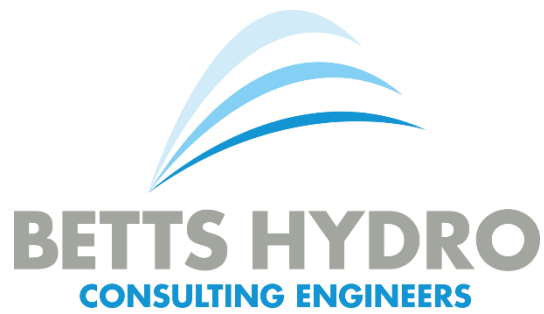




**FORMER CLEVER CLOWNS NURSERY
GREENBROW ROAD
WYTHENSHAW**

DRAINAGE MANAGEMENT STRATEGY



For

Stockport Development Limited
97 Northgate Road
Stockport
Cheshire
SK3 9PQ

DECEMBER 2023

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**FORMER CLEVER CLOWNS NURSERY
GREENBROW ROAD
WYTHENSHAW
DRAINAGE MANAGEMENT STRATEGY**

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EXECUTIVE SUMMARY

This Drainage Management Strategy has been prepared by Betts Hydro on behalf of Stockport Development Limited. It supports a full planning application submitted to Manchester City Council which seeks permission for:

"Demolition of the existing building, and the erection of a three-storey apartment block comprising 20 apartments, together with access, parking, landscaping, drainage, and all other associated works."

The site is less than 1 ha in size and located within Flood Zone 1, therefore a Flood Risk Assessment is not required to be provided for planning purposes. The key focus of this assessment is on the sustainable management of surface water run-off to ensure no increased flood risk results from the development proposals. This assessment has been completed in accordance with National Planning Policy Framework and Planning Practice Guidance to consider the most appropriate sustainable drainage options for the proposals in line with the Non-Statutory Standards. This report should be read in conjunction with the wider planning submission.

The surface water run-off management options have been assessed in accordance with the sustainable drainage hierarchy. Based on the ground conditions identified by the published datasets, infiltration will not likely offer a full viable drainage management solution for the proposals. The next option in the sustainable drainage hierarchy should be to discharge to the watercourse; however, there are no suitable watercourses within proximity of the site. The alternative drainage method would therefore be to discharge surface water into the public sewer network.

Further investigation of the existing private drainage infrastructure serving the site has been undertaken by The Drainage Group in October 2023. This has identified the location and routing of the existing combined system presently serving the existing development onsite. It is understood that the existing sewer infrastructure outfalls into the public combined sewer south of Greenbrow Road (though the exact location/point of connection is currently unknown).

As there are existing connections to the public sewer network at present the proposals are to mimic the existing situation and discharge surface water run-off generated by the development into public sewer system located south of Greenbrow Road. At this point the existing point of connection has not been located however review of the planning layout suggests that a new connection to serve the proposals would be required regardless. This is to allow for the required volume of onsite attenuation that will be needed to serve the development.

Detailed design will need to be carried out to confirm whether a site wide gravity solution can be achieved, however given the existing ground levels, existing drainage situation and understanding of the existing levels of the nearby public sewer network, a gravity system is anticipated to be feasible. Consent and formal agreement will be required from the asset owner and UU for any formal works to the public sewer system.

In accordance with policy the proposals will be to restrict the rate of discharge from the site to mimic the existing situation with betterment. The post-development discharge rate is to be restricted to 10.3l/s, which is 30% betterment on the existing brownfield rate. The Lead Local Flood Authority will also need to agree to the proposed rate of discharge.

Restricting the overall rate of discharge will generate a requirement to provide onsite stormwater storage for the extreme rainfall events. Between 41m³ and 66m³ of stormwater storage within the onsite drainage system is anticipated to be required at this stage to attenuate runoff up to the 1 in 100yr plus 45% Climate Change event. Detailed design will determine with accuracy the attenuation requirements in due course.

The surface water scheme will be designed to cater for the surface water run-off generated in the events up to and including the 1 in 100yr return period event with a 45% allowance for climate change. Given the scale and nature of the development this will be provided via underground storage (permeable surfacing substrata, and attenuation crates/cells).

This Drainage Management Strategy has been prepared in consultation with the relevant interested parties. The report is commensurate with the scale and nature of the development and the development is appropriate in accordance with the Non-Statutory Standards.

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Specialist Software

- MicroDrainage WinDES (v.2020.1.3) – Calculation of Greenfield run-off volumes, rates of rainfall and stormwater storage estimates.

Abbreviations & Acronyms

BGS	British Geological Survey
CC	Climate Change
DMS	Drainage Management Strategy
EA	Environment Agency
FEH	Flood Estimation Handbook
FRA	Flood Risk Assessment
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
QBAR	Mean Annual Flood
mAOD	Metres Above Ordnance Datum
MCC	Manchester City Council

NPPF	National Planning Policy Framework
NSRI	National Soil Resources Institute
OS	Ordnance Survey
PPG	Planning Practice Guidance
QSE	Quick Storage Estimate
SfA	Sewers for Adoption
SuDS	Sustainable Drainage Systems
UU	United Utilities

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1.0 INTRODUCTION

1.1 Planning Policy Context

- 1.1.1 All forms of flooding and their impact on the natural and built environment are material planning considerations. The National Planning Policy Framework (NPPF) sets out the Government's objectives for the planning system, and how planning should facilitate and promote sustainable patterns of development, avoiding flood risk and accommodating the impacts of climate change.
- 1.1.2 Government policy with respect to development in flood risk areas is contained within the NPPF and the supporting Planning Practice Guidance (PPG) (refer to extracts in **Appendix A**). This Drainage Management Strategy (DMS) has been completed in accordance with NPPF/PPG to consider the most appropriate sustainable surface water and foul water drainage options for the proposals.
- 1.1.3 This is to ensure that there is no increased flood risk because of the development in line with the NPPF guidance. The use of Sustainable Drainage Systems (SuDS) to manage surface water run-off has also been considered as part of the assessment in line with the Non-Statutory Standards.

1.2 Site Context

- 1.2.1 This DMS has been prepared to support a full planning application for the demolition of the existing building, and the erection of a three-storey apartment block comprising 20no. apartments, together with access, parking, landscaping, drainage, and all other associated works.

1.3 Consultation

- 1.3.1 The preparation of this report has been undertaken in consultation with the Environment Agency (EA), United Utilities (UU), and Manchester City Council (MCC). The consultation responses can be seen in **Appendix B, C, and D** respectively.

2.0 EXISTING SITE LOCATION

2.1 Location

- 2.1.1 The site is located off Greenbrow Road in Wythenshawe. The nearest Ordnance Survey National Grid Reference is E: 381064, N: 386987 and the nearest postcode is M23 2UH (see the Location Plan in **Appendix E**). The whole site covers 0.187ha and is edged in red in **Figure 1**.
- 2.1.2 In terms of the surrounding land-use, the site is bound to the south by Greenbrow Road. The site is surrounded by wider residential development, particularly off Oldwood Road to the west, and Barnwood Road to the north, as illustrated in **Figure 1**.



Figure 1: Existing Features Plan (Google Maps, 2023)

2.2 Existing and Historical Land Use

- 2.2.1 The site is located to the north of Greenbrow Road within the suburb of Wythenshawe, located to south of Manchester City Centre. The site comprises the former Clever Clowns Day Nursery which ceased operating in December 2022. The site therefore lies vacant.
- 2.2.2 The existing building extends to two storeys in height with a pitched roof. It is constructed out of a red brick with a grey tiled roof. The building is sited towards the centre of the site, with two existing access points and associated car parking areas,

located on either side. To the rear of the site comprises an area of astroturf, previously used by the Nursery for outdoor play space.

2.3 Topography

- 2.3.1 A topographical survey has been undertaken and is included within **Appendix F** for completeness. The levels onsite are shown to fall from a level of 61.17mAOD along the southern boundary, down to a level of 59.78mAOD in the northern corner of the site. The arrows shown in **Figure 1** indicate the general fall across the site.

3.0 DEVELOPMENT PROPOSALS

3.1 Nature of the Development

- 3.1.1 This strategy has been prepared to support a full planning application for the demolition of the existing building, and the erection of a three-storey apartment block comprising 20no. apartments off Greenbrow Road in Wythenshawe. The proposals will be complete with access, parking, landscaping, drainage, and all other associated works, as illustrated in **Figure 2** (full planning layout included within **Appendix G**).



Figure 2: Proposed Planning Layout (D2 Architects, 2023)

- 3.1.2 The total site covers 0.187ha and is understood to be approximately 57% impermeable at present (equating to 0.106ha). Based on the above planning layout, the impermeable areas will increase to 72% post-development, which equates to 0.135ha. Opportunities to provide soft landscaping and permeable surfacing in all external areas would be assist in minimising run-off generated in external areas but also provide added benefits to water quality and ecology.
- 3.1.3 National and local policy identifies that SUDS should be incorporated into new development where feasible to manage surface water run-off generated. Betterment in the form of permeable surfaces opposed to external hardstanding should also be considered to reduce the surface water run-off.

4.0 SURFACE WATER MANAGEMENT

- 4.0.1 The total site covers 0.187ha and is approximately 57% impermeable at present. As the site is developed, it is understood that surface water generated by the site is formally drained.
- 4.0.2 Further investigation of the existing private drainage infrastructure serving the site has been undertaken by The Drainage Group in October 2023. The has identified the location and routing of the existing combined system present onsite. The existing drainage survey is included within **Appendix H** for completeness. It is understood that the existing sewer infrastructure outfalls into the public combined sewer south of Greenbrow Road (though the exact location of connectivity was not traced).

4.1 Pre-Development Surface Water Run-off

- 4.1.1 The peak rates and volumes of run-off generated by the existing permeable and impermeable areas present on the site have been calculated for the peak events shown in **Table 1** (full details **Appendix I**). The brownfield surface water run-off rates have been calculated using the Modified Rational Method, and the rates and volumes generated by the existing permeable (greenfield) areas have been calculated based on the IH124 Method.

Existing Areas	Run-Off Rates					Run-Off Volumes	
	1 In 1 Year	1 In 30 Year	1 In 100 Year	50mm/hr	QBar	1 In 1 Year	1 In 100 Year
Brownfield: 0.106ha	4.8l/s	9.3l/s	12.7l/s	14.7l/s	N/A	24.7cu.m	63.5cu.m
Greenfield: 0.081ha	0.4l/s	0.8l/s	1.0l/s	N/A	0.5l/s	9.2cu.m	26.7cu.m
Total: 0.187ha	6.1l/s	10.1l/s	13.7l/s	N/A	N/A	31.5cu.m	90.3cu.m

Table 1: Pre-Development Surface Water Run-Off Rates for Existing Site (Betts Hydro, 2023)

4.2 Post Development Surface Water Run-Off

- 4.2.1 Due to the nature of the development proposals it is understood that the impermeable areas of the site will increase Based on the above planning layout, the impermeable areas will increase to 72% post-development, which equates to 0.135ha. The unrestricted post-development run-off rates generated by this impermeable area are detailed in **Table 2**.

Proposed Imp. Area	Run-Off Rates			Run-Off Volumes	
	1 In 1yr	1 In 30yr	1 In 100yr + 45% CC	1 in 1yr	1 in 100yr
0.135ha	6.1l/s	11.8l/s	23.5l/s	122.3cu.m	311.4cu.m

Table 2: Post-Development Un-Restricted Run-Off Rates (Betts Hydro, 2023)

- 4.2.2 In accordance with the SuDS Manual (CIRIA) and the Non-Technical Standards for SuDS (March 2015) all sites should endeavour to achieve as close to pre-development greenfield rates as is viable. The guidance however acknowledges that it is not always feasible to restrict a brownfield site to the greenfield equivalent. In these cases, it is usually acceptable to offer betterment on the pre-development brownfield rates as an alternative proposal.

4.3 Sustainable Drainage Systems (SuDS)

- 4.3.1 In accordance with national and local planning policy, including the Non-Statutory Technical Standards for Sustainable Drainage Systems (March 2015) and the SuDS Manual (CIRIA 753), peak surface water discharge rates from new development should be appropriately managed and where possible reduced. To manage surface water run-off policy shows that preference should always be given to Sustainable Drainage Systems (SuDS) over the traditional methods wherever possible and practical.
- 4.3.2 SuDS can (if designed and situated appropriately) address the four key sustainability objectives embedded in planning policy including providing space for water (water quantity), improving water quality and biodiversity, along with providing valuable amenity/recreational space within new development sites. The benefits of SuDS depend on the type of features being proposed, some typical examples relevant to this nature of development are illustrated in **Figure 3**.



- 4.3.3 Opportunities will be taken to provide soft landscaping where at all possible on site to assist in minimising surface water run-off, although given the nature of the planning proposals in this case the ratio of hardstanding to soft landscaping would be greater. It would therefore be recommended that permeable surfacing and bio-filtration measures (such as tree pits) be considered where at all feasible across the site to assist with managing run-off generated.
- 4.3.4 Promoting SuDS to deal with surface water at the source, will limit the required attenuation and in turn reduce the volume of surface water in the nearby watercourse

and sewer infrastructure. In this case, there may be scope to include rain garden features on the proposed building downpipes (see examples illustrated in **Figure 3**). The proposals are also to include permeable surfacing and biofiltration measures within the carparking area of the site. These features would provide added benefits in terms of water quality, biodiversity, and amenity value.

- 4.3.5 The main attenuation proposed in this instance (to deal with water quantity) will likely need to consider more traditional means (below ground storage), given the nature of the proposals. Detailed design should confirm suitability for incorporation of SuDS following more detailed analysis of levels, ground conditions and attenuation.

4.4 Methods of Surface Water Management

- 4.4.1 There are three methods that have been reviewed for the management and discharge of surface water. These may be applied individually or collectively to form a complete strategy and should be applied in the order of priority listed below:

-  Discharge via infiltration
-  Discharge to watercourse
-  Discharge to the public sewerage system

4.5 Discharge via Infiltration

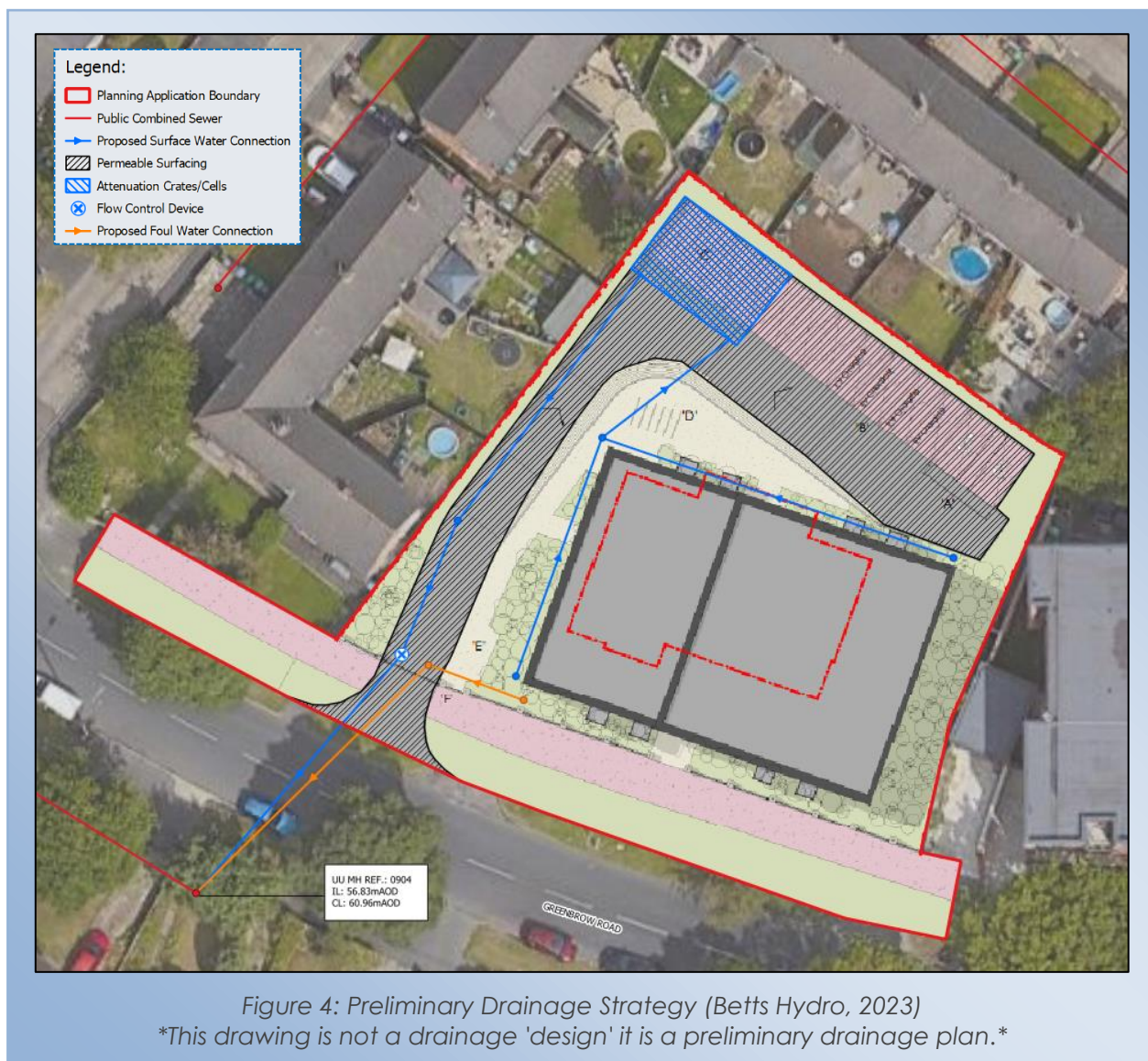
- 4.5.1 Any impermeable areas that can drain to soakaway or an alternative method of infiltration would significantly improve the sustainability of any new surface water systems. The published online datasets have been reviewed to consider how favourable the underlying strata is to support an infiltration-based drainage solution at the site.
- 4.5.2 The Cranfield Soil and AgriFood Institute (CSAI), Soilscales viewer identifies the soils to be slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. The British Geology Survey (BGS) mapping data indicates that the bedrock geology consists of Bollin Mudstone Member (mudstone), with superficial deposits of Devensian Till. The underlying strata suggests that permeability is low, and a standard percentage runoff (SPR) figure of 0.47 suggests that the underlying soils promote a low permeability (0.1 is very high, and 0.5 is very low permeability).
- 4.5.3 Based on the ground conditions identified by the published datasets, infiltration will not likely offer a fully viable drainage management solution for the proposals. Other surface water discharge methods have therefore been reviewed subsequently.
- 4.5.4 The proposals are still to utilise permeable surfaces in external areas even if a full infiltration solution is not viable, the permeable surfaces will be lined with a connection to the proposed main drainage serving the new development. The presence of the permeable surfaces will still allow the first 5mm of rainfall to be dealt with at source as identified in the SuDS Manual (CIRIA 753).

4.6 Discharge to Watercourse/Waterbody

- 4.6.1 The next discharge option in the sustainable drainage hierarchy should be to discharge to the watercourse, there are however no watercourses suitable for outfall within proximity of the site. The alternative drainage method should be to discharge surface water run-off into a nearby public surface water compatible sewer network.

4.7 Discharge to the Public Sewer Network

- 4.7.1 Review of the topographic survey has identified that there is an existing drainage system onsite which catered for the former nursery onsite. Further investigation of the existing private drainage infrastructure serving the site has been undertaken by The Drainage Group in October 2023. The has identified the location and routing of the existing combined system present onsite. The existing drainage survey is included within **Appendix H** for completeness. It is understood that the existing sewer infrastructure outfalls into the public combined sewer south of Greenbrow Road (though the exact location of connectivity was not traced).



- 4.7.2 A pre-development enquiry has been undertaken with United Utilities, who have recommended that investigations into draining surface water to the highway drain (which ultimately discharges to a watercourse) are undertaken. Consultations have been undertaken with the Highways Authority; however, a response is currently outstanding.
- 4.7.2 The proposals are therefore to mimic the existing situation and continue to drain to the combined sewer (UU ref.: 0904) located south of Greenbrow Road to the south of the site, as illustrated in **Figure 4** (full plan included in **Appendix J**). The proposals will be to restrict the run-off to mimic the pre-development brownfield rates with 30% betterment, as discussed subsequently. To serve the new development and account for the required onsite stormwater storage there will be a requirement to for new connections to the combined and not re-use the existing in this case.
- 4.7.3 Detailed design will need to be carried out to confirm whether a site wide gravity solution can be achieved, however given the existing ground levels, understanding of the current combined sewer depths and existing drainage situation, a gravity system is anticipated to be feasible.
- 4.7.4 Consent and formal agreement will be required from the asset owner (UU) for any formal works to the public sewer systems. Any offsite asset routing works will also need to be considered in terms of consents with the relevant offsite landowners (Highways Authority). A pre-development enquiry has been undertaken with UU and has confirmed that they will consider a connection to the 225mm dia. public combined sewer within Greenbrow Road at a pass forward flow rate to be agreed by the LLFA (see correspondence in **Appendix C**). UU have requested that any agreed rate does not exceed 10.3l/s.

Proposed Discharge Rates

- 4.7.5 In accordance with the SuDS Manual (CIRIA) and the Non-Technical Standards for SuDS (March 2015) all sites should endeavour to achieve as close to pre-development greenfield rates as is viable. The guidance however acknowledges that it is not always feasible to restrict a brownfield site to the greenfield equivalent. In these cases, it is usually acceptable to offer betterment on the pre-development brownfield rates as an alternative proposal. In accordance with policy a 30% betterment should be applied to the most restrictive of either:
-  The existing brownfield rate generated by the impermeable areas onsite in the 50mm/hr event.
 -  Or the capacity/flow through the existing outgoing connection(s) from the site to the point of outfall.
- 4.7.6 The post-development discharge rate is to be restricted to 10.3l/s, which is 30% betterment on the existing brownfield rate generated by the current impermeable areas on the site in the 50mm/hr event. The LLFA (MCC) and United Utilities will need to agree to the proposed rate of discharge. A pre-development enquiry, who have confirmed that once evidence is provided that infiltration and discharge to the highway drain are not viable, UU will consider a connection to the 225mm dia. public combined sewer within Greenbrow Road at a pass forward flow rate to be agreed by the LLFA. UU have requested that any agreed rate does not exceed 10.3l/s.

- 4.7.7 The restricted discharge rate will generate a stormwater storage requirement during the extreme storm events. The stormwater storage figures quoted in **Table 3 (Appendix K)** are estimates only. Between 41m³ and 66m³ of stormwater storage within the onsite drainage system is anticipated to be required at this stage to attenuate runoff up to the 1 in 100yr plus 45% Climate Change event. Detailed design will determine with accuracy the attenuation requirements in due course.

Impermeable Area (0.135)	1 In 1 Year	1 In 30 Year	1 In 100 Year + 45% CC
Restricted Run-Off Rate	10.3/s	10.3/s	10.3l/s
Estimated Stormwater Storage Volume	1.1cu.m-7.4cu.m	13cu.m-25cu.m	41cu.m-66cu.m

Table 3: Estimated Stormwater Storage Requirements (Betts Hydro, 2023)

- 4.7.8 The surface water scheme for the development will be designed to cater for the surface water run-off generated in the events up to and including the 1 in 100yr return period event with allowance for climate change. As discussed previously, restricting the rate of discharge will generate a requirement to provide onsite stormwater storage for the extreme rainfall events. Given the scale and nature of the development this will be provided via underground storage.

4.8 Climate Change

- 4.8.1 There are indications that the climate in the UK is changing significantly, and it is widely believed that the nature of climate change will vary greatly by region. Expert opinion indicates the likelihood that future climate change would produce more frequent short duration and high intensity rainfall events with the addition of more frequent periods of long duration rainfall.
- 4.8.2 It is believed that the impact of climate change means there is likely to be a long-term increase in the average sea levels, with an expectation that sea levels will rise gradually. An increase in flood water levels means that future flooding events will occur more frequently and will have a greater impact.
- 4.8.3 In light of the future uncertainties Climate Change should be accounted for within the design of all new developments. Climate change factors have been considered and any increase in the level of flood risk (to the site) from climate change is likely to be related to the increase in rainfall intensity and duration and its impact upon the surface water drainage system.
- 4.8.4 In accordance with the Upper Mersey Management Catchment peak rainfall allowances, the upper end allowance (**Table 4**) for the 2070's has been utilised (based on 100yr design life).

PROJECTIONS	TOTAL POTENTIAL CHANGE ANTICIPATED FOR THE 2070'S
Upper End Allowance	45%
Central Allowance	25%

Table 4: Change to Peak Rainfall Compared to 1981-2000 Baseline (Environment Agency, 2022)

5.0 FOUL WATER MANAGEMENT

- 5.1 Review of the topographic survey has identified that there is an existing drainage system onsite which catered for the former nursery onsite. Further investigation of the existing private drainage infrastructure serving the site has been undertaken by The Drainage Group in October 2023. This has identified the location and routing of the existing combined system present onsite. The existing drainage survey is included within **Appendix H** for completeness. It is understood that the existing sewer infrastructure outfalls into the public combined sewer south of Greenbrow Road (though the exact location of connectivity was not able to be traced).
- 5.2 The proposals are to mimic the pre-development situation and continue to discharge foul water generated by the development into the public combined sewer network located south of Greenbrow Road to the south of site, as illustrated previously in **Figure 4**. A pre-development enquiry has been submitted to UU to identify whether they require separate foul and surface water connections to be made direct to the public combined sewer or whether separate systems onsite can combined at the last run within the site boundary with a single offsite combined connection being made.
- 5.3 Based on the proposals for the construction of 20no. residential dwellings, the approximate peak foul water flows generated by the site have been calculated at 0.9l/s, based on 4000 litres per dwelling per 24 hours as per the guidance contained within Sewers for Adoption.
- 5.4 Detailed design will need to confirm the exact point of outfall and whether a full gravity solution is feasible. Any offsite asset routing works will also need to be considered in terms of consents with the relevant offsite landowners (Highways Authority).
- 5.5 Consent for any work to the public sewer network will be required from UU at an early stage, this includes consent for the proposed rates of discharge and the points of connection. A pre-development enquiry has been undertaken; and UU have confirmed that their preferred point of discharge is to the 225mm dia. public combined sewer within Greenbrow Road to the south of site at an unrestricted rate (see correspondence in **Appendix C**).

6.0 SUMMARY AND CONCLUSIONS

- 6.1 The key focus of this assessment is on the sustainable management of surface water run-off to ensure no increased flood risk results from the development proposals. The surface water run-off management options have been assessed in accordance with the sustainable drainage hierarchy.
- 6.2 Based on the ground conditions identified by the published datasets, infiltration will not likely offer a full viable drainage management solution for the proposals. The next option in the drainage hierarchy should be to discharge to the watercourse; however, there are no suitable watercourses within proximity of the site. The alternative drainage method would be to discharge surface water into the public sewer network.
- 6.3 Further investigation of the existing private drainage infrastructure serving the site has been undertaken by The Drainage Group in October 2023. The has identified the location and routing of the existing combined system present onsite. It is understood that the existing sewer infrastructure outfalls into the public combined sewer south of Greenbrow Road (though the exact location of connectivity was not traced).
- 6.4 The proposals are therefore to mimic the existing situation and continue to drain to the combined sewer (UU ref.: 0904) located south of Greenbrow Road to the south of the site. The proposals will be to restrict the run-off to mimic the pre-development brownfield rates with 30% betterment. To serve the new development and account for the required onsite stormwater storage there will be a requirement to for new connections to the combined and not re-use the existing in this case.
- 6.5 Detailed design will need to be carried out to confirm whether a site wide gravity solution can be achieved, however given the existing ground levels, understanding of the current combined sewer depths and existing drainage situation, a gravity system is anticipated to be feasible.
- 6.6 Consent and formal agreement will be required from the asset owner (UU) for any formal works to the public sewer systems. Any offsite asset routing works will also need to be considered in terms of consents with the relevant offsite landowners (Highways Authority). A pre-development enquiry, who have confirmed that once evidence is provided that infiltration and discharge to the highway drain are not viable, UU will consider a connection to the 225mm dia. public combined sewer within Greenbrow Road at a pass forward flow rate to be agreed by the LLFA. UU have requested that any agreed rate does not exceed 10.3l/s.
- 6.7 At this stage the existing outgoing connection(s) from the site to the point of outfall is not known. The post-development discharge rate is to be restricted to 10.3l/s, which is 30% betterment on the existing brownfield rate. Between 41m³ and 66m³ of stormwater storage within the onsite drainage system is anticipated to be required at this stage to attenuate runoff up to the 1 in 100yr plus 45% Climate Change event. Detailed design will determine with accuracy the attenuation requirements in due course.
- 6.8 The surface water scheme for this will be designed to cater for the surface water run-off generated in the events up to and including the 1 in 100yr return period event with a 45% allowance for climate change. Restricting the overall rate of discharge will

generate a requirement to provide onsite stormwater storage for the extreme rainfall events. Detailed design will determine with accuracy the attenuation requirements in due course.

- 6.9 This Drainage Management Strategy has been prepared in consultation with the relevant interested parties. The report is commensurate with the scale and nature of the development and the development is appropriate in accordance with the Non-Statutory Standards.

7.0 RECOMMENDATIONS

- 7.1 Any overland flows generated by the development must be carefully controlled. Safe avenues directing overland flow away from any existing and proposed buildings are advised. By keeping the finished floor levels elevated relative to the externals, this should help create an overland flood flow route in the event of a breach or any other source of flooding that could lead to overland flow.
- 7.2 To minimise the flood risk to the neighbouring properties it is recommended that the surface water run-off generated by the proposals be managed effectively with the peak rates of run-off being restricted to the equivalent of the pre-development situation (with betterment where required).
- 7.3 The proposed onsite surface water drainage system will need to be sized to contain up to and including the 1 in 100yr return period storm event with a 45% allowance for climate change being contained onsite.
- 7.4 Detailed design will need to be carried out to confirm whether a site wide gravity solution can be achieved, however given the existing ground levels, understanding of the current combined sewer depths and existing drainage situation, a gravity system is anticipated to be feasible.
- 7.5 Consent and formal agreement will be required from the asset owner (UU) for any formal works to the public sewer systems. Any offsite asset routing works will also need to be considered in terms of consents with the relevant offsite landowners (Highways Authority).
- 7.6 As with any drainage system blockages within either the foul or surface water system have the potential to cause flooding or disruption. It is important that should any drainage systems not be offered for adoption to either the Water Company or the Local Authority then an appropriate maintenance regime should be scheduled with a suitably qualified management company for these private drainage systems.
- 7.7 If an extreme rainfall event exceeds the design criteria for the drainage system it is likely that there will be some overland flows that are unable to enter the system, it is important that these potential overland flows are catered for within the proposed development site if the capacity of the drainage system is exceeded.

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Environment Agency – www.environment-agency.gov.uk/
FloodProBE – <http://www.floodprobe.eu/>
Flood Forum – <http://www.floodforum.org.uk/>
Google Maps – <http://maps.google.co.uk/>
Rainfall Climate Change Allowance - <https://environment.data.gov.uk/hydrology/climate-change-allowances/rainfall>
Streetmap – <http://www.streetmap.co.uk/>
United Utilities – <https://www.unitedutilities.com/>

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APPENDIX A: NPPF + PPG EXTRACTS

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14. Meeting the challenge of climate change, flooding and coastal change

152. The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

Planning for climate change

153. Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures⁵³. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.
154. New development should be planned for in ways that:
- a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and
 - b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.
155. To help increase the use and supply of renewable and low carbon energy and heat, plans should:
- a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);
 - b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

⁵³ In line with the objectives and provisions of the Climate Change Act 2008.

- c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.
156. Local planning authorities should support community-led initiatives for renewable and low carbon energy, including developments outside areas identified in local plans or other strategic policies that are being taken forward through neighbourhood planning.
157. In determining planning applications, local planning authorities should expect new development to:
- a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and
 - b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.
158. When determining planning applications for renewable and low carbon development, local planning authorities should:
- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and
 - b) approve the application if its impacts are (or can be made) acceptable⁵⁴. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.

Planning and flood risk

159. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.
160. Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.

⁵⁴ Except for applications for the repowering of existing wind turbines, a proposed wind energy development involving one or more turbines should not be considered acceptable unless it is in an area identified as suitable for wind energy development in the development plan; and, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been fully addressed and the proposal has their backing.

161. All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by:
- a) applying the sequential test and then, if necessary, the exception test as set out below;
 - b) safeguarding land from development that is required, or likely to be required, for current or future flood management;
 - c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and
 - d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.
162. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test. The sequential approach should be used in areas known to be at risk now or in the future from any form of flooding.
163. If it is not possible for development to be located in areas with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3.
164. The application of the exception test should be informed by a strategic or site-specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that:
- a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and
 - b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.
165. Both elements of the exception test should be satisfied for development to be allocated or permitted.
166. Where planning applications come forward on sites allocated in the development plan through the sequential test, applicants need not apply the sequential test again. However, the exception test may need to be reapplied if relevant aspects of the proposal had not been considered when the test was applied at the plan-

making stage, or if more recent information about existing or potential flood risk should be taken into account.

167. When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment⁵⁵. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:
- a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;
 - b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;
 - c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;
 - d) any residual risk can be safely managed; and
 - e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.
168. Applications for some minor development and changes of use⁵⁶ should not be subject to the sequential or exception tests but should still meet the requirements for site-specific flood risk assessments set out in footnote 55.
169. Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems used should:
- a) take account of advice from the lead local flood authority;
 - b) have appropriate proposed minimum operational standards;
 - c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and
 - d) where possible, provide multifunctional benefits.

Coastal change

⁵⁵ A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3. In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

⁵⁶ This includes householder development, small non-residential extensions (with a footprint of less than 250m²) and changes of use; except for changes of use to a caravan, camping or chalet site, or to a mobile home or park home site, where the sequential and exception tests should be applied as appropriate.

170. In coastal areas, planning policies and decisions should take account of the UK Marine Policy Statement and marine plans. Integrated Coastal Zone Management should be pursued across local authority and land/sea boundaries, to ensure effective alignment of the terrestrial and marine planning regimes.
171. Plans should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas and not exacerbating the impacts of physical changes to the coast. They should identify as a Coastal Change Management Area any area likely to be affected by physical changes to the coast, and:
- a) be clear as to what development will be appropriate in such areas and in what circumstances; and
 - b) make provision for development and infrastructure that needs to be relocated away from Coastal Change Management Areas.
172. Development in a Coastal Change Management Area will be appropriate only where it is demonstrated that:
- a) it will be safe over its planned lifetime and not have an unacceptable impact on coastal change;
 - b) the character of the coast including designations is not compromised;
 - c) the development provides wider sustainability benefits; and
 - d) the development does not hinder the creation and maintenance of a continuous signed and managed route around the coast⁵⁷.
173. Local planning authorities should limit the planned lifetime of development in a Coastal Change Management Area through temporary permission and restoration conditions, where this is necessary to reduce a potentially unacceptable level of future risk to people and the development.

⁵⁷ As required by the Marine and Coastal Access Act 2009.

(<http://www.legislation.gov.uk/ukxi/2015/596/article/4/made>) to require planning permission to be sought in each case.

Paragraph: 075 Reference ID: 7-075-20220825

Revision date: 25 08 2022

How can neighbourhood plans and neighbourhood development/community right to build orders take account of coastal change?

In any instance where a Neighbourhood Area is proposed in a Coastal Change Management Area, careful attention should be paid to the guidance on [what development would be appropriate in such an area](#), including whether [time-limiting planning permissions](#) are needed. The local planning authority will need to be consulted about existing and anticipated levels of risk, and the types of development that may or may not be appropriate.

See related policy in [paragraphs 170 to 173 of the National Planning Policy Framework](#) (<https://www.gov.uk/guidance/national-planning-policy-framework/14-meeting-the-challenge-of-climate-change-flooding-and-coastal-change>).

Paragraph: 076 Reference ID: 7-076-20220825

Revision date: 25 08 2022

Flood Zone and flood risk tables

- Table 1: Flood Zones
- [National Planning Policy Framework Annex 3 - Flood risk vulnerability classification](#) (<https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification>)
- [Table 2: Flood risk vulnerability and flood zone 'incompatibility'](#)

Paragraph: 077 Reference ID: 7-077-20220825

Revision date: 25 08 2022

Table 1: Flood Zones

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b)
Zone 2 Medium Probability	Land having between a 1% and 0.1% annual probability of river flooding; or land having between a 0.5% and 0.1% annual

Flood Zone	Definition
	probability of sea flooding. (Land shown in light blue on the Flood Map)
Zone 3a High Probability	Land having a 1% or greater annual probability of river flooding; or Land having a 0.5% or greater annual probability of sea. (Land shown in dark blue on the Flood Map)
Zone 3b The Functional Floodplain	<p>This zone comprises land where water from rivers or the sea has to flow or be stored in times of flood. The identification of functional floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Functional floodplain will normally comprise:</p> <ul style="list-style-type: none"> • land having a 3.3% or greater annual probability of flooding, with any existing flood risk management infrastructure operating effectively; or • land that is designed to flood (such as a flood attenuation scheme), even if it would only flood in more extreme events (such as 0.1% annual probability of flooding). <p>Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency. (Not separately distinguished from Zone 3a on the Flood Map)</p>

Note: The Flood Zones shown on the Environment Agency's Flood Map for Planning (Rivers and Sea) do not take account of the possible impacts of climate change and consequent changes in the future probability of flooding. Reference should therefore also be made to the [Strategic Flood Risk Assessment](https://www.gov.uk/guidance/local-planning-authorities-strategic-flood-risk-assessment) (<https://www.gov.uk/guidance/local-planning-authorities-strategic-flood-risk-assessment>) when considering location and potential future flood risks to developments and land uses.

Paragraph: 078 Reference ID: 7-078-20220825

Revision date: 25 08 2022

Table 2: Flood risk vulnerability and flood zone 'incompatibility'

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

Notes to table 2:

- This table does not show the application of the [Sequential Test](#) which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and [Exception Tests](#) do not need to be applied to those developments set out in [National Planning Policy Framework footnote 56](#) (<https://www.gov.uk/guidance/national-planning-policy-framework/14-meeting-the-challenge-of-climate-change-flooding-and-coastal-change>). The Sequential and Exception Tests should be applied to ‘major’ and ‘non major’ development;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

“†” In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

“*” In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;

- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

Paragraph: 079 Reference ID: 7-079-20220825

Revision date: 25 08 2022

Site-specific flood risk assessment: Checklist

1 - Development site and location

You can use this section to describe the site you are proposing to develop. It would be helpful to include, or make reference to, a location map which clearly indicates the development site.

- a. Where is the development site located? (e.g. postal address or national grid reference)
- b. What is the current use of the site? (e.g. undeveloped land, housing, shops, offices)
- c. Which Flood Zone (for river or sea flooding) is the site within? (i.e. Flood Zone 1, Flood Zone 2, Flood Zone 3). As a first step, you should check the [Flood Map for Planning \(https://flood-map-for-planning.service.gov.uk/\)](https://flood-map-for-planning.service.gov.uk/). Check the Strategic Flood Risk Assessment for the area available from the local planning authority to identify if the site is within Flood Zone 1 but at increased risk of flooding in future due to climate change
- d. Also check the Strategic Flood Risk Assessment to identify if there are any other sources of flooding that may affect the site now or in the future.

2 - Development proposals

You can use this section to provide a general summary of the development proposals. It would be helpful to include, or make reference to, an existing block plan and a proposed block plan, where appropriate.

- a. What are the development proposal(s) for this site? Will this involve a change of use of the site and, if so, what will that change be?
- b. In terms of vulnerability to flooding, what is the vulnerability classification of the proposed development? See [National Planning Policy Framework Annex 3 \(https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification\)](https://www.gov.uk/guidance/national-planning-policy-framework/annex-3-flood-risk-vulnerability-classification) for an explanation of the vulnerability classifications.
- c. What is the expected or estimated lifetime of the proposed development likely to be (e.g. 100 years or 75 years)? See [paragraph 006](#) of this guidance for further advice on how to assess the lifetime of developments for flood risk and coastal

APPENDIX B: EA INFORMATION & CORRESPONDENCE

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Hannah Buchanan

From: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>
Sent: 19 October 2023 09:55
To: Hannah Buchanan
Subject: GMMC330277AB Response attached from the Environment Agency
Attachments: GMMC330277AB Table.pdf; GMMC330277AB DFM.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Dear Hannah,

Thank you for your enquiry which was received on 16/10/23.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

I enclose the Product 4.

For any further information on your property's flood risk, visit our long term flood risk website: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/>

For any additional information on flood risk information, advice and support in your area, please visit: <https://thefloodhub.co.uk/>

Flood Map for Planning: <https://flood-map-for-planning.service.gov.uk/>

There are no flood defences in the vicinity of the site.

There are no 2D levels available for this site.

There is no hazard mapping available for the site.

Manchester Council is responsible for issues relating to surface water and hold information on surface water flooding.

Please be aware you can check your risk of flooding on our external website <https://flood-warning-information.service.gov.uk/long-term-flood-risk/>

Here are some useful links below:

<https://www.gov.uk/guidance/flood-risk-assessment-local-planning-authorities>

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

The following information is not available under the Open Government Licence but we may be able to license it to you under the [Environment Agency Conditional Licence](#):

<https://ea.sharefile.com/d-s9b3ec196ed724668a4e4e97b6717c4c3>

The ShareFile links contains the following data:

Altrincham 2009 Report (P5) Outputs (P6) Model (P7)

Please be advised that the link will expire in 30 days from 18/10/23. It is therefore advisable that you save this data to your own system.

Product 5/6/7

1. You may use the Information for your internal or personal purposes and may only sublicense others to use it if you do so under a written licence which includes the terms of these conditions and the agreement and in particular may not allow any period of use longer than the period licensed to you.
2. Notwithstanding the fact that the standard wording of the Environment Agency Conditional Licence indicates that it is perpetual, this Licence has a limited duration of 5 years at the end of which it will terminate automatically without notice.
3. We have restricted use of the Information as a result of legal restrictions placed upon us to protect the rights or confidentiality of others. In this instance it is because of third party data. If you contact us in writing (this includes email) we will, as far as confidentiality rules allow, provide you with details including, if available, how you might seek permission from a third party to extend your use rights.
- 4.1 The Information may contain some data that we believe is within the definition of "personal data" under the Data Protection Act 1998 but we consider that we will not be in breach of the Act if we disclose it to you with conditions set out in this condition and the conditions above. This personal data comprises names of individuals or commentary relating to property that may be owned by an individual or commentary relating to the activities of an individual.
- 4.2 Under the Act a person who holds and uses or passes to others personal data is responsible for any compliance with the Act and so we have no option but to warn you that this means you have responsibility to check that you are compliant with the Act in respect of this personal data.
- 5 The location of public water supply abstraction sources must not be published to a resolution more detailed than 1km². Information about the operation of flood assets should not be published.
- 6 .1 Where we have supplied model data which may include model inputs or outputs you agree to supply to the Environment Agency copies of any assessments/studies and related outputs, modifications or derivatives created pursuant to the supply to you of the Information, all of which are hereinafter referred to as "the Data".
6.2 You agree, in the public interest to grant to the Environment Agency a perpetual royalty free non-exclusive licence to use the Data or any part thereof for its internal purposes or to use it in any way as part of Environment Agency derivative products which it supplies free of charge to others such as incorporation into the Environment Agency's Open Data mapping products.

We are supplying this information to you under the Environment Agency Conditional Licence Please check the special conditions above to determine if the conditions on the use are suitable for your purposes. If they are not, this information is not provided with a licence for use, and the data is provided for read right only.

Please get in touch if you have any further queries or contact us within two months if you'd like us to review the information we have sent.

Kind regards,

Anne Ball

Customer and Engagement Officer

Greater Manchester, Merseyside and Cheshire

Email: InfoRequests.gmmc@environment-agency.gov.uk

Office address: Richard Fairclough House, Knutsford Road, Latchford, Warrington, WA14 4UW

From: Hannah Buchanan <hannahbuchanan@betts-associates.co.uk>

Sent: Monday, October 16, 2023 9:35 PM

To: GMMC Info Requests <InfoRequests.GMMC@environment-agency.gov.uk>

Subject: GMMC330277AB Flood Risk Information Request

To whom it may concern,

Former Clever Clowns Nursery, Greenbrow Road, Manchester

Please could you confirm whether you have any information (where appropriate, Products 4, 5, 6, & 7) that you feel would be valuable to a Flood Risk Assessment and Drainage Management Strategy for the above site (location plan attached), including details of historical flooding and specific drainage requirements; this would be greatly appreciated. If there are any other specific requirements that you require in a scope of works for this site, please can you advise at this stage so that it can be fully incorporated into the proposals at an early stage.

Please do not hesitate to contact me on the details below to discuss further should you require additional information or clarification.

Kind Regards,

Hannah Buchanan BSc (Hons) MSc GradCIWEM
Graduate Flood Risk Analyst

BETTS HYDRO

Consulting Engineers

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APPENDIX C: UU CORRESPONDENCE

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Hannah Buchanan

From: Hannah Buchanan
Sent: 16 October 2023 21:35
To: wastewaterdeveloperservices@uuplc.co.uk
Subject: Sewer Flood Risk Information Request
Attachments: Location Plan.pdf

To whom it may concern,

Former Clever Clowns Nursery, Greenbrow Road, Manchester

Please could you confirm whether you have any information that you feel would be valuable to a Flood Risk Assessment and Drainage Management Strategy for the above site (location plan attached), including details of historical flooding and specific drainage requirements; this would be greatly appreciated. If there are any other specific requirements that you require in a scope of works for this site, please can you advise at this stage so that it can be fully incorporated into the proposals at an early stage.

Please do not hesitate to contact me on the details below to discuss further should you require additional information or clarification.

Kind Regards,

Hannah Buchanan BSc (Hons) MSc GradCIWEM
Graduate Flood Risk Analyst

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Betts-Associates

Old Marsh Farm Barns
Old Marsh Farm Barns,
Flintshire,
CH5 2LY

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: HYD891
Our Ref: UUPS-ORD-529620
Date: 08/11/2023

Dear Sirs

Location: Former Clever Clowns Nursery

I acknowledge with thanks your request dated 07/11/2023 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

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.

Hannah Buchanan

From: seweradoptions@uuplc.co.uk
Sent: 01 December 2023 15:44
To: Hannah Buchanan
Subject: RE: Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU
Reference Number : 04934897

Thanks Hannah,

Please refer back to the original proposed connection to the combined

Any further issues or queries please let me know

Kind Regards



Lewis Barr
Assistant Developer Engineer
Developer Services & Metering
Customer Services
07827286541
unitedutilities.com

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

From: Hannah Buchanan [hannahbuchanan@betts-associates.co.uk]
Sent: 01/12/2023 08:48
To: seweradoptions@uuplc.co.uk
Subject: RE: Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU Reference Number :
04934897

Good morning,

Please see the correspondence with highways as attached to this email.

Due to third-party land, and levels constraints (our site falls down away from the access onto Greenbrow) it is my understanding that a connection to the private watercourse would not be feasible, as this would necessitate a pumped solution.

Kind Regards,

Hannah Buchanan BSc (Hons) MSc GradCIWEM

Graduate Flood Risk Analyst

BETTS HYDRO

Consulting Engineers

Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire, CH5 2LY

Chester +44 (0)1244 289041

hannahbuchanan@betts-associates.co.uk

www.betts-associates.co.uk

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

Sent: Tuesday, November 28, 2023 11:52 AM

To: Hannah Buchanan <hannahbuchanan@betts-associates.co.uk>

Subject: RE: Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU Reference Number : 04934897

Good afternoon Hannah,

Unfortunately we do not hold any records of the highway sewers for this area. If possible could you please forward along the below correspondence just so I can add to the file that this has been investigated and discounted.

There is a private watercourse to the east of site the runs into a brook further north. Have you spoken with the LLFA to consider this as a connection?

If this isn't viable United Utilities have no objection to the original combined sewer connection

Kind Regards



Lewis Barr

Assistant Developer Engineer
Developer Services & Metering
Customer Services
07827286541
unitedutilities.com

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

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 28/11/2023 08:22

To: hannahbuchanan@betts-associates.co.uk

Subject: RE: Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU Reference Number : 04934897

Good Morning,

Thank you for your email this has been logged to the engineer Anthony, their number is 07880298897. They have a service level agreement to respond on or before 11/12/2023.

Kind Regards,



Katie Houghton

Customer Advisor Advanced
Developer Services & Metering
Customer Services

Tel: 0345 072 6067 (option 4)
unitedutilities.com

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

From: Hannah Buchanan [hannahbuchanan@betts-associates.co.uk]

Sent: 27/11/2023 17:47

To: seweradoptions@uuplc.co.uk

Subject: RE: Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU Reference Number : 04934897

Good afternoon,

I am emailing with regard to the below pre-development enquiry for the Former Clever Clowns Nursery. Further to the below, I have contacted the highways department. They have advised that they do not hold plans for location of any of the highway drains, and that they can only provide a section 50 if we know the location of these assets. They have also advised that this is information UU may hold. If so, could you please confirm where the nearest highway drain to our site is located?

Kind Regards,

Hannah Buchanan *BSc (Hons) MSc GradCIWEM*

Graduate Flood Risk Analyst

BETTS HYDRO

Consulting Engineers

Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire, CH5 2LY

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hannahbuchanan@betts-associates.co.uk

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From: seweradoptions@uuplc.co.uk <seweradoptions@uuplc.co.uk>
Sent: Monday, November 20, 2023 9:04 AM
To: Hannah Buchanan <hannahbuchanan@betts-associates.co.uk>
Subject: Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU Reference Number : 04934897

Good morning Hannah,
Pre Development Enquiry for: Frmr Clever Clowns Nursery, M23 2UH UU Reference Number : 04934897

We have carried out an assessment of your application which is based on the information provided. This pre-development advice on your drainage strategy will be valid for 12 months. Your drainage strategy will need to be reviewed by other competent authorities as part of the planning process, and we advise that you carry out the necessary site investigations to confirm the viability of your proposals.

If your investigations require access to our public sewer network, we ask that you contact our network engineers with a request for an access certificate via our main contact telephone number 0345 6723 723 or refer to the link below:

<https://www.unitedutilities.com/builders-developers/working-near-our-assets/>

Foul Water

Foul flow from this site will be allowed to drain into the public foul water/combined sewer system.

Our preferred point of discharge would be to the 225mm diameter public combined sewer within Greenbrow Road located to the South of your proposed development at an unrestricted rate.

If you are able to identify an alternative, more suitable point of discharge, we request that you contact us at your earliest convenience so that we can assess suitability.

In accordance with our infrastructure plans we may ask you to change your point of connection. Therefore please contact us when you are ready to formalise your drainage proposals, we would suggest before you submit for Full Planning.

Surface Water

All surface water flow from the proposed development should drain in-line with the drainage hierarchy, as outlined in Paragraph 80, (Reference ID: 7-080-20150323), of the National Planning Practice Guidance. We also recommend you prioritise the use of multi-functional sustainable drainage systems for the management of surface water in accordance with national planning policy.

Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

This is outlined as follows, in order of priority:

1. **into the ground (infiltration);**
2. **to a surface waterbody;**
3. **to a surface water sewer or highway drain;**

4. to a combined sewer.

For guidance, The [North West SuDS Pro-Forma](#) provides information on the appropriate evidence required at each stage of the hierarchy, to demonstrate how each level has been discounted.

The Lead Local Flood Authority has responsibility for all surface water drainage concerns and their input to your proposal is critical. You should also consider whether it is necessary to discuss your proposal with the Environment Agency, or Internal Drainage Board (if operating in your area).

The Local Planning Authority are the determining authority for any application for planning permission and the appropriate authority for determining cost viability of a proposed drainage scheme, such assessments are outside of the jurisdiction of United Utilities.

Infiltration

Thank you for discounting infiltration on this scheme.

Highway Drainage

If an evidence based assessment has been carried out and confirms that infiltration is not feasible, we recommend that you investigate the possibility of draining surface water to the highway drain where this ultimately discharges to a watercourse, by contacting the relevant Highway Authority.

Public Sewer

In accordance with the hierarchy of drainage options within the National Planning Practice Guidance, both discharge to ground via infiltration and discharge to a waterbody should be discounted prior to consideration of discharging surface water to the public sewer system. Evidence should be provided to demonstrate how these have been discounted, as outlined in the North West SuDS pro-forma.

Once evidence is provided as outlined above, United Utilities will consider a connection to the 225mm diameter public combined sewer within Greenbrow Road located South of the proposed site at a pass forward flow to be agreed by the Lead Local Flood Authority. United Utilities request that any agreed rate does not exceed 10.3 l/s. As a Water Company, we have no obligation to accept highway drainage into our public sewer network. However, should your proposals include runoff from highways, we would request that consideration is given to SuDS components that deliver source control are incorporated within the design of the scheme to reduce the volume and frequency of discharges of these flows to the public sewer.

Levels

For low-lying sites, (where the ground level of the site or the level of a basement is below the ground level at the point where the drainage connects to the public sewer), care should be taken to ensure that the property is not at increased risk of flooding. If these circumstances exist, we recommend that you contact us to discuss further. It could affect the detailed design of your site and result in the need to incorporate appropriate mitigating measures in your drainage scheme.

Land drainage / Overland flows / track drainage

United Utilities have no obligation, and furthermore we do not accept land drainage, overland flows or track drainage into the public sewerage network under any circumstances

Existing Wastewater Assets Crossing the Site

We have reviewed our records and can confirm that there does not appear to be any charted public sewers located within the boundary of proposed development. However, due to the accuracy of the records and the public sewer transfer legislation in 2011, not all public sewers are shown on our records so we would ask that you proceed with caution and carry out your own site investigation works. If any uncharted sewers are identified while carrying out your works we would ask that you contact United Utilities at the earliest opportunity so that we can offer guidance and update our records.

Existing Water Assets Crossing the Site

It is the developer responsibility to identify utilities on-site. Where clean water assets are shown on our records, we recommend that you contact our Water Pre-Development Team, via the following email address:

DeveloperServicesWater@uuplc.co.uk. Further information for this service can be found on our website via the link below:

<https://www.unitedutilities.com/builders-developers/larger-developments/pre-development/water-pre-dev/>

Connection Application

Although we may discuss and agree discharge points and rates in principle, please be aware that you will have to apply for a formal sewer connection. This is so that we can assess the method of construction, Health & Safety requirements and to ultimately inspect the connection when it is made. Details of the application process and the form itself can be obtained from our website by following the link below:

<https://www.unitedutilities.com/builders-developers/wastewater-services/sewer-connections/sewer-connection/>

We recommend that the detailed design should confirm the locations of all utilities in the area and ensure that any proposed drainage solution considers routing and clash checks where required.

If we can be of any further assistance please don't hesitate to contact us further.

Kind Regards



Lewis Barr

Assistant Developer Engineer
Developer Services & Metering
Customer Services
07827286541
unitedutilities.com

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

From: seweradoptions@uuplc.co.uk [seweradoptions@uuplc.co.uk]

Sent: 17/11/2023 15:02

To: hannahbuchanan@betts-associates.co.uk

Subject: PDE CA28, Former Clever Clowns Nursery - 04936175

Good Afternoon,

PRE DEVELOPMENT APPLICATION AT: Former Clever Clowns Nursery– UU Ref 04936175

Please accept this email as receipt of your application received on 17/11/2023 for the above development. This has now been logged on our system and the job reference is 04936175 we would ask that you quote this reference in all future correspondence.

I have reviewed your application (and attachments) and can confirm this is suitable to be passed to Lewis for technical assessment. You will receive their response within 8 working days.

Kind regards,

APPENDIX D: LPA/LLFA CORRESPONDENCE

This page has been left intentionally blank.

Hannah Buchanan

From: Hannah Buchanan
Sent: 16 October 2023 21:35
To: floodriskmanagement@manchester.gov.uk
Subject: Historic Flood Risk and Drainage Information Request
Attachments: Location Plan.pdf

To whom it may concern,

Former Clever Clowns Nursery, Greenbrow Road, Manchester

Please could you confirm whether you have any information that you feel would be valuable to a Flood Risk Assessment and Drainage Management Strategy for the above site (location plan attached), including details of historical flooding and specific drainage requirements; this would be greatly appreciated. If there are any other specific requirements that you require in a scope of works for this site, please can you advise at this stage so that it can be fully incorporated into the proposals at an early stage.

Please do not hesitate to contact me on the details below to discuss further should you require additional information or clarification.

Kind Regards,

Hannah Buchanan BSc (Hons) MSc GradCIWEM
Graduate Flood Risk Analyst

BETTS HYDRO

Consulting Engineers

Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire, CH5 2LY
Chester +44 (0) 1244 289041

hannahbuchanan@betts-associates.co.uk
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APPENDIX E: LOCATION PLAN

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LOCATION PLAN

Former Clever Clowns Nursery, Greenbrow Road, Manchester



OS X (Eastings)	381064
OS Y (Northings)	386987
Nat Grid	SJ810869 / SJ8106486987
Nearest Post Code	M23 2UH
Lat (WGS84)	N53:22:46 (53.379390938122754)
Long (WGS84)	W2:17:10 (-2.286119618726365)
Lat, Long (WGS84)	53.379390938122754,-2.286119618726365
Lat (OSGB36)	N53:22:45 (53.37913146136997)
Long (OSGB36)	W2:17:05 (-2.2846896812259807)
Lat, Long (OSGB36)	53.37913146136997,-2.2846896812259807



APPENDIX F: TOPOGRAPHIC SURVEY

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Scale: 1:200

System of files:
Clever Clowns Nursery

Drawing Reference:
**Existing Topographical
Survey**

Scale: All: 1:200
Drawn by: BAL
Checked by: MCH

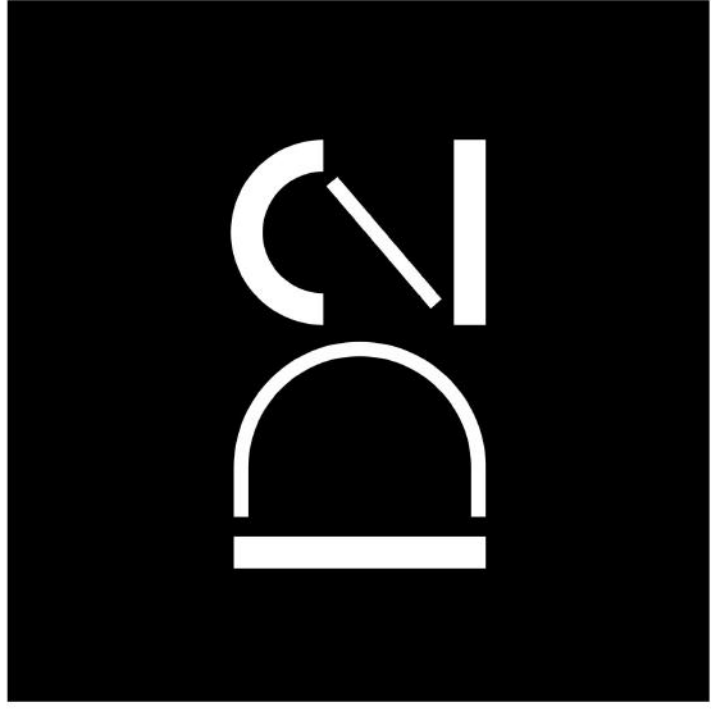
Project Number: **6380**
Drawing Number: **EX02**
Revision: **A**



Southern Illinois
2400 North St.
Carbondale, IL 62901
Chadwick
Chadwick
Chadwick

APPENDIX G: PROPOSED PLANNING LAYOUT

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ARCHITECTS



Cleveilr Clowns Nursery

Drawing List							
Sheet Number	Sheet Name	Current Revision	Sheet Issue Date	Current Revision Description	Drawn By	Checked By	Count
D2	Cover	L	10/30/17	Planning Amend.	RAL	MOH	1
DS01	Drawing Issue Sheet	L	05/09/23	Planning Amend.	RAL	MOH	1
EX02	Existing Topographical Survey	A	10/30/17	Planning Amend.	RAL	MOH	1
PL01	Proposed Site Plan	I	01/29/18	Planning Amend.	RAL	MOH	1
PL02	Proposed Plans	H	12/16/21	Planning Amend.	RAL	MOH	1
PL03	Proposed Elevations	F	12/16/21	Planning Amend.	RAL	MOH	1
PL04	Images	C	05/05/23	Planning Amend.	RAL	MOH	1
PL05	Images	C	05/09/23	Planning Amend.	RAL	MOH	1
PL06	Images	C	05/09/23	Planning Amend.	RAL	MOH	1
PL07	Images	C	05/09/23	Planning Amend.	RAL	MOH	1
PL08	Images	A	07/06/23	Planning Amend.	Author	Checker	1
PL09	Massing Overview	D	05/09/23	Planning Amend.	RAL	MOH	1

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Rev:	Description:	Date:
X	First Issue	18.11.22
A	Massing	18.11.22
B	Sketch Scheme	23.11.22
C	Add. Info	11.01.23
D	West Planting	15.01.23
E	Add. Info	05.02.23
F	Planning Comm.	07.05.23
G	Proposed Plans	07.05.23
H	Planning Amend	21.06.23
I	Planting Info.	04.07.23
J	Client Amend	12.07.23
K	Planning Amend.	21.07.23
L	Planning Amend.	19.08.23

Planning

Scheme Title:	
Clever Clowns Nursery	
Drawing Reference:	
Drawing Issue Sheet	
Scale @ A1:	RAL
Drawn by:	RAL
Checked by:	MOH

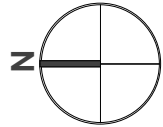
Project Number:	Drawing Number:	Revision:
6380	DS01	L



ARCHITECTS

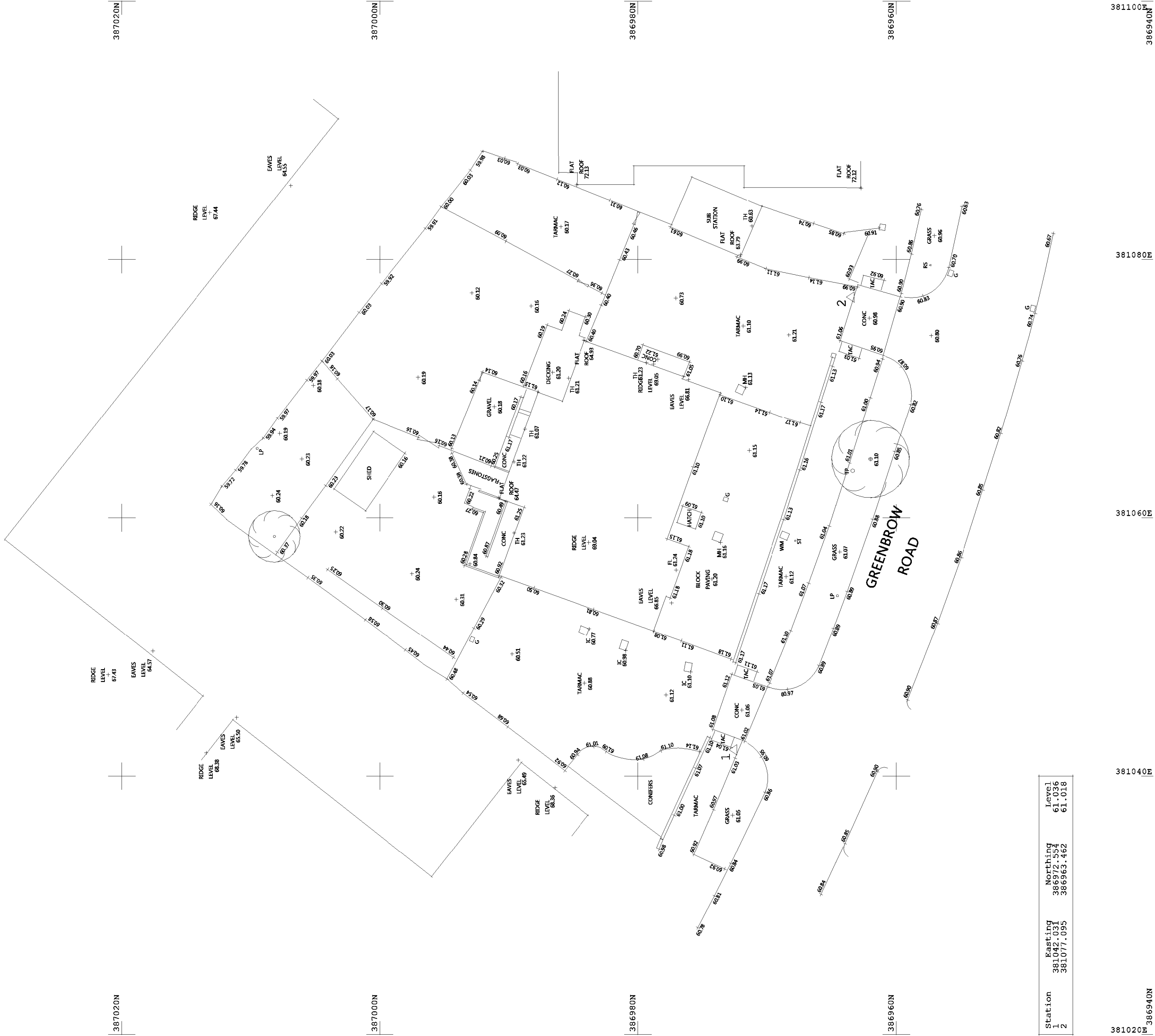
Saughton House
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W: www.danarchitects.co.uk



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Rev:	Description:	Date:
X	First Issue	18.11.22
A	Planning Amend.	19.08.23



Station	Fasting	Northing	Level
1	381042.031	386972.554	61.036
2	381077.095	386963.462	61.018

381020H 386940N

Existing - Topographical Survey

Scale: 1 : 200

Planning

Scheme Title:
Cleavelr Clowns Nursery

Drawing Reference:
**Existing Topographical
Survey**

Scale @ A1: **1 : 200**
Drawn by: **RAL**
Checked by: **MOH**

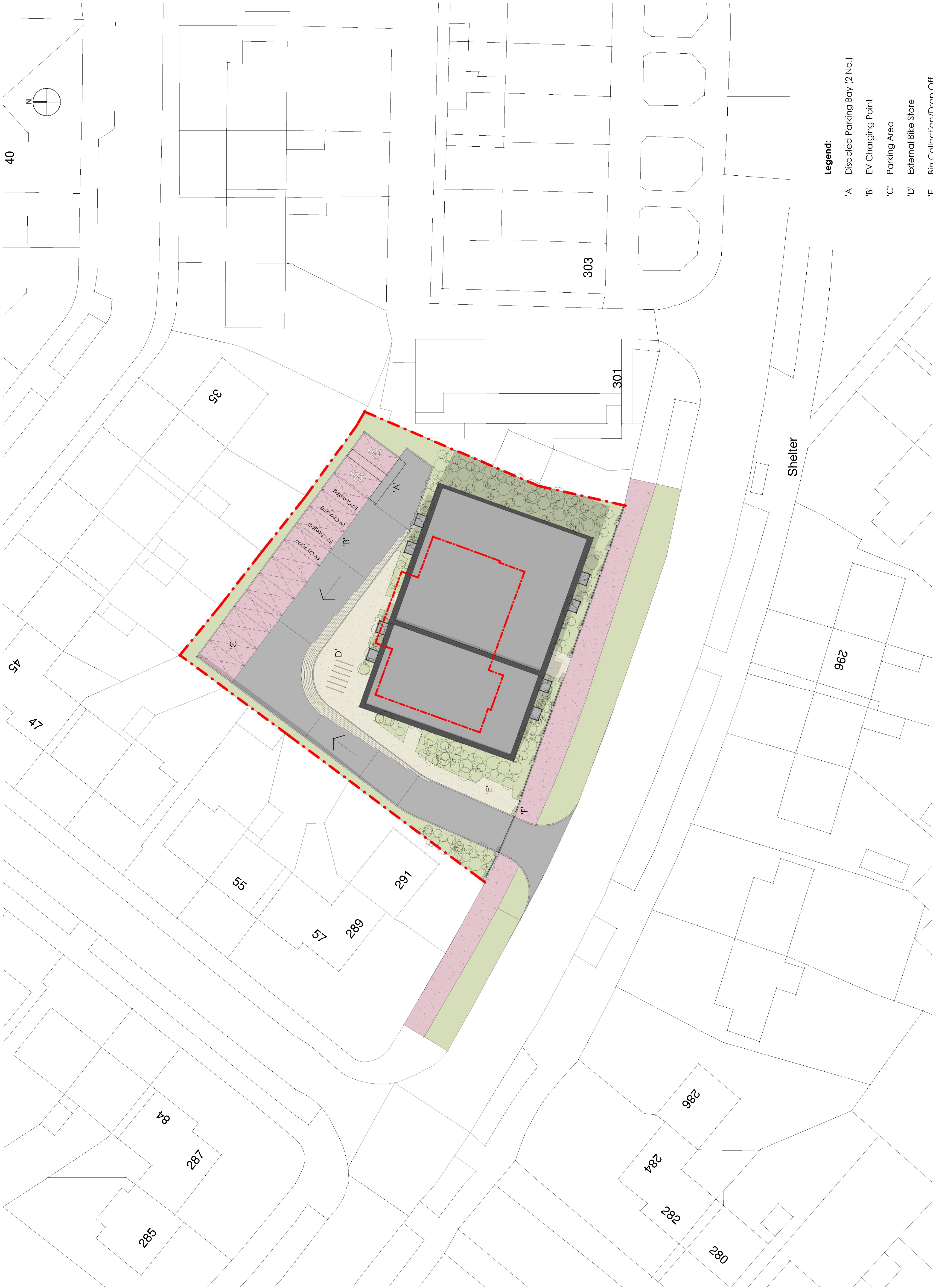
Project Number: **6380**
 Drawing Number: **EX02**
 Revision: **A**



Soughton House
2, Nicholas Street Mews
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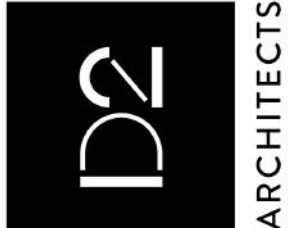


- Legend:**
- 'A' Disabled Parking Bay (2 No.)
 - 'B' EV Charging Point
 - 'C' Parking Area
 - 'D' External Bike Store
 - 'E' Bin Collection/Drop Off
 - 'F' Pedestrian Access

Planning

Scheme Title:	Clever Clowns Nursery
Drawing Reference:	Proposed Site Plan
Scale @ A1:	1 : 200
Drawn by:	BAL
Checked by:	MOH

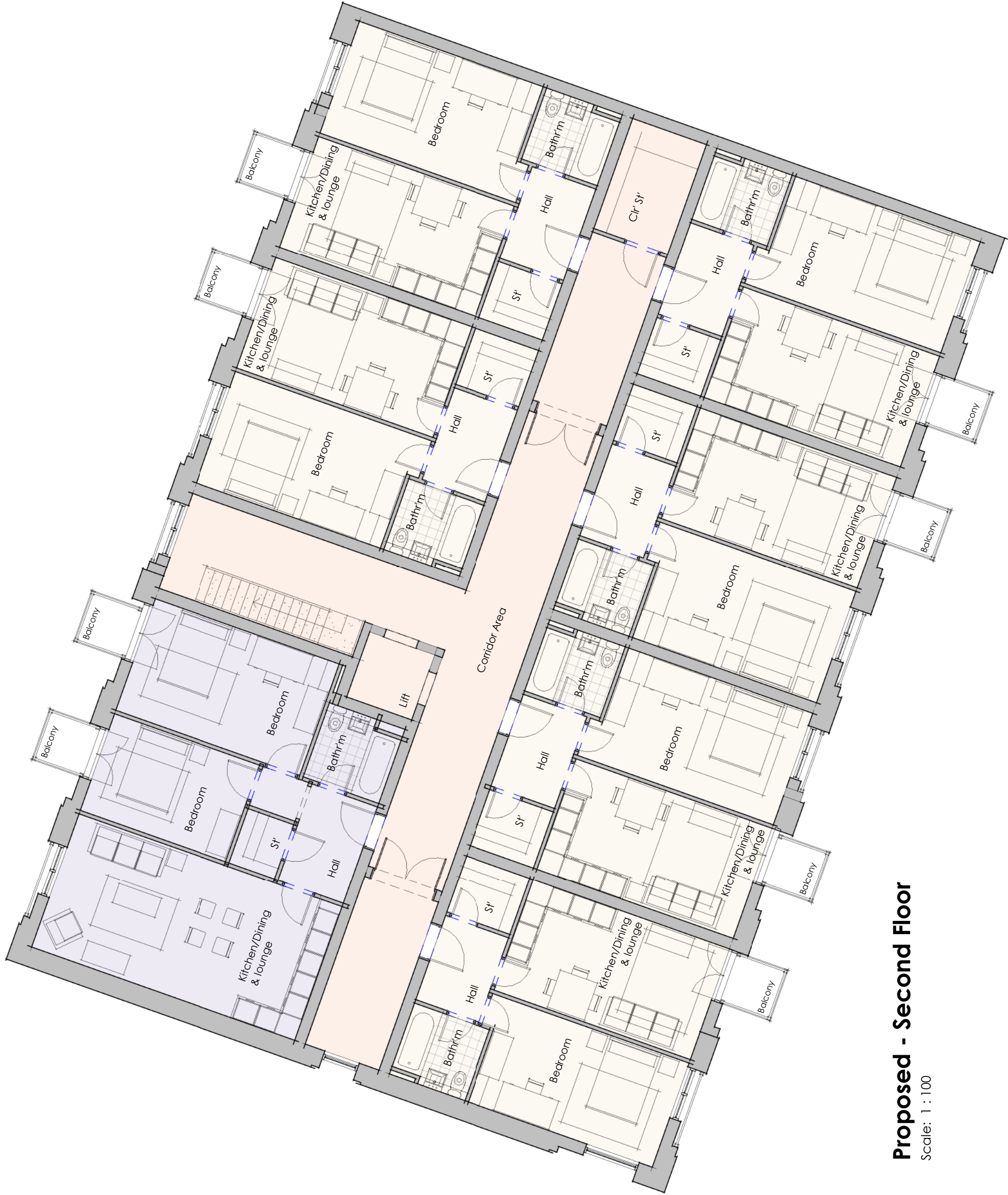
Project Number:	6380
Drawing Number:	PL01
Revision:	I



Saughton House
2 Nicholas Street Mews
Chester
CH1 2NS
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info@danarchitects.co.uk
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Rev:	Description:	Date:
X	First Issue	18.11.22
A	Missing	18.11.22
B	Sketch Scheme	23.11.22
C	Add. Info	11.01.23
D	Planning Comm.	07.05.23
E	Area/No. Units	05.06.23
F	Planning Info.	04.07.23
G	Planning Amend.	19.08.23
H	Planning Amend.	19.08.23



Proposed - Second Floor

Scale: 1 : 100

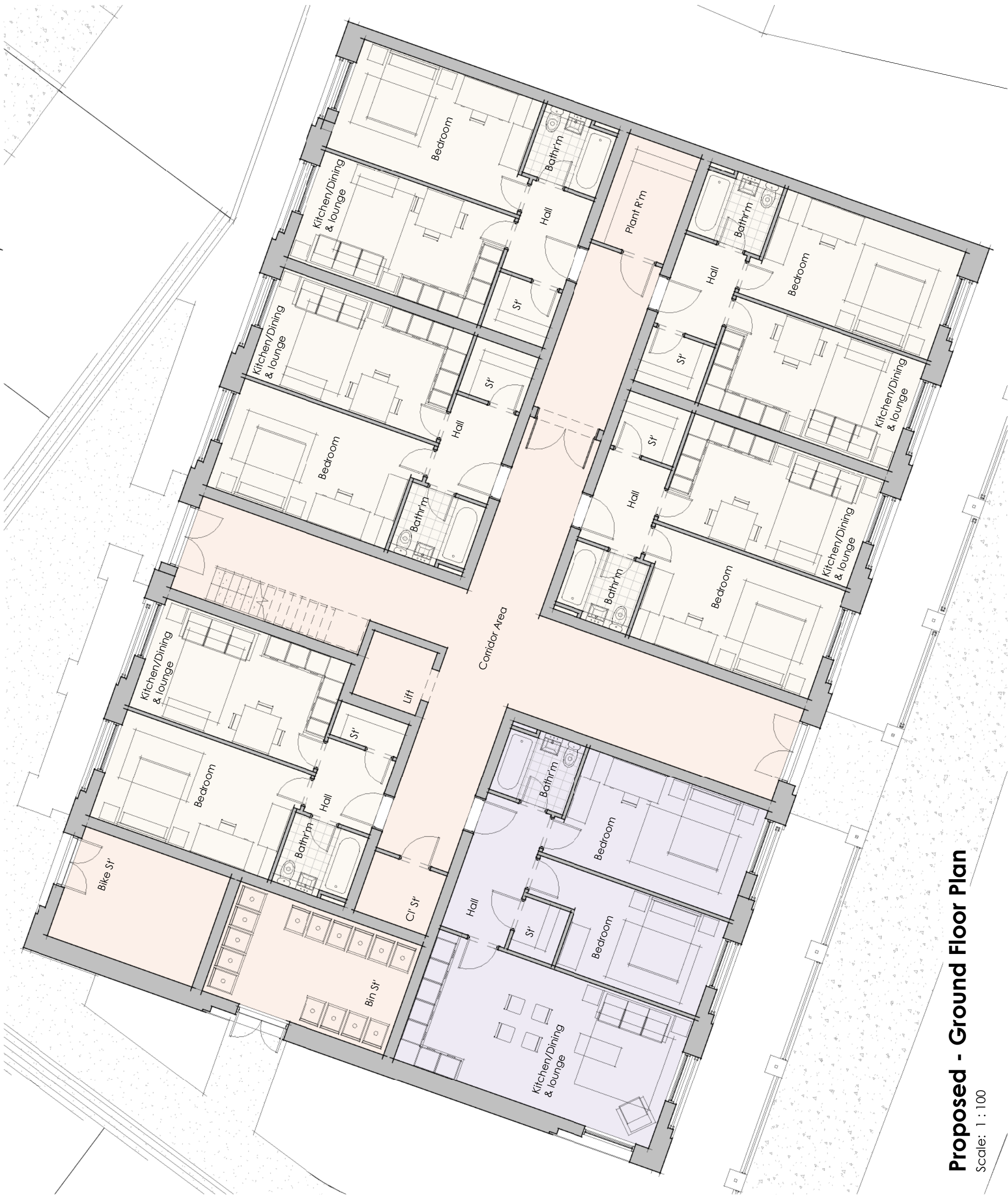
Legend:

	2 Bedroom Apartment
Area (Per Unit)	75 sqm
Total No.	3 No.
	1 Bedroom Apartment
Area (Per Unit)	48 sqm
Total No.	17 No.



Proposed - First Floor Plan

Scale: 1 : 100



Proposed - Ground Floor Plan

Scale: 1 : 100

Planning

Scheme Title:	Cleaver Clowns Nursery
Drawing Reference:	Proposed Plans
Scale @ A1:	1 : 100
Drawn by:	BAL
Checked by:	MOH

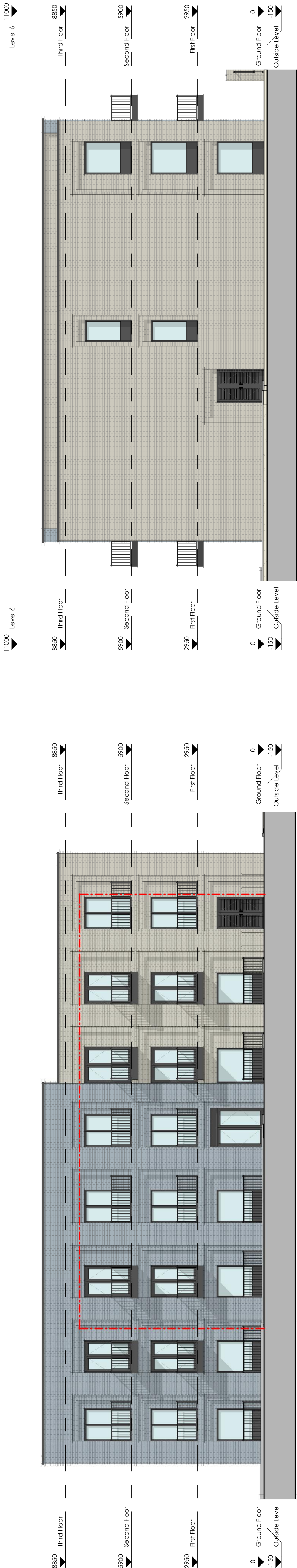
Project Name:	6380	Drawing Number:	PL02	Revision:	H
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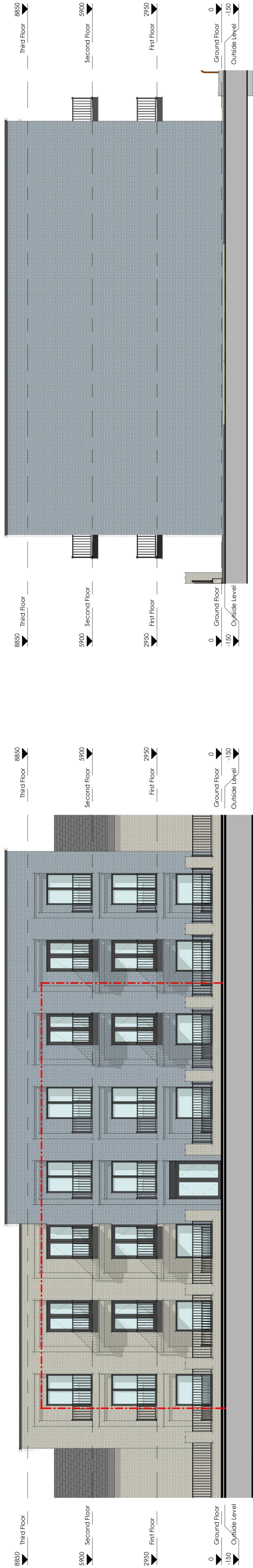
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Rev:	Description:	Date:
X	First Issue	18.11.22
A	Missing	18.11.22
B	Planning Comm.	07.05.23
C	Planning Info.	04.07.23
D	Client Amend	12.07.23
E	Planning Amend.	21.07.23
F	Planning Amend.	19.08.23



Proposed - Rear Elevation A

Scale: 1 : 100



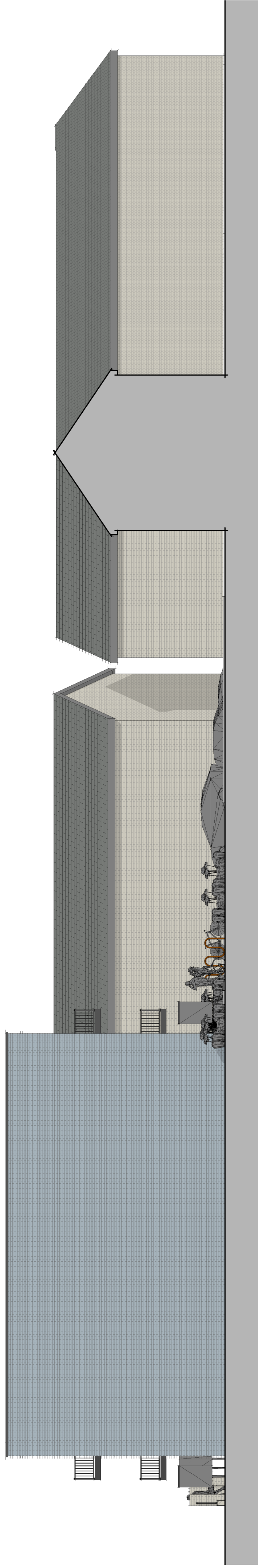
Proposed - Side Elevation B

Scale: 1 : 100



Proposed - Front Elevation

Scale: 1 : 100



Proposed - Street Elevation

Scale: 1 : 100

Planning

Scheme Title:
Clewer Clowns Nursery

Drawing Reference:
Proposed Elevations

Scale @ A1:
Down by: BAL

Scale @ A1:
Down by: BAL

Checked by:
MOH

Project:
Drawing:
Revision:
6380 PL03 F



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Rev.	Description	Date
X	First Issue	18.11.22
A	Planning Comm.	07.05.23
B	Planning Info.	04.07.23
C	Planning Amend.	19.08.23



01. Front View
Scale: 1 : 1

Planning

Scheme Title:	
Clever Clowns Nursery	
Drawing Reference:	
Images	
Scale @ A1:	1 : 1
Drawn by:	BAL
Checked by:	MOH

Project Number:	Drawing Number:	Revision:
6380	PL04	C



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Rev.	Description	Date
X	First Issue	18.11.22
A	Planning Comm.	07.05.23
B	Planning Info.	04.07.23
C	Planning Amend.	19.08.23



02. Entrance View
Scale: 1 : 1

Planning

Scheme Title:	Clever Clowns Nursery
Drawing Reference:	Images
Scale @ A1:	1 : 1
Drawn by:	BAL
Checked by:	MOH

Project Number:	6380	Drawing Number:	PL05	Revision:	C
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Rev.	Description	Date
X	First Issue	18.11.22
A	Planning Comm.	07.05.23
B	Planning Info.	04.07.23
C	Planning Amend.	19.08.23



03. Rear View
Scale: 1 : 1

Planning

Scheme Title:	
Clever Clowns Nursery	
Drawing Reference:	
Images	
Scale @ A1:	1 : 1
Drawn by:	BAL
Checked by:	MOH

Project Number:	Drawing Number:	Revision:
6380	PL06	C



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GENERAL NOTE:

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3. ALL DIMENSIONS ARE TO BE CHECKED PRIOR TO COMMENCEMENT.
4. THIS DRAWING IS THE PROPERTY OF 'D2 architects' AND MUST NOT BE COPIED OR REPRODUCED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION.



04. Rear View
Scale: 1 : 1

Planning

Scheme Title:	
Clever Clowns Nursery	
Drawing Reference:	
Images	
Scale @ A1:	1 : 1
Drawn by:	BAL
Checked by:	MOH

Project Number:	Drawing Number:	Revision:
6380	PL07	C



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05. Rear View
Scale: 1:1

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Rev:	Description:	Date:
X	Planning Info.	04.07.23
A	Planning Amend.	19.08.23

Planning

Scheme Title:	Clewer Clowns Nursery
Drawing Reference:	Images
Scale @ A1:	1 : 1
Drawn by:	Author
Checked by:	Checker

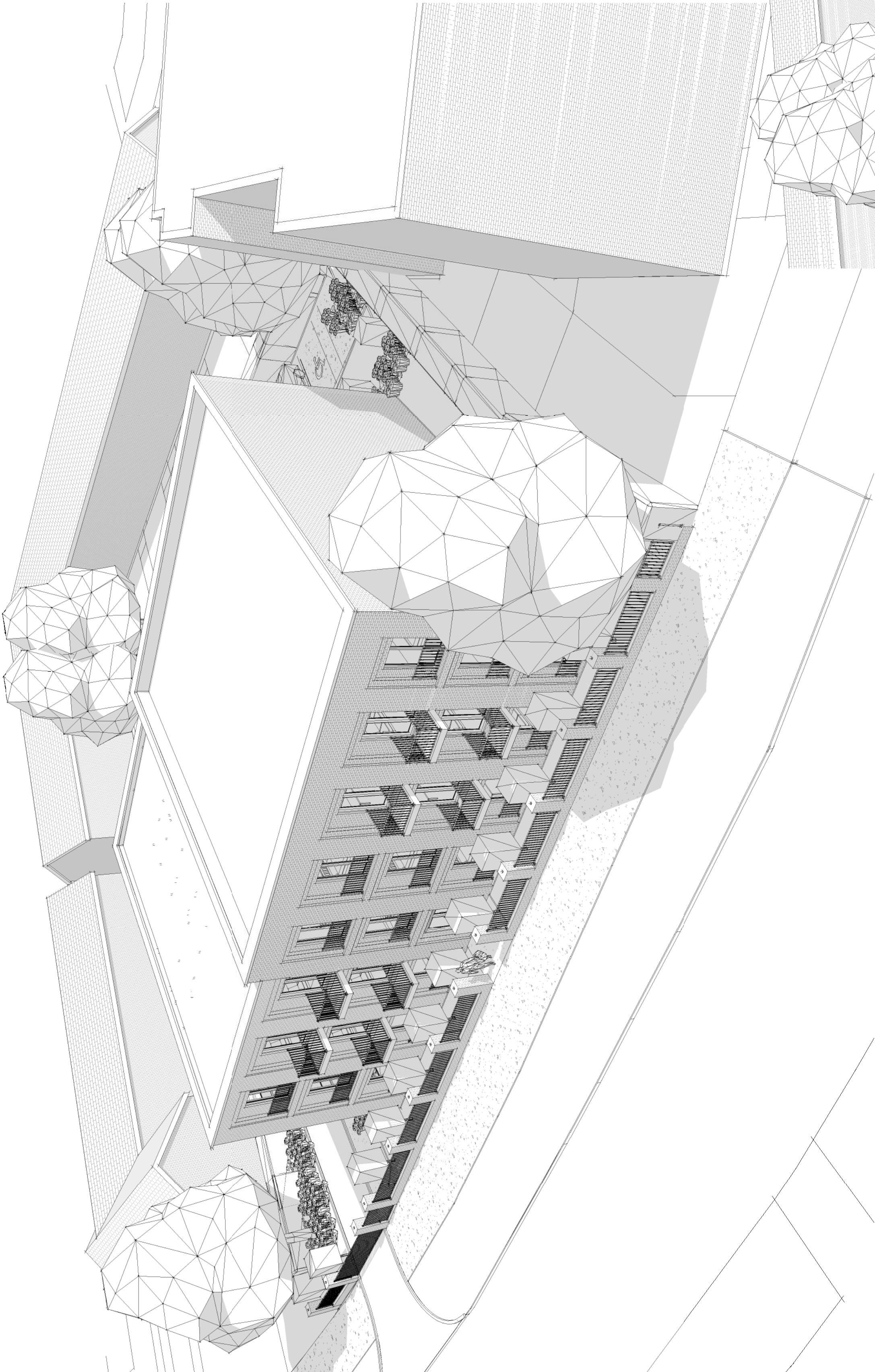
Project Number:	6380	Drawing Number:	PL08	Revision:	A
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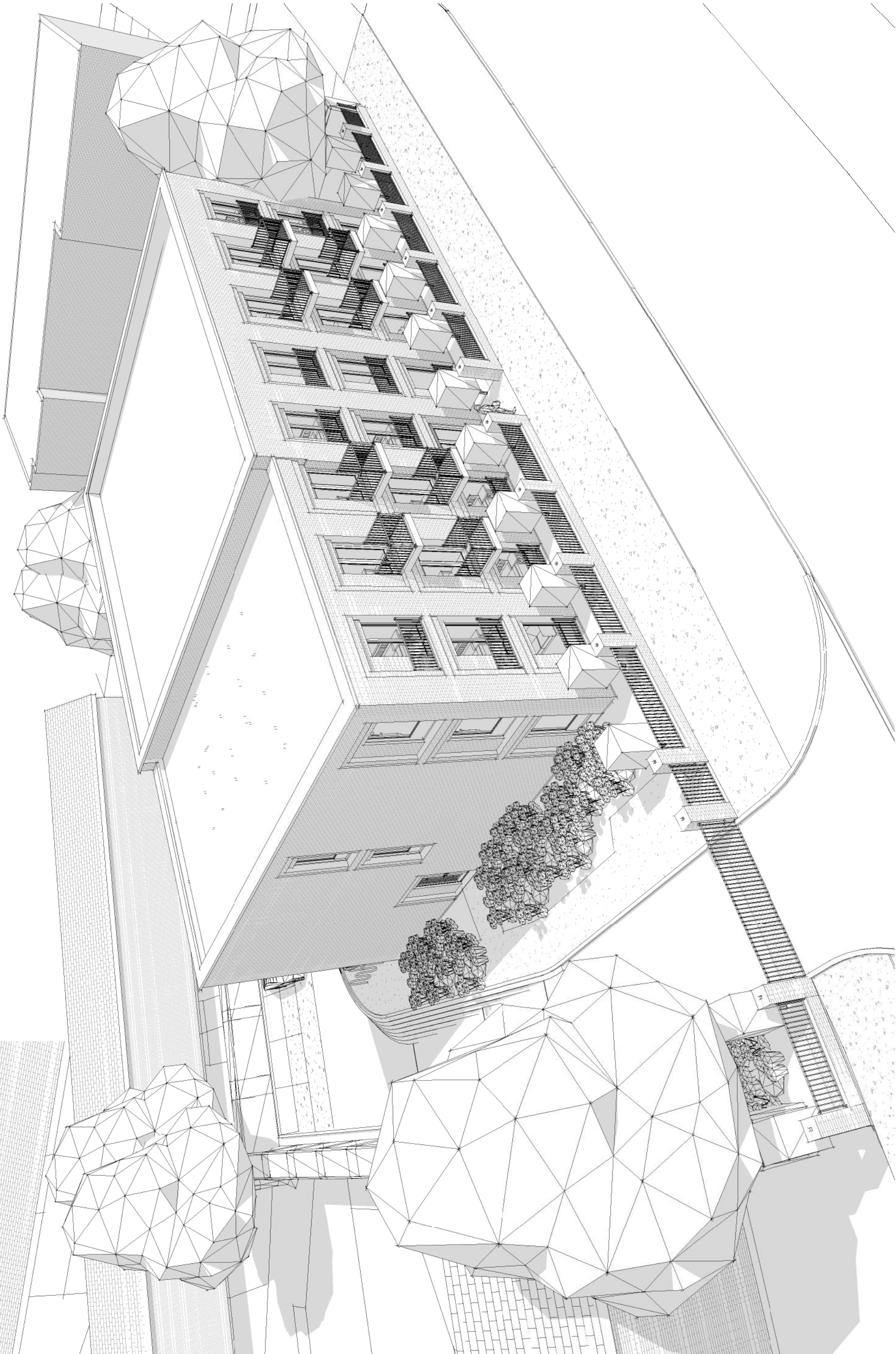
01. Massing View

Scale:



02. Massing View

Scale:



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1.	UNDER NO CIRCUMSTANCES SHOULD DIMENSIONS BE SCALED FROM THIS DRAWING. IT IS SOLELY FOR THE ARCHITECT'S USE.	
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4.	THE DRAWINGS ARE THE PROPERTY OF THE ARCHITECT. IF ANY PART OF THE DRAWING IS TO BE REPRODUCED OR USED IN ANY MANNER, THE ARCHITECT'S WRITTEN PERMISSION IS REQUIRED.	
Rev:	Description:	Date:
X	First Issue	18.11.22
A	Massing	18.11.22
B	Planning Comm.	07.05.23
C	Planning Info.	04.07.23
D	Planning Amend.	19.08.23

Planning

Scheme Title:	Clever Clowns Nursery
Drawing Reference:	Massing Overview
Scale @ A1:	BAL
Drawn by:	BAL
Checked by:	MOH

Project Number:	6380	Drawing Number:	PL09	Revision:	D
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APPENDIX H: EXISTING DRAINAGE SURVEY

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Drainage Report



Prepared For
Stockport Developments Ltd

Site
**Clever Clowns
Greenbrow Rd
Wythenshaw
Manchester
M23 2UH**



THE DRAINAGE GROUP
S.Horridge
thedrainagegroup@btinternet.com
0800 085 5882

Total Defects for Project



Total DRB Grades for Project



Clever Clowns Greenbrow Rd Wythenshaw - CCTV Survey Report : 24/10/23

Name : THE DRAINAGE GROUP
 Contact : The Drainage Group
 Location : Suite 5 Fernhill Business Centre, Todd Street
 Town : Bury
 Region : Lancashire
 Postcode : BL9 5BJ
 Email : thedrainagegroup@btinternet.com
 Contact Number : 0800 085 5882
 Surveyor : S.Horridge
 Valid Certification No : 524495

Client Information

Name : Stockport Developments Ltd
 Contact : Tom
 Location :
 Town :
 Region :
 Postcode :
 Tel :
 Mobile :
 Email :
 Fax :

Site Information

Name : Clever Clowns
 Contact :
 Location : Greenbrow Rd
 Town : Wythenshaw
 Region : Manchester
 Postcode : M23 2UH
 Tel :
 Mobile :
 Email :
 Fax :

Total Defects for Project



Total DRB Grades for Project



Report interpretation.

Overview:

Each section of the drainage system is allocated a score indicating areas that require attention. These areas are detailed in the Overview section on the following page and also at the bottom right of the first few pages. We use colour coding as an indicator of severity. Additional information concerning rehabilitation options/recommendations is included in the Overview page, which can also be used as an, "at a glance" indication of system condition. More in depth information for each section, including images can be found later in the report. Grade indicators are as follows:

Grade A: Drain is serviceable no recommendations required

Grade B: There is an issue that might require remedial works

Grade C: There is a defect that requires remedial works, the drain is not serviceable.

Observations:

Each section of drainage reported on (manhole to manhole for example), contains detailed information about that drain and any observations made concerning condition are detailed below the header section. The observations are colour coded and given a severity score, with more significant defects being given a higher score, using a scale from 1 to 5 as detailed below:

Severity 1 to 2: These defects may require remedial monitoring

Severity 3: These defects probably require some form of remedial works

Severity 4 to 5: Defects that will require remedial repair or replacement

General:

The information provided is relevant at the time of survey. The coding system in this report is based on the Manual of Sewer Condition Classification, 5th edition (MSCC5) domestic codes (BS EN 13508-1:2003). This is the official standard for the water industry.

The severity system is based on significant experience in general practice and the 1 -5 grades represent the severity of individual defects: 5 representing a more serious defect.

Please feel free to contact us for further explanation or pricing for remedial works required.

Total Defects for Project



Total DRB Grades for Project



Overview

Section: 1 From: MH 01 To: Outfall MH	<p>Line of serviceable condition at time of inspection.</p> <p>Line holding water upto 10% in places indicating slight gradient defects.</p> <p>Outfall chamber is buried, unable to gain access to chamber at time of inspection due to overgrowth. See pic.</p>	DRB Grade: A Pipe Size: 150 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 2 From: MH 01 To: MH 02	<p>Line of serviceable condition at time of inspection with no defects noted</p>	DRB Grade: A Pipe Size: 150 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 3 From: MH 01 To: MH 04	<p>Line of serviceable condition at time of inspection with no defects noted.</p>	DRB Grade: A Pipe Size: 150 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 4 From: MH 02 To: MH 03	<p>Line of serviceable condition at time of inspection with no defects noted.</p>	DRB Grade: A Pipe Size: 150 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 5 From: MH 03 To: Buried IC	<p>Line of serviceable condition at time of inspection with no defects noted.</p> <p>Upstream chamber was not accessible at time of inspection to confirm exact depth of invert level.</p>	DRB Grade: A Pipe Size: 150 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 6 From: MH 04 To: Back drop	<p>Line of serviceable condition at time of inspection with no defects noted</p>	DRB Grade: A Pipe Size: 150 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 7 From: MH 05 To: Soil Pipe	<p>Line of serviceable condition at time of inspection with no defects noted</p>	DRB Grade: A Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Combined
Section: 8 From: MH 05 To: MH 04	<p>Line of serviceable condition up to obstruction.</p> <p>Rods will require removing via excavation to allow CCTV inspection to be completed downstream to MH 04.</p>	DRB Grade: B Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Combined

Total Defects for Project



Total DRB Grades for Project



<p>Section: 9</p> <p>From: MH 06 To: Buried IC</p>	<p>MH 06 is internal.</p> <p>Line of serviceable condition at time of inspection with no defects noted.</p> <p>Downstream chamber was not accessible at time of inspection to confirm exact depth of invert level.</p>	<p>DRB Grade: A Pipe Size: 100 Material: Vitrified Clay (i.e. all clayware) Use: Combined</p>
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Total Defects for Project



Total DRB Grades for Project



Site: Greenbrow Rd, Wythenshaw

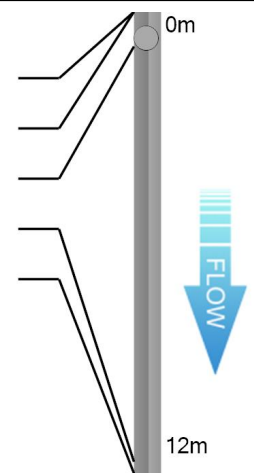
Section 1

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 01	Finish Node Ref:	Outfall MH	Direction:	D	Height/Dia:	150
Start Node Depth:	3.20	Finish Node Depth:	0.00	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	12	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		0_0		
00.00m	WL	Water level 0%			0:00:00	
00.90m	JN	Junction 12 : 150mm Diameter		0_2	0:00:20	
11.70m	LDF	Line of drain/sewer deviates down [full]		0_3	0:02:34	
12.00m	MHF	Finish node type, manhole		0_99		



Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 1

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 01	Image Provided - Ref: 0_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.90m	0:00:20	JN	Junction at 12 o'clock: 150mm Diameter Unknown connection	Image Provided - Ref: 0_2 
11.70m	0:02:34	LDF	Line of drain/sewer deviates down [full] Back Drop into outfall ic	Image Provided - Ref: 0_3 

Total Defects for section

0 0 0 0 0

DRB Grade for Section



Pos	Video Ref	Code	Description	Image
12.00m		MHF	Finish node type, manhole Outfall MH	<p>Image Provided - Ref: 0_9999</p> 

Total Defects for section

0 0 0 0 0

DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

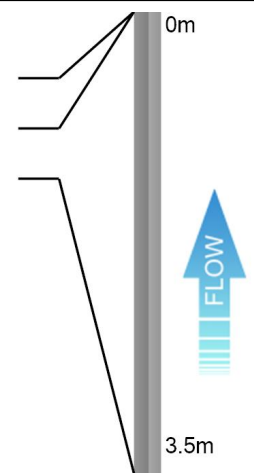
Section 2

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 01	Finish Node Ref:	MH 02	Direction:	U	Height/Dia:	150
Start Node Depth:	3.20	Finish Node Depth:	2.55	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	3.5	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		1_0		
00.00m	WL	Water level 0%			0:00:00	
03.50m	MHF	Finish node type, manhole		1_99		



Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 2

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 01	<p>Image Provided - Ref: 1_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
03.50m		MHF	Finish node type, manhole MH 02	<p>Image Provided - Ref: 1_9999</p> 

Total Defects for section



DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

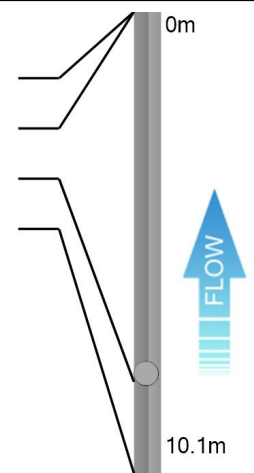
Section 3

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 01	Finish Node Ref:	MH 04	Direction:	U	Height/Dia:	150
Start Node Depth:	3.20	Finish Node Depth:	3.10	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	10.1	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		2_0		
00.00m	WL	Water level 0%			0:00:00	
08.10m	JN	Junction 12 : 150mm Diameter		2_2	0:00:42	
10.10m	MHF	Finish node type, manhole		2_99		



Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 3

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 01	Image Provided - Ref: 2_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
08.10m	0:00:42	JN	Junction at 12 o'clock: 150mm Diameter Surface water connection, unknown source	Image Provided - Ref: 2_2 
10.10m		MHF	Finish node type, manhole MH 04	Image Provided - Ref: 2_9999 

Total Defects for section

0 0 0 0 0

DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

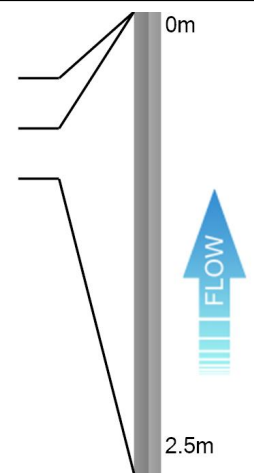
Section 4

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 02	Finish Node Ref:	MH 03	Direction:	U	Height/Dia:	150
Start Node Depth:	2.55	Finish Node Depth:	2.30	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	2.5	

Position	Code	Description	CD	Pic	Video Ref
00.00m	MH	Start node type, manhole		3_0	
00.00m	WL	Water level 0%			0:00:00
02.50m	MHF	Finish node type, manhole		3_99	



Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 4

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 02	<p>Image Provided - Ref: 3_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
02.50m		MHF	Finish node type, manhole MH 03	<p>Image Provided - Ref: 3_9999</p> 

Total Defects for section



DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

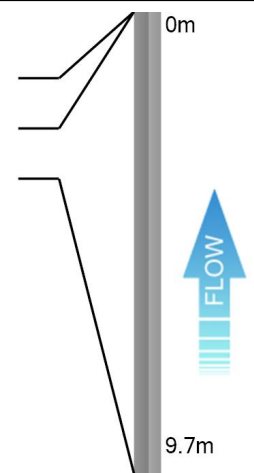
Section 5

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 03	Finish Node Ref:	Buried IC	Direction:	U	Height/Dia:	150
Start Node Depth:	2.30	Finish Node Depth:	2.10	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	9.7	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		4_0		
00.00m	WL	Water level 0%			0:00:00	
09.70m	MHF	Finish node type, manhole		4_99		



Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 5

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 03	Image Provided - Ref: 4_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
09.70m		MHF	Finish node type, manhole Buried IC	Image Provided - Ref: 4_9999 

Total Defects for section

0 0 0 0 0

DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

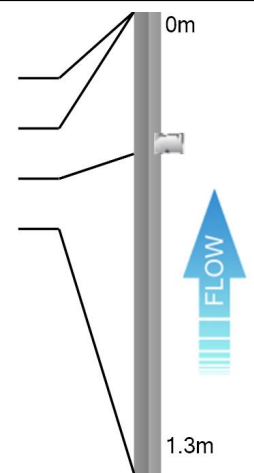
Section 6

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 04	Finish Node Ref:	Back drop	Direction:	U	Height/Dia:	150
Start Node Depth:	3.10	Finish Node Depth:	3.05	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	1.3	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		5_0		
00.00m	WL	Water level 0%			0:00:00	
00.40m	JN	Junction 09 : 100mm Diameter		5_2	0:00:15	
01.30m	OCF	Finish node type, other special chamber		5_99		



Total Defects for section

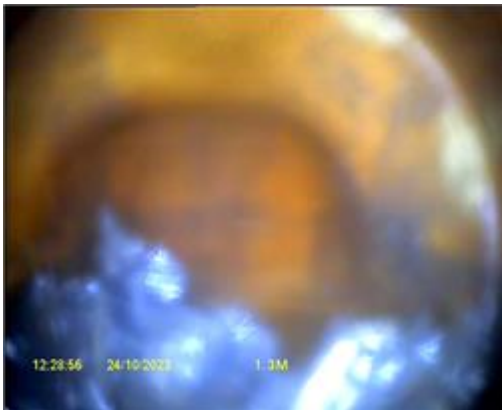
DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 6

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 05	Image Provided - Ref: 5_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
00.40m	0:00:15	JN	Junction at 09 o'clock: 100mm Diameter Unknown connection	Image Provided - Ref: 5_2 
01.30m		OCF	Finish node type, other special chamber Blind back drop	Image Provided - Ref: 5_9999 

Total Defects for section



DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

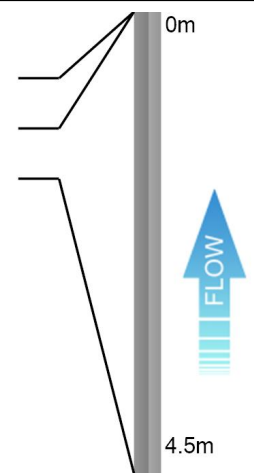
Section 7

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 05	Finish Node Ref:	Soil Pipe	Direction:	U	Height/Dia:	100
Start Node Depth:	0.75	Finish Node Depth:	0.50	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	4.5	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		6_0		
00.00m	WL	Water level 0%			0:00:00	
04.50m	OCF	Finish node type, other special chamber		6_99		



Total Defects for section

DRB Grade for Section

0 0 0 0 0



Descriptive Report with Remarks and Observation Images

Section 7

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 05	Image Provided - Ref: 6_0 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
04.50m		OCF	Finish node type, other special chamber Soil Pipe	Image Provided - Ref: 6_9999 

Total Defects for section



DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

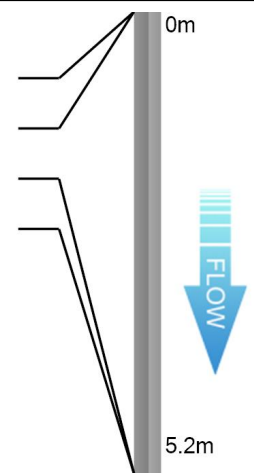
Section 8

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 05	Finish Node Ref:	MH 04	Direction:	D	Height/Dia:	100
Start Node Depth:	0.75	Finish Node Depth:	3.10	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	5.2	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		7_0		
00.00m	WL	Water level 0%			0:00:00	
05.20m	OB	Other obstacles 50%			0:00:58	
05.20m	SA	Survey abandoned		7_99		



Total Defects for section

DRB Grade for Section



Descriptive Report with Remarks and Observation Images

Section 8

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 05	<p>Image Provided - Ref: 7_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
05.20m	0:00:58	OB	Other obstacles: 50% Cross sectional area loss - Severity 3 Drainage rods stuck in system	
05.20m		SA	Survey abandoned Unable to survey beyond obstruction.	<p>Image Provided - Ref: 7_9999</p> 

Total Defects for section



DRB Grade for Section



Site: Greenbrow Rd, Wythenshaw

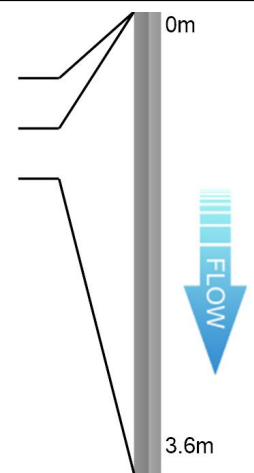
Section 9

Client:	Location (Street Name):	City/Town/Village	Cust Job Ref.	Surveyors Name:	Date:
	Greenbrow Rd	Wythenshaw		S.Horridge	24/10/2023

Start Node Ref:	MH 06	Finish Node Ref:	Buried IC	Direction:	D	Height/Dia:	100
Start Node Depth:	1.90	Finish Node Depth:	2.00	Use:	C	Shape:	C
Start Node Coordinate:		Finish Node Coordinate:		Material:	VC	Cleaned	Y

Drain Type	Lining Type	Lining Mat.	Year Const.	Weather	Flow Cont.	Length	Remarks
A				D	N	3.6	

Position	Code	Description	CD	Pic	Video Ref	
00.00m	MH	Start node type, manhole		8_0		
00.00m	WL	Water level 0%			0:00:00	
03.60m	MHF	Finish node type, manhole		8_99		



Total Defects for section

DRB Grade for Section

0 0 0 0 0



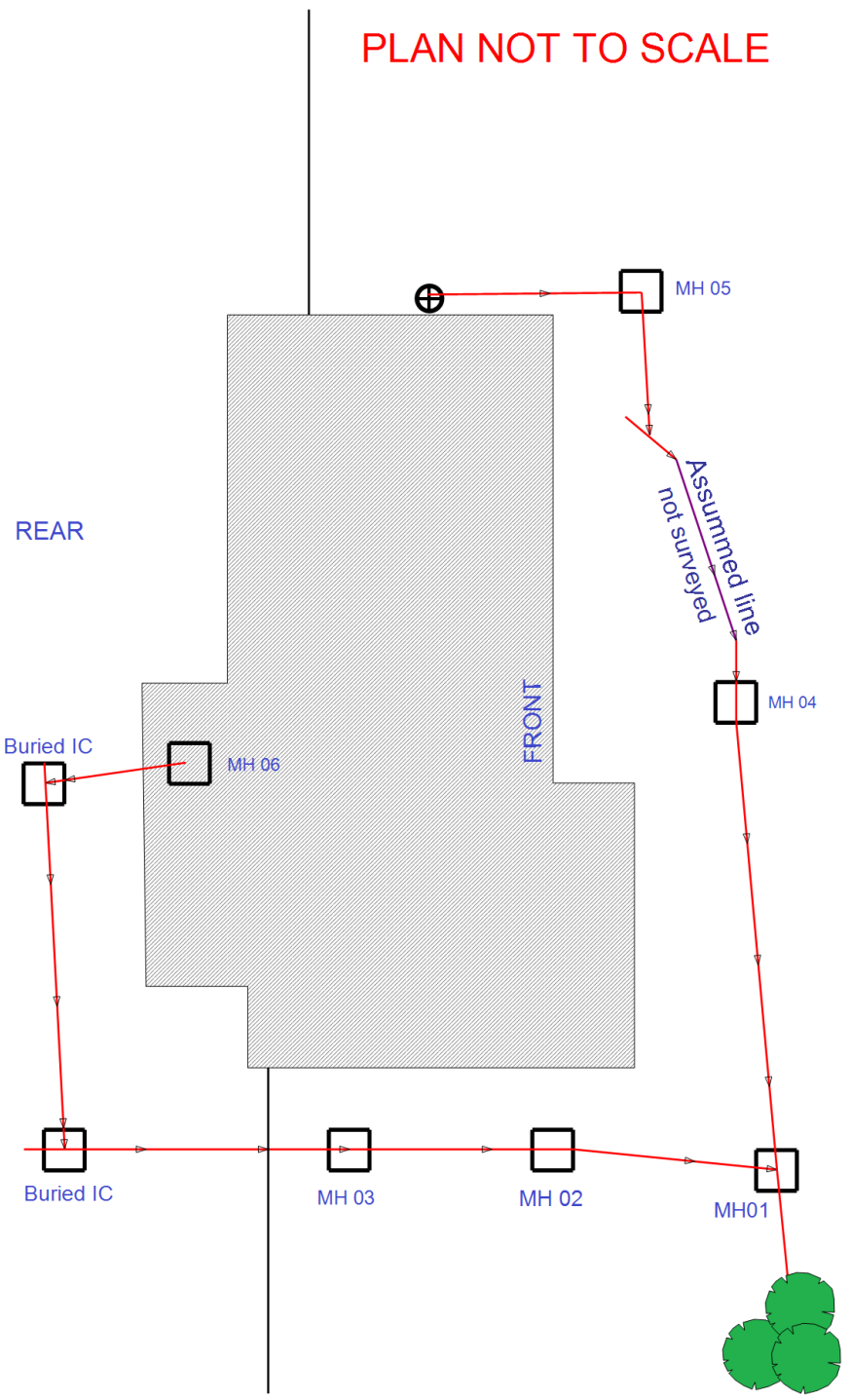
Descriptive Report with Remarks and Observation Images

Section 9

Pos	Video Ref	Code	Description	Image
00.00m		MH	Start node type, manhole MH 06	<p>Image Provided - Ref: 8_0</p> 
00.00m	0:00:00	WL	Water level: 0% Height/Diameter	
03.60m		MHF	Finish node type, manhole Buried IC	<p>Image Provided - Ref: 8_9999</p> 

Drainage Plan

PLAN NOT TO SCALE



Legend

- Foul Water Drain
- Surface Water Drain
- Combined Drain
- Manhole, Rect.
- Manhole, Circ.
- Manhole, Square
- Gully, Square
- Gully, Circ.
- Soil Vent Pipe
- Buchan Trap
- Windsor Trap (MH)
- Channel Drain
- Septic Tank
- Bush/Shrub

Not to Scale

Site Address

Greenbrow Rd
Wythenshaw
Manchester
M23 2UH

Client Details

Stockport Developments Ltd

Contractor Details

The Drainage Group
Bury
BL9 5BJ

SH

24 Oct 2023

APPENDIX I: SURFACE WATER RUN-OFF CALCULATIONS

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Calculated by:	Hannah Buchanan
Site name:	Former Clever Clown Nursery
Site location:	Wythenshawe

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:	53.37934° N
Longitude:	2.28617° W
Reference:	4136187019
Date:	Nov 06 2023 18:50

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):	1
-----------------------	---

Methodology

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

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.

Soil characteristics

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

(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.

Hydrological characteristics

	Default	Edited
SAAR (mm):	823	823
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

(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):	5.83	5.83
1 in 1 year (l/s):	5.08	5.08
1 in 30 years (l/s):	9.92	9.92
1 in 100 year (l/s):	12.14	12.14
1 in 200 years (l/s):	13.83	13.83

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.

SURFACE WATER RUN-OFF CALCULATION SHEET

Development Former Clever Clowns Nursery, Wythenshawe
Project No. HYD891

Revision A **Completed by** HB
Date 06/11/2023 **Checked by** KH

Areas

Total Site	0.187	ha
Development Area ¹	0.187	ha
Existing Impermeable	0.106	ha
Existing Impermeable ²	0.106	ha
Existing Pervious	0.081	ha
Existing Pervious ²	0.000	ha
Proposed total impermeable	0.135	ha 72%

Catchment Characteristics

SAAR	827	mm
SPR	0.47	
BFI	0.361	
i_1	16.3	mm/hr
i_{30}	31.5	mm/hr
i_{100}	43.3	mm/hr
d_1	23.3	mm
d_{30}	47.6	mm
d_{100}	60.0	mm

Run-off Rates

Pre-development			
Impermeable -----	1yr	4.8	l/s
	30yr	9.3	l/s
	100yr	12.7	l/s
	50mm/hr ³	14.7	l/s
Pervious ⁴ -----	1yr	0.4	l/s
	30yr	0.8	l/s
	100yr	1.0	l/s
	QBar ⁵	0.5	l/s
Total -----	1yr	5.2	l/s
	30yr	10.1	l/s
	100yr	13.7	l/s
Post-development (without control)			
Impermeable ⁶ -----	1yr	6.1	l/s
	30yr	11.8	l/s
	100yr+45%CC	23.5	l/s

Volumes

Pre-development			
Impermeable -----	1yr	24.7	cu.m
	30yr	50.5	cu.m
	100yr	63.5	cu.m
Pervious ⁴ -----	1yr	9.2	cu.m
	30yr	18.5	cu.m
	100yr	26.7	cu.m
Total -----	1yr	33.9	cu.m
	30yr	69.0	cu.m
	100yr	90.3	cu.m
Post-development			
Impermeable ⁶ -----	1yr	31.5	cu.m
	30yr	64.3	cu.m
	100yr	80.9	cu.m

Stormwater Storage Estimates

Based on 50mm/hr with 30% betterment on rate

Return Period	Rate	lower	upper	mean
1yr	10.3 l/s	1.1	7.4	4.25 cu.m
30yr	10.3 l/s	13	25	19 cu.m
100yr+40%CC	10.3 l/s	41	66	53.5 cu.m

1/ The 'development area' removes areas of POS and/or landscaped areas of the wider site that are to remain as existing.

2/ On occasion the existing impermeable area cannot be evidenced to connect and a reduction is applied.

3/ 50mm/hr is used for BRegs calculations and often used by Water Companies when considering allowable post-development rates of discharge. (Rational Method)

4/ The Greenfield rates and of run-off have been calculated using the UK SUDS Calculator

5/ QBar is the estimated flood flow for the 2.33yr return period event and is often used as a post-development rate restriction.

6/ Post-development run-off is only considered from the impermeable area when the proposed post-development impermeable area >50% in accordance with the EA Guidance Preliminary rainfall runoff management for developments (WS-074/A/TR1/1 rev E (2012).

NB. The catchment characteristics are from the FEH catchment, the UK SUDS Calculator and Microdrainage.

NB. The rainfall intensities and depths are calculated for the 6hr duration rainfall event (peak summer intensity)

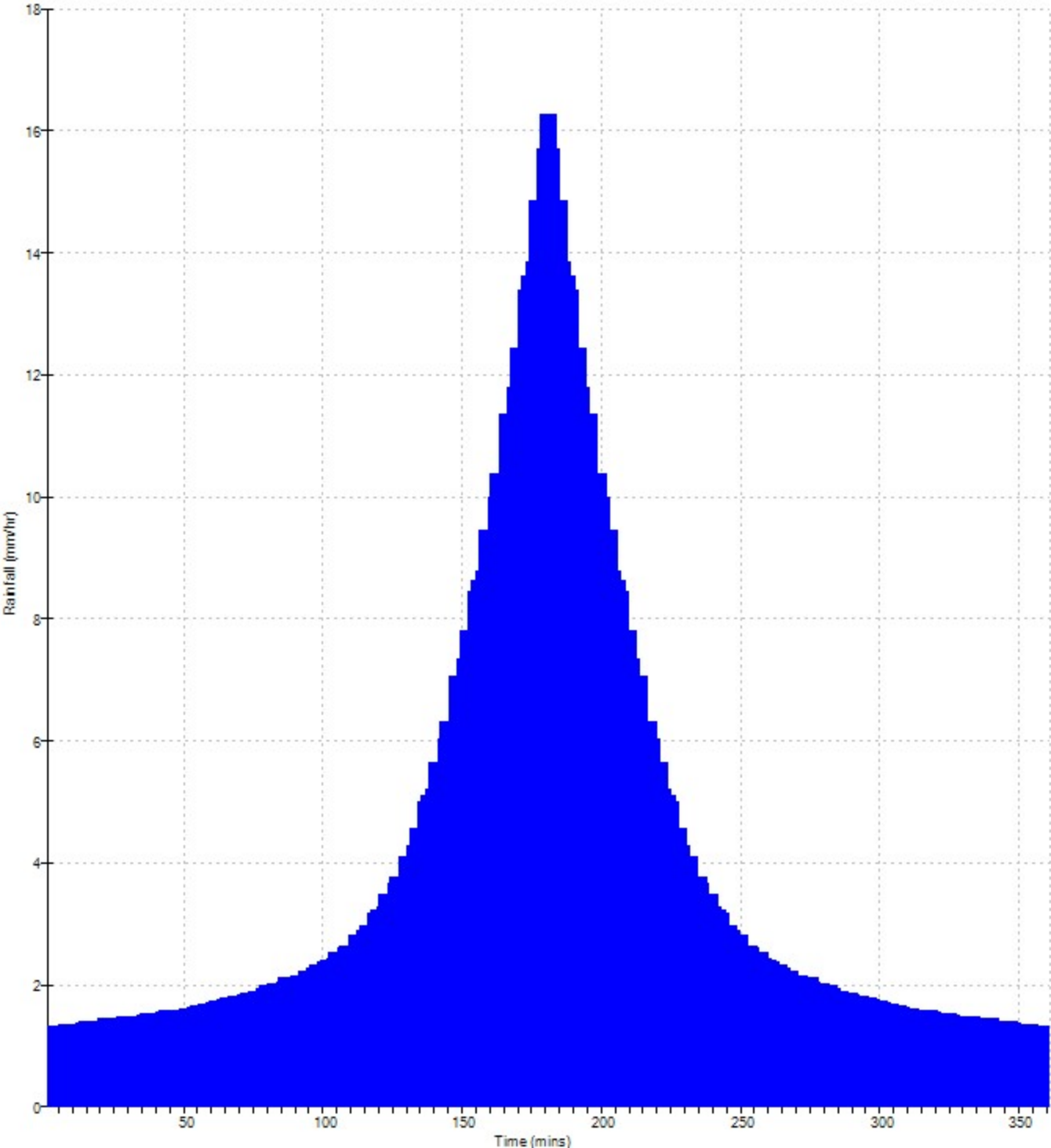
Betts Associates Ltd		Page 1
6 Old Marsh Farm Barns	Former Clever Clown Nursery	
Welsh Road, Sealand	Greenbrow Road	
Flintshire, CH5 2LY	Wythenshawe	
Date 06/11/2023	Designed by HB	
File	Checked by KH	
Innovyze	Network 2020.1.3	

Rainfall profile

Storm duration (mins) 360

FEH Data

FEH Rainfall Version	2013
Site Location	GB 381063 386985 SJ 81063 86985
Data Type	Point
Peak Intensity (mm/hr)	16.272
Ave. Intensity (mm/hr)	4.151
Return Period (years)	2.0



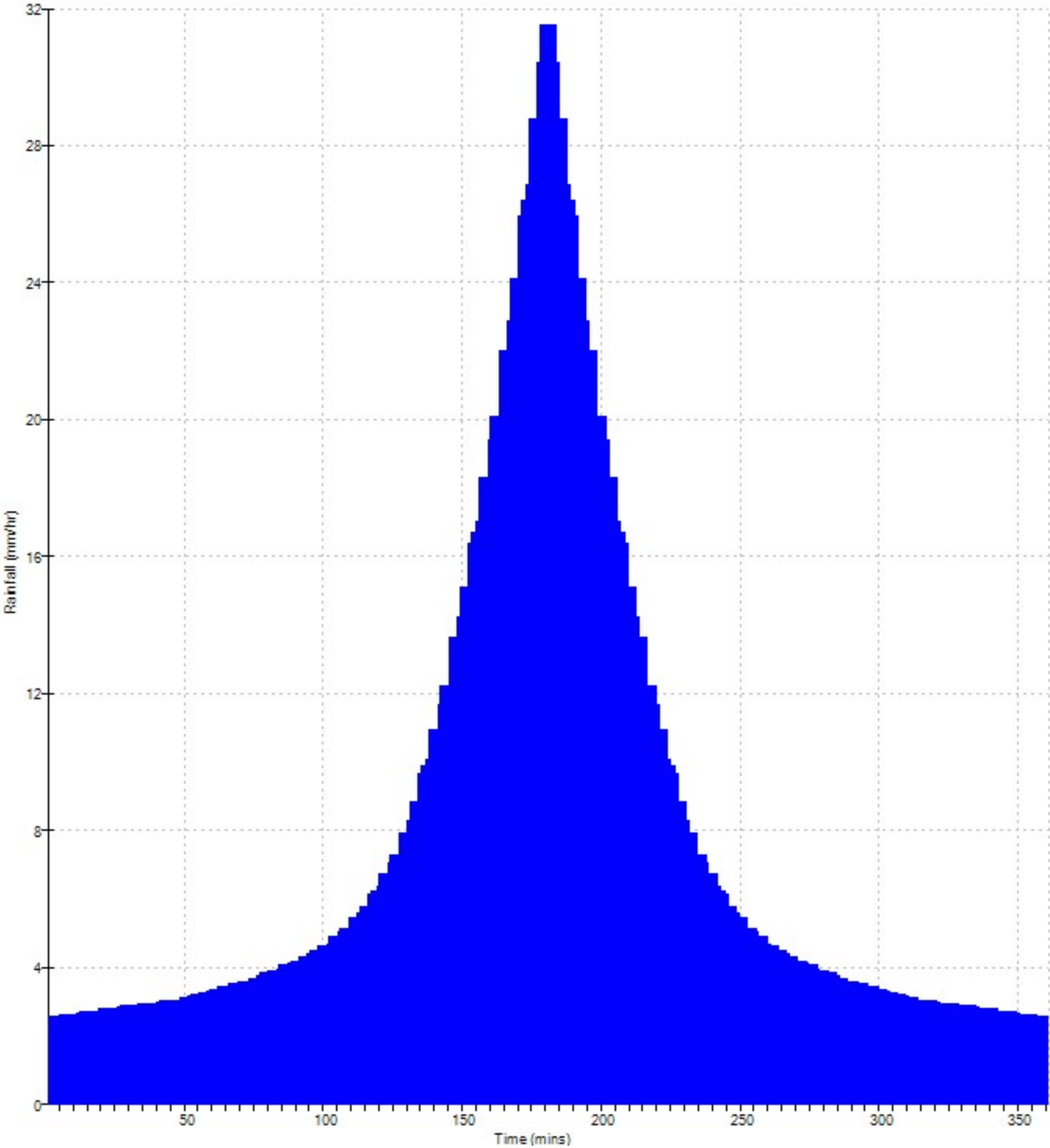
Betts Associates Ltd		Page 1
6 Old Marsh Farm Barns	Former Clever Clown Nursery	
Welsh Road, Sealand	Greenbrow Road	
Flintshire, CH5 2LY	Wythenshawe	
Date 06/11/2023	Designed by HB	
File	Checked by KH	
Innovyze	Network 2020.1.3	

Rainfall profile

Storm duration (mins) 360

FEH Data

FEH Rainfall Version	2013
Site Location	GB 381063 386985 SJ 81063 86985
Data Type	Point
Peak Intensity (mm/hr)	31.548
Ave. Intensity (mm/hr)	8.048
Return Period (years)	30.0

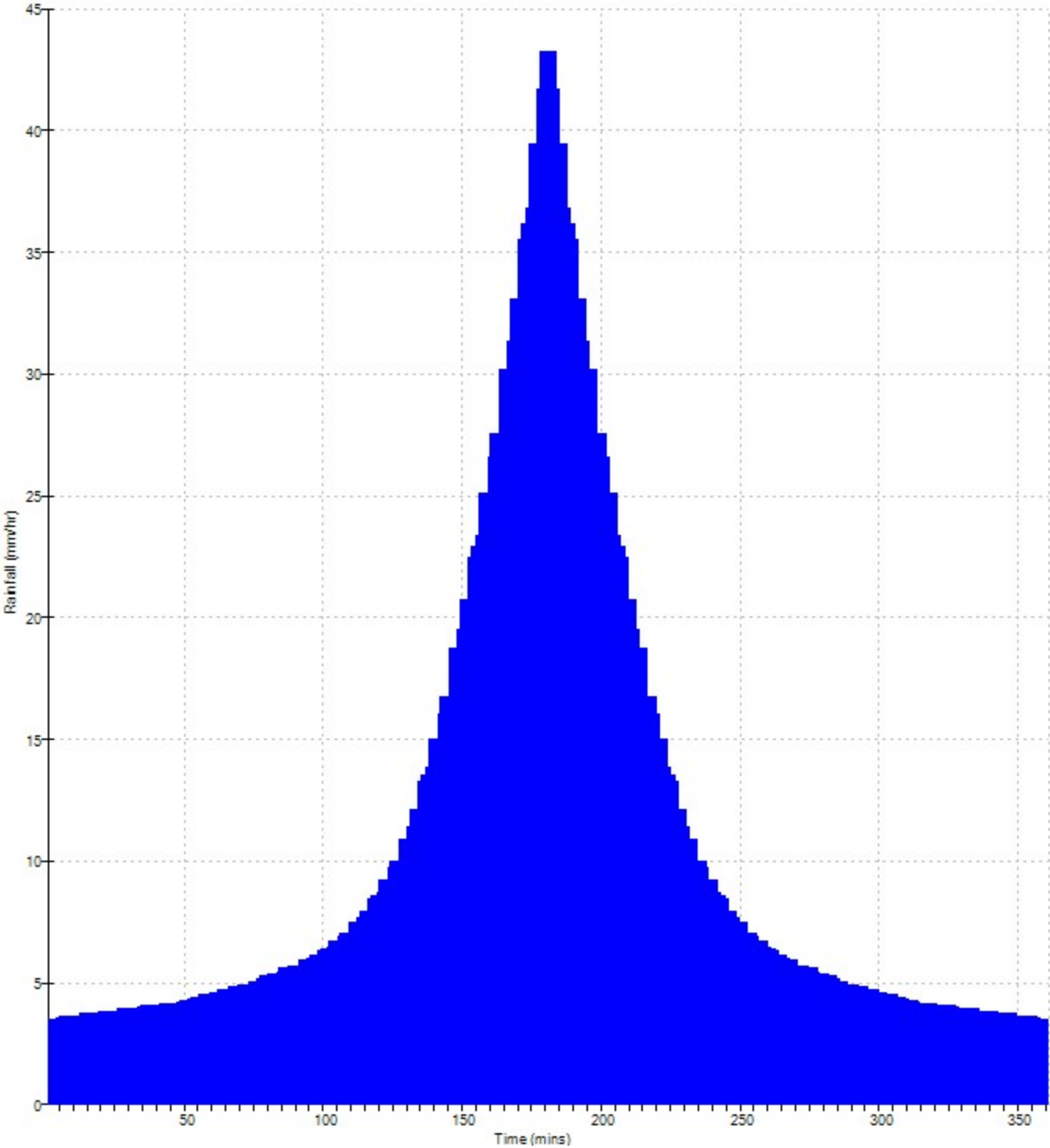


Betts Associates Ltd		Page 1
6 Old Marsh Farm Barns	Former Clever Clown Nursery	
Welsh Road, Sealand	Greenbrow Road	
Flintshire, CH5 2LY	Wythenshawe	
Date 06/11/2023	Designed by HB	
File	Checked by KH	
Innovyze	Network 2020.1.3	

Rainfall profile

Storm duration (mins) 360

FEH Data
FEH Rainfall Version 2013
Site Location GB 381063 386985 SJ 81063 86985
Data Type Point
Peak Intensity (mm/hr) 43.251
Ave. Intensity (mm/hr) 11.033
Return Period (years) 100.0



Betts Associates Ltd		Page 1
6 Old Marsh Farm Barns Welsh Road, Sealand Flintshire, CH5 2LY	Former Clever Clowns Nursery Greenbrow Road Wythenshawe	
Date 06/11/2023 File	Designed by HB Checked by KH	
Innovyze	Source Control 2020.1.3	

Greenfield Runoff Volume

FEH Data

Return Period (years)	30
Storm Duration (mins)	360
FEH Rainfall Version	2013
Site Location	GB 381063 386985 SJ 81063 86985
Data Type	Point
Areal Reduction Factor	1.00
Area (ha)	0.081
SAAR (mm)	827
CWI	118.648
SPR Host	47.000
URBEXT (1990)	0.0000

Results

Percentage Runoff (%)	47.39
Greenfield Runoff Volume (m³)	18.536

Betts Associates Ltd		Page 1
6 Old Marsh Farm Barns Welsh Road, Sealand Flintshire, CH5 2LY	Former Clever Clowns Nursery Greenbrow Road Wythenshawe	
Date 06/11/2023 File	Designed by HB Checked by KH	
Innovyze	Source Control 2020.1.3	

Greenfield Runoff Volume

FEH Data

Return Period (years)	100
Storm Duration (mins)	360
FEH Rainfall Version	2013
Site Location	GB 381063 386985 SJ 81063 86985
Data Type	Point
Areal Reduction Factor	1.00
Area (ha)	0.081
SAAR (mm)	827
CWI	118.648
SPR Host	47.000
URBEXT (1990)	0.0000

Results

Percentage Runoff (%)	49.84
Greenfield Runoff Volume (m³)	26.724

Betts Associates Ltd		Page 1
6 Old Marsh Farm Barns Welsh Road, Sealand Flintshire, CH5 2LY	Former Clever Clowns Nursery Greenbrow Road Wythenshawe	
Date 06/11/2023 File	Designed by HB Checked by KH	
Innovyze	Source Control 2020.1.3	

Greenfield Runoff Volume

FEH Data

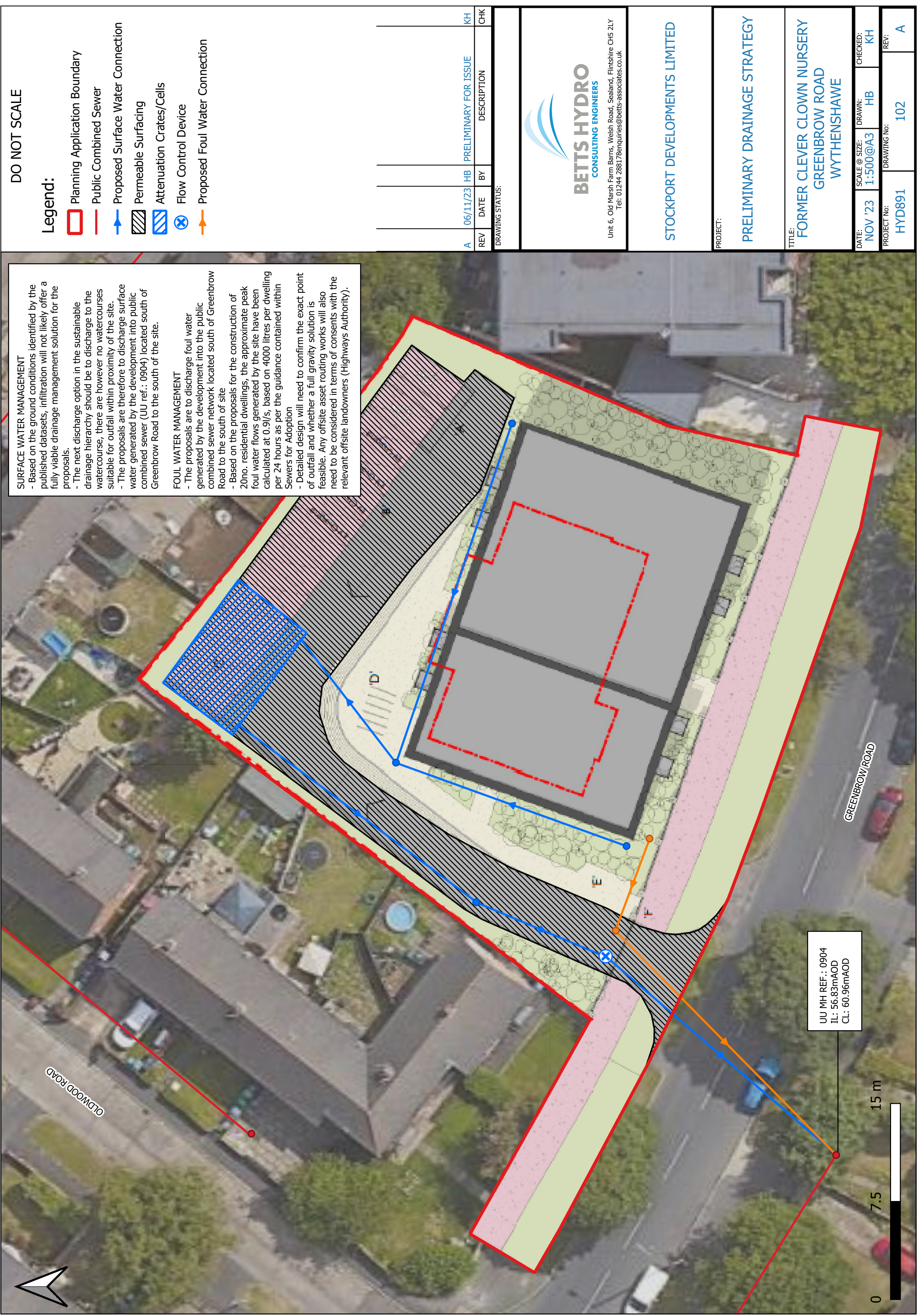
Return Period (years)	2
Storm Duration (mins)	360
FEH Rainfall Version	2013
Site Location	GB 381063 386985 SJ 81063 86985
Data Type	Point
Areal Reduction Factor	1.00
Area (ha)	0.081
SAAR (mm)	827
CWI	118.648
SPR Host	47.000
URBEXT (1990)	0.0000

Results

Percentage Runoff (%)	45.41
Greenfield Runoff Volume (m³)	9.161

APPENDIX J: PRELIMINARY DRAINAGE STRATEGY

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SURFACE WATER MANAGEMENT

- Based on the ground conditions identified by the published datasets, infiltration will not likely offer a fully viable drainage management solution for the proposals.
 - The next discharge option in the sustainable drainage hierarchy should be to discharge to the watercourse, there are however no watercourses suitable for outfall within proximity of the site.
 - The proposals are therefore to discharge surface water generated by the development into public combined sewer (UU ref.: 0904) located south of Greenbrow Road to the south of the site.
- FOUL WATER MANAGEMENT**
- The proposals are to discharge foul water generated by the development into the public combined sewer network located south of Greenbrow Road to the south of site
 - Based on the proposals for the construction of 20no. residential dwellings, the approximate peak foul water flows generated by the site have been calculated at 0.9l/s, based on 4000 litres per dwelling per 24 hours as per the guidance contained within Sewers for Adoption
 - Detailed design will need to confirm the exact point of outfall and whether a full gravity solution is feasible. Any offsite asset routing works will also need to be considered in terms of consents with the relevant offsite landowners (Highways Authority).

DO NOT SCALE

Legend:

- Planning Application Boundary
- Public Combined Sewer
- Proposed Surface Water Connection
- Permeable Surfacing
- Attenuation Grates/Cells
- Flow Control Device
- Proposed Foul Water Connection

REV	DATE	BY	DESCRIPTION	CHK
A	06/11/23	HB	PRELIMINARY FOR ISSUE	KH

DRAWING STATUS:

BETTS HYDRO
CONSULTING ENGINEERS

Unit 6, Old Marsh Farm Barns, Welsh Road, Sealand, Flintshire CH5 2LY
Tel: 01244 288178enquiries@betts-associates.co.uk

STOCKPORT DEVELOPMENTS LIMITED

PROJECT:
PRELIMINARY DRAINAGE STRATEGY

TITLE:
**FORMER CLEVER CLOWN NURSERY
GREENBROW ROAD
WYTHENSHAW**

DATE: NOV '23	SCALE @ SIZE: 1:500@A3	DRAWN: HB	CHECKED: KH
PROJECT NO: HYD891		DRAWING NO: 102	
		REV: A	

APPENDIX K: STORMWATER STORAGE ESTIMATES

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QUICK STORAGE ESTIMATES

FORMER CLEVER CLOWNS NURSERY

1 YEAR RETURN PERIOD STORM EVENT

Variables	
FEH Rainfall	Cv (Summer) 0.750
Return Period (years) 2	Cv (Winter) 0.840
Version 2013 Point	Impervious Area (ha) 0.135
Site GB 381063 386985 SJ 81063 86985	Maximum Allowable Discharge (l/s) 10.3
	Infiltration Coefficient (m/hr) 0.00000
	Safety Factor 2.0
	Climate Change (%) 0

Results	
Global Variables require approximate storage of between 1.1 m ³ and 7.4 m ³ .	
These values are estimates only and should not be used for design purposes.	

30 YEAR RETURN PERIOD STORM EVENT CLIMATE CHANGE

Variables	
FEH Rainfall	Cv (Summer) 0.750
Return Period (years) 30	Cv (Winter) 0.840
Version 2013 Point	Impervious Area (ha) 0.135
Site GB 381063 386985 SJ 81063 86985	Maximum Allowable Discharge (l/s) 10.3
	Infiltration Coefficient (m/hr) 0.00000
	Safety Factor 2.0
	Climate Change (%) 0

Results	
Global Variables require approximate storage of between 13 m ³ and 25 m ³ .	
These values are estimates only and should not be used for design purposes.	

QUICK STORAGE ESTIMATES

FORMER CLEVER CLOWNS NURSERY

100 YEAR RETURN PERIOD STORM EVENT + 45% CLIMATE CHANGE

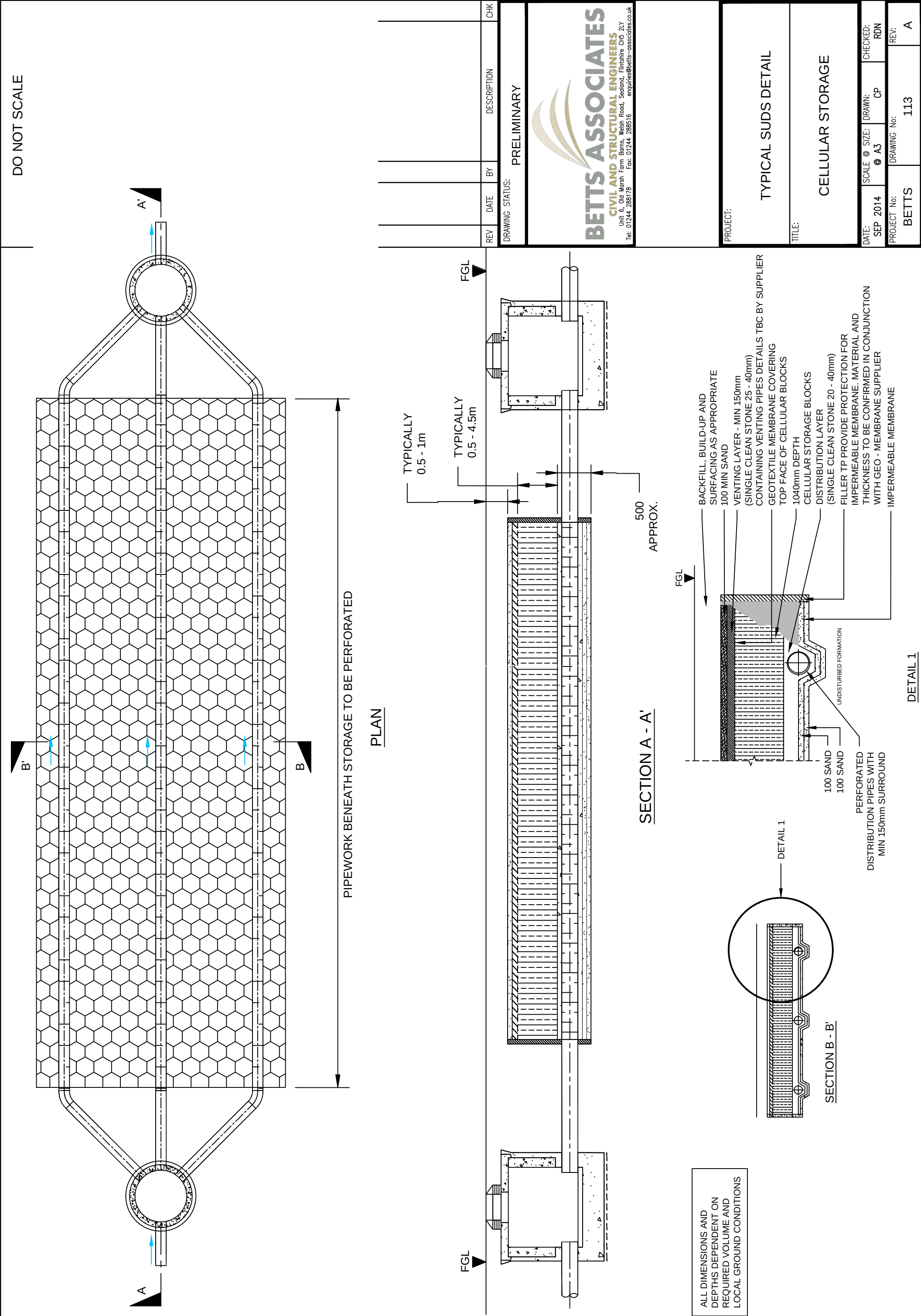
 Variables Results Design Overview 2D Overview 3D Vt	Variables	
	FEH Rainfall	
	Return Period (years)	100
	Version	2013 Point ...
	Site	GB 381063 386985 SJ 81063 86985
	Cv (Summer)	0.750
	Cv (Winter)	0.840
	Impemeable Area (ha)	0.135
	Maximum Allowable Discharge (l/s)	10.3
	Infiltration Coefficient (m/hr)	0.00000 
	Safety Factor	2.0
	Climate Change (%)	45

 Variables	Results
	<p>Global Variables require approximate storage of between 41 m³ and 66 m³.</p> <p>These values are estimates only and should not be used for design purposes.</p>

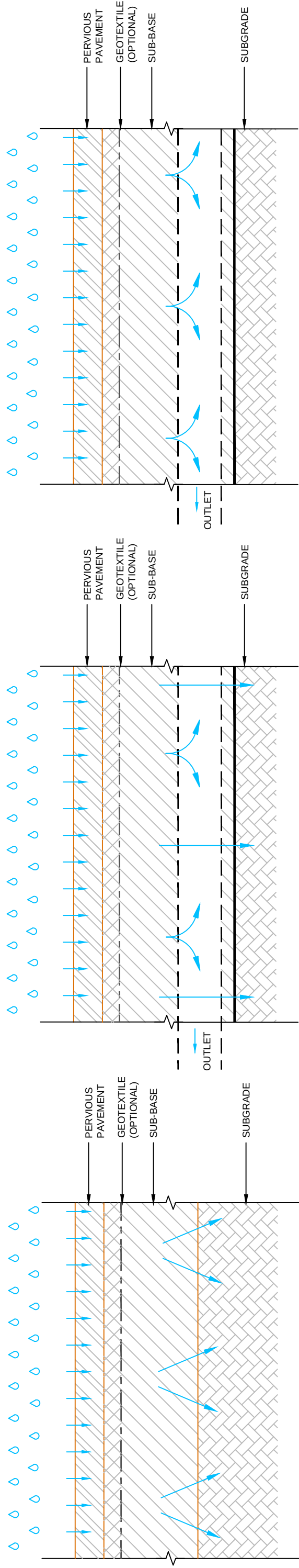
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APPENDIX L: SUDS EXAMPLES

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	DO NOT SCALE
--	--------------



TYPE A: TOTAL INFILTRATION

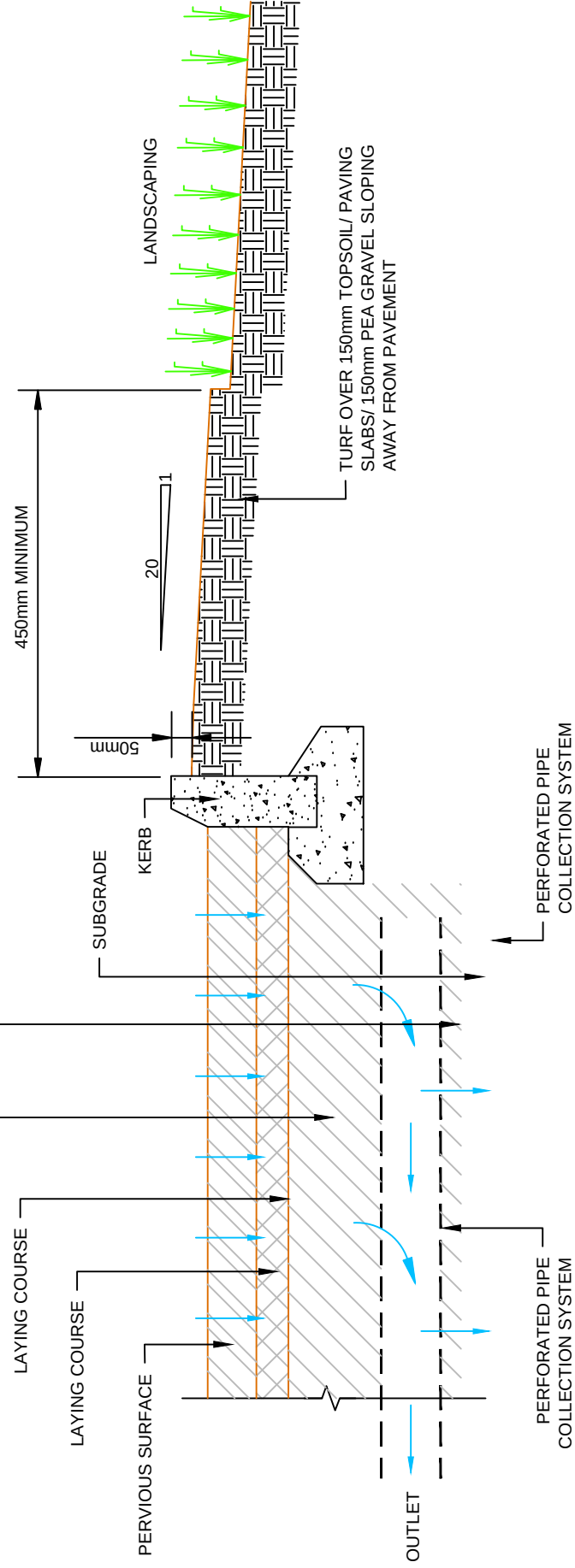
TYPE B: PARTIAL INFILTRATION

TYPE C: NO INFILTRATION

[illegible]

AGGREGATE SUB-BASE (MAY BE REPLACED WITH GEOCELLULAR BLOCKS)

— GEOTEXTILE (OPTIONAL - TYPES A & B) OR GEOMEMBRANE (TYPE C)



LANDSCAPING DETAIL

DRAWING STATUS: PRELIMINARY



PROJECT:

PROJECT: TYPICAL SUDS DETAIL

TITLE:

TITLE: PVIOUS PAVEMENTS

DATE: SEP 2014	SCALE @ SIZE: @ A3	DRAWN: CP	CHECKED: RDN
PROJECT No: BETTS		DRAWING No: 105	
		REV: A	

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APPENDIX M: NOTES OF LIMITATIONS

The data essentially comprised a study of available documented information from various sources together with discussions with relevant authorities and other interested parties. There may also be circumstances at the site that are not documented. The information reviewed is not exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. If additional information becomes available which might impact our conclusions, we request the opportunity to review the information, reassess the potential concerns, and modify our opinion if warranted.

It should be noted that any risks identified in this report are perceived risks based on the available information.

This report was prepared by Betts Hydro Ltd for the sole and exclusive use of the titled client in response to particular instructions. Any other parties using the information contained in this report do so at their own risk and any duty of care to those parties is excluded.

This document has been prepared for the titled project only and should any third party wish to use or rely upon the contents of the report, written approval from Betts Hydro Ltd must be sought.

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