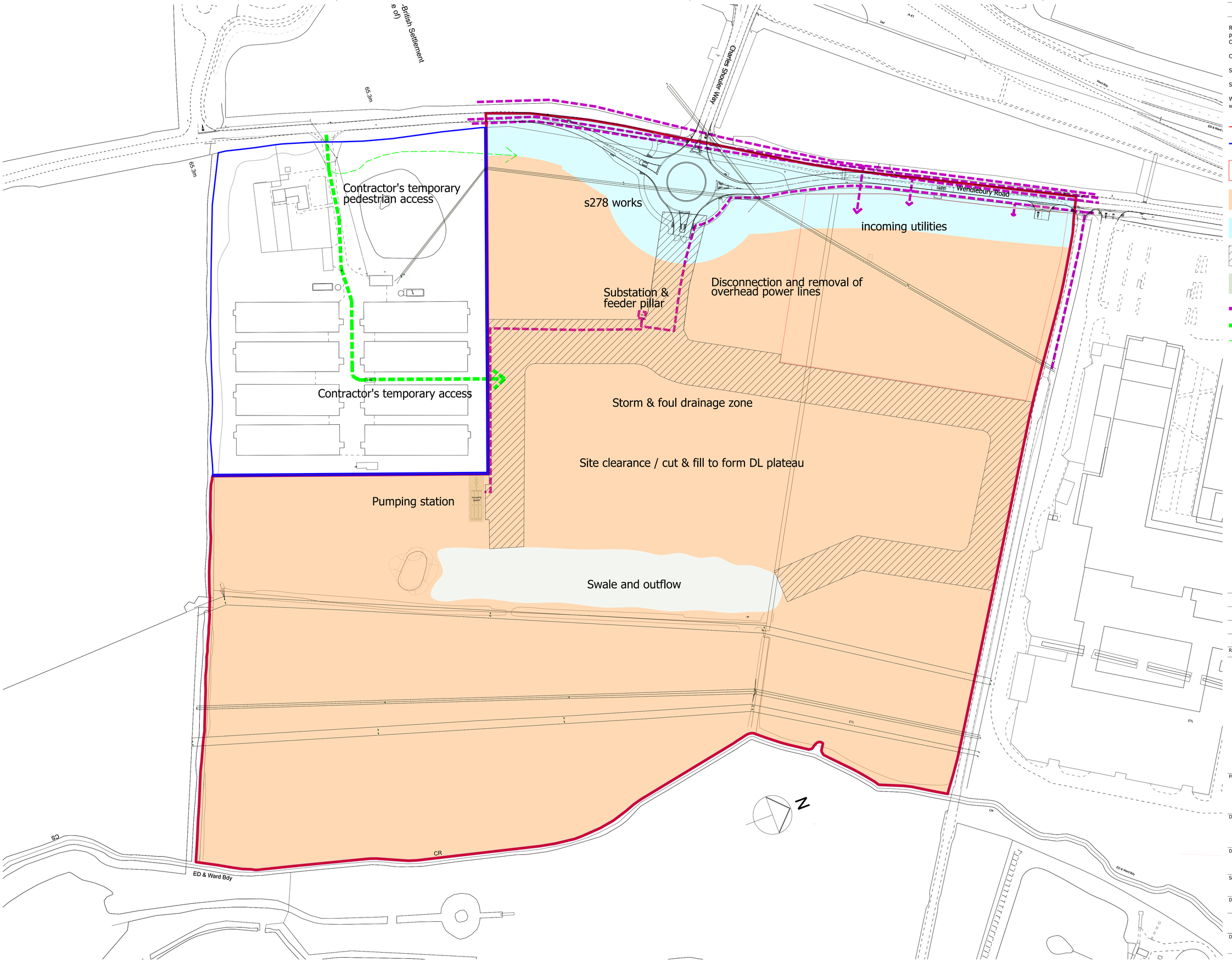
TOWN PLANNING

Scale. 0 10 metres 80

Drawn By.	Scale.	Date.	Chk'd By.
S M	1:1000 @ A1	29/07/2020	C S

ALBION LAND

Drawing No. 18022 - TP - 001 Rev. -



NOTES

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Subject to Statutory Approvals.

Subject to design development.

Where applicable this drawing is to be read in conjunction with other consultants drawings and with the specification.

- Site Boundary
- Adjoining Land Owned by Applicant
- David Lloyd Health & Raquet Club Site
- Site clearance / cut & fill to form DL plateau
- s 278 works
- Storm and foul drainage zone
- Swale and outflow
- Incoming utilities
- Contractor's temporary access
- Contractor's temporary pedestrian access

Rev	Description	Chk	Date
D	Drainage Zone amended	CS	17/09/2020
C	Contractor's access amended	CS	08/09/2020
B	Shading amended	CS	16/07/2020
A	Annotation and shading added	CS	14/07/2020

Peer House
8 -14 Verulam Street
London WC1X 8LZ

tel +44(0)20 7400 2120

enquiries@cornisharchitects.com
www.cornisharchitects.com

RIBA Chartered Practice

cornisharchitects

Project Title.

CATALYST
BICESTER

Drawing Title.

PHASE 1
DAVID LLOYD
ENABLING WORKS

Drawing Status.

FOR INFORMATION

Scale. 0 10 metres 80

Drawn By.	Scale.	Date.	Chk'd By.
C S	1:1000 @ A1	29/06/2020	C S

ALBION LAND

Drawing No. 18022 - SK - 123 Rev. D

This Drainage Plan is for the Package 2 Enabling Works for the David Lloyd Project. Package 2 drainage shown in dark blue.

S278 DRAINAGE WORKS
For full details of the proposed drainage works within the S278 Boundary refer to drawing ref: S1358-S278-05 Drainage Layout

Wendlebury Road

DAVID LLOYD SW OUTLET
3No. Potential Spur positions outlined below. Total peak discharge from David Lloyd Site must not exceed 60 litres per second limit.

Unit 1 65.00m
Unit 2 65.00m
Unit 3 65.00m
Unit 4 65.00m
Unit 5 65.00m
Unit 6 64.75m
Unit 7 64.75m
Unit 8 64.75m
Unit 9 64.75m
Unit 10 64.75m
Unit 11 64.75m
Unit 12 64.75m
Unit 13 64.75m

First Floor Offices

SP1.1 CL 64.650 IL 62.950
SP1.2 CL 64.650 IL 63.215
SP1.3 CL 64.700 IL 63.285
SP1.4 CL 64.70 IL 63.390
SP1.5 CL 64.70 IL 63.500
SP1.6 CL 64.70 IL 63.580
SP1.7 CL 64.70 IL 63.750
SP1.8 CL 64.70 IL 63.900
SP1.9 CL 64.775 IL 63.700
SP1.10 CL 64.700 IL 63.580
SP1.11 CL 64.50 IL 63.410
SP1.12 CL 64.20 IL 63.240
SP1.13 CL 64.80 IL 62.970
SP1.14 CL 64.70 IL 62.750 Hydrobrake + Silt Trap 12 L/sec Non– Return Valve

375ø Spur
300ø Spur
450ø Spur
525ø 1:330
600ø 1:330
450ø 1:330
375ø 1:330
300ø 1:200
450ø 1:300
600ø 1:300
750ø 1:330

Potential 300ø Spur @ 1:200

Foul Pumping Station

HW1 IL 62.800
HW2 IL 62.800

SWALE 1 IL 63.200m
SWALE 2 IL 62.800m

Extg. Pond

Hydrobrake Outlet 8 L/S

Kerb drain
Line drain
Attenuation Blanket

Existing Ditch & Hedgerow to Remain
New Ditch & Hedgerow to be constructed

Drain

SW Drainage Strategy & Layout 1:500

10m 0 10m 20m 30m 40m 50m

1:500 @ A0

TENDER 17.07.20

NOTES

MK Surveys
Topographical Survey (June 2018)

Cornish Architects
'Phase 1 Proposed Site Plan Option 3'
Plan Ref. 18022 - SK - 117(C) (July 2020)

PRELIMINARY

Rev	Date	Revision Description
B	17.08.20	PACKAGE 2 WORKS CLARIFIED
A	17.07.20	ISSUED FOR ENABLING WORKS TENDER

Revision Schedule

Catalyst Bicester
Wendlebury Road

Client:
Albion Land Plc.

PHASE 1 - PACKAGE 2
SW DRAINAGE STRATEGY & LAYOUT

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:500 @A0
Date	14.07.20
Drawn	JNG

S1358-PH1-01B

WORK IN PROGRESS AUGUST 2020

This Externals & Levels Plan is for the Package 2 Enabling Works for the David Lloyd Project

FLOOD COMPENSATION SCHEME
See BJH Phase 1 Flood compensation plan drawings ref: S1358 - PH1 - 06, for full details of flood comp. levels.

SECTION 278 WORKS
See BJH S278 Works Drawings plan ref: S1358 - S278 - 01-25, for full details of improvements to Wendlebury Road including new Roundabout, footpaths and drainage infrastructure.

Wendlebury Road

DAVID LLOYD SITE PREPARATION
See BJH Phase 1 David Lloyd Site Preparation Plan drawings ref: S1358 - PH1 - 08, for full details of David Lloyd Topsoil stockpile and earthwork strategy.

FOUL PUMPING STATION
See BJH Phase 1 FW drainage strategy and pumped main drawings ref: S1358 - PH1 - 02, 04 & 07 for full details of FW drainage infrastructure, pump station and pumped main.

SITE EARTHWORKS
See BJH Phase 1 General Site Earthworks drawings ref: S1358 - PH1 - 09, for full details of site plateau levels, areas of cut or fill and location of potential stockpiles.

ATTENUATION SWALE 2
See BJH Phase 1 SW drainage strategy and Swale 2 Plan drawings ref: S1358 - PH1 - 01 & 05, for full details of SW drainage infrastructure, attenuation swales and outlets.

WETLAND CONSERVATION AREA
See BJH Phase 1 SW drainage strategy and Wetland Conservation Details drawings ref: S1358 - PH1 - 01 & 10, for full details of Wetland levels and landscaping layout.

Unit 1 65.00m
Unit 2 65.00m
Unit 3 65.00m
Unit 4 65.00m
Unit 5 65.00m
Unit 6 64.75m
Unit 7 64.75m
Unit 8 64.75m
Unit 9 64.75m
Unit 10 64.75m
Unit 11 64.75m
Unit 12 64.75m
Unit 13 64.75m

First Floor Offices
Porous Paving
Line Drain
Kerb Drain
TEMP. TRACK
SWALE 1 IL 63.200m
Drain

External Works Layout & Levels 1:500

10m 0 10m 20m 30m 40m 50m
1:500 @ A0

TENDER 17.07.20

NOTES
MK Surveys
Topographical Survey (June 2018)

Cornish Architects
'Phase 1 Proposed Site Plan Option 3'
Plan Ref. 18022 - SK - 117(C) (July 2020)

PRELIMINARY

Rev	Date	Revision Description
B	17.08.20	PACKAGE 2 WORKS CLARIFIED
A	17.07.20	ISSUED FOR ENABLING WORKS TENDER

Revision Schedule

Catalyst Bicester
Wendlebury Road

Client:
Albion Land Plc.

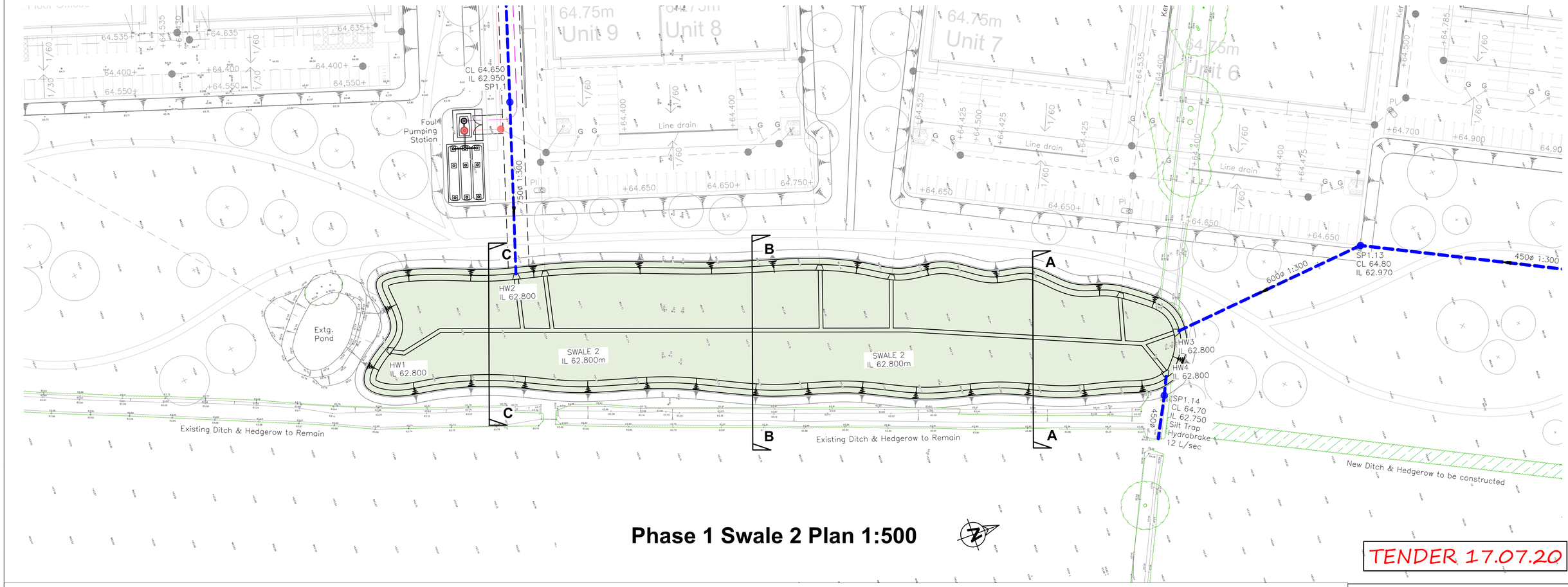
PHASE I - PACKAGE 2
EXTERNAL WORKS LAYOUT & LEVELS

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

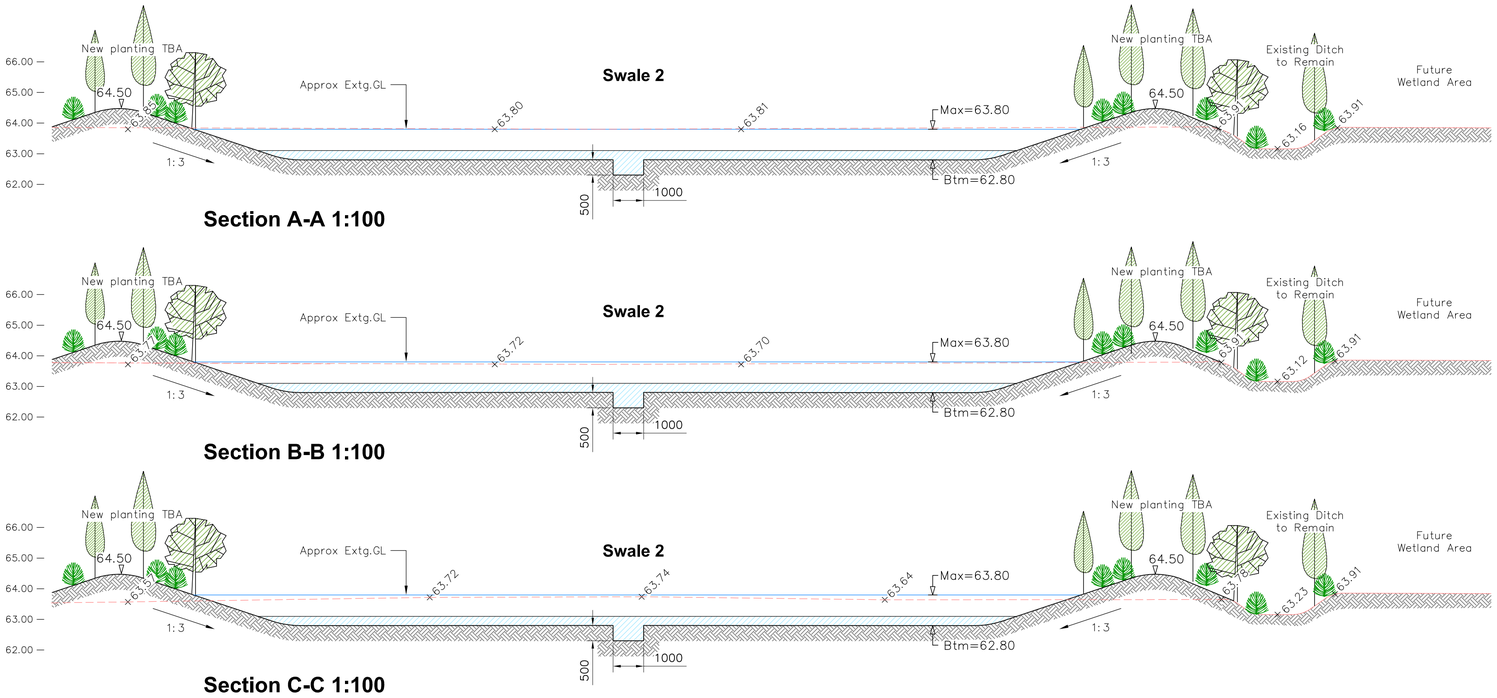
Scale	1:500 @A0
Date	14.07.20
Drawn	JNG

S1358-PH1-03B

WORK IN PROGRESS AUGUST 2020



Phase 1 Swale 2 Plan 1:500



Section A-A 1:100

Section B-B 1:100

Section C-C 1:100

WORK IN PROGRESS AUGUST 2020

TENDER 17.07.20

NOTES

MK Surveys
Topographical Survey (June 2018)

Cornish Architects
'Phase 1 Proposed Site Plan Option 3'
Plan Ref. 18022 - SK - 117(C) (July 2020)

PRELIMINARY

Rev	Date	Revision Description
B	17.08.20	PACKAGE 2 WORKS CLARIFIED
A	17.07.20	ISSUED FOR ENABLING WORKS TENDER

Revision Schedule

Catalyst Bicester

Wendlebury Road

Client:

Albion Land Plc.

PHASE 1 - PACKAGE 2
SWALE 2 DETAILS

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:500, 100 @A1
Date	14.07.20
Drawn	JNG

S1358-PH1-05B

Wendlebury Road

Weir
64.05m

Culvert
64.05m

Weir
63.95m

Culvert
64.15m

Unit 1
65.00m

Unit 2
65.00m

Unit 3
65.00m

Unit 4
65.00m

Unit 5
65.00m

Unit 6
64.75m

Unit 7
64.75m

Unit 8
64.75m

Unit 10
64.75m

Unit 12
64.75m

Unit 13
64.75m

First Floor Offices

FUTURE AREA FOR NEW UNITS & SWALE TO BE PROTECTED BY RAISED BANKS ALL ROUND

PHASE 1 EMPLOYMENT SITE WORK OUTSIDE OF THE FLOODPLAIN

PHASE 1 DAVID LLOYD WORK OUTSIDE OF THE FLOODPLAIN

FUTURE AREA FOR NEW UNITS TO BE PROTECTED BY RAISED BANKS ALL ROUND

FUTURE AREA FOR NEW UNITS TO BE PROTECTED BY RAISED BANKS ALL ROUND

PHASE 1 NEW SWALE TO BE PROTECTED BY RAISED BANKS ALL ROUND

NEW DITCH & HEDGEROW TO BE CONSTRUCTED

EXISTING LEVEL OR LOWER

Drain

Drain

Drain

Pond

ED & Ward Bdy

WETLAND CONSERVATION AREA
See BJH Phase 1 SW drainage strategy and Wetland Conservation Details drawings ref: S1358 - PH1 - 01 & 10, for full details of Wetland levels and landscaping layout.

NO WORK WITHIN 8M OF RIVER

NO WORK WITHIN 8M OF RIVER

EXISTING DITCH
Existing ditch to remain with re-grading, removal of debris and landscaping as necessary to improve surface water flows

WORK IN PROGRESS AUGUST 2020

Flood Compensation Layout 1:1000

TENDER 17.07.20

NOTES

MK Surveys
Topographical Survey (June 2018)

Cornish Architects
'Phase 1 Proposed Site Plan Option 3'
Plan Ref. 18022 - SK - 117(C) (July 2020)

PRELIMINARY

Rev	Date	Revision Description
B	17.08.20	PACKAGE 2 WORKS CLARIFIED
A	17.07.20	ISSUED FOR ENABLING WORKS TENDER

Revision Schedule

Catalyst Bicester
Wendlebury Road

Client:
Albion Land Plc.

FLOOD COMPENSATION LAYOUT

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

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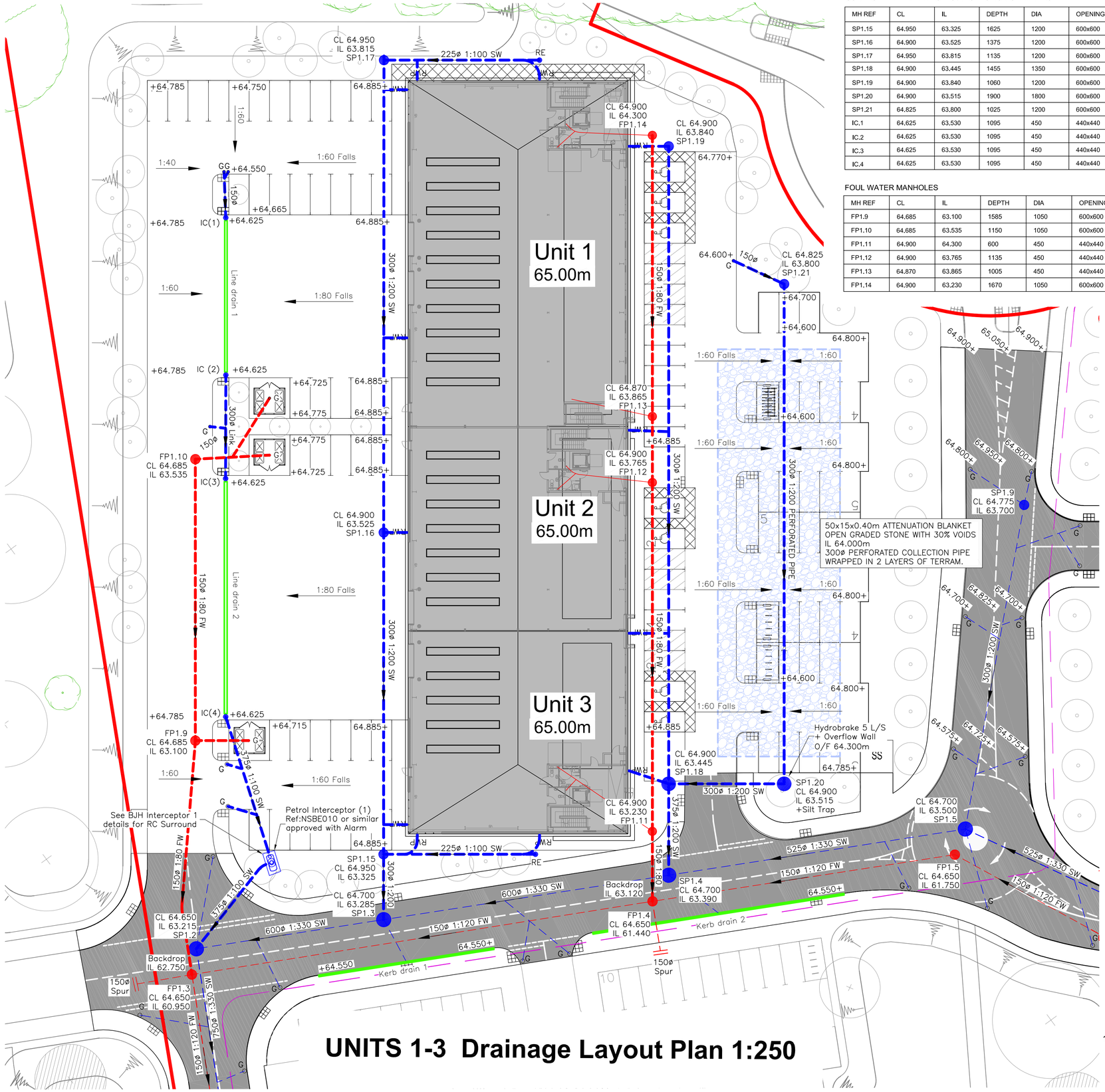
Date	14.07.20
Drawn	JNG

S1358-PH1-06B



UNITS 1-3 Drainage Layout Plan 1:250

SURFACE WATER MANHOLES / INSPECTION CHAMBERS

MH REF	CL	IL	DEPTH	DIA	OPENING	COVER	EASTING	NORTHING	COMMENTS
SP1.15	64.950	63.325	1625	1200	600x600	B125	.	.	.
SP1.16	64.900	63.525	1375	1200	600x600	D400	.	.	.
SP1.17	64.950	63.815	1135	1200	600x600	B125	.	.	.
SP1.18	64.900	63.445	1455	1350	600x600	C250	.	.	.
SP1.19	64.900	63.840	1060	1200	600x600	C250	.	.	.
SP1.20	64.900	63.515	1900	1800	600x600	B125	.	.	Hydrobrake IL 63.515. Catchpit Base 63.000.
SP1.21	64.825	63.800	1025	1200	600x600	B125	.	.	.
IC.1	64.625	63.530	1095	450	440x440	D400	.	.	ACO Qmax Access Chamber + slotted cover
IC.2	64.625	63.530	1095	450	440x440	D400	.	.	ACO Qmax Access Chamber + slotted cover
IC.3	64.625	63.530	1095	450	440x440	D400	.	.	ACO Qmax Access Chamber + slotted cover
IC.4	64.625	63.530	1095	450	440x440	D400	.	.	ACO Qmax Access Chamber + slotted cover

FOUL WATER MANHOLES

MH REF	CL	IL	DEPTH	DIA	OPENING	COVER	EASTING	NORTHING	COMMENTS
FP1.9	64.685	63.100	1585	1050	600x600	D400	.	.	.
FP1.10	64.685	63.535	1150	1050	600x600	D400	.	.	.
FP1.11	64.900	64.300	600	450	440x440	C250	.	.	PPIC 150
FP1.12	64.900	63.765	1135	450	440x440	C250	.	.	PPIC 150
FP1.13	64.870	63.865	1005	450	440x440	C250	.	.	PPIC 150
FP1.14	64.900	63.230	1670	1050	600x600	C250	.	.	.

NOTES

DRAINAGE

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTS & ENGINEERS DRAWINGS & SPECIFICATIONS.

2 DRAINS TO BE HEPWORTH SUPERSLEEVE OR NAYLOR DENSLEEVE: LAID ON CLASS N GRANULAR BEDDING TO BS 882: TABLE 4 OR TO BS 8301: 1985 APPENDIX D.

3 ALL TRENCHES WITHIN TRAFFICKED AREAS TO BE BACKFILLED WITH 75MM DOWNGRADED STONE FILL, PLACED & COMPACTED IN LAYERS OF 150MM. ALL PIPES IN ROADWAYS / PARKING, LESS THAN 900MM DEEP TO BE ENCASED IN CONCRETE. PROVIDE FLEXIBLE JOINTS AT 3000MM CENTRES.

4 MANHOLES TO BE CONSTRUCTED OF PRECAST CONCRETE RINGS TO BS 5911-PART 1. RINGS TO BE BEDDED IN SEALANT STRIPS.

5 MANHOLES BENEATH ROADS & PARKING AREAS TO BE CASED IN 150MM CONCRETE SURROUND.

6 ALL CONNECTIONS TO RAIN WATER PIPES TO BE PROVIDED WITH RODDING ACCESS.

7 ROAD GULLIES TO BE HEPWORTH ROAD GULLIES REF: 213 WITH 150MM DIAMETER OUTLET OR SIMILAR APPROVED. GULLIES TO BE ENCASED IN 150MM MINIMUM CONCRETE.

8 DRAWINGS TO BE ISSUED TO NRA & LOCAL AUTHORITY WELL IN ADVANCE OF COMMENCEMENT OF DRAINAGE

9 EXISTING MANHOLES IN ROADS TO HAVE INVERT LEVELS CONFIRMED PRIOR TO DRAINAGE

10 ROADS TO BE REINSTATED TO STANDARD REQUESTED BY LOCAL AUTHORITY WHERE DRAINAGE CROSSES

KEY:

- INDICATES GULLIES
- INDICATES SURFACE WATER MANHOLES
- INDICATES FOUL MANHOLES
- INDICATES EXISTING MANHOLES
- INDICATES NEW FW PIPE RUNS
- INDICATES NEW SW PIPE RUNS

ALL PIPES CONNECTED DIRECTY INTO GULLIES TO BE 150MM DIAMETER

Drawing Ref. Schedule

1 MK SURVEYS
TOPOGRAPHICAL SURVEY (JUNE 2018)

2 CORNISH ARCHITECTS
'PHASE 1 PROPOSED SITE AND FINISHES PLAN'
PLAN REF. 18022 - TP - 001(-) (SEPTEMBER 2020)

3 CORNISH ARCHITECTS
'UNITS 1-3 FLOOR & ROOF PLANS'
PLAN REF. 18022 - TP - 002 (-) (SEPTEMBER 2020)

PRELIMINARY

Rev	Date	Revision Description
A	28.09.20	Updated to latest site plan

Revision Schedule

Catalyst Bicester
Wendlebury Road

Client:
Albion Land Plc.

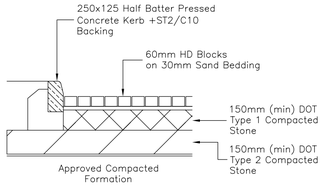
PHASE 1 - PACKAGE 3
UNITS 1-3 DRAINAGE LAYOUT PLAN

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

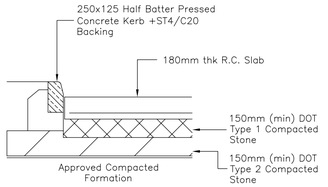
Scale	1:250 @A1
Date	28.07.20
Drawn	JNG

S1358-PH1-11A

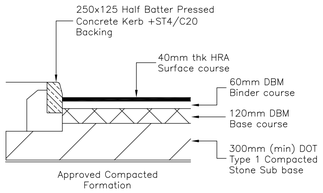
WORK IN PROGRESS SEPT 2020



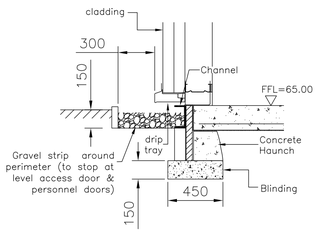
Standard Block Paving 1:25



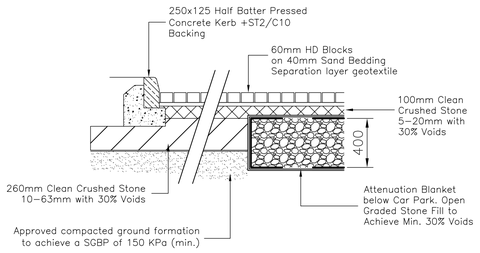
RC Yard Kerb Detail 1:25



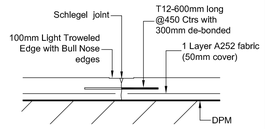
Access Road 1:25



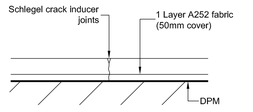
Building Perimeter Gravel Strip Detail 1:25



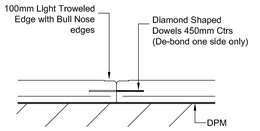
Permeable Block Carpark 1:25



Free Contraction Joint 1:25

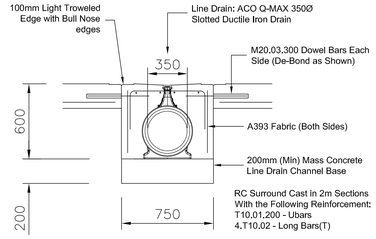


Contraction Joint 1:25



Longitudinal Joint 1:25

Scale 1:250 @A1



ACO Qmax 350 Detail 1:25

Key:

- Porous Block Paving Car Park Spaces
- Non–Porous Block Paving Car Park Spaces
- 180mm thk RC Yard Slab
- Block Pathways
- Asphalt Road
- Bitmac Pathways
- Ground Guard or similar approved

Drawing Ref. Schedule

1 MK SURVEYS
TOPOGRAPHICAL SURVEY (JUNE 2018)

2 CORNISH ARCHITECTS
'PHASE 1 PROPOSED SITE AND FINISHES PLAN'
PLAN REF. 18022 - TP - 001(-) (SEPTEMBER 2020)

3 CORNISH ARCHITECTS
'UNITS 1-3 FLOOR & ROOF PLANS'
PLAN REF. 18022 - TP - 002 (-) (SEPTEMBER 2020)

PRELIMINARY

Rev	Date	Revision Description
A	28.09.20	Updated to latest site plan

Revision Schedule

Catalyst Bicester

Wendlebury Road

Client:

Albion Land Plc.

PHASE 1 - PACKAGE 3
UNITS 1-3 EXTERNAL WORKS LAYOUT

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:250, 25 @A1
Date	28.07.20
Drawn	JNG

S1358-PH1-12A

UNIT 1-3 External Works Layout 1:250

ALL LEVELS ARE TO TOP OF PAVEMENTS

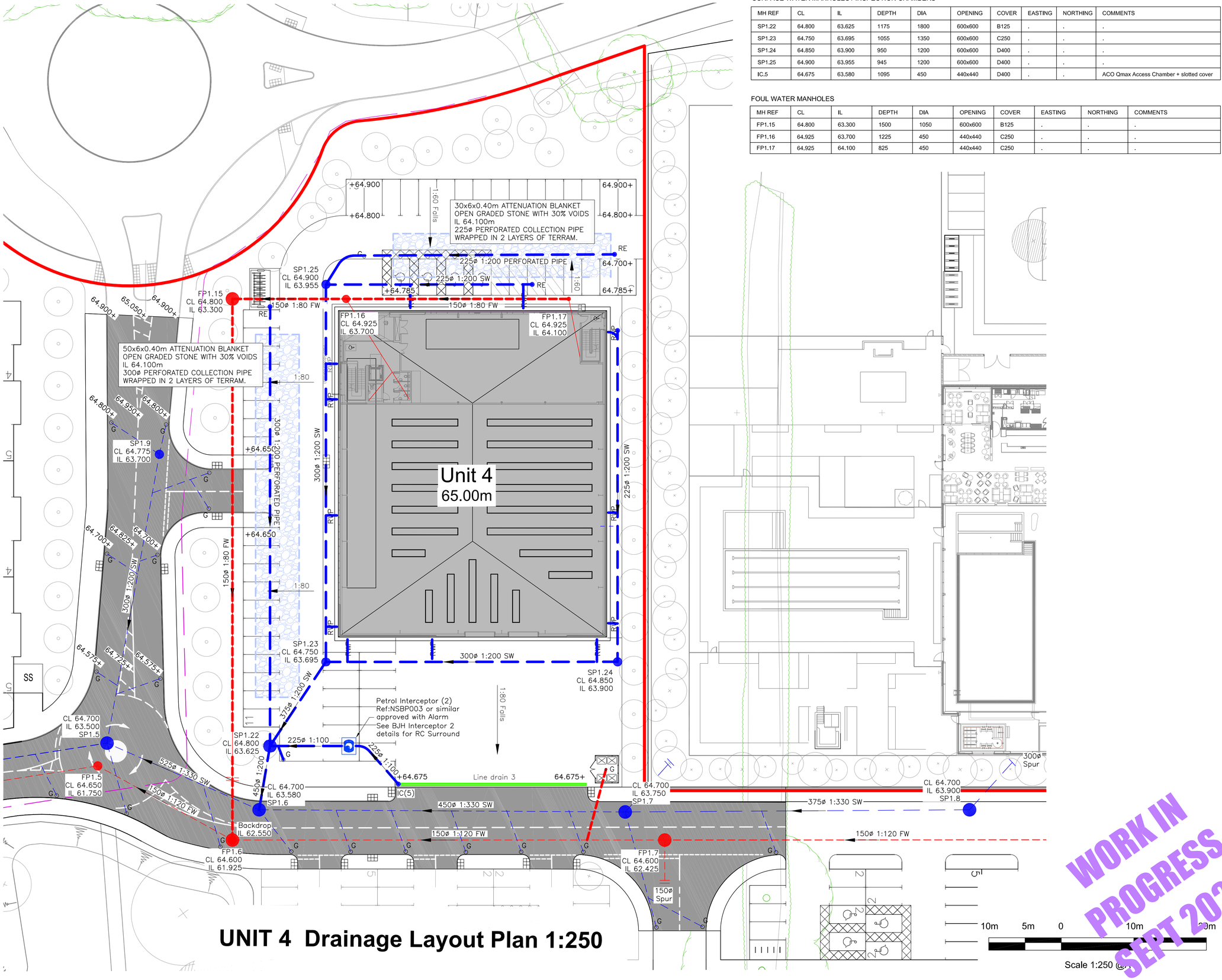
WORK IN PROGRESS SEPT 2020

SURFACE WATER MANHOLES / INSPECTION CHAMBERS

MH REF	CL	IL	DEPTH	DIA	OPENING	COVER	EASTING	NORTHING	COMMENTS
SP1.22	64.800	63.625	1175	1800	600x600	B125	.	.	.
SP1.23	64.750	63.695	1055	1350	600x600	C250	.	.	.
SP1.24	64.850	63.900	950	1200	600x600	D400	.	.	.
SP1.25	64.900	63.955	945	1200	600x600	D400	.	.	.
IC.5	64.675	63.580	1095	450	440x440	D400	.	.	ACO Qmax Access Chamber + slotted cover

FOUL WATER MANHOLES

MH REF	CL	IL	DEPTH	DIA	OPENING	COVER	EASTING	NORTHING	COMMENTS
FP1.15	64.800	63.300	1500	1050	600x600	B125	.	.	.
FP1.16	64.925	63.700	1225	450	440x440	C250	.	.	.
FP1.17	64.925	64.100	825	450	440x440	C250	.	.	.



UNIT 4 Drainage Layout Plan 1:250

Scale 1:250 @A1

WORK IN PROGRESS SEPT 2020

NOTES

DRAINAGE

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTS & ENGINEERS DRAWINGS & SPECIFICATIONS.

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KEY:

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- INDICATES SURFACE WATER MANHOLES
- INDICATES FOUL MANHOLES
- □ INDICATES EXISTING MANHOLES
- INDICATES NEW FW PIPE RUNS
- INDICATES NEW SW PIPE RUNS

ALL PIPES CONNECTED DIRECTY INTO GULLIES TO BE 150MM DIAMETER

Drawing Ref. Schedule

1 MK SURVEYS
TOPOGRAPHICAL SURVEY (JUNE 2018)

2 CORNISH ARCHITECTS
'PHASE 1 PROPOSED SITE AND FINISHES PLAN'
PLAN REF. 18022 - TP - 001(-) (SEPTEMBER 2020)

3 CORNISH ARCHITECTS
'UNITS 1-3 FLOOR & ROOF PLANS'
PLAN REF. 18022 - TP - 005 (-) (SEPTEMBER 2020)

PRELIMINARY

Rev	Date	Revision Description
A	28.09.20	Updated to latest site plan

Revision Schedule

Catalyst Bicester

Wendlebury Road

Client:

Albion Land Plc.

PHASE 1 - PACKAGE 3
UNIT 4 DRAINAGE LAYOUT PLAN

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

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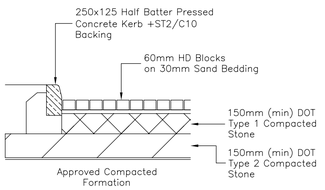
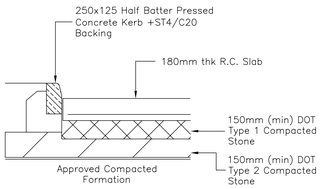
Date	28.07.20
Drawn	JNG

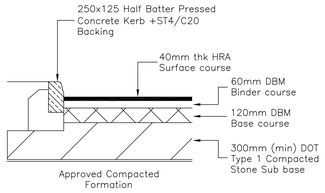
S1358-PH1-13A



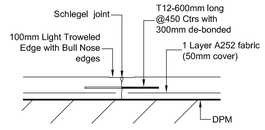
Standard Block Paving 1:25



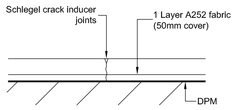
RC Yard Kerb Detail 1:25



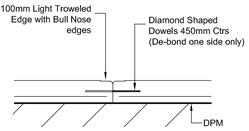
Access Road 1:25



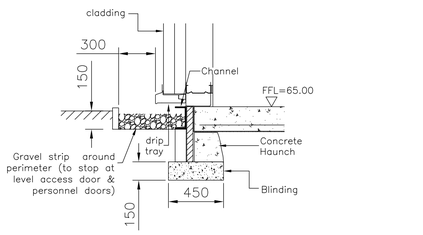
Free Contraction Joint 1:25



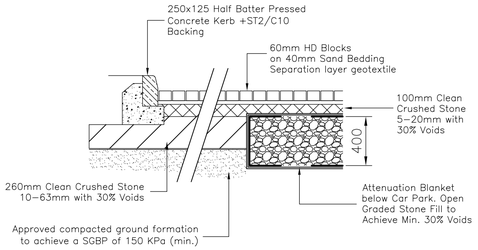
Contraction Joint 1:25



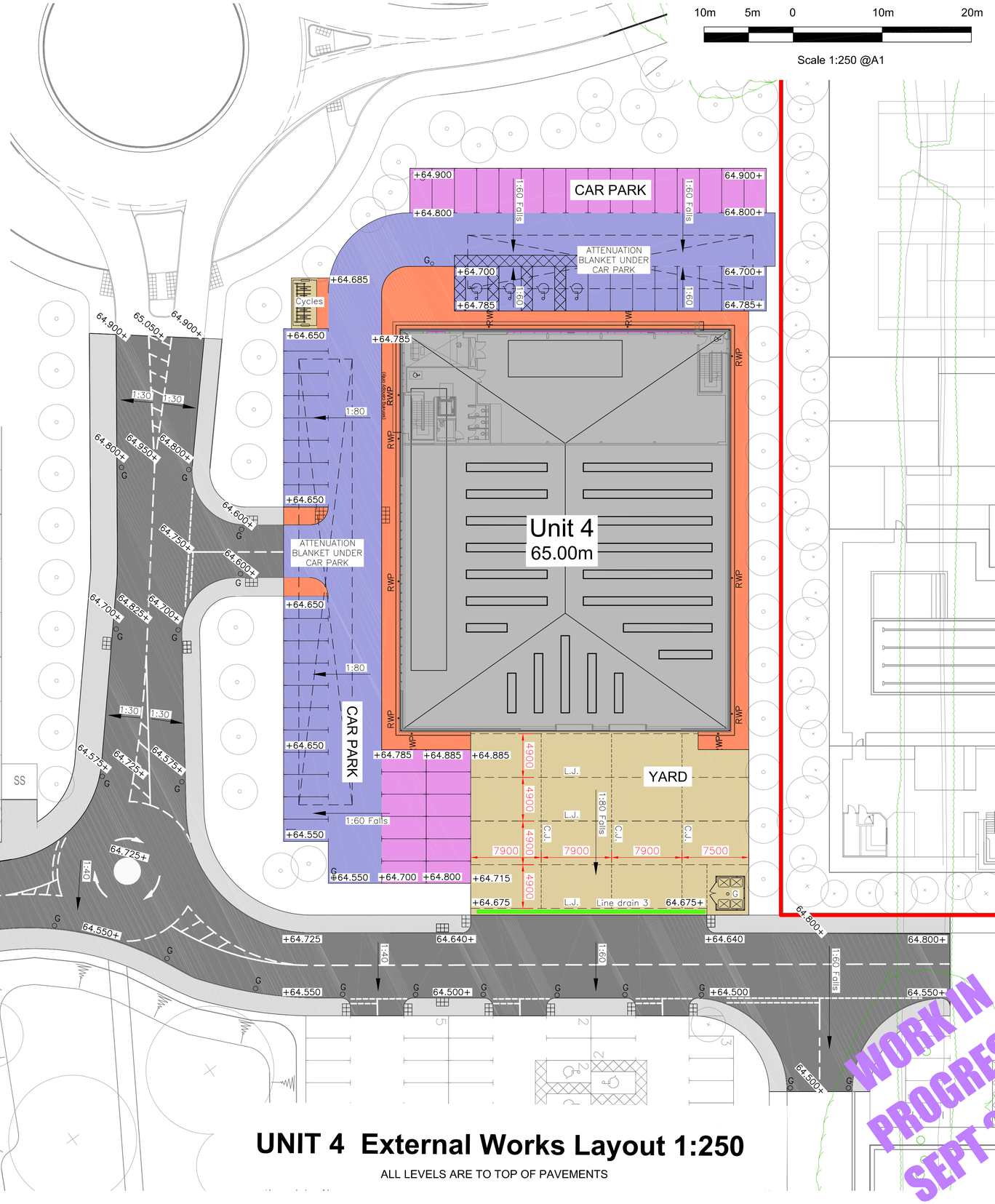
Longitudinal Joint 1:25



Building Perimeter Gravel Strip Detail 1:25



Permeable Block Carpark 1:25

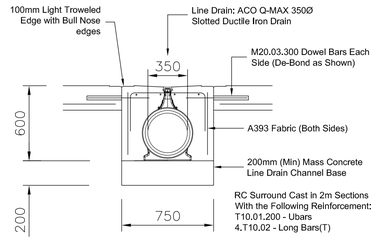


10m 5m 0 10m 20m

Scale 1:250 @A1

UNIT 4 External Works Layout 1:250

ALL LEVELS ARE TO TOP OF PAVEMENTS



ACO Qmax 350 Detail 1:25

Key:

- Porous Block Paving Car Park Spaces
- Non–Porous Block Paving Car Park Spaces
- 180mm thk RC Yard Slab
- Block Pathways
- Asphalt Road
- Bitmac Pathways

Drawing Ref. Schedule

1 MK SURVEYS
TOPOGRAPHICAL SURVEY (JUNE 2018)

2 CORNISH ARCHITECTS
'PHASE 1 PROPOSED SITE AND FINISHES PLAN'
PLAN REF. 18022 - TP - 001(-) (SEPTEMBER 2020)

3 CORNISH ARCHITECTS
'UNITS 1-3 FLOOR & ROOF PLANS'
PLAN REF. 18022 - TP - 005 (-) (SEPTEMBER 2020)

PRELIMINARY

Rev	Date	Revision Description
A	28.09.20	Updated to latest site plan

Revision Schedule

Catalyst Bicester

Wendlebury Road

Client:

Albion Land Plc.

PHASE 1 - PACKAGE 3
UNIT 4 EXTERNAL WORKS LAYOUT

WORK IN PROGRESS SEPT 2020

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:250, 25 @A1
Date	28.07.20
Drawn	JNG

S1358-PH1-14A

APPENDIX A.2

PLANNING APPROVED PLANS

Wendlebury Road

10m 0 10m 20m 30m 40m 50m

1:500 @ A0

Unit 1 65.00m

Unit 2 65.00m

Unit 3 65.00m

Unit 4 64.75m

Unit 5 64.75m

Unit 6 65.00m

Unit 7 65.00m

Unit 8 64.75m

Unit 9 64.75m

Unit 10 64.75m

Unit 11 64.75m

Unit 12 64.75m

Unit 13 64.75m

Tennis Court 65.50m

Leisure Center 65.20m

Dome 65.20m

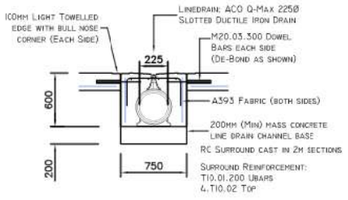
SWALE 1 IL 63.20m

SWALE 2 IL 63.20m

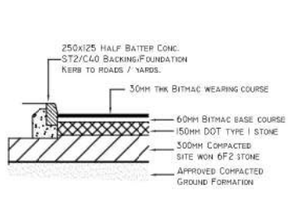
KEY:

- Footpath
- Permeable Block Paving Car Parking
- Reinforced Concrete Road/Yard Slab
- Asphalt Road Surface
- Swale
- New Units

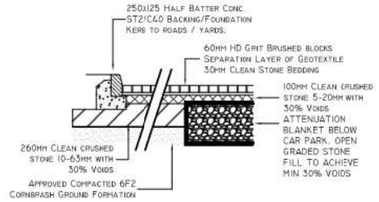
Proposed External Works Plan 1:500



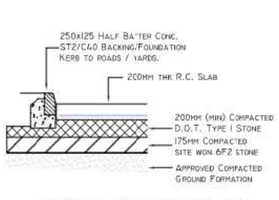
ACO QMAX 225 LINE DRAIN 1:25



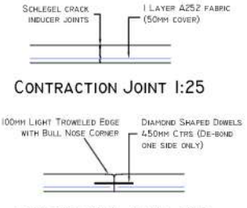
BITMAC ROAD SURFACE 1:25



PERMEABLE BLOCK CARPARK 1:25

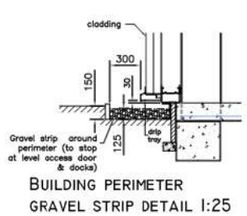


RC YARD KERB DETAIL 1:25

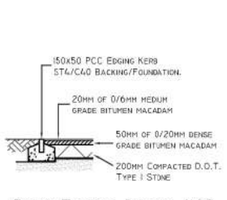


CONTRACTION JOINT 1:25

LONGITUDINAL JOINT 1:25



BUILDING PERIMETER GRAVEL STRIP DETAIL 1:25



PATH EDGING DETAIL 1:25

PRELIMINARY

Rev.	Date	Revision Description
A	10.06.19	Updated to latest Architects Layout

Revision Schedule

Catalyst Bicester
Wendlebury Road, Bicester

Client:
Albion Land Plc.

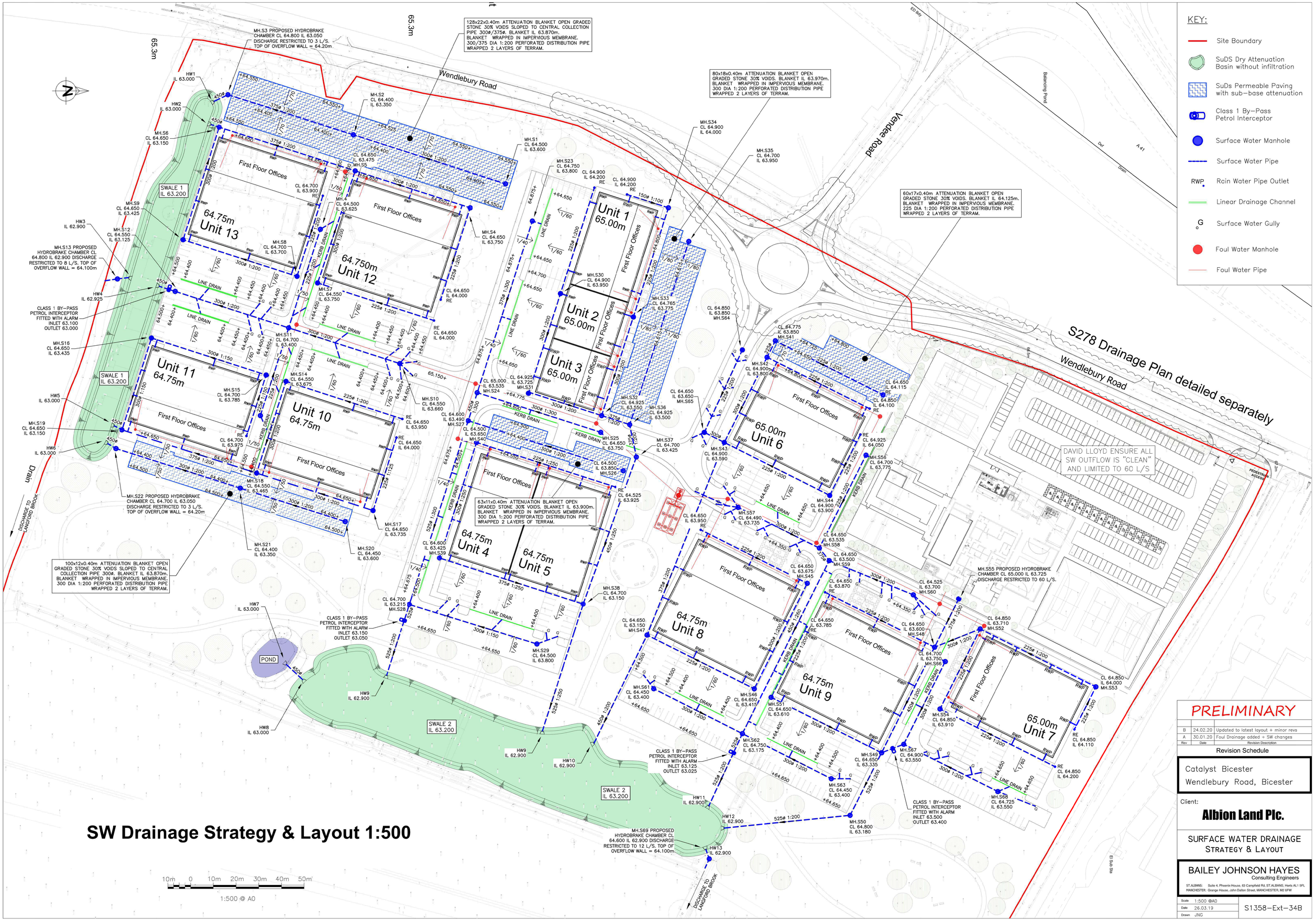
TECH SCHEME OPTION 8
PROPOSED EXTERNAL FINISHES

BAILEY JOHNSON HAYES
Consulting Engineers
ST ALBANS: Suite 4, Phoenix House, 63 Campfield Rd ST ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:500 @A0
Date	19.03.19
Drawn	JNG

S1358-Ext-30A

SW Drainage Strategy & Layout 1:500



PRELIMINARY

Rev	Date	Revision Description
B	24.02.20	Updated to latest layout + minor revs
A	30.01.20	Foul Drainage added + SW changes

Revision Schedule

Catalyst Bicester
Wendlebury Road, Bicester

Client:
Albion Land Plc.

SURFACE WATER DRAINAGE STRATEGY & LAYOUT

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:500 @A0
Date	26.03.19
Drawn	JNG

S1358-Ext-34B

Small Retaining Wall 64.05m (Top)

Discharge Point with non-return valve for flood compesation

Source control via permeable surfaces in car park and sub-grade storage to reduce volume of water conveyanced to dry basins

Dry basin without infiltration as ground investigation reveals low infiltration rates. Outlet is flow controlled to Greenfield rates via flow device at intermediate manhole

Discharge Point Hydrobrake 8 l/sec

278 Works Proposed Dry basins without infiltration as ground investigation reveals low infiltration rates. Outlet is flow controlled to Greenfield rates via flow device at intermediate manhole

Source control via permeable surfaces in car park and sub-grade storage to reduce volume of water conveyanced to dry basins

Existing pond to be upgraded to Dry attenuation basin

Basins Linked (Ditches)

Small Retaining Wall 63.95m (Top)

Flood compensation basins to store water in extreme flooding event

Gullys, Kerb drains & Line drains within Yards and Roads to be petrol intercepted allowing discharge at at edge of development into attenuation swales

S278 Works Proposed Dry basins without infiltration as ground investigation reveals low infiltration rates. Outlet is flow controlled to Greenfield rates via flow device at intermediate manhole

Discharge Point Hydrobrake 5 l/sec

Source control via permeable surfaces in car park and sub-grade storage to reduce volume of water conveyanced to dry basins

BICESTER GATEWAY HOTEL DEVELOPMENT

DAVID LLOYD TO CONFIRM DRAINAGE REQUIREMENTS

SW Outflows restricted to 60 Litres per second from David Lloyd

Source control via permeable surfaces in car park and sub-grade storage to reduce volume of water conveyanced to dry basins

Gullys, Kerb drains & Line drains within Yards and Roads to be petrol intercepted allowing discharge at at edge of development into attenuation swales

Dry basin without infiltration as ground investigation reveals low infiltration rates. Outlet is flow controlled to Greenfield rates via flow device at intermediate manhole

Existing 450Ø Culvert under Thames Water Road IL 63.50m. To be cleared of debris for overflow in extreme flood events

Existing Thames Water Bridge over Langford Brook which provides access to adjacent Wetland Wildlife area and Sewage Treatment Works. No public access

Indicitive Route of New Ditch to connect with existing Culvert

Existing Ditch to remain

Basin 1

Basin 2

Basin 3

Unit 1 65.00m

Unit 2 65.00m

Unit 3 65.00m

Unit 6 65.00m

Unit 7 65.00m

Unit 8 64.75m

Unit 9 64.75m

Unit 10 64.75m

Unit 11 64.75m

Unit 12 64.75m

Unit 13 64.75m

Unit 4 64.75m

Unit 5 64.75m

First Floor Offices

Box Culvert IL 64.05m

Box Culvert IL 64.15m

Extg. Culvert

Ditch removed

Hedgerow

New Hedgerow

Irrigation pipes

Shallow wet area

Reed bed

Shrubs

Re-profiled Reed bed

Pond

Drain

Langford Brook

63.55

63.35

10m 0 10m 20m 30m 40m 50m

1:1000 @ A1

Concept SW Drainage Scheme 1:1000

KEY:

- Proposed Buildings
- Existing Watercourse
- Proposed Watercourse
- Green Space
- Proposed Wetland Shallow Reed beds
- SuDS Dry Attenuation Basin without infiltration
- Flood Compensation Zone holding basin
- Main underground piped drainage route
- SuDS Surface water flow route
- Removed existing hedgerow/ditch
- Site Boundary
- Point of Discharge

PRELIMINARY

Rev	Date	Revision Description
B	24.02.20	Minor revs to notes
A	27.01.20	Updated to include road/surrounding drains

Revision Schedule

Catalyst Bicester
Wendlebury Road, Bicester

Client:
Albion Land Plc.

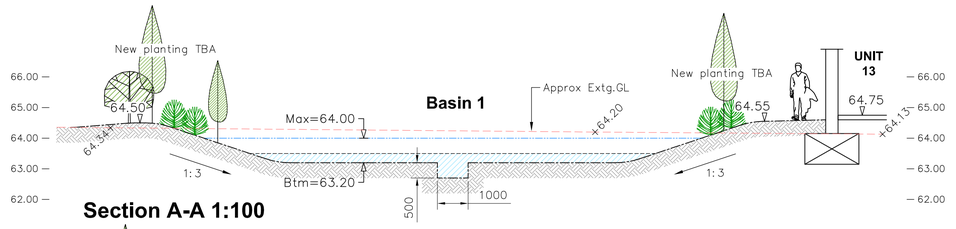
CONCEPT SW DRAINAGE SCHEME

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd. ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

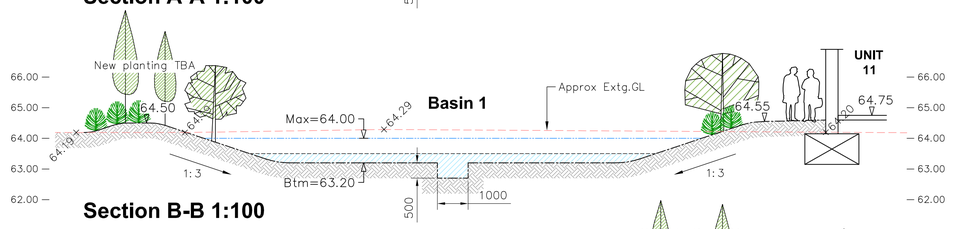
Scale	1:1000 @A1
Date	28.11.19
Drawn	JNG

S1358–Ext–46B

Site Layout 1:2500



Section A-A 1:100



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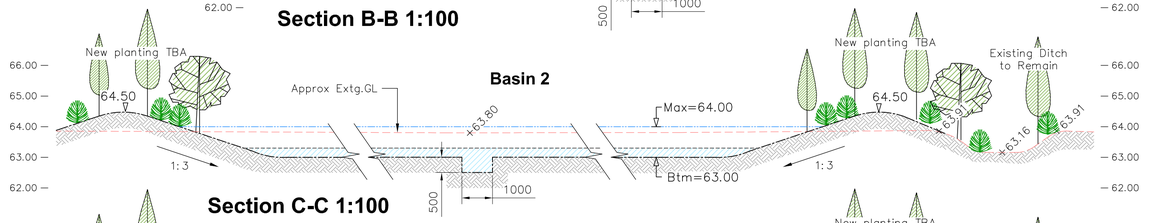
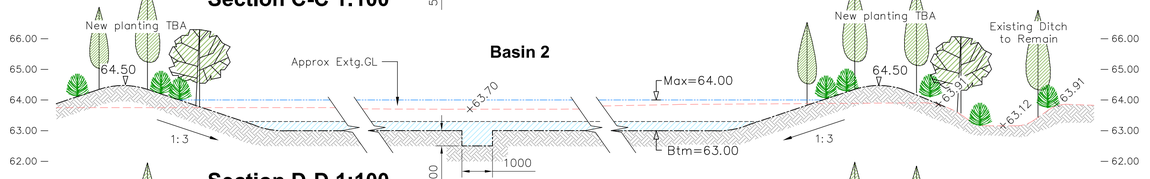


Section C-C 1:100



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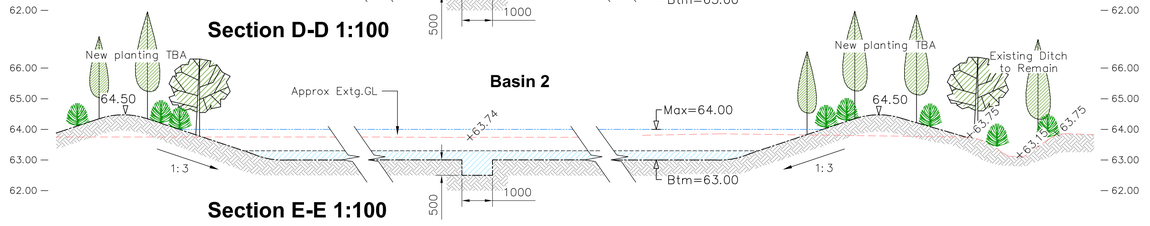
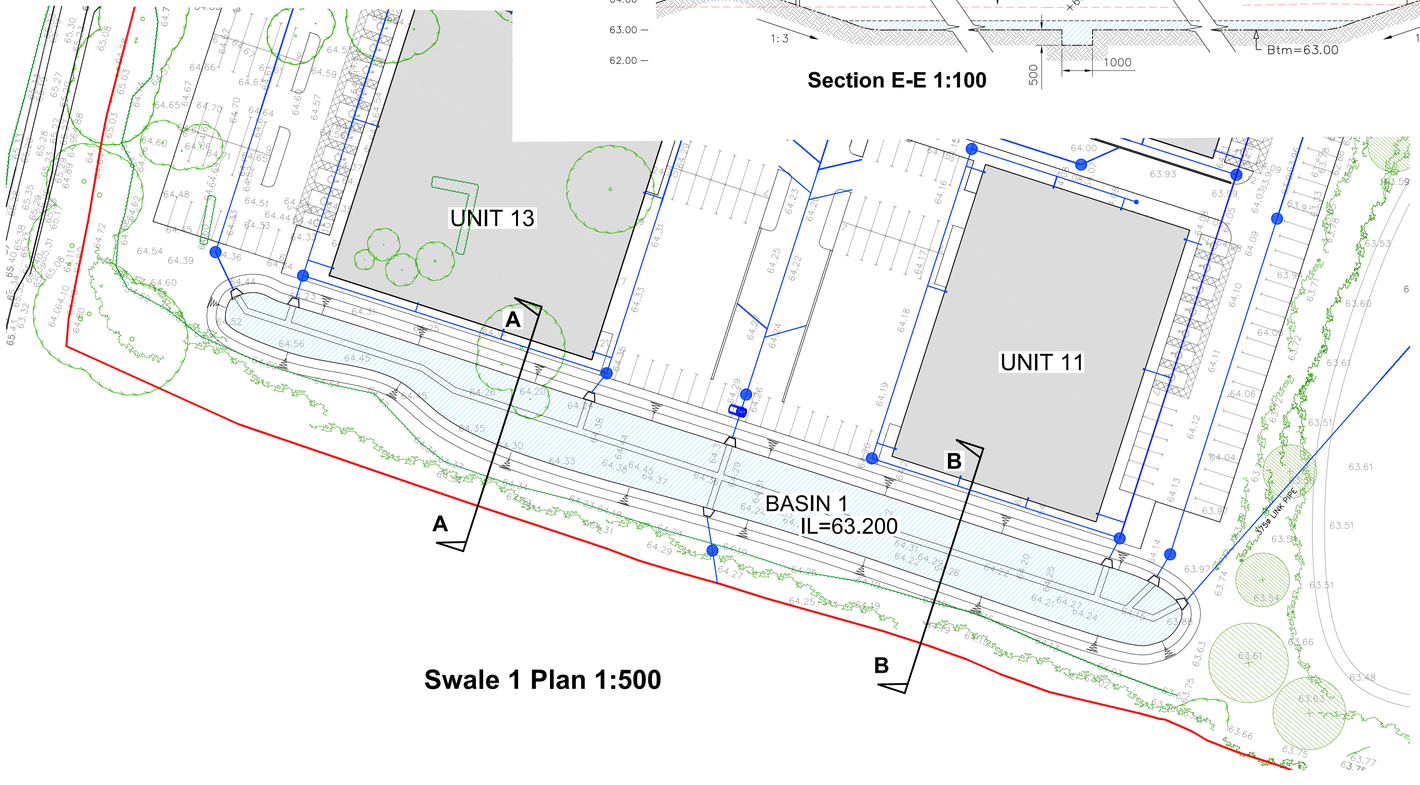
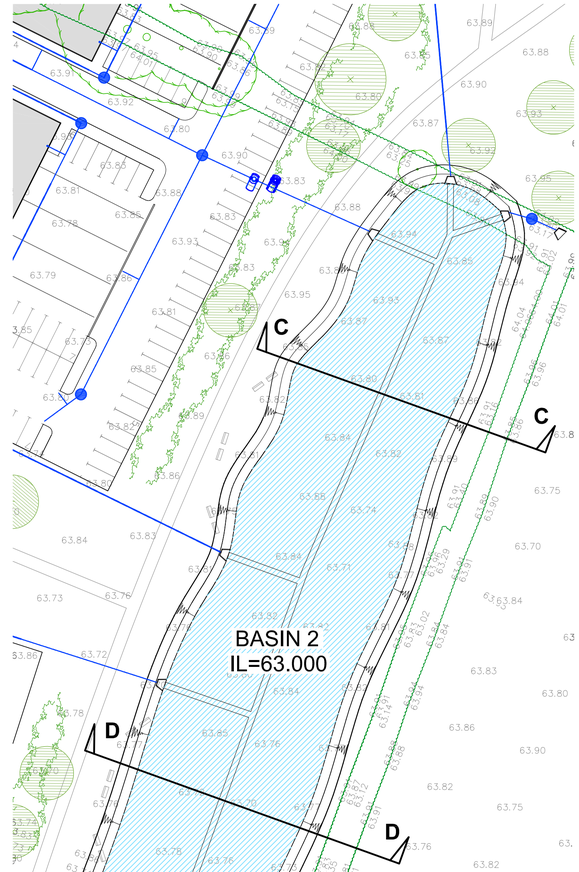


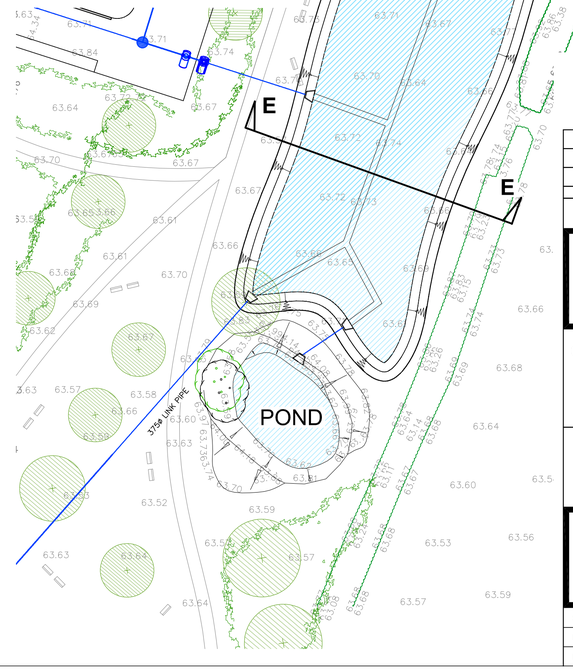
Section E-E 1:100



Swale 1 Plan 1:500



Swale 2 Plan 1:500



PRELIMINARY

Rev	Date	Revision Description
A	19.03.20	Swale 2 re-shaped/setting out adjusted

Revision Schedule

Catalyst Bicester
Wendlebury Road, Bicester

Client:

Albion Land Plc.

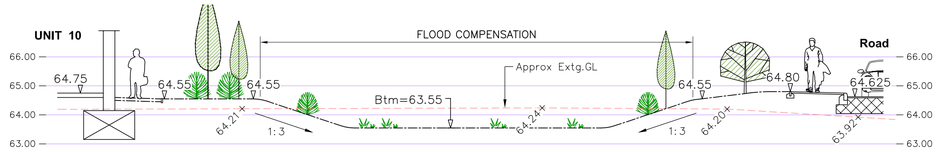
PRELIMINARY SWALE DETAILS

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:500,100 @A1
Date	30.01.20
Drawn	DJC

S1358-Ext-48A

Site Layout 1:2500



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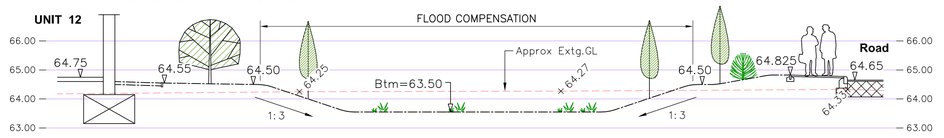

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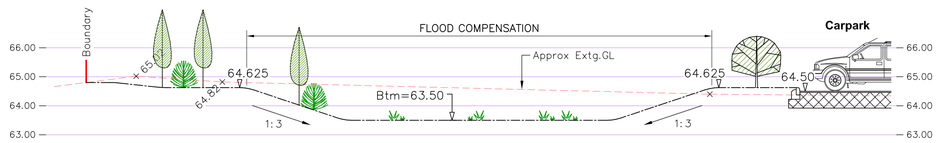

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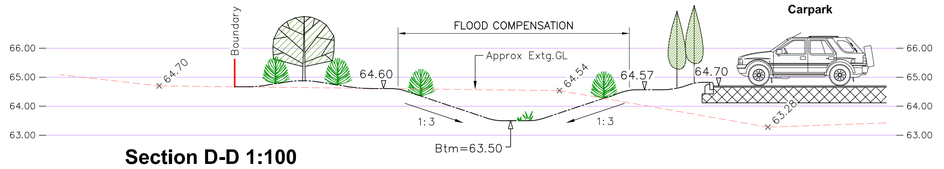
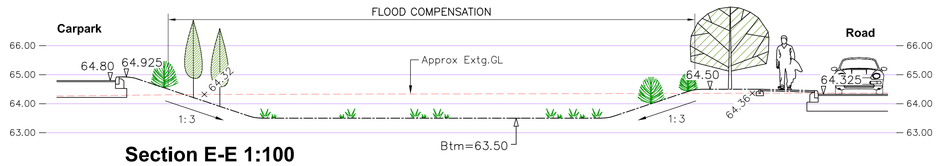


Section D-D 1:100



Section E-E 1:100

PRELIMINARY

Rev	Date	Revision Description

Revision Schedule

Catalyst Bicester
Wendlebury Road, Bicester

Client:

Albion Land Plc.

FLOOD COMPENSATION DETAILS

BAILEY JOHNSON HAYES
Consulting Engineers
ST.ALBANS: Suite 4, Phoenix House, 63 Campfield Rd, ST.ALBANS, Herts AL1 5FL
MANCHESTER: Grange House, John Dalton Street, MANCHESTER, M2 6FW

Scale	1:500,100 @A1
Date	30.01.20
Drawn	DJC

S1358–Ext–49

APPENDIX B

Material Specification and Maintenance Checklist Log

To be Completed Post Construction

Table B.25 SuDS maintenance inspection checklist			
General information			
Site ID			
Site location and co-ordinates (GIS if appropriate)			
Elements forming the SuDS scheme		Approved drawing reference(s)	
Inspection frequency		Approved specification reference	
Type of development		Specific purpose of any parts of the scheme (eg biodiversity, wildlife and visual aspects)	

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 or 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 (eg rutting, spreading of blocks or signs of ponding water)?								

Silt/sediment accumulation								
Is there any sediment accumulation at inlets (or other defined accumulation zones such as the surface of filter drains or infiltration basins and within proprietary devices)? If yes, state depth (mm) and extent. Is removal required? If yes, state waste disposal requirements and confirm that all waste management requirements have been complied with (consult environmental regulator)								
Is surface clogging visible (potentially problematic where water has to soak into the underlying construction or ground (eg underdrained swale or infiltration basin)?								
Does permeable or porous surfacing require sweeping to remove silt?								
System blockages and 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 or blockage of outlets or drainage paths?								
Vegetation								
Is the vegetation condition satisfactory (density, weed growth, coverage etc)? (Check against approved planting regime.)								
Does any part of the system require weeding, pruning or mowing? (Check against maintenance frequency stated in approved design.)								
Is there any evidence of invasive species becoming established? If yes, state action required								
Infrastructure								
Are any check dams or weirs in good condition?								
Is there evidence of any accidental damage to the system (eg wheel ruts?)								

Is there any evidence of cross connections or other unauthorised inflows?								
Is there any evidence of tampering with the flow controls?								
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 (eg photos)								
Suitability of current maintenance regime								
Continue as current Increase maintenance Decrease maintenance								
Next inspection								
Proposed date for next inspection								

APPENDIX C

Re-Form Landscaping Design
(Planting Plans and Maintenance Plan)

Read in conjunction with SuDS plan

Landscape Management & Maintenance Plan

Phase 1, Catalyst, Bicester

for Albion Land
September 2020

RF18-598-R-02-PL01

re-form
landscape architecture

T 0113 245 4695
E info@re-formlandscape.com
www.re-formlandscape.com
Tower Works |Globe Road | Leeds | LS11 5QG

1. Introduction

1.1. This Landscape Management Plan sets out the management and maintenance requirements for the first phase of the site at Catalyst, Bicester. The purpose of this management plan is to aid the efficient and effective management of the site, to ensure the healthy establishment of all planting types and to preserve the design intent for the first five years after planting.

2. Site description

2.1. The site is located to the southern edge of Bicester, Oxfordshire. The site is bounded by Wendlebury Road to the west, Bicester Avenue home and garden centre to the north, and agricultural land enclosed by hedgerows to the east and south.

2.2. The site is currently agricultural land and comprises of open fields separated with native hedgerow and incidental tree planting. To the east and south of the site is open pasture and farmland, bounded by hedgerows and occasional mature tree planting.

2.3. The Phase 1 proposals comprises B2 employment buildings, including parking and service areas; a new access off Wendlebury Road, internal roads, and footpaths; landscaping, including green infrastructure and SUDs provision (swale) as part of a flood compensation area.

3. Objectives

3.1. The aims of the management plan are:

- Provide a quality landscape setting to the new development
- Conserve and enhance ecology and biodiversity
- Ensure healthy establishment of the proposed planting
- Establish important areas of green infrastructure within the new development

3.2 All maintenance operations are to be in accordance with BS7370-4: 1993 *Grounds Maintenance: recommendations for maintenance of soft landscape* other than amenity turf.

4. Phasing

4.1. The site will be delivered in phases, including an initial enabling phase. This management plan covers landscape management planting for Phase 1 as per re-form Landscape Architecture's Planting Plans RFM-XX-00-DR-L-0001 and RFM-XX-00-DR-L-0002.

4.2. The 'Enabling Phase' allows for the removal of existing trees and hedgerows to facilitate the start of the construction works. All existing trees and hedgerows will be protected according to BS 5837:2012 'Trees in relation to construction'.

5. Soft Landscaping & planting

5.1. This management plan is to be read in conjunction with the following drawings by re-form Landscape architecture:

- RFM-XX-00-DR-L-0001 Phase 1 Planting Plan 01
- RFM-XX-00-DR-L-0002 Phase 1 Planting Plan 02

5.2. All maintenance operations are to be in accordance with BS7370-4: 1993 *Grounds Maintenance: recommendations for maintenance of soft landscape* other than amenity turf.

5.3. The proposed soft landscape and planting consists of:

- General tree planting:
  Native tree species in a range of sizes: semi mature, extra heavy standard and standard trees. This will include deciduous and evergreen species.

- General native woodland planting:
  In conjunction with larger trees, a native woodland mix of transplants, whips and feathered trees shall be provided at an average rate of 1 plant/1.5m^2. This will form bands of native vegetation comprising both tree and shrub species, including deciduous and evergreen species. Native transplant and whip species will be spread evenly throughout the woodland planting area to maximize cover for visual mitigation and amenity.

- Native shrub planting:
  Within more open areas around the access road, generously spaced trees are located within areas of native woodland shrubs planted in swathes at 1500mm centres.

- General amenity shrub planting:
  This will comprise a variety of robust & hardy groundcover and low level (below 1.2m mature height with some specimen/accent plants, all requiring minimal maintenance. There will be a predominance of amenity shrub planting with a high proportion of evergreen and flowering species to give year round structure and interest

- Meadow seed mix to swale:
  Wet tolerant wildflower meadow grass is used to the proposed swale. This mix will be appropriate for seasonally wet soils in the swale.

- Amenity grass:
  Some areas of amenity grass will be provided for verges adjacent to road and footways through the site.

- Soils:
  Suitable quality topsoil shall be provided to the following depths:
  Native woodland planting (transplants & whips) Planted areas – 300mm
  Meadow grass to swale – 100mm low nutrient

Amenity shrubs – 400mm
Amenity grass – 150mm

6. Management Plan

6.1. General preamble

- Duration of plan:
  There will be a provision of 25 years for plant establishment, maintenance and replacement. The duration of the management plan is be confirmed within a detailed Management Plan to be provided by the client following practical completion of the landscape works.

- Area:
  The management plan applies to all external areas within the Phase 1 boundary as shown on drawings RFM-XX-00-DR-L-0001 and RFM-XX-00-DR-L-0002.

- Visits:
  The contractor shall notify the Client 48 hours prior to any visits to confirm suitability of time and works to be undertaken to avoid disruption to the Client's activities.

- Specification and planting stock:
  Any replacement planting required during the period of the management plan should be undertaken in accordance with the Landscape Specification as part of the building works. All plant stock should comply as follows:

6.1..1. All plants are to be supplied in accordance with Horticultural Trade Association's National Plant Specification and from a HTA certified nursery. All plants and trees to be planted in accordance with BS3936. Delivery and backfilling of all plant material to be in accordance with BS4428:1989 'Code of practice for general landscape operations' and CPSE Code of Practice for 'Handling and Establishing Landscape Plants, Parts I, II and III'.

6.1..2. The supply and aftercare of trees will be in accordance with BS8545:2014

6.1..3. All excavated areas to be backfilled with either topsoil from site or imported to be BS3882 – General purpose grade. All topsoiled areas to be clear of rocks and rubble larger than 50mm diameter and any other debris that may interfere with the establishment of plants.

6.1..4. Existing trees and hedgerows to be retained shall be protected in accordance with BS5837, from commencement to completion of all works on site.

6.2. Machinery and Tools

Use only machines and tools suitable for the site conditions and the work to be carried out. Use hand tools around trees, plants and in confined spaces where it is impracticable to use machinery. The use of strimmers is not permitted around tree stems below 8-10cm in girth.

6.3. Chemicals

- Legislation

  Pesticides include herbicides, insecticides, fungicides and plant growth regulators. The use of pesticides is governed by legislation. The Landscape Contractor must comply with the 'The Control of Pesticides Regulations 1986' made under the 'Food and the Environment Protection Act 1985', 'The Control of Substances Hazardous to Health Regulations 1988' made under the 'Health and Safety at Work Act 1974' and any other legislation enacted during the contract period.

  All pesticides must be products on the current list of Agricultural Chemicals Approval Scheme. All pesticide users shall comply with the conditions of approval relating to use clearly stated on the product label.

  The Contractor must comply with all relevant Codes of Practice issued by DeFRA. In particular, where work is near water, comply with the 'Code of Practice for the Use of Herbicides on Weeds in Watercourses and Lakes'. Written approval from the Environment Agency should be obtained prior to the use of pesticides within these areas.

  Wherever practical, other non-chemical means of plant removal should be used in consultation with the Environment Agency.

- Use of pesticides

  The Contractor shall keep a written logbook detailing all uses and pesticide applications carried out.

  The Contractor is required to notify the public of any pesticide application. A warning sign shall be posted on the railing to any public routes. Where contained solely within planting beds the sign shall be placed adjacent to edges in noticeable positions. Details of the application and a contact person shall be indicated on the sign.

  The Contractor shall in accordance with COSHH Regulations protect employees and other persons, including the public, who may be exposed to substances hazardous to health.

6.4. General planting maintenance (1 to 25 years)

- Failures of planting: general

  Any trees/shrubs/plants that have died or failed to thrive (not developing full foliage throughout all branches) within the period of this maintenance plan should be replaced.

  Years 1 – 3:
  Replacements must match the size of adjacent or nearby plants of the same species or should match the original specification, whichever is the greater.

  Years 4 – 25:
  Replacements to be as original specification. Replacements of tree species left to grow to maturity, after thinning at years 7 – 10 must be to original specification.

- Watering: general

  The contractor shall make due allowance in his rates for carrying out these tasks outside normal working hours when necessary to avoid premature evaporation or leaf damage caused through watering in bright sunlight.

  The contractor is to allow for the provision of water, water carts or hoses with a fine hose attachment or sprinklers at normal mains pressure. The contractor is to include and state in his tender the cost of compliance with this clause so that the cost of visits can be deducted in whole or in part if not required to be used.

  Drought Conditions:
  Should emergency legislation restricting the use of water during drought conditions be imposed, the contractor will be required to ascertain — before operations — the availability and cost of, and arrange to collect and apply second class water by bowser or other means from an approved sewage works, deliver to site and apply as specified. When required by the Architect, the contractor shall arrange for tests of this water to be carried out in accordance with BS 6068:2000 Water Quality.

- Pests and Diseases: general

  Maintenance shall include the control of insects, fungus and disease by spraying with an approved insecticide or fungicide.

- Litter Collection: general

  The contractor shall at all times keep the site clean, tidy and free from litter and carry out a litter collection at each maintenance visit.

'Litter' is anything whatsoever that is thrown down, dropped or otherwise deposited in onto or from any place in the open air to which the public are permitted to have access without payment.

'Fly tipping': large items such as discarded furniture that require two or more people to lift or are in excess of 0.5m^3 will be treated as fly tipping and not litter. The contractor should provide a cost for removal and depositing for fly tipping on each and every occasion.

The contractor shall take care to avoid any spillage of fuel, oil, chemicals or other materials toxic to plant life. Plants or soil contaminated by such material must be removed off site and replaced.

- Cleanliness: general

  At completion and at each visit, remove soil and other debris from all hard surfaces and grassed areas and leave the works in a clean and tidy condition.

- Leaf Clearance: general

  The contractor is responsible for the clearance of leaves, twigs, etc from all areas of the grounds including planting beds, lawns, paths, channels, drains, car park steps and other areas specified by the Client, from leaf fall (normally October until end December). The Client will instruct the contractor when to begin.

  The clearance shall be carried out with hand raking or sweeping, or using machinery appropriate and approved by the Client.

  All collected leaves to be removed from site and should not be left in piles awaiting removal but cleared immediately.

  Leaves should not be left on ground for more than a week. The contractor shall schedule operations to achieve this standard.

- Management of proposed tree planting

  General Health of Trees, Years 1, 3 and 5:
  Check general health of all trees by qualified arboriculturalist. Recommendations will be made for replacements and remedial works as required.

  In order to ensure that trees do not become hazardous, the condition of all trees at the site should be checked annually. Trees should also be checked following storms, where there may be damage from wind throw.

Deciduous trees are often vulnerable to diseases caused by pathogens, fungi, bacteria and viruses. Trees should be monitored for signs of diseases, which may include visible mushrooms and patchy and discoloured leaves. Where it is suspected that a tree may be suffering from a disease advice should be sought from an Arboriculturalist.

Hazardous branches or mature trees that are to be removed must be surveyed for potential birds' nests or bat roosts prior to felling. Trees and hazardous branches should only be removed outside the bird-breeding season, between March and August for most species, unless a suitably qualified ecologist undertakes a survey of the affected area.

All tree surgery works should be undertaken by a professional tree surgeon who should work in accordance with BS 3998:1989 'Recommendations for Tree Work'.

Inspection of trees:
Arboricultural inspections and works are to continue up to the 25 years and beyond. They will address wind damage, disease, dead wooding and tackling windblown trees.

- Newly Planted Trees

Watering: Year 1and 2 – Establishment
Between May and September all newly planted trees shall be watered at a rate of 50 litres per visit.

Mulching and weeding: Years 1-3
Maintain a mulched, weed-free area 500mm radius around each tree. Mulch should be maintained at a depth of 75mm deep. Weeding within this zone should be hand-weeding which should be done as often as required or through the use of biodegradable mulch.

Inspection of stakes, ties etc. Years 1-3
Twice a year check condition of stakes, ties, guys and guards.

Redundant ties: Check for excessive movement at ground level by pulling on tree at shoulder height. If most of movement is in the bending of the stem then it is likely that the root system is providing adequate support and stakes and ties can be removed.

Adjustment and/or replacement of ties:
Trees should be able to move approximately 50mm (2") in all directions when staked properly. Too little movement may result in poor root structure and inability to withstand wind loading. Too much movement may cause rocking and damage of new root growth. Ties should not rub bark. Ties should be loosened, tightened or replaced as required.

Stakes to be removed after the third winter from time of planting, unless further tree stabilisation is required.

Re-firming Trees and Specimen Shrubs:
Re-firming Trees and Shrubs – shall be carried out after strong winds, frost heave and other disturbances. To re-firm the Contractor should tread around the base until firmly bedded. Any collars in the soil at the base of tree stems, created by tree movement should be broken up by fork, avoiding damage to roots. The voids should be backfilled with topsoil and re-firmed.

- Pruning newly planted trees: Years 1 onwards

  Prune at appropriate times, to remove dead, dying, damaged and diseased wood along with crossing branches (where branches are rubbing together) in accordance with BS 3998: 1989, to promote healthy growth and natural shape. Trees should be allowed to grow to their natural mature height. Pruning shall only be carried out to remove dead, diseased or dying branches.

  All trees shall be cut using sharp shears, reciprocating hand held cutters or secateurs.

  All cuts shall be clean and any ragged edges shall be removed using a sharp knife or secateurs. Keep wounds as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.

  All arisings shall be collected immediately following cutting or at the end of each work period and taken to the designated location for disposal.

  The Contractor shall ensure that trees do not present a hazard or obstruction to pedestrians, pavements, roads or signs at any time.

  Once commenced, the cutting operation shall continue and be completed without delay.

  The Contractor shall avoid cutting/pruning in March to June to cause minimum disturbance to nesting birds and wildlife, in compliance with the Wildlife and Countryside Act.

- Disease of fungus
  Give notice if detected. Do not apply fungicide or sealant unless instructed.

- Watering

  Water throughout the growing season in line with the maintenance schedules.

- Thinning Out

  The object of the native woodland planting is to encourage full woodland growth to encourage the screening of large units. Trees shall be checked from 3 years to ensure

healthy growth. Vigorous deciduous trees in the native woodland mix shall be thinned out after 7 to 10 years to allow slower growing species to reach their full height.

The following species are to be allowed to grow onto maturity:

Acer campestre
Pinus sylvestris
Prunus avium
Quercus robur

These species are to be spread evenly throughout the woodland to achieve desired coverage as set out in the planting matrix. Trees that are over shadowing these species shall be selected and removed to the base. Any encroaching vegetation adjacent to public rights of way will be thinned out in order to maintain width and sightlines.

- Mulching
  All mulch beds to tree planting to be topped up in line with the maintenance programme

- Protection
  All planting shall be suitably supported during the establishment period and protected from damage caused by animals e.g. rabbits

6.5. Management of native shrub mix

- Watering

  Water as necessary through the growing season in line with the maintenance schedules.

- Cutting back/foliage removal

  Native shrubs to be maintained at maximum 1.8m height. Plants should be cut twice a year in the spring and summer to promote healthy growth and maintain a neat, dense form.

6.6. Management of grass

- Mowing

  For first year of management mow regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.

For future years:

Swale meadow mix:
Grass to be cut back once a year in late August and early September, left for a minimum of 3 days and then arisings removed, thus allowing the majority of the grassland plants to bloom and set seed.

Amenity grass verges:
Grass to be cut to height of 50mm monthly during growing season with arisings to be removed.

- Weeding

  Weeds, over 100mm in height in late May, that do not form part of the seed mix should be removed from site.

- Re-seeding

  Bare patches to be re-seeded annually in September as per the original specification. If bare patches appear, do not top dress with topsoil and do not apply fertiliser. Add grass seed as per original specification.

6.7. Amenity shrub planting

- Watering: Year 1 – Establishment
  Between May and September of the first year shrub beds will be watered on each visit if there has been no rainfall for a period of seven days. Shrub areas should be watered at a rate of 15 litres per square metre. During subsequent years watering should be undertaken as necessary.

- Weeding and mulching: Years 1-25
  Shrub beds should be weeded monthly during the growing season, March to October inclusive, utilizing the following methods:

  Ornamental shrub & perennial areas - Hand pulling only
  General amenity shrub areas - Hand pulling or herbicide spot treatment

  Use only an approved herbicide in accordance with manufacturer's instructions. Care should be taken not to spray the green parts of shrubs or low ground cover planting. All weeds are to be removed from site once they have died down.

  Remulch as necessary the whole surface of shrub beds to ensure a depth of 75mm. Ensure that the soil is thoroughly moistened prior to remulching, applying water where necessary.

- Fertiliser: Years 1-3
  Annual application of a slow release organic fertilizer in accordance with manufacturer's instructions.

- Protective fencing: Year 1
  Where newly planted areas are protected with Chestnut Paling fencing. Maintain fencing until end of Defects period then remove and reinstate ground. Make good any damage to planting until area is accepted. The fencing will remain the property of the Contractor.

- Pruning: Years 1-25
  Shrub plants should be pruned at appropriate times, to remove dead or dying and diseased shoots or branches, to promote healthy growth and natural shape. Prune overgrowing specimens to avoid suppression of adjacent species, overgrowth onto grass or paving etc. Ensure that shrubs are maintained at a maximum of waist height.

  All shrubs shall be cut using sharp shears, reciprocating hand held cutters or secateurs. Large leafed species such as Prunus should only be pruned using secateurs or similar approved equipment. All cuts shall be clean and any ragged edges shall be removed using a sharp knife or secateurs.

  All arisings shall be collected immediately following cutting or at the end of each work period and taken to the designated location for disposal off site by the contractor. This includes trimmings hung up in shrubs and the sweeping of adjacent hard surfaces.

  Once commenced, the cutting operation shall continue and be completed without delay.

- Maintenance of shrub area base

  The Contractor shall be required to leave the base of the shrub beds clean, tidy and weed free on every occasion that maintenance operations are carried out, and this shall include the removal of all litter,' leaves, debris and other such deleterious matter. The site shall be left clean and tidy.

  All beds and bare areas shall be maintained free of litter and weeds at all times.

  Bed soil shall be pushed back and left at a 45-degree angle from the bed edge, starting slightly below surrounding levels.

7. Maintenance schedule

On following page. All landscape maintenance operations will be carried out in accordance with Landscape Services' Technical Specifications, as a requirement of the 106 Agreement. This is to ensure that the appropriate standard of landscape maintenance is achieved.

RF169-598

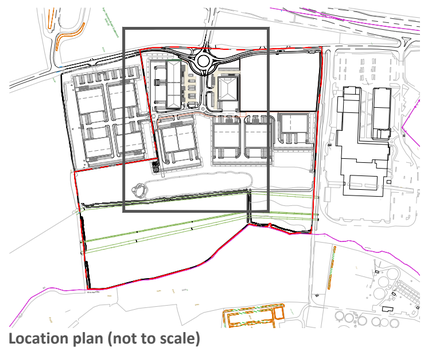
PHASE 1 CATALYST, BICESTER

Maintenance Schedule (Planting - Years 1-5)

re-form landscape architecture

This maintenance schedule details when maintenance work items are to be carried out. In each identified month, the number in the shaded box details the number of times per month when a work item is to be carried out. Where a number "1" is indicated, the maintenance work item must be carried out once a month at the beginning of the month. Where a number "2" is indicated, the maintenance work item must be carried out twice in the month, once at the beginning of the month and the second occurence mid-way through the month.

Item	Description	Month											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1.0	**Tree Planting**												
1.1	Cut back broken, diseased or dying branches. Prune trees to maintain a desirable shape in the first three years after planting.	1	1	1									
1.2	Check for general health in line with good horticultural practice. Any signs of disease or decreasing health to be reported to site management.	1	1	1	1	1	1	1	1	1	1	1	1
1.3	Top up mulch to base of trees in soft areas.						1		1				
1.4	Apply general tree fertiliser			1									
1.5	Check stakes and ties twice a year. Any broken or damaged stakes will be replaced and ties re-fixed at a slightly lower position, allowing for growth since planting. Stakes to be removed after the third winter from time of planting, unless further tree stabilisation is required.			1						1			
1.6	Water trees during summer months as necessary, minimum 2 x per month in first two years.						2	2	2	2			
1.7	To reduce excessive competition, retain a weed free area around all trees to a diameter of 1m around the base of the trees using glyphosate spray twice a year. Newly planted trees will require refirming as required during the first three years.			1							1		
2.0	**Native shrub mix**												
2.1	Water during summer months as necessary, minimum 2 x per month in first two years.					2	2	2	2	2	2		
2.2	Plants should be cut twice a year in the spring and summer to promote healthy growth and maintain a neat, dense form				1				1				
3.0	**Amenity grass to verges**												
3.1	Mow fortnightly throughout May - October to maintain a length of 35-50mm (12 visits)					2	2	2	2	2	2		
3.2	Cultivate and re-seed areas of bare ground (as necessary during spring)using exact same seed mix as originally sown.			1	1								
3.3	Weed control will include spot treatment using selective herbicide of noxious weeds such as docks, thistles, nettles, ragwort and willowherb. (One visit in spring, one visit in early autumn)			1							1		
4.0	**Swale meadow grass**												
4.1	For first year of management mow regularly throughout the first year of establishment to a height of 40-60mm, removing cuttings if dense. This will control annual weeds and help maintain balance between faster growing grasses and slower developing wild flowers.				1	1	1	1	1	1			
4.1	Grass to be cut back once a year in late August and early September, left for a minimum of 3 days and then arisings removed, thus allowing the majority of the grassland plants to bloom and set seed.									1			
4.1	Removal of any devleoping young scrub. Cut material should be chipped and left on site in a compost area, followed by direct treatment of stems to stop regrowth.									1			
4.1	Weed control will include spot treatment using selective herbicide of noxious weeds such as docks, thistles, nettles, ragwort and willowherb. (one visit in spring, one visit in early autumn)			1							1		
4.1	Cultivate and re-seed areas of bare ground (as necessary during spring) using exact same seed mix as originally sown.			1	1								
5.0	**Amenity Planting**												
5.1	Watering: Year 1 – Establishment Between May and September of the first year shrub beds will be watered on each visit if there has been no rainfall for a period of seven days. Shrub areas should be watered at a rate of 15 litres per square metre. During subsequent years watering should be undertaken as necessary.					1	1	1	1	1	1		
5.2	Shrub beds should be weeded monthly during the growing season, March to October Remulch as necessary			1	1	1	1	1	1	1	1		
5.3	Pruning: Shrub plants should be pruned at appropriate times, to remove dead or dying and diseased shoots or branches, to promote healthy growth and natural shape.			1	1	1	1	1	1	1	1		
5.4	All beds and bare areas shall be maintained free of litter and weeds at all times.	1	1	1	1	1	1	1	1	1	1	1	1
5.5	Fertiliser: Years 1-3 Annual application of a slow release organic fertilizer in accordance with manufacturer's instructions.				1								



Location plan (not to scale)

VENDEE ROAD

3no. Prunus padus (S)
3no. Prunus padus (S)
3no. Sorbus aucuparia (S)
ATTENUATION TANK
5no. Prunus padus (S)
5no. Sorbus aucuparia (S)
1no. Acer campestre (S)
3no. Betula pendula (L)
3no. Tilia cordata 'Greenspire' (L)
SWALE/SUDS ATTENUATION
3no. Acer campestre (M)
3no. Betula pendula (M)
1no. Acer campestre (S)
5no. Prunus avium (M)
3no. Quercus robur (M)
3no. Sorbus aucuparia (S)
3no. Prunus padus (S)
3no. Betula pendula (M)
5no. Betula pendula (M)
3no. Sorbus aria (M)
3no. Acer campestre (M)
1no. Quercus robur (M)
10no. Carpinus betulus 'Frans Fontaine' (L)
2no. Prunus padus (S)
3no. Betula pendula (M)
3no. Prunus padus (S)
SWALE/ SUDS ATTENUATION
7no. Acer campestre (S)
3no. Sorbus aucuparia (S)
3no. Quercus robur (M)
3no. Betula pendula (M)
5no. Sorbus aria (M)
3no. Prunus avium (M)
4no. Tilia cordata 'Greenspire' (L)
4no. Betula pendula (L)
3no. Acer campestre (M)
5no. Sorbus aria (M)
3no. Betula pendula (M)
4no. Tilia cordata 'Greenspire' (L)
3no. Betula pendula (M)
ACCESS ROUTE
SWALE (SEASONALLY WET) INCLUDED IN PHASE 1
EXISTING POND

Key

- Site boundary
- Phase 1 Reserved Matters Application boundary
- Land in Applicant's ownership - Farm site boundary
- David Lloyd site boundary (separate application)
- Existing trees to be retained
- Existing hedgerow vegetation to be retained
- Proposed tree in soft landscape (Semi mature & extra heavy standard sizes)
- Proposed tree in soft landscape (Standard size)
- Proposed native woodland planting mix
- Proposed amenity planting mix
- Proposed native shrub planting mix
- Proposed amenity grass seed
- Proposed swale meadow grass (seasonally wet)

REFER TO DRAWING RFM-XX-00-DR-L-0002 FOR PLANTING SCHEDULE AND MATRIXES

Notes

1. Scaling from drawing if printed incorrectly may lead to errors.
2. All information outside red line boundary shown for contextual purpose only.
3. All hatch patterns are indicative only unless stated otherwise.
4. This drawing is to be read in conjunction with the following re-form landscape architecture documentation:
   - RFM-XX-00-DR-L-0002-Phase 1 planting Plan 02
   - AND all relevant documentation from the design team
5. Any discrepancies in the design information are to be brought to the attention of re-form landscape architecture, in writing, prior to commencement of construction works.
6. Refer to other consultants' drawings and specifications for the following design information:
   - Levels & Drainage design and infrastructure
   - Lighting and ducting
   - Existing & proposed utilities
7. Plant quantities are to suit site areas in accordance with scheduled plant densities.
8. Any proposed plant substitution shall be agreed with the landscape architect prior to ordering.

Scale

0m 10m 20m 30m 40m 50m

N

Date	Description of revision	Drawn	Checked	Approved	Revision
28.09.20	RMA Phase 1 issue	AF	AF	GD	PL01
08.07.20	Draft issue	AF	AF	GD	P02

re-form landscape architecture

Tower Works, Globe Road,
Leeds LS11 5QG
T: +44 (0)113 245 4695
E: info@re-formlandscape.com
W: re-formlandscape.com

Project
CATALYST BICESTER
RF18-598

Client
ALBION LAND

Document title
RESERVED MATTERS
PHASE 1 PLANTING PLAN 01

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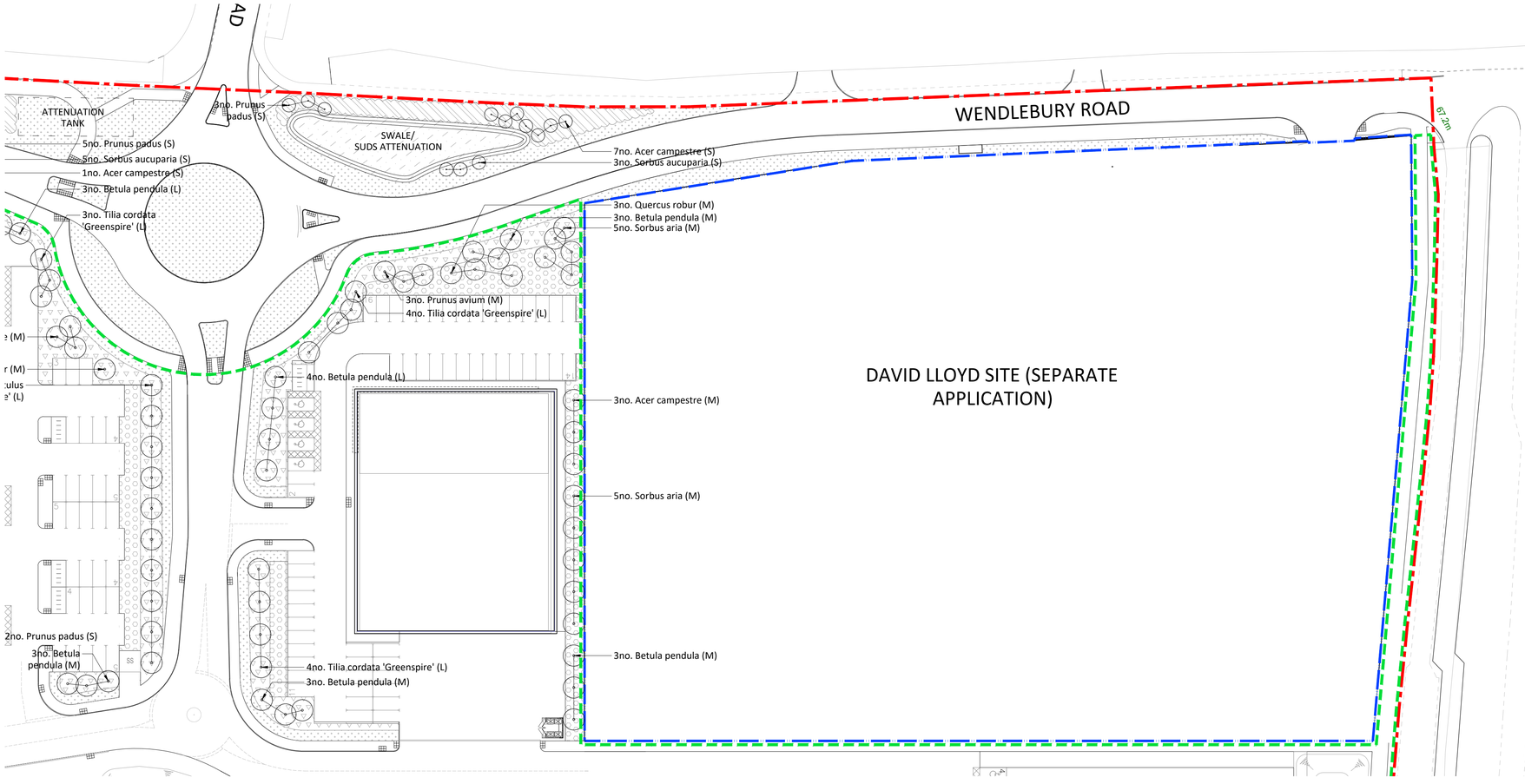

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Location plan (not to scale)

Key

- Site boundary
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- Proposed tree in soft landscape (Standard size)
- Proposed native woodland planting mix
- Proposed amenity planting mix
- Proposed native shrub planting mix
- Proposed amenity grass seed

PLANTING SCHEDULE

Botanical Name	No.times transplanted	Root condition	Overall height (cm)	Form	Girth (cm)	Mature Height (m)	Specification
Trees							
Betula pendula (L)	-	C*	min. 500	SM	20-25cm	8m	1.8-2m clear stem
Carpinus betulus 'Frans Fontaine (L)	-	C*	min. 500	SM	20-25cm	10m	1.8-2m clear stem
Tilia cordata 'Greenspire' (L)	-	C*	min. 500	SM	20-25cm	10m	1.8-2m clear stem
Acer campestre (M)	3x	C*	min. 450-500	EHS	16-18cm	10m	1.8-2m clear stem
Betula pendula (M)	3x	C*	min. 450-500	EHS	16-18cm	8m	1.8-2m clear stem
Populus avium (M)	3x	C*	min. 450-500	EHS	16-18cm	8m	1.8-2m clear stem
Quercus robur (M)	3x	C*	min. 450-500	EHS	16-18cm	10m	1.8-2m clear stem
Sorbus aria (M)	3x	C*	min. 450-500	EHS	16-18cm	8m	1.8-2m clear stem
Acer campestre (S)	1x	B/RB	min. 2.5-3.0	S	8-10cm	10m	1.75-2m clear stem
Prunus padus (S)	1x	B/RB	min. 2.5-3.0	S	8-10cm	10m	1.75-2m clear stem
Sorbus aucuparia (S)	1x	B/RB	min. 2.5-3.0	S	8-10cm	8m	1.75-2m clear stem

* If trees to be planted within the planting season contractor may consider RB

Code	Botanical Name	Root condition	Size	Density
	Amenity shrub planting			
Co	*Carex oshimensis 'Evergold'*	C	2L	4/m²
Cs	*Cornus sanguinea* 'Midwinter fire'	C	3L	4/m²
Cc	*Cotinus* coggygria 'Purple Flame'	C	5L	As shown
Ea	*Escallonia 'Apple Blossom'*	C	3L	4/m²
Hr	*Hebe 'Red Edge'*	C	3L	4/m²
Hm	*Hebe 'Mrs Winder'*	C	3L	4/m²
Px	*Photinia x fraserii 'Red Robin'*	C	5L	4/m²
Po	*Prunus 'Otto Luyken'*	C	3L	4/m²
Ln	*Lonicera nitida 'Maigrun'*	C	3L	4/m²
Ms	*Miscanthus sinensis*	C	3L	4/m²

REFER TO PLANTING MATRIX
Notch planted in a matrix pattern at 500mm centres
Plant in single species groups to establish diagonal swathes of planting

Botanical Name	Root condition	Form	Height (cm)	
Native shrub mix				% Mix
Cornus sanguinea	BR	bushy, 3 brks	60-80cm	15
Viburnum opulus	BR	bushy, 3 brks	60-80cm	20
Viburnum lantana	BR	bushy, 3 brks	60-80cm	20
Euonymus europaeus	BR	bushy, 3 brks	60-80cm	15
Crataegus monogyna	BR	bushy, 3 brks	60-80cm	15
Salix purpurea	BR	bushy, 3 brks	60-80cm	15

Planted in swathes of 3-5 species at 1000mm centres

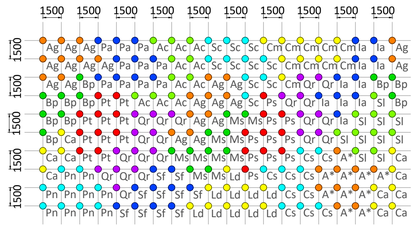
Swale meadow grass mix (seasonally wet)		
MIXTURE	SUPPLIER	SOW RATE
EG8 (Meadow grass mixture for wetlands)	Emorsgate Seeds	5g/m2 (50kgs/ha)

Amenity grass mix		
MIXTURE	SUPPLIER	SOW RATE
A19 - All purpose landscaping mixture	Germinal Amenity	50g/m2

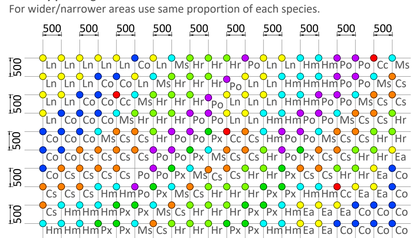
Code	Botanical Name	Root condition	Form	Height (cm)	
	Native woodland planting mix				% Mix
A*	Alnus glutinosa	BR	Feathered	150cm	5
Ag	Alnus glutinosa	BR	1+1	60-80cm	5
Bp	Betula pendula	BR	1+1	60-80cm	5
Ca	Corylus avellana	BR	Feathered	150cm	5
Pn	Populus nigra spp. betufolia	BR	1+1	60-80cm	5
Pt	Populus tremula	BR	Feathered	150cm	5
Qr	Quercus robur	BR	Feathered	150cm	10
Pa	Prunus avium	BR	1+1	60-80cm	5
Ac	Acer campestre	BR	Feathered	150cm	5
Sc	Salix caprea	BR	1+1	60-80cm	5
Sf	Salix fragilis	BR	1+1	60-80cm	5
Ms	Malus sylvestris	BR	Feathered	150cm	5
Ld	Larix decidua	BR	1+1	60-80cm	5
Pn	Pinus sylvestris	BR	Feathered	150cm	10
Cs	Cornus sanguinea	BR	bushy, 3 brks	60-80cm	5
Cm	Crataegus monogyna	BR	bushy, 3 brks	60-80cm	5
Ia	Ilex aquifolium	BR	bushy, 3 brks	60-80cm	5
Sl	Sorbus leyana	BR	bushy, 3 brks	60-80cm	5

REFER TO PLANTING MATRIX
Notch planted in a matrix pattern at 1500mm centres with rabbit protection.
Plant in single species groups with 7-13no. plants by species.

Native woodland planting matrix
For wider/narrower areas use same proportion of each species.



Amenity planting matrix
For wider/narrower areas use same proportion of each species.



Scale

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28.09.20	RMA Phase 1 issue	AF	AF	GD	PL01
08.07.20	Draft issue	AF	AF	GD	P02

re-form landscape architecture

Tower Works, Globe Road,
Leeds LS11 5QG
T: +44 (0)113 245 4695
E: info@re-formlandscape.com
W: re-formlandscape.com

Project
CATALYST BICESTER
RF18-598

Client
ALBION LAND

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PHASE 1 PLANTING PLAN 02

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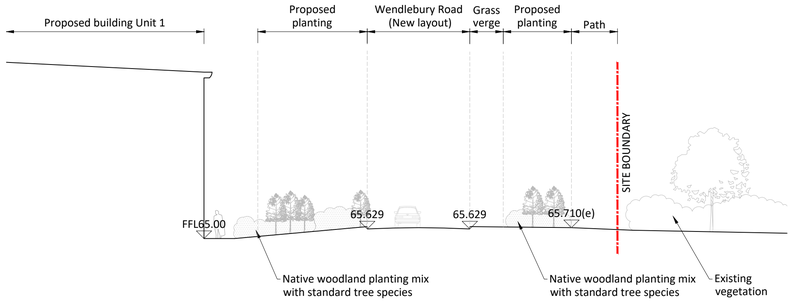
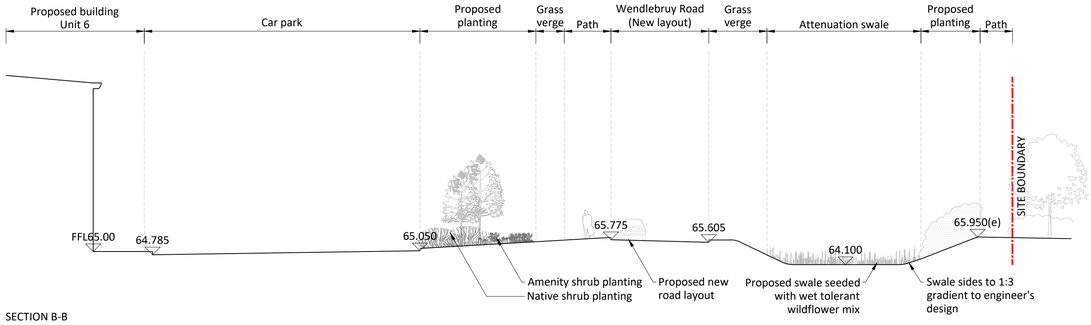
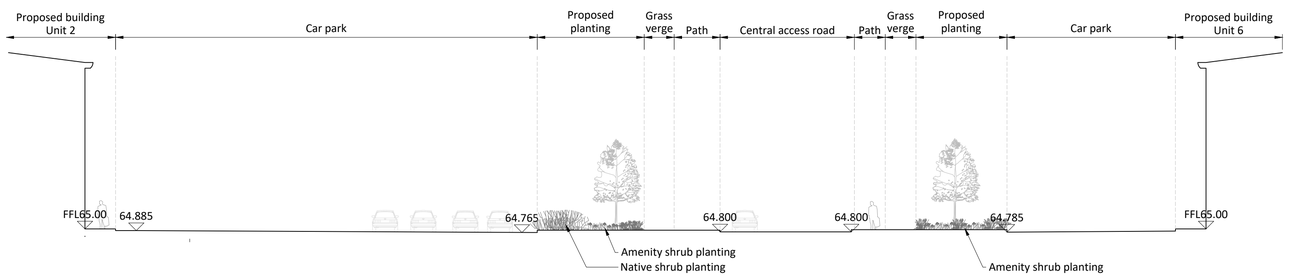
Revision
PL01



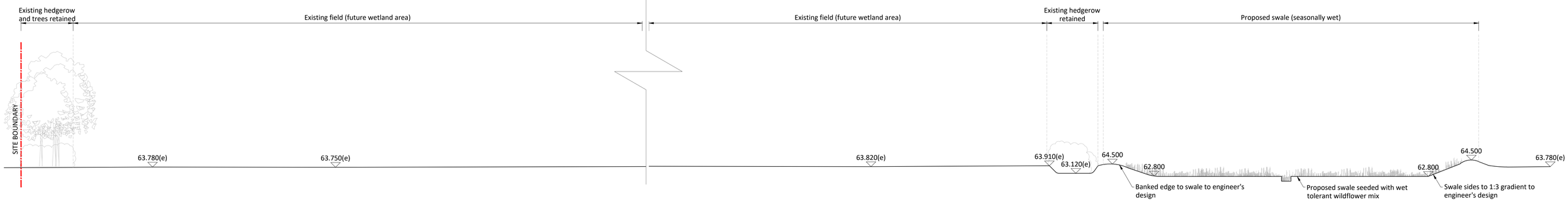
SECTION A-A



SECTION B-B



SECTION C-C



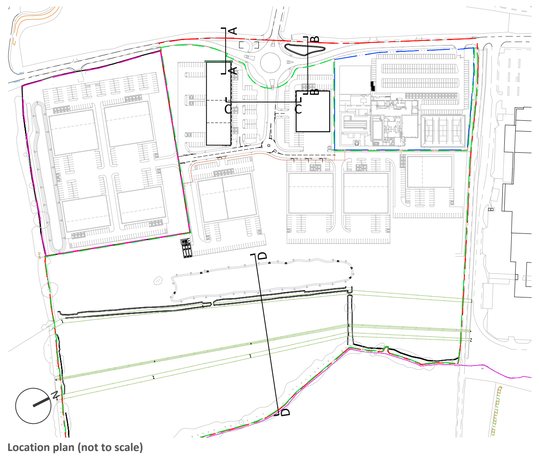
SECTION D-D

Notes

1. Scaling from drawing if printed incorrectly may lead to errors.
2. All information outside red line boundary shown for contextual purpose only.
3. All hatch patterns are indicative only unless stated otherwise.
4. This drawing is to be read in conjunction with the following re-form landscape architecture documentation:
   - RFM-XX-00-DR-L-0001-Phase 1 planting Plan 01
   - RFM-XX-00-DR-L-0002-Phase 1 planting Plan 02
   - AND all relevant documentation from the design team
5. Any discrepancies in the design information are to be brought to the attention of re-form landscape architecture, in writing, prior to commencement of construction works.
6. Refer to other consultants' drawings and specifications for the following design information:
   - Levels & Drainage design and infrastructure
   - Lighting and ducting
   - Existing & proposed utilities
7. Plant quantities are to suit site areas in accordance with scheduled plant densities.
8. Any proposed plant substitution shall be agreed with the landscape architect prior to ordering.

Scale

0m 5m 10m 20m



Location plan (not to scale)

Date	Description of revision	Drawn by	Checked by	Approved by	Revision
28.09.20	RMA Phase 1 planning issue	AF	AF	GD	PL01
08.07.20	Draft issue	AF	AF	GD	P02

re-form landscape architecture

Tower Works, Globe Road,
Leeds LS11 5QG
T: +44 (0)113 245 4695
E: info@re-formlandscape.com
W: re-formlandscape.com

Project
CATALYST BICESTER
RF18-598

Client
ALBION LAND

Document title
RESERVED MATTERS
PHASE 1 LANDSCAPE SECTIONS

Paper size
A1

Scale
1:200

Status
FOR INFORMATION

S2

Drawing number
RFM-XX-00-DR-L-0003

Revision
PL01

Notes

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   - RFM-XX-00-DR-L-0001-Phase 1 planting Plan 01
   - RFM-XX-00-DR-L-0003-Phase 1 planting Plan 03
   - RFM-XX-00-DR-L-0004-Phase 1 planting Plan 04
   - AND all relevant documentation from the design team
5. Any discrepancies in the design information are to be brought to the attention of re-form landscape architecture, in writing, prior to commencement of construction works.
6. Refer to other consultants' drawings and specifications for the following design information:
   - Levels & Drainage design and infrastructure
   - Lighting and ducting
   - Existing & proposed utilities
7. Plant quantities are to suit site areas in accordance with scheduled plant densities.
8. Any proposed plant substitution shall be agreed with the landscape architect prior to ordering.

Key

- Site boundary
- Phase 1 RMA landscape extents
- Phase 2 future extents
- Phase 3 future extents
- Land in Applicant's ownership - Farm site boundary
- David Lloyd site boundary (separate application)

SOFT LANDSCAPE WORKS IMPLEMENTATION

PHASE 1

Amenity and native tree planting
Amenity shrub planting
Native shrub mix
Native woodland planting
Amenity grass seed
Meadow grass seed to swale (wet tolerant)

PHASE 2

- Amenity and native tree planting
- Amenity shrub planting
- Meadow grass seed mix

PHASE 3

Planting to wetland area:
- Native hedgerow planting
- Native shrub planting
- Marginal pond planting
- Reed bed planting
- Meadow grass seed mix (wet tolerant)

Planting to business park:
- Amenity tree planting
- Amenity shrub planting
- Meadow grass seed mix

Scale
0m 25m 50m 75m 100m

Date	Description of revision	Drawn by	Checked by	Approved	Revision
28.09.20	Phase 1 RMA planning issue	AF	AF	GD	PL01
03.08.20	Draft issue	AF	AF	GD	P01

re-form landscape architecture

Tower Works, Globe Road,
Leeds LS11 5QG
T: +44 (0)113 245 4695
E: info@re-formlandscape.com
W: re-formlandscape.com

Project
CATALYST BICESTER
RF18-598

Client
ALBION LAND

Document title
RESERVED MATTERS
LANDSCAPE IMPLEMENTATION PLAN

Paper size
A1

Scale
1:1000

Status
FOR INFORMATION

S2

Drawing number
RFM-XX-00-DR-L-0004

Revision
PL01

APPENDIX D

Photographic Record File
(To be added to as a live document)

For Management Use Only