

Appendix B

- Knowsley Suds Proforma
- Drainage Strategy
- Existing Drainage
- Existing Drainage Impermeable Areas
- Drainage Summary and Calculations
- Existing Sewer Records
- UU acceptance
- SuDs Maintenance Schedule

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

This pro-forma is a requirement of the Planning Validation Checklist. You **must complete all white boxes in full** and submit this pro-forma along with your supporting evidence to the Local Planning Authority for any application which seeks planning permission for major development (as defined in section 2 of [Statutory Instrument 2015 No. 595](#)).

This pro-forma supports developers and regulators in **summarising and confirming** how surface water from a development will be managed sustainably under current and future conditions. It should be completed in conjunction with the Council's 'Completing your Pro Forma' document and your sustainable drainage system should be designed in accordance with [CIRIA The SuDS Manual C753](#).

The pro-forma follows Policy CS24 of [Knowsley MBC's Local Plan](#), [National Planning Policy Framework](#), [House of Commons Written Statement \(HWSW 161\) on SuDS](#), [Planning Practice Guidance](#) and [Defra's Non-Statutory Technical Standards for Sustainable Drainage Systems](#). It is supported by the [Defra/EA Guidance on Rainfall Runoff Management](#) and can be completed using freely available tools such as [Tools for Sustainable Drainage Systems](#) or approved Industry Standard surface water management design software. The Council's [Sustainable Drainage & Surface Water Management Technical Guidance document](#) also provides further information.

Section 1: Development Details					
Development Name		The Sovereign Distillery (Phase 2)			
Development Address (including postcode)		The Sovereign Distillery, Wilson Road, Huyton Business Park, Liverpool, Merseyside, United Kingdom, L36 6AD		Planning Application Reference (if available)	23/02782/FUL
Development Grid Reference	Northings	389515		Expected lifetime of development (years)	30
	Eastings	345701		Have you submitted a Flood Risk Assessment?	Yes ☒ No ☐
Total Development Site Area (Ha)		6.59		Type of Planning Application (✓)	Outline ☐
Site area served by proposed drainage system (excluding open space) (Ha)*		4.63			Full ☒
Is your surface water drainage system designed to a (tick all that apply):					Hybrid ☐
Greenfield Standard		- Site is undeveloped and a new drainage system will be installed; OR - Site is already developed and a new surface water drainage system will be installed to serve the new development. ☐			Reserved Matters ☐
Previously Developed Standard		Site is already developed and the <u>entirety</u> of the existing surface water drainage system will be used to serve the new development. ☒			

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Section 2: Impermeable Area and Existing Drainage For outline or reserved matters applications, go to Section 3

	Existing (E)	Proposed (P)	Difference (P – E)	Evidence Checklist	
Impermeable Area (Ha)	4.631	4.945	0.314	☒	Plans showing development layout of site with existing and proposed impermeable areas.
State Drainage Method	piped	piped	N/A	☒	Plans showing current and proposed locations of sustainable drainage system.
Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?			Yes ☐ No ☐	☒	Plans showing existing layout to include: • Watercourses, open or culverted • Water bodies – ponds, swales etc. • Sewers, including manholes • Highway drains, include manholes • Soakaways, filter drains

Section 3: Surface Water Discharge Hierarchy – Planning Practice Guidance

Surface Water Discharge Method	Proposed?	If YES - Evidence Checklist		If NO - Evidence Checklist	
1. Infiltration to ground	Yes ☐ No ☒	☐	Completed Infiltration Checklist from CIRIA The SuDS Manual C753 Appendix B <i>An editable version of this form is available on SusDrain website.</i>	☒	Geotechnical Survey, including Soil Permeability Testing stating Percolation Coefficient, in accordance with BRE 365 AND Statement providing justification in your Sustainable Drainage Strategy
2. Discharge to watercourse or surface water body (Main River or Ordinary)	Yes ☐ No ☒	☐	Watercourse and/or Water Body Survey Report	☐	Plan showing nearby watercourses and water bodies AND Statement providing justification in your Sustainable Drainage Strategy
3. Discharge to surface water sewer	Yes ☒ No ☐	☐	Water and Sewerage Company written agreement for the Right to Connect.	☐	Plan showing nearby sewers AND Statement providing justification in your Sustainable Drainage Strategy
4. Discharge to combined sewer	Yes ☐ No ☐				

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Section 4: Calculate Peak Discharge Rates – Technical Standards S2 and S3 (unless S1 applies)

Rainfall Event	Existing Rate (l/s)	Greenfield Rate (l/s)	Proposed Rate (l/s) <i>Brownfield sites must reduce discharge rates by 50%</i>	Evidence Checklist	
Qbar				☒	MicroDrainage (or equivalent) calculations
1:1 Year Event					
1:30 Year Event					
1:100 Year Event					

Section 5: Calculate Discharge Volume – Technical Standards S4 and S6 (unless S1 applies)

Rainfall Event	Existing Volume (m ³)	Greenfield Volume (m ³)	Proposed Volume (m ³)	Evidence Checklist	
1:100 Year 6 Hour Event				☒	MicroDrainage (or equivalent) calculations

Section 6: Infiltration

Site Information	✓	Evidence Checklist	
Do your sustainable drainage proposals include any infiltration?	Yes ☐ No ☒ <i>If NO, please move on to Section 7</i>	☐	Proposed sustainable drainage plans
You should submit an alternative 'Plan B' sustainable drainage design utilising an alternative discharge method if site specific ground conditions are unknown at this stage. This will become the default design in the event infiltration proposals are not feasible upon site specific ground investigation. Have you submitted an alternative 'Plan B' sustainable drainage design?	Yes ☐ No ☐	☐	'Plan B' conceptual sustainable drainage plans and statement of approach

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Section 7: Storage – Technical Standards S7, S8 and S9

Storage Details	Details	Evidence Checklist	
State climate change allowance used (%)	40	☒	State / use in MicroDrainage
State storage volume provided (m ³) (excluding non-void spaces) <i>Must include an allowance for climate change and urban creep.</i>	Tank 1 - 439.3 Tank 2 - 181 Tank 3 - 427.5	☒	Drainage plans showing location of attenuation and all flow control devices and any supporting calculations
Summarise how storage will be provided for 1:30 year event on site. <i>Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas and no flooding occurs offsite in a 1 in 100 year (+ climate change allowance) event.</i>	Underground attenuation crates.	☒	Plans showing size and location of storage and supporting calculations
Summarise how storage will be provided for 1:100 year (+ climate change) 6 hour event on site. <i>Where storage above the 1:30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by MicroDrainage (or equivalent) calculations.</i>	Underground attenuation crates.	☒	Plans showing size and location of storage and supporting calculations

Section 8: Operation and Maintenance – Technical Standard S12 and HCWS161

Consideration	Select <u>ALL</u> that apply (✓)		Evidence Checklist
State how <u>ALL</u> components of the sustainable drainage system will be maintained for the design life of the development.	Sustainable drainage features are at property level	☒	☒ Statement provided within your Sustainable Drainage Strategy
	Sustainable drainage system to be adopted by Water and Sewerage Company through a Section 104 agreement (Water Industry Act 1991)	☐	
	Applicant to secure maintenance of sustainable drainage features by entering into a Section 106 agreement (Town and Country Planning Act 1990)	☒	

PRO-FORMA 1: Sustainable Drainage System: Planning Permission

Declaration and Submission

This pro-forma has been completed using evidence from information which has been submitted with my planning application.

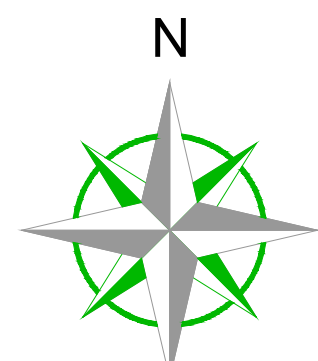
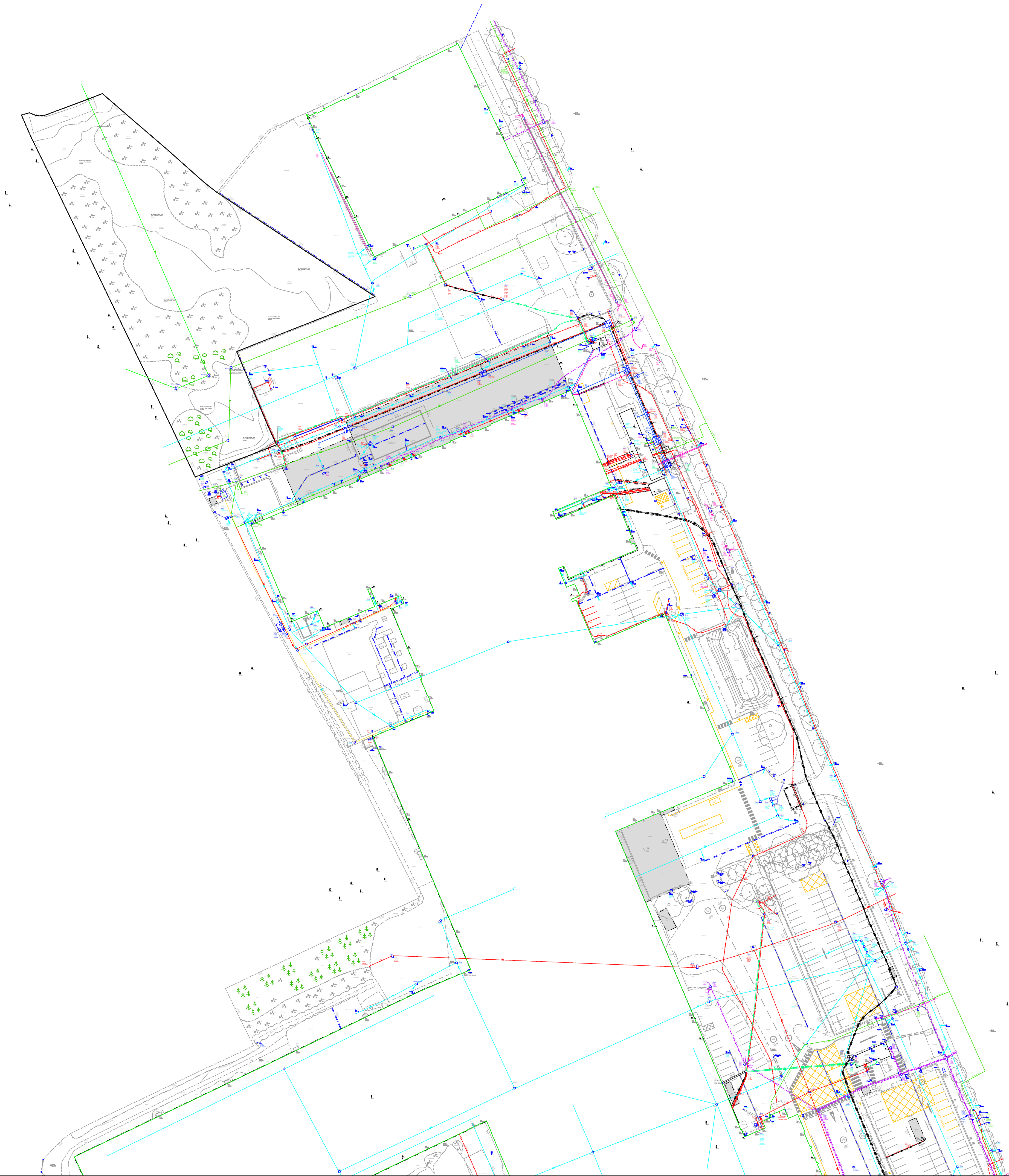
The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.

Submitter Details

Form <u>completed</u> by	Aleks Jencu	Email Address	aleks.jencu@adeptcsce.com
		Daytime Telephone	0161 249 7989
Form <u>signed off</u> by	Richard Parker	Accreditation(s) and/or Qualification(s) of Signatory	Director - B.Eng
Date (dd/mm/yyyy)	01/03/2024	Company	Adept Consulting Engineers

Client Details

Name	Dave Little	Company	TJ Morris
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NOTES:
Only BT & Cad records available at time of survey.
Unable to locate all Water supplies within the survey area, limited signals gained on site.
Some of the drainage routes cannot be fully surveyed on site due to limited access. We would recommend CCTV Camera Survey to be carried out to prove the route of any drainage which cannot be safely surveyed at present.

UTILITY KEY	
	ELECTRIC CABLE
	ELECTRIC & COMMS CABLE
	TELECOMS CABLE
	CABLE TELEVISION
	COMMUNICATION CABLE
	WATER PIPE
	GAS PIPE
	FOUL DRAINAGE
	SURFACE DRAINAGE
	COMBINED DRAINAGE
	FUEL PIPE
	VENT PIPE
	OFFSET FILL PIPE
	GAUGE LINE
	VAPOUR RECOVERY
	SERVICE DUCTS
	UNIDENTIFIED
	END OF TRACE

ABBREVIATIONS	
AR ASSUMED ROUTE	NL NOT LOCATED
BD BACKDROP	OSA OFF SURVEY AREA
CP CATCHPIT	PR PIPE RISER
CL COVER LEVEL	RE RISING EYE
CR CABLE RISER	RWP RAINWATER PIPE
DP DOWN PIPE	SA SAGGAWAY
EP ELECTRICITY POLE	SV STOP VALVE
EDC EDGE OF CANOPY	SUP SOIL VENT PIPE
EOT END OF TRACE	TE TRAPPED EXIT
PH FIRE HYDRANT	TF FIRE RISER POLE
G GULLY	TFR TAKEN FROM RECORDS
GV GAS VALVE	UTF UNABLE TO FIND
HL HIGH LEVEL	UL UNABLE TO LEFT
IC INSPECTION CHAMBER	UTS UNABLE TO SURVEY
I INVERT LEVEL	VP VAPOUR RECOVERY
LH LAMP HOLE	VR VAPOUR RECOVERY
LP LAMP POST	WSL WATER LEVEL
MH MANHOLE	WM WATER METER
NEV NO EXIT VISIBLE	WO WASH OUT VALVE
	WP WASTE PIPE
SWS SURFACE WATER SEWER	
FWS FOUL WATER SEWER	
CWS COMBINED WATER SEWER	

DISCLAIMER
ELECTRO-MAGNETIC TECHNIQUES AND/OR GROUND PENETRATING RADAR HAVE BEEN USED IN THE LOCATION OF UNDERGROUND SERVICES. THE RESULTS ARE NOT INFALLIBLE AND THEIR ACCURACY SHOULD BE CARRIED OUT TO CONFIRM SERVICE IDENTIFICATION, POSITIONS AND PARTICULARS. LOCATIONS WHERE THESE ARE CRITICAL, ALL WORKERS MUST BE ADVISED OF THE RESULTS OF THE SURVEY. THE METHOD OF SURVEY DOES NOT DIFFERENTIATE BETWEEN LIVE AND DEAD SERVICES AND AS SUCH ALL SERVICES SHOULD BE TREATED AS LIVE.
WHERE SERVICES ARE NON-METALLIC POSITIONS MAY BE TAKEN FROM RECORDS, PHOTOGRAPHS & SURFACE DETAIL.
WHERE QUOTED, DEPTH ESTIMATIONS ARE GENERALLY TO THE CENTRE OF THE SERVICE. DEPTHS TO GROUND SURFACE AND DEPTHS TO INVERT LEVELS UNLESS OTHERWISE STATED.
PIPE SIZES WHICH CANNOT BE OBTAINED BY VISUAL SURVEY ARE TAKEN FROM RECORDS, PHOTOGRAPHS OR MANHOLE PLATES WHERE AVAILABLE.
WHERE GROUND PENETRATING RADAR HAS BEEN USED IT WILL, PROBABLY HAVE BEEN TO IDENTIFY UNDERGROUND UTILITIES. IT IS POSSIBLE WE MAY ALSO IDENTIFY UNDERGROUND UTILITIES, TANKS ETC. BUT CANNOT GUARANTEE TO HAVE LOCATED ALL SUCH ITEMS. THE USE OF RADAR CAN BE LIMITED BY SURFACE CONDITIONS AND ALSO BY SOIL TYPE. DEPTH ESTIMATES WOULD NOT NORMALLY BE PROVIDED FOR SERVICES LOCATED WITH GPR.

Rev	Date	Description	Drawn	C. Ref
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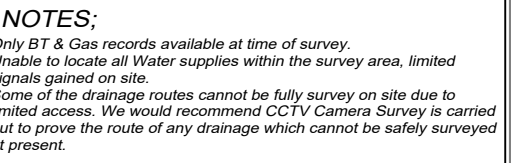
greenhatch group

☐ Topographical Surveys ☐ Measured Building Surveys
☐ Site Engineering ☐ 3D Laser Scanning
☐ Utility / CCTV Surveys ☐ Route & BIM Models

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CLIENT	
AEW Architects	
PROJECT	
Sovereign Distillery Huyton Business Park Liverpool	
TITLE	
Underground Utility Survey	
SCALE	DATE
A0@ 1: 500	14-25/06/21
DRAWN	QUALITY REF
SL/D.O.T	14396
Level datum	See OS Note
Grid orientation	See OS Note
Job number	40493
Drawing No.	Rev.
40493_UG_1	0
Comments	
This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client.	
All dimensions should be checked on site prior to design and construction.	
Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.	
Notes:	



	ELECTRIC CABLE
	ELECTRIC & COMB CABLE
	TRAFFIC SIGNALS
	TRAFFIC SIGNALS
	CABLE TELEVISION
	COMMUNICATION CABLE
	WATER PIPE
	GAS PIPE
	FOUL DRAINAGE
	SURFACE DRAINAGE
	COMBINED DRAINAGE
	FUEL PIPE
	VENT PIPE
	OFFSET FL. PIPE
	GAUGE LINE
	VAPOUR RECOVERY
	SERVICE DUCTS
	UNIDENTIFIED
	END OF TRACE

AR	ASSUMED ROUTE	NE	NOT LOCATED
BD	BACHENDROP	NSA	OFF SURVEY AREA
CP	CATCHPOINT	NR	PIPE ROSE
CL	CROWN LEVEL	NRW	RODDING EYE
CR	CABLE RISER	RW	RAINWATER PIPE
CO	DOWN PIPE	SA	SINKWAY
EP	ELECTRICITY POLE	SV	STOP VALVE
EG	ELEGANCE OF CANOPY	SVP	SINK VENT PIPE
EN	END OF TRAIL	TR	TRAPPED EYE
FH	FIRE HYDRANT	TE	TELEGRAPH POLE
G	GULLY	TFR	TAKEN FROM RECORDS
GV	VALVE	UN	UNABLE TO FIND
HL	HIGH LEVEL	UTL	UNABLE TO LIFT
HC	HIGH CURRENT CHAMBER	US	UNABLE TO SURVEY
IL	INVERT LEVEL	VP	VENT PIPE
LH	LAMP HOUSE	VR	VAPOUR RECOVERY
LP	LAMP POST	WL	WATER LEVEL
MM	MISCELLANEOUS	WM	WATER METER
NEV	NOT EXISTABLE	WP	WASTE WATER PIPE
		WSP	WASH DRAIN
SWS	SURFACE WATER SEWER		
FW	FOUR WATER SEWER		
CS	COMBINED WATER SEWER		

LECTRO-MAGNETIC TECHNIQUES AND GROUND PENETRATING RADAR (GPR) ARE USED TO IDENTIFY UNDERGROUND UTILITIES. THE RESULTS ARE NOT INFALLIBLE AND TRIAL EXCAVATIONS SHOULD BE UNDERTAKEN TO CONFIRM SERVICE IDENTIFICATION, POSITIONS AND DEPTHS. THE INFORMATION PROVIDED BY THESE SERVICES IS BASED ON THE BEST AVAILABLE INFORMATION AND THE INFORMATION PROVIDED IS NOT GUARANTEED. THE METHOD OF SURVEYING IS NOT SUITABLE FOR ALL TYPES OF SERVICES AND AS SUCH ALL SERVICES SHOULD BE TREATED AS LIVE.

WHERE SERVICES ARE NON-METALLIC POSITIONS MAY BE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES. WHERE SERVICES ARE QUOTED, DEPTHS ESTIMATIONS ARE GENERALLY TO THE CENTRE OF THE SERVICE. DEPTHS TO SURFACE LEVELS OF SEVERAL METRES MAY BE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES. DEPTHS WHICH CANNOT BE OBTAINED BY VISUAL SURVEY ARE TAKEN FROM RECORD DRAWINGS OR MARKER PLATES WHERE AVAILABLE.

WHERE GROUND PENETRATING RADAR HAS BEEN USED IT WILL BE INDICATED BY AN 'X' TO IDENTIFY UNDERGROUND UTILITIES. WHERE POSSIBLE WE WILL ALSO IDENTIFY UNDERGROUND STRUCTURES/FEATURES. THE DEPTHS TO THESE STRUCTURES/FEATURES ARE ITEMS THE USE OF RADAR CAN BE LIMITED BOTH BY SURFACE CONDITIONS AND BY THE TYPE OF SERVICE. THE METHOD OF SURVEYING IS NOT SUITABLE FOR ALL TYPES OF SERVICES AND AS SUCH ALL SERVICES SHOULD BE TREATED AS LIVE.

Rev	Date	Description	Drawn	Q. Ref.
				

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www.greenhatch-group.co.uk

CLIENT **AEW Architects**

1000

Underground Utility Survey

DRAWN SL/D.O'T	QUALITY REF 14396
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job number	40493
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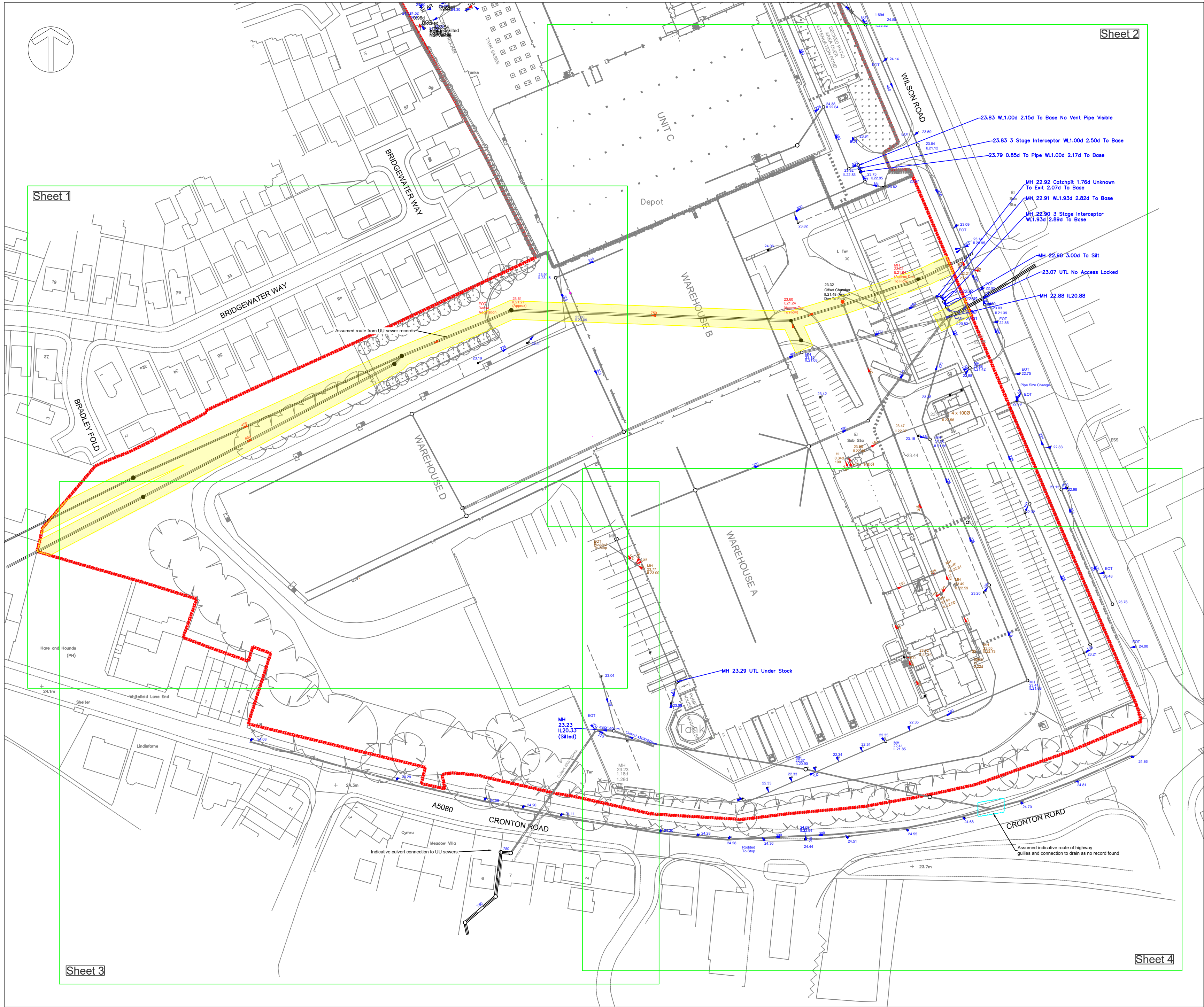
Comments
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Notes:



Do Not Scale

DESIGN REVIEW

Design review by: ** Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

- Red line site boundary
- Existing Adopted Combined Water Pipe Network
- Existing Adopted Surface Water Pipe Network
- Existing Private Surface Water Pipe Network
- Existing Culvert
- Existing Channel Drain
- Easement
- Gully

Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2

Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021

06.10.23	First Issue	AJ	GT	P1
Date	Description	By	Chk	Rev

ADEPT
CIVIL AND STRUCTURAL CONSULTING ENGINEERS

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Email: inbox@adeptcsce.com
Tel: 0113 239 4518 (Head Office)

Originating Office: Manchester
7 St James Square, 4th Floor,
Manchester, M2 6DN
Tel: 0161 974 3620

Project
Sovereign Distillery Phase 2,
Huyton

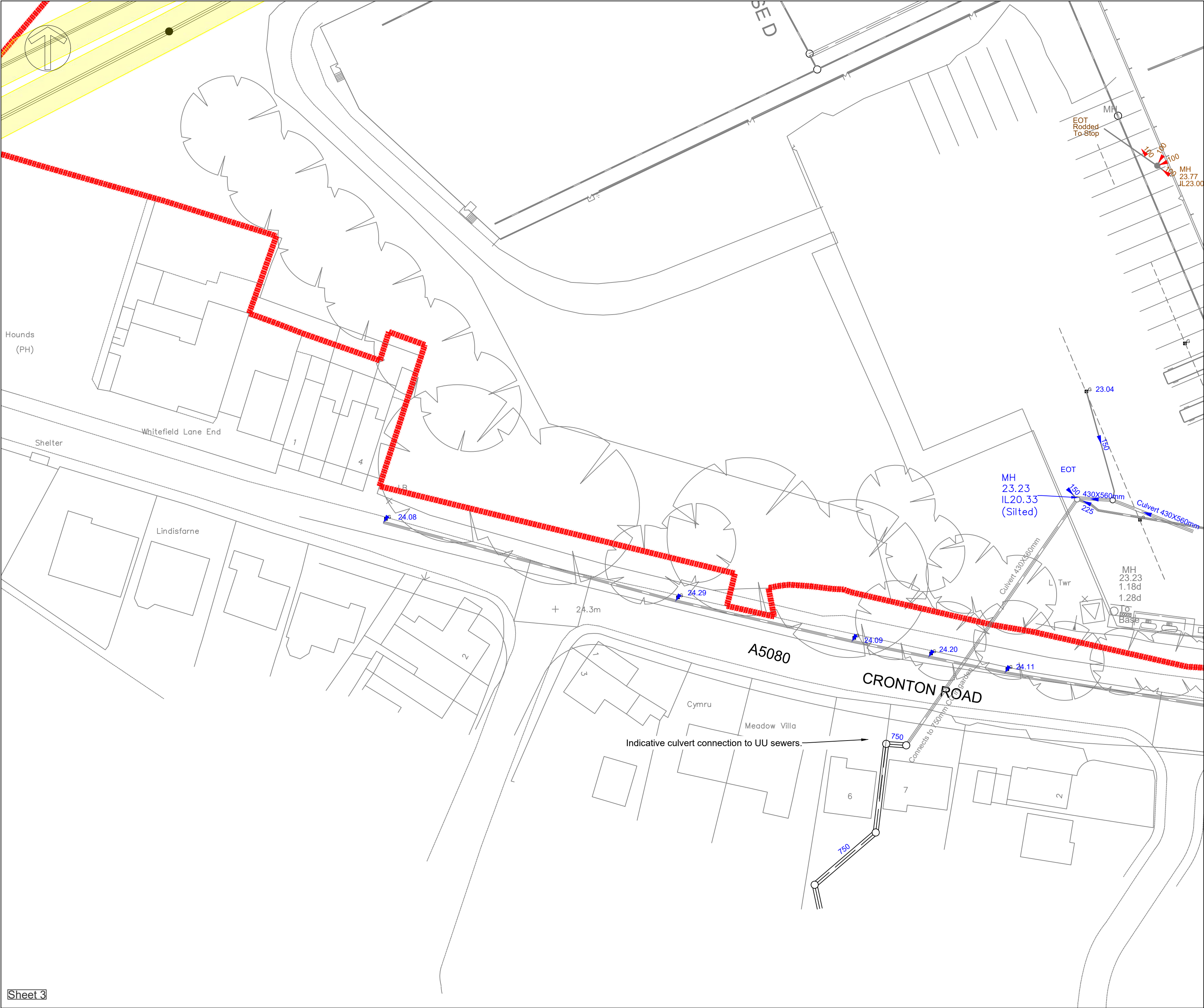
Title
Existing Drainage
Layout Plan

Client
DAVOS Property
Developments Ltd

Scale @ A2	Initial author	Initial checker	Approver	Initial Date
1:1000	AJ	JBW	NB	Sep '23

Status	Purpose	100.23083
S1	Preliminary	100.23083

Project Number	Originator	Volume	Level	Type	Role	Drg. No.	Rev.
100.23083-ACE-00-ZZ-SK-C-0002							P1



Do Not Scale

DESIGN REVIEW

Design review by:

**

Checked by:

**

Residual hazards:

⚠

Health, Safety & Environmental Notes

⚠

NOTES

Key

Red line site boundary

Existing Adopted Combined Water Pipe Network

Existing Adopted Surface Water Pipe Network

Existing Private Surface Water Pipe Network

Existing Culvert

Existing Channel Drain

Easement

Gully

Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2

Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021

06.10.23

First Issue

AJ

GT

P1

Date

Description

By

Chk

Rev

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS

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Tel: 0161 974 3620

Project

Sovereign Distillery Phase 2, Huyton

Title

Existing Drainage Layout Sheet 3 of 4

Client

DAVOS Property Developments Ltd

Scale @ A2

Initial author

Initial checker

Approver

Initial Date

1:500

AJ

JBW

NB

Sep '23

Status

Purpose

Adept Ref

S1

Preliminary

100.23083

Project Number

Originator

Volume

Level

Type

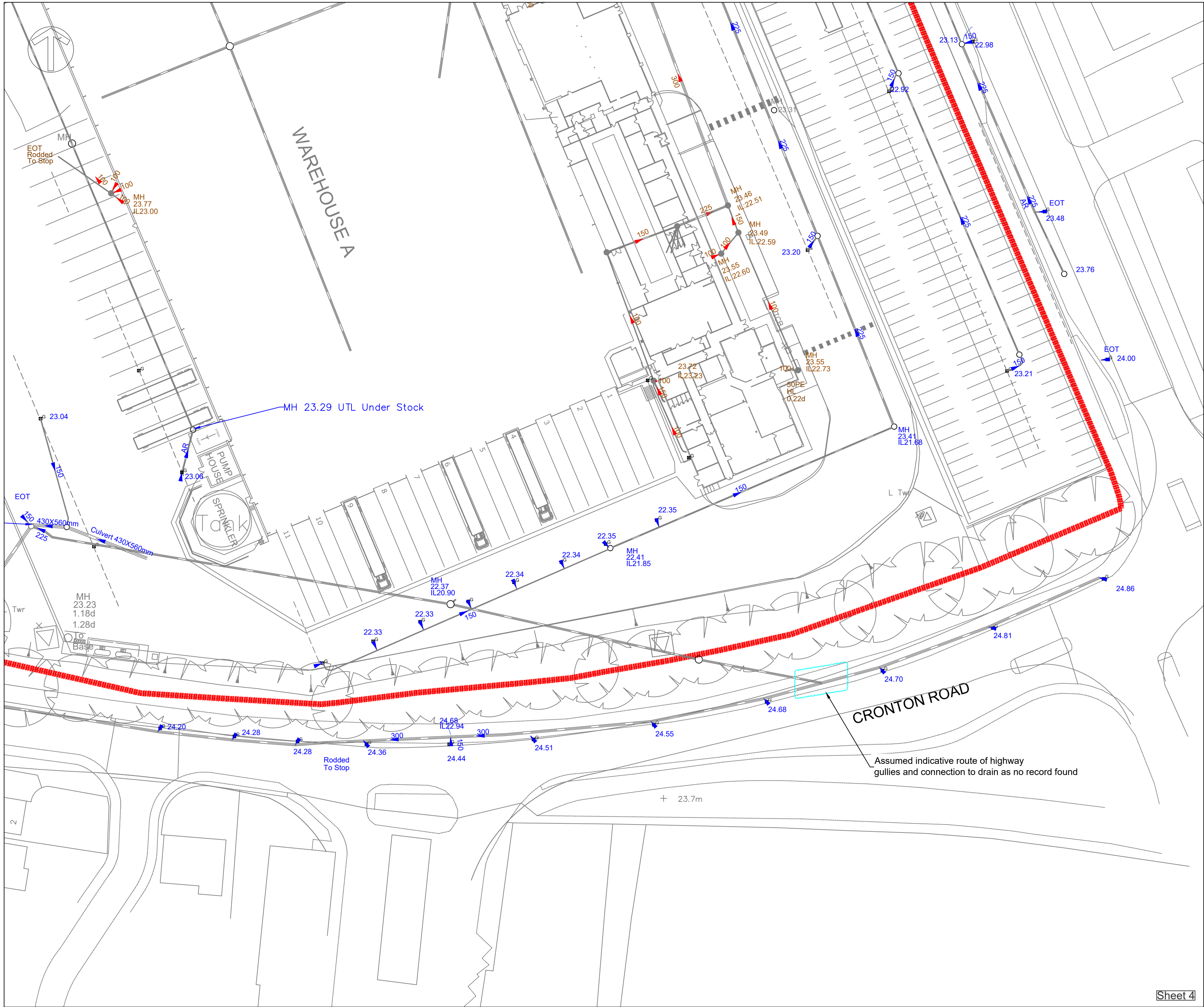
Role

Drg. No.

Rev.

100.23083-ACE-00-ZZ-SK-C-0005

P1



Do Not Scale

DESIGN REVIEW

Design review by: **Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

Red line site boundary

Existing Adopted Combined Water Pipe Network

Existing Adopted Surface Water Pipe Network

Existing Private Surface Water Pipe Network

Existing Culvert

Existing Channel Drain

Easement

Gully

Refer to HUYTON 40493_T_UG_REV0 SUB GROUP PHASE 1 Underground Utility Survey drawing no. 40493_UG_1 & 40493_UG_2

Refer to Ref no. B029681-Sewer Plans Issued on 15/06/2021

06.10.23First Issue

AJGT

P1

DateDescription

ByChkRev

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS

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Tel: 0113 239 4518 (Head Office)

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Manchester, M2 6DN

Tel: 0161 974 3620

Project

Sovereign Distillery Phase 2, Huyton

Title

Existing Drainage Layout Sheet 4 of 4

Client

DAVOS Property Developments Ltd

Scale @ A2

Initial author

Initial checker

Approver

Initial Date

1:500

AJ

JBW

NB

Sep '23

Status

Purpose

Adept Ref

S1

Preliminary

100.23083

Project Number

Originator

Volume

Level

Type

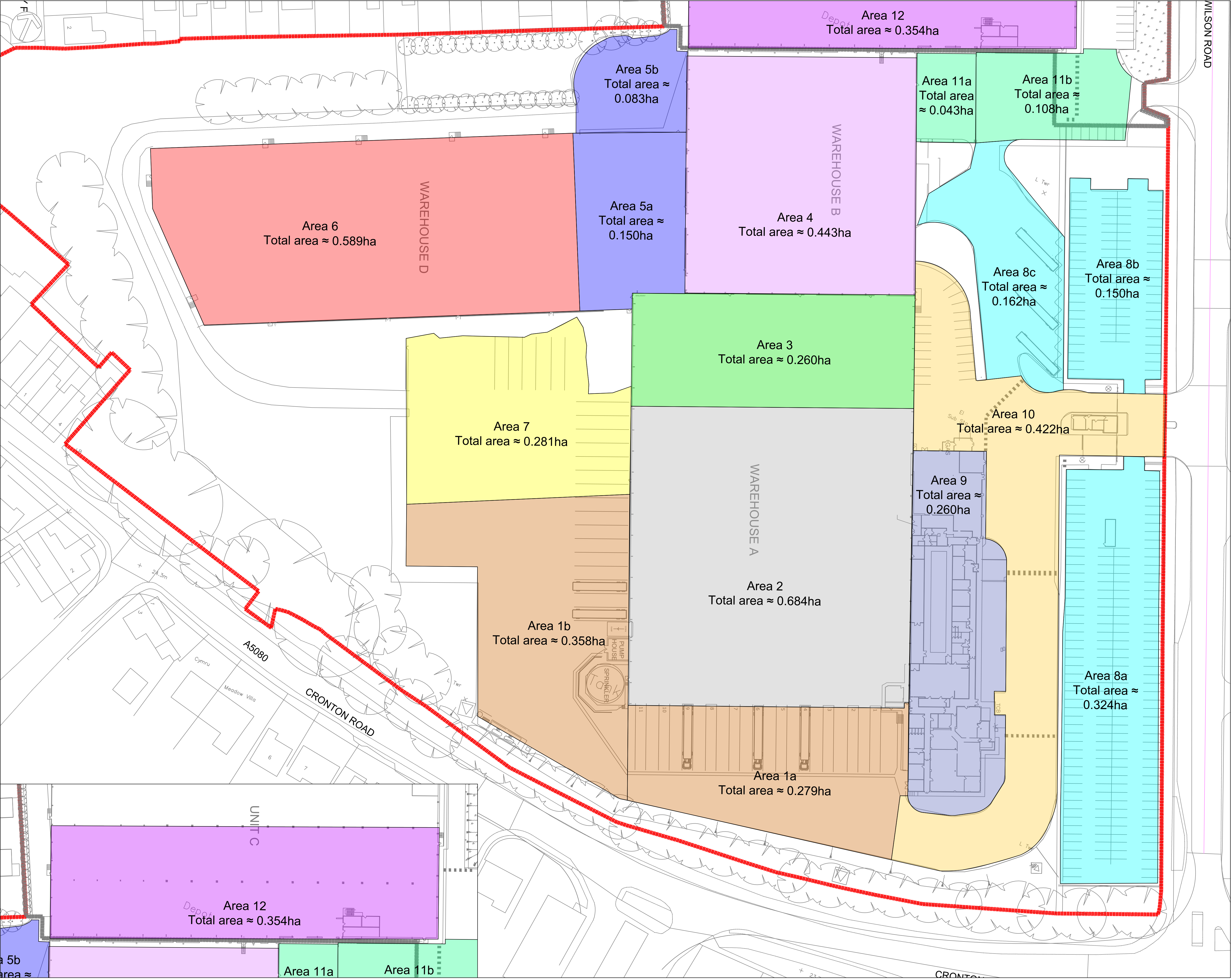
Role

Drg. No.

Rev.

100.23083-ACE-00-ZZ-SK-C-0006

P1



Do Not Scale

DESIGN REVIEW

Design review by: **

Checked by: **

Residual hazards:

Health, Safety & Environmental Notes

NOTES

Key

Area 1

Proposed Impermeable ≈ 0.637ha

Area 2

Proposed Impermeable ≈ 0.684ha

Area 3

Proposed Impermeable ≈ 0.260ha

Area 4

Proposed Impermeable ≈ 0.443ha

Area 5

Proposed Impermeable ≈ 0.233ha

Area 6

Proposed Impermeable ≈ 0.589ha

Area 7

Proposed Impermeable ≈ 0.281ha

Area 8

Proposed Impermeable ≈ 0.635ha

Area 9

Proposed Impermeable ≈ 0.260ha

Area 10

Proposed Impermeable ≈ 0.422ha

Area 11

Proposed Impermeable ≈ 0.151ha

Area 12

Proposed Impermeable ≈ 0.354ha

Total Impermeable Area = 4.949ha

20.11.24

Updated areas

AJe

RR

P02

05.10.23

First Issue

AJ

GT

P1

Date

Description

By

Chk

Rev

ADEPT

CIVIL AND STRUCTURAL CONSULTING ENGINEERS

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Manchester, M2 6DN

Tel: 0161 974 3620

Project

Sovereign Distillery Phase 2, Huyton

Title

Existing Impermeable Area Layout

Client

DAVOS Property Developments Ltd

Scale @ A1

Initial author

Initial checker

Approver

Initial Date

1:500

AJ

GT

NB

Sep '23

Status

Purpose

Adapt Ref

S3

Preliminary

100.23083

Project Number

Originator

Volume

Level

Type

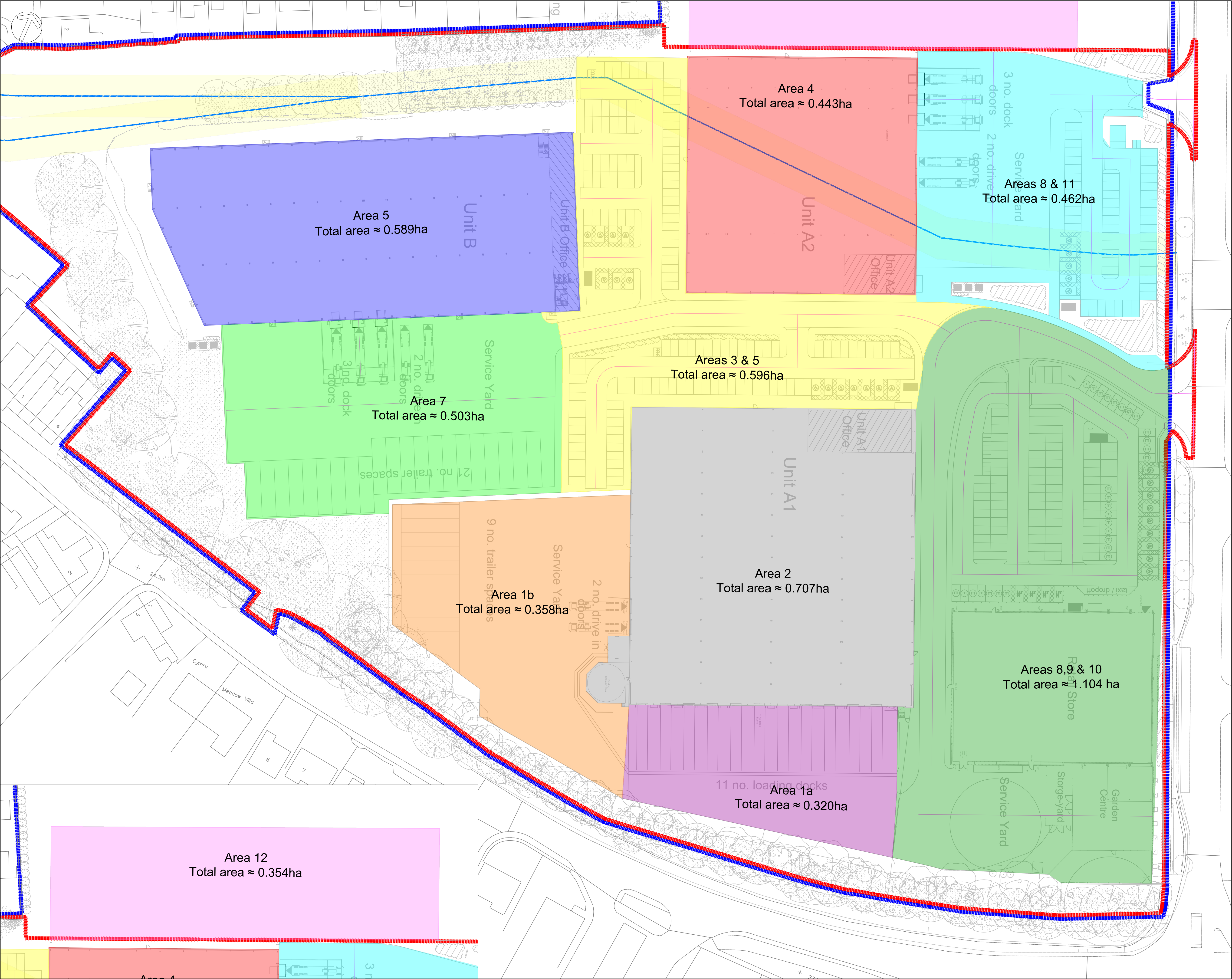
Role

Orig. No.

Rev.

100.23083-ACE-00-ZZ-DR-C-1010

P02



Do Not Scale

DESIGN REVIEW

Design review by: **

Checked by: **

Residual hazards:

⚠

Health, Safety & Environmental Notes

⚠

NOTES

Key

Area 5

Proposed Impermeable ≈ 0.589ha

Area2

Proposed Impermeable ≈ 0.503ha

Area 1b

Proposed Impermeable ≈ 0.354ha

Area 1a

Proposed Impermeable ≈ 0.320ha

Area 2

Proposed Impermeable ≈ 0.707ha

Area 3 & 5

Proposed Impermeable ≈ 0.596ha

Area 4

Proposed Impermeable ≈ 0.443ha

Area 12

Proposed Impermeable ≈ 0.354ha

Area 8 & 11

Proposed Impermeable ≈ 0.462ha

Area 8, 9 & 10

Proposed Impermeable ≈ 1.104ha

Total Impermeable Area = 5.436ha

20.11.24

Updated architectural layout

AJe

RR

P02

05.06.24

Initial Issue

AJe

RR

P1

Date

Description

By

Chk

Rev

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Originating Office: Manchester

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Manchester, M2 6DN

Tel: 0161 974 3620

Project

Sovereign Distillery Phase 2, Huyton

Title

Proposed Impermeable Area Layout

Client

DAVOS Property Developments Ltd

Scale @ A1

Initial author

Initial checker

Approver

Initial Date

1:500

AJe

RR

NBr

Jun '24

Status

Purpose

Adapt Ref

S3

Preliminary

100.23083

Project Number

Originator

Volume

Level

Type

Role

Orig. No.

Rev.

100.23083-ACE-00-ZZ-DR-C-1011

P02

Project: 100.23083 Sovereign Phase 2 Rev: P02 Report Details: Type: Junctions Storm Phase: Existing SW	Date: 20/11/0024		
	Designed by: AJe	Checked by: RR	Approved By: NB
	Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		



Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
MH290	Outlet	Pipe291	Free Discharge
MH91	Outlet	Pipe87	Free Discharge
MH257	Outlet	Pipe301	Free Discharge
MH249	Outlet	Pipe274	Free Discharge
MH248	Outlet	Pipe298	Free Discharge
MH245	Outlet	Pipe57	Free Discharge
MH246	Outlet	Pipe45	Free Discharge
MH247	Outlet	Pipe273	Free Discharge
MH132	Outlet	Pipe50 (1)	Free Discharge
MH123	Outlet	Pipe46	Free Discharge
MH315	Outlet	Pipe191	Free Discharge
MH106	Outlet	Pipe69	Free Discharge
MH108	Outlet	Pipe241	Free Discharge
MH107	Outlet	Pipe70	Free Discharge
MH67	Outlet	Pipe73	Free Discharge
MH208	Outlet	Outfall 2	Free Discharge
MH96	Outlet	Pipe58	Free Discharge
MH207	Outlet	Pipe198	Free Discharge
MH79	Outlet	Pipe56	Free Discharge
MH97	Outlet	Pipe51 (1) (1)	Free Discharge
MH80	Outlet	Outfall 1	Free Discharge
MH81	Outlet	Pipe52	Free Discharge
MH68	Outlet	Pipe74	Free Discharge
MH75	Outlet	Pipe61	Free Discharge
MH77	Outlet	Pipe62	Free Discharge
MH73	Outlet	Pipe48	Free Discharge
MH76	Outlet	Pipe	Free Discharge
MH70	Outlet	Pipe75	Free Discharge
MH72	Outlet	Pipe59	Free Discharge
MH117	Outlet	Pipe68 (1)	Free Discharge
MH265	Outlet	Pipe293	Free Discharge
MH98	Outlet	Pipe55	Free Discharge
MH84	Outlet	Pipe54 (2)	Free Discharge
MH214	Outlet	Pipe206	Free Discharge
MH254	Outlet	Pipe77	Free Discharge
Simple Junction (11)	Outlet	Pipe243	Free Discharge
Simple Junction (1)	Outlet	Pipe60	Free Discharge
Simple Junction (9)	Outlet	Pipe195	Free Discharge
Simple Junction (10)	Outlet	Pipe197	Free Discharge
Simple Junction (16)	Outlet	Pipe239	Free Discharge
Simple Junction (18)	Outlet	Pipe272	Free Discharge
Simple Junction (19)	Outlet	Pipe275	Free Discharge
Simple Junction (20)	Outlet	Pipe276	Free Discharge
Simple Junction (21)	Outlet	Pipe277	Free Discharge
Simple Junction (22)	Outlet	Pipe278	Free Discharge
Simple Junction (23)	Outlet	Pipe279	Free Discharge
Simple Junction (24)	Outlet	Pipe280	Free Discharge
Simple Junction (27)	Outlet	Pipe296	Free Discharge
Simple Junction (28)	Outlet	Pipe297	Free Discharge
Simple Junction (29)	Outlet	Pipe299	Free Discharge
Simple Junction (30)	Outlet	Pipe300	Free Discharge
Manhole	Outlet	Pipe (1)	Free Discharge
Manhole (1)	Outlet	Pipe (2)	Free Discharge
Manhole (3)	Outlet	Into Phase 1	Free Discharge
Simple Junction (3)	Outlet	Pipe (4)	Free Discharge

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
		Designed by: AJe	Checked by: RR		Approved By: NB
Report Details: Type: Connections Storm Phase: Existing SW		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Length (m)	Connection Type	Slope (1:X)	Manning's n	Colebrook-White Roughness (mm)	Diameter / Base Width (mm)	Upstream Cover Level (m)	Upstream Invert Level (m)
Pipe45	24.569	Pipe	289.045		0.6	450	23.900	21.080
Pipe46	48.784	Pipe	1219.602		0.6	525	23.600	20.920
Pipe48	12.351	Pipe	308.787		0.6	600	22.910	20.830
Outfall 1	23.890	Pipe	298.630		0.6	600	23.070	20.790
Pipe52	2.348	Pipe	7.827		0.6	300	23.030	21.390
Pipe55	42.639	Pipe	448.829		0.6	450	21.845	21.120
Pipe56	20.620	Pipe	242.594		0.6	525	23.140	20.950
Pipe57	74.025	Pipe	302.144		0.6	600	23.900	21.325
Pipe58	56.225	Pipe	281.125		0.6	600	23.150	21.080
Pipe59	3.484	Pipe	69.686		0.6	600	22.880	20.880
Pipe60	26.909	Pipe	85.425		0.6	450	21.795	21.345
Pipe61	1.880	Pipe	187.992		0.6	225	22.920	21.255
Pipe62	2.216	Pipe	221.595		0.6	225	22.910	21.245
Pipe69	39.021	Pipe	185.814		0.6	225	23.410	21.680
Pipe70	59.753	Pipe	543.213		0.6	225	23.270	21.470
Pipe73	58.126	Pipe	242.192		0.6	225	23.260	21.880
Pipe74	56.433	Pipe	256.511		0.6	225	22.940	21.640
Pipe75	29.752	Pipe	180.315		0.6	225	22.880	21.420
Pipe77	39.154	Pipe	223.737		0.6	225	23.400	23.265
Pipe87	15.660	Pipe	261.004		0.6	225	23.910	23.150
Pipe54 (2)	49.767	Pipe	41.472		0.6	450	24.550	22.320
Pipe191	48.324	Pipe	34.765		0.6	225	23.561	23.090
Pipe195	21.184	Pipe	151.316		0.6	150	21.095	20.945
Pipe197	16.344	Pipe	233.484		0.6	375	21.025	20.650
Pipe198	6.733	Pipe	26.931		0.6	375	23.140	20.580
Pipe206	57.603	Pipe	295.401		0.6	150	22.500	22.045
Pipe50 (1)	47.749	Pipe	222.089		0.6	225	23.760	22.085
Pipe239	27.674	Pipe	221.389		0.6	225	23.500	23.275
Pipe243	41.645	Pipe	320.345		0.6	225	23.316	21.335
Pipe68 (1)	58.612	Pipe	616.968		0.6	150	22.410	21.850
Pipe272	26.165	Pipe	218.041		0.6	225	21.720	21.580
Pipe273	46.167	Pipe	297.853		0.6	300	23.900	21.385
Pipe274	67.631	Pipe	300.584		0.6	600	23.900	21.550
Pipe275	62.233	Pipe	222.261		0.6	225	21.880	21.740
Pipe276	17.818	Pipe	222.725		0.6	225	21.680	21.540
Pipe277	64.320	Pipe	225.684		0.6	225	21.735	21.590
Pipe278	22.942	Pipe	218.499		0.6	225	21.550	21.410
Pipe279	19.430	Pipe	215.890		0.6	225	21.535	21.395
Pipe280	21.321	Pipe	224.434		0.6	225	21.540	21.400
Pipe291	48.291	Pipe	193.164		0.6	225	24.929	21.150
Pipe293	80.967	Pipe	192.779		0.6	225	22.370	20.900
Outfall 2	42.480	Pipe	128.728		0.6	375	23.230	20.330
Pipe296	52.662	Pipe	224.094		0.6	225	22.385	22.175
Pipe297	67.688	Pipe	225.628		0.6	225	22.450	22.240
Pipe298	3.305	Pipe	220.307		0.6	225	23.900	21.940
Pipe299	58.137	Pipe	223.606		0.6	225	22.590	22.365
Pipe300	68.662	Pipe	225.122		0.6	225	22.635	22.410
Pipe301	40.570	Pipe	225.390		0.6	225	23.900	22.105
Pipe241	8.157	Pipe	326.290		0.6	225	23.280	21.360
Pipe51 (1) (1)	76.042	Pipe	158.422		0.6	225	23.130	21.870
Pipe	2.354	Pipe	235.442		0.6	225	22.900	21.235
Pipe (1)	3.822	Pipe	191.103		0.6	225	22.900	21.225
Pipe (2)	7.810	Pipe	65.086		0.6	300	23.750	22.950
Into Phase 1	25.413	Pipe	133.755		0.6	300	23.920	22.830
Pipe (4)	54.347	Pipe	301.930		0.6	300	23.900	23.130

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Name	Downstream Cover Level (m)	Downstream Invert Level (m)	Lock	Min. Cover Depth (m)	Velocity (m/s)
Pipe45	23.600	20.995	All	0.000	
Pipe46	22.880	20.880	All	0.000	
Pipe48	23.070	20.790	All	0.000	
Outfall 1	23.200	20.710	All	0.000	
Pipe52	23.070	21.090	All	0.000	
Pipe55	23.140	21.025	All	0.000	
Pipe56	23.070	20.865	All	0.000	
Pipe57	23.150	21.080	All	0.000	
Pipe58	22.880	20.880	All	0.000	
Pipe59	22.910	20.830	All	0.000	
Pipe60	22.920	21.030	All	0.000	
Pipe61	22.910	21.245	All	0.000	
Pipe62	22.900	21.235	All	0.000	
Pipe69	23.270	21.470	All	0.000	
Pipe70	23.280	21.360	All	0.000	
Pipe73	22.940	21.640	All	0.000	
Pipe74	22.880	21.420	All	0.000	
Pipe75	22.920	21.255	All	0.000	
Pipe77	23.561	23.090	All	0.000	
Pipe87	23.561	23.090	All	0.000	
Pipe54 (2)	21.845	21.120	All	0.000	
Pipe191	23.900	21.700	All	0.000	
Pipe195	23.140	20.805	All	0.000	
Pipe197	23.140	20.580	All	0.000	
Pipe198	23.230	20.330	All	0.000	
Pipe206	22.410	21.850	All	0.000	
Pipe50 (1)	23.130	21.870	All	0.000	
Pipe239	23.910	23.150	All	0.000	
Pipe243	22.910	21.205	All	0.000	
Pipe68 (1)	23.410	21.755	All	0.000	
Pipe272	23.900	21.460	All	0.000	
Pipe273	23.900	21.230	All	0.000	
Pipe274	23.900	21.325	All	0.000	
Pipe275	23.900	21.460	All	0.000	
Pipe276	23.900	21.460	All	0.000	
Pipe277	23.900	21.305	All	0.000	
Pipe278	23.900	21.305	All	0.000	
Pipe279	23.900	21.305	All	0.000	
Pipe280	23.900	21.305	All	0.000	
Pipe291	22.370	20.900	All	0.000	
Pipe293	23.230	20.480	All	0.000	
Outfall 2	20.375	20.000	All	0.000	
Pipe296	23.900	21.940	All	0.000	
Pipe297	23.900	21.940	All	0.000	
Pipe298	23.900	21.925	All	0.000	
Pipe299	23.900	22.105	All	0.000	
Pipe300	23.900	22.105	All	0.000	
Pipe301	23.900	21.925	All	0.000	
Pipe241	23.316	21.335	All	0.000	
Pipe51 (1) (1)	23.030	21.390	All	0.000	
Pipe	22.900	21.225	All	0.000	
Pipe (1)	22.910	21.205	All	0.000	
Pipe (2)	23.920	22.830	All	0.000	
Into Phase 1	24.380	22.640	All	0.000	
Pipe (4)	23.750	22.950	All	0.000	

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024		
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR	
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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH290	24.929 21.150	Diameter / Length: 0.900					Manhole
E:345779.285 N:389398.774	3.779						
			{a} Pipe291	Pipe	21.150	Diam/Width:225	Not Applicable
MH91	23.910 23.150	Diameter / Length: 0.900	{1} Pipe239	Pipe	23.150	Diam/Width:225	Manhole
E:345637.202 N:389595.930	0.760						
			{a} Pipe87	Pipe	23.150	Diam/Width:225	Not Applicable
MH257	23.900 22.105	Diameter / Length: 0.900	{1} Pipe299	Pipe	22.105	Diam/Width:225	Manhole
E:345582.638 N:389544.193	1.795		{2} Pipe300	Pipe	22.105	Diam/Width:225	
			{a} Pipe301	Pipe	22.105	Diam/Width:225	Not Applicable
MH249	23.900 21.550	Diameter / Length: 0.900	{1} Pipe298	Pipe	21.925	Diam/Width:225	Manhole
E:345601.902 N:389508.489	2.350		{2} Pipe301	Pipe	21.925	Diam/Width:225	
			{a} Pipe274	Pipe	21.550	Diam/Width:600	Not Applicable

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Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH248	23.900 21.940	Diameter / Length: 0.900	{1} Pipe296	Pipe	21.940	Diam/Width:225	Manhole
E:345603.346 N:389505.516	1.960		{2} Pipe297	Pipe	21.940	Diam/Width:225	
			{a} Pipe298	Pipe	21.940	Diam/Width:225	Not Applicable
MH245	23.900 21.325	Diameter / Length: 0.900	{1} Pipe191	Pipe	21.700	Diam/Width:225	Manhole
E:345663.029 N:389537.430	2.575		{2} Pipe274	Pipe	21.325	Diam/Width:600	
			{a} Pipe57	Pipe	21.325	Diam/Width:600	Not Applicable
MH246	23.900 21.080	Diameter / Length: 0.900	{1} Pipe273	Pipe	21.230	Diam/Width:300	Manhole
E:345733.295 N:389531.904	2.820		{2} Pipe277	Pipe	21.305	Diam/Width:225	
			{3} Pipe278	Pipe	21.305	Diam/Width:225	
			{4} Pipe279	Pipe	21.305	Diam/Width:225	
			{5} Pipe280	Pipe	21.305	Diam/Width:225	
					21.305		
			{a} Pipe45	Pipe	21.080	Diam/Width:450	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH247	23.900 21.385	Diameter / Length: 0.900	{1} Pipe272	Pipe	21.460	Diam/Width:225	Manhole
E:345690.240	2.515		{2} Pipe275	Pipe	21.460	Diam/Width:225	
N:389515.240			{3} Pipe276	Pipe	21.460	Diam/Width:225	
			{a} Pipe273	Pipe	21.385	Diam/Width:300	Not Applicable
MH132	23.760 22.085	Diameter / Length: 0.900					Manhole
E:345848.649	1.675						
N:389471.991			{a} Pipe50 (1)	Pipe	22.085	Diam/Width:225	Not Applicable
MH123	23.600 20.920	Diameter / Length: 0.900	{1} Pipe45	Pipe	20.995	Diam/Width:450	Manhole
E:345755.834	2.680						
N:389541.681			{a} Pipe46	Pipe	20.920	Diam/Width:525	Not Applicable
MH315	23.561 23.090	Diameter / Length: 0.900	{1} Pipe77	Pipe	23.090	Diam/Width:225	Manhole
E:345642.656	0.471		{2} Pipe87	Pipe	23.090	Diam/Width:225	
N:389581.250			{a} Pipe191	Pipe	23.090	Diam/Width:225	Not Applicable

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Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH106	23.410 21.680	Diameter / Length: 0.900	{1} Pipe68 (1)	Pipe	21.755	Diam/Width:150	Manhole
E:345816.371 N:389443.002	1.730						
			{a} Pipe69	Pipe	21.680	Diam/Width:225	Not Applicable
MH108	23.280 21.360	Diameter / Length: 0.900	{1} Pipe70	Pipe	21.360	Diam/Width:225	Manhole
E:345779.336 N:389534.570	1.920						
			{a} Pipe241	Pipe	21.360	Diam/Width:225	Not Applicable
MH107	23.270 21.470	Diameter / Length: 0.900	{1} Pipe69	Pipe	21.470	Diam/Width:225	Manhole
E:345801.834 N:389479.214	1.800						
			{a} Pipe70	Pipe	21.470	Diam/Width:225	Not Applicable
MH67	23.260 21.880	Diameter / Length: 0.900					Manhole
E:345840.141 N:389456.679	1.380						
			{a} Pipe73	Pipe	21.880	Diam/Width:225	Not Applicable
MH208	23.230 20.330	Diameter / Length: 0.900	{1} Pipe198	Pipe	20.330	Diam/Width:375	Manhole
E:345652.552 N:389424.100	2.900		{2} Pipe293	Pipe	20.480	Diam/Width:225	
			{a} Outfall 2	Pipe	20.330	Diam/Width:375	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH96	23.150 21.080	Diameter / Length: 0.900	{1} Pipe57	Pipe	21.080	Diam/Width:600	Manhole
E:345730.618 N:389567.619	2.070						
			{a} Pipe58	Pipe	21.080	Diam/Width:600	Not Applicable
MH207	23.140 20.580	Diameter / Length: 0.900	{1} Pipe195	Pipe	20.805	Diam/Width:150 Diam/Width:375	Manhole
E:345659.283 N:389423.922	2.560		{2} Pipe197	Pipe	20.580		
			{a} Pipe198	Pipe	20.580	Diam/Width:375	Not Applicable
MH79	23.140 20.950	Diameter / Length: 0.900	{1} Pipe55	Pipe	21.025	Diam/Width:450	Manhole
E:345791.291 N:389607.066	2.190						
			{a} Pipe56	Pipe	20.950	Diam/Width:525	Not Applicable
MH97	23.130 21.870	Diameter / Length: 0.900	{1} Pipe50 (1)	Pipe	21.870	Diam/Width:225	Manhole
E:345829.215 N:389515.607	1.260						
			{a} Pipe51 (1) (1)	Pipe	21.870	Diam/Width:225	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH80	23.070 20.790	Diameter / Length: 0.900	{1} Pipe48	Pipe	20.790	Diam/Width:600	Manhole
E:345799.271	2.280		{2} Pipe52	Pipe	21.090	Diam/Width:300 Diam/Width:525	
N:389588.052			{3} Pipe56	Pipe	20.865		
			{a} Outfall 1	Pipe	20.790	Diam/Width:600	Not Applicable
MH81	23.030 21.390	Diameter / Length: 0.900	{1} Pipe51 (1) (1)	Pipe	21.390	Diam/Width:225	Manhole
E:345800.138	1.640		{a} Pipe52	Pipe	21.390	Diam/Width:300	Not Applicable
N:389585.870							
MH68	22.940 21.640	Diameter / Length: 0.900	{1} Pipe73	Pipe	21.640	Diam/Width:225	Manhole
E:345817.195	1.300		{a} Pipe74	Pipe	21.640	Diam/Width:225	Not Applicable
N:389510.085							
MH75	22.920 21.030	Diameter / Length: 0.900	{1} Pipe60	Pipe	21.030	Diam/Width:450 Diam/Width:225	Manhole
E:345781.912	1.890		{2} Pipe75	Pipe	21.255		
N:389588.710			{a} Pipe61	Pipe	21.255	Diam/Width:225	Not Applicable

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		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH77	22.910 21.245	Diameter / Length: 0.900	{1} Pipe61	Pipe	21.245	Diam/Width:225	Manhole
E:345783.788	1.665						
N:389588.837			{a} Pipe62	Pipe	21.245	Diam/Width:225	Not Applicable
MH73	22.910 20.830	Diameter / Length: 0.900	{1} Pipe59	Pipe	20.830	Diam/Width:600	Manhole
E:345788.475	2.080		{2} Pipe243	Pipe	21.205	Diam/Width:225	
N:389582.052			{3} Pipe (1)	Pipe	21.205	Diam/Width:225	
			{a} Pipe48	Pipe	20.830	Diam/Width:600	Not Applicable
MH76	22.900 21.235	Diameter / Length: 0.900	{1} Pipe62	Pipe	21.235	Diam/Width:225	Manhole
E:345784.696	1.665						
N:389586.816			{a} Pipe	Pipe	21.235	Diam/Width:225	Not Applicable
MH70	22.880 21.420	Diameter / Length: 0.900	{1} Pipe74	Pipe	21.420	Diam/Width:225	Manhole
E:345794.519	1.460						
N:389561.761			{a} Pipe75	Pipe	21.420	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: NB
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH72	22.880 20.880	Diameter / Length: 0.900	{1} Pipe46	Pipe	20.880	Diam/Width:525	Manhole
E:345785.341 N:389580.529	2.000		{2} Pipe58	Pipe	20.880	Diam/Width:600	
			{a} Pipe59	Pipe	20.880	Diam/Width:600	Not Applicable
MH117	22.410 21.850	Diameter / Length: 0.900	{1} Pipe206	Pipe	21.850	Diam/Width:150	Manhole
E:345762.491 N:389419.929	0.560						
			{a} Pipe68 (1)	Pipe	21.850	Diam/Width:150	Not Applicable
MH265	22.370 20.900	Diameter / Length: 0.900	{1} Pipe291	Pipe	20.900	Diam/Width:225	Manhole
E:345732.153 N:389409.291	1.470						
			{a} Pipe293	Pipe	20.900	Diam/Width:225	Not Applicable
MH98	21.845 21.120	Diameter / Length: 0.900	{1} Pipe54 (2)	Pipe	21.120	Diam/Width:450	Manhole
E:345774.718 N:389646.352	0.725						
			{a} Pipe55	Pipe	21.120	Diam/Width:450	Not Applicable
MH84	24.550 22.320	Diameter / Length: 0.900					Manhole
E:345754.892 N:389692.000	2.230						
			{a} Pipe54 (2)	Pipe	22.320	Diam/Width:450	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: NB
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH214	22.500 22.045	Diameter / Length: 0.600					Manhole
E:345709.739 N:389396.792	0.455						
			{a} Pipe206	Pipe	22.045	Diam/Width:150	Not Applicable
MH254	23.400 23.265	Diameter / Length: 0.100					Manhole
E:345607.748 N:389563.516	0.135						
			{a} Pipe77	Pipe	23.265	Diam/Width:225	Not Applicable
Simple Junction (11)		Diameter / Length: 0.100	{1} Pipe241	Pipe	21.335	Diam/Width:225	Simple Junction
E:345776.422 N:389542.189							
			{a} Pipe243	Pipe	21.335	Diam/Width:225	Not Applicable
Outfall 1	23.200 20.710	Diameter / Length: 1.200	{1} Outfall 1	Pipe	20.710	Diam/Width:600	Manhole
E:345819.463 N:389600.821	2.490						
							Not Applicable
Simple Junction (1)		Diameter / Length: 1.200					Simple Junction
E:345757.140 N:389578.201							
			{a} Pipe60	Pipe	21.345	Diam/Width:450	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: NB
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (9)		Diameter / Length: 1.200					Simple Junction
E:345654.330							
N:389444.519			{a} Pipe195	Pipe	20.945	Diam/Width:150	Not Applicable
Simple Junction (10)		Diameter / Length: 1.200					Simple Junction
E:345674.513							
N:389417.993			{a} Pipe197	Pipe	20.650	Diam/Width:375	Not Applicable
Simple Junction (16)		Diameter / Length: 1.200					Simple Junction
E:345662.649							
N:389606.807			{a} Pipe239	Pipe	23.275	Diam/Width:225	Not Applicable
Simple Junction (18)		Diameter / Length: 1.200					Simple Junction
E:345665.973							
N:389505.456			{a} Pipe272	Pipe	21.580	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
		Designed by: AJe	Checked by: RR		Approved By: NB
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)		Connection Details				Type
Coordinates (m)	Depth (m)	Manhole Size (m)	Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (19)		Diameter / Length: 1.200					Simple Junction
E:345713.195 N:389457.395							
			{a} Pipe275	Pipe	21.740	Diam/Width:225	Not Applicable
Simple Junction (20)		Diameter / Length: 1.200					Simple Junction
E:345683.276 N:389531.640							
			{a} Pipe276	Pipe	21.540	Diam/Width:225	Not Applicable
Simple Junction (21)		Diameter / Length: 1.200					Simple Junction
E:345757.102 N:389472.152							
			{a} Pipe277	Pipe	21.590	Diam/Width:225	Not Applicable
Simple Junction (22)		Diameter / Length: 1.200					Simple Junction
E:345730.013 N:389509.197							
			{a} Pipe278	Pipe	21.410	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024			
	Designed by:	Checked by:	Approved By:	
	AJe	RR	NB	
Report Details:			Company Address:	
Type: Manhole Schedule Storm Phase: Existing SW			Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN	

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (23)		Diameter / Length: 1.200					Simple Junction
E:345714.449 N:389536.633							
			{a} Pipe279	Pipe	21.395	Diam/Width:225	Not Applicable
Simple Junction (24)		Diameter / Length: 1.200					Simple Junction
E:345725.119 N:389551.595							
			{a} Pipe280	Pipe	21.400	Diam/Width:225	Not Applicable
Outfall 2	20.375 20.000	Diameter / Length: 1.200	{1} Outfall 2	Pipe	20.000	Diam/Width:375	Manhole
E:345623.866 N:389392.769	0.375						
							Not Applicable
Simple Junction (27)		Diameter / Length: 1.200					Simple Junction
E:345650.866 N:389528.214							
			{a} Pipe296	Pipe	22.175	Diam/Width:225	Not Applicable
Simple Junction (28)		Diameter / Length: 1.200					Simple Junction
E:345542.305 N:389476.264							
			{a} Pipe297	Pipe	22.240	Diam/Width:225	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: NB
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Simple Junction (29)		Diameter / Length: 1.200					Simple Junction
E:345634.831 N:389569.802							
			{a} Pipe299	Pipe	22.365	Diam/Width:225	Not Applicable
Simple Junction (30)		Diameter / Length: 1.200					Simple Junction
E:345521.010 N:389513.919							
			{a} Pipe300	Pipe	22.410	Diam/Width:225	Not Applicable
Manhole	22.900 21.225	Diameter / Length: 0.900	{1} Pipe	Pipe	21.225	Diam/Width:225	Manhole
E:345785.711 N:389584.691	1.675						
			{a} Pipe (1)	Pipe	21.225	Diam/Width:225	Not Applicable
Manhole (1)	23.750 22.950	Diameter / Length: 1.200	{1} Pipe (4)	Pipe	22.950	Diam/Width:300	Manhole
E:345754.685 N:389632.575	0.800						
			{a} Pipe (2)	Pipe	22.950	Diam/Width:300	Not Applicable
Into Phase 1	24.380 22.640	Diameter / Length: 1.200	{1} Into Phase 1	Pipe	22.640	Diam/Width:300	Manhole
E:345738.846 N:389660.867	1.740						
							Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
		Designed by: AJe	Checked by: RR		Approved By: NB
Report Details: Type: Manhole Schedule Storm Phase: Existing SW		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
Manhole (3)	23.920 22.830	Diameter / Length: 1.200	{1} Pipe (2)	Pipe	22.830	Diam/Width:300	Manhole
E:345748.517 N:389637.366	1.090						
			{a} Into Phase 1	Pipe	22.830	Diam/Width:300	Not Applicable
Simple Junction (3)		Diameter / Length: 1.200					Simple Junction
E:345704.800 N:389611.008							
			{a} Pipe (4)	Pipe	23.130	Diam/Width:300	Not Applicable

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024			
	Designed by:	Checked by:	Approved By:	
Report Details: Type: Inflow Summary Storm Phase: Existing SW	AJe	RR	NB	
Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN				

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (m²)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (m²)
Area 1a	MH214		Time of Concentration	3160.263	100	0	100	3160.263
Area 1b	Simple Junction (10)		Time of Concentration	2826.299	100	0	100	2826.299
Area 2	Simple Junction (19)		Time of Concentration	3641.229	100	0	100	3641.229
Area 2 (1)	Simple Junction (21)		Time of Concentration	3491.355	100	0	100	3491.355
Area 3	Simple Junction (20)		Time of Concentration	1335.169	100	0	100	1335.169
Area 3 (1)	Simple Junction (24)		Time of Concentration	1271.012	100	0	100	1271.012
Area 4	Simple Junction (16)		Time of Concentration	1139.441	100	0	100	1139.441
Area 4 (1)	MH245		Time of Concentration	1127.525	100	0	100	1127.525
Area 4 (2)	Simple Junction (3)		Time of Concentration	1114.991	100	0	100	1114.991
Area 4 (3)	MH245		Time of Concentration	1065.918	100	0	100	1065.918
Area 5b	MH91		Time of Concentration	825.505	100	0	100	825.505
Area 5a	MH315		Time of Concentration	1478.721	100	0	100	1478.721
Area 6	Simple Junction (30)		Time of Concentration	1955.953	100	0	100	1955.953
Area 6 (1)	Simple Junction (28)		Time of Concentration	1769.859	100	0	100	1769.859
Area 6 (2)	Simple Junction (29)		Time of Concentration	1107.376	100	0	100	1107.376
Area 6 (3)	Simple Junction (27)		Time of Concentration	1101.927	100	0	100	1101.927
Area 7	MH207		Time of Concentration	2794.119	100	0	100	2794.119
Area 8a	MH67		Time of Concentration	1688.215	100	0	100	1688.215
Area 8b	MH75		Time of Concentration	1510.502	100	0	100	1510.502
Area 8c	Simple Junction (1)		Time of Concentration	1653.547	100	0	100	1653.547
Area 8a (1)	MH68		Time of Concentration	1776.325	100	0	100	1776.325
Area 9	MH106		Time of Concentration	784.391	100	0	100	784.391
Area 9 (1)	MH107		Time of Concentration	1334.655	100	0	100	1334.655
Area 10	MH106		Time of Concentration	1160.293	100	0	100	1160.293
Area 10 (1)	MH107		Time of Concentration	558.730	100	0	100	558.730
Area 10 (2)	MH108		Time of Concentration	1736.837	100	0	100	1736.837
Area 10 (3)	MH123		Time of Concentration	874.596	100	0	100	874.596
Area 11b	Manhole (1)		Time of Concentration	1108.898	100	0	100	1108.898
Area 11a	Simple Junction (3)		Time of Concentration	431.597	100	0	100	431.597
Area 12	Simple Junction (16)		Time of Concentration	1798.803	100	0	100	1798.803
Area 12 (1)	Simple Junction (3)		Time of Concentration	1738.739	100	0	100	1738.739
TOTAL		0.0		49362.789				49362.789

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024			
	Designed by: AJe	Checked by: RR	Approved By: NB	
Report Title: Rainfall Analysis Criteria	Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FSR

Type: FSR

Region	England And Wales
M5-60 (mm)	20.0
Ratio R	0.400
Summer	☒
Winter	☒

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	0.000

Storm Durations

Duration (hrs)	Run Time (hrs)
0.25	0.50
0.50	1.00
1.00	2.00
2.00	4.00
4.00	8.00
6.00	12.00
8.00	16.00
16.00	32.00
24.00	48.00

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024		
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR	
		Approved By: NB		
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
MH290	FSR: 100 years: +0 %: 0.25 hrs: Summer	24.92 9	21.15 0	21.150	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH91	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.91 0	23.15 0	23.931	0.781	160.3	21.957	21.474	84.6	77.953	Flood
MH257	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.90 0	22.10 5	23.901	1.796	102.6	2.144	1.003	99.2	63.426	Flood
MH249	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.90 0	21.55 0	22.228	0.678	203.4	0.431	0.000	145.2	110.106	Surcharged
MH248	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.90 0	21.94 0	22.472	0.532	110.0	0.338	0.000	107.9	53.137	Surcharged
MH245	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.90 0	21.32 5	22.204	0.879	250.7	0.559	0.000	261.0	243.637	Surcharged
MH246	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.90 0	21.08 0	22.488	1.408	313.0	0.895	0.000	287.9	182.482	Surcharged
MH247	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.90 0	21.38 5	23.296	1.911	169.9	1.215	0.000	142.8	93.034	Surcharged
MH132	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.76 0	22.08 5	22.085	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH123	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.60 0	20.92 0	22.221	1.301	325.1	0.827	0.000	315.2	193.784	Surcharged
MH315	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.56 1	23.09 0	23.567	0.477	137.3	6.066	5.766	89.9	121.059	Flood
MH106	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.41 0	21.68 0	23.413	1.733	87.1	3.991	2.891	30.8	54.293	Flood
MH108	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.28 0	21.36 0	23.280	1.920	89.0	1.268	0.047	82.9	95.029	Flood
MH107	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.27 0	21.47 0	23.301	1.831	115.6	31.802	30.657	63.4	67.412	Flood
MH67	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.26 0	21.88 0	23.267	1.387	75.6	7.522	6.644	38.8	33.982	Flood
MH208	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.23 0	20.33 0	20.885	0.555	222.5	0.353	0.000	199.2	104.192	Surcharged
MH96	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.15 0	21.08 0	22.090	1.010	261.0	0.642	0.000	265.4	241.170	Surcharged
MH207	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.14 0	20.58 0	21.074	0.494	236.6	0.314	0.000	222.5	104.260	Surcharged
MH79	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.14 0	20.95 0	21.674	0.724	60.4	0.460	0.000	21.8	27.759	Surcharged
MH97	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.13 0	21.87 0	21.870	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH80	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.07 0	20.79 0	21.666	0.876	671.3	0.557	0.000	672.8	646.196	Surcharged
MH81	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.03 0	21.39 0	21.666	0.276	40.2	0.176	0.000	5.1	2.778	OK

Project: 100.23083 Sovereign Phase 2 Rev: P02	Date: 20/11/0024					
	Designed by:	Checked by:	Approved By:			
	AJe	RR	NB			
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN				

MH68	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.94 0	21.64 0	22.983	1.343	91.3	43.411	42.584	59.9	94.340	Flood
MH75	FSR: 100 years: +0 %: 0.25 hrs: Winter	22.92 0	21.03 0	22.921	1.891	142.3	2.001	0.799	104.1	123.545	Flood
MH77	FSR: 100 years: +0 %: 0.25 hrs: Summer	22.91 0	21.24 5	22.674	1.429	111.8	0.909	0.000	110.5	113.144	Flood Risk
MH73	FSR: 100 years: +0 %: 0.25 hrs: Summer	22.91 0	20.83 0	21.901	1.071	676.4	0.681	0.000	668.7	628.840	Surcharged
MH76	FSR: 100 years: +0 %: 0.25 hrs: Summer	22.90 0	21.23 5	22.413	1.178	110.5	0.749	0.000	107.5	112.827	Surcharged
MH70	FSR: 100 years: +0 %: 0.25 hrs: Winter	22.88 0	21.42 0	22.890	1.470	60.1	10.942	10.014	60.2	63.642	Flood
MH72	FSR: 100 years: +0 %: 0.25 hrs: Summer	22.88 0	20.88 0	21.991	1.111	497.8	0.707	0.000	491.1	430.759	Surcharged
MH117	FSR: 100 years: +0 %: 0.50 hrs: Winter	22.41 0	21.85 0	22.452	0.602	32.3	42.251	41.895	17.2	29.396	Flood
MH265	FSR: 100 years: +0 %: 0.25 hrs: Summer	22.37 0	20.90 0	20.916	0.016	0.0	0.010	0.000	0.4	0.312	OK
MH98	FSR: 100 years: +0 %: 0.25 hrs: Summer	21.84 5	21.12 0	21.694	0.574	52.1	0.365	0.000	9.0	10.631	Flood Risk
MH84	FSR: 100 years: +0 %: 0.25 hrs: Summer	24.55 0	22.32 0	22.320	0.000	0.0	0.000	0.000	0.0	0.000	OK
MH214	FSR: 100 years: +0 %: 1.00 hrs: Winter	22.50 0	22.04 5	22.576	0.531	69.2	75.822	75.693	12.7	59.921	Flood
MH254	FSR: 100 years: +0 %: 0.50 hrs: Winter	23.40 0	23.26 5	23.421	0.156	29.0	20.877	20.876	25.8	21.424	Flood
Simple Junction (11)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.33 5	22.954	1.619	88.1			84.9	86.622	Surcharged
Outfall 1	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.20 0	20.71 0	21.310	0.600	672.8	0.000	0.000	672.7	626.094	OK
Simple Junction (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.34 5	22.941	1.596	70.4			72.8	29.422	Surcharged
Simple Junction (9)	FSR: 100 years: +0 %: 0.25 hrs: Summer		20.94 5	20.977	0.032	5.8			0.0	0.285	OK
Simple Junction (10)	FSR: 100 years: +0 %: 0.25 hrs: Summer		20.65 0	21.154	0.504	120.4			117.6	52.308	Surcharged
Simple Junction (16)	FSR: 100 years: +0 %: 0.25 hrs: Summer		23.27 5	25.350	2.075	125.2			117.2	54.353	Surcharged
Simple Junction (18)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.58 0	23.277	1.697	13.4			13.2	3.166	Surcharged
Simple Junction (19)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.74 0	26.252	4.512	155.1			127.3	65.739	Surcharged
Simple Junction (20)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.54 0	23.427	1.887	56.9			42.6	24.538	Surcharged
Simple Junction (21)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.59 0	25.587	3.997	148.8			124.8	62.760	Surcharged
Simple Junction (22)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.41 0	22.468	1.058	7.7			7.8	2.090	Surcharged
Simple Junction (23)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.39 5	22.463	1.068	8.0			7.9	2.053	Surcharged

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
		Designed by: AJe	Checked by: RR	Approved By: NB	
Report Details: Type: Junctions Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Simple Junction (24)	FSR: 100 years: +0 %: 0.25 hrs: Summer		21.40 0	22.666	1.266	54.1			45.3	23.159	Surcharged
Outfall 2	FSR: 100 years: +0 %: 0.25 hrs: Summer	20.37 5	20.00 0	20.375	0.375	199.2	0.000	0.000	199.4	103.967	Flood Risk
Simple Junction (27)	FSR: 100 years: +0 %: 0.25 hrs: Summer		22.17 5	22.860	0.685	46.9			42.8	20.401	Surcharged
Simple Junction (28)	FSR: 100 years: +0 %: 0.25 hrs: Summer		22.24 0	23.611	1.371	75.4			67.2	32.684	Surcharged
Simple Junction (29)	FSR: 100 years: +0 %: 0.25 hrs: Summer		22.36 5	23.868	1.503	47.2			36.4	20.462	Surcharged
Simple Junction (30)	FSR: 100 years: +0 %: 0.25 hrs: Summer		22.41 0	24.670	2.260	83.3			68.3	35.974	Surcharged
Manhole	FSR: 100 years: +0 %: 0.25 hrs: Summer	22.90 0	21.22 5	22.156	0.931	107.5	0.592	0.000	102.2	112.467	Surcharged
Manhole (1)	FSR: 100 years: +0 %: 0.25 hrs: Winter	23.75 0	22.95 0	23.752	0.802	191.8	2.509	1.604	150.6	91.099	Flood
Into Phase 1	FSR: 100 years: +0 %: 0.25 hrs: Summer	24.38 0	22.64 0	22.940	0.300	150.5	0.000	0.000	150.5	81.391	OK
Manhole (3)	FSR: 100 years: +0 %: 0.25 hrs: Summer	23.92 0	22.83 0	23.502	0.672	150.5	0.760	0.000	150.5	81.391	Surcharged
Simple Junction (3)	FSR: 100 years: +0 %: 0.25 hrs: Summer		23.13 0	24.616	1.486	140.0			135.4	60.691	Surcharged

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024		
Report Details: Type: Connections Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR	
		Approved By: NB		
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN		



FSR: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe45	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH246	MH123	23.900	22.488	0.450	178.361	1.8	1.52	287.9	Surcharged
Pipe46	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH123	MH72	23.600	22.221	0.525	193.784	1.5	2.3	315.2	Surcharged
Pipe48	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH73	MH80	22.910	22.132	0.600	976.765	2.8	1.99	778.1	Surcharged
Outfall 1	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH80	Outfall 1	23.070	21.789	0.600	976.097	2.7	1.95	775.1	Surcharged
Pipe52	FSR: 100 years: +0 %: 0.50 hrs: Summer	Pipe	MH81	MH80	23.030	21.765	0.300	0.001	0.1	0.02	8.0	Surcharged
Pipe55	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH98	MH79	21.845	21.793	0.450	0.000	0.4	0.46	69.3	Flood Risk
Pipe56	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH79	MH80	23.140	21.794	0.525	0.000	0.3	0.24	73.6	Surcharged
Pipe57	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH245	MH96	23.900	22.760	0.600	268.776	1.2	0.78	309.1	Surcharged
Pipe58	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH96	MH72	23.150	22.535	0.600	266.219	1.1	0.76	309.8	Surcharged
Pipe59	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH72	MH73	22.880	22.275	0.600	651.496	2.2	0.74	613.1	Surcharged
Pipe60	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (1)	MH75	21.795	22.948	0.450	32.490	0.5	0.21	74.6	Surcharged
Pipe61	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH75	MH77	22.920	22.921	0.225	113.499	2.8	2.96	111.8	Flood
Pipe62	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH77	MH76	22.910	22.674	0.225	113.144	2.8	3.18	110.5	Flood Risk
Pipe69	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH106	MH107	23.410	23.411	0.225	51.231	0.8	0.82	31.0	Flood

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024				
Report Details: Type: Connections Summary Storm Phase: Existing SW		Designed by:	Checked by:			Approved By:
		AJe	RR			NB
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN				

Pipe70	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH107	MH108	23.270	23.296	0.225	56.560	1.6	2.91	64.0	Flood
Pipe73	FSR: 100 years: +0 %: 0.50 hrs: Summer	Pipe	MH67	MH68	23.260	23.263	0.225	41.092	1.0	1.18	39.1	Flood
Pipe74	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH68	MH70	22.940	22.980	0.225	61.490	1.5	1.86	60.1	Flood
Pipe75	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH70	MH75	22.880	22.890	0.225	58.971	1.5	1.56	60.2	Flood
Pipe77	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH254	MH315	23.400	23.421	0.225	0.112	1.2	0.75	25.8	Flood
Pipe87	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH91	MH315	23.910	23.931	0.225	77.931	2.1	2.65	84.6	Flood
Pipe54 (2)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH84	MH98	24.550	22.320	0.287	0.000	0.0	0	0.0	OK
Pipe191	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH315	MH245	23.561	23.563	0.225	142.743	2.3	1.05	93.0	Flood
Pipe195	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (9)	MH207	21.095	21.121	0.150	0.009	0.2	0	0.0	Surcharged
Pipe197	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (10)	MH207	21.025	21.284	0.375	58.575	1.1	0.91	118.7	Surcharged
Pipe198	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH207	MH208	23.140	21.184	0.375	116.461	2.1	0.59	228.4	Surcharged
Pipe206	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH214	MH117	22.500	22.548	0.150	14.614	0.9	1.48	15.2	Flood
Pipe50 (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH132	MH97	23.760	22.085	0.000	0.000	0.0	0	0.0	OK
Pipe239	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (16)	MH91	23.500	25.491	0.225	60.878	3.1	3.55	123.3	Surcharged
Pipe243	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (11)	MH73	23.316	22.954	0.225	86.622	2.1	2.95	84.9	Surcharged
Pipe68 (1)	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH117	MH106	22.410	22.452	0.150	2.997	1.0	2.45	17.2	Flood
Pipe272	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (18)	MH247	21.720	23.544	0.225	0.008	0.4	0.49	17.1	Surcharged

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024			
Report Details: Type: Connections Summary Storm Phase: Existing SW		Designed by: AJe	Checked by: RR		Approved By: NB
		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN			

Pipe273	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH247	MH246	23.900	23.568	0.300	100.887	2.1	2.36	150.8	Surcharged
Pipe274	FSR: 100 years: +0 %: 0.50 hrs: Winter	Pipe	MH249	MH245	23.900	22.642	0.600	161.700	0.7	0.43	170.1	Surcharged
Pipe275	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (19)	MH247	21.880	26.766	0.225	73.807	3.4	3.89	135.1	Surcharged
Pipe276	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (20)	MH247	21.680	23.708	0.225	27.515	1.1	1.3	44.9	Surcharged
Pipe277	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (21)	MH246	21.735	26.030	0.225	70.480	3.3	3.82	131.7	Surcharged
Pipe278	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (22)	MH246	21.550	22.678	0.225	0.019	0.2	0.24	8.3	Surcharged
Pipe279	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (23)	MH246	21.535	22.463	0.225	0.003	0.2	0.23	7.9	Surcharged
Pipe280	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (24)	MH246	21.540	22.666	0.225	23.159	1.1	1.31	45.3	Surcharged
Pipe291	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH290	MH265	24.929	21.150	0.008	0.000	0.0	0	0.0	OK
Pipe293	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH265	MH208	22.370	20.924	0.225	0.213	0.3	0.03	0.9	OK
Outfall 2	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH208	Outfall 2	23.230	20.987	0.375	116.438	2.0	1.25	220.2	Surcharged
Pipe296	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (27)	MH248	22.385	22.860	0.225	20.401	1.1	1.24	42.8	Surcharged
Pipe297	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (28)	MH248	22.450	23.611	0.225	32.684	1.7	1.95	67.2	Surcharged
Pipe298	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH248	MH249	23.900	22.472	0.225	53.137	2.7	3.1	107.9	Surcharged
Pipe299	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Simple Junction (29)	MH257	22.590	23.868	0.225	20.462	0.9	1.05	36.4	Surcharged
Pipe300	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (30)	MH257	22.635	24.967	0.225	40.335	1.7	2.01	69.3	Surcharged
Pipe301	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	MH257	MH249	23.900	23.901	0.225	63.426	2.5	2.88	99.2	Flood

Project: 100.23083 Sovereign Phase 2 Rev: P02		Date: 20/11/0024					
		Designed by: AJe	Checked by: RR	Approved By: NB			
Report Details: Type: Connections Summary Storm Phase: Existing SW		Company Address: Adept Consulting Engineers 4th Floor, 7 St James Square Manchester, M2 6DN					

Pipe241	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH108	Simple Junction (11)	23.280	23.256	0.225	87.722	2.2	3.09	88.1	Flood Risk
Pipe51 (1) (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH97	MH81	23.130	21.870	0.138	0.000	0.0	0	0.0	OK
Pipe	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	MH76	Manhole	22.900	22.413	0.225	112.827	2.7	3.19	107.5	Surch arged
Pipe (1)	FSR: 100 years: +0 %: 0.25 hrs: Summer	Pipe	Manhole	MH73	22.900	22.156	0.225	112.467	2.6	2.73	102.2	Surch arged
Pipe (2)	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (1)	Manhole (3)	23.750	23.752	0.300	91.099	2.1	1.09	150.6	Flood
Into Phase 1	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Manhole (3)	Into Phase 1	23.920	23.502	0.300	91.085	2.1	1.57	150.6	Surch arged
Pipe (4)	FSR: 100 years: +0 %: 0.25 hrs: Winter	Pipe	Simple Junction (3)	Manhole (1)	23.900	24.698	0.300	67.976	2.0	2.23	142.1	Surch arged

Graham Mawdsley

**Quay West at Media City Uk
Trafford Wharf Road,
Manchester,
M17 1HH**

FAO:

How to contact us:

**United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP**

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

**Your Ref: B029681-Sewer Plans
Our Ref: UUPS-ORD-298068
Date: 15/06/2021**

Dear Sirs

Location: Sovereign Distillery Sovereign Distillery Wilson Road, Huyton, L36 6AD

I acknowledge with thanks your request dated 15/06/2021 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,



Karen McCormack
Property Searches Manager

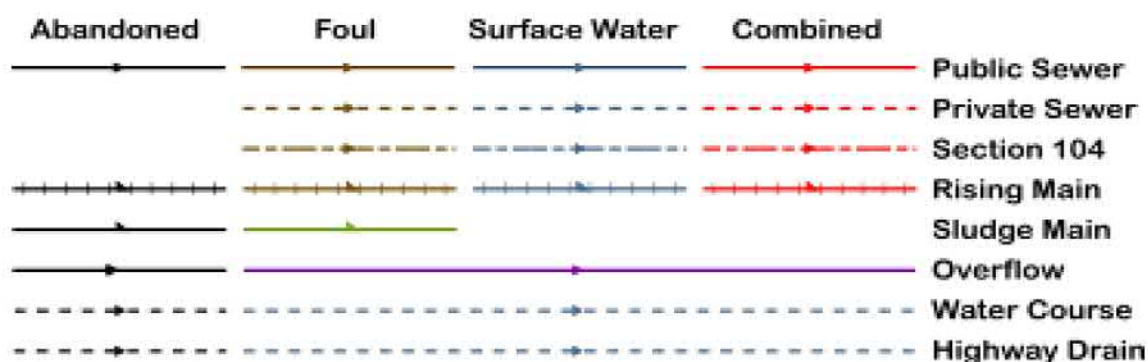
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

Manhole	Side Entry Manhole
Head of System	Outfall
Extent of Survey	Screen Chamber
Rodding Eye	Inspection Chamber
Inlet	Bifurcation Chamber
Discharge Point	Lamp Hole
Vortex	T Junction / Saddle
Penstock	Catchpit
Washout Chamber	Valve Chamber
Valve	Vent Column
Air Valve	Vortex Chamber
Non Return Valve	Penstock Chamber
Soakaway	Network Storage Tank
Gully	Sewer Overflow
Cascade	Ww Treatment Works
Flow Meter	Ww Pumping Station
Hatch Box	Septic Tank
Oil Interceptor	Control Kiosk
Summit	
Drop Shaft	Change of Characteristic
Orifice Plate	



SEWER RECORDS

Address or Site Reference

Sovereign Distillery Sovereign
Distillery Wilson Road,
Huyton,
L36 6AD

Scale: 1:2500
Date: 15/06/2021

Printed by: Property Searches

The position of the underground apparatus shown on this plan is approximate only and is given in accordance with the best information currently available. United Utilities Water will not accept liability for any loss or damage caused by the actual position being different from those shown.

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Robert Rigge

From: James Walsh
Sent: 15 May 2024 14:54
To: Robert Rigge
Subject: FW: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley. [Filed 21 May 2024 15:00]

Follow Up Flag: Follow up
Flag Status: Flagged

FYI



James Walsh – GMICE
Senior Civil Engineering Technician - Manchester
T: 0161 974 0292
W: www.adeptcsce.com



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Leeds 1912 Mill, Sunny Bank Mills, Town Street, Farsley, LS28 5UJ
London 85 Tottenham Court Road, London, W1T 4TQ
Manchester 4th Floor, 7 St James Sq, Manchester, M2 6XX

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Registered Office: 4th Floor, 7 St James Sq, Manchester M2 6XX
[Link to Email Disclaimer](#)

From: wastewaterdeveloperservices@uuplc.co.uk <wastewaterdeveloperservices@uuplc.co.uk>
Sent: Wednesday, May 15, 2024 2:46 PM
To: Richard Parker <richard.parker@adeptcsce.com>
Cc: adam.cornish@quod.com; James Walsh <james.walsh@adeptcsce.com>; eve.warwick@quod.com; Neil Brown <neil.brown@adeptcsce.com>; mark.quinn@knowsley.gov.uk; shireen.lawrenson@uuplc.co.uk
Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Richard

The issues we discussed previously were around the foul flows, the rates for SW are calculated based on the catchment area using HR Wallingford which accounts for the ground conditions.

It is what we would recommend, however the LLFA have the final decision on discharge rates.

Kind regards



Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
unitedutilities.com

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----- Original Message -----

From: Richard Parker [richard.parker@adeptcsce.com]

Sent: 13/05/2024 08:51

To: wastewaterdeveloperservices@uuplc.co.uk

Cc: adam.cornish@quod.com; james.walsh@adeptcsce.com; nicola.pilkington@uuplc.co.uk; eve.warwick@quod.com; neil.brown@adeptcsce.com

Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Good morning Nicola,

With regards to the above site we have been advised you wish to impose the below condition.

The drainage for the development hereby approved, shall be carried out in accordance with principles set out in the submitted Foul & Surface Water Drainage Design strategy 100.23083, Rev P2 - Dated 01.03.24 which was prepared by Adept. For the avoidance of doubt surface water must drain at the restricted rate of Area 1 5l/s, Area 2 6.5l/s, Area 4 6.5 l/s. Prior to occupation of the proposed development, the drainage scheme shall be completed in accordance with the approved details and retained thereafter for the lifetime of the development.

I wanted to ask why the flow rates from the catchments we have measured have been reduced further than those brownfield rates calculated in our FRA submitted at planning. I was under the impression our flow rates were acceptable following consultation with you.

Catchment	FRA Flow Rate	Suggested Condition
Area 1	38.086 l/s	5 l/s
Area 2	70.195 l/s	6.5 l/s
Area 3	Existing building unaffected	Existing building unaffected
Area 4	57.68 l/s	6.5 l/s

Can you review and advise please ?

Kind Regards,

Richard Parker

Director

Adept Civil and Structural Consulting Engineers

T: 0113 239 4518

M: 07951 824366

W: www.adeptcsce.com

[Image is no longer available]

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Leeds 1912 Mill, Sunny Bank Mills, Town Street, Farsley, LS28 5UJ

London 25 Horsell Road, London, N5 1XL

Manchester 7 St James Square, 4th Floor, Manchester, M2 6XX

Sheffield Courtwood House, Silver Street Head, Sheffield, S1 2DD

Adept Consulting Engineers Ltd - Registered in England No. 6029802.
Registered Office: 1912 Mill, Sunny Bank Mills, Farsley, LS28 5UJ

[Link to Email Disclaimer](#)

From: wastewaterdeveloperservices@uuplc.co.uk <wastewaterdeveloperservices@uuplc.co.uk>

Sent: Wednesday, February 21, 2024 9:42 AM

To: Richard Parker <richard.parker@adeptcsce.com>

Cc: James Walsh <james.walsh@adeptcsce.com>; Neil Brown <neil.brown@adeptcsce.com>

Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Richard

Thanks for your email and explanation, I will ask our planning department to remove this objection.

Kind regards

[Image is no longer available]

Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
M: 07795851180
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----- Original Message -----

From: Richard Parker [richard.parker@adeptcsce.com]

Sent: 19/02/2024 12:44

To: wastewaterdeveloperservices@uuplc.co.uk

Cc: nicola.pilkington@uuplc.co.uk; james.walsh@adeptcsce.com; neil.brown@adeptcsce.com

Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Nicola

Thanks for your email. I understand what your issues might be here and have made some comments below;

With regards to manhole 7501 – this has a cover level of 23.02. Existing warehouse A is set at 23.90m and the new store is at 23.70 so provides some freeboard from any flooding. Overland flooding from this chamber would head east to Wilson Road away from the site.

The 150mm sewer in Cronton Road, you suggest connecting to, is some distance from the site and access is through a mature wooded area which wouldn't be viable. Also, pumping is likely to be required. The 150 also connects into the same combined sewer as noted above.

With regards to anticipated foul drainage.

Although we are adding retail space there is a notable reduction in industrial space by 1,813 sqm, the majority of which is office space serving the old distillery. The proposed retail gross floor area is 2,323 sqm and the new store only has 5 single wc's (with basins) and a small canteen so would balance out the number of appliances removed as part of the demolition of the existing offices.

We are also connecting on to the sewer network downstream of manhole 7501 at manhole 7502.

Lastly, we believe that the roof drainage from the office being demolished as part of the redevelopment drained to the combined system and measured just under 2,000m². New drainage in this area is being directed into the surface water storage system on site and to the surface water sewer. This reduces the flow to the combined sewer.

Overall, taking into consideration all of the above, I would say that we are not increasing the foul flows from the redeveloped site taking into account the demolition of the existing buildings and their current routes to outfall. The most suitable point of connection remains as manhole 7502.

Would you be able to confirm if this is acceptable to United Utilities. I'm happy to have a chat to talk over if needed?

Kind Regards,

Richard Parker

Director

Adept Civil and Structural Consulting Engineers

T: 0113 239 4518

M: 07951 824366

W: www.adeptcsce.com

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From: wastewaterdeveloperservices@uuplc.co.uk <wastewaterdeveloperservices@uuplc.co.uk>
Sent: Friday, February 9, 2024 8:18 AM
To: Richard Parker <richard.parker@adeptcsce.com>
Cc: nicola.pilkington@uuplc.co.uk; James Walsh <james.walsh@adeptcsce.com>; Neil Brown <neil.brown@adeptcsce.com>
Subject: RE: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Hi Richard

Thanks for your email, the issue we have is that MH 7501 is showing that it will flood in the 1 year event. Adding any more foul flow to this is going to increase the flood risk.

Do you have some calculation on what you expect the flows to be from the retail unit so I can look into this further.

There is a 150mm Foul sewer in cronton road, have you explored the option of connection to this?

Kind regards

[Image is no longer available]

Nicola Pilkington
Developer Engineer
Developer Services & Metering
Customer Services
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----- Original Message -----

From: Richard Parker [richard.parker@adeptcsce.com]

Sent: 05/02/2024 11:12

To: wastewaterdeveloperservices@uuplc.co.uk

Cc: nicola.pilkington@uuplc.co.uk; neil.brown@adeptcsce.com; james.walsh@adeptcsce.com

Subject: DC/23/4123 and 23/02782/FUL - Sovereign Industrial Park, Wilson Road, Huyton, Knowsley.

Good morning Nicola

We have been asked to contact you via your planning team due to the attached consultation response to our planning application, reference 23/02782 for development at the above site.

You will note the extract below from the consultation response.

“Existing public sewers pass through and near to this site which modelling data identifies as being at risk of sewer flooding. We request that the applicant liaises with United Utilities to understand the nature of this flood risk and the impact upon the proposed site layout. The risk of sewer flooding needs to be assessed further as this could affect the developable area of the site and the detail of the design”

Our proposals involve the modification of existing warehouse buildings that are currently built over your 750mm dia combined sewer along with the construction of a new retail store in the location marked with a green X below

[Image is no longer available]

The internal refurbishments include separating the existing building to create two individual buildings with relocated offices.

The new retail store will be located in the car park to the existing warehouse, approximately 100m to the south of your sewers and will set at a level 700mm above the ground level in the area of where the sewer crosses the site.

As requested in the consultation response are you able to advise on the nature of the sewer flood risk on the site and any potential impact upon the proposed site layout. We can then assess any

exceedance flow paths. There is nothing we can with regards to the refurbishment of the existing buildings and we think the new retail store would be set sufficiently high enough so as not to be at risk of sewer flooding and will not increase flood risk elsewhere

I look forward to hearing from you but please let me know if you have any queries. I will probably give a call to discuss also in the next couple of days

Kind Regards,

Richard Parker

Director

Adept Civil and Structural Consulting Engineers

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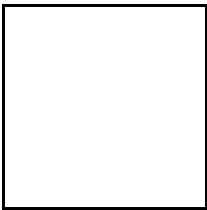


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Robert Rigge

From: Robert Rigge
Sent: 19 June 2024 13:17
To: 'LLFA@knowsley.gov.uk'
Cc: rseger@rsukassociates.co.uk; 'Adam Cornish'; Neil Brown; Richard Parker
Subject: 23/02782/FUL - Questions
Attachments: LLFA Response_23-02782-FUL.pdf

FAO: Dr Vahid Tayefi

Good afternoon,

Please refer to the attached Consultation Response received by Adept on the 5th of June, originally dated 29th of May. Firstly, thank you for your comments on the scheme and proposals.

Under condition 1; point (ii) you request detailed calculation of the existing surface water flows. However, point (iii) notes the *“existing surface water runoff supplied by the applicant is approved by the LLFA (i.e. 76.2, 140.4 and 115.37 l/s for Area 1, 2, and 4, respectively), the maximum discharge rate post development shall not exceed 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4, respectively”*

Please can you clarify a couple of questions;

1. If when carrying out an existing flow model of the drainage the rates are found to be less than those calculated in the Flood Risk Assessment & Drainage Strategy am I correct in assuming that the proposed discharge rates are fixed at those noted above i.e. 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4. In effect making the betterment more aligned with the 50% standard you as Knowsley LLFA normally accept?
2. Likewise, if the rates are modelled and bring about an increased flow to those calculated in the Flood Risk Assessment & Drainage Strategy am I correct in applying the 20% to these rates?

Thank you in advance

Best regards,

ADEPT
CIVIL AND STRUCTURAL
CONSULTING ENGINEERS



Robert Rigge BEng, MSc, CEng, MICE, NECREg
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Phone: 0151 443 2704

Email: LLFA@knowsley.gov.uk

Website: [Lead Local Flood Authority - Knowsley MBC](#)

Date: 29 May 2024

APPLICATION CONSULTATION RESPONSE

APPLICATION No:	23/02782/FUL
LOCATION:	Location: Sovereign Industrial Park, Wilson Road, Huyton, Knowsley
GRID REF:	
PROPOSAL:	Partial demolition, reconfiguration and refurbishment of existing employment floorspace to create 2no. industrial warehouse buildings with ancillary offices (Classes E(g)(iii), B2 and B8) with dedicated servicing and car parking arrangements; erection of 1no. retail unit (Class E) with external display area and dedicated car parking and servicing arrangements; retention and amendment of existing site accesses along with internal estate roads; 2no. substations; landscaping; and associated works

Thank you for inviting the [Lead Local Flood Authority \(LLFA\)](#) to comment on the above application. Knowsley Council as Lead Local Flood Authority (LLFA) provide comments on planning applications as our statutory consultee role in relation to surface water drainage and works in relation to ordinary watercourse.

The LLFA have reviewed documents submitted by the applicant concerning Drainage Strategy proposal for the above application. The LLFA review has been based on proposed drainage design strategy (Ref. 100.23083, Rev P2 - Dated 01.03.24 by Adept). The LLFA confirm that the proposed drainage strategy is acceptable in principle and should the LPA tend to grant the approval, it must be enclosed with two following conditions as follows:

Condition 1: Detailed Drainage Strategy

Development shall not commence until a detailed SUDS based drainage scheme based on the principles of The SUDS Manual (C753) and the criteria as set out within Knowsley Strategic Flood Risk Assessment (SFRA, Levels 2), has been submitted and approved in writing by the Local Planning Authority (LPA). The applicant should provide suitable drainage drawings, summary calculations and results of all investigations detailing the surface water drainage works as set out in Drainage Design Strategy 100.23083, Rev P2 - Dated 01.03.24. The maximum rate of discharge, off-site, shall not exceed 15.24, 28.1 and 28.1 l/s for Area 1, 2 and 4 respectively, unless otherwise agreed in writing with the LPA. The works shall be implemented in accordance with the approved scheme before the development is brought into use.

For avoidance of any doubt, the surface water and drainage strategy, detailed design drawings, calculations and supporting information shall be prepared considering the following points:

- (i) Given the site characteristics and groundwater levels, infiltration-based SuDS will not be feasible and the discharge to the public sewer system is accepted as the main mechanism for the surface water discharge off site.
- (ii) Detailed calculations of exiting surface water runoff in Area 1, 2 and 4 shall be required.
- (iii) The LLFA is responsible to advise on the maximum discharge rate from the site after development. In brownfield sites, the LLFA usually accept 50% reduction in the existing surface water runoff as the maximum discharge rate from site after development should (i) there is no risk of surcharging within the site and, more importantly, within the receiving sewer system in the surrounding of the site (having sufficient free capacity) and (ii) there is no risk of back water effect within the system due to high water levels in receiving watercourses. The LLFA have liaised with the UU concerning this issue and considering the restricted capacity of the public sewer system in the area and the vicinity of the site to a watercourse where the sewer system outfalls may be impacted by high water levels, the maximum discharge rate from the site shall not exceed 20% of the existing surface water runoff. Should the existing surface water runoff supplied by the applicant is approved by the LLFA (i.e. 76.2, 140.4 and 115.37 l/s for Area 1, 2, and 4, respectively), the maximum discharge rate post development shall not exceed 15.24, 28.1 and 23.1 l/s for Area 1, 2, and 4, respectively.
- (iv) Flow routes need to be considered when all on site drainage systems have been overwhelmed by an event of greater intensity than the design criteria (1 in 100 + 40% CC). The impact of exceedance flows from and on adjacent land should also be considered. In considering the exceedance event, as a minimum the 1 in 200 event plus 40% CC should be considered in calculations. Calculations and plans should be provided to show where above-ground flooding might occur, where this would pool and flow and the maximum depth of flood flows shall be established and managed so as to mitigate the flood impact to people and buildings. Evidence that the exceedance event has been considered will be required.
- (v) An evaluation of impact of potential failure of the drainage system should be provided. The risk assessment should include for blockage of pipes, blockage of outlet structures/soakaway and risk of impediments across planned flood routing paths. The drainage design should be supported by a designer's risk assessment that identifies key points of failure of the system and what means have been considered to limit risk of failure. This will also inform the maintenance plan with regards to corrective actions needed should a failure occurs.
- (vi) Compliance with above, a Model Information (Micro Drainage or similar approved) considering above points will be required. Results showing all the modelling criteria and summary network results including attenuation mechanism for critical 1 in 2 years, 1 in 30 years and 1 in 100 years plus 40% CC storm events along with maximum water level, flow and velocity and details of any surface flooding anticipated will be required.
- (vii) Compliance with above, an updated drainage plan considering the above points to show drainage layout, manholes including cover and invert levels, proposed levels,

pipe sizes and gradients, all on-line controls, on and off-line storage structures and outfall details will be required.

- (viii) Demonstrating that adequate water quality of the off-site surface water flows (draining into a sewer, watercourse and ground) in accordance with the Simplified Index Approach as set out within Section 26 of the SUDS Manual (C753) can be achieved during all phases of the development. In this case that an industrial yard is proposed, water quality risk to surface water bodies and groundwater should be assessed (screening risk or detailed risk assessment) and mitigation measures to be adopted to ensure that risk to both surface water bodies, and groundwater are effectively managed (see Table 26.1 of the SUDS Manual).
- (ix) Construction and specification details of proposed SUDS features will be required to make sure they are suitable for being used in the site.
- (x) Summary Drainage Report setting out the Drainage Strategy and results of the calculations demonstrating compliance with the above.

Reason:

To ensure a satisfactory drainage system is provided to serve the site in accordance with Paragraph 163 of the National Planning Policy Framework, House of Commons Written Statement 161 for Sustainable Drainage Systems, Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) and Policies CS2 and CS24 of the Knowsley Local Plan: Core Strategy (January 2016).

Condition 2: Management and Maintenance Plan

A Management and Maintenance Plan for the sustainable drainage system relating to the lifetime of the development through an appropriate legally binding agreement shall be submitted to and approved in writing by the Local Planning Authority. This shall include:

- (i) The arrangements for adoption by an appropriate public body or statutory undertaker or details of provision for management and maintenance by a resident's management company.
- (ii) Arrangements for inspection and ongoing maintenance of all elements of the sustainable drainage system to secure the operation of the surface water drainage scheme throughout its lifetime.
- (iii) Details for planned maintenance and a mechanism for remedial and urgent repair works.
- (iv) Means of access for inspection and maintenance purposes.
- (v) The plan shall be implemented in accordance with the timeframes contained within it.

Reason: To ensure that management arrangements are in place for the sustainable drainage system in order to manage the risk of flooding and pollution during the lifetime of the development.

Yours faithfully,

Dr Vahid Tayefi

[Lead Local Flood Authority \(Knowsley MBC\)](#)

Sovereign Distillery Redevelopment Drainage Asset Maintenance Schedule

■ Surface ■ Foul

Maintenance Activity	Drainage Component	Required Action	Typical Frequency
Visual Inspection	Gully Sump unit Catch pit / silt trap Attenuation structures Channel drain Outlet chamber Flow control chamber	Inspect for sediment and debris Inspect inlets and outlets for blockage (where applicable)	Monthly for first year and twice yearly thereafter, after severe storm
	Pipework		Twice yearly
	Full retention interceptor / Bypass interceptor		Twice yearly or after severe storm as a minimum, refer to manufacturer guidance. Forecourt interceptor requires emptying after fuel spillage
Monitoring	Attenuation structures	Check attenuation inspection points to ensure emptying is occurring (little to no water should be present after consecutive days of dry weather)	Twice yearly, once after heavy rainfall and once after consecutive dry weather
Litter and Debris Removal	Manhole Pervious paving All sump units (gullies, channel drains and catch pits)	Remove all litter and debris	Twice yearly or after severe storm
Litter and Debris Removal - Continued	Access chambers and pre-treatment devices Flow control chamber Gutters & leaf guards		Twice yearly (spring, start of winter), or as required
Jet Wash	Pipework	High pressure jet-wash any pipe work which has silt accumulation. Care must be taken that any silts within	Twice yearly, or as required

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		the pipework are not unnecessarily flushed into the attenuation structures (use of bungs and jet-vac of chamber prior to removal of bungs)	
	Attenuation structures	High pressure jet-wash all perforated pipework and or access points. All water to be jet vac to remove any suspended silts within the water	Five yearly, or as required
	Sediment Management and Removal	ALL SUDS	Sediment accumulation should be monitored as part of the inspection regime, rate of sediment accumulation noted
	Inspection	Pipework Manhole	Check if functioning correctly
	Sediment Removal	Washdown separator	Once site is fully operational: twice yearly for 1 st year, annually after
			Quarterly for 1 st year, twice yearly after. Refer to manufacturer guidance

Additional notes:

- Any defects (broken/misaligned pipes, root infestation, damage to soakaways, missing parts, etc.) that are identified during inspections/maintenance should be reported back to the property/site owner so that remedial actions can be undertaken promptly to repair these defects.
- SuDS maintenance based on CIRIA 2015 chapter 32 where further information can also be found.
- Refer to manufacturer guidance for maintenance schedules of all proprietary treatment systems.