3124 - Victoria Point, Manchester, M13 0FT, FRA and SuDS Strategy Report

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Prepared by: Matthew Woo
Approved by: Carmel Lennon

1. Introduction

Heyne Tillett Steel (HTS) have been commissioned by Empiric Property Ltd to undertake a Flood Risk Assessment (FRA) and develop a Sustainable Drainage (SuDS) Strategy for the proposed development of Victoria Point. This report has been prepared to support the planning application submitted to Manchester City Council for this development.

The report aims to incorporate and demonstrate compliance with the following national, regional, and local planning policy guidance, and design standards, as far as reasonably possible:

+ National Planning Policy Framework (NPPF), 2023
+ Planning Practice Guidance, 2021
+ Sustainable Design and Construction Supplementary Planning Guidance (SPG), 2014
+ Manchester City, Salford City and Trafford Councils (MST) Level 1 Hybrid SFRA, 2010
+ Manchester City, Salford City and Trafford Councils (MST) Level 2 Hybrid SFRA, 2011
+ Greater Manchester Combined Authority (GMCA) Level 1 SFRA, 2019
+ Greater Manchester Surface Water Management Plan (SWMP), 2012
+ Manchester City Council Local Flood Risk Management Strategy, 2014

2. Site Description

2.1 Site Location

The site is located at the National Grid reference of 385671E, 395974N and the postcode is M13 0FT. It is bounded by Hathersage Road to the south and house to both the north and the east. Along the west, the site is bound by car parking and Octagon House. Bax Road is located partly within the site and the site boundary wraps around the Victoria Baths. The site has an approximate area of 1.47 ha or 14,705 m^2. The location of the site is shown in Image 1.



Image 1 - Site Location

2.2 Existing Development

The existing site consists of six buildings which are currently used as student accommodation along with a carpark, gym and tenant amenity spaces provided within the basement areas.

2.3 Proposed Development

The proposals include the redevelopment of the entire site, in particular:

+ Block 1 will be retained with a 3-storey lateral extension proposed with minor internal structural alterations.
+ Blocks 2 and 3 will be partially demolished with a 6-storey lateral extension as bookends to the existing building and a partial basement.
+ Block 4 will be fully demolished and reconstructed with a new 9-storey building and partial basement.
+ Block 5 will be partially demolished with a 2-storey vertical extension and partial basement.
+ Block 6 will be fully demolished and replaced with a 12-storey concrete frame abutting Block 5.

A copy of the proposed architectural floor plans and landscape plans are available in Appendices A and B.

3. Flood Risk Assessment

3.1 Introduction

In order to determine the risk of flooding for the development site, the Environment Agency (EA)'s website was referenced as well as flood maps published by Manchester City, Salford City and Trafford Councils (MST), including information contained in the Strategic Flood Risk Assessment (SFRA) and Surface Water Management Plan (SWMP). Flood risk was also assessed in accordance with the technical guidance document to the NPPF. A site investigation was completed in January 2024 and has been used to inform this report.

As presented in Image 2, the Environmental Agency (EA)'s Flood Map for Planning shows that the site is located in Flood Zone 1. This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

According to Table 2 of the NPPF Technical Guidance, the flood risk vulnerability classification of the pro-posed development is "More Vulnerable". Therefore, the NPPF Technical Guidance Table 3 states an exception test is not required for the site and the proposed development is deemed appropriate.

3.2 Flooding from Rivers and Sea

As shown in Image 2, the site is located in Flood Zone 1. Flood Zone 1 is defined as an area with a 0.1% or less annual probability of flooding from the river or sea in any given year. According to the NPPF, the risk of flooding from rivers or the sea in Flood Zone 1 is classified as low.

More Vulnerable
+ Hospitals
+ Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
+ Buildings used for dwelling houses, **student halls of residence**, drinking establishments, nightclubs and hotels.
+ Non-residential uses for health services, nurseries and educational establishments.
+ Landfill* and sites used for waste management facilities for hazardous waste.
+ Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

Table 1 - NPPF Table 2 Flood risk vulnerability classification

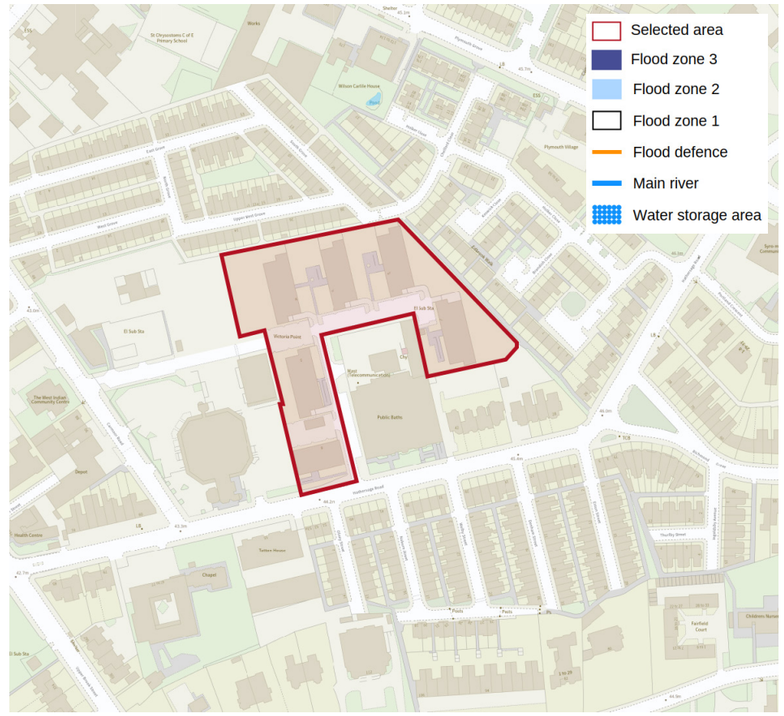


Image 2 - Flood Map for Planning (extract from EA website)

Flood risk vulnerability classification	Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	✓	Exception Test required	✓	✓
Zone 3a	Exception Test required	✓	×	Exception Test required	✓
Zone 3b functional floodplain	Exception Test required	✓	×	×	×

Key: ✓ Development is appropriate.
× Development should not be permitted.

Table 2 - NPPF Table 3 Flood risk vulnerability and flood zone 'compabiltily'

3.3 Flooding from Surface Water

Surface water flooding occurs when the volume of rainwater during storm events exceeds the capacity of infiltrating ground media or overwhelms the existing drainage network and forms overland flow routes and/or ponding instead. This is typically associated with topographical low points.

The EA's long term surface water flood risk map is shown in Image 3. The buildings on site are shown to be at very low risk of surface water flooding as illustrated on Image 3. There are areas of low risk along Bax Road which occurs in the low-risk scenario.

The development proposals will include the provision of sustainable drainage systems (SuDS) which will provide a betterment of the surface water management of the site with allowance for climate change.

This source of flooding is assessed to be low risk.

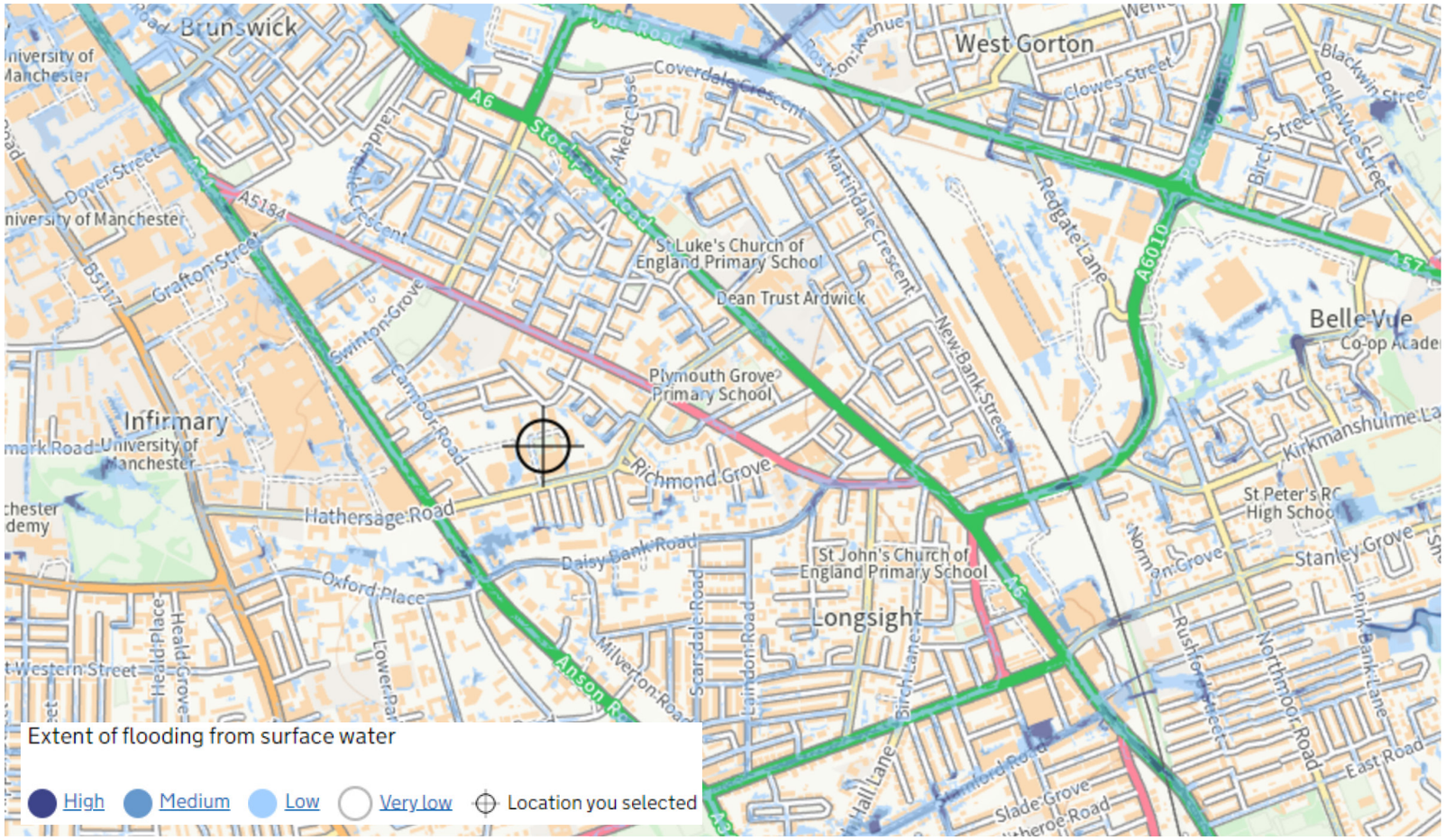


Image 3 - Extent of flooding from surface water (extract from EA website)

3.4 Flooding from Sewers

Sewer and highway drainage flooding occurs when the capacity of systems is exceeded, or the function of the system is impeded, which results in the surcharging and/or failure of the system and water being forced to the surface via gullies, manholes, dedicated overflows or connected infrastructure (e.g. toilets).

Sewer flooding is typically caused by heavy rainfall or blockages in the system. The frequency of sewer flooding is increasing due to climate change, population growth and increased impermeable areas.

Information regarding historic sewer flood incidents within Manchester City was limited. GMCA SFRA (2019) stated that United Utilities were unable to provide data of exact locations of incidents due to the sensitivity of the data. Therefore, incidents were aggregated into 100m^2 grid squares as shown in Image 4. The map shown in Image 4 details the number of sewer flood incidents and hotspots within Greater Manchester and indicates there have not been any sewer flood incidents in or adjacent to the site therefore the risk of sewer flooding is considered low.

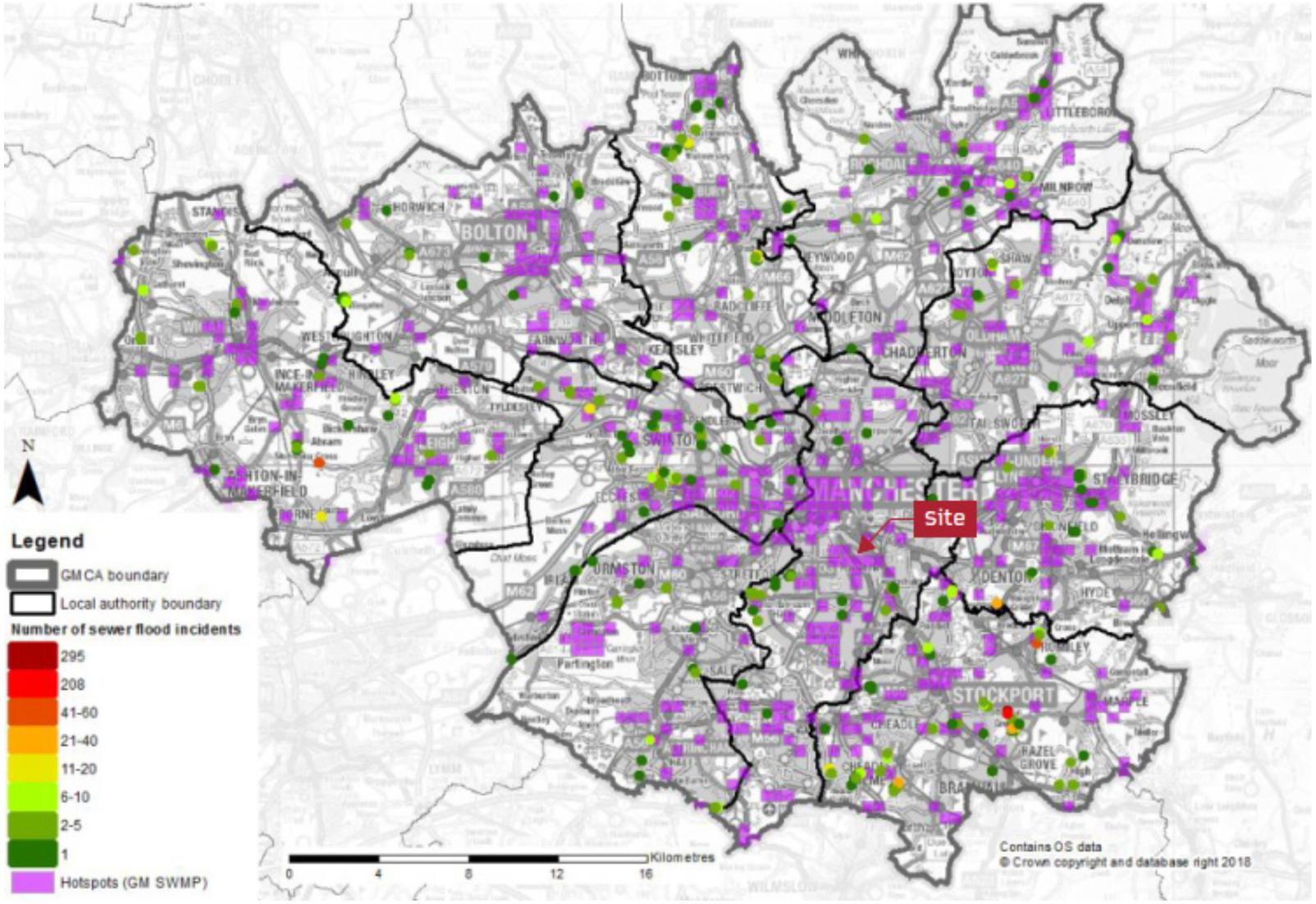


Image 4 - Sewer flood incidents within Greater Manchester

3.5 Flooding from Reservoirs, Canals and other Artificial Water Sources

As shown in Image 5, the site is not at risk of flooding from reservoirs.

3.6 Flooding from Groundwater

Groundwater flooding is caused when the level of water within rock or soil rises significantly due to long periods of abnormally high rainfall. Although this type of flooding does not pose a significant risk to life, it can cause in significant damage to property and infrastructure. The two most vulnerable settings for groundwater flooding are chalk and river valleys which are underlain by permeable superficial deposits. Lead Local Flood Authorities are responsible for managing groundwater flood risk.

The site investigation conducted concluded the site to be underlain by Made Ground consisting of gravelly sand and clay. MST Level 2 SFRA (2011) details areas that are subject to groundwater flooding. Image 6 shows the site is not located in an area susceptible to groundwater flooding. Therefore, the risk of groundwater flooding is considered low.

3.7 Summary

This Flood Risk Assessment has been prepared in accordance with the local, regional, and national planning policy and guidance documents.

A site-specific flood risk assessment has been undertaken following a review of flood data published by the EA and Manchester City Council which found that the development is at low risk of flooding from all sources.

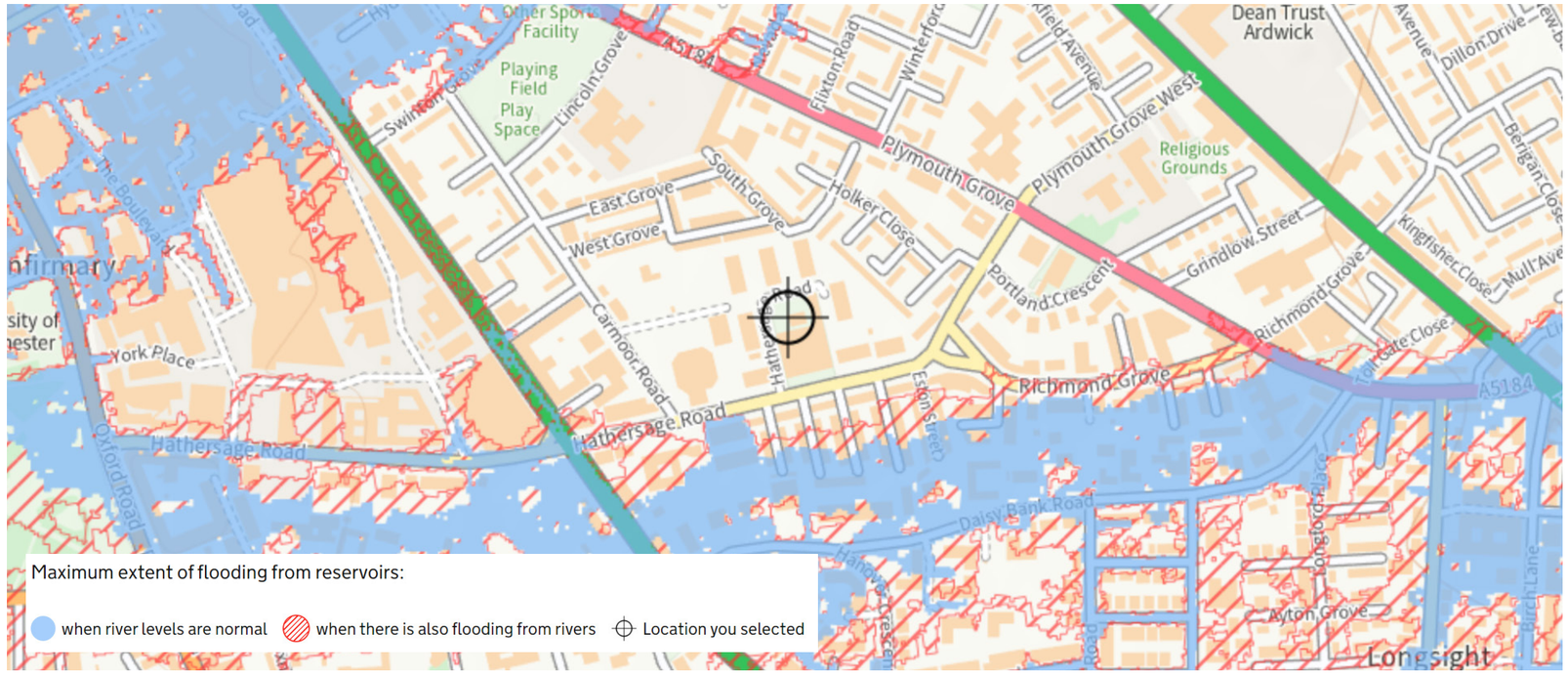


Image 5 - Extent of flooding from reservoirs

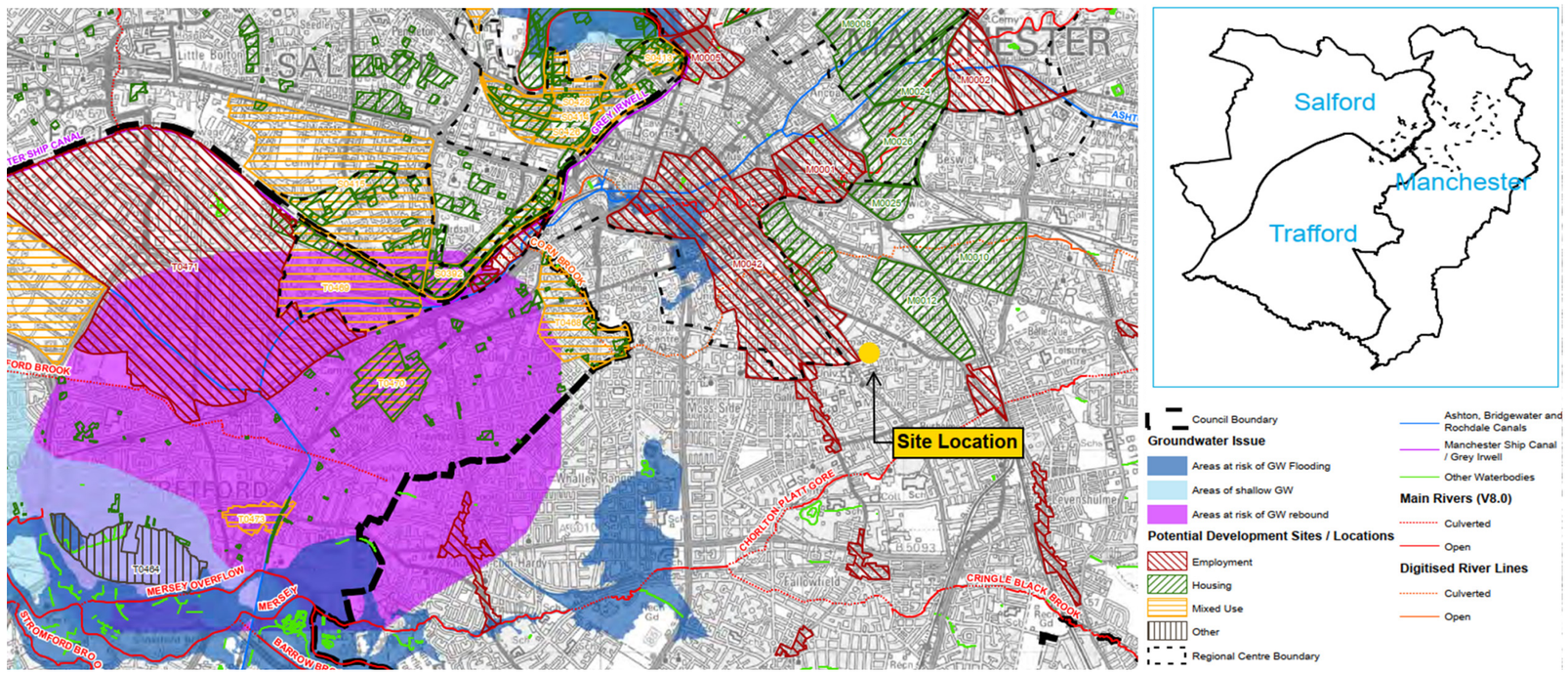


Image 6 - Extent of flooding from groundwater

4. Existing Drainage Arrangements

4.1 Public Drainage Network

The United Utilities (UU) asset map for the area surrounding the site was obtained. A copy of the extract is shown in Image 7 which identifies:

+ A 225mm diameter vitrified clay combined sewer runs through the site along Bax Road, located between the Public Baths and Blocks 5 and 6.
+ 300mm diameter vitrified clay combined sewer changing to a 640mm x 790mm pipe along Hathersage Road.
+ 225mm diameter vitrified clay combined sewer along an unnamed road directly to the north of the site.

Refer to Appendix C for the full asset map.

4.2 Private Drainage Network

A CCTV survey was commissioned from Tower Surveys in November 2023 which identifies the private drainage network on site. This confirms that the UU public sewer runs through the development site and is in adequate condition, with no structural defects identified.

Overall, minimal issues were identified throughout the site. Each block is served by separate foul and surface water drainage which connects to the 225mm UU public sewer. Some structural defects were identified in Blocks 1, 4, 5 and 6 including joint displacements and fractures.

A copy of the CCTV survey drawings are contained in Appendix D. In addition, the report identifies scale and blockages in some cases. Where manholes and drainage runs are to be retained, the pipework will need to be jetted and re-inspected to confirm the condition.

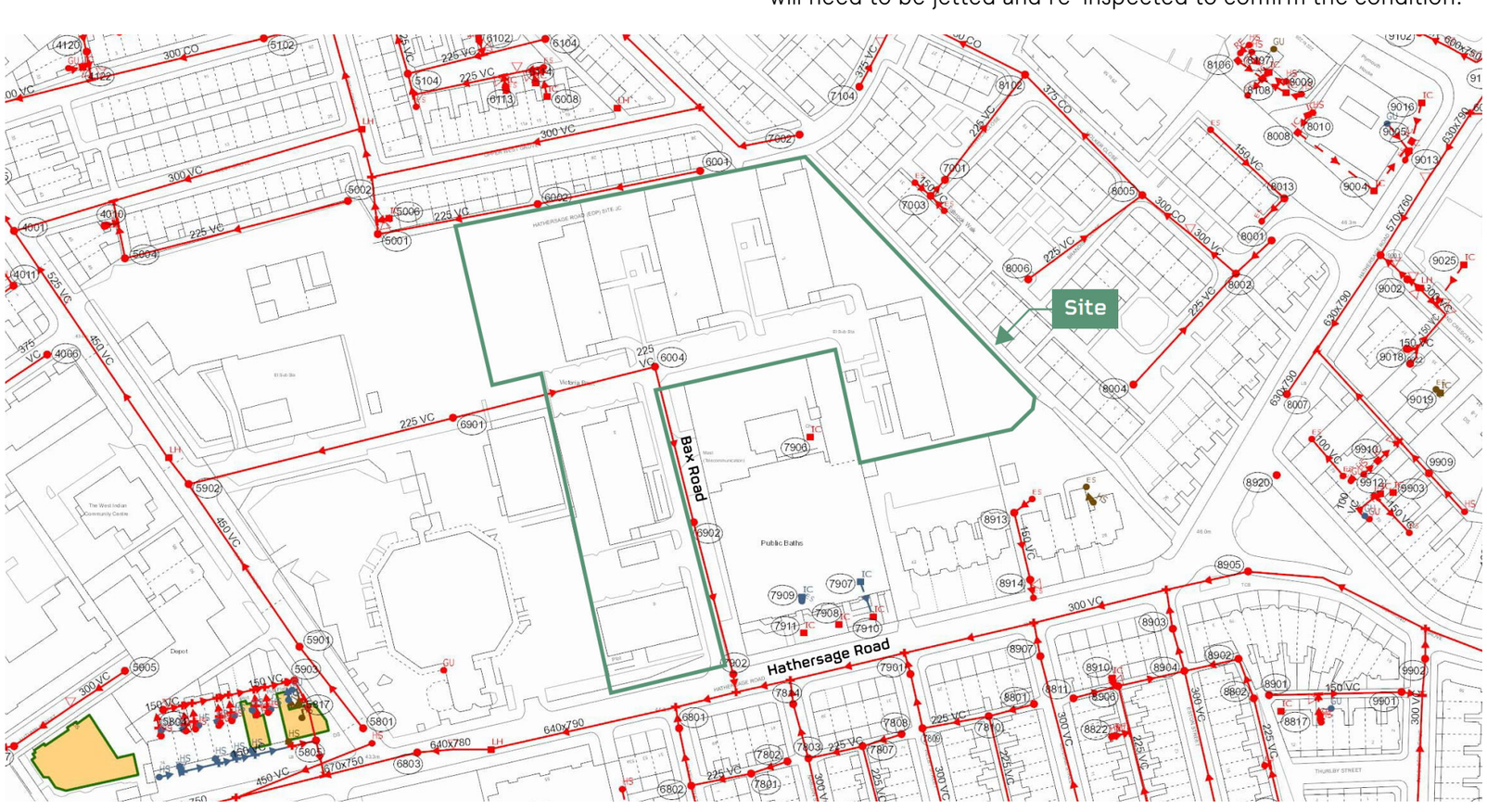


Image 7 - United Utilities Sewer Records

4.3 Existing Surface Water Rates

The existing peak run-off has been calculated using the Modified Rational Method in accordance with the following formula:

Q = 3.61 Cv x i x A

where Cv is the volumetric runoff coefficient, A is the catchment area in hectares and i is the peak rainfall intensity in mm/hr which was obtained using FEH-22 data for a 15-minute storm duration.

Table 3 summarises the existing peak run-off rate for the site for the 1 in 2 year, 1 in 30 year, 1 in 100 year and 1 in 100 year + 40% climate change (CC) rainfall events.

Rainfall event	Rainfall Intensity	Existing Discharge Rates
Q_2	28.9 mm/hr	153.4 l/s
Q_{30}	73.6 mm/hr	390.7 l/s
Q_{100}	93.6 mm/hr	496.9 l/s
$Q_{100+45\%}$	131.1 mm/hr	695.9 l/s

Table 3 - Existing Surface Water Run-off Rates

4.3.1 Existing Discharge Rates

Archive drawings for the site were obtained, providing further information on the current drainage network. According to the archive information, the surface water run-off of the site is currently restricted to 52.4 l/s. A hydrobrake is located within a manhole between Blocks 3 and 4, restricting the majority of the surface water run-off of the site at 32.5 l/s. The second flow restrictor is located between Blocks 5 and 6, restricting at a flow of 13 l/s.

However, the CCTV survey undertaken for the site did not identify any flow control devices on the installed manholes which suggests the surface water is not currently restricted.

A copy of the archive drawing is available in Appendix G.

5. Proposed Drainage Arrangements

It is proposed to use SuDS for the capture of surface water runoff where possible and reuse the existing outfalls to the public sewers, along Bax Road. Separate foul and surface water networks will be provided to serve the site and will be designed in accordance with Building Regulations Part H.

5.1 Policy Context

A SuDS assessment has been completed in accordance with the drainage hierarchy presented in Table 4, The hierarchy is in accordance with the North West planning policy which follows the UK governments Planning Practice Guidance. Priority has been given to SuDS which provide multi-functional benefits and coordination was undertaken to ensure that SuDS are incorporated into the scheme.

It is proposed to reduce the peak surface water run-off rate to as close to the greenfield rates as possible.

The proposed surface water SuDS Strategy is to use various features including permeable paving, attenuation tanks and raingardens. These options will be developed in co-ordination with the Architects proposal for the site. A copy of the proposed SuDS plan is available in Appendix E and the calculations in Appendix F.

5.2 Infiltration

Brownfield Solutions undertook a Phase II Geo-Environmental Assessment in January 2024. Three trial pits were excavated, however due to the obstruction of asphalt in one and a concrete obstruction and the sides collapsing in the second, only one soakaway test was undertaken.

The report concluded the use of soakaways within the natural ground is not considered to be feasible at the site due to the low infiltration rates obtained (on the order of 10^{-7} m/s) and the presence of low permeability cohesive strata underlying the site.

	SuDS Technique	Feasible	Explanation
1	Into the ground (Infiltration)	×	Unable to implement infiltration techniques due to low infiltration rates.
2	To a surface waterbody	×	Not feasible as no watercourse within the vicinity of the site.
3	To a surface water sewer or highway drain	×	Not feasible as no public surface water sewer within the vicinity of the site.
4	To a combined sewer	✓	Proposed to retain existing outfalls to United Utilities combined sewers.

Table 4 - Surface Water Drainage Hierarchy

5.3 Proposed SuDS Features

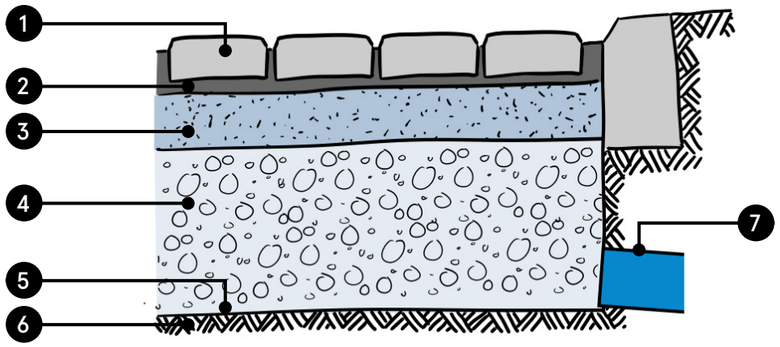
The SuDS elements which are being used for attenuation are outlined in detail in this section. Provision of multi-functional SuDS have been prioritised with attenuation tanks used as an ancillary measure to be able to achieve the greenfield rate. Refer to Appendix E for the catchment plan and proposed SuDS plan.

There are limited opportunities for SuDS within the building footprint due to the retention of the existing buildings, therefore attenuation for the roof catchments has primarily been provided within the external areas for the retained buildings and within the building footprint for the new builds. This strategy will be reviewed at detailed design.

5.3.1 Permeable Paving

Permeable paving can be used in order to limit the discharge rate and volume of surface water as well as providing a level of treatment to surface water run-off.

Permeable paving has been proposed for the majority of external hard landscaping around the site. The volume of storage is based on a minimum of 450mm of 4/20 stone sub-base. As the site comprised of superficial deposits of firm to stiff gravelly clay with silt, sand and mudstone and underlain by the Chester Formation, the paving system is proposed to function in line with a permeable paving 'System C' (in line with BS 7533-13) and the flow from these areas will be limited via a flow control.

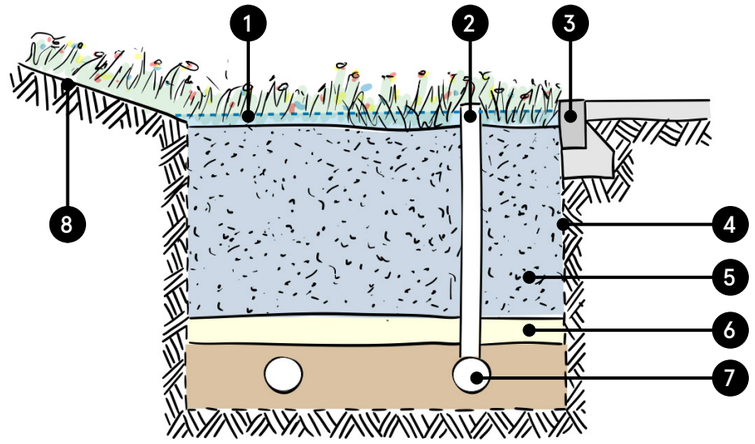


1. Paving Blocks
2. Laying Course
3. Base
4. 4/20 Stone Subbase
5. Impermeable Liner
6. Subgrade
7. Outlet

Image 8 - Typical Permeable Paving Detail

5.3.2 Raingardens

Raingardens are proposed in areas of soft landscaping where surface water can be feasibly routed to them. Where hard landscaping areas fall towards soft landscaping, rain gardens have been proposed. This can be seen within the courtyards around each block within the site. The raingardens will act within the SuDS management train and can be used as source control in a series of SuDS features to manage flood risk, maximise volume losses and provide multi-functional benefits.

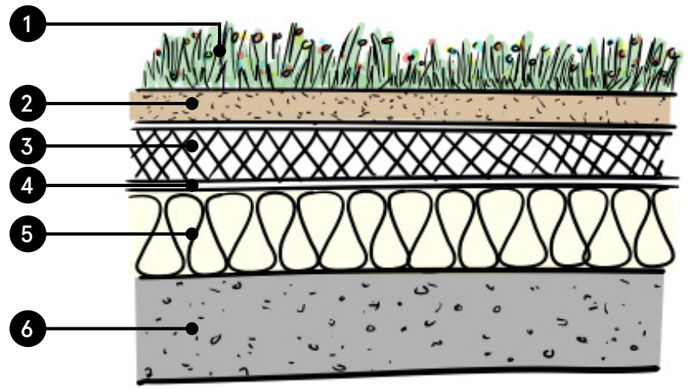


1. Maximum storage depth
2. Overflow/cleaning access to perforated pipes
3. Hard edges may be used such as kerbs
4. Geotextile membrane
5. Filter layer
6. Transition layer
7. Perforated pipe
8. Side slope (max 1:3 if vegetated)

Image 9 - Typical Raingarden Detail

5.3.3 Green Roofs

Green roofs are proposed above the bike and bin stores. The integration of green roofs and planters into the design of the site will provide passive irrigation benefits through capillary wick action, providing localised water quality, amenity and biodiversity. Additionally, the green roof will aid in slowing down surface water run-off before entering the drainage system.



1. Planting
2. Top Soil
3. Drainage Board
4. Waterproofing Layer
5. Insulation
6. Concrete Slab

Image 10 - Typical Green Roof Detail

5.3.4 Attenuation Tank

Attenuation storage is required for the site to capture surface water run-off from all roof blocks. Geocellular tanks and pipes systems will be utilised as a supplementary measure to ensure that the required run-off rates for the development are met. To benefit a phased approach of the site, the attenuation tanks will split, serving between one and two blocks.

5.4 Greenfield Run-off Rate

The aim for this development is to use the attenuation techniques described in Section 5.3 to reduce the peak run-off for the 1 in 100-year rainfall event (+45% climate change) as close as possible to greenfield run-off rates. This will be in accordance with the Manchester City Council LFRMS (2014).

The greenfield run-off rate has been calculated using the calculation tool available on www.uksuds.com. This established that the greenfield run-off for the total site of 1.4167 ha (which excludes the assumed highways land) is 8.93 l/s for Q_{BAR} shown in Table 5.

Return Period	Greenfield Run-off Rates
Q_{BAR}	8.93 l/s
Q_{1}	7.77 l/s
Q_{30}	15.18 l/s
Q_{100}	18.57 l/s

Table 5 - Greenfield run-off rate

Refer to Appendix F for a copy of the greenfield runoff rate calculations.

5.5 Drainage Strategy

The surface water drainage strategy has been developed, splitting the site into smaller sub-catchments, each with its own catchment, discharging to the existing United Utilities combined sewer along Bax Road. A summary of SuDS provision is set out in Table 6.

This gives a total surface water discharge from the private land as 8.93 l/s which results in a significant reduction in run-off rate.

SuDS Feature	Catchment area description	Catchment area	Attenuation volume	Run-off rate
Catchment / Outfall 1		2,210m²	132 m³	
Tank 1	Block 1 Roof & Block 1 External Area (East)	1,290 m²	114 m³	1.36 l/s
Permeable Paving	Block 1 External Area (West)	920 m²	18 m³	
Catchment / Outfall 2		3,640 m²	201 m³	
Tank 2	Block 2 + 3 Roof	2,040 m²	135 m³	2.27 l/s
Raingardens	Block 2 External Area	1,600 m²	66 m³	
Permeable Paving				
Catchment / Outfall 3		2,990 m²	145 m³	
Tank 3	Block 4 Roof	1,110 m²	84 m³	2.06 l/s
Raingardens	Block 3 External Area	870 m²	40 m³	
Permeable Paving				
Raingardens	Block 4 External Area	1010 m²	21 m³	
Permeable Paving				
Catchment / Outfall 4		2,690 m²	318 m³	
Tank 4	Block 5 + 6 Roof	1,670 m²	238 m³	1.86 l/s
Raingardens	Block 5 + 6 External Area	1,450 m²	270 m³	
Permeable Paving				
Catchment / Outfall 5		2,178 m²	270 m³	
Permeable Paving	Road (private)	2,178 m²	270 m³	1.38 l/s
TOTAL		**14,167 m²**	**1,066 m³**	**8.93 l/s**

5.6 Unattenuated Area

An approximate area of 538m^2 within the red line boundary is understood to consist of an existing public highway. This is to be confirmed by the highway boundary. For the area assumed to be highways land, it is therefore proposed for the surface water to drain via the existing public highway drainage unrestricted, at a rate of 5.6 l/s (for the 1 in 2 year storm event) up to 25.5 l/s (for the 1 in 100 year storm event + 45%CC).

This area has been excluded from the attenuation strategy for the proposed development. Please refer to Appendix E for the unattenuated area on the proposed SuDS Plan.

5.7 Exceedance

The surface water drainage strategy has been designed to accommodate runoff from the 1 in 100 year +45% climate change return period. The incorporation of SuDS measures means the site should not contribute any additional risk both on site and outside the development to the current scenario.

A copy of the exceedance plan is available in Appendix H.

5.8 Proposed Foul Water Drainage Strategy

Foul water drainage from the site will be discharged by gravity as far as possible to the existing outfall located on Bax Road. A pre-planning enquiry has been submitted to United Utilities to ensure capacity in the combined sewer network. At the time of writing a response is awaited.

5.9 Drainage Inspection and Maintenance Strategy

In accordance with CIRIA C625, it is recommended that a private SuDS maintenance agreement is agreed as a simple contract between the property owner / tenant (customer) and the maintenance provider (the maintainer). It is mainly to facilitate continuing maintenance of the SuDS that are in private ownership. The maintenance requirements are in accordance with the CIRIA C753 SuDS Manual 2015. Refer to Appendix I.

6. Conclusion

This FRA and SuDS Strategy report has been prepared in accordance with local and national planning policy, along with guidance documents including the Manchester City Council flood risk and policy documents. The proposed development aims to comply with local and national planning policy on flood risk and sustainable drainage as far as practicable.

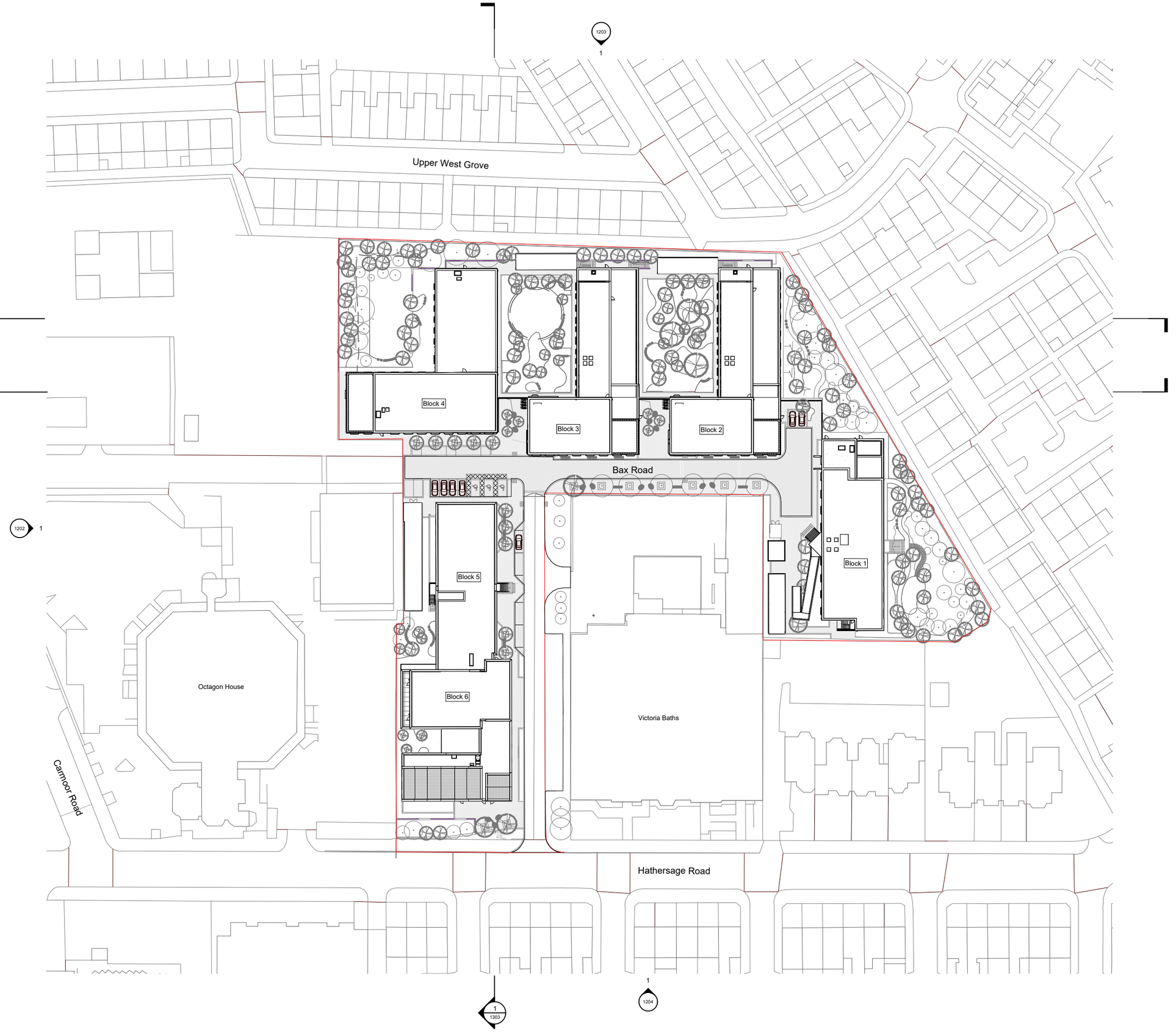
This report has confirmed that the development site is at low risk from all sources of flooding.

The proposed development includes SuDS in the form of permeable paving, attenuation tanks, raingardens and green roofs which will significantly reduce the surface water flow rate discharge into the public sewer network. Every reasonable effort has been made to maximise SuDS across the development.

HEYNE TILLETT STEEL

Appendix A

Proposed GAs



All drawings to be read in conjunction with specifications, schedules and all other consultant information.

Do not scale from this drawing. Use written dimensions only. All dimensions to be checked on site. This drawing is based on dimensional survey information provided by others. Bell Phillips Architects cannot accept responsibility for the accuracy of this survey information.

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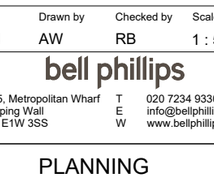
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Notes

site boundary

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

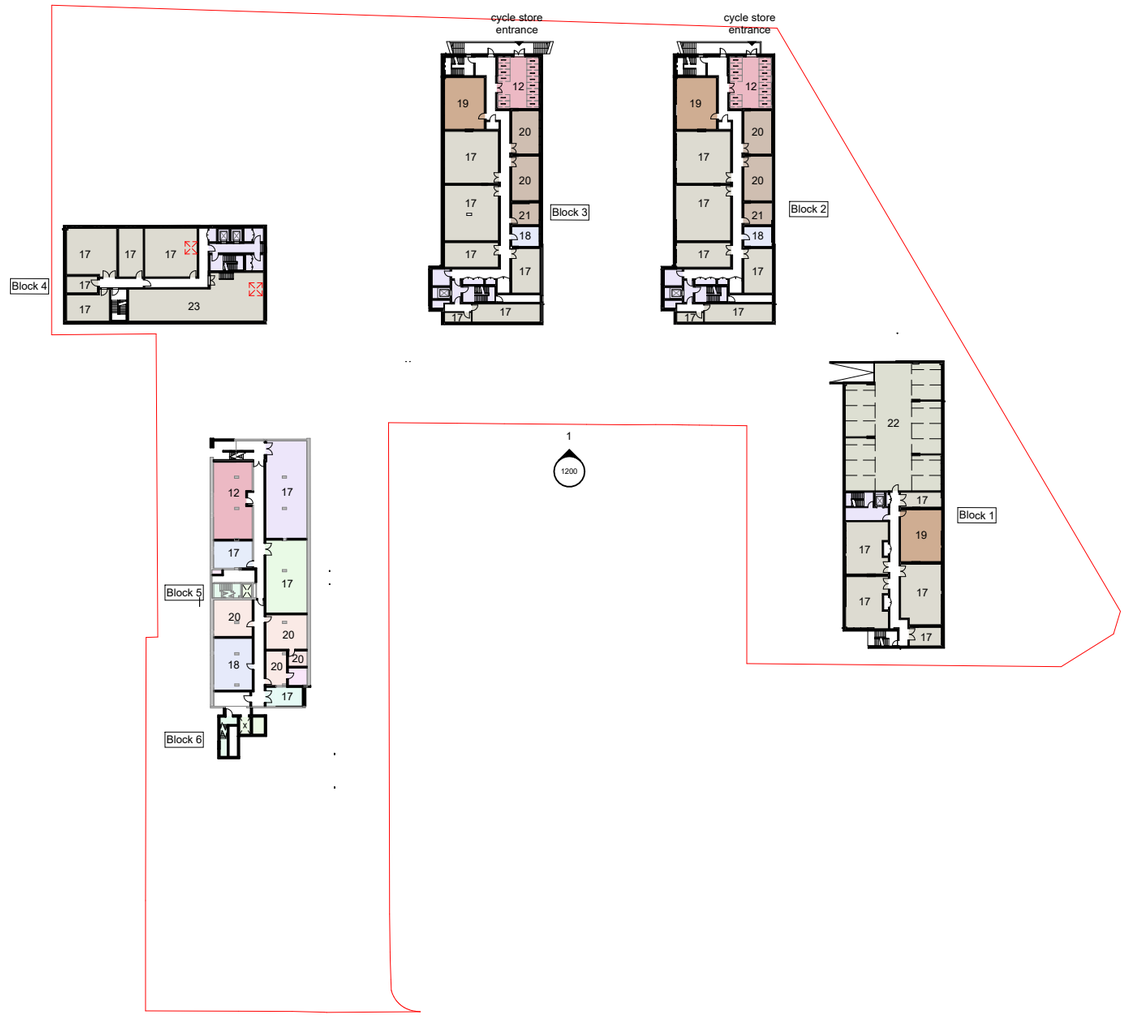
Title
Proposed_Site Plan

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

bell phillips
Unit 305, Metropolitan Wharf
70 Wapping Wall
London E1W 3SS
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E info@bellphillips.com
W www.bellphillips.com

Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1002	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

All drawings to be read in conjunction with specifications, schedules and all other consultant information.

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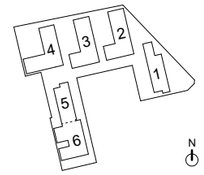
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date

REVISIONS

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0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

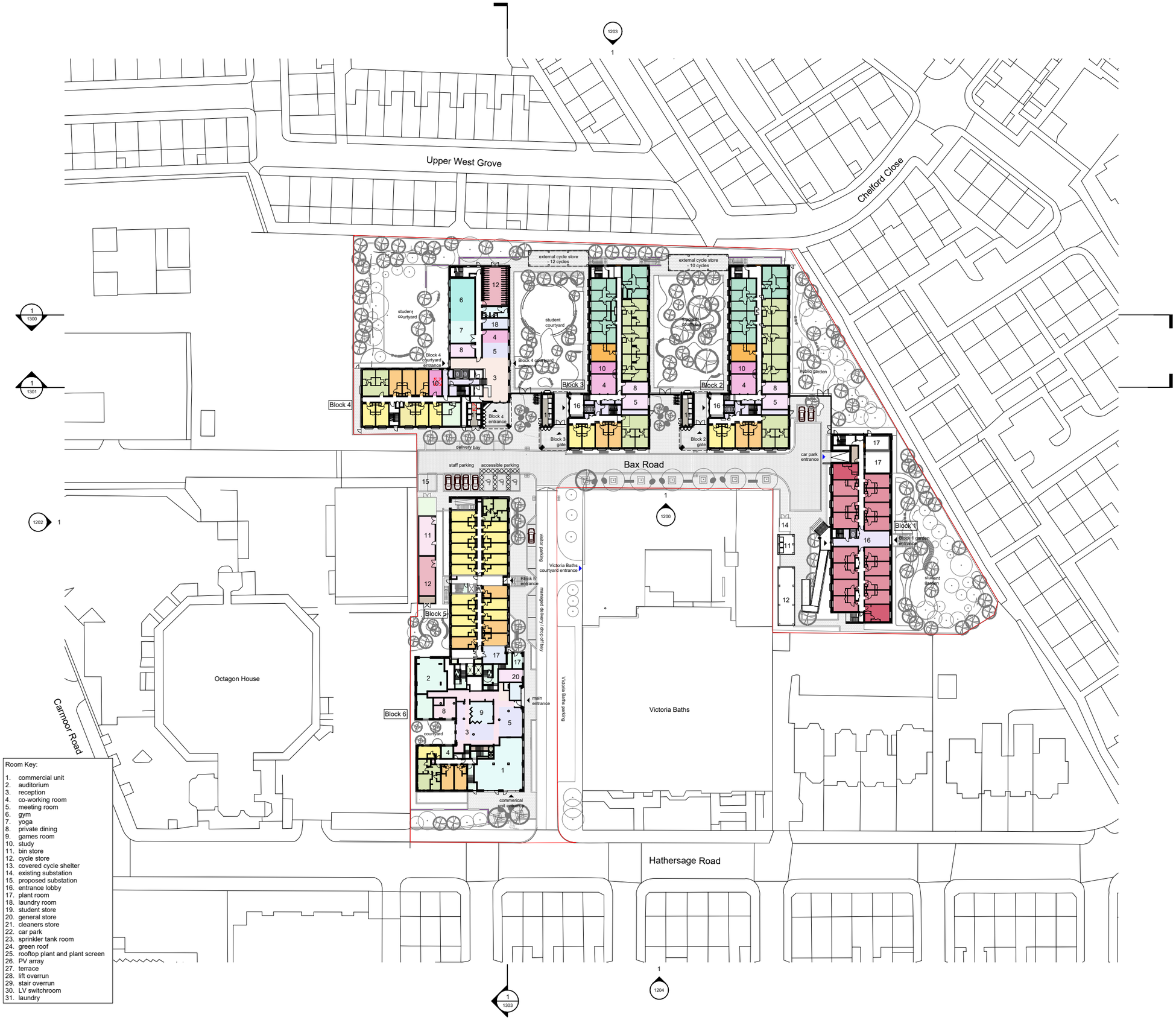
Title
Proposed_Site Plan_Basement

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1099	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

For landscape proposals, refer to LUC (Landscape Architect) drawings

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

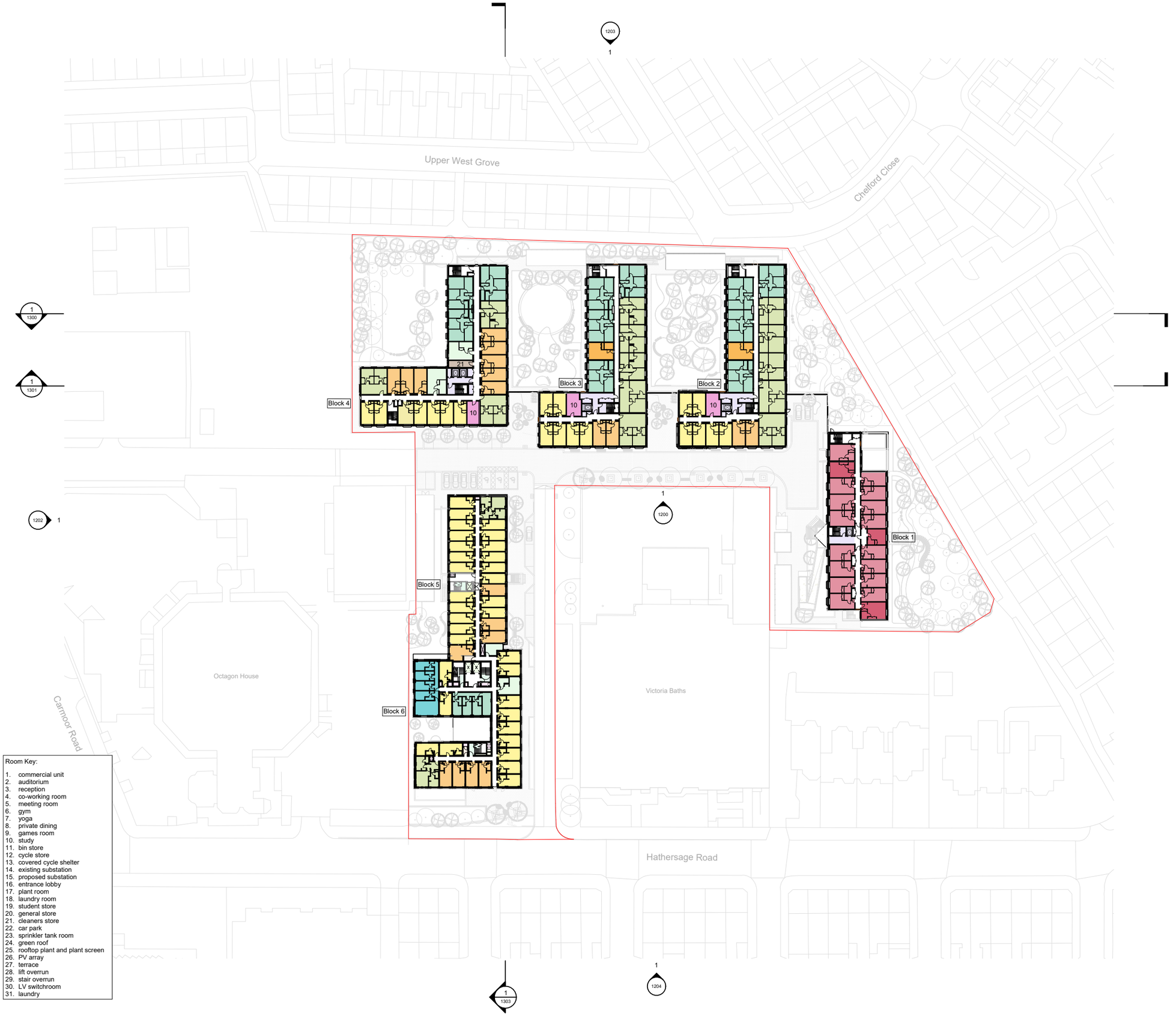
Title
Proposed_Site Plan_Ground Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1100	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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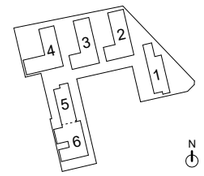
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title
Proposed_Site Plan_First Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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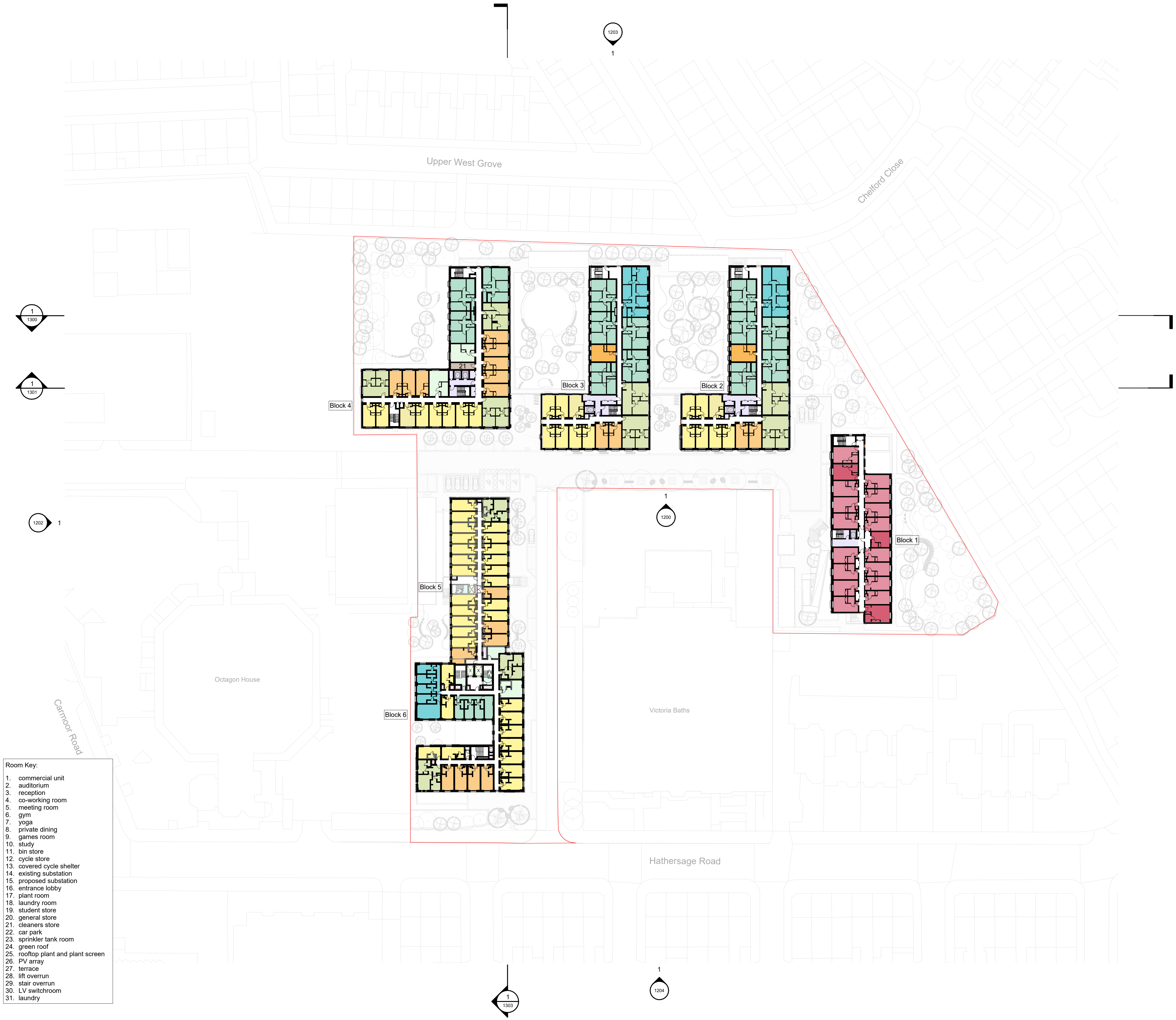
Unit 305, Metropolitan Wharf
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Status
PLANNING

Drawing Number
0814-BPA-ZZ-ZZ-DR-A-1101

Revision
P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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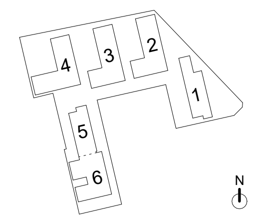
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project: 0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title: Proposed_Site Plan_Second Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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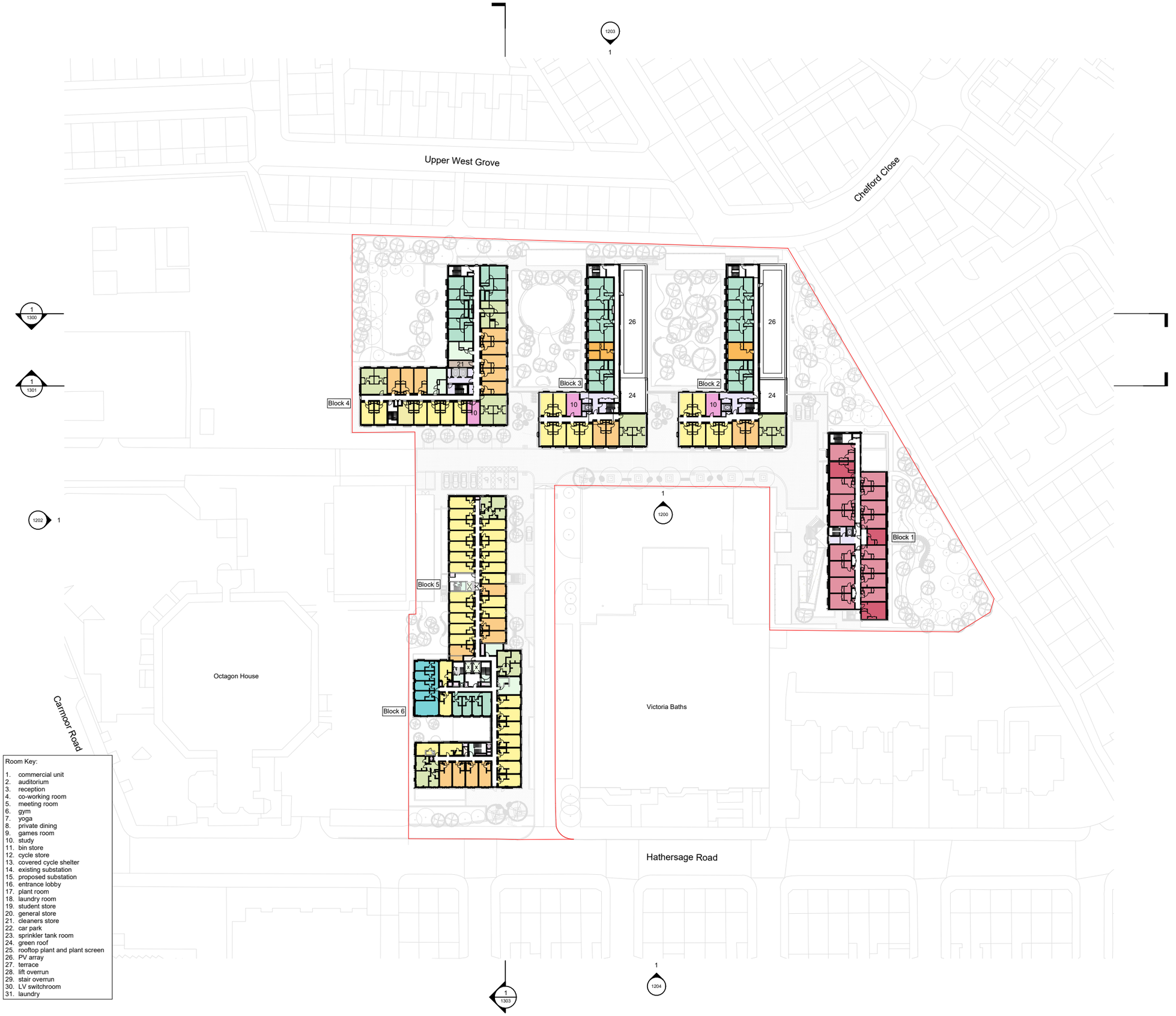
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Status: PLANNING

Drawing Number: 0814-BPA-ZZ-ZZ-DR-A-1102

Revision: P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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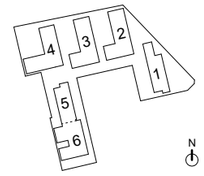
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

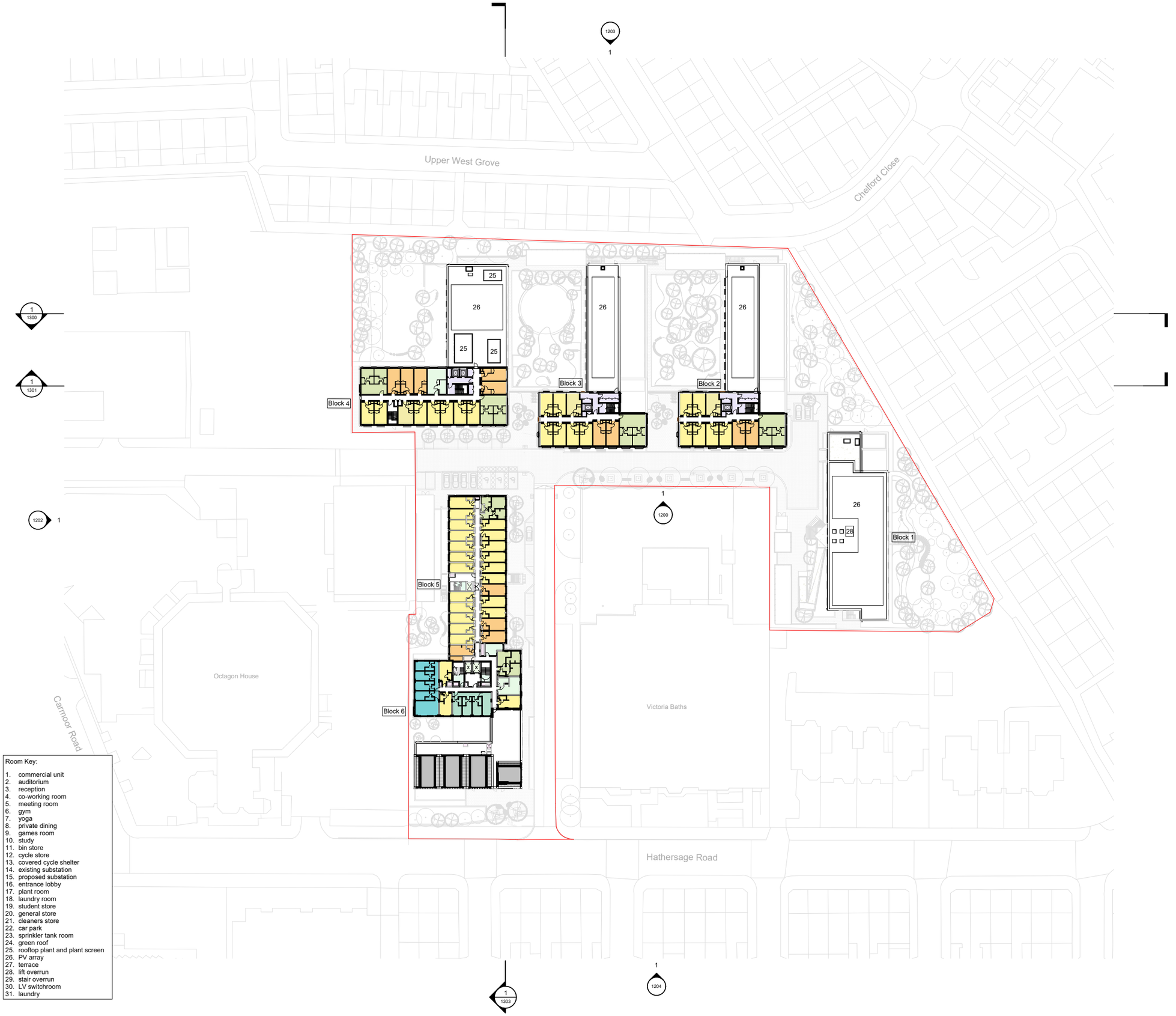
Title
Proposed_Site Plan_Third Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1103	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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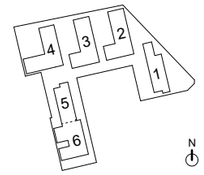
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title
Proposed_Site Plan_Fourth Floor

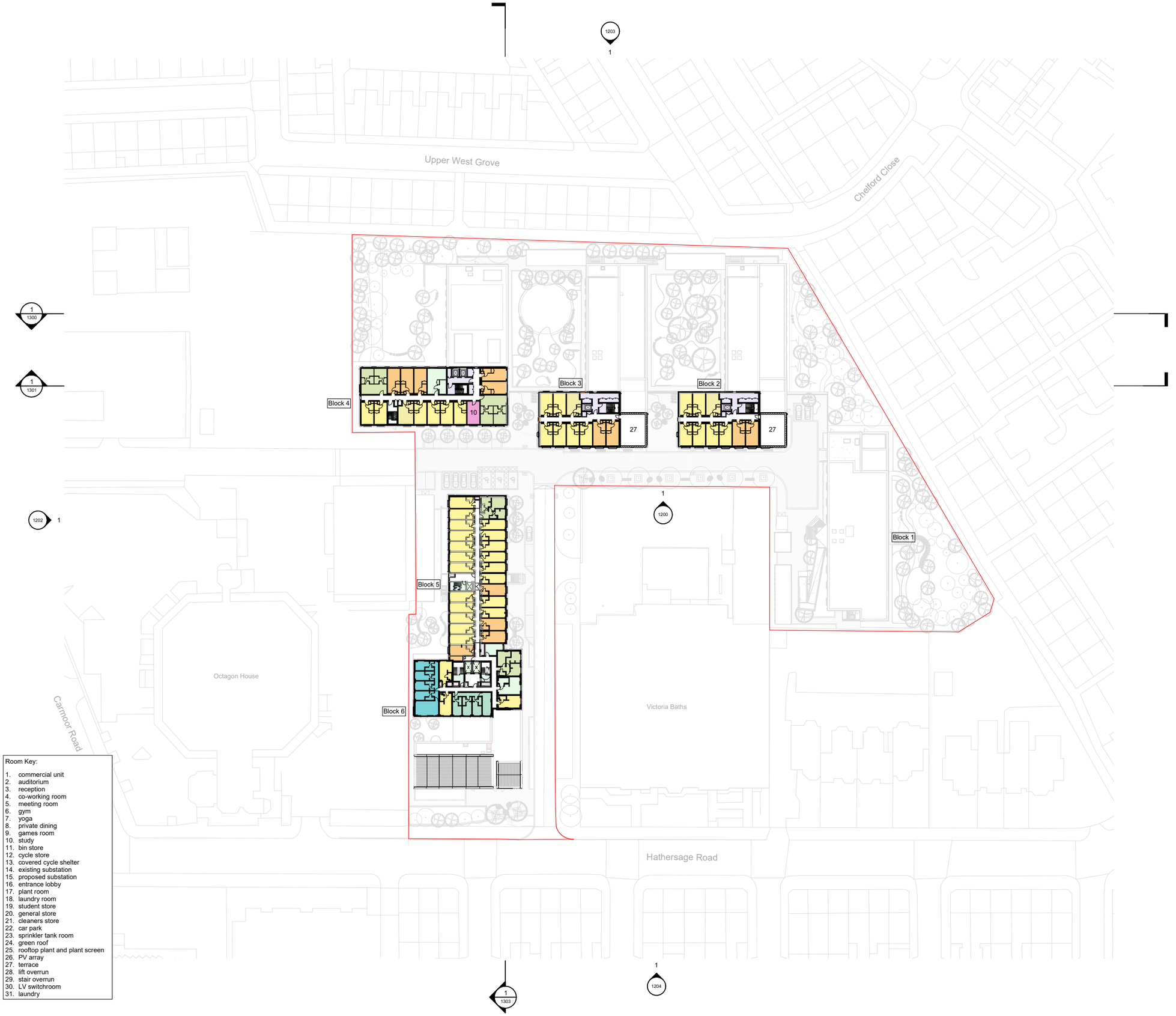
Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number
0814-BPA-ZZ-ZZ-DR-A-1104

Revision
P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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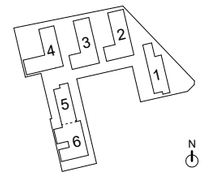
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

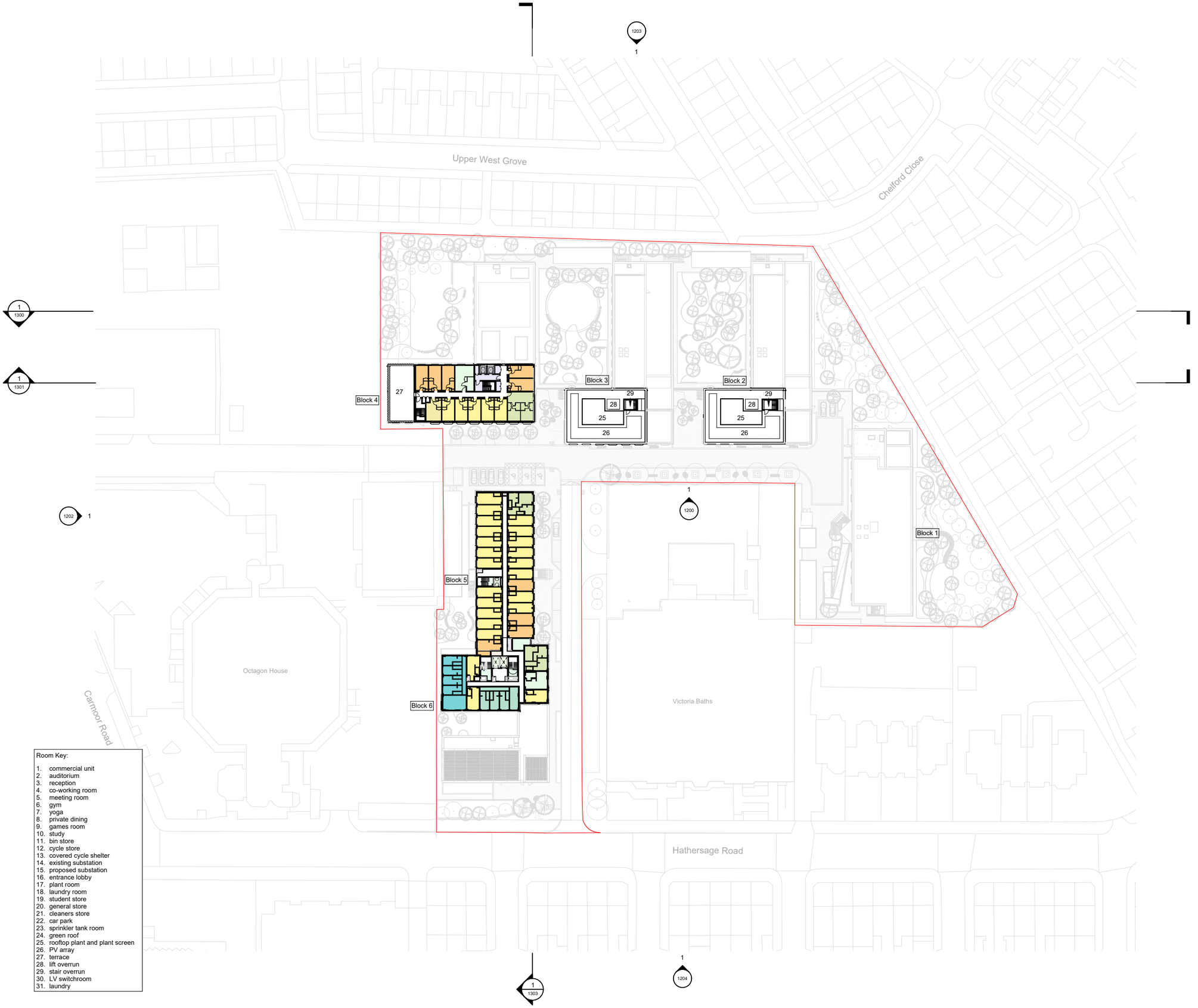
Title
Proposed_Site Plan_Fifth Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1105	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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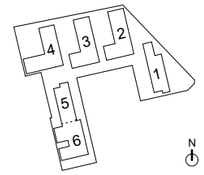
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

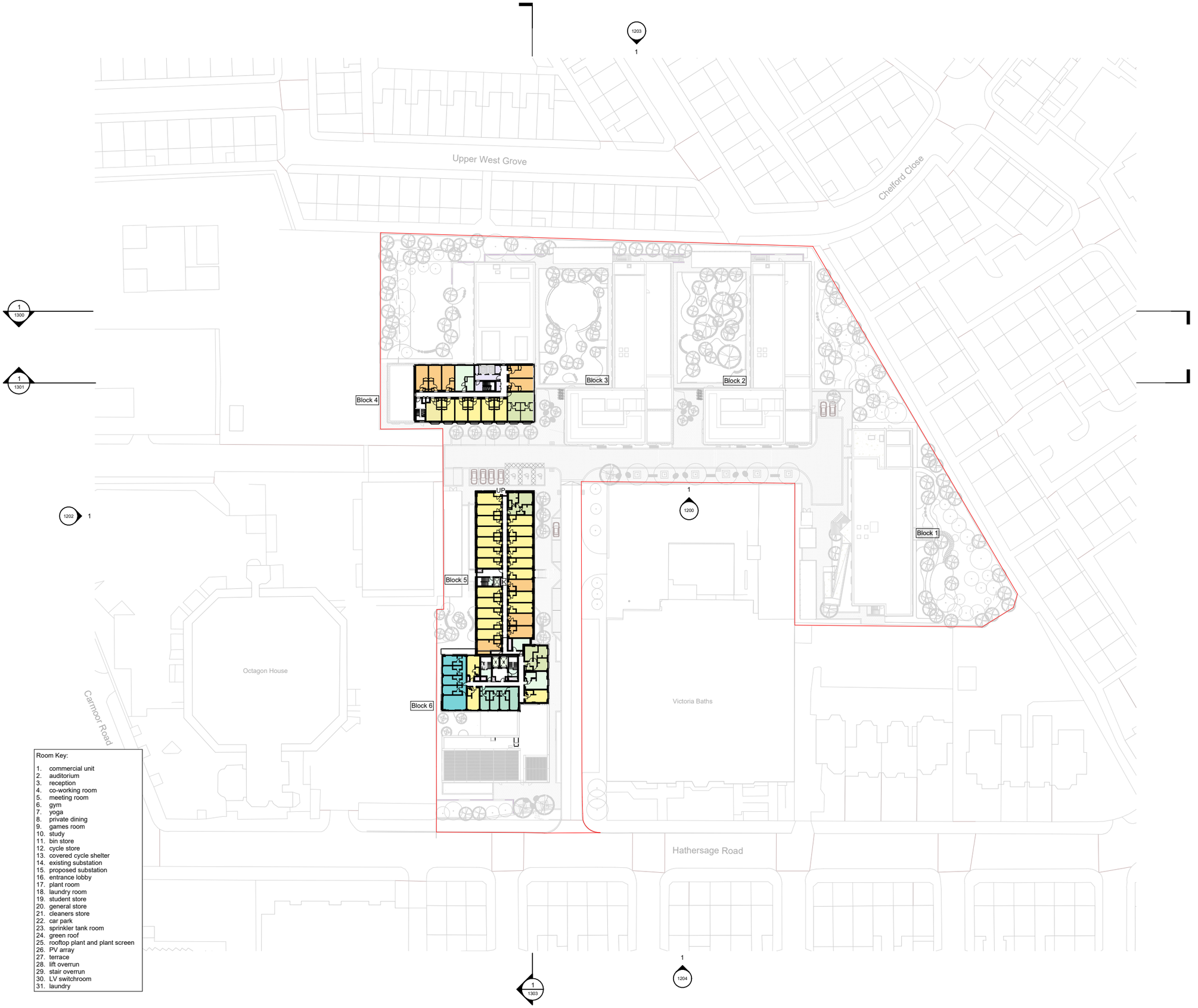
Title
Proposed_Site Plan_Sixth Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1106	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
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20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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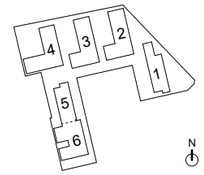
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title
Proposed_Site Plan_Seventh Floor

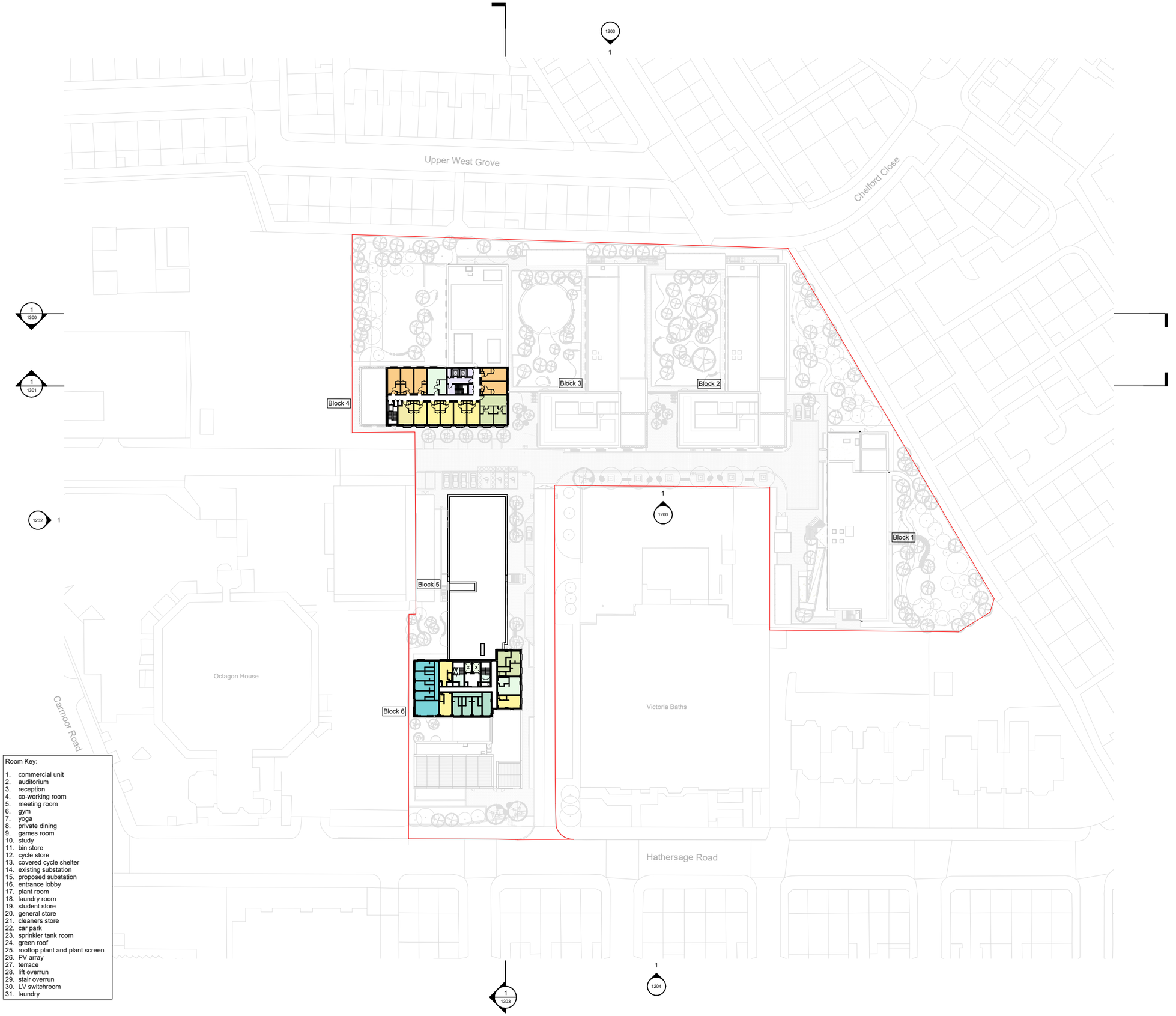
Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number
0814-BPA-ZZ-ZZ-DR-A-1107

Revision
P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
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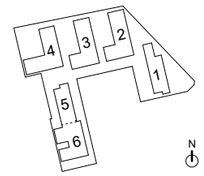
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title
Proposed_Site Plan_Eighth Floor

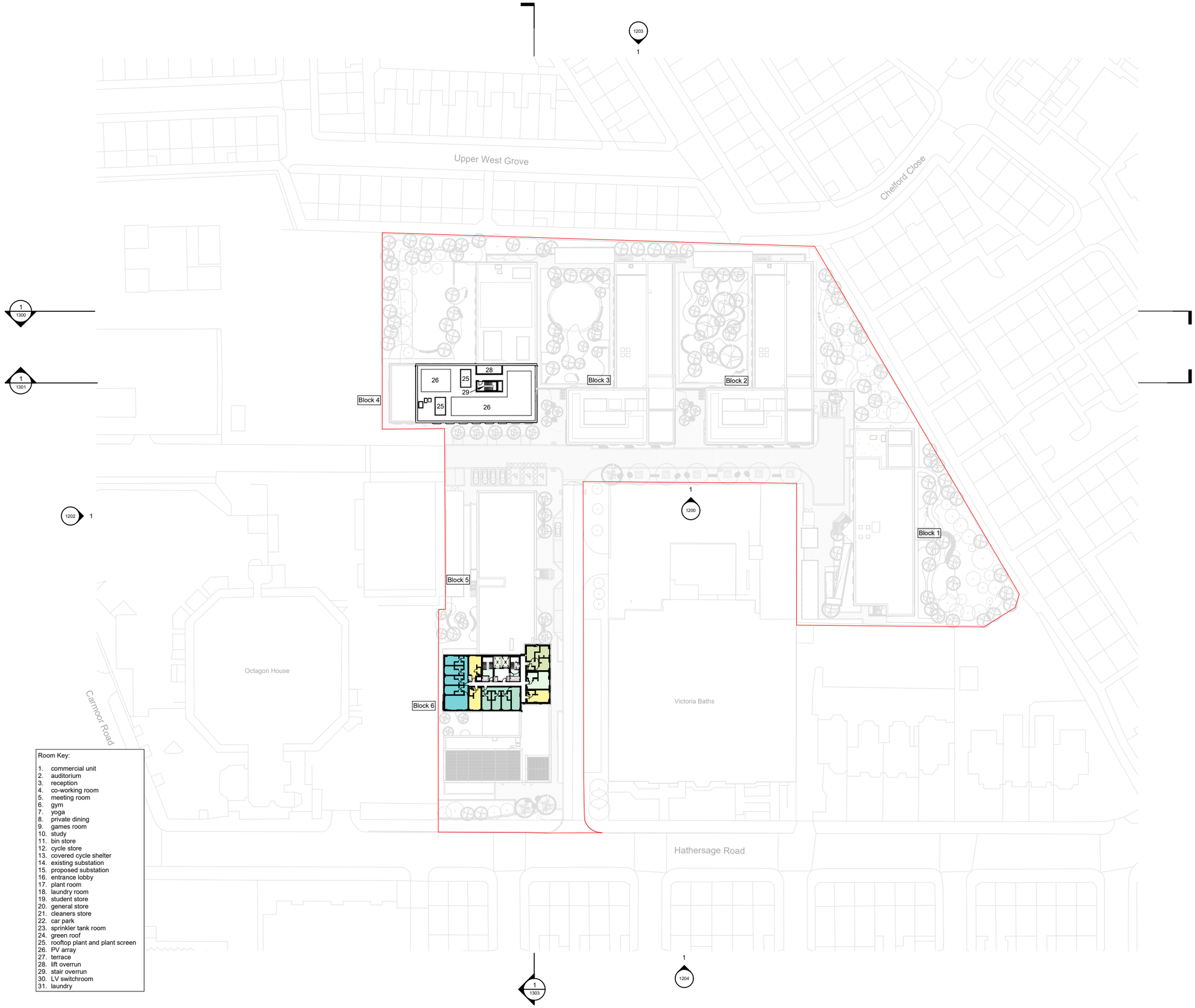
Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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Status
PLANNING

Drawing Number
0814-BPA-ZZ-ZZ-DR-A-1108

Revision
P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
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20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

All drawings to be read in conjunction with specifications, schedules and all other consultant information.

Do not scale from this drawing. Use written dimensions only. All dimensions to be checked on site. This drawing is based on dimensional survey information provided by others. Bell Phillips Architects cannot accept responsibility for the accuracy of this survey information.

Any errors or omissions to be reported to Bell Phillips Architects immediately, prior to work being carried out.

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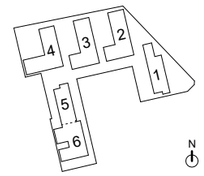
Notes

Space key:

- application boundary
- standard studio
- premiere studio
- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
- postgraduate studio
- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

Rev	Issued by	Description	Date
P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

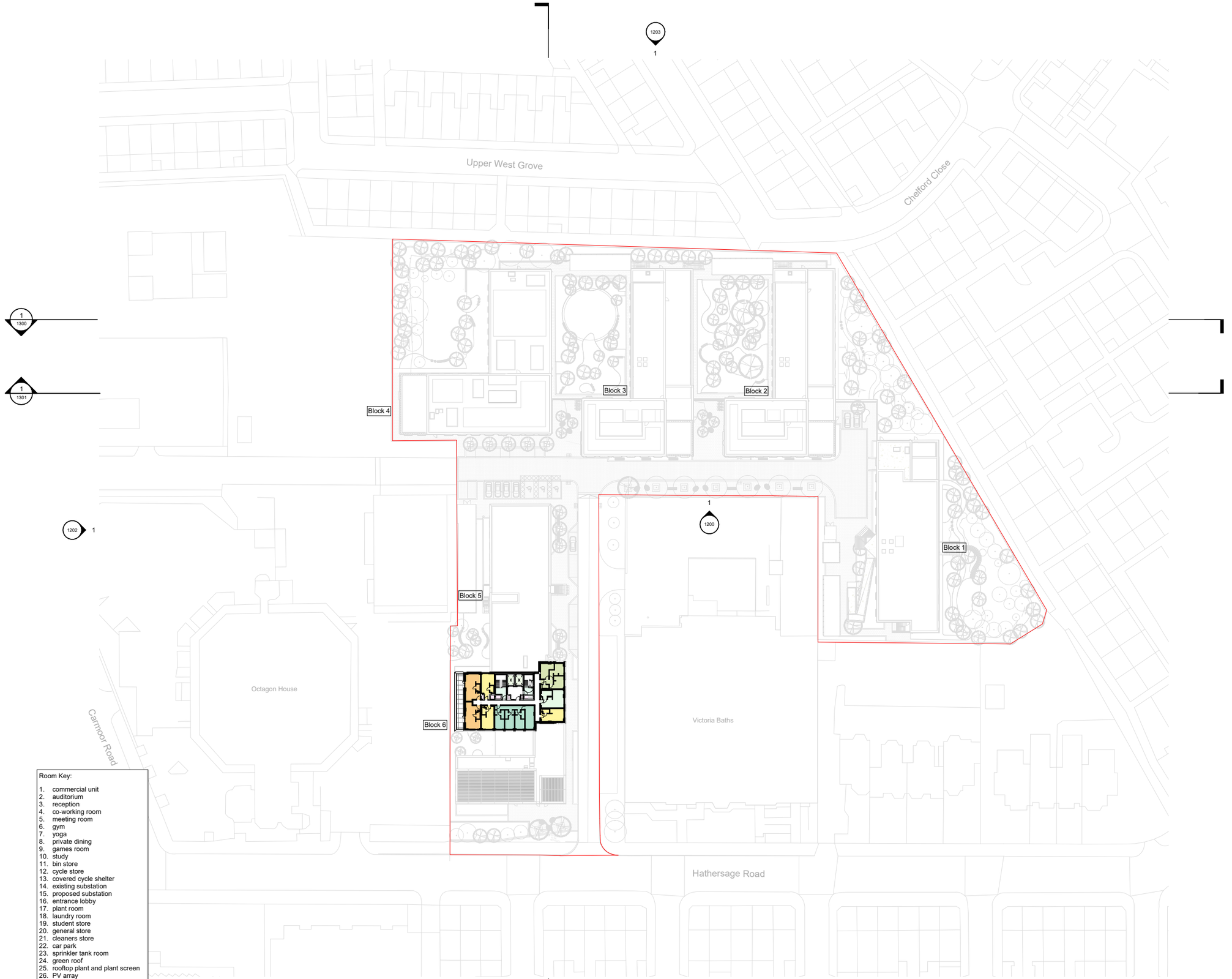
Title
Proposed_Site Plan_Ninth Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

bell phillips
Unit 305, Metropolitan Wharf
70 Wapping Wall
London E1W 3SS
T 020 7234 9330
E info@bellphillips.com
W www.bellphillips.com

Status
PLANNING

Drawing Number	Revision
0814-BPA-ZZ-ZZ-DR-A-1109	P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

All drawings to be read in conjunction with specifications, schedules and all other consultant information.

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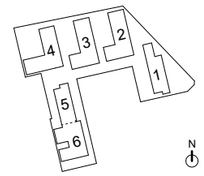
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- atypical standard studio
- atypical premiere studio
- wheelchair accessible studio
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- atypical postgraduate studio
- 2 bed flat
- 3 bed flat
- 4 bed flat

0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date

REVISIONS

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title
Proposed_Site Plan_Tenth Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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W www.bellphillips.com

Status
PLANNING

Drawing Number
0814-BPA-ZZ-ZZ-DR-A-1110

Revision
P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
14. existing substation
15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
19. student store
20. general store
21. cleaners store
22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
30. LV switchroom
31. laundry

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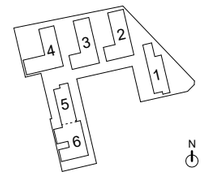
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- 4 bed flat

0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date

REVISIONS

Project: 0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

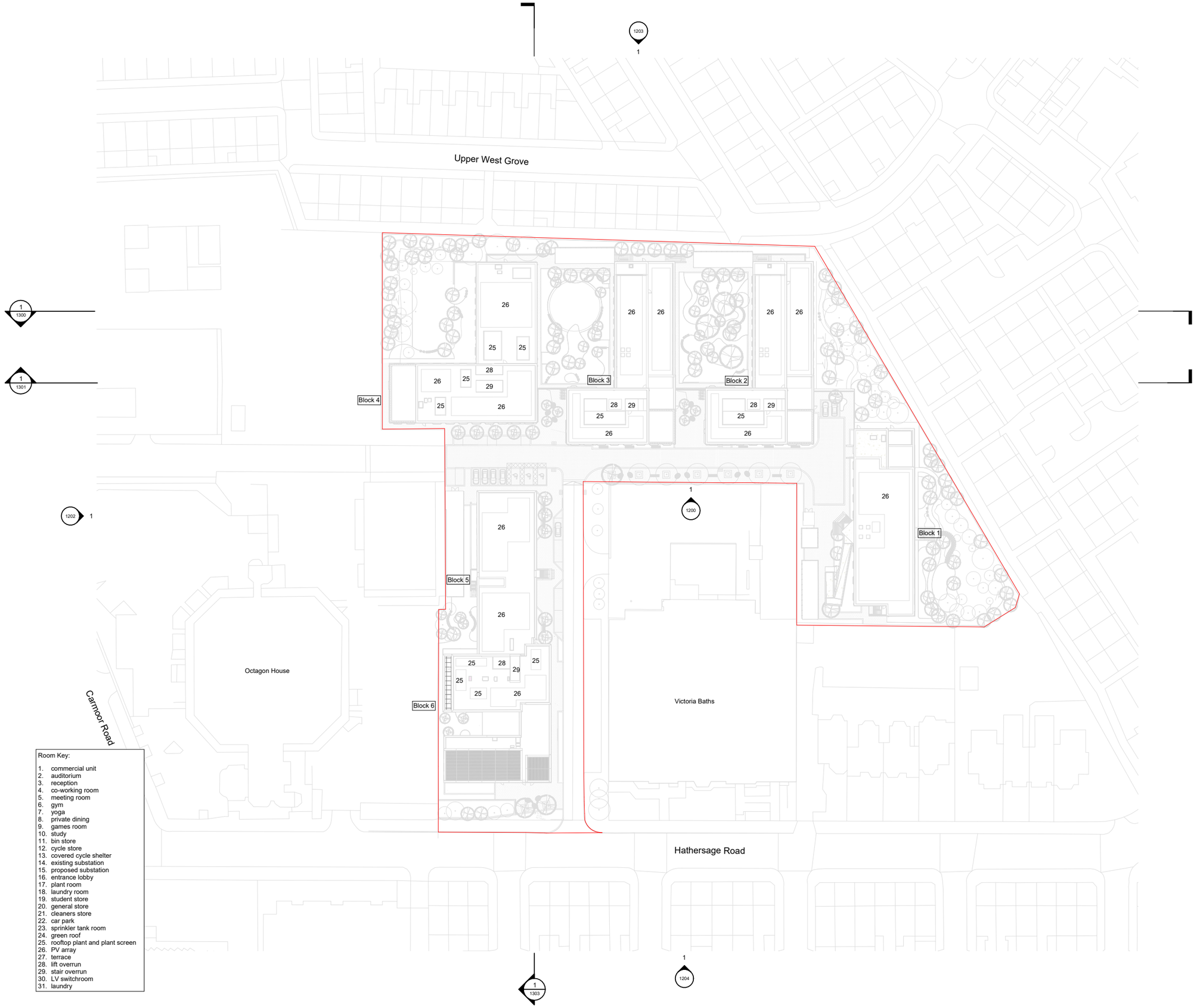
Title: Proposed_Site Plan_Eleventh Floor

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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W www.bellphillips.com

Status: PLANNING

Drawing Number: 0814-BPA-ZZ-ZZ-DR-A-1111
Revision: P01



Room Key:

1. commercial unit
2. auditorium
3. reception
4. co-working room
5. meeting room
6. gym
7. yoga
8. private dining
9. games room
10. study
11. bin store
12. cycle store
13. covered cycle shelter
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15. proposed substation
16. entrance lobby
17. plant room
18. laundry room
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22. car park
23. sprinkler tank room
24. green roof
25. rooftop plant and plant screen
26. PV array
27. terrace
28. lift overrun
29. stair overrun
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31. laundry

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0 5 10 25 50 m

Key Plan



N

P01	RB	Final Planning Issue	04/24
P00	RB	Draft Planning Issue	03/24
Rev	Issued by	Description	Date
REVISIONS			

Project
0814 VICTORIA POINT
44 Hathersage Road, Manchester, M13 0FT

Title
Proposed_Site Plan_Roof

Date	Drawn by	Checked by	Scale at A1
03/24	AW	RB	1 : 500

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W www.bellphillips.com

Status
PLANNING

Drawing Number
0814-BPA-ZZ-ZZ-DR-A-1112

Revision
P01

HEYNE TILLETT STEEL

Appendix B

Proposed Landscape Plans

LEGEND

- Existing spot heights — To be retained
- Proposed spot heights
- Proposed fall gradients

Paving

- Asphalt concrete — To adopted highways; colour black to match existing surface
- Permeable concrete paving - type 1 — To vehicular route in public realm area; size TBC, colour: buff mix
- Permeable concrete paving - type 2 — To pedestrian pathways in public realm area, size TBC, colour: buff mix.
- Permeable concrete paving - type 3 — To pedestrian paving to courtyards; size/colour TBC
- Concrete paving - type 4 — Final design of threshold as per Architect's design intent
- Permeable resin bound gravel - type 1 — To students' courtyards; colour buff
- Permeable resin bound gravel - type 2 — To feature space in gardens between Block 3 & 4 and to pedestrian pathways to ecology enhancement gardens; colour dark buff
- Stepping stones — To proposed meadow area, concrete paving slabs, indicative size 300 x 1200mm, colour light grey
- Timber deck — To proposed ecology enhancement area, timber deck with applied anti-slip finish
- Corduroy paving — Hazard warning paving to top and bottom of proposed steps; size 400 x 400mm; colour buff
- Blister paving — Hazard warning paving to crossings; size 400 x 400mm; colour buff

Kerbs

- Concrete Kerb — To proposed shared surface, 255mm wide, kerb colour and texture to match proposed surrounding paving, laid flush/upstand
- Raised Planters Metal Edge — To ornamental planting areas within proposed courtyards, weathered steel, 300mm high with integrated lighting and timber seating, seating to have backrests and armrests
- Flush Metal Edge — To sunken rain garden areas, laid flush to allow surface runoff

Structures

- Proposed Steps, Handrails and Walls — Step design to be in accordance with Building Regulations Part M, colour grey, steps to include cycle channel for wheeled bike access to cycle parking
- Proposed Ramps, Handrails and Walls — For surface material refer to plan
- Retaining Walls — Reinforced concrete wall to be clad with brick (specification to match building materiality), refer to Engineer's specifications for structural details
- Proposed Cycle Shelter — Designed by Architect; cycle shelter to align with architectural palette

Boundary

- Metal Fencing — 2400 high, vertical railing metal fencing, colour TBC
- Wall with Railings — Existing concrete wall to be clad with brick (specification to match building materiality), steel railings, height to match existing height, colour TBC
- Metal Double Gate — 2400 x 2000mm; lockable, colour TBC, to match proposed metal fencing
- Metal Single Gate — 2400mm high; lockable, colour black, to match proposed metal fencing

Furniture

- Pebble Timber Feature Seating
- Linear Timber Seating — Timber linear seating with back and arm rests.
- Curved Timber Seating — Curved timber linear seating with back and arm rests integrated into raised planters
- Square Timber Seating — Timber square seating integrated into raised planters and free standing (refer to plan for locations)
- Picnic Sets — Metal picnic sets, round table with 6 chairs.
- Rectangular Tree Planter - type 1 — To public realm, 4000 x 1000 x 1000mm, timber, planted with trees and ornamental planting. Final size to be determined on tree species
- Circular Tree Planter - type 2 — To courtyards, 1000mm high, 1200mm diameter, planted with trees and ornamental planting Final size to be determined on tree species
- Tree Grille — To trees planted in hard, metal square tree grille, 1400 x 1400mm.
- Litter Bins - TBC — LB; Grade 316 stainless steel
- Removable bollards — RB; Aluminium bollards , removable, 1140mm height.
- Bike Stands — Sheffield bike stands, aluminium.
- Dual EV charging dock — EV

Lighting

Note: Detailed lighting design by M&E Engineer

- Highways Lighting Columns — HL; Details and locations to be confirmed with lighting M&E Engineer
- Feature Lighting Columns — LC; Details and locations to be confirmed with lighting M&E Engineer
- Lighting Bollards — LB; To courtyard areas and to ecology enhancement area
- Tree Uplighters — Up; Refer to plan for locations
- Catenary Lights — Refer to plan for locations.

Soft landscape

- Existing Trees — To be retained
- Existing Trees — To be removed
- Proposed Trees — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Hedge Planting — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Native Shrub / Scrub Planting — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Amenity Grass — EG22 Strong Lawn Grass Mixture, supplied by Emorsgate Seeds, to amenity areas. Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Reinforced Amenity Grass — EG22 Strong Lawn Grass Mixture, supplied by Emorsgate Seeds, to amenity areas. Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Species Rich Grass — EM3 Special General Purpose Meadow Mixture, supplied by Emorsgate Seeds. Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Ornamental planting — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Herb planting — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Rain garden planting — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Ornamental feature grasses — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details
- Green roof to bin / bike stores — Refer to 12355-LUC-XX-00-DRL-L0400 to 0404 for further details



Rev	Date	Description	Drn	Chk	App
P09	27.03.24	Red line boundary update, Block 6 frontage update	KT	CO	CO
P08	07.03.24	Issue to project team	KT	CO	CO
P07	27.02.24	Issue to project team	KT	CO	CO
P06	07.02.24	Issue to project team	KT	CO	CO
P05	31.01.24	Issue to project team	KT	CO	CO
P04	30.01.24	Issue to project team	KT	CO	CO
P03	18.01.24	Draft issue to project team	JH	CO	CO
P02	04.01.24	Draft issue to project team	KT	CO	CO
P01	04.12.23	Draft issue to Ecology Consultant	KT	CO	CO

Scale 1:100

0 1 2 3 4 5m

Do not scale from this drawing
All dimensions are to be verified on site
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LUC

www.landuse.co.uk

Project: Victoria Point

Client: Empiric Limited

LUC Job Nr	Scale @A2	Status
12355	1:500	Planning

Drawing Title: Landscape GA Plan

Drawing Nr	Rev
12355-LUC-XX-00-DR-L-0100	P09

Appendix C

United Utilities Asset Map

Water for the North West

Jeta Daco

16
Chart Street, London
London, London
N1 6DD

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: 3124
Our Ref: UUPS-ORD-509678
Date: 11/08/2023

Dear Sirs

Location: APARTMENT 121 44 VICTORIA POINT 5 HATHERSAGE ROAD, MANCHESTER, M13 0FT

I acknowledge with thanks your request dated 09/08/2023 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

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

Water for the North West

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.

UUWaterLtd/041/03-15

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

United Utilities
Water for the North West

Clean Water Symbology

Proposed	Abandoned	Live	
			Distribution Main
			Trunk Main
			Comms Pipe
			Private Pipe
			Concessionary Service
			Raw Water
			LDTM Raw Water
			LDTM Treated Water

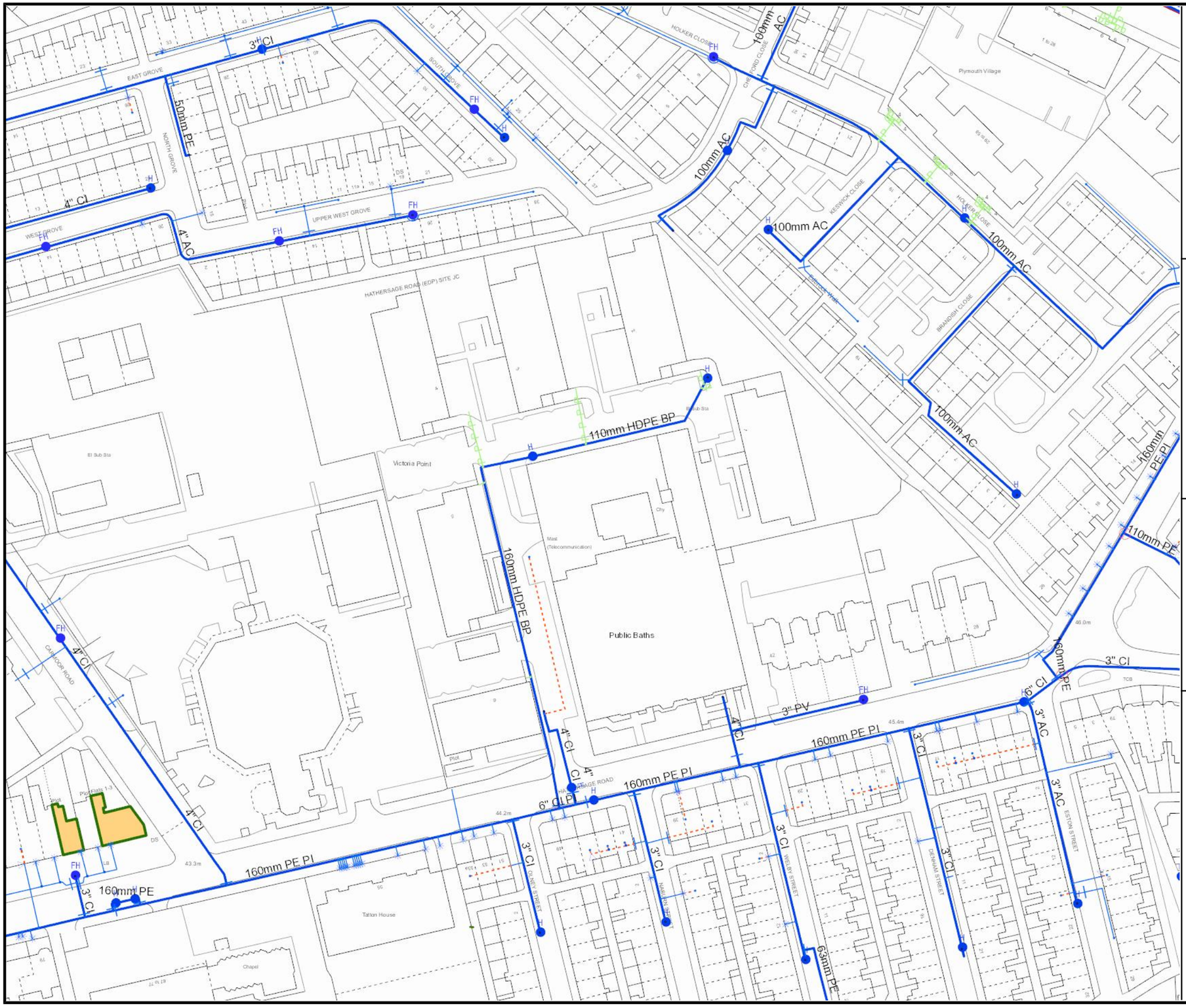
- Air Valve
- AC Valve, open
- AC Valve, closed
- CC Valve, open
- CC Valve, closed
- Non Return Valve
- Pressure Management Valve
- OMS Valve
- Stop Tap
- Flow Meter
- Domestic Meter
- Commercial Meter
- Pump
- Hydrant
- Fire Hydrant
- Anode
- Chlorination Point
- De-chlorination Point
- Strainer Point
- Access Point
- Hatch Box
- IP Point
- Sampling Station
- Logger Box

- Bore Hole
- Inlet Point
- Bulk Supply Point
- End Cap
- Site Termination
- Change of Characteristic
- Condition Report

Property Types

- Water Tower
- Valve House
- Booster Pumping Station
- Intake Pumping Station
- Water Treatment Works
- Supply Reservoir
- Service Reservoir
- Impounding Reservoir
- Pipe Bridge

Symbology for proposed assets is the same as above, but shown in green
Symbology for abandoned assets is the same as above, but shown in black



United Utilities

Water for the North West

WATER MAIN RECORDS

Address or Site Reference

APARTMENT 121 44 VICTORIA POINT 5 HATHERSAGE ROAD, MANCHESTER, M13 0FT

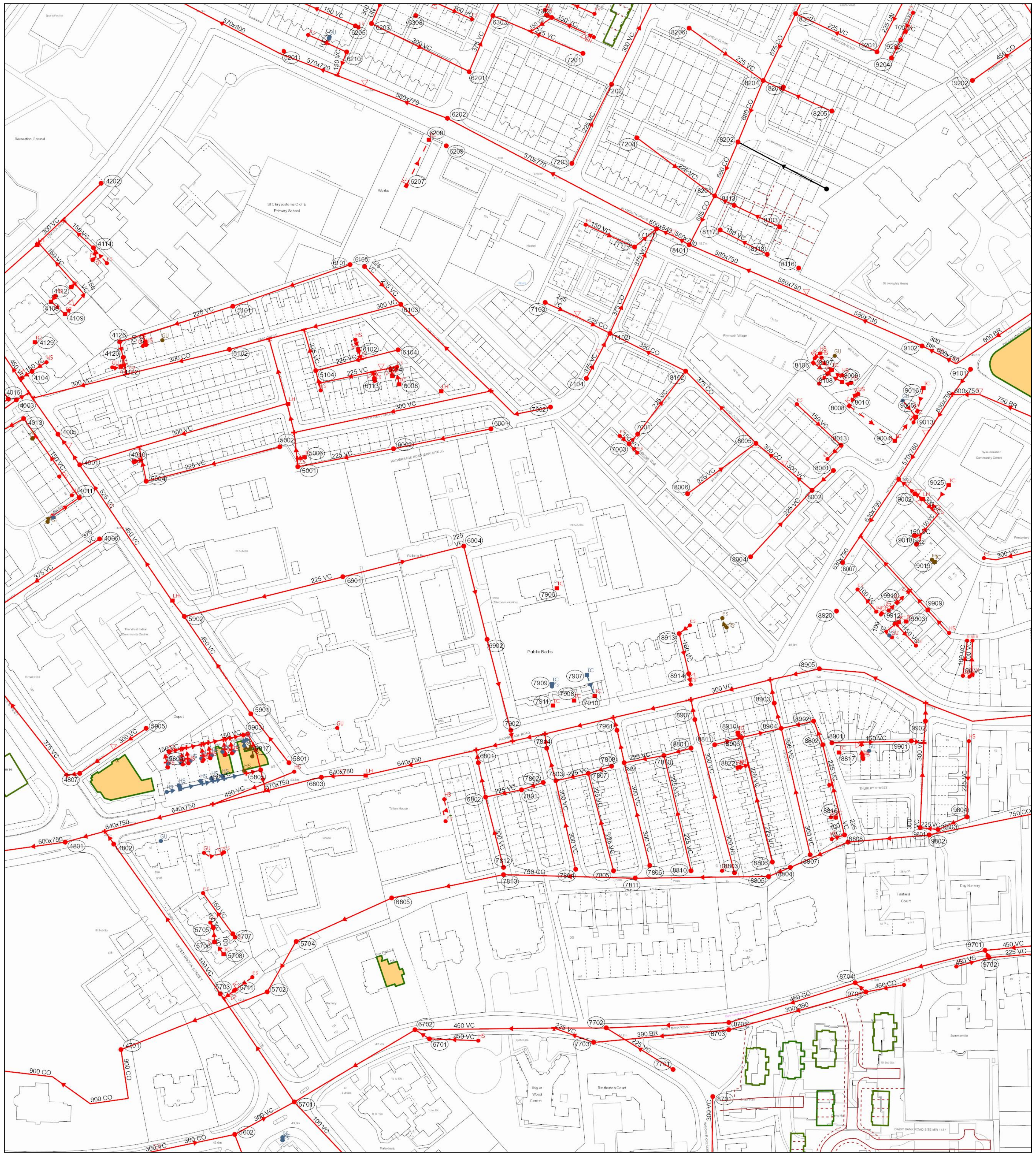
Scale: 1:1250

Date: 11/08/2023

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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Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad
8701	44.39	CO	43.27	300			VC	86.00581	1 in 179
9101	46.67	CO	42.28	630			BR	17.20465	
6202	44.31	CO	40.09	560			BR	49.39635	1 in 141
4003	42.55	CO	38.26	300			VC	8.062258	
8202	45.35	CO	41.42	660			CO	32.69556	1 in 545
4801	42.17	CO	36.85	600			BR	36.34556	1 in 260
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8001	46.09	CO	44.47	225			VC	16.27882	1 in 86
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4011		CO		150			VC	53.54744	
8005	46.04	CO	42.91	375			CO	55.86591	1 in 399
8901	45.81	CO	44.28	150			VC	44.01136	1 in 42
6901	44.11	CO	41.23	225			VC	69.12308	1 in 95
5804		CO		150			VC	1.641514	
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5002	43.88	CO	42.32	225			VC	76.40026	1 in 955
8903	45.59	CO	41.41	300			VC	13.15295	
6203	43.98	CO	41.54	300			VC	60.35279	1 in 114
8103		CO	0	225			VC	27.8257	
7811	43.48	CO	40.78	750			CO	73.02739	1 in 228
7809	44.48	CO	40.74	300			VC	18.43909	1 in 88
5701	42.7	CO	38.06	100			VC	72.67049	1 in 71
7804	43.2	CO	40.87	300			VC	50.21952	1 in 85
4006	42.78	CO	39.81	375			VC	84.31489	1 in 91
6805	42.08	CO	40.13	750			CO	58.18075	1 in 224
9802	45.09	CO	42.04	750			CO	45.17743	1 in 266
4807	42.27	CO	38.69	375			VC	7.090267	
4120		CO		225			VC	9.449925	
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9909		CO		0			VC	14.62484	
9022		CO		150			VC	3.386732	
6303	44.39	CO	40.33	375			VC	46.95743	1 in 151
8006	45.67	CO	43.68	225			VC	47.20169	1 in 72
5702	42.15	CO	39.77	750			CO	87.0919	1 in 65
5805		CO	0	150			VC	11.94771	
5707		CO		150			VC	27.94007	
6001	44.5	CO	43.2	225			VC	55.10898	1 in 153
9901	45.67	CO	43.22	150			VC	7.071068	
5905	42.64	CO	39.72	300			VC	21.78548	1 in 43
7814	44.48	CO	0	300			VC	8.062258	
7312		CO		150			VC	13.99784	
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9018		CO		150			VC	20.85995	
7813	42.76	CO	40.46	750			CO	63.34824	1 in 192
4001	42.8	CO	37.92	525			VC	10.81665	
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9203		CO		150			VC	11.16995	
7801	43.88	CO	41.1	225			VC	20.39608	1 in 68
7104	45.33	CO	41.91	375			VC	14.76482	1 in 98
8904	45.44	CO	41.52	300			VC	14.56022	1 in 146
5104		CO		225			VC	23.69386	
7103	45.16	CO	43.24	225			VC	19.69772	1 in 131
8703	44.28	CO	0	390			BR	75.32596	
6803	43.53	CO	38.07	670			BR	61.84658	
9803	45.08	CO	43.17	225			VC	10.04988	1 in 502
7702	43.92	CO	42.06	450			VC	106.0065	1 in 70
6103		CO	0	300			VC	98.2356	
8802	45.3	CO	43.11	225			VC	13.92839	
8204	45.34	CO	41.58	680			CO	36.76955	1 in 283
8101	45.4	CO	40.88	560			BR	10.29563	1 in 257
8905	45.88	CO	41.12	300			VC	27.65863	
8702	44.17	CO	42.43	450			CO	68.06615	1 in 184
8809	44.9	CO	41.87	750			CO	34.9285	1 in 74
8004	45.75	CO	43.52	225			VC	50.24938	1 in 162
5902	43.15	CO	38.98	450			VC	71.86662	
9102	46.38	CO	41.84	580			BR	69.85699	1 in 152
8704	44.77	CO	42.94	450			CO	73.37575	1 in 144
6701	43.07	CO	41.75	450			VC	9.433981	1 in 8
5703	42.3	CO	37.03	100			VC	101.8332	
5001	43.89	CO	42.14	225			VC	19.10588	1 in 16
5801	43.39	CO	39.66	450			VC	34.20526	1 in 143
9703	44.8	CO	42.76	300			BR	78.84795	
9703	44.8	CO	43.16	450			CO	7.81025	1 in 36
5201	43.48	CO	39.42	570			BR	73.3553	1 in 129
4701	40.54	CO	38.42	900			CO	134.7218	
5705		CO		100			VC	3.409819	
7110		CO		150			VC	16.1327	
6201	44.31	CO	40.97	375			VC	33.61547	1 in 59
7902	44.38	CO	39.39	300			VC	6.082763	
7003		CO		225			VC	7.073873	
8113		CO		225			VC	11.98636	
7810	44.57	CO	41.47	225			VC	22.36068	1 in 89
7102	45.4	CO	41.62	375			CO	31.7805	
7807	44.18	CO	41.34	225			VC	18.43909	1 in 102
8302	45.36	CO	41.85	675			CO	41.14608	1 in 137
9801	45.18	CO	42.67	300			VC	59.08413	1 in 97
8902	45.63	CO	43.17	225			VC	18.43909	1 in 20
8804	44.54	CO	41.37	750			CO	13	1 in 163
9804	45.13	CO	43.52	225			VC	17.46425	1 in 51
8102	45.95	CO	42.73	380			CO	46.95743	1 in 43
7101	45.28	CO	40.74	570			BR	131.0611	1 in 205
7203	45.12	CO	42.84	225			VC	49.1935	1 in 88
5102	43.49	CO	40.52	300			CO	55.54278	
6104		CO		225			VC	47.09489	
7202	45.11	CO	42.19	300			VC	70.21396	1 in 260
5602	42.5	CO	38.51	300			VC	37.58989	1 in 84
9202		CO	0	450			CO	48.01041	
6902	44.3	CO	43.36	0			UN	52.07384	1 in 13
8811	44.89	CO	42	225			VC	15.52431	1 in 16
8906	45.06	CO	42.14	225			VC	22.56103	1 in 133
9701	45.06	CO	42.96	450			CO	74.2159	1 in 3711
4016		CO		150			VC	10.55197	
9702	45.07	CO	43.37	450			CO	4.472136	1 in 11
9902	45.79	CO	42.04	300			VC	10	
8806	44.34	CO	43.27	225			VC	71.06335	1 in 63
8201	45.35	CO	41.31	685			CO	30.41381	1 in 304
4104		CO		150			VC	7.97613	
7001	45.4	CO	43.37	225			VC	43.93782	1 in 83
8913		CO		150			VC	22.85248	
7806	43.64	CO	41.34	300			VC	58.69412	1 in 99
7901	44.87	CO	40.5	300			VC	7.28011	
7701	44.24	CO	42.74	225			VC	43.56604	1 in 64
6205		CO		150			VC	47.69735	
8801	44.72	CO	43.56	225			VC	15.52417	1 in 25
7802	44.06	CO	42.81	225			VC	12.64911	1 in 32
7201	44.61	CO	41.87	225			VC	54.23099	1 in 42
6105		CO	0	225			VC	29	
6004	44.43	CO	40.5	0			UN	53.18933	1 in 19
5004	43.78	CO	42.23	225			VC	19.41649	
9201	45.72	CO	43.47	225			VC	49.65884	1 in 81
8914		CO		150			VC	1.823465	
7803	44.08	CO	40.26	300			VC	18.68154	
7812	43.84	CO	40.43	300			VC	40.26164	1 in 98
9002	46.4	CO	42.25	300			VC	5.656854	1 in 35
4013		CO		150			VC	16.08999	
7808	44.4	CO	43.43	225			VC	13.60147	1 in 34
8002	46.01	CO	43.13	300			VC	19.84943	1 in 221
8907	45.18	CO	40.78	300			VC	11.18034	
8810	43.99	CO	42.71	225			VC	65.73431	1 in 54
8803	43.99	CO	41.52	300			VC	87.80091	1 in 122
6702	42.92	CO	40.54	450			VC	78.03204	1 in 31
9001	46.37	CO	41.59	630			BR	55.47071	
6802	43.68	CO	40	300			VC	19.41649	1 in 78
5901	43.34	CO	39.4	450			VC	65.45992	1 in 164
8805	44.32	CO	41.26	750			CO	74.00676	1 in 157
6002	44.37	CO	42.82	225			VC	53.93515	1 in 83
5903	43.46	CO	41.96	150			VC	21.36074	
6801	44.18	CO	39.71	300			VC	7.071068	
8206	45.02	CO	42.82	225			VC	50.21952	1 in 68
8205	45.57	CO	43.66	225			VC	41.62932	1 in 26
6101	44.29	CO	42.67	225			VC	68.94926	1 in 209
5101	43.66	CO		225			VC	65.758	
4126		CO		225			VC	8.938346	
8118		CO		150			VC	29.41543	
4114		CO		150			VC	23.07058	

Refno	Cover	Func	Invert	Size x	Size y	Shape	Matl	Length	Grad

LEGEND

Abandoned	Foul	Surface Water	Combined	
				Public Sewer
				Private Sewer
				Section 104
				Rising Main
				Sludge Main
				Overflow
				Water Course
				Highway Drain

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

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

MANHOLE FUNCTION

FO Foul
SW Surface Water
CO Combined
OV Overflow

SEWER SHAPE

CI Circular
EG Egg
OV Oval
FT Flat Top
RE Rectangular
SQ Square
TR Trapezoidal
AR Arch
BA Barrel
HO HorseShoe
UN Unspecified

SEWER MATERIAL

AC Asbestos Cement
BR Brick
PE Polyethylene
RP Reinforced Plastic Matrix
CO Concrete
CSB Concrete Segment Bolted
CSU Concrete Segment Unbolted
CC Concrete Box Culverted
PSC Plastic / Steel Composite
GRC Glass Reinforecd Plastic
DI Ductile Iron
PVC Polyvinyl Chloride
CI Cast Iron
SI Spun Iron
ST Steel
VC Vitrified Clay
PP Polypropylene
PF Pitch Fibre
MAC Masonry, Coursed
MAR Masonry, Random
U Unspecified

Address or Site Reference:

APARTMENT 121 44 VICTORIA POINT 5
HATHERSAGE ROAD,
MANCHESTER,
M13 0FT

Scale: 1:1250 **Date:** 11/08/2023

Sheet: 1 of 1

Printed by: Property Searches

SEWER RECORDS

United Utilities
Water for the North West

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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Appendix D

CCTV Survey

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NOTES

1. BACKGROUND PLAN INFORMATION IS BASED ON TOPOGRAPHIC SURVEY DATA CREATED BY OTHERS AND SUPPLIED TO US FOR THE PURPOSES OF PRESENTING THE DRAINAGE / CCTV SURVEY DATA. WE CANNOT BE RESPONSIBLE FOR THE CONTENT, COMPLETENESS AND ACCURACY OF DATA CREATED BY OTHERS.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH
All OTHER RELEVANT DRAWINGS/DOCUMENTATION
PLEASE REFER TO TOPOGRAPHIC SURVEY DRAWING: 4399/1_T_REVD
PLEASE REFER TO MEASURED BUILDING SURVEY DRAWING:
4399/36_Blocks 1,2,3,5 Basements_Preliminary
PLEASE REFER TO CCTV REPORT: TSA-23-2552 Victoria Point CCTV Report_303_Issue01

3. DO NOT SCALE FROM THIS DRAWING.

4. IF IN DOUBT ASK.

DRAINAGE / CCTV LEGEND

FOUL SEWER
SURFACE WATER SEWER
COMBINED SEWER
RISING MAIN
ASSUMED ROUTES
SERVICES THEMSELVES
SERVICES SURVEY AREA
UTILITIES CONSENT BOX
DEPTH TO MANHOLE (m)

INFORMATION SHOWN AS TPR HAS NOT BEEN PROVEN ON SITE

UTILITIES ABBREVIATIONS

10 KV	10kV/11.5KV/33	EXT	DEPTH TO INVERT
ASS	ASSUMED ROUTE	EXBO	EXTERNAL BACKDROP
BT	BRITISH TELECOMMUNICATION POINT	FB	FLAT BOTTOM
CB	CONCRETE BENCHING	FOS	FOUL SYSTEM SEWER
CBC	CIRCULAR BRICK CHAMBER	IBD	INTERNAL BACKDROP
CBR	CONCRETE BENCHING	IC	INSPECTION CHAMBER
CCP	CONCRETE PIPE	PCC	PRECAST CONCRETE CHAMBER
CPC	CIRCULAR PLASTIC CHAMBER	RBC	RECTANGULAR BRICK CHAMBER
CSW	COMBINED SEWER	SD	SURFACE DRAIN
DIV	DEPTH TO DIVERT	SUP	SURFACE WATER SEWER
dia	DIAMETER	TPR	TAKEN FROM RECORDS
EB	ELECTRICITY BOX	TS	TRAP SYSTEM
EOI	DEPTH TO SUMMIT	UTT	UNABLE TO TRACE

AVAILABILITY OF STATUTORY UNDERTAKERS RECORDS DRAWINGS

TYPE	COMMENTS	TYPE	COMMENTS
COMBINED	YES	GAS RECORDS	YES
FOUL	YES	BT RECORDS	NO
RAISED MAINS	YES	OTHER SPECIFIC	YES
SURFACE	OTHER	OTHER	NO

SERVICE LOCATION

ELECTRONIC TECTONIC MEASURING APPLIANCE PROBE RADAR (EPR) TECHNOLOGY HAVE BEEN USED TO LOCATE UNDERGROUND SERVICES SHOWN ON THIS PLAN. THESE ARE APPROXIMATE LOCATIONS ONLY AND ARE NOT GUARANTEED TO BE EXACT LOCATIONS OR AVAILABLE UNDERGROUND UTILITIES MAY EXIST WHICH HAVE NOT BEEN DETECTED. ALL SERVICES SHOWN ON THIS PLAN ARE APPROXIMATE AND IN SURROUNDING AREA. SERVICES RESTRICTIONS APPLY. ACCURACY: PIPE LOCATIONS ARE ACCURATE TO WITHIN ±300mm UNLESS OTHERWISE INDICATED. ALL DEPTHS ARE ESTIMATED

DEPTHS OBTAINED USING ELECTROMAGNETIC TECHNIQUES SUCH AS RADIO DETECTION ARE ATTRACTED BY METAL CONDITIONS THEREFORE ONLY METALLIC PIPES CAN BE INDICATIVE ONLY

NUMBERS OF CABLES IN RUNS ARE NOT DETERMINED UNLESS SPECIFICALLY

DEPTHS OBTAINED BETWEEN MANHOLES ARE ASSUMED STRAIGHT UNLESS OTHERWISE SHOWN

DEPTHS TO TRACED METALLIC PIPEWORK REFER TO PIPE CENTRE.

PIPE RUNS ARE ASSUMED STRAIGHT BETWEEN CHAMBERS UNLESS OTHERWISE INDICATED.

ALL SERVICES ARE UNDERGROUND EXCEPT WHERE INDICATED.

PLEASE NOTE THAT TOWERS SURVEYS AGENCY, LTD ARE NOT PERMITTED TO INVESTIGATE ANY TELECOMMUNICATIONS APPARATUS, OTHER THAN EXISTING EXPOSED FEATURES. THEREFORE ANY REFERENCES DO NOT APPEAR ON SURVEY DRAWINGS.

A FULL SET OF TOWERS SURVEYS ASSOC. TERMS AND LIMITATIONS IS AVAILABLE ON REQUEST.

INFORMATION SHOWN AS TPR HAS NOT BEEN PROVEN ON SITE.

PLEASE NOTE OUR CAD LAYERING CONVENTION CONTAINS FURTHER INFORMATION.

IT IS INTENDED THAT THIS DRAWING BE REPRODUCED IN COLOUR.

APPROX NORTH



NOT TO SCALE

GENERAL

- NO ALLOWANCE HAS BEEN MADE FOR SUB SURFACE ENTRY INTO MANHOLES OR OTHER CHAMBERS OR VOIDS BELOW GROUND LEVEL. THEREFORE ANY DETAILS RELATING TO DEPTHS, SIZES ETC. ARE TAKEN FROM ABOVE GROUND AND AS SUCH WILL BE APPROXIMATE ONLY.
- THE CONTRACTOR IS TO CHECK AND VERIFY ALL CRITICAL DIMENSIONS AND LEVELS BEFORE WORK STARTS.
- BURIED SERVICES SHOWN ON THIS DRAWING MAY BE ASSUMED ROUTES AND WILL NORMALLY BE SHOWN FROM MANHOLE TO MANHOLE. THEIR EXACT POSITION MUST BE PROVED BEFORE WORK AND TAKE PARTICULAR CARE DURING EXCAVATION WORK. SAFE DIGGING PRACTICES SHOULD BE FOLLOWED.
- IF THERE APPEARS TO BE ANY CONFLICT BETWEEN THE DETAILS INDICATED ON THIS DRAWING AND THOSE INDICATED ON OTHER DRAWINGS, THEN TOWER SURVEYS ASSOC. SHOULD BE INFORMED PRIOR TO CONSTRUCTION ON SITE.
- IT IS IMPORTANT TO NOTE THAT THE SAME ACCURACIES IMPLIED BY THE PLOTTING SCALE ARE EQUALLY APPLICABLE TO DIGITAL DATA SUPPLIED FOR CAD.
- THE SURVEY DRAWING MAY NOT SHOW ALL EXISTING BUILDING FEATURES, HOWEVER, IT SHOULD BE BORNE IN MIND THAT THERE MAY BE ITEMS OBSCURED AT THE TIME OF SURVEY.
- VISIBLE FEATURES IN THE VICINITY OF THE BOUNDARIES, AS SHOWN ON THIS SURVEY, MAY BE USED AS A GUIDE TO THE POSITION OF THE BOUNDARIES.
- UNLESS OTHERWISE SPECIFIED FEATURES SHOWN USING LINE STYLES OR HATCHING ARE INDICATIVE ONLY, SUCH AS: ROAD MARKINGS, HEDGE CENTERLINES, BRICK HATCHING AND GLAZING DETAIL.

DESCRIPTION	REV	DATE	DRWN	CHKD	APPR

DRAWING STATUS

INFORMATION

Tower Surveys Associates
Chartered Surveyors
Specialists: Land, Utilities, Engineering & Mapping

18 - 20
THE ROPEWALK
NOTTINGHAM
NG1 5DT
TEL: +44 (0)7788 850 005

info@towersurveys.biz
www.towersurveys.associates

RICS
Regulated by RICS

CLIENT
EMPIRIC STUDENT PROPERTIES (ESP)

PROJECT TITLE
VICTORIA POINT
44 HATHERSAGE ROAD, MANCHESTER, M13 0FT

DRAWING DETAIL
CCTV DRAINAGE SURVEY AS OF 30/10/23
SHEET 1 OF 2

DRAWN	DW	DATE	NOVEMBER 2023
PROJECT ENGINEER	JWH		
CHECKED	RL	SCALE	1:200 (WHEN PLOTTED @ A0)
APPROVED	JWH		

DRAWING NUMBER: TSA-23-2552_301
REVISION:

0 — 20 METRES

CAD REFERENCE
\\2023Projects\TSA-23-2552\TSA-23-2552_301-302_Issue01

CTB REFERENCE
\\CTB-files\TS-Utils-v01.ctb

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NOTES

1. BACKGROUND PLAN INFORMATION IS BASED ON TOPOGRAPHIC SURVEY DATA CREATED BY OTHERS AND SUPPLIED TO US FOR THE PURPOSES OF PRESENTING THIS DRAWING. WE ACCEPT NO RESPONSIBILITY OR LIABILITY FOR THE CONTENT, COMPLETENESS AND ACCURACY OF DATA CREATED BY OTHERS.

2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH
All OTHER RELEVANT DRAWINGS/DOCUMENTATION
PLEASE REFER TO TOPOGRAPHIC SURVEY DRAWING: 4389/1_T_REV0
PLEASE REFER TO MEASURED BUILDING SURVEY DRAWING:
4389/M_Blocks 1,2,3,5 Basements_Preliminary
PLEASE REFER TO CCTV REPORT: TSA-23-2552 Victoria Point CCTV Report_303_Issue01

3. DO NOT SCALE FROM THIS DRAWING.

4. IF IN DOUBT ASK.

DRAINAGE / CCTV LEGEND

FOUL SEWER
SURFACE WATER SEWER
COMBINED SEWER
RISING MAIN
ASSUMED ROUTES
SERVICES THEORETICAL RECORDS
SERVICES SURVEY AREA
UTILITIES CONSTRAINT AREA
DEPTH TO SERVICE (m)
SW AR
FW TPR
INFORMATION SHOWN AS TPR HAS NOT BEEN PROVEN ON SITE

UTILITIES ABBREVIATIONS

TC BC	TOILET & CUBICLES	STA	SWITCH TO SURVEY
AR	ASSUMED ROUTE	EBD	EXTERNAL BACKDROP
BP	BOUNDARY DEMARCATION POINT	FB	FLOOR BOX
CB	CONCRETE BENCHING	FW	FOUL WATER SEWER
CBC	CIRCULAR BRICK CHAMBER	IBD	INTERNAL BACKDROP
CC	CONCRETE CAP	MH	MANHOLE
CV	COVER LEVEL	PCC	PRECAST CONCRETE CHAMBER
CPC	CIRCULAR PLASTIC CHAMBER	RBC	RECTANGULAR BRICK CHAMBER
CS	CONCRETE SURROUND	SC	SURFACE CHANNEL
DG	DEPTH TO GROWING	SW	SURFACE WATER SEWER
IA	DIAMETER	TPR	TAKEN FROM RECORDS
IL	INVERT OF BARS	TW	TOP OF WALL
SW	DEPTH TO BASEMENT	UTB	UNABLE TO SURVEY
		UTT	UNABLE TO TRACE

AVAILABILITY OF STATUTORY UNDERTAKERS RECORDS DRAWINGS

TYPE	COMMENTS	TYPE	COMMENTS
COMBINED	YES	WTR RECORDS	YES
FOUL	YES	ELEC	NO
RAISED MAIN	YES	STR SPECIFIC	YES
SURFACE	YES	OTHER	NO

SERVICE LOCATION

ELECTRONIC DETECTION AND/OR APPLIED PASSIVE PROBING RADAR (EPR) TECHNIQUES HAVE BEEN USED TO LOCATE UNDERGROUND SERVICES SHOWN ON THIS PLAN. THESE ARE INTERPRETATIONS OF THE SIGNALS RECEIVED AND ARE SUBJECT TO THE LIMITATIONS OF INTERPRETATIONS OR ANOMALIES CAUSED BY TOO MANY SERVICES IN THE GROUND, LOCATION, DEPTH OR NATURE OF SERVICES BEYOND THE CAPABILITY OF THE EQUIPMENT, OR SERVICES NOT IN MARKED AVAILABLE SERVICES RECORD INFORMATION. ACCESS TO ALL CHAMBERS/COVERS WAS NOT ALWAYS POSSIBLE DUE TO THEIR BEING BURIED OR COVERED BY PARKED VEHICLES.

SERVICES RECORDS HAVE BEEN OBTAINED FROM STATUTORY SERVICES, SUCH AS ELECTRICITY, GAS, CONCRETE PIPES OR CONDUITS WHERE THERE IS NO DIRECT ACCESS TO THE PIPE, THE LOCATION OF THESE SERVICES IS APPROXIMATE. THE ACCURACY OF THE RECORDS AND THE LOCATION OF THESE SERVICES SHOULD BE CONFIRMED BEFORE ANY EXCAVATION WORKS ARE CARRIED OUT.

DEPTHS OBTAINED USING GEOPHYSICAL TECHNIQUES SUCH AS GROUND PROBING RADAR ARE AFFECTED BY GROUND CONDITIONS THEREFORE MUST BE VIEWED AS INDICATIVE ONLY.

NUMBERS OF CABLES IN DUCTS ARE NOT DETERMINED UNLESS SPECIFICALLY STATED. DIMENSIONS BETWEEN MANHOLES ARE ASSUMED STRAIGHT UNLESS OTHERWISE INDICATED.

DEPTHS TO TRACED METALLIC PIPEWORK REFER TO PIPE CENTRE.

PIPE RUNS ARE ASSUMED STRAIGHT BETWEEN CHAMBERS UNLESS OTHERWISE INDICATED.

ALL SERVICES ARE UNDERGROUND EXCEPT WHERE INDICATED.

PLEASE NOTE THAT TOWER SURVEYS ASSOC. LTD ARE NOT PERMITTED TO INVESTIGATE ANY TELECOMMUNICATIONS APPARATUS, OTHER THAN EXISTING EXPOSED FIXTURES. THEREFORE THIS INFORMATION IS NOT APPLIED ON SURVEY DRAWINGS.

A FULL SET OF TOWER SURVEYS ASSOC. TERMS AND LIMITATIONS IS AVAILABLE ON REQUEST.

INFORMATION SHOWN AS TPR HAS NOT BEEN PROVEN ON SITE.

PLEASE NOTE OUR CAD LAYERING CONVENTION CONTAINS FURTHER INFORMATION.

© IS INTENDED THAT THIS DRAWING BE REPRODUCED IN COLOUR.

APPROX NORTH



GENERAL

- NO ALLOWANCE HAS BEEN MADE FOR SUB SURFACE ENTRY INTO MANHOLES OR OTHER CHAMBERS OR VOIDS BELOW GROUND LEVEL. THEREFORE ANY DETAILS RELATING TO DEPTHS, SIZES ETC. ARE TAKEN FROM ABOVE GROUND AND AS SUCH WILL BE APPROXIMATE (±5%).
- THE CONTRACTOR IS TO CHECK AND VERIFY ALL CRITICAL DIMENSIONS AND LEVELS BEFORE WORK STARTS.
- ALL SERVICE ROUTES SHOWN ON THIS DRAWING MAY BE ASSUMED ROUTES AND WILL NORMALLY BE OF UNKNOWN CONDITION. CONTRACTORS SHOULD UNDERTAKE SUITABLE VALIDATION WORK AND TAKE PARTICULAR CARE DURING EXCAVATION WORK. SAFE DIGGING PRACTICES SHOULD BE FOLLOWED.
- SHOULD THERE BE ANY CONFLICT BETWEEN THE DETAILS INDICATED ON THIS DRAWING AND THE ACTUAL SITE CONDITIONS ENCOUNTERED, THEN TOWER SURVEYS ASSOC. SHOULD BE INFORMED PRIOR TO CONSTRUCTION ON SITE.
- IT IS IMPORTANT TO NOTE THAT THE SAME ACCURACIES IMPLIED BY THE PLOTTING SCALE CANNOT BE ASSUMED FOR THE LOCATION OF UNDERGROUND SERVICES.
- EVERY EFFORT IS MADE TO IDENTIFY ALL VISIBLE ABOVE GROUND FEATURES, HOWEVER, IT SHOULD BE BORNE IN MIND THAT THERE MAY BE ITEMS OBSCURED AT THE TIME OF SURVEY.
- VISIBLE FEATURES IN THE VICINITY OF THE BOUNDARIES, AS SHOWN ON THIS SURVEY, MAY NOT REPRESENT THE EXTENT OF LEGALLY CONVEYED OWNERSHIP.
- THE REPRESENTATION OF ROADS AND PAVINGS MAY INCLUDE STYLES OR HATCHING AND INDICATIVE ONLY SUCH AS: ROAD MARKINGS, HEDGE CENTERLINES, BRICK HATCHING AND GLAZING DETAIL.

DESCRIPTION	REV	DATE	DRWN	CHKD	APPR

DRAWING STATUS

INFORMATION

Tower Surveys Associates Ltd
Chartered Surveyors
Geomatics - Land, Utilities, Engineering & Building
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Regulated by RICS

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CLIENT
EMPIRIC STUDENT PROPERTIES (ESP)

PROJECT TITLE
VICTORIA POINT
44 HATHERSAGE ROAD, MANCHESTER, M13 0FT

DRAWING DETAIL
CCTV DRAINAGE SURVEY AS OF 30/10/23
SHEET 2 OF 2

DRAWN	DW	DATE	NOVEMBER 2023
PROJECT ENGINEER	JWH		
CHECKED	RL	SCALE	1:200 (WHEN PLOTTED @ A0)
APPROVED	JWH		

DRAWING NUMBER: TSA-23-2552_302
REVISION:

CAD REFERENCE
\\2023Projects\TSA-23-2552\TSA-23-2552_301-302_Issue01

CTB REFERENCE
\\CTB-files\TS-Utils-v01.ctb

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0 20 METRES

Appendix E

Proposed SuDS Plan

LEGEND

- Existing spot heights (To be retained)
- Proposed spot heights
- Proposed fall gradients

Catchment Area 3
Permeable Paving:
Catchment Area = 0.087 ha
(Block 3 landscape)
Paving Area = 299m2
Depth = 450mm
Volume = 40.3m3
Outlet = 100mm
Porosity = 30%

Catchment 3
Permeable Paving:
Catchment Area = 0.101 ha
(Block 4 landscape)
Paving Area = 157m2
Depth = 450mm
Volume = 21m3
Outlet = 200mm
Porosity = 30%

Catchment 5
Permeable Paving:
Catchment Area = 0.221 ha
(Bax Road)
Paving Area = 2000m2
Depth = 450mm
Volume = 270m3
Outlet restriction = 1.38 l/s
Porosity = 30%

Catchment 4
Permeable Paving:
Catchment Area = 0.145 ha
(Block 5&6 landscape)
Paving Area = 600m2
Depth = 450mm
Volume = 81m3
Outlet = 200mm
Porosity = 30%

Catchment Area 4
Tank:
Catchment Area = 0.167ha
(Block 5&6 roof)
Tank Depth = 1m
Volume = 237m3
Porosity = 95%

Attenuation tank to be coordinated with existing foundations within next design stage.

Catchment Area 3
Tank:
Catchment Area = 0.11ha
(Block 4 roof)
Tank Depth = 1.5m
Volume = 83.4m3
Porosity = 95%

Catchment Area 2
Permeable Paving:
Catchment Area = 0.077 ha
(Block 2 landscape)
Paving Area = 258m2
Depth = 450mm
Volume = 34m3
Outlet = 150mm
Porosity = 30%

Catchment Area 2
Tank:
Catchment Area = 0.204ha
(Block 2+3 roof)
Tank Depth = 1m
Volume = 134.9m3
Porosity = 95%

Catchment Area 2
Permeable Paving:
Catchment Area = 0.068 ha
(Block 2 rear softscape)
Paving Area = 240m2
Depth = 300mm
Volume = 32.46m3
Outlet = 150mm
Porosity = 30%

Catchment Area 1
Permeable Paving:
Catchment Area = 0.092 ha
(Block 1 rear softscape)
Paving Area = 132m2
Depth = 300mm
Volume = 17.77m3
Outlet = 150mm
Porosity = 30%

Catchment Area 1
Tank:
Catchment Area = 0.129 ha
(Block 1 roof and entrance)
Tank Depth = 1.5m
Volume = 114m3
Porosity = 95%

Highways land (~538m²) to drain as existing (unattenuated). Highways boundary to be confirmed to finalise SuDS calculations.

Block 1
Block 2
Block 3
Block 4
Block 5
Block 6

Hydrobrake Q = 2.06 l/s
Vortex flow control Q = 2.27 l/s
Vortex flow control Q = 1.37 l/s
Vortex flow control Q = 1.86 l/s

UUMH 6901 CL 44.11 IL 41.23
MH 23 CL 44.00 IL 41.64
MH 26 CL 44.15 IL 41.35
UUMH 6004 CL 44.41 IL 40.47
MH 32 CL 44.92 IL 42.08
MH 363 CL 45.19 IL 42.24
MH 36 CL 45.17 IL 42.43

Brook Walk
Hathersage Road

Key

- Roof catchment area
- Permeable Paving
- Public Highway (tbc)
- Sub-catchment boundary
- Existing Public Sewer Manhole
- Public Sewer
- Existing Private Manhole
- Existing Private Drainage
- Proposed Surface Water Manhole
- Proposed Surface Water Pipe
- Below Ground Attenuation Tank (1 to 1.5m depth varies)
- Permeable Paving (0.3m to 0.45m sub-base depth)
- Raingarden (0.75m depth)
- Green Roof

Notes

Do not scale from this drawing.

This drawing is to be used for the purpose of issue only and is subject to amendment during design development.

This drawing is based one:

- Landscape Architect's drawing, 12355-LUC-XX-00-DR-L-0100-P07

Red line boundary area = 14,705m²
Site area (excluding highways land) = 14,167m² (assumed)

Greenfield rate = 8.93 l/s (QBAR) IH124 method
Greenfield rate = 18.57 l/s (1:100yr) IH124 method
Climate change allowance = 45%

Proposed restricted flow = 8.93 l/s

*Based on FEH rainfall data

Job	Victoria Point, Manchester	Date	August 2024
Title	Proposed SuDS Strategy	Eng.	MW
Job No.	3124	Sheet	1 of 1
		Rev.	03

HEYNE TILLETT STEEL

Appendix F

Hydraulic Calculations

Greenfield runoff rate estimation for sites

www.uksuds.com | Greenfield runoff tool

Calculated by:	Jessie Britnell Craven
Site name:	Victoria Point
Site location:	M13 0FT

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

Site Details

Latitude:	53.46085° N
Longitude:	2.21679° W
Reference:	3131864138
Date:	Apr 17 2024 12:22

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	1.4167

Methodology

Q_{BAR} estimation method:	Calculate from SPR and SAAR
SPR estimation method:	Calculate from SOIL type

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	879	879
Hydrological region:	10	10
Growth curve factor 1 year:	0.87	0.87
Growth curve factor 30 years:	1.7	1.7
Growth curve factor 100 years:	2.08	2.08
Growth curve factor 200 years:	2.37	2.37

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited

Q_{BAR} (l/s):	8.93	8.93
1 in 1 year (l/s):	7.77	7.77
1 in 30 years (l/s):	15.18	15.18
1 in 100 year (l/s):	18.57	18.57
1 in 200 years (l/s):	21.16	21.16

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address:		

Porous Paving

Type : Porous Paving

Dimensions

Exceedance Level (m)	44.000
Depth (m)	0.450
Base Level (m)	43.550
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	4.0
Porosity (%)	30
Length (m)	136.646
Long. Slope (1:X)	1000.00
Width (m)	15.732
Total Volume (m³)	241.627

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	4
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 3 Planters
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 2 Planters
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 North
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	Block 4 Con PP Type 2
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe
Outlet Type	Free Discharge

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address:		

Advanced

Conductivity (m/hr)	216.0

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address:		

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
Outfall 1	44.410 40.470	Diameter / Length: 1.200	{1} MH1 to Outfall 1	Pipe	40.470	Diam/Width:150	Manhole
E:385649419.066 N:395895043.727	3.940		{2} UUMH1 to Outfall 1	Pipe	40.470	Diam/Width:225	
			{a} Outfall 1 to Outfall 2	Pipe	40.470	Diam/Width:300	Not Applicable
MH1	44.580 41.280	Diameter / Length: 1.200	{1} MH2 to MH1	Pipe	41.280	Diam/Width:225	Manhole
E:385649421.482 N:395895045.790	3.300		{a} MH1 to Outfall 1	Pipe	41.280	Diam/Width:150	Not Applicable
MH2	44.920 42.080	Diameter / Length: 1.200	{1} MH3 to MH2	Pipe	42.080	Diam/Width:225	Manhole
E:385649453.856 N:395895052.896	2.840		{2} MH6 to MH2	Pipe	42.080	Diam/Width:100	
			{a} MH2 to MH1	Pipe	42.080	Diam/Width:225	Not Applicable
MH3	45.190 42.240	Diameter / Length: 1.200	{1} MH4 to MH3	Pipe	42.240	Diam/Width:150	Manhole
E:385649476.001 N:395895057.797	2.950		{a} MH3 to MH2	Pipe	42.240	Diam/Width:225	Not Applicable
MH4	45.170 42.430	Diameter / Length: 1.200	{1} MH9 to MH4	Pipe	42.430	Diam/Width:100	Manhole
E:385649488.122 N:395895055.402	2.740		{a} MH4 to MH3	Pipe	42.430	Diam/Width:150	Not Applicable

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address:		

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
UUMH1	44.150 41.280	Diameter / Length: 1.200	{1} Pipe	Pipe	41.280	Diam/Width:100	Manhole
E:385649400.275 N:395895040.356	2.870		{a} UUMH1 to Outfall 1	Pipe	41.280	Diam/Width:225	Not Applicable
MH6 (Block 2 Control)	44.780 42.080	Diameter / Length: 1.200					Manhole
E:385649452.897 N:395895074.507	2.700		{a} MH6 to MH2	Pipe	42.080	Diam/Width:100	Not Applicable
MH9	45.490 43.700	Diameter / Length: 1.200					Manhole
E:385649490.361 N:395895044.700	1.790		{a} MH9 to MH4	Pipe	43.700	Diam/Width:100	Not Applicable
Outfall 2	44.420 39.890	Diameter / Length: 1.200	{1} Outfall 1 to Outfall 2	Pipe	39.890	Diam/Width:300	Manhole
E:385649434.655 N:395894983.321	4.530		{2} MH10 to Outfall 2	Pipe	39.890	Diam/Width:100	
			{a} Outfall 2 to UUMH2	Pipe	39.890	Diam/Width:300	Not Applicable

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address:		

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
MH10 (Block 5 & 6 Tank Control)	44.460 42.000	Diameter / Length: 1.200					Manhole
E:385649426.109 N:395894981.846	2.460		{a} MH10 to Outfall 2	Pipe	42.000	Diam/Width:100	Not Applicable
UUMH2	44.380 39.390	Diameter / Length: 1.200	{1} Outfall 2 to UUMH2	Pipe	39.390	Diam/Width:300	Manhole
E:385649444.042 N:395894944.282	4.990						Not Applicable

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address:		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Bax Rd Pavement 1/1	MH1		Time of Concentration	0.010	100	0	100	0.010
Bax Rd Pavement 1/2	MH2		Time of Concentration	0.010	100	0	100	0.010
Bax Rd Pavement 1/3	MH4		Time of Concentration	0.019	100	0	100	0.019
Bax Road 1/1	UUMH1		Time of Concentration	0.041	100	0	100	0.041
Bax Road 1/2	Outfall 1		Time of Concentration	0.017	100	0	100	0.017
Bax Road 1/3	MH2		Time of Concentration	0.014	100	0	100	0.014
Bax Road 1/4	MH3		Time of Concentration	0.007	100	0	100	0.007
Bax Road 1/5	MH4		Time of Concentration	0.019	100	0	100	0.019
Block 1 & 2 Con Type 2 PP	MH4		Time of Concentration	0.010	100	0	100	0.010
Block 2 Con PP Type 2	MH2		Time of Concentration	0.014	100	0	100	0.014
Block 2 Planters	Porous Paving		Time of Concentration	0.004	100	0	100	0.004
Block 3 Planters	Porous Paving		Time of Concentration	0.003	100	0	100	0.003
Block 4 Con PP Type 2	Porous Paving		Time of Concentration	0.030	100	0	100	0.030
Block 5 North	Porous Paving		Time of Concentration	0.015	100	0	100	0.015
TOTAL		**0.0**		**0.213**				**0.213**

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address:		

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

Rainfall

Victoria Point FEH22

Type: FEH

Site Location	GB 385670 395972 SJ 85670 95972
Rainfall Version	2022
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	0.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Block 4 Con PP Type 2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.03	5.7	2.498
Block 2 Con PP Type 2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.01	2.2	1.016
Block 3 Planters	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.00	0.4	0.189
Block 2 Planters	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.00	0.6	0.261
Bax Road 1/1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.04	7.7	3.403
Block 5 North	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	2.9	1.266
Bax Road 1/2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	3.3	1.443
Bax Road 1/3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	2.7	1.188
Bax Road 1/4	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	1.4	0.610
Bax Road 1/5	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	3.6	1.563
Bax Rd Pavement 1/3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	3.6	1.605
Bax Rd Pavement 1/2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	2.0	0.866

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address:		

Bax Rd Pavement 1/1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	1.8	0.797
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	1.9	0.818

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Block 4 Con PP Type 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.03	12.3	5.508
Block 2 Con PP Type 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.01	4.8	2.238
Block 3 Planters	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.00	0.9	0.415
Block 2 Planters	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.00	1.3	0.584
Bax Road 1/1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.04	16.7	7.506
Block 5 North	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	6.2	2.787
Bax Road 1/2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	7.1	3.175
Bax Road 1/3	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	5.8	2.609
Bax Road 1/4	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	3.0	1.351
Bax Road 1/5	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	7.7	3.443
Bax Rd Pavement 1/3	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	7.9	3.545
Bax Rd Pavement 1/2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	4.3	1.914

Bax Rd Pavement 1/1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	3.9	1.758
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	4.0	1.800

Victoria Point FEH22: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Block 4 Con PP Type 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.03	15.5	7.000
Block 2 Con PP Type 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.01	6.1	2.850
Block 3 Planters	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.00	1.1	0.533
Block 2 Planters	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.00	1.6	0.740
Bax Road 1/1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.04	21.1	9.541
Block 5 North	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	7.8	3.542
Bax Road 1/2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	8.9	4.035
Bax Road 1/3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	7.3	3.320
Bax Road 1/4	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	3.8	1.717
Bax Road 1/5	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	9.7	4.378
Bax Rd Pavement 1/3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	10.0	4.504
Bax Rd Pavement 1/2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	5.4	2.426

Bax Rd Pavement 1/1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	4.9	2.231
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	5.1	2.288

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Block 4 Con PP Type 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.03	22.5	10.201
Block 2 Con PP Type 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.01	8.9	4.136
Block 3 Planters	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.00	1.7	0.772
Block 2 Planters	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.00	2.3	1.073
Bax Road 1/1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.04	30.7	13.900
Block 5 North	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	11.4	5.164
Bax Road 1/2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	13.0	5.880
Bax Road 1/3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	10.7	4.835
Bax Road 1/4	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	5.5	2.499
Bax Road 1/5	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	14.1	6.373
Bax Rd Pavement 1/3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	14.5	6.566
Bax Rd Pavement 1/2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	7.8	3.538

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address:		

Bax Rd Pavement 1/1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	7.2	3.248
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	7.4	3.336

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

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
Outfall 1	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	44.410	40.470	43.535	3.065	2.8	3.466	0.000	1.3	32.240	Surcharged
MH1	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	44.580	41.280	43.533	2.253	3.0	2.548	0.000	2.0	18.407	Surcharged
MH2	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	44.920	42.080	43.531	1.451	3.0	1.641	0.000	2.7	22.133	Surcharged
MH3	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	45.190	42.240	43.530	1.290	2.1	1.459	0.000	1.8	12.324	Surcharged
MH4	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	45.170	42.430	43.531	1.101	1.9	1.245	0.000	1.8	11.009	Surcharged
UUMH1	Victoria Point FEH22: 2 years: +0 %: 120 mins: Summer	44.150	41.280	43.568	2.288	3.5	2.587	0.000	1.4	5.581	Surcharged
MH6 (Block 2 Control)	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	44.780	42.080	43.529	1.449	0.6	1.639	0.000	0.2	1.370	Surcharged
MH9	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	45.490	43.700	43.700	0.000	0.0	0.000	0.000	0.0	0.000	OK
Outfall 2	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	44.420	39.890	39.912	0.022	1.3	0.025	0.000	1.3	30.580	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.460	42.000	42.000	0.000	0.0	0.000	0.000	0.0	0.000	OK
UUMH2	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	44.380	39.390	39.412	0.022	1.3	0.000	0.000	1.3	30.580	OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

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
Outfall 1	Victoria Point FEH22: 30 years: +0 %: 240 mins: Summer	44.410	40.470	44.414	3.944	7.5	8.353	3.897	1.4	50.598	Flood
MH1	Victoria Point FEH22: 30 years: +0 %: 480 mins: Summer	44.580	41.280	44.428	3.148	10.2	3.561	0.000	17.2	37.044	Flood Risk
MH2	Victoria Point FEH22: 30 years: +0 %: 120 mins: Winter	44.920	42.080	44.422	2.342	7.5	2.648	0.000	6.5	29.891	Surcharged
MH3	Victoria Point FEH22: 30 years: +0 %: 120 mins: Winter	45.190	42.240	44.423	2.183	4.9	2.469	0.000	3.9	16.459	Surcharged
MH4	Victoria Point FEH22: 30 years: +0 %: 120 mins: Winter	45.170	42.430	44.427	1.997	5.9	2.259	0.000	4.0	17.608	Surcharged
UUMH1	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	44.150	41.280	44.151	2.871	10.0	4.486	1.240	1.4	15.683	Flood
MH6 (Block 2 Control)	Victoria Point FEH22: 30 years: +0 %: 240 mins: Summer	44.780	42.080	44.417	2.337	1.3	2.643	0.000	0.3	1.045	Surcharged
MH9	Victoria Point FEH22: 30 years: +0 %: 120 mins: Winter	45.490	43.700	44.421	0.721	1.0	0.816	0.000	0.3	0.845	Surcharged
Outfall 2	Victoria Point FEH22: 30 years: +0 %: 30 mins: Summer	44.420	39.890	39.913	0.023	1.4	0.026	0.000	1.4	4.073	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.460	42.000	42.000	0.000	0.0	0.000	0.000	0.0	0.000	OK
UUMH2	Victoria Point FEH22: 30 years: +0 %: 30 mins: Summer	44.380	39.390	39.413	0.023	1.4	0.000	0.000	1.4	4.073	OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Depth

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
Outfall 1	Victoria Point FEH22: 100 years: +0 %: 120 mins: Winter	44.410	40.470	44.424	3.954	14.3	18.713	14.256	1.4	35.042	Flood
MH1	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	44.580	41.280	44.447	3.167	17.8	3.582	0.000	16.8	19.596	Flood Risk
MH2	Victoria Point FEH22: 100 years: +0 %: 120 mins: Summer	44.920	42.080	44.473	2.393	17.3	2.706	0.000	14.5	35.592	Surcharged
MH3	Victoria Point FEH22: 100 years: +0 %: 120 mins: Summer	45.190	42.240	44.483	2.243	9.9	2.537	0.000	9.5	20.541	Surcharged
MH4	Victoria Point FEH22: 100 years: +0 %: 120 mins: Summer	45.170	42.430	44.512	2.082	10.4	2.354	0.000	8.3	21.475	Surcharged
UUMH1	Victoria Point FEH22: 100 years: +0 %: 30 mins: Summer	44.150	41.280	44.154	2.874	14.6	6.778	3.532	1.4	12.676	Flood
MH6 (Block 2 Control)	Victoria Point FEH22: 100 years: +0 %: 240 mins: Summer	44.780	42.080	44.437	2.357	1.3	2.666	0.000	0.3	1.033	Surcharged
MH9	Victoria Point FEH22: 100 years: +0 %: 120 mins: Winter	45.490	43.700	44.450	0.750	1.1	0.849	0.000	0.3	0.617	Surcharged
Outfall 2	Victoria Point FEH22: 100 years: +0 %: 30 mins: Summer	44.420	39.890	39.913	0.023	1.4	0.026	0.000	1.4	4.202	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.460	42.000	42.000	0.000	0.0	0.000	0.000	0.0	0.000	OK
UUMH2	Victoria Point FEH22: 100 years: +0 %: 30 mins: Summer	44.380	39.390	39.413	0.023	1.4	0.000	0.000	1.4	4.202	OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Depth

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
Outfall 1	Victoria Point FEH22: 100 years: +45 %: 240 mins: Summer	44.410	40.470	44.449	3.979	23.7	43.237	38.781	1.4	71.386	Flood
MH1	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	44.580	41.280	44.580	3.300	41.4	3.853	0.121	38.3	36.854	Flood
MH2	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	44.920	42.080	44.727	2.647	39.1	2.994	0.000	37.0	41.061	Flood Risk
MH3	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	45.190	42.240	44.771	2.531	23.2	2.862	0.000	22.9	24.368	Surcharged
MH4	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	45.170	42.430	44.901	2.471	21.9	2.795	0.000	19.8	25.173	Flood Risk
UUMH1	Victoria Point FEH22: 100 years: +45 %: 30 mins: Summer	44.150	41.280	44.158	2.878	22.2	11.388	8.142	1.4	18.153	Flood
MH6 (Block 2 Control)	Victoria Point FEH22: 100 years: +45 %: 120 mins: Winter	44.780	42.080	44.502	2.422	1.4	2.739	0.000	0.1	0.087	Flood Risk
MH9	Victoria Point FEH22: 100 years: +45 %: 120 mins: Summer	45.490	43.700	44.551	0.851	1.1	0.962	0.000	0.2	0.154	Surcharged
Outfall 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.420	39.890	39.913	0.023	1.4	0.026	0.000	1.4	1.925	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.460	42.000	42.000	0.000	0.0	0.000	0.000	0.0	0.000	OK
UUMH2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.380	39.390	39.413	0.023	1.4	0.000	0.000	1.4	1.925	OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	Victoria Point FEH22: 2 years: +0 %: 960 mins: Summer	43.715	43.565	0.029	0.015	1.2	14.143	0.000	0.000	0.8	15.163	320	94.147

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Status
OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	Victoria Point FEH22: 30 years: +0 %: 480 mins: Winter	43.730	43.689	0.043	0.139	5.4	47.793	0.000	0.000	1.3	37.001		80.220

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Status
OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	Victoria Point FEH22: 100 years: +0 %: 1440 mins: Winter	43.724	43.724	0.038	0.174	3.7	68.563	0.000	0.000	1.3	71.961		71.625

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Status
OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Porous Paving	Victoria Point FEH22: 100 years: +45 %: 1440 mins: Winter	43.796	43.796	0.109	0.246	4.9	114.656	0.000	0.000	1.3	114.240		52.548

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Status
OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 2 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
MH2 to MH1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH2	MH1	44.920	42.485	0.225	4.244	1.2	0.19	15.1	Surcharged
MH1 to Outfall 1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	Pipe	MH1	Outfall 1	44.580	42.492	0.150	2.695	0.5	0.1	9.0	Surcharged
MH3 to MH2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	42.485	0.225	3.739	0.9	0.22	9.6	Surcharged
MH4 to MH3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	42.499	0.150	3.904	1.0	0.4	8.8	OK
UUMH1 to Outfall 1	Victoria Point FEH22: 2 years: +0 %: 1440 mins: Winter	Pipe	UUMH1	Outfall 1	44.150	43.047	0.225	33.220	0.2	0.02	1.9	Surcharged
MH6 to MH2	Victoria Point FEH22: 2 years: +0 %: 30 mins: Winter	Pipe	MH6 (Block 2 Control)	MH2	44.780	42.789	0.100	0.000	0.0	0.06	0.4	Surcharged
MH9 to MH4	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH9	MH4	45.490	43.700	0.035	0.000	0.0	0	0.0	OK
Outfall 1 to Outfall 2	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	Pipe	Outfall 1	Outfall 2	44.410	43.535	0.023	30.708	0.5	0.01	1.3	Surcharged
MH10 to Outfall 2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.000	0.010	0.000	0.0	0	0.0	OK
Outfall 2 to UUMH2	Victoria Point FEH22: 2 years: +0 %: 240 mins: Winter	Pipe	Outfall 2	UUMH2	44.420	39.912	0.022	30.580	0.6	0.01	1.3	OK
Pipe	Victoria Point FEH22: 2 years: +0 %: 960 mins: Summer	Pipe	Porous Paving	UUMH1	44.137	43.572	0.100	15.163	0.2	0.05	0.8	OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 30 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
MH2 to MH1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	Pipe	MH2	MH1	44.920	43.812	0.225	6.942	1.6	0.13	10.8	Surcharged
MH1 to Outfall 1	Victoria Point FEH22: 30 years: +0 %: 60 mins: Winter	Pipe	MH1	Outfall 1	44.580	44.415	0.150	14.077	1.9	0.37	33.9	Flood Risk
MH3 to MH2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	43.797	0.225	6.601	0.7	0.17	7.6	Surcharged
MH4 to MH3	Victoria Point FEH22: 30 years: +0 %: 30 mins: Summer	Pipe	MH4	MH3	45.170	44.254	0.150	9.457	0.8	0.6	13.3	Surcharged
UUMH1 to Outfall 1	Victoria Point FEH22: 30 years: +0 %: 60 mins: Winter	Pipe	UUMH1	Outfall 1	44.150	44.150	0.225	0.339	0.2	0.06	6.5	Flood
MH6 to MH2	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	MH6 (Block 2 Control)	MH2	44.780	44.410	0.100	0.000	0.1	0.13	0.8	Surcharged
MH9 to MH4	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	MH9	MH4	45.490	44.413	0.100	0.000	0.2	0.06	1.2	Surcharged
Outfall 1 to Outfall 2	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	44.412	0.024	8.882	0.6	0.01	1.4	Flood
MH10 to Outfall 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.000	0.011	0.000	0.0	0	0.0	OK
Outfall 2 to UUMH2	Victoria Point FEH22: 30 years: +0 %: 30 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	39.913	0.023	4.073	0.6	0.01	1.4	OK
Pipe	Victoria Point FEH22: 30 years: +0 %: 480 mins: Winter	Pipe	Porous Paving	UUMH1	44.137	43.624	0.100	10.524	0.2	0.09	1.3	OK

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 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
MH2 to MH1	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	Pipe	MH2	MH1	44.920	44.470	0.225	19.914	1.3	0.19	15.0	Surcharged
MH1 to Outfall 1	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	Pipe	MH1	Outfall 1	44.580	44.447	0.150	19.278	1.0	0.19	16.8	Flood Risk
MH3 to MH2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	44.265	0.225	7.466	0.8	0.27	11.6	Surcharged
MH4 to MH3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	44.263	0.150	8.309	0.9	0.71	15.6	Surcharged
UUMH1 to Outfall 1	Victoria Point FEH22: 100 years: +0 %: 1440 mins: Winter	Pipe	UUMH1	Outfall 1	44.150	43.746	0.225	67.916	0.1	0.02	2.0	Surcharged
MH6 to MH2	Victoria Point FEH22: 100 years: +0 %: 120 mins: Summer	Pipe	MH6 (Block 2 Control)	MH2	44.780	44.426	0.100	0.000	0.1	0.12	0.7	Surcharged
MH9 to MH4	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH9	MH4	45.490	44.178	0.100	0.000	0.1	0.05	1.0	Surcharged
Outfall 1 to Outfall 2	Victoria Point FEH22: 100 years: +0 %: 120 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	44.424	0.024	18.517	0.6	0.01	1.4	Flood
MH10 to Outfall 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.000	0.011	0.000	0.0	0	0.0	OK
Outfall 2 to UUMH2	Victoria Point FEH22: 100 years: +0 %: 30 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	39.913	0.023	4.202	0.6	0.01	1.4	OK
Pipe	Victoria Point FEH22: 100 years: +0 %: 960 mins: Winter	Pipe	Porous Paving	UUMH1	44.137	43.656	0.100	24.864	0.2	0.09	1.3	Surcharged

Project:	Date: 22/02/2024		
	Designed by: MWoo	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address:		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: 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
MH2 to MH1	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	MH2	MH1	44.920	44.727	0.225	35.404	1.3	0.46	37.0	Flood Risk
MH1 to Outfall 1	Victoria Point FEH22: 100 years: +45 %: 30 mins: Summer	Pipe	MH1	Outfall 1	44.580	44.580	0.150	24.595	2.2	0.43	38.7	Flood
MH3 to MH2	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	MH3	MH2	45.190	44.771	0.225	24.325	0.7	0.53	22.9	Surcharged
MH4 to MH3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	44.658	0.150	12.343	1.2	0.94	20.8	Surcharged
UUMH1 to Outfall 1	Victoria Point FEH22: 100 years: +45 %: 960 mins: Summer	Pipe	UUMH1	Outfall 1	44.150	43.847	0.225	27.418	0.1	0.02	2.0	Surcharged
MH6 to MH2	Victoria Point FEH22: 100 years: +45 %: 1440 mins: Summer	Pipe	MH6 (Block 2 Control)	MH2	44.780	44.436	0.100	0.000	0.1	0.11	0.7	Surcharged
MH9 to MH4	Victoria Point FEH22: 100 years: +45 %: 30 mins: Summer	Pipe	MH9	MH4	45.490	44.435	0.100	0.000	0.2	0.08	1.6	Surcharged
Outfall 1 to Outfall 2	Victoria Point FEH22: 100 years: +45 %: 30 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	44.431	0.024	4.465	0.6	0.01	1.4	Flood
MH10 to Outfall 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.000	0.011	0.000	0.0	0	0.0	OK
Outfall 2 to UUMH2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	39.913	0.023	1.925	0.6	0.01	1.4	OK
Pipe	Victoria Point FEH22: 100 years: +45 %: 1440 mins: Winter	Pipe	Porous Paving	UUMH1	44.137	43.728	0.100	26.770	0.2	0.09	1.3	Surcharged

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Block 2 & 3 Atten Tank

Type : Tank

Dimensions

Exceedance Level (m)	44.530
Depth (m)	1.600
Base Level (m)	42.930
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	135.500

Depth (m)	Area (m²)	Volume (m³)
0.000	142.00	0.000
1.000	142.00	134.900

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 2 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 3 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 2 Tank to MH6
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	10.000



Block 4 Atten Tank Type : Tank

Dimensions

Exceedance Level (m)	43.930
Depth (m)	2.100
Base Level (m)	41.830
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	83.963

Depth (m)	Area (m²)	Volume (m³)
0.000	58.50	0.000
1.500	58.50	83.363

Inlets

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 4 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 3 Tank to MH5
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	20.535



Block 1 Atten Tank Type : Tank

Dimensions

Exceedance Level (m)	45.000
Depth (m)	2.100
Base Level (m)	42.900
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	114.600

Depth (m)	Area (m²)	Volume (m³)
0.000	80.00	0.000
1.500	80.00	114.000

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 1 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	MH8 to Block 1 Atten Tank
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 1 Atten Tank to MH9
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	18.643

Blocks 5 & 6 Atten Tank

Type : Tank

Dimensions

Exceedance Level (m)	43.800
Depth (m)	1.600
Base Level (m)	42.200
Freeboard (mm)	0
Initial Depth (m)	0.000
Porosity (%)	95
Average Slope (1:X)	0.00
Total Volume (m³)	238.100

Depth (m)	Area (m²)	Volume (m³)
0.000	250.00	0.000
1.000	250.00	237.500

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Blocks 5 & 6 Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 5 & 6 Tank to MH10
Outlet Type	Free Discharge

Advanced

Perimeter	Circular
Length (m)	16.034

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Block 2 PP (West)

Type : Porous Paving

Dimensions

Exceedance Level (m)	45.100
Depth (m)	0.450
Base Level (m)	44.650
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	40.0
Porosity (%)	30
Length (m)	25.797
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	29.273

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	2
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Block 2 Soft Land (West)
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 2 Green Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 2 PP (West) to MH2
Outlet Type	Orifice

Diameter (m)	0.015
Coefficient of Discharge	0.600
Invert Level (m)	44.650

Advanced

Conductivity (m/hr)	216.0

Block 3 PP

Type : Porous Paving

Dimensions

Exceedance Level (m)	44.370
Depth (m)	0.350
Base Level (m)	44.020
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	4.0
Porosity (%)	30
Length (m)	29.988
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	24.455

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Block 3 Soft Land
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Block 3 Green Roof
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 3 PP to MH1
Outlet Type	Orifice
Diameter (m)	0.010
Coefficient of Discharge	0.600
Invert Level (m)	44.020

Advanced

Conductivity (m/hr)	216.0

Block 2 PP (East)

Type : Porous Paving

Dimensions

Exceedance Level (m)	45.130
Depth (m)	0.450
Base Level (m)	44.680
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	40.0
Porosity (%)	30
Length (m)	24.047
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	27.287

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	2
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Block 2 Soft Land (East)
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 2 PP (East) to MH4
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	216.0

Block 1 PP

Type : Porous Paving

Dimensions

Exceedance Level (m)	45.610
Depth (m)	0.300
Base Level (m)	45.310
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	4.0
Porosity (%)	30
Length (m)	13.164
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	8.761

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Block 1 Soft Land
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 1 PP to MH7
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	216.0

Block 4 PP

Type : Porous Paving

Dimensions

Exceedance Level (m)	44.410
Depth (m)	0.450
Base Level (m)	43.960
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	4.0
Porosity (%)	30
Length (m)	15.756
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	17.576

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	100
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Lateral Inflow
Incoming Item(s)	Block 4 Soft Land
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Block 4 PP to UUMH1
Outlet Type	Orifice
Diameter (m)	0.020
Coefficient of Discharge	0.600
Invert Level (m)	43.960

Advanced

Conductivity (m/hr)	216.0

Unit 5&^ PP

Type : Porous Paving

Dimensions

Exceedance Level (m)	44.300
Depth (m)	0.450
Base Level (m)	43.850
Paving Layer Depth (mm)	80
Membrane Percolation (m/hr)	4.0
Porosity (%)	30
Length (m)	60.000
Long. Slope (1:X)	1000.00
Width (m)	10.000
Total Volume (m³)	70.311

Under Drain

Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	5
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 Green Roof Block 5 West
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (1)

Inlet Type	Point Inflow
Incoming Item(s)	Bax Rd Parking Bays Block 6 West
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (2)

Inlet Type	Point Inflow
Incoming Item(s)	Block 5 Entrance
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (3)

Inlet Type	Point Inflow
Incoming Item(s)	Block 6 South Block 5 North
Bypass Destination	(None)
Capacity Type	No Restriction

Inlet (4)

Inlet Type	Point Inflow
Incoming Item(s)	Block 6 Entrance
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets

Outlet

Outgoing Connection	Pipe
Outlet Type	Under Drain

Advanced

Conductivity (m/hr)	216.0

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
Outfall 1	44.410 40.470	Diameter / Length: 1.200	{1} MH1 to Outfall 1	Pipe	40.470	Diam/Width:150	Manhole
E:385649419.066 N:395895043.727	3.940		{2} UUMH1 to Outfall 1	Pipe	40.470	Diam/Width:225	
			{a} Outfall 1 to Outfall 2	Pipe	40.470	Diam/Width:300	Not Applicable
MH1	44.580 41.280	Diameter / Length: 1.200	{1} MH2 to MH1	Pipe	41.280	Diam/Width:225	Manhole
E:385649421.482 N:395895045.790	3.300		{a} MH1 to Outfall 1	Pipe	41.280	Diam/Width:150	Not Applicable
MH2	44.920 42.080	Diameter / Length: 1.200	{1} MH3 to MH2	Pipe	42.080	Diam/Width:225	Manhole
E:385649453.856 N:395895052.896	2.840		{2} MH6 to MH2	Pipe	42.080	Diam/Width:100	
			{a} MH2 to MH1	Pipe	42.080	Diam/Width:225	Not Applicable
MH3	45.190 42.240	Diameter / Length: 1.200	{1} MH4 to MH3	Pipe	42.240	Diam/Width:150	Manhole
E:385649476.001 N:395895057.797	2.950		{a} MH3 to MH2	Pipe	42.240	Diam/Width:225	Not Applicable
MH4	45.170 42.430	Diameter / Length: 1.200	{1} MH9 to MH4	Pipe	42.430	Diam/Width:100	Manhole
E:385649488.122 N:395895055.402	2.740		{2} Block 2 PP (East) to MH4	Pipe	42.430	Diam/Width:150	
			{a} MH4 to MH3	Pipe	42.430	Diam/Width:150	Not Applicable

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address: Heyne Tillett Steel		

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
UUMH1	44.150 41.280	Diameter / Length: 1.200	{1} MH5 to UUMH1	Pipe	41.280	Diam/Width:100	Manhole
E:385649400.275 N:395895040.356	2.870		{a} UUMH1 to Outfall 1	Pipe	41.280	Diam/Width:225	Not Applicable
MH5 (Block 3 Tank Control)	44.063 41.280	Diameter / Length: 1.200	{1} Block 3 Tank to MH5 {2} Block 3 PP to MH1 {3} Block 4 PP to UUMH1	Pipe Pipe Pipe	41.280 41.280 41.280	Diam/Width:100 Diam/Width:100 Diam/Width:100	Manhole
E:385649410.973 N:395895048.293	2.783		{a} MH5 to UUMH1	Pipe	41.280	Diam/Width:100	Not Applicable
MH6 (Block 2 Control)	44.780 42.080	Diameter / Length: 1.200	{1} Block 2 Tank to MH6 {2} Block 2 PP (West) to MH2	Pipe Pipe	42.080 42.080	Diam/Width:100 Diam/Width:100	Manhole
E:385649452.897 N:395895074.507	2.700		{a} MH6 to MH2	Pipe	42.080	Diam/Width:100	Not Applicable
MH7	45.580 44.800	Diameter / Length: 1.200	{1} Block 1 PP to MH7	Pipe	44.800	Diam/Width:150	Manhole
E:385649519.319 N:395895022.389	0.780		{a} MH7 to MH8	Pipe	44.800	Diam/Width:150	Not Applicable
MH8	45.500 44.500	Diameter / Length: 1.200	{1} MH7 to MH8	Pipe	44.500	Diam/Width:150	Manhole
E:385649494.775 N:395895017.323	1.000		{a} MH8 to Block 1 Atten Tank	Pipe	44.500	Diam/Width:150	Not Applicable

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address: Heyne Tillett Steel		

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
MH9	45.490 42.600	Diameter / Length: 1.200	{1} Block 1 Atten Tank to MH9	Pipe	42.600	Diam/Width:100	Manhole
E:385649490.361 N:395895044.700	2.890		{a} MH9 to MH4	Pipe	42.600	Diam/Width:100	Not Applicable
Outfall 2	44.420 39.890	Diameter / Length: 1.200	{1} Outfall 1 to Outfall 2 {2} MH10 to Outfall 2	Pipe Pipe	39.890 39.890	Diam/Width:300 Diam/Width:100	Manhole
E:385649434.655 N:395894983.321	4.530		{a} Outfall 2 to UUMH2	Pipe	39.890	Diam/Width:300	Not Applicable
MH10 (Block 5 & 6 Tank Control)	44.460 41.660	Diameter / Length: 1.200	{1} Block 5 & 6 Tank to MH10 {2} Pipe	Pipe Pipe	41.660 41.660	Diam/Width:100 Diam/Width:100	Manhole
E:385649426.109 N:395894981.846	2.800		{a} MH10 to Outfall 2	Pipe	41.660	Diam/Width:100	Not Applicable
UUMH2	44.380 39.390	Diameter / Length: 1.200	{1} Outfall 2 to UUMH2	Pipe	39.390	Diam/Width:300	Manhole
E:385649444.042 N:395894944.282	4.990						Not Applicable

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Bax Rd Parking Bays	Unit 5&^ PP		Time of Concentration	0.012	100	0	100	0.012
Bax Rd Pavement 1/1	MH1		Time of Concentration	0.010	100	0	100	0.010
Bax Rd Pavement 1/2	MH2		Time of Concentration	0.010	100	0	100	0.010
Bax Rd Pavement 1/3	MH4		Time of Concentration	0.019	100	0	100	0.019
Bax Road 1/1	UUMH1		Time of Concentration	0.041	100	0	100	0.041
Bax Road 1/2	Outfall 1		Time of Concentration	0.017	100	0	100	0.017
Bax Road 1/3	MH2		Time of Concentration	0.014	100	0	100	0.014
Bax Road 1/4	MH3		Time of Concentration	0.007	100	0	100	0.007
Bax Road 1/5	MH4		Time of Concentration	0.019	100	0	100	0.019
Block 1 & 2 Con Type 2 PP	MH4		Time of Concentration	0.010	100	0	100	0.010
Block 1 Entrance	MH8		Time of Concentration	0.047	100	0	100	0.047
Block 1 Roof	Block 1 Atten Tank		Time of Concentration	0.082	100	0	100	0.082
Block 1 Soft Land	Block 1 PP		Time of Concentration	0.092	100	0	100	0.092
Block 2 Con PP Type 2	MH2		Time of Concentration	0.014	100	0	100	0.014
Block 2 Green Roof	Block 2 PP (West)		Time of Concentration	0.007	100	0	100	0.007
Block 2 Planters			Time of Concentration	0.004	100	0	100	0.004
Block 2 Roof	Block 2 & 3 Atten Tank		Time of Concentration	0.102	100	0	100	0.102
Block 2 Soft Land (East)	Block 2 PP (East)		Time of Concentration	0.068	100	0	100	0.068
Block 2 Soft Land (West)	Block 2 PP (West)		Time of Concentration	0.085	100	0	100	0.085
Block 3 Green Roof	Block 3 PP		Time of Concentration	0.007	100	0	100	0.007
Block 3 Planters			Time of Concentration	0.003	100	0	100	0.003
Block 3 Roof	Block 2 & 3 Atten Tank		Time of Concentration	0.102	100	0	100	0.102
Block 3 Soft Land	Block 3 PP		Time of Concentration	0.080	100	0	100	0.080
Block 4 Con PP Type 2	MH5 (Block 3 Tank Control)		Time of Concentration	0.030	100	0	100	0.030
Block 4 Roof	Block 4 Atten Tank		Time of Concentration	0.111	100	0	100	0.111
Block 4 Soft Land	Block 4 PP		Time of Concentration	0.101	100	0	100	0.101
Block 5 Entrance	Unit 5&^ PP		Time of Concentration	0.020	100	0	100	0.020
Block 5 Green Roof	Unit 5&^ PP		Time of Concentration	0.013	100	0	100	0.013
Block 5 North	Unit 5&^ PP		Time of Concentration	0.015	100	0	100	0.015
Block 5 West	Unit 5&^ PP		Time of Concentration	0.028	100	0	100	0.028
Block 6 Entrance	Unit 5&^ PP		Time of Concentration	0.011	100	0	100	0.011
Block 6 South	Unit 5&^ PP		Time of Concentration	0.035	100	0	100	0.035
Block 6 West	Unit 5&^ PP		Time of Concentration	0.011	100	0	100	0.011
Blocks 5 & 6 Roof	Blocks 5 & 6 Atten Tank		Time of Concentration	0.167	100	0	100	0.167
TOTAL		**0.0**		**1.395**				**1.395**

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Network Design Criteria Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Pipe Size Library

Default

Add. Increment (mm)	75
Max. Diameter (mm)	0

Diameter (mm)	Min. Slope (1:X)	Max. Slope (1:X)
100	0.00	0.00
150	0.00	0.00

Manhole Options

Apply Offset	☐

Manhole Size Library

Default

Diameter / Width

Connection (mm)	Diameter / Length (m)	Width (m)
0	1.200	0.000
375	1.350	0.000
500	1.500	0.000
750	1.800	0.000

Additional Sizing

Connection (mm)	900
Diameter / Length (m)	0.900
Width (m)	0.000

Depth

Depth (m)	Diameter / Length (m)	Width (m)
0.000	1.050	0.000
1.500	1.200	0.000

Access

Depth (m)	Ladder Protrusion (mm)
0.000	130
3.000	230

Benching Requirements

Landing Width (mm)	500
Benching Width (mm)	225

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address: Heyne Tillett Steel		

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

Rainfall

Victoria Point FEH22

Type: FEH

Site Location	GB 385670 395972 SJ 85670 95972
Rainfall Version	2022
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
2.0	0.000
30.0	0.000
100.0	45.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Block 1 Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.08	15.8	6.840
Block 2 Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.10	19.7	8.546
Block 3 Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.10	19.7	8.558
Block 4 Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.11	21.4	9.280
Blocks 5 & 6 Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.17	32.2	13.980
Block 4 Con PP Type 2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.03	4.5	2.092
Block 3 Green Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.150
Block 2 Green Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	0.3	0.150
Block 5 Green Roof	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	0.6	0.267
Block 2 Con PP Type 2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.01	2.2	1.013
Block 2 Soft Land (West)	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.09	4.1	1.780
Block 4 Soft Land	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.10	4.8	2.101
Block 3 Soft Land	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.08	3.8	1.661
Block 3 Planters	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.00	0.4	0.189
Block 2 Planters	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.00	0.6	0.261
Block 2 Soft Land (East)	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.07	3.3	1.427

Block 1 Soft Land	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.09	4.4	1.915
Bax Road 1/1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.04	7.8	3.393
Block 5 North	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	2.9	1.262
Bax Road 1/2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	3.3	1.439
Bax Road 1/3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	2.7	1.184
Bax Road 1/4	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	1.4	0.608
Bax Road 1/5	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	3.6	1.559
Block 1 Entrance	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.05	7.1	3.303
Bax Rd Pavement 1/3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.02	3.7	1.601
Bax Rd Pavement 1/2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	2.0	0.863
Bax Rd Pavement 1/1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	1.8	0.794
Bax Rd Parking Bays	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	2.3	0.992
Block 6 South	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.03	5.3	2.443
Block 6 Entrance	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.01	1.7	0.785
Block 5 Entrance	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.02	3.1	1.421
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	0.01	1.9	0.815
Block 6 West	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.01	1.7	0.767
Block 5 West	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	0.03	4.3	1.975

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Block 1 Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.08	34.8	15.062
Block 2 Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.10	43.4	18.827
Block 3 Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.10	43.5	18.857
Block 4 Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.11	47.2	20.446
Blocks 5 & 6 Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.17	71.1	30.804
Block 4 Con PP Type 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.03	10.0	4.611
Block 3 Green Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	0.7	0.327
Block 2 Green Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	0.7	0.327
Block 5 Green Roof	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	1.3	0.582
Block 2 Con PP Type 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.01	4.8	2.231
Block 2 Soft Land (West)	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.09	9.1	3.924
Block 4 Soft Land	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.10	10.7	4.626
Block 3 Soft Land	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.08	8.4	3.661
Block 3 Planters	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.00	0.9	0.414
Block 2 Planters	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.00	1.3	0.582
Block 2 Soft Land (East)	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.07	7.3	3.148

Block 1 Soft Land	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.09	9.8	4.230
Bax Road 1/1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.04	17.3	7.477
Block 5 North	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	6.4	2.776
Bax Road 1/2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	7.3	3.163
Bax Road 1/3	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	6.0	2.599
Bax Road 1/4	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	3.1	1.346
Bax Road 1/5	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	7.9	3.430
Block 1 Entrance	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.05	15.8	7.280
Bax Rd Pavement 1/3	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.02	8.1	3.532
Bax Rd Pavement 1/2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	4.4	1.907
Bax Rd Pavement 1/1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	4.0	1.751
Bax Rd Parking Bays	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	5.0	2.186
Block 6 South	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.03	11.6	5.379
Block 6 Entrance	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.01	3.7	1.727
Block 5 Entrance	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.02	6.8	3.133
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	0.01	4.1	1.793
Block 6 West	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.01	3.6	1.682
Block 5 West	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	0.03	9.4	4.356

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Block 1 Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.08	44.2	19.159
Block 2 Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.10	55.3	23.950
Block 3 Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.10	55.3	23.977
Block 4 Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.11	60.0	26.004
Blocks 5 & 6 Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.17	90.4	39.184
Block 4 Con PP Type 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.03	12.7	5.862
Block 3 Green Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	0.9	0.411
Block 2 Green Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	0.9	0.411
Block 5 Green Roof	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	1.7	0.741
Block 2 Con PP Type 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.01	6.1	2.839
Block 2 Soft Land (West)	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.09	11.5	4.992
Block 4 Soft Land	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.10	13.6	5.886
Block 3 Soft Land	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.08	10.7	4.656
Block 3 Planters	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.00	1.1	0.531
Block 2 Planters	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.00	1.6	0.738
Block 2 Soft Land (East)	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.07	9.2	4.003

Block 1 Soft Land	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.09	12.4	5.379
Bax Road 1/1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.04	22.0	9.513
Block 5 North	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	8.2	3.532
Bax Road 1/2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	9.3	4.024
Bax Road 1/3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	7.6	3.310
Bax Road 1/4	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	3.9	1.712
Bax Road 1/5	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	10.1	4.365
Block 1 Entrance	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.05	20.1	9.256
Bax Rd Pavement 1/3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.02	10.4	4.491
Bax Rd Pavement 1/2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	5.6	2.420
Bax Rd Pavement 1/1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	5.1	2.225
Bax Rd Parking Bays	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	6.4	2.776
Block 6 South	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.03	14.8	6.839
Block 6 Entrance	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.01	4.8	2.195
Block 5 Entrance	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.02	8.6	3.979
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	0.01	5.3	2.282
Block 6 West	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.01	4.6	2.141
Block 5 West	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	0.03	12.0	5.538

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m³)
Block 1 Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.08	63.5	27.851
Block 2 Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.10	79.4	34.813
Block 3 Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.10	79.5	34.855
Block 4 Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.11	86.3	37.803
Blocks 5 & 6 Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.17	129.9	56.953
Block 4 Con PP Type 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.03	18.3	8.516
Block 3 Green Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	1.4	0.601
Block 2 Green Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	1.4	0.598
Block 5 Green Roof	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	2.4	1.073
Block 2 Con PP Type 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.01	8.8	4.121
Block 2 Soft Land (West)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.09	16.6	7.256
Block 4 Soft Land	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.10	19.5	8.551
Block 3 Soft Land	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.08	15.4	6.766
Block 3 Planters	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.00	1.6	0.769
Block 2 Planters	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.00	2.3	1.069
Block 2 Soft Land (East)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.07	13.3	5.825

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Block 1 Soft Land	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.09	17.8	7.818
Bax Road 1/1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.04	31.5	13.826
Block 5 North	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	11.7	5.137
Bax Road 1/2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	13.3	5.849
Bax Road 1/3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	11.0	4.809
Bax Road 1/4	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	5.7	2.486
Bax Road 1/5	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	14.5	6.339
Block 1 Entrance	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.05	28.8	13.445
Bax Rd Pavement 1/3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.02	14.9	6.532
Bax Rd Pavement 1/2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	8.0	3.520
Bax Rd Pavement 1/1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	7.4	3.231
Bax Rd Parking Bays	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	9.2	4.043
Block 6 South	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.03	21.3	9.936
Block 6 Entrance	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.01	6.8	3.190
Block 5 Entrance	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.02	12.4	5.785
Block 1 & 2 Con Type 2 PP	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	0.01	7.6	3.318
Block 6 West	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.01	6.7	3.109
Block 5 West	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	0.03	17.3	8.050

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

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
Outfall 1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.410	40.470	40.584	0.114	32.6	0.129	0.000	29.8	19.077	OK
MH1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.580	41.280	41.329	0.049	20.2	0.056	0.000	19.7	12.343	OK
MH2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.920	42.080	42.160	0.080	19.4	0.090	0.000	18.4	11.665	OK
MH3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	45.190	42.240	42.319	0.079	11.1	0.089	0.000	10.5	6.204	OK
MH4	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	45.170	42.430	42.504	0.074	10.4	0.084	0.000	9.7	5.672	OK
UUMH1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.150	41.280	41.325	0.045	9.8	0.051	0.000	9.6	5.590	OK
MH5 (Block 3 Tank Control)	Victoria Point FEH22: 2 years: +0 %: 240 mins: Summer	44.063	41.280	42.072	0.792	2.9	0.896	0.000	2.0	35.830	Surcharged
MH6 (Block 2 Control)	Victoria Point FEH22: 2 years: +0 %: 30 mins: Summer	44.780	42.080	43.047	0.967	6.4	1.094	0.000	2.3	6.076	Surcharged
MH7	Victoria Point FEH22: 2 years: +0 %: 120 mins: Summer	45.580	44.800	44.827	0.027	1.2	0.030	0.000	1.2	3.874	OK
MH8	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	45.500	44.500	44.533	0.033	7.3	0.037	0.000	7.2	4.099	OK
MH9	Victoria Point FEH22: 2 years: +0 %: 360 mins: Summer	45.490	42.600	43.148	0.548	1.5	0.620	0.000	1.1	35.914	Surcharged
Outfall 2	Victoria Point FEH22: 2 years: +0 %: 30 mins: Summer	44.420	39.890	39.987	0.097	26.5	0.109	0.000	26.5	34.710	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 2 years: +0 %: 480 mins: Winter	44.460	41.660	42.390	0.730	2.8	0.825	0.000	1.7	82.334	Surcharged
UUMH2	Victoria Point FEH22: 2 years: +0 %: 30 mins: Summer	44.380	39.390	39.484	0.094	26.5	0.000	0.000	26.5	34.710	OK

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

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
Outfall 1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.410	40.470	40.646	0.176	67.1	0.199	0.000	63.1	36.703	OK
MH1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.580	41.280	41.363	0.083	41.9	0.094	0.000	41.0	23.690	OK
MH2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.920	42.080	42.198	0.118	39.2	0.133	0.000	37.8	22.070	OK
MH3	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	45.190	42.240	42.362	0.122	23.3	0.138	0.000	22.4	12.701	OK
MH4	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	45.170	42.430	42.559	0.129	21.7	0.146	0.000	20.2	11.449	OK
UUMH1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.150	41.280	41.343	0.063	19.1	0.072	0.000	18.8	10.181	OK
MH5 (Block 3 Tank Control)	Victoria Point FEH22: 30 years: +0 %: 120 mins: Winter	44.063	41.280	42.480	1.200	3.4	1.358	0.000	2.2	28.606	Surcharged
MH6 (Block 2 Control)	Victoria Point FEH22: 30 years: +0 %: 240 mins: Winter	44.780	42.080	43.357	1.277	3.3	1.444	0.000	2.4	62.086	Surcharged
MH7	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	45.580	44.800	44.844	0.044	3.2	0.049	0.000	3.2	6.510	OK
MH8	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	45.500	44.500	44.550	0.050	16.7	0.056	0.000	16.4	9.662	OK
MH9	Victoria Point FEH22: 30 years: +0 %: 240 mins: Winter	45.490	42.600	43.504	0.904	1.5	1.023	0.000	1.2	30.520	Surcharged
Outfall 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.420	39.890	40.047	0.157	64.8	0.177	0.000	59.9	38.256	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 30 years: +0 %: 60 mins: Winter	44.460	41.660	42.790	1.130	11.7	1.278	0.000	1.9	33.299	Surcharged
UUMH2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.380	39.390	39.536	0.146	59.9	0.000	0.000	59.9	38.256	OK

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Outflow

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
Outfall 1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.410	40.470	40.678	0.208	86.1	0.235	0.000	79.5	45.542	OK
MH1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.580	41.280	41.370	0.090	50.4	0.102	0.000	53.1	29.434	OK
MH2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.920	42.080	42.212	0.132	46.9	0.149	0.000	45.2	27.347	OK
MH3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	45.190	42.240	42.375	0.135	27.2	0.153	0.000	26.0	16.085	OK
MH4	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	45.170	42.430	42.637	0.207	26.9	0.234	0.000	23.3	14.491	Surcharged
UUMH1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.150	41.280	41.351	0.071	23.9	0.080	0.000	23.6	12.439	OK
MH5 (Block 3 Tank Control)	Victoria Point FEH22: 100 years: +0 %: 60 mins: Summer	44.063	41.280	42.622	1.342	7.4	1.518	0.000	2.2	17.522	Surcharged
MH6 (Block 2 Control)	Victoria Point FEH22: 100 years: +0 %: 60 mins: Summer	44.780	42.080	43.445	1.365	4.7	1.543	0.000	2.5	15.708	Surcharged
MH7	Victoria Point FEH22: 100 years: +0 %: 60 mins: Summer	45.580	44.800	44.849	0.049	4.1	0.056	0.000	4.1	8.520	OK
MH8	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	45.500	44.500	44.557	0.057	21.5	0.064	0.000	21.2	12.476	OK
MH9	Victoria Point FEH22: 100 years: +0 %: 360 mins: Winter	45.490	42.600	43.713	1.113	1.4	1.259	0.000	1.3	49.431	Surcharged
Outfall 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.420	39.890	40.071	0.181	81.2	0.205	0.000	74.8	47.247	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	44.460	41.660	42.888	1.228	11.6	1.389	0.000	1.9	42.382	Surcharged
UUMH2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.380	39.390	39.557	0.167	74.8	0.000	0.000	74.9	47.247	OK

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Outflow

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
Outfall 1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.410	40.470	40.750	0.280	116.2	0.316	0.000	107.3	64.237	OK
MH1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.580	41.280	41.379	0.099	70.4	0.112	0.000	69.5	41.673	OK
MH2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.920	42.080	42.250	0.170	65.5	0.192	0.000	63.0	38.528	OK
MH3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	45.190	42.240	42.415	0.175	37.9	0.198	0.000	36.4	23.321	OK
MH4	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	45.170	42.430	42.896	0.466	38.3	0.527	0.000	32.2	21.199	Surcharged
UUMH1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.150	41.280	41.365	0.085	33.7	0.096	0.000	33.4	17.073	OK
MH5 (Block 3 Tank Control)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.063	41.280	42.848	1.568	17.6	1.773	0.000	2.2	7.829	Surcharged
MH6 (Block 2 Control)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.780	42.080	43.400	1.320	4.4	1.493	0.000	2.5	3.502	Surcharged
MH7	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	45.580	44.800	44.859	0.059	5.8	0.067	0.000	5.8	12.560	OK
MH8	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	45.500	44.500	44.570	0.070	31.5	0.080	0.000	31.1	18.428	OK
MH9	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	45.490	42.600	43.841	1.241	2.2	1.403	0.000	1.4	8.644	Surcharged
Outfall 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.420	39.890	40.118	0.228	108.7	0.258	0.000	102.2	66.169	OK
MH10 (Block 5 & 6 Tank Control)	Victoria Point FEH22: 100 years: +45 %: 30 mins: Summer	44.460	41.660	42.926	1.266	11.6	1.431	0.000	1.9	28.334	Surcharged
UUMH2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.380	39.390	39.596	0.206	102.2	0.000	0.000	102.4	66.169	OK

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 2 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Block 2 PP (West)	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.698	44.685	0.022	0.035	4.5	1.891	0.000	0.000	0.1	0.084	728	93.540
Block 3 PP	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.072	44.042	0.022	0.022	4.2	1.794	0.000	0.000	0.0	0.031	745	92.664
Block 2 & 3 Atten Tank	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	43.037	43.037	0.107	0.107	39.4	14.399	0.000	0.000	8.8	3.899	48	89.373
Block 4 Atten Tank	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	41.983	41.983	0.153	0.153	21.4	8.513	0.000	0.000	2.8	1.890	27	89.861
Block 2 PP (East)	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.720	44.696	0.015	0.016	3.3	1.214	0.000	0.000	0.4	0.404	100	95.550
Block 1 PP	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	45.361	45.346	0.038	0.036	4.4	1.508	0.000	0.000	0.9	0.870	50	82.787
Block 1 Atten Tank	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	43.016	43.016	0.116	0.116	22.6	8.853	0.000	0.000	4.8	1.970	15	92.274
Blocks 5 & 6 Atten Tank	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	42.255	42.255	0.055	0.055	32.2	12.967	0.000	0.000	3.8	1.767	102	94.554
Block 4 PP	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	44.011	44.010	0.035	0.050	4.8	2.001	0.000	0.000	0.2	0.198	356	88.617
Unit 5&^ PP	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	43.990	43.914	0.080	0.064	21.0	9.000	0.000	0.000	3.1	1.762	89	87.199

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Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Block 2 PP (West)	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.717	44.716	0.041	0.066	9.8	4.155	0.000	0.000	0.1	0.139	1072	85.806
Block 3 PP	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.094	44.076	0.044	0.056	9.2	3.958	0.000	0.000	0.0	0.054	903	83.816
Block 2 & 3 Atten Tank	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	43.186	43.186	0.256	0.256	86.9	34.540	0.000	0.000	3.0	4.397	97	74.509
Block 4 Atten Tank	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	42.214	42.214	0.384	0.384	52.2	21.364	0.000	0.000	1.6	1.762		74.556
Block 2 PP (East)	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.734	44.717	0.030	0.037	7.3	2.536	0.000	0.000	1.3	1.417	55	90.705
Block 1 PP	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	45.400	45.385	0.077	0.075	9.8	3.053	0.000	0.000	2.7	2.520	32	65.149
Block 1 Atten Tank	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	43.186	43.186	0.286	0.286	50.4	21.753	0.000	0.000	1.7	2.182	113	81.018
Blocks 5 & 6 Atten Tank	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	42.344	42.344	0.144	0.144	71.1	34.183	0.000	0.000	7.6	1.568	43	85.643
Block 4 PP	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.062	44.062	0.086	0.102	10.7	4.451	0.000	0.000	0.3	0.319	503	74.673
Unit 5&^ PP	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	44.045	43.975	0.135	0.125	46.3	18.310	0.000	0.000	8.6	6.755	65	73.959

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Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Block 2 PP (West)	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.730	44.732	0.055	0.082	12.5	5.278	0.000	0.000	0.1	0.158	1199	81.971
Block 3 PP	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.104	44.090	0.054	0.070	11.7	5.032	0.000	0.000	0.1	0.063	1000	79.422
Block 2 & 3 Atten Tank	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	43.261	43.261	0.331	0.331	110.6	44.608	0.000	0.000	2.9	4.604	129	67.079
Block 4 Atten Tank	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	42.330	42.330	0.500	0.500	66.4	27.772	0.000	0.000	1.9	1.753		66.924
Block 2 PP (East)	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.742	44.727	0.037	0.047	9.2	3.149	0.000	0.000	2.0	1.984	46	88.459
Block 1 PP	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	45.420	45.401	0.097	0.091	12.4	3.775	0.000	0.000	3.6	3.384	30	56.906
Block 1 Atten Tank	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	43.272	43.272	0.372	0.372	64.4	28.265	0.000	0.000	1.9	2.373	133	75.336
Blocks 5 & 6 Atten Tank	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	42.388	42.388	0.188	0.188	90.4	44.672	0.000	0.000	6.0	1.571	72	81.238
Block 4 PP	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.088	44.088	0.112	0.128	13.6	5.683	0.000	0.000	0.3	0.366	557	67.667
Unit 5&^ PP	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	44.070	43.999	0.160	0.149	58.9	23.055	0.000	0.000	11.2	9.199	62	67.209

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Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: Critical Storm Per Item: Rank By: Max. Flooded Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Block 2 PP (West)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.762	44.763	0.086	0.113	17.9	7.687	0.000	0.000	0.2	0.193	510	73.741
Block 3 PP	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.124	44.117	0.074	0.097	16.8	7.341	0.000	0.000	0.1	0.078	1235	69.983
Block 2 & 3 Atten Tank	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	43.421	43.421	0.491	0.491	159.0	66.179	0.000	0.000	4.4	5.000	146	51.160
Block 4 Atten Tank	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	42.579	42.579	0.749	0.749	95.4	41.610	0.000	0.000	3.5	1.791		50.443
Block 2 PP (East)	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.757	44.747	0.053	0.067	13.3	4.384	0.000	0.000	3.4	3.236	37	83.935
Block 1 PP	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	45.467	45.427	0.143	0.117	17.8	5.291	0.000	0.000	5.4	5.187	28	39.600
Block 1 Atten Tank	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	43.454	43.454	0.554	0.554	93.2	42.114	0.000	0.000	2.4	2.769	161	63.251
Blocks 5 & 6 Atten Tank	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	42.471	42.471	0.271	0.271	129.9	64.470	0.000	0.000	2.9	1.586	219	72.923
Block 4 PP	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.144	44.144	0.168	0.184	19.5	8.323	0.000	0.000	0.3	0.449	649	52.644
Unit 5&^ PP	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	44.147	44.054	0.237	0.204	84.7	33.105	0.000	0.000	11.7	11.745	86	52.916

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Victoria Point FEH22: 2 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
MH2 to MH1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH2	MH1	44.920	42.160	0.065	11.604	2.0	0.23	18.4	OK
MH1 to Outfall 1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH1	Outfall 1	44.580	41.329	0.082	12.343	2.0	0.22	19.7	OK
MH3 to MH2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	42.319	0.079	6.204	0.8	0.24	10.5	OK
MH4 to MH3	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	42.504	0.076	5.672	1.1	0.44	9.7	OK
UUMH1 to Outfall 1	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	UUMH1	Outfall 1	44.150	41.325	0.080	5.581	0.8	0.09	9.6	OK
Block 3 Tank to MH5	Victoria Point FEH22: 2 years: +0 %: 30 mins: Summer	Pipe	Block 4 Atten Tank	MH5 (Block 3 Tank Control)	43.930	42.024	0.100	3.442	0.5	0.54	4.2	Surcharged
MH5 to UUMH1	Victoria Point FEH22: 2 years: +0 %: 960 mins: Winter	Pipe	MH5 (Block 3 Tank Control)	UUMH1	44.063	41.867	0.047	60.348	0.6	0.34	2.0	Surcharged
Block 2 Tank to MH6	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	Block 2 & 3 Atten Tank	MH6 (Block 2 Control)	44.530	43.037	0.100	3.899	1.1	0.59	8.8	Surcharged
MH6 to MH2	Victoria Point FEH22: 2 years: +0 %: 480 mins: Summer	Pipe	MH6 (Block 2 Control)	MH2	44.780	43.084	0.072	62.641	0.4	0.38	2.3	Surcharged
Block 1 PP to MH7	Victoria Point FEH22: 2 years: +0 %: 120 mins: Summer	Pipe	Block 1 PP	MH7	45.623	45.356	0.023	3.884	0.7	0.04	1.2	OK
MH7 to MH8	Victoria Point FEH22: 2 years: +0 %: 120 mins: Summer	Pipe	MH7	MH8	45.580	44.827	0.023	3.874	0.7	0.06	1.2	OK
MH8 to Block 1 Atten Tank	Victoria Point FEH22: 2 years: +0 %: 15 mins: Winter	Pipe	MH8	Block 1 Atten Tank	45.500	44.533	0.066	4.099	2.1	0.1	7.2	OK
Block 1 Atten Tank to MH9	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	Block 1 Atten Tank	MH9	45.000	43.016	0.100	1.970	0.6	0.59	4.8	Surcharged
MH9 to MH4	Victoria Point FEH22: 2 years: +0 %: 480 mins: Winter	Pipe	MH9	MH4	45.490	43.144	0.030	40.680	0.7	0.15	1.1	Surcharged
Block 2 PP (East) to MH4	Victoria Point FEH22: 2 years: +0 %: 120 mins: Summer	Pipe	Block 2 PP (East)	MH4	45.154	44.703	0.032	2.774	0.4	0.02	0.7	OK
Outfall 1 to Outfall 2	Victoria Point FEH22: 2 years: +0 %: 15 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	40.584	0.105	19.077	1.3	0.28	29.8	OK

Block 5 & 6 Tank to MH10	Victoria Point FEH22: 2 years: +0 %: 30 mins: Summer	Pipe	Blocks 5 & 6 Atten Tank	MH10 (Block 5 & 6 Tank Control)	43.800	42.284	0.100	1.820	0.6	0.44	4.9	OK
MH10 to Outfall 2	Victoria Point FEH22: 2 years: +0 %: 960 mins: Winter	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.365	0.036	98.211	1.4	0.06	1.7	Surcharged
Outfall 2 to UUMH2	Victoria Point FEH22: 2 years: +0 %: 30 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	39.987	0.095	34.710	1.4	0.21	26.5	OK
Block 2 PP (West) to MH2	Victoria Point FEH22: 2 years: +0 %: 480 mins: Summer	Pipe	Block 2 PP (West)	MH6 (Block 2 Control)	45.160	44.710	0.100	4.933	0.1	0	0.1	OK
Block 3 PP to MH1	Victoria Point FEH22: 2 years: +0 %: 960 mins: Summer	Pipe	Block 3 PP	MH5 (Block 3 Tank Control)	44.560	44.082	0.100	4.777	0.1	0	0.1	OK
Block 4 PP to UUMH1	Victoria Point FEH22: 2 years: +0 %: 360 mins: Summer	Pipe	Block 4 PP	MH5 (Block 3 Tank Control)	44.426	44.046	0.100	6.116	0.1	0.02	0.2	OK
Pipe	Victoria Point FEH22: 2 years: +0 %: 120 mins: Summer	Pipe	Unit 5&^ PP	MH10 (Block 5 & 6 Tank Control)	44.360	43.919	0.100	18.624	0.6	0.33	5.1	OK

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 30 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
MH2 to MH1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH2	MH1	44.920	42.198	0.101	22.002	2.2	0.47	37.8	OK
MH1 to Outfall 1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH1	Outfall 1	44.580	41.363	0.130	23.690	2.5	0.45	41.0	OK
MH3 to MH2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	42.362	0.120	12.701	1.0	0.51	22.4	OK
MH4 to MH3	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	42.559	0.126	11.449	1.3	0.91	20.2	OK
UUMH1 to Outfall 1	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	UUMH1	Outfall 1	44.150	41.343	0.120	10.168	0.9	0.17	18.8	OK
Block 3 Tank to MH5	Victoria Point FEH22: 30 years: +0 %: 30 mins: Winter	Pipe	Block 4 Atten Tank	MH5 (Block 3 Tank Control)	43.930	42.342	0.100	1.037	0.4	0.45	3.5	Surcharged
MH5 to UUMH1	Victoria Point FEH22: 30 years: +0 %: 120 mins: Winter	Pipe	MH5 (Block 3 Tank Control)	UUMH1	44.063	42.480	0.060	26.991	0.6	0.37	2.2	Surcharged
Block 2 Tank to MH6	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	Block 2 & 3 Atten Tank	MH6 (Block 2 Control)	44.530	43.333	0.100	15.782	0.7	0.35	5.2	Surcharged
MH6 to MH2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	MH6 (Block 2 Control)	MH2	44.780	43.168	0.100	2.997	0.4	0.42	2.5	Surcharged
Block 1 PP to MH7	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	Block 1 PP	MH7	45.623	45.397	0.038	6.535	0.9	0.1	3.2	OK
MH7 to MH8	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	MH7	MH8	45.580	44.844	0.039	6.510	1.0	0.16	3.2	OK
MH8 to Block 1 Atten Tank	Victoria Point FEH22: 30 years: +0 %: 15 mins: Winter	Pipe	MH8	Block 1 Atten Tank	45.500	44.550	0.150	9.662	2.2	0.24	16.4	OK
Block 1 Atten Tank to MH9	Victoria Point FEH22: 30 years: +0 %: 30 mins: Winter	Pipe	Block 1 Atten Tank	MH9	45.000	43.297	0.100	4.154	0.5	0.35	2.8	Surcharged
MH9 to MH4	Victoria Point FEH22: 30 years: +0 %: 240 mins: Winter	Pipe	MH9	MH4	45.490	43.504	0.039	30.489	0.7	0.16	1.2	Surcharged
Block 2 PP (East) to MH4	Victoria Point FEH22: 30 years: +0 %: 60 mins: Summer	Pipe	Block 2 PP (East)	MH4	45.154	44.722	0.056	4.610	0.5	0.04	2.0	OK
Outfall 1 to Outfall 2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	40.646	0.166	36.703	1.6	0.59	63.1	OK

Block 5 & 6 Tank to MH10	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	Blocks 5 & 6 Atten Tank	MH10 (Block 5 & 6 Tank Control)	43.800	42.344	0.100	1.541	1.0	0.67	7.6	Surcharged
MH10 to Outfall 2	Victoria Point FEH22: 30 years: +0 %: 60 mins: Winter	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.790	0.067	10.357	0.7	0.07	1.9	Surcharged
Outfall 2 to UUMH2	Victoria Point FEH22: 30 years: +0 %: 15 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	40.047	0.151	38.256	1.7	0.48	59.9	OK
Block 2 PP (West) to MH2	Victoria Point FEH22: 30 years: +0 %: 960 mins: Summer	Pipe	Block 2 PP (West)	MH6 (Block 2 Control)	45.160	44.768	0.100	12.901	0.1	0.01	0.2	Surcharged
Block 3 PP to MH1	Victoria Point FEH22: 30 years: +0 %: 1440 mins: Winter	Pipe	Block 3 PP	MH5 (Block 3 Tank Control)	44.560	44.143	0.100	9.926	0.1	0	0.1	Surcharged
Block 4 PP to UUMH1	Victoria Point FEH22: 30 years: +0 %: 360 mins: Summer	Pipe	Block 4 PP	MH5 (Block 3 Tank Control)	44.426	44.129	0.100	10.003	0.1	0.02	0.3	Surcharged
Pipe	Victoria Point FEH22: 30 years: +0 %: 60 mins: Winter	Pipe	Unit 5&^ PP	MH10 (Block 5 & 6 Tank Control)	44.360	43.980	0.100	32.556	1.5	0.76	11.7	Surcharged

Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 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
MH2 to MH1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH2	MH1	44.920	42.212	0.111	27.277	2.3	0.56	45.2	OK
MH1 to Outfall 1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH1	Outfall 1	44.580	41.370	0.149	29.434	3.0	0.59	53.1	OK
MH3 to MH2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	42.375	0.133	16.085	1.1	0.6	26.0	OK
MH4 to MH3	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	42.637	0.150	14.477	1.3	1.05	23.3	Surcharged
UUMH1 to Outfall 1	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	UUMH1	Outfall 1	44.150	41.351	0.140	12.425	0.9	0.22	23.6	OK
Block 3 Tank to MH5	Victoria Point FEH22: 100 years: +0 %: 30 mins: Summer	Pipe	Block 4 Atten Tank	MH5 (Block 3 Tank Control)	43.930	42.489	0.100	0.713	0.5	0.55	4.2	Surcharged
MH5 to UUMH1	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	Pipe	MH5 (Block 3 Tank Control)	UUMH1	44.063	42.642	0.069	14.131	0.6	0.38	2.3	Surcharged
Block 2 Tank to MH6	Victoria Point FEH22: 100 years: +0 %: 30 mins: Winter	Pipe	Block 2 & 3 Atten Tank	MH6 (Block 2 Control)	44.530	43.365	0.100	8.550	0.9	0.46	6.9	Surcharged
MH6 to MH2	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	Pipe	MH6 (Block 2 Control)	MH2	44.780	43.445	0.100	15.518	0.4	0.43	2.5	Surcharged
Block 1 PP to MH7	Victoria Point FEH22: 100 years: +0 %: 60 mins: Summer	Pipe	Block 1 PP	MH7	45.623	45.418	0.043	8.548	1.0	0.13	4.1	OK
MH7 to MH8	Victoria Point FEH22: 100 years: +0 %: 60 mins: Summer	Pipe	MH7	MH8	45.580	44.849	0.046	8.520	1.0	0.21	4.1	OK
MH8 to Block 1 Atten Tank	Victoria Point FEH22: 100 years: +0 %: 15 mins: Winter	Pipe	MH8	Block 1 Atten Tank	45.500	44.557	0.150	12.476	2.2	0.31	21.2	OK
Block 1 Atten Tank to MH9	Victoria Point FEH22: 100 years: +0 %: 30 mins: Winter	Pipe	Block 1 Atten Tank	MH9	45.000	43.420	0.100	4.528	0.6	0.49	4.0	Surcharged
MH9 to MH4	Victoria Point FEH22: 100 years: +0 %: 360 mins: Winter	Pipe	MH9	MH4	45.490	43.713	0.039	49.400	0.7	0.18	1.3	Surcharged
Block 2 PP (East) to MH4	Victoria Point FEH22: 100 years: +0 %: 60 mins: Summer	Pipe	Block 2 PP (East)	MH4	45.154	44.732	0.068	6.100	0.6	0.06	2.7	OK
Outfall 1 to Outfall 2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	40.678	0.195	45.542	1.6	0.74	79.5	OK

Project: Victoria Point			Date: 21/08/2024		
			Designed by: MW	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase			Company Address: Heyne Tillett Steel		

Block 5 & 6 Tank to MH10	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	Blocks 5 & 6 Atten Tank	MH10 (Block 5 & 6 Tank Control)	43.800	42.388	0.100	1.418	0.8	0.54	6.0	Surcharged
MH10 to Outfall 2	Victoria Point FEH22: 100 years: +0 %: 60 mins: Winter	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	42.888	0.076	11.151	0.7	0.07	2.0	Surcharged
Outfall 2 to UUMH2	Victoria Point FEH22: 100 years: +0 %: 15 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	40.071	0.174	47.247	1.8	0.6	74.8	OK
Block 2 PP (West) to MH2	Victoria Point FEH22: 100 years: +0 %: 1440 mins: Summer	Pipe	Block 2 PP (West)	MH6 (Block 2 Control)	45.160	44.808	0.100	20.448	0.1	0.01	0.2	Surcharged
Block 3 PP to MH1	Victoria Point FEH22: 100 years: +0 %: 1440 mins: Winter	Pipe	Block 3 PP	MH5 (Block 3 Tank Control)	44.560	44.185	0.100	11.561	0.1	0	0.1	Surcharged
Block 4 PP to UUMH1	Victoria Point FEH22: 100 years: +0 %: 480 mins: Summer	Pipe	Block 4 PP	MH5 (Block 3 Tank Control)	44.426	44.180	0.100	14.694	0.1	0.03	0.4	Surcharged
Pipe	Victoria Point FEH22: 100 years: +0 %: 30 mins: Summer	Pipe	Unit 5&^ PP	MH10 (Block 5 & 6 Tank Control)	44.360	44.000	0.100	22.468	1.5	0.77	11.8	Surcharged

Project: Victoria Point			Date: 21/08/2024		
			Designed by: MW	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase			Company Address: Heyne Tillett Steel		

Victoria Point FEH22: 100 years: Increase Rainfall (%): +45: 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
MH2 to MH1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	MH2	MH1	44.920	42.250	0.135	38.448	2.5	0.78	63.0	OK
MH1 to Outfall 1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	MH1	Outfall 1	44.580	41.379	0.150	41.673	3.9	0.77	69.5	OK
MH3 to MH2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	MH3	MH2	45.190	42.415	0.172	23.321	1.1	0.83	36.4	OK
MH4 to MH3	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	MH4	MH3	45.170	42.896	0.150	20.952	1.8	1.46	32.2	Surcharged
UUMH1 to Outfall 1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	UUMH1	Outfall 1	44.150	41.365	0.182	17.056	1.0	0.31	33.4	OK
Block 3 Tank to MH5	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	Pipe	Block 4 Atten Tank	MH5 (Block 3 Tank Control)	43.930	42.593	0.100	0.300	0.5	0.54	4.2	Surcharged
MH5 to UUMH1	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	Pipe	MH5 (Block 3 Tank Control)	UUMH1	44.063	42.948	0.091	3.349	0.7	0.44	2.6	Surcharged
Block 2 Tank to MH6	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	Pipe	Block 2 & 3 Atten Tank	MH6 (Block 2 Control)	44.530	43.420	0.100	5.025	0.7	0.38	5.6	Surcharged
MH6 to MH2	Victoria Point FEH22: 100 years: +45 %: 30 mins: Summer	Pipe	MH6 (Block 2 Control)	MH2	44.780	43.556	0.100	7.510	0.4	0.47	2.8	Surcharged
Block 1 PP to MH7	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	Block 1 PP	MH7	45.623	45.460	0.052	12.591	1.1	0.19	5.8	OK
MH7 to MH8	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	MH7	MH8	45.580	44.859	0.056	12.560	1.1	0.3	5.8	OK
MH8 to Block 1 Atten Tank	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	Pipe	MH8	Block 1 Atten Tank	45.500	44.570	0.150	18.428	2.1	0.45	31.1	OK
Block 1 Atten Tank to MH9	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	Pipe	Block 1 Atten Tank	MH9	45.000	43.472	0.100	2.814	0.6	0.39	3.1	Surcharged
MH9 to MH4	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	MH9	MH4	45.490	43.841	0.100	8.609	0.7	0.18	1.4	Surcharged
Block 2 PP (East) to MH4	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	Block 2 PP (East)	MH4	45.154	44.750	0.146	9.085	0.7	0.09	4.3	OK
Outfall 1 to Outfall 2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	Outfall 1	Outfall 2	44.410	40.750	0.254	64.237	1.7	1	107.3	OK

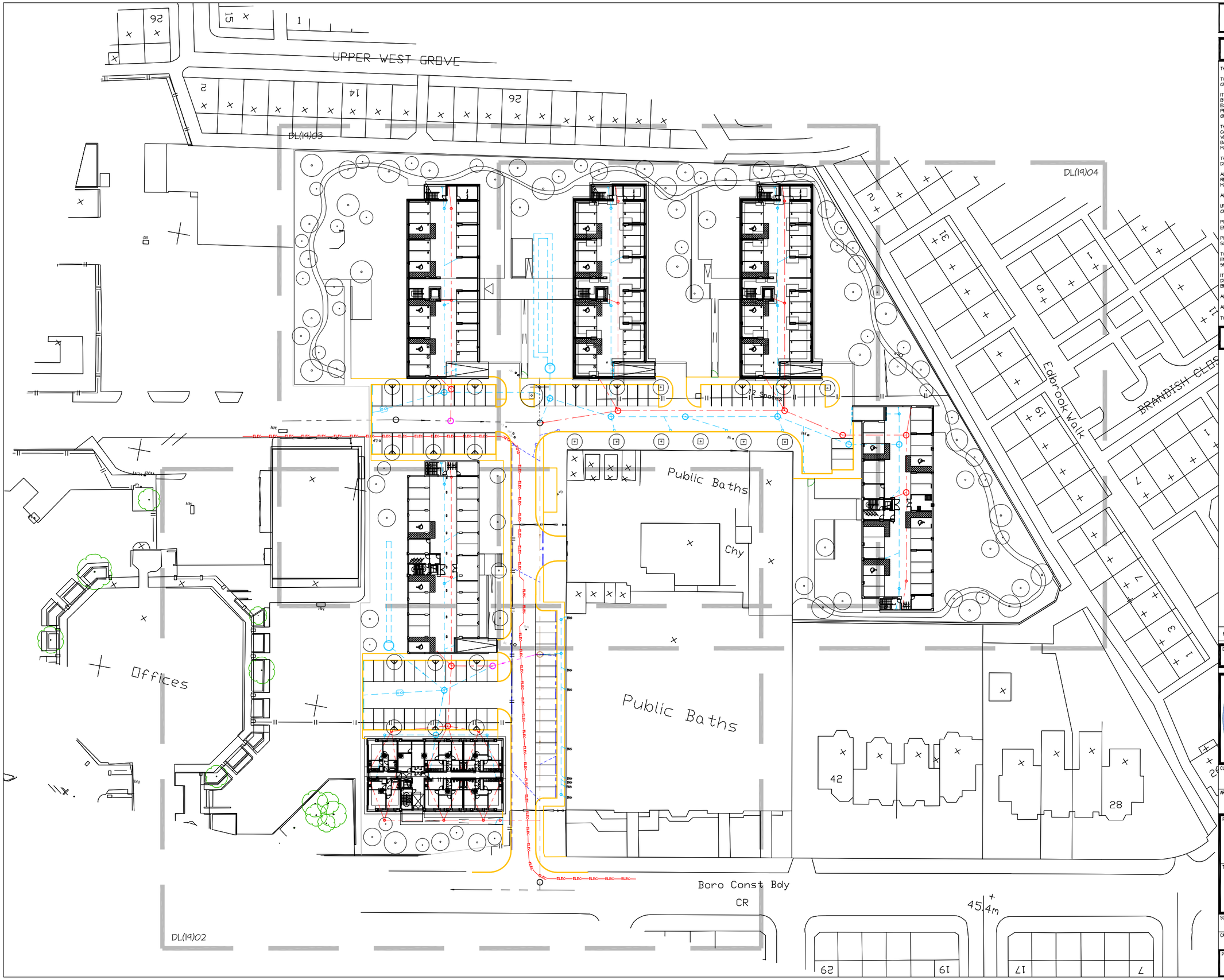
Project: Victoria Point	Date: 21/08/2024		
	Designed by: MW	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address: Heyne Tillett Steel		

Block 5 & 6 Tank to MH10	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	Blocks 5 & 6 Atten Tank	MH10 (Block 5 & 6 Tank Control)	43.800	42.772	0.100	2.063	0.6	0.41	4.6	Surcharged
MH10 to Outfall 2	Victoria Point FEH22: 100 years: +45 %: 60 mins: Summer	Pipe	MH10 (Block 5 & 6 Tank Control)	Outfall 2	44.460	43.020	0.100	11.978	0.8	0.07	2.0	Surcharged
Outfall 2 to UUMH2	Victoria Point FEH22: 100 years: +45 %: 15 mins: Summer	Pipe	Outfall 2	UUMH2	44.420	40.118	0.217	66.169	1.9	0.82	102.2	OK
Block 2 PP (West) to MH2	Victoria Point FEH22: 100 years: +45 %: 1440 mins: Summer	Pipe	Block 2 PP (West)	MH6 (Block 2 Control)	45.160	44.895	0.100	27.272	0.1	0.01	0.2	Surcharged
Block 3 PP to MH1	Victoria Point FEH22: 100 years: +45 %: 1440 mins: Winter	Pipe	Block 3 PP	MH5 (Block 3 Tank Control)	44.560	44.270	0.100	14.275	0.1	0.01	0.1	Surcharged
Block 4 PP to UUMH1	Victoria Point FEH22: 100 years: +45 %: 480 mins: Summer	Pipe	Block 4 PP	MH5 (Block 3 Tank Control)	44.426	44.296	0.100	19.339	0.1	0.03	0.5	Surcharged
Pipe	Victoria Point FEH22: 100 years: +45 %: 15 mins: Winter	Pipe	Unit 5&^ PP	MH10 (Block 5 & 6 Tank Control)	44.360	44.046	0.100	11.929	1.6	0.79	12.2	Surcharged

HEYNE TILLETT STEEL

Appendix G

Archive Drawings



DO NOT SCALE

NOTES

THE WORKS SHALL BE IN ACCORDANCE WITH THE NATIONAL BUILDING SPECIFICATION.

THE LOCATION LINE & LEVEL OF ALL KNOWN EXISTING DRAINAGE PIPEWORK INDICATED ON THE DRAWINGS ARE APPROXIMATE AND FOR GUIDANCE PURPOSES ONLY.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THEIR EXACT LINE AND LEVEL, BY WAY OF HAND EXCAVATED TRIAL PITS, PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION WORKS ON SITE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND MAINTAIN THE STRUCTURAL INTEGRITY OF ALL ABOVE AND BELOW GROUND SERVICE INSTALLATIONS.

THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THROUGHOUT THE DURATION OF THE CONTRACT A FULL TRAFFIC MANAGEMENT SYSTEM TO ENSURE SAFE PASSAGE OF VEHICLES/PEDESTRIANS IN THE VICINITY OF THE WORKS. ALL TRAFFIC SIGNS, SIGNALS, BARRIERS ETC. SHALL BE IN ACCORDANCE WITH CHAPTER 8 OF THE TRAFFIC SIGNS MANUAL.

THE CONTRACTOR SHALL MAKE ADEQUATE PROVISION FOR DEALING WITH AND DISPOSING OF GROUND/SURFACE WATER ENCOUNTERED DURING EXCAVATIONS

ALL SOFT / HARD PAVED AREAS AFFECTED BY THE WORKS SHALL BE FULLY REINSTATED FOLLOWING THE INSTALLATION OF ALL DRAINAGE WORKS. ALL SURFACE MARKINGS AFFECTED BY THE WORKS SHALL BE FULLY REINSTATED.

ALL SURPLUS EXCAVATED MATERIAL SHALL BE DISPOSED OFF SITE.

UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL PROVIDE AS BUILT SETTING OUT CO-ORDINATE AND LEVEL INFORMATION.

PIPEWORK WITH LESS THAN 750mm OF COVER IN TRAFFICKED AREAS TO BE CONCRETE ENCASED. (BEDDING CLASS Z)

PIPEWORK WITH MORE THAN 750mm OF COVER TO HAVE CLASS S GRANULAR BED AND SURROUND.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTS, ENGINEER'S AND SPECIALIST'S DRAWINGS TOGETHER WITH THE APPROPRIATE SPECIFICATION.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL DIMENSIONS ON SITE. DIMENSIONS MUST NOT BE SCALED FROM THIS DRAWING. ANY DISCREPANCIES TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT IN WRITING.

ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES, UNLESS NOTED OTHERWISE.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DL(19)02, DL(19)03 AND DL(19)04.

LEGEND

- EXISTING COMBINED PUBLIC SEWER
- EXISTING COMBINED SEWER (TO BE FORMALLY RECLASSIFIED AS ADOPTED AS PART OF DIVERSION AGREEMENT)
- PROPOSED PRIVATE SURFACE WATER SEWER (TO BE 100Ø UNLESS OTHERWISE STATED)
- PROPOSED PRIVATE FOUL SEWER (TO BE 100Ø UNLESS OTHERWISE STATED)
- PROPOSED PRIVATE COMBINED SEWER
- PROPOSED HIGHWAY DRAINAGE
- RG — PROPOSED TRAPPED ROAD GULLY
- YG — PROPOSED YARD GULLY
- RWP — PROPOSED RAIN WATER DOWN SPOUT
- SFO — PROPOSED RAIN WATER DOWN SPOUT FROM FLOOR ABOVE
- SVP — PROPOSED SOIL VENT PIPE, TO BE FITTED WITH A LOW LEVEL ACCESS PLATE.
- FFO — PROPOSED SOIL VENT PIPE FROM FIRST FLOOR ABOVE

REV	DATE	BY	DESCRIPTION	CHK	APD
C5	12.02.09	MNL	UPDATED AS LOCAL AUTHORITY COMMENTS. CAR PARKING BAYS INCREASED TO 2.5m WIDE TO PROVIDE BETTER MANOEUVRABILITY.	MCH	PJB
C4	21.11.08	MNL	LAYOUT UPDATED	MCH	PJB
C3	04.09.08	RAH	LAYOUT UPDATED AS APPROVED BY LU.	MCH	PJB
C2	01.04.08	DRL	ARCHITECTS LATEST LAYOUT UPDATED.	MCH	PJB
C1	08.02.08	DRL	ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB
P1	30.08.07	DRL	ISSUED FOR INFORMATION	MCH	PJB

DRAWING STATUS: CONSTRUCTION

Tier Consult Ltd.
Elm House Farm
Saighton
Chester
CH3 6EN

Telephone: 01244 333080
Fax: 01244 333081
Mobile: 07966 687066
Email: info@tieruk.com

CLIENT: MCR PROPERTIES

ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: FOUL AND SURFACE WATER DRAINAGE LAYOUT (SHEET 1 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
1:400 @ A1	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: JUL'07

PROJECT No:	DRAWING No:	REV:
T/07/526	DL(19)01	C5

NOTE

1. FINAL POSITIONS OF SVP AND RWP LOCATIONS TO BE CONFIRMED BY ARCHITECT

2. ROUTES OF UNDERSLUNG DRAINAGE FROM GROUND FLOOR BY OTHERS

3. NO GROUND FLOOR STEELWORK IS TO BE ALTERED TO ACCOMMODATE UNDERSLUNG DRAINAGE UNLESS DIRECTED BY TIER CONSULT

HW

MH

Public Baths

Chy

Boro Const

CR

ices

RWP

FMH 3.2
CL 9.450
IL 8.625

SMH 2.2
CL 9.450
IL 8.625

1050Ø PIPE
IL 8.310

BLOCK 5
FFL 12.375
BL 9.450

23m OF 1250Ø RIDGIDRAIN SEWER @ 1:1000

1500 @ 1:167

1500 @ 1:100

FMH 3.1
CL 9.450
IL 8.341

SMH 2.1
CL 9.450
IL 8.490

2.1Ø CHAMBER
SMH 10.0
CL 10.400
IL 8.285

'SPEL' STORMCEPTOR CLASS 1 BY-PASS SEPORATOR NSB 3 MODEL 103 G1/SC/A 160/160

'ACO' DRAINAGE CHANNEL, REF. NK00K 30.0 WITH HEELGUARD GRATING

'ACO' DRAINAGE CHANNEL SUMP OUTLET, REF. NK900

1500

3000 OVERFLOW PIPE @ 1:1000

SMH 2.0
CL 10.584
IL 8.270

FMH 3.0
CL 10.550
IL 8.184

1500 @ 1:80

1500 @ 1:49

CMH 2.0
CL 10.850
IL 8.020

BACKDROP
IL 9.124

BACKDROP
IL 9.525

SHARP EDGED ORIFICE PLATE TO LIMIT FORWARD FLOW TO 13 L/SEC MANHOLE TO BE CATCHPIT WITH 300mm SUMP

FMH 2.2
CL 10.975
IL 9.775

FMH 2.1
CL 10.975
IL 9.261

FMH 2.0
CL 10.975
IL 9.775

SMH 3.1
CL 10.975
IL 10.075

SMH 3.0
CL 10.975
IL 9.625

1500 @ 1:25

1500 @ 1:25.8

1500 @ 1:13.6

1500 @ 1:25.8

SMH 4.0
CL 10.975
IL 10.075

BLOCK 6

SVP

RWP

1500 @ 1:70

1500 @ 1:80

1500 @ 1:100

FMH 7.3
CL 10.975
IL 10.075

FMH 7.2
CL 10.975
IL 9.862

FMH 7.4
CL 10.975
IL 9.710

MARSHALLS MINI BEANY BLOCK' RODDING ACCESS POINT

EXISTING BRICK CULVERT COMBINED FLOW PUBLIC SEWER

EXISTING COMBINED FLOW PUBLIC UU REF. 7402 CMH 1.0 CL 11.010 IL 6.020

MANHOLE TO BE CATCHPIT WITH 300mm SUMP

300Ø @ 1:100

Ø450 @ 1:100

1500 @ 1:24

1500 @ 1:2

1500 @ 1:2.5

SADDLE CONNECTION IL 6.170

EXISTING BURIED MANHOLE TO BE EXPOSED AND NEW COVER AND FRAME TO BE INSTALLED
CMH 1.1
CL 11.110
IL 6.570

SMH 11.2
CL 10.925
IL 10.310

SMH 11.0
CL 10.925
IL 9.990

BACKDROP
IL 7.840

BACKDROP
IL 7.840

SMH 11.1
CL 10.925
IL 10.310

BIG

FMH 7.0
CL 10.975
IL 9.732

NOTE

1. ALL EXISTING SERVICES AND STATUTORY UNDERTAKERS APPARATUS SHOWN ARE AS GUIDANCE ONLY - LOCATIONS ARE APPROXIMATE.

2. THE DRAWING MAY NOT BE CONCLUSIVE AND THE CONTRACTOR SHOULD BE AWARE THAT THERE MAY BE ADDITIONAL APPARATUS WITHIN THE PROXIMITY OF THE WORKS THAT ARE NOT SHOWN.

3. ANY GROUNDWORKS SHOULD BE UNDERTAKEN WITH EXTREME CAUTION AND IN ACCORDANCE WITH HEALTH & SAFETY EXECUTIVE GUIDELINES: HSG 47 - AVOIDING DANGER FROM UNDERGROUND SERVICES.

DO NOT SCALE

NOTES

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THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THROUGHOUT THE DURATION OF THE CONTRACT A FULL TRAFFIC MANAGEMENT SYSTEM TO ENSURE SAFE PASSAGE OF VEHICLES/PEDESTRIANS IN THE VICINITY OF THE WORKS. ALL TRAFFIC SIGNS, SIGNALS, BARRIERS ETC. SHALL BE IN ACCORDANCE WITH CHAPTER 8 OF THE TRAFFIC SIGNS MANUAL.

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PIPEWORK WITH LESS THAN 750mm OF COVER IN TRAFFICKED AREAS TO BE CONCRETE ENCASED. (BEDDING CLASS Z)

PIPEWORK WITH MORE THAN 750mm OF COVER TO HAVE CLASS S GRANULAR BED AND SURROUND.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTS, ENGINEER'S AND SPECIALIST'S DRAWINGS TOGETHER WITH THE APPROPRIATE SPECIFICATION.

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ALL LEVELS ARE IN METRES, UNLESS NOTED OTHERWISE.

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LEGEND

- EXISTING COMBINED PUBLIC SEWER
- EXISTING COMBINED SEWER (TO BE FORMALLY RECLASSIFIED AS ADOPTED AS PART OF DIVERSION AGREEMENT)
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- YG — PROPOSED YARD GULLY
- BIG — PROPOSED BACK INLET GULLY
- RWP — PROPOSED RAIN WATER DOWN SPOUT
- SFO — PROPOSED RAIN WATER DOWN SPOUT FROM FLOOR ABOVE
- SVP — PROPOSED SOIL VENT PIPE, TO BE FITTED WITH A LOW LEVEL ACCESS PLATE.
- FFO — PROPOSED SOIL VENT PIPE FROM FIRST FLOOR ABOVE

REV	DATE	BY	DESCRIPTION	CHK	APD
C6	12.02.09	RAH	UPDATED AS LOCAL AUTHORITY COMMENTS. CAR PARKING BAYS INCREASED TO 2.5m WIDE TO PROVIDE BETTER MANOEUVRABILITY. BACK INLET GULLYS ADDED FOR VICTORIA BATHS	MCH	PJB
C5	21.11.08	MNL	LAYOUT UPDATED	MCH	PJB
C4	04.09.08	RAH	LAYOUT UPDATED AS APPROVED BY UU.	MCH	PJB
C3	04.04.08	DRL	BLOCK 6 DRAINAGE UPDATED IN LINE WITH ARCHITECTS LATEST LAYOUT. ARCHITECTS LAYOUT UPDATED.	MCH	PJB
C2	18.02.08	DRL	SETTING OUT DIMENSIONS ADDED FOR BLOCKS 5 AND 6.	MCH	PJB
C1	08.02.08	DRL	ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB
P1	30.08.07	DRL	ISSUED FOR INFORMATION	MCH	PJB

DRAWING STATUS: CONSTRUCTION

Tier Consult Ltd.
Elm House Farm
Saighton
Chester
CH3 6EN

Telephone: 01244 333080
Fax: 01244 333081
Mobile: 07966 687066
Email: info@tieruk.com

CLIENT: MCR PROPERTIES

ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: FOUL AND SURFACE WATER DRAINAGE LAYOUT (SHEET 2 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
1:200 @ A1	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: JUL'07

PROJECT No:	DRAWING No:	REV:
T/07/526	DL(19)02	C6

DO NOT SCALE

NOTES

THE WORKS SHALL BE IN ACCORDANCE WITH THE NATIONAL BUILDING SPECIFICATION.

THE LOCATION LINE & LEVEL OF ALL KNOWN EXISTING DRAINAGE PIPEWORK INDICATED ON THE DRAWINGS ARE APPROXIMATE AND FOR GUIDANCE PURPOSES ONLY.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE THEIR EXACT LINE AND LEVEL, BY WAY OF HAND EXCAVATED TRIAL PITS, PRIOR TO THE COMMENCEMENT OF ANY EXCAVATION WORKS ON SITE. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND MAINTAIN THE STRUCTURAL INTEGRITY OF ALL ABOVE AND BELOW GROUND SERVICE INSTALLATIONS.

THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THROUGHOUT THE DURATION OF THE CONTRACT A FULL TRAFFIC MANAGEMENT SYSTEM TO ENSURE SAFE PASSAGE OF VEHICLES/PEDESTRIANS IN THE VICINITY OF THE WORKS. ALL TRAFFIC SIGNS, SIGNALS, BARRIERS ETC. SHALL BE IN ACCORDANCE WITH CHAPTER 8 OF THE TRAFFIC SIGNS MANUAL.

THE CONTRACTOR SHALL MAKE ADEQUATE PROVISION FOR DEALING WITH AND DISPOSING OF GROUND/SURFACE WATER ENCOUNTERED DURING EXCAVATIONS

ALL SOFT / HARD PAVED AREAS AFFECTED BY THE WORKS SHALL BE FULLY REINSTATED FOLLOWING THE INSTALLATION OF ALL DRAINAGE WORKS. ALL SURFACE MARKINGS AFFECTED BY THE WORKS SHALL BE FULLY REINSTATED.

ALL SURPLUS EXCAVATED MATERIAL SHALL BE DISPOSED OFF SITE.

UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL PROVIDE AS BUILT SETTING OUT CO-ORDINATE AND LEVEL INFORMATION.

PIPEWORK WITH LESS THAN 750mm OF COVER IN TRAFFICKED AREAS TO BE CONCRETE ENCASED. (BEDDING CLASS Z)

PIPEWORK WITH MORE THAN 750mm OF COVER TO HAVE CLASS S GRANULAR BED AND SURROUND.

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ALL LEVELS ARE IN METRES, UNLESS NOTED OTHERWISE.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DL(19)01, DL(19)02 AND DL(19)04.

LEGEND

- EXISTING COMBINED PUBLIC SEWER
- EXISTING COMBINED SEWER (TO BE FORMALLY RECLASSIFIED AS ADOPTED AS PART OF DIVERSION AGREEMENT)
- PROPOSED PRIVATE SURFACE WATER SEWER (TO BE 100Ø UNLESS OTHERWISE STATED)
- PROPOSED PRIVATE FOUL SEWER (TO BE 100Ø UNLESS OTHERWISE STATED)
- PROPOSED PRIVATE COMBINED SEWER
- PROPOSED HIGHWAY DRAINAGE
- RG PROPOSED TRAPPED ROAD GULLY
- YG PROPOSED YARD GULLY
- RWP PROPOSED RAIN WATER DOWN SPOUT
- SFO PROPOSED RAIN WATER DOWN SPOUT FROM FLOOR ABOVE
- SVP PROPOSED SOIL VENT PIPE, TO BE FITTED WITH A LOW LEVEL ACCESS PLATE.
- FFO PROPOSED SOIL VENT PIPE FROM FIRST FLOOR ABOVE

REV	DATE	BY	DESCRIPTION	CHK	APD
C8	12.02.09	MNL	UPDATED AS LOCAL AUTHORITY COMMENTS, CAR PARKING BAYS INCREASED TO 2.5m WIDE TO PROVIDE BETTER MANOEUVRABILITY	MCH	PJB
C7	21.11.08	MNL	LAYOUT UPDATED	MCH	PJB
C6	01.10.08	RAH	SURFACE WATER RUN SMH 5.0 - SMH 1.2 MOVED TO BE OUTSIDE THE NEW PROPOSED EXTENTS OF ADOPTION.	MCH	PJB
C5	24.09.08	DRL	DRAINAGE ADJACENT TO BLOCK 3 AMENDED	MCH	PJB
C4	04.09.08	RAH	LAYOUT UPDATED AS APPROVED BY LU	MCH	PJB
C3	04.04.08	DRL	BLOCK 4 DRAINAGE RUNS AMENDED IN LINE WITH CONTRACTORS COMMENT/REQUESTS. ARCHITECTS LAYOUT UPDATED.	MCH	PJB
C2	18.02.08	DRL	SETTING OUT DIMENSIONS ADDED FOR BLOCKS 5 AND 6.	MCH	PJB
C1	08.02.08	DRL	ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB
P1	30.08.07	DRL	ISSUED FOR INFORMATION	MCH	PJB

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PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: FOUL AND SURFACE WATER DRAINAGE LAYOUT (SHEET 3 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
1:200 @ A1	MCH	PJB
CAD FILE:	DESIGN/DRAWN:	DATE:
	DRL	JUL'07

PROJECT No:	DRAWING No:	REV:
T/07/526	DL(19)03	C8

BLOCK 4 FFL 12.470 BL 9.545

BLOCK 3 FFL 12.710 BL 9.845

BLOCK 2 FFL 13.300 BL 10.375

BLOCK 5 FFL 12.375 BL 9.450

BLOCK 1 FFL 13.590 BL 10.575

'SPEL' STORMCEPTOR CLASS I BY-PASS SEPORATOR NSB 3 MODEL 103 CI/SC/A 160/160

'ACO' DRAINAGE CHANNEL, REF. NIOOK 20.0 WITH HEELGUARD GRATING

'ACO' DRAINAGE CHANNEL SUMP OUTLET, REF. NK900

EXISTING MANHOLE LU REF 6901 CMH 1.4 CL 10.575 IL 8.235

EXISTING MANHOLE LU REF 6004 CMH 1.2 CL 11.060 IL 7.130

EXISTING MANHOLE CL 11.180 IL 7.410

2.1Ø CHAMBER SMH 6.0 CL 11.300 IL 7.755

60 lm of 1050Ø RIDGIDRAIN SEWER @ 1:1000

1050Ø PIPE IL 7.185

1050Ø PIPE IL 8.310

LENGTH OF EXISTING PUBLIC SEWER TO BE RELAID UNDER DIVERSION AGREEMENT

SHARP EDGED ORIFICE PLATE TO LIMIT FORWARD FLOW TO 32.5 L/SEC MANHOLE TO BE CATCHPIT WITH 300mm SUMP

BACKDROP IL 7.930

BACKDROP IL 7.990

BACKDROP IL 9.662

Public Baths

Chy

Spaces

NOTE

1. FINAL POSITIONS OF SVP AND RWP LOCATIONS TO BE CONFIRMED BY ARCHITECT

2. ROUTES OF UNDERSLUNG DRAINAGE FROM GROUND FLOOR BY OTHERS

3. NO GROUND FLOOR STEELWORK IS TO BE ALTERED TO ACCOMMODATE UNDERSLUNG DRAINAGE UNLESS DIRECTED BY TIER CONSULT

NOTE

1. ALL EXISTING SERVICES AND STATUTORY UNDERTAKERS APPARATUS SHOWN ARE AS GUIDANCE ONLY - LOCATIONS ARE APPROXIMATE.

2. THE DRAWING MAY NOT BE CONCLUSIVE AND THE CONTRACTOR SHOULD BE AWARE THAT THERE MAY BE ADDITIONAL APPARATUS WITHIN THE PROXIMITY OF THE WORKS THAT ARE NOT SHOWN.

3. ANY GROUNDWORKS SHOULD BE UNDERTAKEN WITH EXTREME CAUTION AND IN ACCORDANCE WITH HEALTH & SAFETY EXECUTIVE GUIDELINES: HSG 47 - AVOIDING DANGER FROM UNDERGROUND SERVICES.

DO NOT SCALE

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NOTE

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C6	12.02.09	WNL	UPDATED AS LOCAL AUTHORITY COMMENTS. CAR PARKING BAYS INCREASED TO 2.5m WIDE TO PROVIDE BETTER MANOEUVRABILITY.	MCH	PJB
C5	21.11.08	WNL	LAYOUT UPDATED	MCH	PJB
C4	29.09.08	DRL	DRAINAGE ADJACENT TO BLOCK 3 AMENDED	MCH	PJB
C3	04.09.08	RAH	LAYOUT UPDATED AS APPROVED BY LU.	MCH	PJB
C2	09.04.08	DRL	ARCHITECTS LAYOUT UPDATED.	MCH	PJB
C1	08.02.08	DRL	ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB
P1	30.08.07	DRL	ISSUED FOR INFORMATION	MCH	PJB

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CH3 6EN

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CLIENT: MCR PROPERTIES

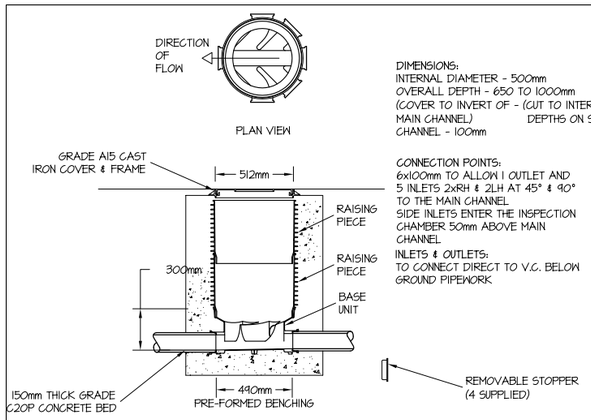
ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: FOUL AND SURFACE WATER DRAINAGE LAYOUT (SHEET 4 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
1:200 @ A1	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: JUL'07

PROJECT No:	DRAWING No:	REV:
T/07/526	DL(19)04	C6



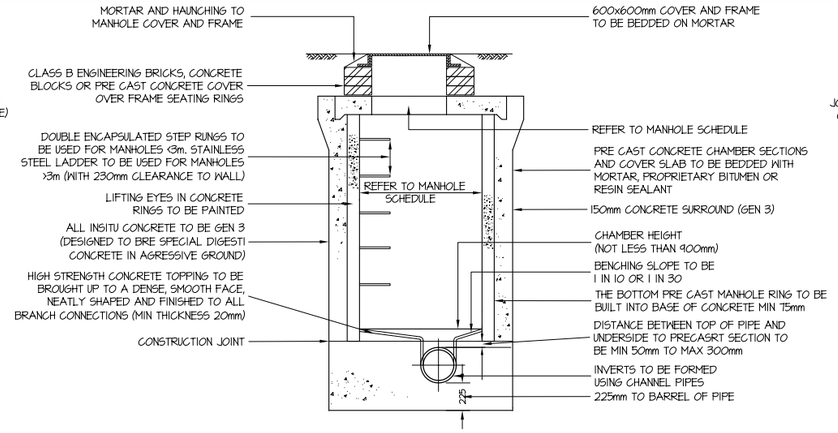
DIMENSIONS:
INTERNAL DIAMETER - 500mm
OVERALL DEPTH - 650 TO 1000mm (COVER TO INVERT OF - (CUT TO INTERIM MAIN CHANNEL) DEPTHS ON SITE)
CHANNEL - 100mm

CONNECTION POINTS:
6x100mm TO ALLOW 1 OUTLET AND 5 INLETS 2xRH & 2LH AT 45° & 90° TO THE MAIN CHANNEL
SIDE INLETS ENTER THE INSPECTION CHAMBER 50mm ABOVE MAIN CHANNEL

INLETS & OUTLETS:
TO CONNECT DIRECT TO V.C. BELOW GROUND PIPEWORK

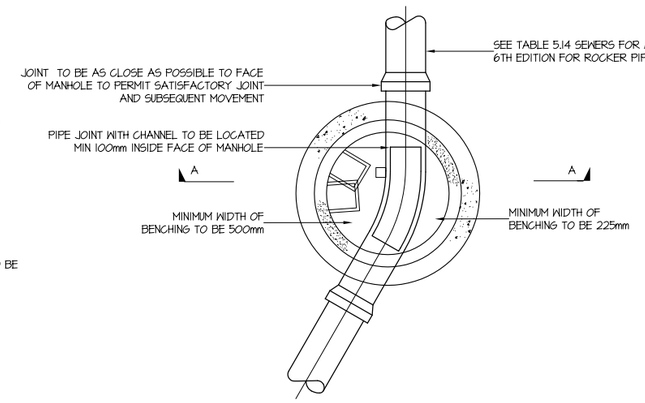
LIGHTWEIGHT POLYPROPYLENE INSPECTION CHAMBER

SCALE 1:20



TYPICAL MANHOLE DETAIL - TYPE B

SCALE 1:25



PLAN OF TYPICAL MANHOLE

DO NOT SCALE

GENERAL NOTES:

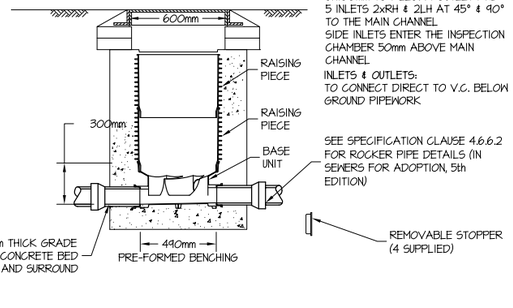
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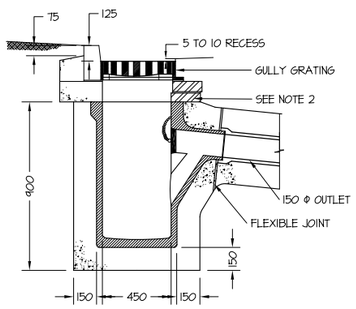
INLETS & OUTLETS:
TO CONNECT DIRECT TO V.C. BELOW GROUND PIPEWORK

HEAVY DUITY POLYPROPYLENE INSPECTION CHAMBER

SCALE 1:20

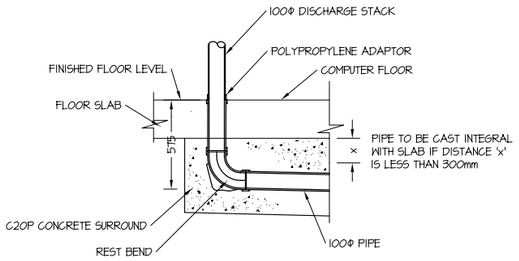
GULLY NOTES

1. DUCTILE IRON GULLY GRATING AND FRAME TO BS EN124 LOAD CLASS D400 BEDDED ON 10mm 1:3 SAND/CEMENT MORTAR (NON-ROCK DESIGN).
2. COVER AND FRAME TO BE SEATED ON 2 COURSES MIN , 4 COURSES MAX OF ENGINEERING BRICKWORK CLASS "B"
3. GULLY POTS TO BE PRECAST CONCRETE TO BS 5911 PART 2 WITH 150mm THICK ST4 CONCRETE FOUNDATION ANDSURROUND. OUTLET TO BE 150mm DIA., TRAPPED, WITH GALVANIZED METAL CHAIN AND STOPPER.
4. UNLESS OTHERWISE STATED PIPE CONNECTION BETWEEN MAIN RUN AND GULLY CONNECTION TO BE BEDDING TYPE Z.
5. MINIMUM WATERWAY OF GULLY TO BE 916cm .



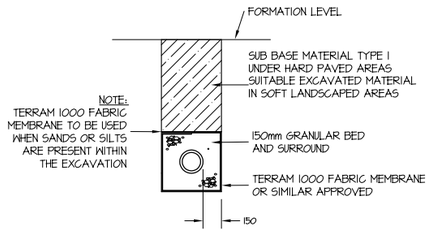
STANDARD ROAD GULLY DETAIL

SCALE 1:20



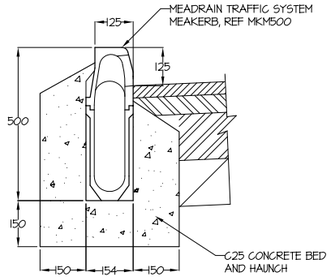
FOUL OUTLET CONNECTION DETAIL

SCALE1:20



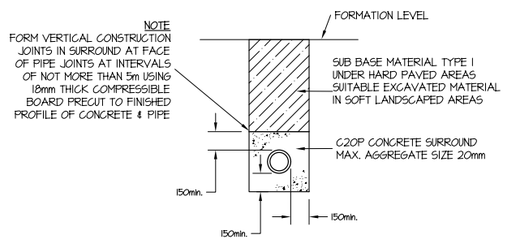
PIPE BEDDING - TYPE S

SCALE 1:25

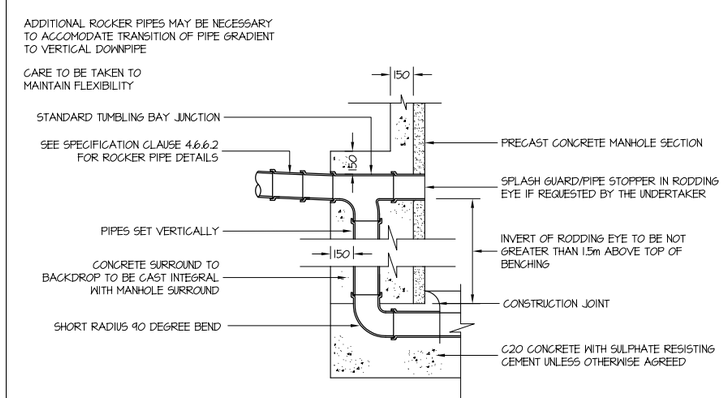


'MEAKERB' KERB UNIT DETAIL

SCALE 1:10

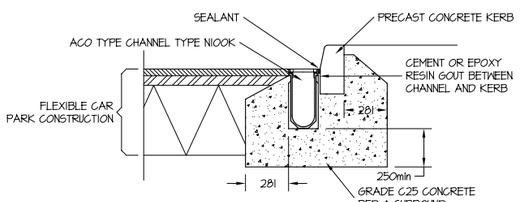


REV	DATE	BY	DESCRIPTION	CHK	APD
C2	12.02.09	RAH	BACK INLET GULLY DETAILED ADDED	MCH	PJB
C1	07.04.08	DRL	ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB



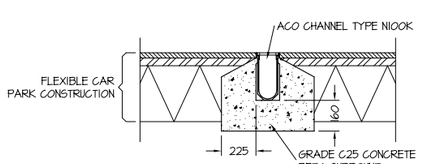
TYPICAL VERTICAL BACKDROP DETAIL

SCALE 1:20



DETAILS OF CHANNEL INSTALLATION ADJACENT TO KERB

SCALE 1:20

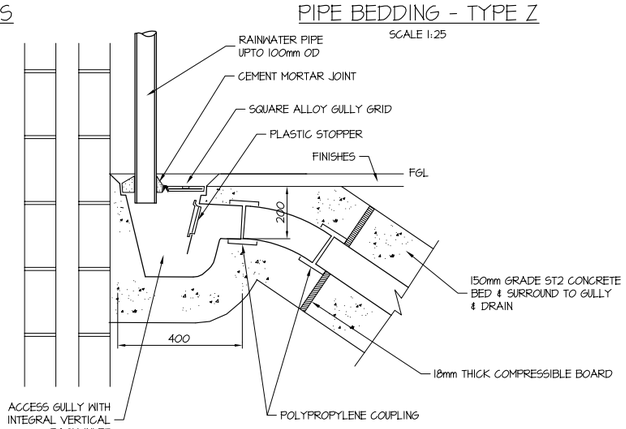


DETAILS OF ACO CHANNEL INSTALLATION

SCALE 1:20

PIPE BEDDING - TYPE Z

SCALE 1:25



TRAPPED BACK INLET GULLY

SCALE 1:10

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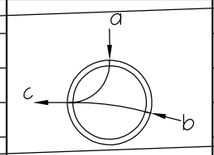
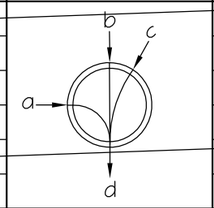
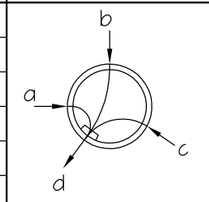
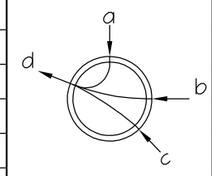
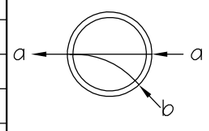
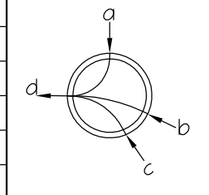
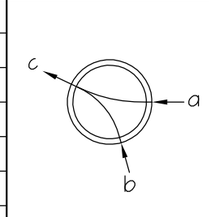
PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: STANDARD DRAINAGE DETAILS

SCALE @ SIZE:	CHECKED:	APPROVED:
AS SHOWN @ A1	MCH	PJB
CAD FILE:	DESIGN/DRAWN:	DATE:
	DRL	JUN'07

PROJECT No:	DRAWING No:	REV:
T/07/526	DL(19)05	C2

DRAWING STATUS: CONSTRUCTION

MH Ref.	MANHOLE DETAILS							COVER DETAILS		PIPE DETAILS					MANHOLE LAYOUT	COMMENTS/ CO-ORDINATES
	Internal Size	Type			Levels		Depth (m)	BS EN124 Cover Ref.	Cover Size Clear Opening	Type of Pipe	Size In	Size Out	Invert Level			
		Brick	Conc	PPIC	Cover	Invert										
SMH 1.0	1200Φ		*		10.874	7.200	3.674	D400	600x600	CONC.	300a		~~7.200~~			E,
										CLAY	150b		7.350			N,
										CONC.		300c	7.200			IN ABEYANCE
SMH 1.1	1200Φ		*		10.874	7.436	3.438	D400	600x600	CLAY	225a		~~7.511~~			E,
										CONC.	300b		7.436			N,
										CLAY	150c		7.586			IN ABEYANCE
										CONC.		300d	7.436			
SMH 1.2	1200Φ		*		11.200	7.745	3.455	D400	600x600	CLAY	150a		7.820			E, 213183.812
										CLAY	225b		7.745			N, 498271.950
										CLAY	225c		7.745			IN ABEYANCE
										CLAY		150d	7.745			
																d, FLOW CONTROL
																DEVICE
SMH 1.3	1200Φ		*		11.347	8.586	2.761	D400	600x600	CLAY	150a		8.661			E, 227642.253
										CLAY	225b		8.586			N, 497438.129
										CLAY	150c		8.661			
										CLAY		225d	8.586			
SMH 1.4	1200Φ		*		11.578	8.731	2.847	D400	600x600	CLAY	225a		8.731			E, 244100.325
										CLAY	150b		8.806			N, 501304.918
										CLAY		225c	8.731			
SMH 1.5	1200Φ		*		11.865	8.910	2.955	D400	600x600	CLAY	150a		8.985			E, 264525.366
										CLAY	150b		8.985			N, 506186.149
										CLAY	150c		8.985			
										CLAY		225d	8.910			
SMH 1.6	1200Φ		*		11.822	9.041	2.781	D400	600x600	CLAY	150a		9.041			E, 281722.251
										CLAY	150b		9.041			N, 503725.329
										CLAY		150c	9.041			

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~~DELETED~~

DO NOT SCALE

PLEASE NOTE THAT SOME MANHOLES ARE SUBJECT TO MANCHESTER HIGHWAYS APPROVAL

REV	DATE	BY	DESCRIPTION	CHK	APD
C4	29.09.08	DRL	MANHOLE SMH 1.4 COVER LEVEL AMMENDED.	MCH	PJB
C3	12.09.08	DRL	CO-ORDINATES ADDED	MCH	PJB
C2	04.09.08	DRL	LAYOUT UPDATED AS APPROVED BY LU	MCH	PJB
C1	09.04.08	DRL	MANHOLES AMENDED TO SUIT UPDATED DRAINAGE PLAN. ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB

DRAWING STATUS: CONSTRUCTION

Tier Consult Ltd.
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Saighton
Chester
CH3 6EN

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Fax: 01244 333081
Mobile: 07966 687066
Email: info@tieruk.com

CLIENT: MCR PROPERTIES

ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: SURFACE WATER MANHOLE SCHEDULE (SHEET 1 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
AS SHOWN	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: JUN'07
PROJECT No: T/07/526	DRAWING No: DL(19)06	REV: C4

MH Ref.	MANHOLE DETAILS							COVER DETAILS		PIPE DETAILS					MANHOLE LAYOUT	COMMENTS/ CO-ORDINATES
	Internal Size	Type			Levels		Depth (m)	BS EN124 Cover Ref.	Cover Size Clear Opening	Type of Pipe	Size In	Size Out	Invert Level			
		Brick	Conc	PPIC	Cover	Invert										
SMH 8.0	500Φ			*	10.375	9.342	1.033	C250	600x600	CLAY	100a		9.392		b a c	
										CLAY	150b		9.342			
										CLAY		150c	9.342			
SMH 8.1	500Φ			*	10.375	9.475	0.900	C250	600x600	CLAY	150a		9.475		a b c	
										CLAY	100b		9.525			
										CLAY		150c	9.475			
SMH 9.0	500Φ			*	10.575	9.675	0.900	C250	600x600	CLAY	150a		9.675		b a c	
										CLAY	100b		9.725			
										CLAY		150c	9.675			
SMH 10.0	2100Φ		*		10.400	8.285	2.115	D400	600x600	PLAS.	1050a		8.285		a b c	E, 190441.283
										CONC		300b	8.285			N, 435127.284
																a, RIGIDRAIN ATTENUATION
																PIPEWORK
SMH 11.0	500Φ			*	10.925	9.990	0.955	A15	500Φ	CLAY	150a		9.990		a c b	
										CLAY	150b		9.990			
										CLAY		150c	9.990			
SMH 11.1	500Φ			*	10.925	10.310	0.615	A15	500Φ	CLAY	150a		10.310		a b	
										CLAY		150b	10.310			
SMH 11.2	500Φ			*	10.925	10.310	0.615	A15	500Φ	CLAY	150a		10.310		b a	
										CLAY		150b	10.310			

DO NOT SCALE

PLEASE NOTE THAT SOME MANHOLES ARE SUBJECT TO UNITED UTILITIES AND MANCHESTER HIGHWAYS APPROVAL

REV	DATE	BY	DESCRIPTION	CHK	APD
C4	12.02.09	RAH	MANHOLES 11.0, 11.1 & 11.2 ADDED	MCH	PJB
C3	12.09.08	DRL	CO-ORDINATES ADDED	MCH	PJB
C2	04.09.08	DRL	LAYOUT UPDATED AS APPROVED BY UU	MCH	PJB
C1	09.04.08	DRL	MANHOLES AMENDED TO SUIT UPDATED DRAINAGE PLAN. ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB

DRAWING STATUS: CONSTRUCTION

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Elm House Farm
Saighton
Chester
CH3 6EN

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Fax: 01244 333081
Mobile: 07966 687066
Email: info@tieruk.com

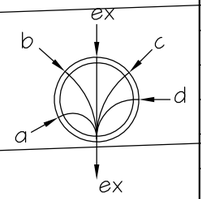
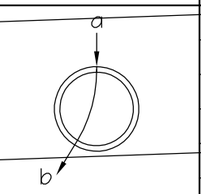
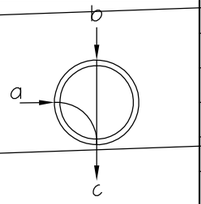
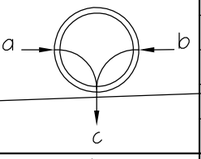
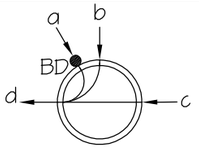
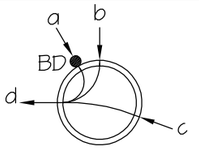
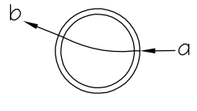
CLIENT: MCR PROPERTIES

ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: SURFACE WATER MANHOLE SCHEDULE (SHEET 4 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
AS SHOWN	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: JUN'07
PROJECT No: T/07/526	DRAWING No: DL(19)09	REV: C4

MH Ref.	MANHOLE DETAILS: Internal Size	Type: Brick	Type: Conc	Type: PPIC	Levels: Cover	Levels: Invert	Depth (m)	COVER DETAILS: BS EN124 Cover Ref.	Cover Size Clear Opening	PIPE DETAILS: Type of Pipe	Size In	Size Out	Invert Level	MANHOLE LAYOUT	COMMENTS/ CO-ORDINATES
FMH 1.0	1200Φ		*		10.950	6.235 (APPROX)	4.715	D400	600x600	CLAY	150a		~~6.385~~		E,
										CLAY	150b		6.385		N,
										CONC	300e		6.235		d&b, SURFACE WATER
										CLAY	150c		6.385		SEWER CONNECTION
										CONC	300d		~~6.235~~		IN ABEYANCE
										CONC		300ex	6.235		
FMH 1.1	1200Φ		*		10.985	6.989	3.996	D400	600x600	CLAY	150a		~~6.989~~		E,
										CLAY		150b	6.989		N,
															IN ABEYANCE
FMH 1.2	1200Φ		*		10.905	7.277	3.628	D400	600x600	CLAY	150a		~~7.277~~		E,
										CLAY	150b		7.277		N,
										CLAY		150c	7.277		IN ABEYANCE
FMH 1.3	1200Φ		*		10.167	7.857	2.310	D400	600x600	CLAY	150a		~~7.857~~		E,
										CLAY	150b		7.857		N,
										CLAY		150c	7.857		IN ABEYANCE
FMH 1.4	1200Φ		*		11.471	8.210	3.261	D400	600x600	CLAY	100a		9.130		E, 228889.001
										CLAY	150b		8.210		N, 499089.328
										CLAY	150c		8.210		BD, BACKDROP
										CLAY		150d	8.210		
FMH 1.5	1200Φ		*		11.894	8.737	3.157	D400	600x600	CLAY	100a		9.662		E, 265781.512
										CLAY	150b		8.737		N, 507832.882
										CLAY	150c		8.737		BD, BACKDROP
										CLAY		150d	8.737		
FMH 1.6	1200Φ		*		11.773	9.198	2.575	C250	600x600	CLAY	150a		9.198		E, 279908.091
										CLAY		150b	9.198		N, 505462.539

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DELETED

DO NOT SCALE

PLEASE NOTE THAT SOME MANHOLES ARE SUBJECT MANCHESTER HIGHWAYS APPROVAL

REV	DATE	BY	DESCRIPTION	CHK	APD
C4	29.09.08	DRL	MANHOLE FMH 1.4 INVERT LEVEL AMENDED	MCH	PJB
C3	12.09.08	DRL	CO-ORDINATES ADDED	MCH	PJB
C2	04.09.08	DRL	LAYOUT UPDATED AS APPROVED BY LU	MCH	PJB
C1	09.04.08	DRL	MANHOLES AMENDED TO SUIT UPDATED DRAINAGE PLAN. ISSUED FOR CONSTRUCTION	MCH	PJB
T1	12.10.07	DRL	ISSUED FOR TENDER	MCH	PJB

DRAWING STATUS: CONSTRUCTION

Tier Consult Ltd.
Elm House Farm
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CH3 6EN

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Email: info@tieruk.com

CLIENT: MCR PROPERTIES

ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: FOUL WATER MANHOLE SCHEDULE (SHEET 1 OF 4)

SCALE @ SIZE:	CHECKED:	APPROVED:
AS SHOWN	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: JUN'07
PROJECT No: T/07/526	DRAWING No: DL(19)10	REV: C4

MH Ref.	MANHOLE DETAILS							COVER DETAILS		PIPE DETAILS					MANHOLE LAYOUT	COMMENTS/ CO-ORDINATES
	Internal Size	Type			Levels		Depth (m)	BS EN124 Cover Ref.	Cover Size Clear Opening	Type of Pipe	Size In	Size Out	Invert Level			
		Brick	Conc	PPIC	Cover	Invert										
CMH 1.0	EXISTING	*			11.010	6.020	4.990	EXISTING	EXISTING	EXIST.	300a		6.320		a c b	EXISTING MANHOLE
										EXIST.	600b		6.020			
										EXIST.		600c	6.020			
CMH 1.1	EXISTING	*			11.010	6.570	4.440	D400	600x600	CLAY	150a		7.890		b a BD BD c d	EXISTING BURIED MANHOLE
										EXIST.	300b		6.570			TO HAVE NEW ACCESS
										CLAY	150c		9.745			CONSTRUCTED
										EXIST.		300d	6.570			
																BD, BACKDROP
CMH 1.2	1500Φ		*		11.060	7.130	3.930	D400	600x600	EXIST.	225a		7.205		b c a d BD e	EXISTING MANHOLE TO
										EXIST.	225b		7.205			BE REBUILT
										CLAY	150c		7.280			
										CLAY	150d		7.990			BD, BACKDROP
										EXIST.		300e	7.130			
CMH 1.3	1200Φ		*		10.740	7.860	2.880	D400	600x600	EXIST.	225a		7.860		b a c	NEW MANHOLE TO BE
										CLAY	150b		7.935			CONSTRUCTED ON
										EXIST.		225c	7.860			EXISTING LINE
																E, 192369.929
																N, 488083.849
CMH 1.4	1200Φ		*		10.575	8.235	2.340	D400	600x600	EXIST.	225a		8.235		a b	EXISTING MANHOLE TO
										EXIST.		225b	8.235			BE REBUILT
CMH 2.0	1200Φ		*		10.850	8.020	2.830	C250	600x600	CLAY	150a		8.020		c b a	E, 214495.467
										CLAY	150b		8.020			N, 436054.116
										CLAY		150c	8.020			

DO NOT SCALE

PLEASE NOTE THAT SOME MANHOLES ARE SUBJECT TO MANCHESTER HIGHWAYS APPROVAL

REV	DATE	BY	DESCRIPTION	CHK	APD
C3	29.09.08	DRL	MANHOLE CMH 1.2 INCOMMING BACKDROP LEVEL AMENDED	MCH	PJB
C2	12.09.08	DRL	CO-ORDINATES ADDED	MCH	PJB
C1	04.09.08	DRL	LAYOUT UPDATED AS APPROVED BY UU	MCH	PJB

DRAWING STATUS: CONSTRUCTION

Tier Consult Ltd.
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CLIENT: MCR PROPERTIES

ARCHITECT: HODDER ASSOCIATES

PROJECT: HATHERSAGE ROAD, MANCHESTER.

TITLE: COMBINED FLOW MANHOLE SCHEDULE

SCALE @ SIZE:	CHECKED:	APPROVED:
AS SHOWN	MCH	PJB
CAD FILE:	DESIGN/DRAWN: DRL	DATE: SEPT'08

PROJECT No:	DRAWING No:	REV:
T/07/526	DL(19)14	C3

Appendix H

Exceedance Plan

LEGEND

- Existing spot heights (To be retained)
- Proposed spot heights
- Proposed fall gradients



NOTES & KEY

+ Proposed finished floor levels are higher than adjacent existing ground levels and external proposed ground levels.

+ In an exceedance event, overland flows would not enter the buildings.

Exceedance overland flow: →

Job	Victoria Point, Manchester	Date	April 2024
Title	Exceedance Plan	Eng.	MW
Job No.	3124	Sheet 1/1	Rev. A

HEYNE TILLETT STEEL

Appendix I

Drainage Inspection and Maintenance Strategy

3124 – Victoria Point, Manchester
Date: February 2024
Prepared by: MW

Drainage Inspection and Maintenance Strategy

This document has been prepared to support the inspection and maintenance of the proposed below ground drainage of the Victoria Point, Manchester site. The drainage network comprises surface and foul water drainage systems:

- Surface water will be captured by permeable paving, attenuation tanks, raingardens and green roofs. These systems will route all the rainwater towards the outfall manhole via gravity at a restricted rate.
- Foul water network from above ground level will be routed towards the outfall manhole via gravity.

In accordance with CIRIA C625 it is recommended that a private SuDS maintenance agreement is undertaken as a simple contract between the property owner and the maintenance provider (the maintainer). It is mainly to facilitate continuing maintenance of the SuDS that are in private ownership. The maintenance requirements are in accordance with the CIRIA C753 SuDS Manual 2015 and product manufacturer's requirements.

The following Drainage / SuDS measures are proposed within the development:

- General Drainage:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Inspect and identify areas that are not operating correctly. If required, take remedial action.	Monthly
	Inspect surface structures and covers removing obstructions and silt as necessary.	Monthly or as required
	Top-up traps to floor gullies and internal channel drains.	
	Check there is no physical damage.	
	Remove overgrown vegetation 1m min. around structures and keep hard aprons free from silt and debris.	
Occasional Maintenance	Remove sediment from pre-treatment structures (e.g. gullies, channels silt traps) and non-return valves.	Six-monthly or as required after large storm events
	Remove cover and inspect inside, ensuring water is flowing freely and that the exit route for water is unobstructed.	Annually or as required after large storm events.
	Remove debris and silt.	
	Undertake inspection after leaf fall in autumn.	
Remedial Actions	Repair/rehabilitation of inlets, outlets, overflows and vents.	As required
Monitoring	Inspect all manholes, inspection chambers, inlets, outlets, overflows and vents to ensure they are in good condition and operating as designed.	Annually or after large storms.

- Inlets, Outlets and Inspection Chambers:

Maintenance Period	Maintenance Task	Frequency
Regular Maintenance	Inspect surface structures and covers removing obstructions and silt as necessary.	Monthly or as required
	Check there is no physical damage. Remove overgrown vegetation 1m min. around structures and keep hard aprons free from silt and debris.	
	Remove cover and inspect inside, ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn.	Annually
Occasional Maintenance	Check topsoil levels are 20mm above edges off baskets and chambers to avoid mower damage.	As necessary
Remedial Work	Unpack stone in basket features and unblock or repair and repack stone as design detail as necessary.	As required
	Repair physical damage is necessary.	

- Attenuation Tank:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action (for 3 months following installation).	Monthly
	Inspect and identify any areas that are not operating correctly. If required, take remedial action (following initial 3-month period).	Six Monthly
	Remove sediment from pre-treatment structures.	Annually
Remedial Actions	De-silt as required.	As Required
Monitoring	Inspect and carry out essential recovery works to return the feature to full working order.	Following all significant storm events

- Filter Drain:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Litter and debris removal.	Monthly or as required
	Mow grasses (where required to promote lateral runoff inflow) and remove resultant clippings (during growing season only)	
	Remove nuisance and invasive vegetation (for 12 months following installation).	
	Inspect/check all inlets, outlets, surface and overflows (where required) to ensure that they are in good condition, free from blockages and operating as designed.	
Occasional Maintenance	Remove nuisance and invasive vegetation.	Annually
	Inspect and document the presence of wildlife.	

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Remedial Actions	Repair erosion or other damage by re-turfing, reseeding or replacing filter material.	As required
	Re-level uneven surfaces and reinstate design levels (typically every 60-month period.	
	Remove and replace top 300-500mm of gravel, clean and replace where required.	
	Remove and dispose of oils or petrol residues using safe standard practices.	
Monitoring	Inspect and carry out essential recovery works to return the feature to full working order.	Following all significant storm events

- Flow control Structures:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action (for 3 months following installation).	Monthly
	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Six Monthly
	Remove sediment from pre-treatment structures.	
Monitoring	Inspect and carry out essential recovery works to return the feature to full working order.	Following all significant storm events

- Geocellular Storage Tank:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for three months, then every six months.
	Debris removal from catchment surface (where may cause risks to performance).	Monthly.
Remedial Actions	Repair/rehabilitation of inlets, outlets, overflows and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually or after large storms.

- Green / Blue / Brown Roofs:

Maintenance Period	Maintenance Task	Frequency
Regular Maintenance	During establishment, replace dead plants as required (for 12 months following installation).	Monthly
	Mow grasses (where required) and remove resultant clippings.	
	Remove fallen leaves and debris from deciduous plant foliage.	Six Monthly
	Remove nuisance and invasive vegetation, including weeds.	
	Remove debris & litter to prevent clogging of inlet drains and interference with plant growth.	

	Noxious weed treatment (3 times a year).	
Occasional Maintenance	Replace dead plants as required (typically in the Autumn).	Annually
	Inspect all components including soil substrate, vegetation, drains, irrigation systems (if applicable), membranes, and roof structure for proper operation, integrity of waterproofing and structural stability, act where required.	
	Inspect soil substrate for evidence of erosion channels and identify any sediment sources, act where required.	
	Inspect drain inlets to ensure unrestricted runoff from the drainage layer to the conveyance or roof drain system, act where required.	
	Inspect underside of roof for evidence of leakage, act where required.	
	Inspect and document the presence of wildlife.	
Remedial Action	Inspect and carry out essential recovery works to return the feature to full working order.	Following all significant storm events

- Hydro-Brake (Flow Control):

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for three months, then every six months.
	Remove sediment from pre-treatment structures.	
Remedial Actions	Repair/rehabilitation of Hydro-Brake.	As required
	If problems are experienced, please contact the company (Hydro International) so that an investigation may be made. Contact: enquiries@hydro-int.com (+44 (0)118 933 1325).	
Monitoring	Inspect and with a hose down if required.	Annually or after large storms.

- Non-return Valve:

  The non-return valves should be maintained in line with manufacturer's recommendations.

- Permeable paving system:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Inspect for sediment and debris in the inlet chambers and trim any roots that may be causing blockages.	Annually or as required based on inspections
	Cleaning of gutters and any filters on downpipes	
	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or as required,
Occasional maintenance	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying.	As required, based on inspections
Remedial Actions	Remedial work to any depressions, rutting, cracked or broken blocks considered detrimental to the permeable paving performance.	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required

	Jet washing and suction cleaning will substantially reinstate pavement to 90% efficiency (CIRIA RP992).	As required
Monitoring	Initial inspection.	Monthly for three months after installation
	Inspect inspection chambers and note rate of sediment accumulation and establish appropriate brushing frequencies.	Monthly in the first year and then annually
	Inspect for evidence of poor operation and/or week growth – if required, take remedial action.	Annually
	Monitor effectiveness of permeable pavement and when water does not infiltrate immediately advise Client of possible need for reinstatement of top layers or specialist cleaning.	As required

- Rain Garden / Stormwater Planter:

Maintenance Period	Maintenance Task	Frequency
Regular maintenance	Litter and debris removal .	Monthly
	Mulching (where required).	
	Inspect/check all inlets, outlets, surface and overflows (where required) to ensure that they are in good condition, free from blockages and operating as designed. Act where required.	
	Removal of nuisance and invasive vegetation.	Six Monthly
	Pruning and trimming of trees.	Annually
	Inspect and document the presence of wildlife.	
	Check for poor vegetation growth due to lack of sunlight or dropping of leaf litter and cut back adjacent vegetation where required.	
Remedial Actions	Repair erosion or other damage by re-mulching or re-seeding.	As Required
	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if required.	
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface (typically every 60-month period).	
	Remove build-up of sediment, reinstate design levels (typically every 60-month period).	
	Remove and dispose of oils or petrol residues using safe standard practices.	
Monitoring	Inspect and carry out essential recovery works to return the feature to full working order.	Following all significant storm events

Reference shall be made to CIRIA publication C753 (The SuDS Manual) and to the relevant maintenance guidance from the products manufacturers.

HEYNE TILLETT STEEL

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