

Project Title: South Wokingham Strategic Development
Location Phase 2B

Project No/ Document Reference: A398-TN003D

Date: 30 July 2024

Author: Kris Willis

Condition 34 – Drainage Exceedance Routes

1. Introduction

- 1.1. Abley Letchford Partnership (ALP) has been requested by Miller Homes and Kier Venture Ltd to provide this Technical Note in support of development within Phase 2B of the South Wokingham Strategic Development Location (SDL).
- 1.2. The Site lies to the southeast of Wokingham. Montague Park lies to the northeast, with the railway line running across the northern boundary. Easthampstead Road bisects the middle of the Site with Holme Green to the south. The Site forms Phase 2B of the SDL.
- 1.3. This Technical Note is presented in order to support the discharge of Condition 34 under planning application reference 191068.

2. Drainage Exceedance Routes

- 2.1. Condition 34 requires that:

“Before submission of the first application pursuant to reserved matters or commencement of development in the SANG, whichever is earlier, a Strategy for Exceedance Flow Routing for flows above the 1 in 100+40% climate change across the site shall be submitted to and approved in writing by Local Planning Authority. The Plan shall identify exceedance flow routes through the development based on proposed topography with flows being directed to highways and areas of public open space. Flow routes through gardens and other areas in private ownership will not be permitted.

Reserved matters shall be accompanied by a detailed exceedance flow routing plan consistent with the approved Strategy.

Landscaping of the SANG and reserved matters shall be in accordance with the approved details and works shall be implemented in accordance with the approved details before any phase of the development is first brought into use/occupied.

- 2.2. This Technical Note outlines the general approach to exceedance flows within the development pursuant to that set out within the Approved Phase 2 Flood Risk Assessment (WSP Ref 70001684-FRA-



SDL-001 dated August 2020) which supported the Outline Application, such that Condition 34 can be discharged. Additional parcel specific information will be produced in the form of Drainage Statements to support individual Reserved Matters Applications as they come forward, as allowed by the wording of Condition 34.

- 2.3. Such Drainage Statements will be consulted on as part of any Reserved Matters Application, therefore the Council has the confidence that appropriate consideration is being given to exceedance flows as the scheme progresses.

3. Existing Topography

- 3.1. The Site is approximately 36 hectares (Ha), divided into parcels (Parcels R4, R5, R7, R8, R9, R10, R11, R13 and the Local Centre/School Site) and can accommodate up to 1,434 dwellings (**Figure 1**). A 3D ground profile model of the Site has been set up based on a site-specific topographical survey supported by LiDAR data.
- 3.2. The ground profile model shows that existing ground levels at the Site generally fall from north to south and from west to east. The maximum and minimum ground levels on the Site are approximately 68.50m above Ordnance Datum (m AOD) at the northeast corner of Parcel R10 to 48.99m AOD the lowest point of the Emm Brook within the site boundary to the immediate south of R5.
- 3.3. A copy of the WSP Topographical Survey drawing which supported the Outline Application is included as **Appendix A**.

Figure 1 – Site Wide Masterplan



4. Proposed Development Levels

- 4.1. The specific approach to how the development parcel level have evolved is set out in Technical Note A389-TN002 in respect of Condition 10 - Ground and Building Levels.
- 4.2. Notwithstanding the fact that ground levels will need to be increased in elevation to facilitate positive surface water connections to existing/diverted watercourses, the Site will continue to fall from north to south and from west to east in line with existing topography.
- 4.3. Carriageway and dwelling levels within parcels will reflect the proposed topography and where appropriate will be increased so that they lie above the flood level suggested within the Flood Risk Assessment (FRA).
- 4.4. Where dwellings are adjacent to principal infrastructure roads and the South Wokingham Distributor Road (SWDR), these will be raised as appropriate at their interface to remove any steps down or up into the development parcels.

5. Outline Surface Water Strategy

- 5.1. The principles of the ALP Surface Water Strategy follow that set down within the approved WSP Phase 2 FRA alongside the included Surface Water Drainage Strategy drawings.



5.2. The original WSP Drainage Strategy included strategic attenuation basins placed throughout the development which were designed to cater for all storms up to and including the 1:100 return period plus 40% climate change allowance. These basin locations have been respected and refined to sit within the development proposals as they emerge.

5.3. Section 6.3 of the WSP FRA provided a commentary on exceedance routes considered during the presentation of the Outline Application, in so far as:

Any flows exceeding the capacity of the surface water network (generally in excess of 1 in 100 year event with a 40% climate change allowance) will be directed either through the open space and/or the road network. The open space provision on this Project development is predominately located at the low points, and adjacent to the Emm Brook tributary, and hence will allow a pathway for flows to re-enter the watercourse.

5.4. The current Surface Water Strategy equally conveys runoff from the development parcels via SuDS features and traditional sewers and manholes to their respective attenuation basin prior to discharge to nearby watercourses. And in doing so, the sub surface drainage network meets the pre-requisite hydraulic criteria for adoption by Thames Water/NAV under a future Section 104 Agreement.

5.5. As was the case with WSP's scheme, presented in support of the Outline application, excess surface water will exit the network during severe storm events beyond the design storms. The approach to this excess water is outlined in Section 6 below and supporting drawings.

6. Exceedance Flows

6.1. It is inevitable that during periods of heavy or extreme rainfall, the capacities of sewers and other drainage systems will be exceeded on occasion. Drainage exceedance occurs when the rate of surface water runoff exceeds the inlet capacity of the drainage system, when the receiving water or pipe system becomes overloaded, or when the outfall becomes restricted due to flood levels in the receiving water. Underground conveyance cannot economically or sustainably be built large enough for all types of extreme rainfall, as a result, there will be occasions when surface water runoff will exceed the capacity of drains. When drainage system capacity is exceeded the excess water (exceedance flow) surcharges above ground, causing surface water flooding and indiscriminate flooding of property can occur when this flow of water is not controlled.

6.2. Exceedance flow routes should therefore be designed to minimise flood risk to people and property. Flow routes should also account for any potential blockage of structures and control devices.

6.3. The requirements for setting dwelling levels for new developments are set out in BS8533:2017 'Assessing and Managing Flood Risk in New Developments – Code of Practice', which advocates fixing dwelling floor levels 300mm above the 1 in 100 year (1%) flood extent – commonly referred to as Flood Zone 2.



- 6.4. This position is reinforced by Wokingham BC under Condition 11: Measured Survey applied to the planning permission (ref. 191068), which calls for:
- ...Finished floor levels of all buildings shall be at least 300mm above the 1% plus 35% climate change allowance flood level identified within the as built hydraulic model...*
- 6.5. The whole of the Phase 2B area will eventually be located wholly within Flood Zone 1 once the construction of the SWDR is completed (WSP Technical Note 3 dated 6th September 2021).
- 6.6. Notwithstanding that above, it is prudent to ensure that dwelling ground floor levels are set a minimum of 150mm above prevailing ground level to mitigate the residual flood risk from possible pluvial surface water runoff events. Surrounding ground levels will be appropriately contoured to direct surface water away from the development. Final dwelling and periphery levels will be subject to consideration as part of future Reserved Matters applications.
- 6.7. ALP Drawings A389-016 to 018 appended to this Note (**Appendix B**) show the anticipated exceedance flow routing based upon the overall Site Wide Levels Strategy and attenuation basin provision. As can be seen from said drawings, adequate space can be afforded for any exceedance flow into open space or via the proposed road network.



Appendix A - Topographical Survey (WSP)

KEY:

MASTERPLAN BOUNDARY

ADDITIONAL LAND FORMING PART OF APPLICATION

P01	01/01/1901	XXX	FIRST ISSUE		XXX
REV	DATE	BY	DESCRIPTION	CHK	APP

WSP

Mountbatten House, Basing View, Basingstoke, RG21 4HJ, UK
T +44 (0) 1263 318 800, F +44 (0) 1263 318 700
wsp.com

Mountbatten House, Basing View, Basingstoke, RG21 4HJ, UK
T+44 (0) 1256 318 800, F+44 (0) 1256 318 700
wsp.com

SOUTH WOKINGHAM SDL CONSORTIUM

PRELIMINARY DRAINAGE STRATEGY

TOPOGRAPHICAL SURVEY

SCALE @ 1/4" = 1'-0"	CHECKED: CP	APPROVED: CP
PROJECT NO: 70001684	DESIGNED: CP	DRAWN: MLE
		DATE: November 18

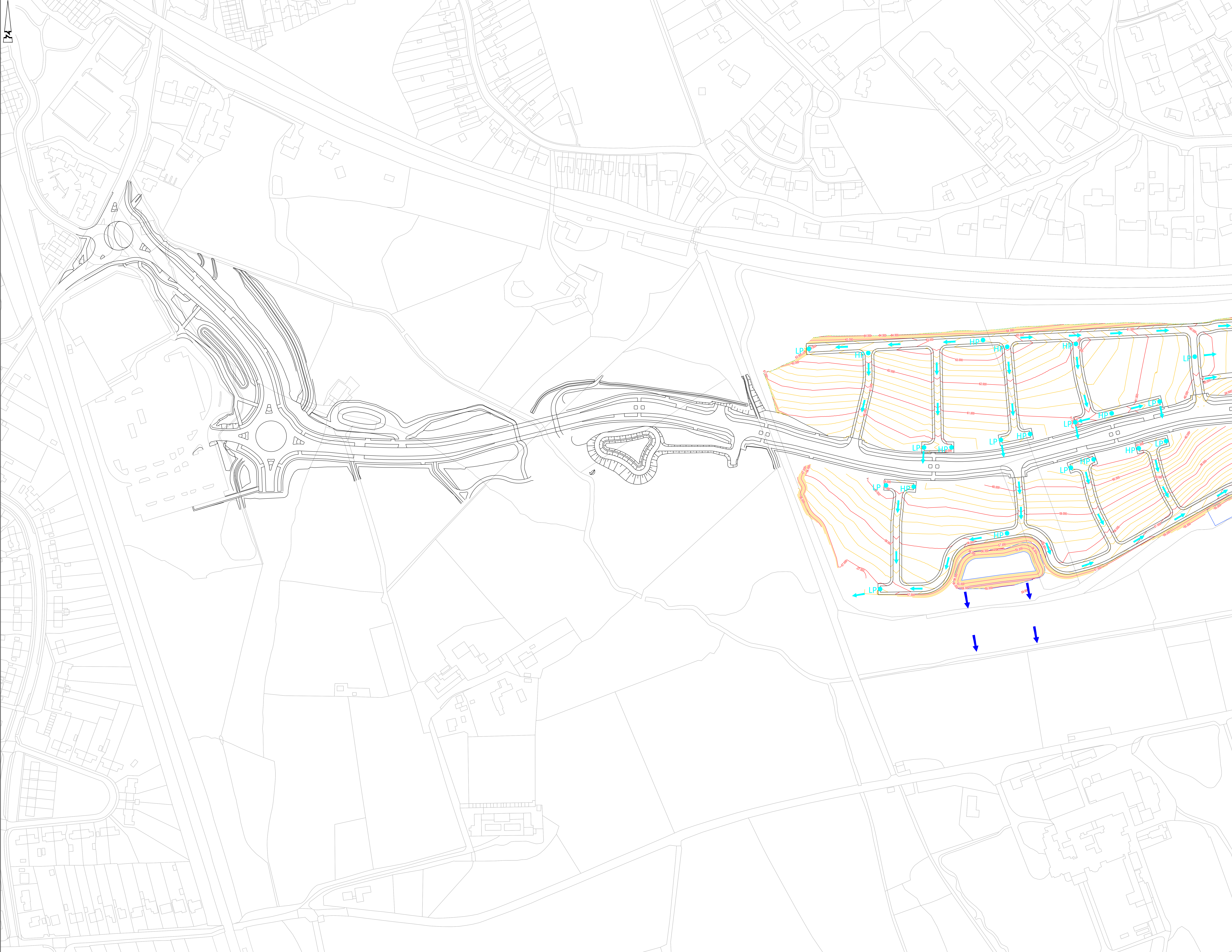
70001684-D-018

P01

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Appendix B - On-Parcel Overland Flow Plans



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GENERAL NOTES:
1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.
3. Services to be located on site.

KEY:

- 1m Contours
- 250mm Contours
- Extent of earthworks, Gradient Varies
- HP Carriageway High Point
- LP Carriageway/SUDS feature Low point
- Overland Flow path arrow
- Exceedance Flow path arrow

P2	07.24	Basins Update	KLW	SM
PL	12.22	First Issue	JA	KLW

AL ABLEY LETCHFORD PARTNERSHIP
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, Berkshire RG17 0YT
www.alpce.co.uk Tel: 01488 684390

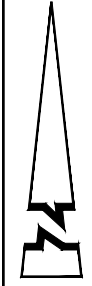
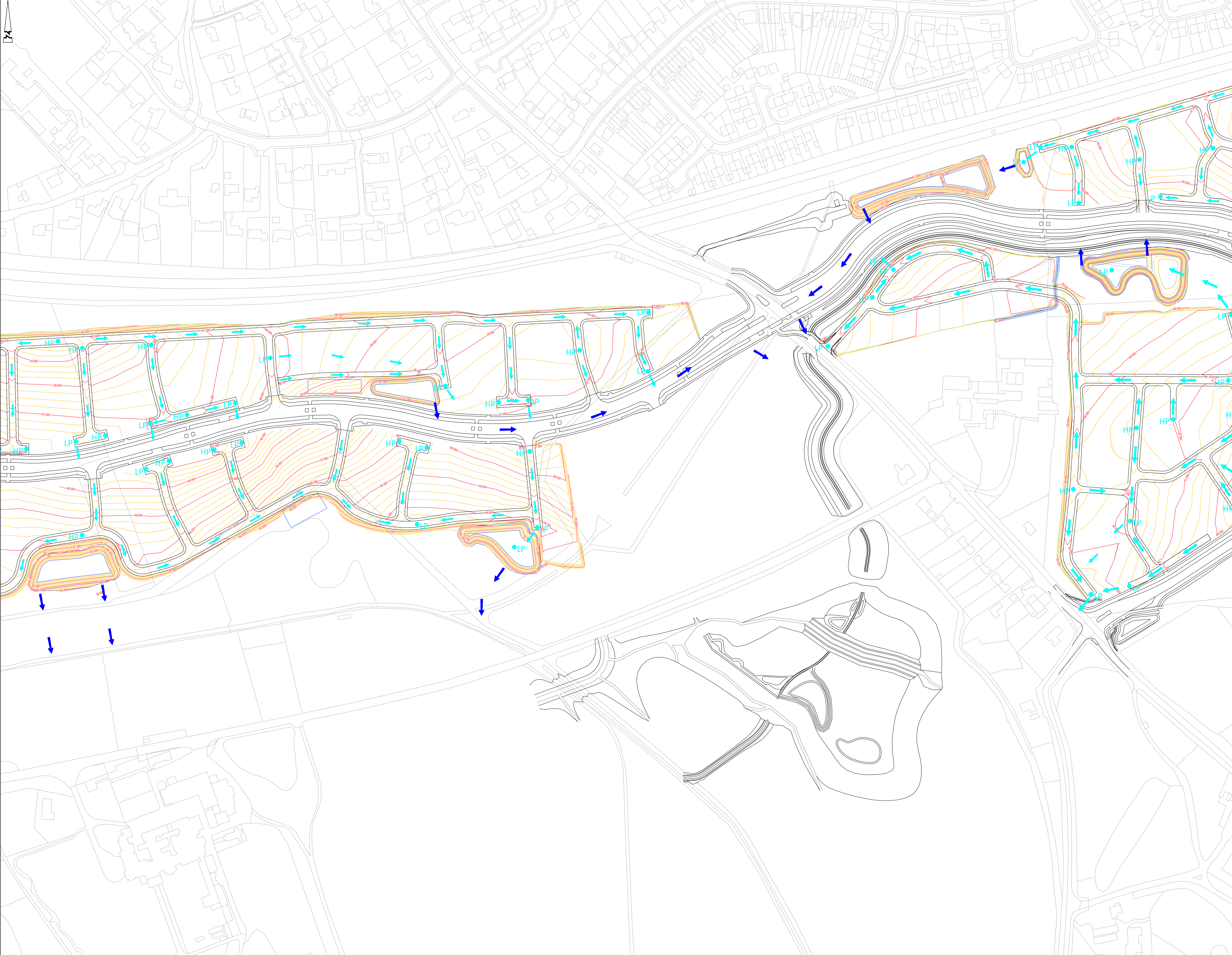
Client
SOUTH WOKINGHAM CONSORTIUM

Project
SOUTH WOKINGHAM SDL

File
SITEWIDE ON-PARCEL OVERLAND FLOW PATHS SHEET 1

Status

Scale	Date	Drawn	Checked
1:1000 @ A0	11/22	JA	KLW
Drawn by A389-016		Revised	P2



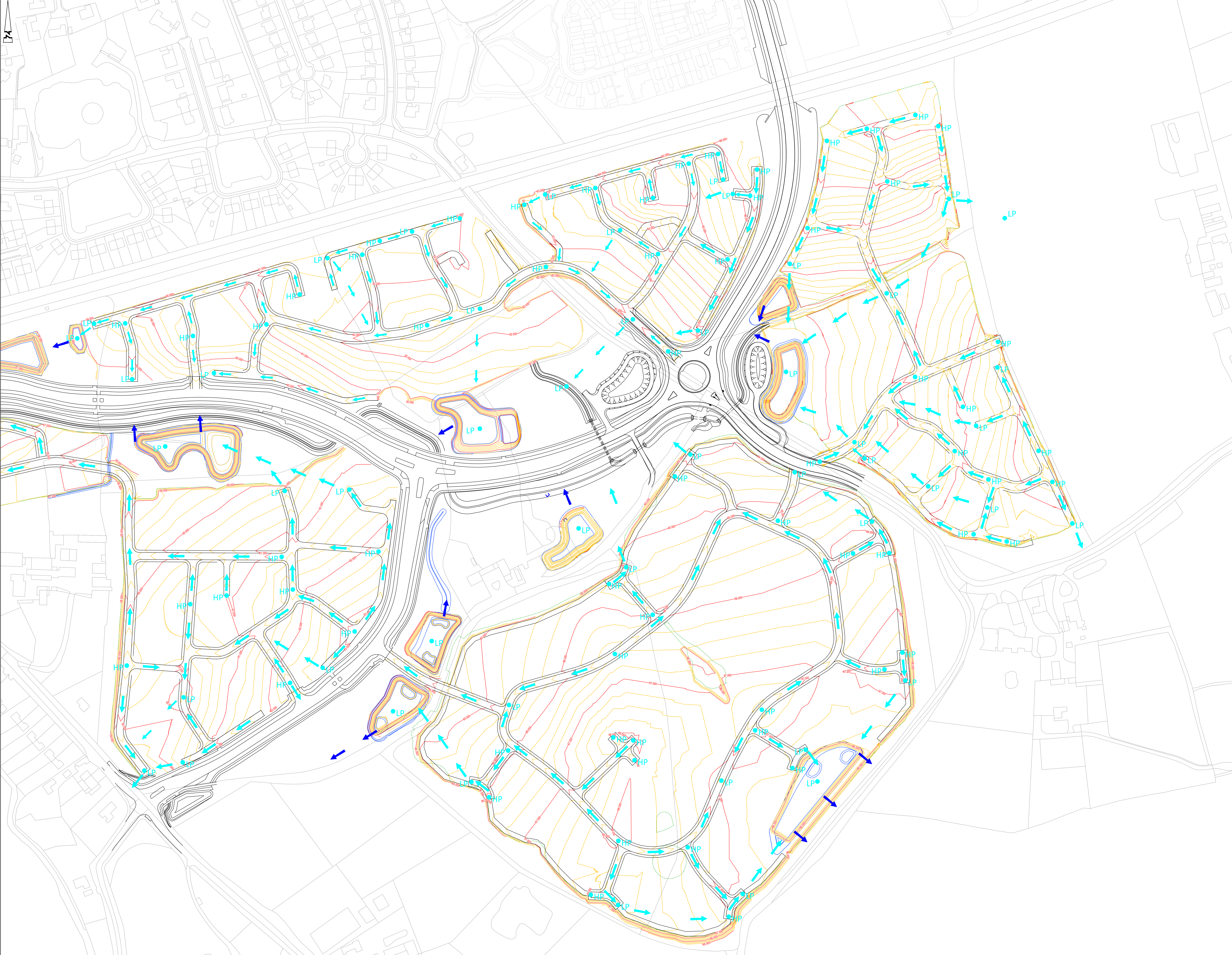
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P2	07/24	Basins Update	KW	SM
PL	12/22	First Issue	JA	KW
Date		Description	Drawn	Checked
			JA	KW
 ABLE LETCHFORD PARTNERSHIP Consulting Engineers				
3 Tealgate, Charnham Park Hungerford, Berkshire RG17 0YT www.alpce.co.uk Tel: 01488 684390				
Client SOUTH WOKINGHAM CONSORTIUM				
Project SOUTH WOKINGHAM SDL				
Title SITEWIDE ON-PARCEL OVERLAND FLOW PATH SHEET 2				
Status				
Scale 1:1000 @ A0	Date 11/22	Drawn JA	Checked KW	Revised
Drawn by A389-017			Revised	P2



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KEY:

- 1m Contours
- 250mm Contours
- Extent of earthworks. Gradient varies.
- HP Carriageway High Point
- LP Carriageway/SUDS feature Low point
- Overland Flow path arrow
- Exceedence Flow path arrow

P2	07/24	Business Update	KW	SM
P1	02/22	First Issue	JA	KW

ABLE LETCHFORD PARTNERSHIP
Consulting Engineers

3 Tealgate, Charnham Park
Hungerford, Berkshire RG17 0YT
www.alpce.co.uk Tel: 01488 684390

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Project
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Task
SITOWIDE ON-PARCEL OVERLAND FLOW PATHS SHEET 3

Scale	Date	Drawn	Checked
1:1000 @ A0	11/22	JA	KW
Drawn by	Reviewed	By	Check
A389-018			P2

Transport
Development Planning
Sustainable
Deliver
Trusted
Enable
Site Appraisal
Hydrology
Highways
Civil Engineering
Successful
Travel Planning
Support
Drainage
Dynamic
Masterplanning
Flood Risk Assessment
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ABLEY LETCHFORD PARTNERSHIP LTD

3 Tealgate • Charnham Park • Hungerford • RG17 0YT

T: 01488 684 390 E: contact@alpce.co.uk W: www.alpce.co.uk