

Drainage Strategy

Women's Refuge, Land at Whitsbury Road, Havant, PO9 5SP



Site Address:

Whitsbury Road,
Havant
Hampshire
PO9 5SP

Client:

Southern Domestic Abuse Service
John Avens
Piper House Dukes Court,
Bognor Road, Chichester
West Sussex
PO19 8FX

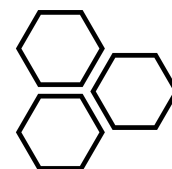
Thorpe Engineering Consultants Ltd

Consulting Civil and Structural Engineers



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Drainage Strategy

Date of Issue	Notes:	Revision
22/09/2025	Draft - Planning Review	-
Prepared By:		

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Introduction

Introduction:

In June 2025, Havant Borough Council granted planning permission for the 'demolition of existing buildings and erection of a supported housing building for mothers and children (Use Class C2) with associated access and parking'. The planning application reference number is APP/24/00096.

Enclosed in Appendix A is the approved site layout.

Thorpe Engineering Consultants were commissioned to prepare a Surface Water Drainage Strategy to accompany planning application to discharge Condition 4, as described below:

4. Construction of the development shall not commence until details of the proposed means of foul sewerage and surface water disposal have been submitted to, and approved in writing by the Local Planning Authority. The details shall include details of the management and maintenance of SUDs facilities including:- Specification of the responsibilities of each party for the implementation of the SUDs scheme.- Specify a timetable for implementation.- Provide a management and maintenance plan for the lifetime of the development. This shall include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime. The development shall be carried out and managed / maintained in accordance with the approved details. Our Ref: APP/24/00096

Reason: To safeguard the amenities of the locality and ensure that all such drainage provision is constructed and maintained to an appropriate standard and quality and having due regard to policies and proposals CS15, CS16 and DM10 of the Havant Borough Local Plan (Core Strategy) 2011 and the National Planning Policy Framework rests of the visual amenities of the site, to provide suitable compensation for trees/hedgerows to be lost, to ensure the planting of trees in compliance of the duty within S197 of the Town and Country Planning Act 1990 and deliver biodiversity net gain

Site Description:

Development proposals comprise the demolition of the garage structures and the construction of a two-storey communal residential building with associated parking, cycle and bin storage, external children's play area, and landscaped areas. An approved Site Layout is enclosed within Appendix A. Access to the Site is to be retained as existing. Site location is shown on Figure 1.

The Site is currently brownfield land surrounded by numerous residential properties. There are two existing lock-up garage structures on-Site, located along the western and northern boundaries. Access to the Site is provided by an access road to the north, as well as a public footpath to the south west.

This residential estate of c1970s terraced and semidetached houses and flats is a largely residential use in the vicinity of the site including all immediately adjacent properties.



Figure 1 - Site Location

The site is within an urban area, locally known as the West Leigh (Figure 2).



Figure 2 - Ordnance survey map of site location



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Topography:

A topographic survey is enclosed within Appendix B. It shows: Access slopes down from Whitsbury Road but main site is relatively level. No soft landscaping: site entirely surfaced with concrete.

Flood Risk/Hydrology

Reference to the GOV.UK web site identifies that the development site is at Very Low Risk of flooding from rivers or the sea Figure 3 and surface water Figure 4; Very low risk means that this area has a chance of flooding of less than 0.1% each year.

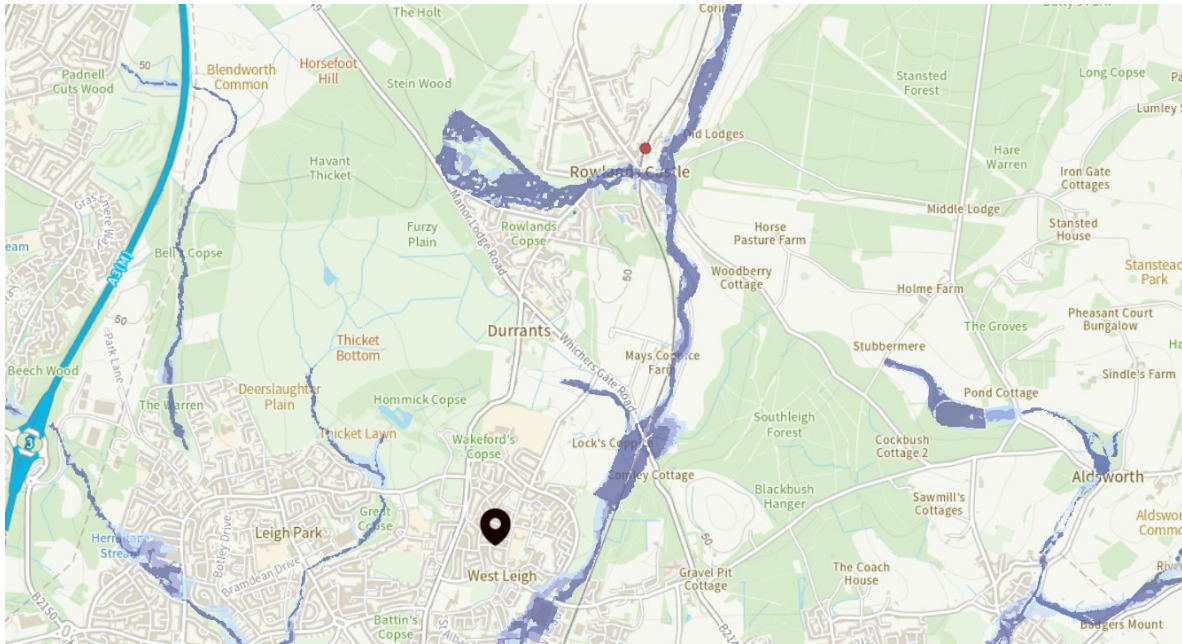


Figure 3 - Risk of Flooding from rivers or the sea

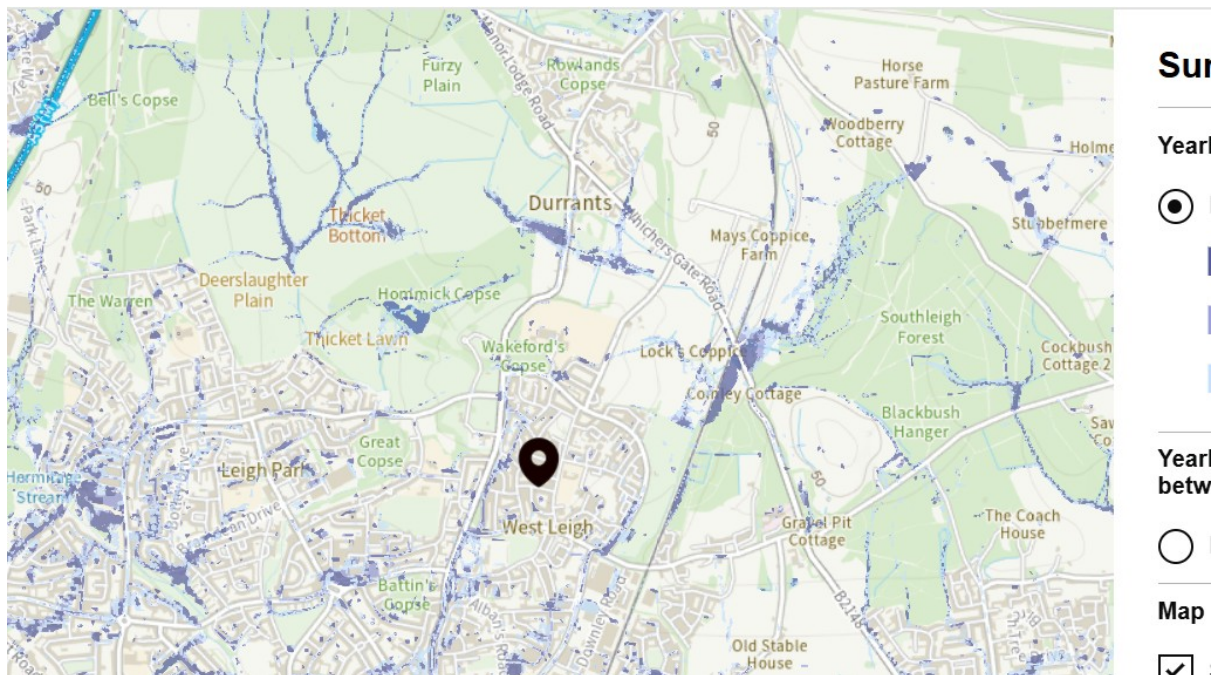


Figure 4 - Risk of Flooding from Surface Water

Groundwater

An assessment of the EA's groundwater Source Protection Zones (SPZs) has been undertaken within the vicinity of the Site and confirms the Site lies within a subsurface inner groundwater Source Protection Zone (SPZ 1c). OS mapping indicates that there are no reported surface water features within 100 m of the Site. Due to the significant distance to the nearest surface water feature, discharge to surface watercourse should not be considered.

Geology

The British Geological Survey (BGS) On-line Viewer (GeoIndex) indicates that the proposed development site is underlain by the London Clay Formation.

The London Clay Formation is dominated by low-permeability clays, silty clays, and clayey silts, with only occasional thin sand partings or lenses. While it contains localised sand pockets, these are generally discontinuous and not laterally extensive. Overall, the unit is impermeable to very poorly draining, with a high tendency for surface water runoff and limited infiltration capacity.

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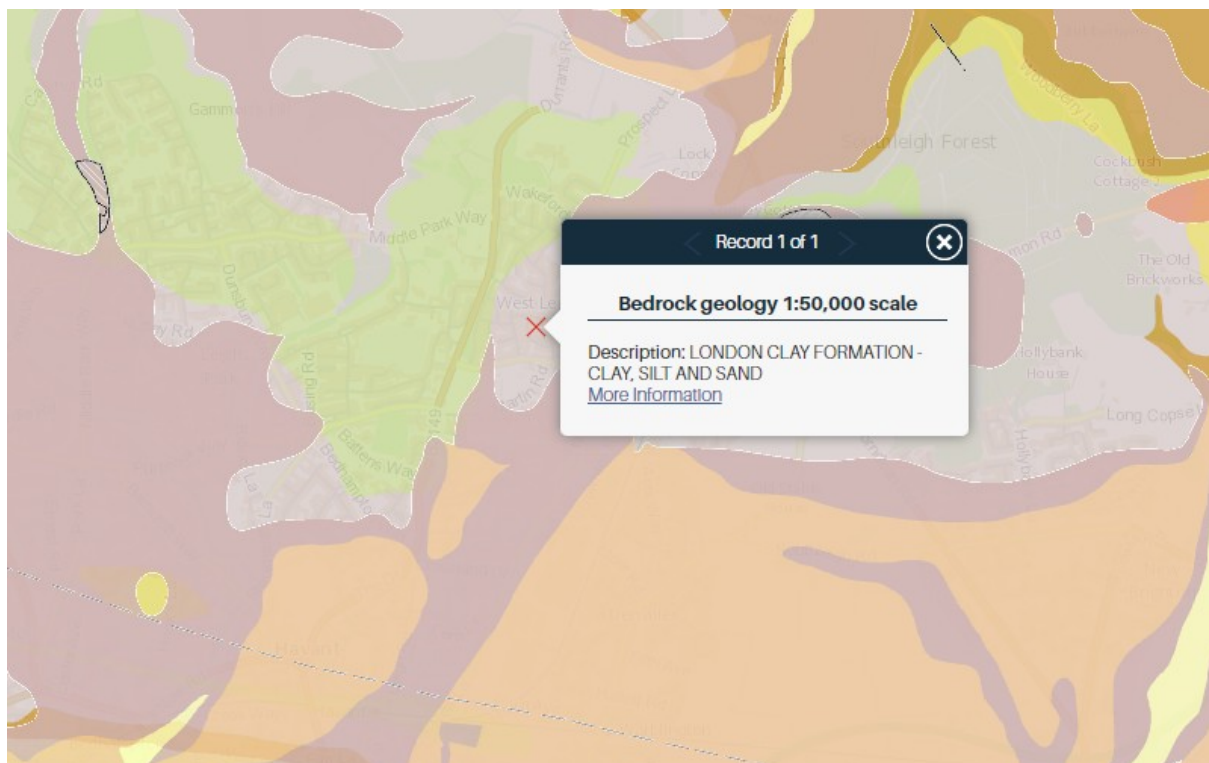


Figure 5 - Geology Map from BGS Viewer

Surface Water Drainage

Overview:

It is well understood that one of the effects of development is typically to reduce the permeability of the site and consequently to change its response to rainfall. Therefore, a suitable surface water drainage strategy is required to ensure that the surface water runoff regime is managed appropriately so that there will be no increase flood risk to third parties.

The NPPF states that flood risk to land and property must not be increased as a result of development. The associated PPG states that flood risk should not increase for events up to and including a 1 in 100 year return period, with appropriate allowance for climate change

A fundamental principle of sustainable development in terms of flood defence is the reduction of surface water runoff from new developments. Surface water drainage arrangements for any development site must ensure that volumes and peak discharge rates leaving the site are no greater than those for the site prior to development. Any increase in surface water run-off above the predevelopment volumes must also be controlled on site.

Development proposals comprise the demolition of the garage structures and the construction of a two-storey communal residential building with associated parking, cycle and bin storage, external children's play area, and landscaped areas. The proposed drainage looks to follow the SuDS Manual priority orders which is state,

'The destination for surface water runoff that is not collected for use should be priorities in the following order:

- › Infiltration
- › Discharge to surface water
- › Discharge to surface water sewer, highway drain or another drainage system
- › Discharge to a combined sewer.'

GeoSmart's SuDS Infiltration Potential (SD50) map indicates the Site has a Low potential for infiltration, primarily due to the anticipated low permeability of the underlying geology (London Clay). Infiltration to ground is therefore unlikely to be feasible.

Ordnance Survey (OS) mapping indicates that there are no mapped surface water features within 100 m of the Site. Due to the significant distance pipework would have to travel across third-party urbanised land, discharge to surface watercourse is not considered to be feasible for the Site.

The asset location plan search included in Appendix C confirms that there is an existing public surface water sewer within the Site boundaries. Due to the short distance, discharging surface water runoff to the sewer is considered to be feasible.

Greenfield Runoff Rates:

Discharging off-Site requires attenuation to be provided to ensure there is no flooding within the development in all storm events up to and including the 1 in 100 year including a 45% allowance for climate change. This volume is subject to the discharge rate being restricted to 1 l/s (as close to the equivalent Greenfield 1 in 100-year rate as possible, without increasing the potential for blockages) which was confirmed by Southern Water planning team in the letter dated 19th March 2024 Figure 6.

Proposed Surface Water Drainage Strategy

SuDS will be utilised to manage surface water runoff. The SuDS Manual(CIRIA, 2015) has been considered during the preparation of this surface water drainage strategy for the site.

The concept of sustainable drainage considers environmental and social factors, such as the quantity and quality of surface water runoff in urban areas, when making drainage decisions. In certain locations, this approach can help address issues commonly linked to conventional piped systems, such as flooding risks, pollution, poor water quality, and harm to the natural environment.

A preliminary surface water drainage layout is provided in Appendix D. Runoff from the new roof surfaces and external hardstanding areas will be directed to the proposed attenuation structure. Parking areas will be constructed using lined permeable paving, with an overflow connection to the attenuation structure. In addition, the existing gully will discharge into the proposed attenuation structure.

The existing surface water sewer currently discharges flows from two gullies that drain the site. A CCTV survey was undertaken, which confirmed that, apart from the two existing gullies, there are no other connections into the surface water sewer. The section of sewer running beneath the proposed building footprint is to be securely capped at the boundary. A new manhole is proposed on the existing private surface water sewer network to facilitate the connection and discharge of surface water runoff generated by the proposed development, as shown on drawing 24109-TEC-V1-00-DR-C-001 (Drainage Plan).

A Flow Network Model has been prepared to inform the proposed surface water drainage strategy and to estimate the attenuation structure dimensions that would be required to provide a sufficient volume of storage to accommodate all roof and paved surfaces. These calculations are enclosed in Appendix F.

The calculations show that a 6.0 m wide by 5.0 m long attenuation structure by 0.8 m deep is required to accommodate runoff from the impermeable area of the site. This equates to an available total storage volume with a 95% void ratio of approximately 22.8 m³.

The roof, terrace area under proposed scheme and existing access road is 656m². Surface Water Catchment Plan enclosed in Appendix I.

All parking spaces will be surfaced with lined permeable paving, which will provide water quality. The SuDS features would provide some water quality benefits (interception and filtration) prior to



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discharging to the nearby surface water sewer.

The location of the tank along with permeable paving areas is shown on the Drainage Plan which is enclosed in Appendix D.

The attenuation structure and lined permeable paving system for the roof and parking area will include chambers with silt-trap (Appendix E: RIDGISTORM Data Sheet) to be used where collected water has the potential of collecting surface impurities.

A letter was previously submitted by Southern Water confirming that the existing surface water sewer was considered a public sewer and therefore could not be removed and would require diversion. (Figure 6)

However, following a site survey and CCTV investigation, Southern Water has since confirmed that the sewer crossing the site is in fact private. The only connections into this sewer are the existing gullies within the site, which discharge surface water into it. (Figure 7)

Accordingly, no diversion is required. The only action necessary is to submit an application under Section 106 of the Water Industry Act to connect the proposed surface water drainage system into the existing surface water sewer. This application will be submitted in due course.



Department of Planning and Development
Havant Borough Council
Public Service Plaza
Civic Centre Road
Havant
Hampshire
PO9 2AX

Your ref
APP/24/00096

Our ref
DSA000032004

Date
19 March 2024

Contact
Tel 0330 303 0119

Dear Sir/Madam,

Proposal: Demolition of existing buildings and erection of a supported housing building for mothers and children (Use Class C2) with associated access and parking.

Site: APP/24/00096: - Garage Compound, Whitsbury Road, Havant, PO9 5SP.

Thank you for your letter dated 27 February 2024.

Following the review of the submitted documents, we have the below comments for the Planning consultation.

Protection of Public Apparatus

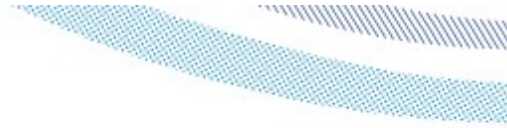
The attached plan shows that the proposed development will lie over an existing public surface water sewer, which will not be acceptable to Southern Water. The exact position of the public apparatus must be determined on site by the applicant before the layout of the proposed development is finalised.

It might be possible to divert the public surface water sewer, so long as this would result in no unacceptable loss of hydraulic capacity, and the work was carried out at the developer's expense to the satisfaction of Southern Water under the relevant statutory provisions.

- The 225 mm diameter surface water and foul sewers requires a clearance of 3 metres on either side of the sewers to protect it from construction works and to allow for future maintenance access.
- No development or tree planting should be carried out within 3 metres of the external edge of the sewers without consent from Southern Water.
- No soakaways, swales, ponds, watercourses or any other surface water retaining or conveying features should be located within 5 metres of public sewers.
- All existing infrastructure should be protected during the course of construction works.

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Please refer to: southernwater.co.uk/media/3011/stand-off-distances.pdf

Alternatively, the applicant may wish to amend the site layout, or combine a diversion with amendment of the site layout.

It is possible that a sewer now deemed to be public could be crossing the development site. Therefore, should any sewer be found during construction works, an investigation of the sewer will be required to ascertain its ownership before any further works commence on site.

In order to protect drainage apparatus, Southern Water requests that if consent is granted, a condition is attached to the planning permission; for example, the developer must advise the local authority (in consultation with Southern Water) of the measures which will be undertaken to divert the public sewers, prior to the commencement of the development.

Foul and Surface Water Drainage

Our investigations indicate that Southern Water can facilitate foul and surface water run off disposal (Surface water flow rate 1l/s at manhole reference SU72084251) to service the proposed development. Southern Water requires a formal application for a connection to the public foul sewer to be made by the applicant or developer.

To make an application visit Southern Water's Get Connected service: developerservices.southernwater.co.uk and please read our New Connections Charging Arrangements documents which are available on our website via the following link: southernwater.co.uk/developing-building/connection-charging-arrangements

The supporting documents make reference to drainage using Sustainable Drainage Systems (SuDS).

Under certain circumstances SuDS will be adopted by Southern Water should this be requested by the developer. Where SuDS form part of a continuous sewer system, and are not an isolated end of pipe SuDS component, adoption will be considered if such systems comply with the latest Design and Construction Guidance (Appendix C) and CIRIA guidance available here:

water.org.uk/sewerage-sector-guidance-approved-documents/

ciria.org/ItemDetail?iProductCode=C753F&Category=FREEPUBS

Where SuDS rely upon facilities which are not adoptable by sewerage undertakers the applicant will need to ensure that arrangements exist for the long-term maintenance of the SuDS facilities. It is critical that the effectiveness of these systems is maintained in perpetuity. Good management will avoid flooding from the proposed surface water system, which may result in the inundation of the foul sewerage system.

Thus, where a SuDS scheme is to be implemented, the drainage details submitted to the Local Planning Authority should:

- Specify the responsibilities of each party for the implementation of the SuDS scheme.
- Specify a timetable for implementation.

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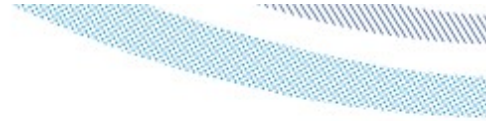


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- Provide a management and maintenance plan for the lifetime of the development.

This should include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime.

For further advice, please contact Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX (Tel: 0330 303 0119).

Website: southernwater.co.uk or by email at: SouthernWaterPlanning@southernwater.co.uk

Yours faithfully,

Future Growth Planning Team
Developer Services

southernwater.co.uk/developing-building/planning-your-development

Figure 6 – Southern Water Planning Letter

 Outlook

RE: 24109-Whitbury Road, Havand – Surface water proposal

Organiser	Wastewater Technical <WastewaterTechnical@southernwater.co.uk>
Meeting time	This event occurred 5 months ago (Thu 25/09/2025 09:30 – 10:00)
Location	Microsoft Teams Meeting
My response	Not yet responded
Required attendees	Wastewater Technical, Roxana
Message sent	Mon 29/12/2025 10:55

Hello Roxana,

Morning and I hope you had a nice Christmas,

After reviewing all the information's in our previous correspondences, I can confirm that sewer within your boundary is private as it is serving only your boundary and no other connection from neighbouring property serving through the sewer within your boundary conclude that it is a private sewer.

As we discuss, since it is private, we cannot comment on anything until the pipe cross your boundary. To update the record, please confirm this information's with S106 to update the record to avoid future confusions. Also please make a S106 application for the new drainage to connect into our networks.

Thank you for your time and please let us know if you need further assistance.

With Kind regards,

Anand G
Technical Co-ordinator Wastewater
Developer Services

M. 07463959671
W. southernwater.co.uk



Figure 7 – Southern Water Email Confirmation

Water Quality:

The new SuDS Manual (Ciria C753, November 2015) introduces slightly different approach compared to the previous version for the water quality management of surface water. The Manual describes risks posed by the surface water runoff to the receiving environment as a function of:

- The pollution hazard at a particular site (i.e., the pollution source)
- The effectiveness of SuDS treatment components in reducing levels of pollutants to environmentally acceptable levels
- The sensitivity of the receiving environment

The EA website indicates that the site does not lie within a Source Protection Zone. The recommended approaches for water quality risk management are given in the SuDS Manual Table 26.1

As per Table 26.1 Simple Index approach will be used as a design method for this site.

TABLE 26.1 Approaches to water quality risk management			
Design method	Hazard characterisation	Risk reduction	
		For surface water	For groundwater
Simple index approach	Simple pollution hazard indices based on land use (eg Table 26.2 or equivalent)	Simple SuDS hazard mitigation indices (eg Table 26.3 or equivalent)	Simple SuDS hazard mitigation indices (eg Table 26.4 or equivalent)
Risk screening ¹	Factors characterising traffic density and extent of infiltration likely to occur (eg Table 26.5 or equivalent)	N/A	Factors characterising unsaturated soil depth and type, and predominant flow type through the soils (eg Table 26.5 or equivalent)
Detailed risk assessment	Site specific information used to define likely pollutants and their significance	More detailed, component specific performance information used to demonstrate that the proposed SuDS components reduce the hazard to acceptable levels	
Process-based treatment modelling	Time series rainfall used with generic pollution characteristics to determine statistical distributions of likely concentrations and loadings in the runoff	Models that represent the treatment processes in the proposed SuDS components give estimates of reductions in event mean discharge concentrations and total annual load reductions delivered by the system	

Pollution Hazard Indices are given for different land uses in Table 26.2 of the SuDS manual (reproduced in). The land uses for the surface water drainage for this site are;

- Residential Roofs
- Residential parking areas

To deliver adequate treatment, the selected SuDS components should have a total pollution mitigation index for each contaminant type that equals or exceeds the pollution hazard index for each contaminant type. Therefore, the following must be achieved for the surface running off the site.

Total SuDS mitigation index $\geq$ pollution hazard index

The pollution hazard level for the different areas is as follows:

- i. Other Roofs = Very Low

All surface water will be collected and pass through a silt-trap prior to entering the Soakaway, this will provide sufficient mitigation index for the roofs.

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Individual property driveways, residential car parks, low traffic roads (e.g., cull de sacs, home zones and general access roads) and non-residential car parking with infrequent change (e.g., schools, offices) i.e., <300 traffic movements/day	Low	0.5	0.4	0.4
Residential roofs	Very low	0.2	0.2	0.05
SUDs Component:	Treatment Mitigation Indices			
Soakaway		0.3	0.6	0.5

Therefore, a silt-trap chamber is required prior to go into the attenuation structure.

The separator unit that has been proposed to retain silt and separate out other particles by encouraging settlement in the sump, preventing ingress into the Soakaway, the RIDGISTORM Separate Silt Trap, has been verified for use by UK Government regulators (Appendix E: RIDGISTORM Separate Silt Trap Data Sheet).

Pollution hazard indices for different land use classifications table

Land use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very low	0.2	0.2	0.05
Other roofs (typically commercial/industrial roofs)	Low	0.3	0.2 (up to 0.8 where there is potential for metals to leach from the roof)	0.05
Individual property driveways, residential car parks, low traffic roads (e.g., cul de sacs, home zones and general access roads) and non-residential car parking with infrequent change (e.g., schools, offices) i.e., <300 traffic movements/day	Low	0.5	0.4	0.4
Commercial yard and delivery areas, non-residential car parking with frequent change (e.g., hospitals, retail) all roads except low traffic roads and trunk roads/motorways, and roads that have more than 300 traffic movements daily	Medium	0.7	0.6	0.7
Sites with heavy pollution (e.g., haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites), sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured; industrial sites; trunk roads and motorways	High	0.8	0.8	0.9

TABLE 26.4 Indicative SuDS mitigation indices for discharges to groundwater				
Characteristics of the material overlying the proposed infiltration surface, through which the runoff percolates ¹	TSS	Metals	Hydrocarbons	
A layer of dense vegetation underlain by a soil with good contaminant attenuation potential ² of at least 300 mm in depth ³	0.6 ⁴	0.5	0.6	
A soil with good contaminant attenuation potential ² of at least 300 mm in depth ³	0.4 ⁴	0.3	0.3	
Infiltration trench (where a suitable depth of filtration material is included that provides treatment, ie graded gravel with sufficient smaller particles but not single size coarse aggregate such as 20 mm gravel) underlain by a soil with good contaminant attenuation potential ² of at least 300 mm in depth ³	0.4 ⁴	0.4	0.4	
Constructed permeable pavement (where a suitable filtration layer is included that provides treatment, and including a geotextile at the base separating the foundation from the subgrade) underlain by a soil with good contaminant attenuation potential ² of at least 300 mm in depth ³	0.7	0.6	0.7	
Bioretention underlain by a soil with good contaminant attenuation potential ² of at least 300 mm in depth ³	0.8 ⁴	0.8	0.8	
Proprietary treatment systems ^{5,6}	These must demonstrate that they can address each of the contaminant types to acceptable levels for inflow concentrations relevant to the contributing drainage area.			

TABLE 26.15 Pollution mitigation indices for different SuDS components and conventional pipe drainage				
SuDS type	Total suspended solids pollution mitigation index (PMI _{TSS})	Hydrocarbon pollution mitigation index (PMI _{PAH})	Organic pollution mitigation index (PMI _{Org})	Heavy metal pollution mitigation index (PMI _{HM})
Filter drains	0.6	0.8	0.7	0.7
Porous asphalt	0.7	0.9	0.9	0.9
Porous paving	0.2	0.3	0.2	0.3
Sedimentation tank	0.95	0.95	0.95	0.95
Green roof	0.8–0.9	0.9	0.5	0.7–0.9
Filter strip	0.9	0.8	0.8	0.7
Swales	0.7	0.6	0.4	0.4
Soakaways	0.3	0.6	0.5	0.5
Infiltration trench	0.3	0.6	0.5	0.5
Infiltration basin	0.05	0.05	0.01	0.05
Retention pond	0.6	0.5	0.6	0.5
Detention basin	0.7	0.7	0.8	0.6
Extended detention basins	0.4	0.4	0.4	0.4
Lagoons	0.9	0.9	0.9	0.8
Constructed wetlands				
▪ subsurface flow	0.2	0.1	0.1	0.1
▪ surface flow	0.4	0.2	0.2	0.2
Conventional gully and pipe drainage	1.0	1.0	1.0	1.0

Figure 10 - SuDs Mitigation Indices



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Exceedance:

It is difficult to completely guard against flooding since extreme events greater than the design standard event are always possible, however, it is practicable to minimise the risk by careful design of the layout of the development such that internal flooding is avoided. Areas of hard standing can be laid to falls away from buildings to provide a significant volume of surface storage during extreme events with flows directed to areas where damage and disruption to operations will be minimised such as onto the access road then carriageway.

Surface water flow paths in extreme events, known as exceedance events (i.e. events in excess of the design criteria i.e. the 1 in 100 year plus climate change event), should be steered away from properties and to provide better protection to people and property.

The parking area boundary will be provided with a 50 mm upstand kerb, and at the lower points, a channel drain will be installed to manage flooded areas. Schedule regular maintenance to ensure the permeable surfaces remain clear of debris and can function effectively. Exceedance Route Plan enclosed in Appendix H.

Operation and Maintenance:

Ownership

The entire surface water drainage network will be privately operated and maintained by the owner.

Implementation

A Construction Management Plan will be prepared by the contractor. This will outline how surface water will be implemented and managed during construction.

The surface water drainage strategy will be constructed in a manner which will not inhibit the design principles. This will ensure greenfield flow rates and volumes are not exceeded, and that water quality is maintained for outflows and receiving waters.

Whilst drainage is one of the first components likely to be constructed on site, it may not all be operational during the full construction phase.

The attenuation structure could be used to store surface water runoff during construction, but measures should be implemented to filter silt from entering the network. It may also be necessary to redirect clean run-off water away from working areas. A silt buster could also be used to store and treat runoff.

Following the completion of construction, or at other appropriate times, remediation work will need to be carried out on the SuDS to ensure any sediment and silt is removed to avoid comprising the efficiency of the system.

Operation and Maintenance

Maintenance will be undertaken in according with the recommendations outlined in The SuDS Manual (CIRIA C753, 2015), as replicated below.

TABLE 20.15 Operation and maintenance requirements for pervious pavements

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after reduced frequency site-specific observation manufacturer's recommendation particular attention runs onto pervious impermeable areas likely to collect the
Occasional maintenance	Stabilise and mow contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once frequently used pav
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50 mm of the level of the paving	As required
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years infiltration performance significant clogging
	Initial inspection	Monthly for three n

TABLE 13.1 Operation and maintenance requirements for soakaways

Maintenance schedule	Required action	Type
Regular maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	Ann
	Cleaning of gutters and any filters on downpipes	Ann
	Trimming any roots that may be causing blockages	Ann
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As r insp
Remedial actions	Reconstruct soakaway and/or replace or clean void fill, if performance deteriorates or failure occurs	As r
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As r

Various other smaller assets of the surface water drainage strategy consist of gutters, down water pipes, manholes, pipes and drainage channels. These assets should be checked annually and after large storm events, in order to remove debris and inspect the condition.

Jet washing may be required on occasion to remove any blockages within the pipe network. If the condition is found to be poor, replacement or repairs may be required.

Assuming that the various assets are maintained as prescribed above, it is anticipated that they will have a similar design life to the residential development, which should be considered for a minimum of 100 years. However, if maintenance is not undertaken in line with the recommendations, repair or replacement may be required.



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Conclusion:

The surface water drainage strategy has been developed to show that the proposed site redevelopment can comply with national and local surface water runoff management requirements. This will be achieved using SuDS principles, subject to further detailed design following planning approval.

Surface water runoff from the approved development will be managed using Sustainable Drainage Systems (SuDS), which will include lined permeable paving and one attenuation structure prior to discharging to the nearby surface water sewer.

The surface water drainage scheme will be maintained privately. Assuming that the various assets are maintained as prescribed, it is anticipated that they will have a similar design life to the residential development.



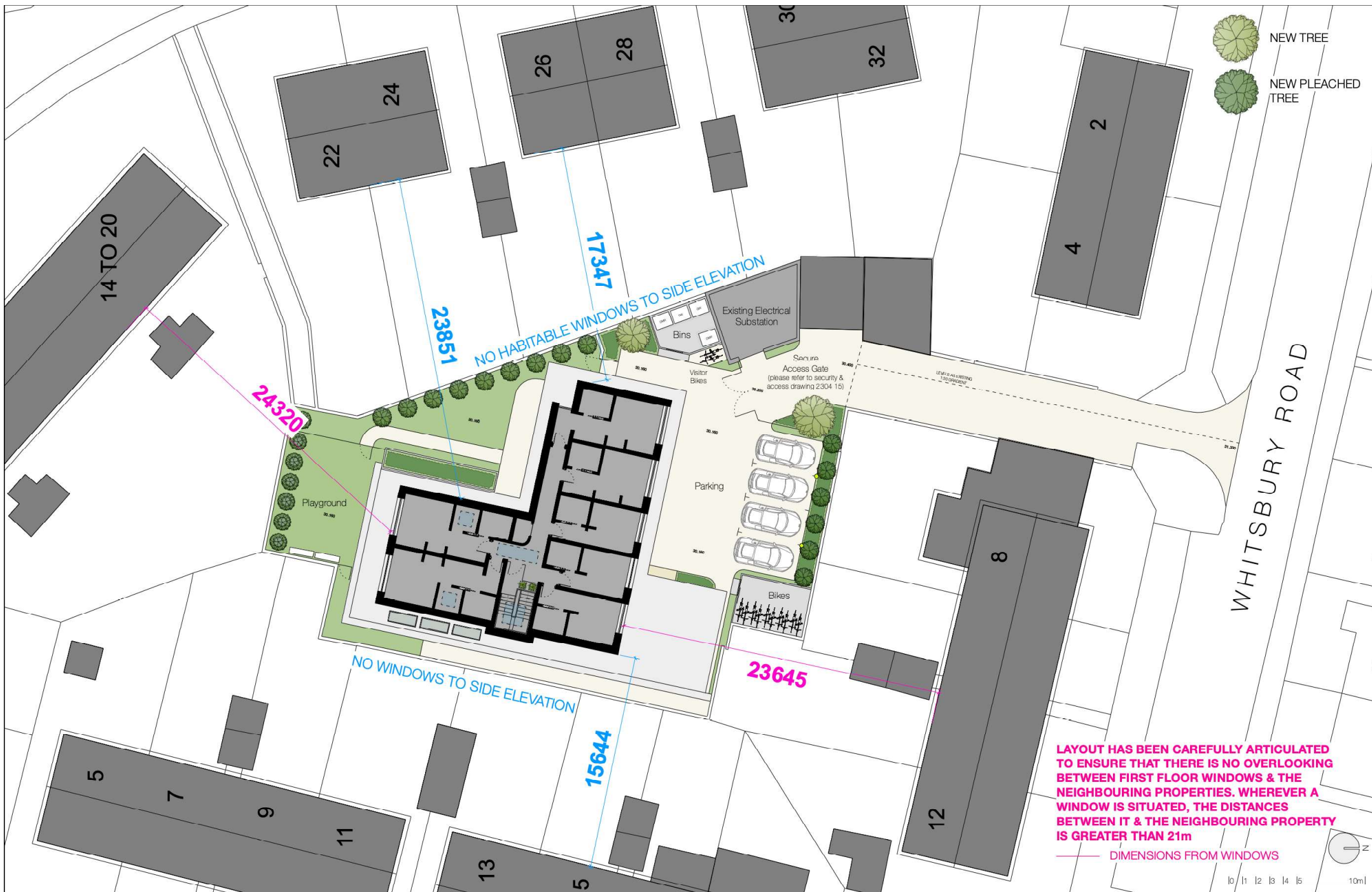
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Appendix A: Approved Site Plan





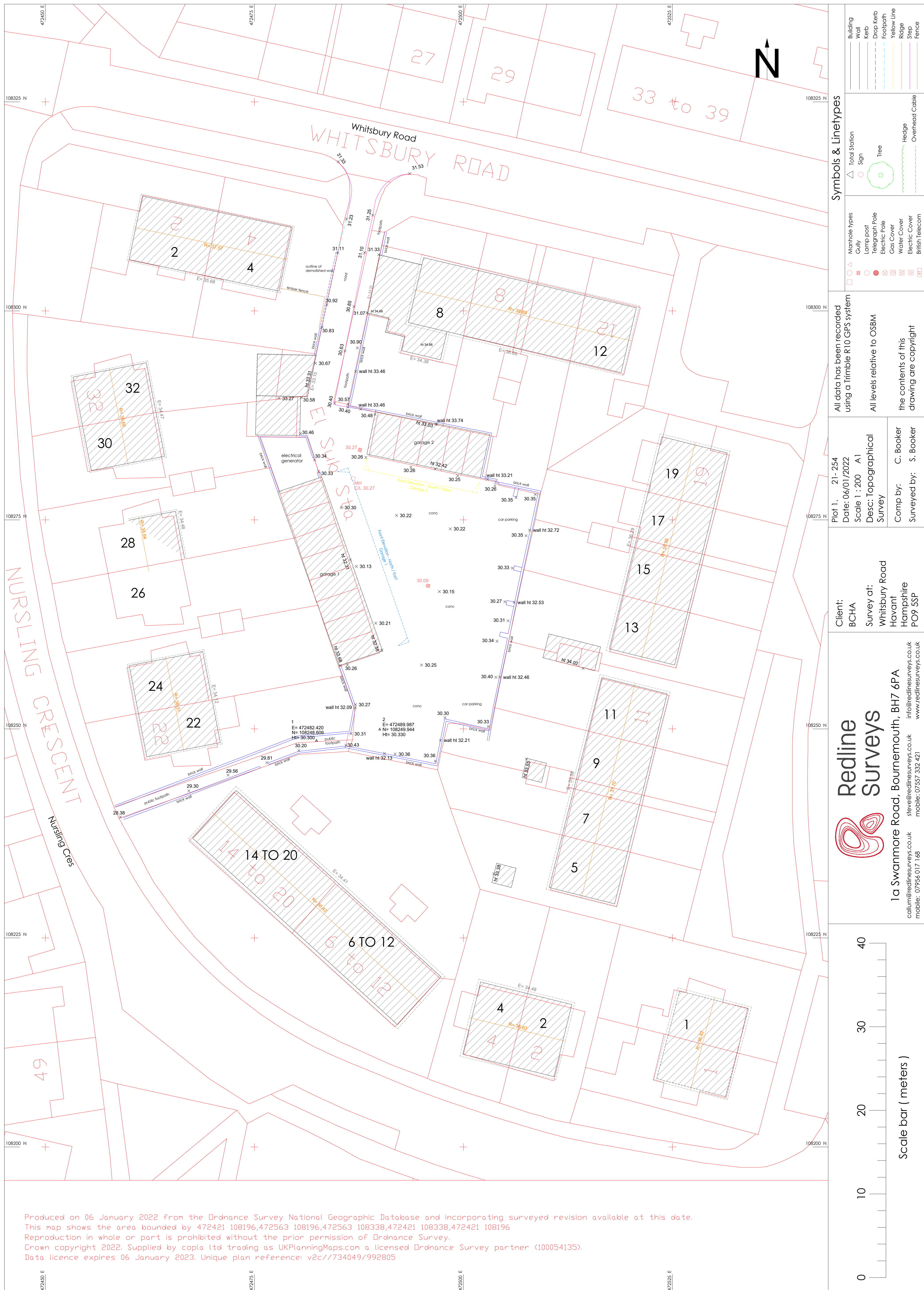
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Appendix B: Topographical Survey





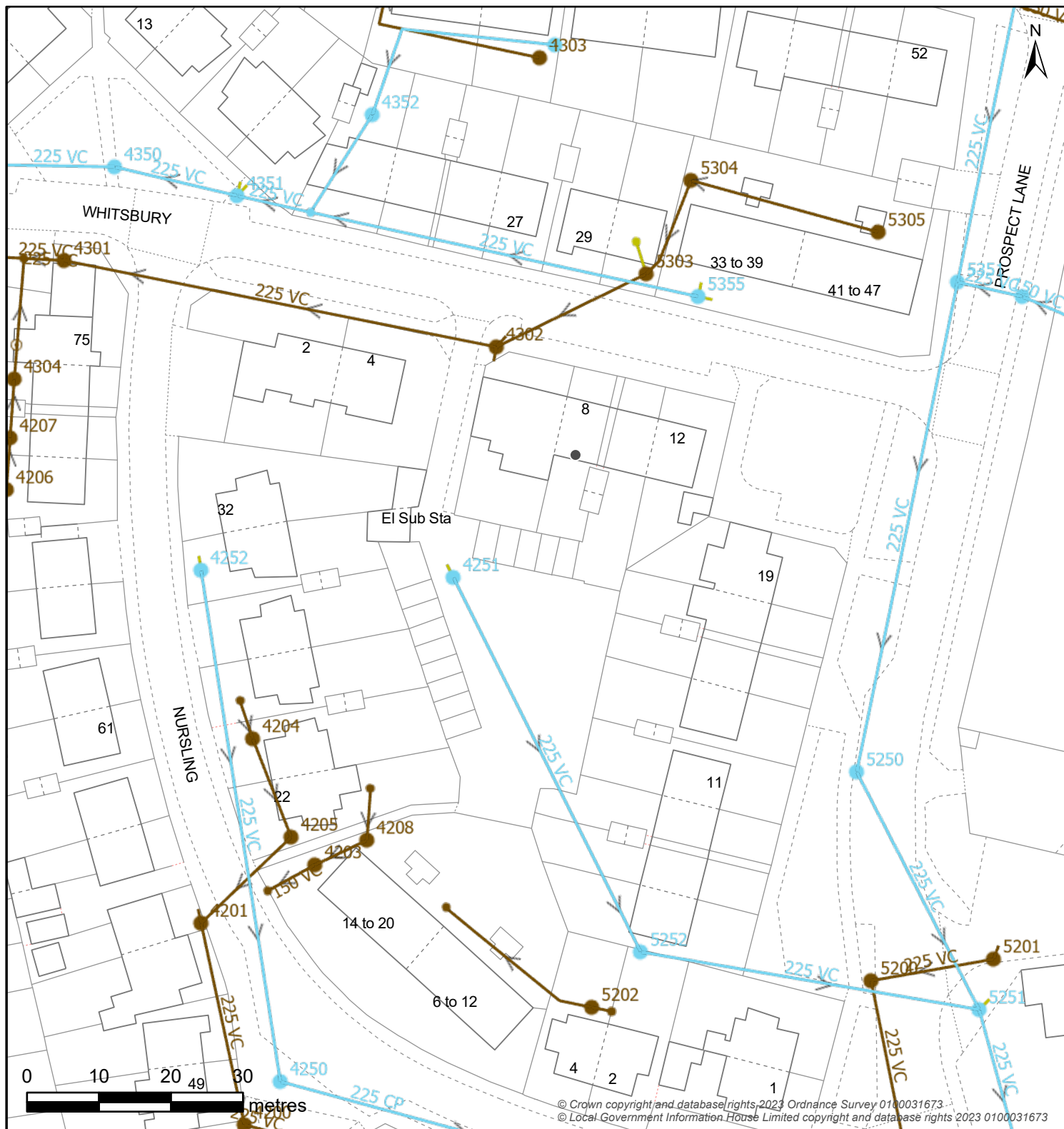
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Appendix C: Southern Water Existing Network



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Controllable Valve			Flow Control			Inlet-Outfall	
Manhole							
BIF Bifurcation	Cascade	CP Catchpit	Head Of Public Sewer	IC Interceptor Chamber	Manhole	S Soakaway	WO Washout
Outfall Headworks		Overflow Chamber		Pipe Bridge		Pumping Station	
Outfall Headworks	CSO Combined Sewer Overflow	EMO Emergency Overflow		Pipe Bridge		Micro Pumping Station	Pumping Station
Sewer Level Monitor		Storage		Treatment Works		Weir	
Sewer Level Monitor	Storm Tank	Tidal Storage Tank		Treatment Works		Weir	Wastewater Site
Wastewater Pipe				Wastewater Use		Developer Services	
Culverted Water Course	Syphon	Tank Sewer	Trunk Sewer	Foul	Combined	Build Over Agreement	Section 104
Drain	Vacuum Main	Decommissioned Pipe		Sludge	Treated Effluent	Catchment	Sub-Catchment
Outfall				Surface Water		Wastewater Area	
Overflow				Private			
Rising Main							
Sewer							

Map Title: SW Print

Printed By: Tanuja.Suresh

Date Printed: 05/03/2024

Map Scale: 750

The positions of pipes on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on-site





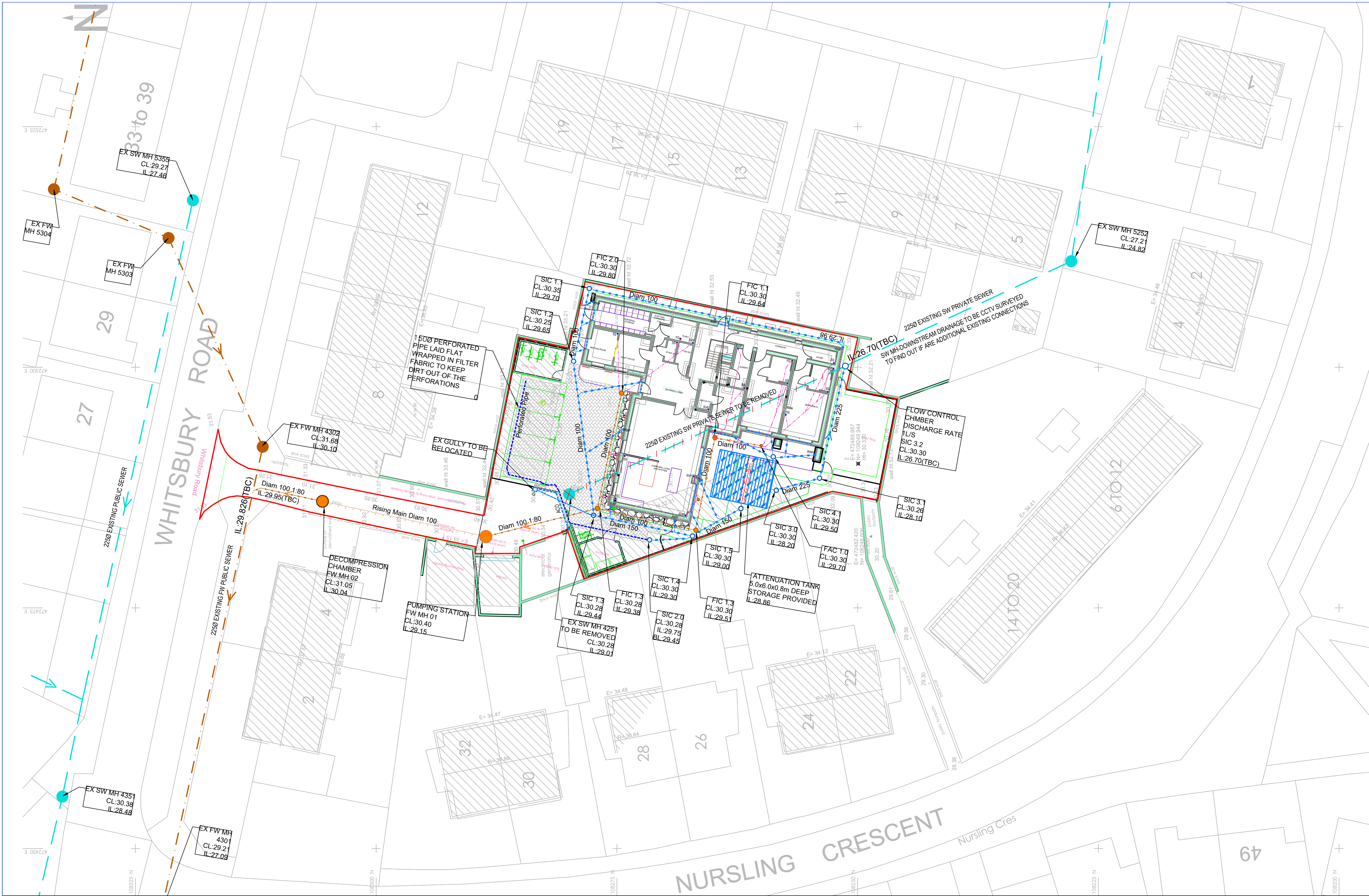
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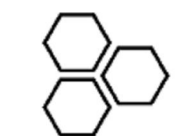
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Appendix D: Surface Water Drainage Layout





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engineers@thorpe.uk.com

TEC PROJECT REF:
24109

HEALTH & SAFETY
1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
ROADS & DRAINAGE
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WELLS DISEASE) AND RECOMMENDED PRECAUTIONS, ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.
PIPES & CABLES
7. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
8. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.
EXCAVATION/FILL
9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.

KEY
—●— INDICATES SURFACE WATER SEWER
—●— INDICATES FOUL WATER SEWER
● INDICATES EXISTING MANHOLE AND FOUL WATER SEWER
● INDICATES EXISTING MANHOLE AND SURFACE WATER SEWER
— INDICATES EXISTING SURFACE WATER SEWER TO BE REMOVED
— INDICATES FOUL RISING MAIN
- - - INDICATES 150Ø PERFORATED PIPE
ACO DRAIN INDICATES ACO CHANNEL DRAIN
SIC ○ INDICATES 450mm DIA PLASTIC CHAMBER SSG TYPE E OR 3 INSPECTION CHAMBER RANGE 450 BY WAVIN OR SIMILAR
FIC ● INDICATES 450mm DIA PLASTIC CHAMBER SSG TYPE E OR 3 INSPECTION CHAMBER RANGE 450 BY WAVIN OR SIMILAR
○ INDICATES PROPOSED SURFACE WATER MANHOLE
● INDICATES PROPOSED FOUL WATER MANHOLE
INDICATES PROPOSED ATTENUATION TANK
INDICATES TANKED PERMEABLE PAVING

Notes:
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING CONSTRUCTION:
• Installation methodology to be incorporated into the design
• Where it has not been possible to mitigate the hazard by design then the residual hazard is highlighted on the relevant drawing with this symbol
MAINTENANCE / CLEANING:
• No special measures required
DECOMMISSIONING / DEMOLITION:
• Reverse of installation methodology
IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT
FOR GENERAL NOTES SEE DRAWING S-00

DRAINAGE
1. ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION "DESIGN AND CONSTRUCTION GUIDANCE" - CURRENT EDITION AND ADOPTING WATER AUTHORITY/SEWERAGE AGENCY REQUIREMENTS AND SPECIFICATIONS. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2015 EDITION.
2. CONTRACTOR TO ESTABLISH POSITION, SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
3. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
4. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
5. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
6. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
7. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
8. STRUCTURED WALL PLASTIC PIPES TO WIS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE, SUBJECT TO ADOPTING AUTHORITY APPROVAL.
9. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.
10. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C250 TO BE USED IN CAR PARKING AREAS.
11. CLASS Z BEDDING DETAIL SHALL BE PROVIDED WHERE COVER TO THE PIPE BARREL IS LESS THAN 1.2M IN VEHICULAR TRAFFICKED AREAS AND 0.9M ELSEWHERE, TO ALL ROAD GULLY CONNECTIONS AND WITHIN AREAS OF DEEP ROOTING VEGETATION.
12. WHERE CLASS Z TRENCH BEDDING DETAIL IS USED, THE CONCRETE BED AND SURROUND SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION BY MEANS OF A SHAPED COMPRESSIBLE FILLER.
13. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY, OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF "THE STREET WORKS REGULATIONS 1992" AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992, BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
14. ALL TRADITIONAL RAINWATER PIPE DOWNCOMERS TO DISCHARGE TO TRAPPED GULLIES.
15. ALL SIPHONIC DRAINAGE DOWNCOMERS TO MANUFACTURER SPECIFICATION.
16. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
17. ALL GULLY LEADS TO BE 150mm DIAMETER.
18. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED. ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
19. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
20. ANY EXISTING DRAINAGE WHICH BECOMES UNDER TRAFFICKED AREAS IN THE NEW SCHEME SHOULD BE SUBJECT TO THE FOLLOWING REMEDIAL MEASURES: WHERE DEPTH OF COVER IS LESS THAN 1200MM, THE EXISTING PIPEWORK SHALL BE PROTECTED WITH 150MM CONCRETE AS CLASS "Z" BEDDING. WHERE THE EXISTING MANHOLE COVER & FRAME IS NOT AS MANHOLE DETAIL A OR B, OR TO BS497 GRADE A, OR EN124 CLASS D, THEN IT SHOULD BE CHANGED FOR SUCH.
21. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
22. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
23. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.

P4	Foul stacks position and connection updated, Level threshold drain added	RXT	11/02/26
P3	Drainage Plan Revised	RXT	10/02/26
P2	Amend SW sewer DESIGNATION	RT	09/01/26
P1	FIRST ISSUE	RXT	22/09/25
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			
CLIENT NAME:			
PRELIMINARY			
STOP DOMESTIC ABUSE			
SITE:			
WHITSBURY ROAD HAVANT			
TITLE:			
DRAINAGE PLAN			
SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:200	OCT'24	RXT	RXT
DRAWING NO:	00	TEC V1 XX DR C001	REVISION:
Client No. Designer Name Lead Type Role Number			P4

Appendix E: Ridgistorm Data Sheet

RIDGISTORMSeparate Silt Traps

Data Sheet

PRODUCT INFORMATION

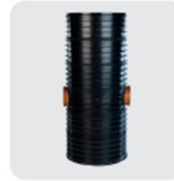
P1

ISSUE 1 - MAY 2016

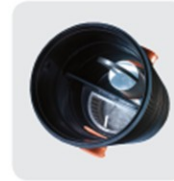
Located upstream of retention, attenuation and infiltration drainage systems, RIDGISTORMSeparate Silt Traps capture, retain silt and separate out other particles by encouraging settlement in the sump, preventing ingress into sustainable drainage systems (SuDS). This range of small diameter silt traps are standard stock items and are readily available.



Mini silt trap
Product code: PSMST110



Basic silt trap
Product code: PSMST160



Advanced silt trap
Product code: PSMST160/15

Key Features and Benefits

- Improves water quality by removing silt, grit and litter, protecting downstream elements of the drainage systems
- Prevents the ingress of debris, silt and litter into a structure
- Multiple inlet and outlet options, supplied with integral sockets as standard allowing quick and seamless connection to pipeline
- Depths can be tailored to suit project requirements
- Plastic or lockable steel covers available from Polypipe Building Products

Applications

For use in stormwater drainage systems typically located upstream of retention, attenuation and infiltration drainage elements to protect the ingress of silt and other particles.

Other fabrications in our RIDGISTORMSeparate range:

- Catchpits
- Filter Chambers

RIDGISTORMSEPARATE SILT TRAPS

PHYSICAL PROPERTIES	MINI	BASIC	ADVANCE
Nominal diameter	320mm	460mm	460mm
Depth	600mm	1220mm	830mm
Inlet and Outlet	110mm (BS EN 1401-1)	160mm (BS EN 1401-1)	160mm (BS EN 1401-1)
Sump depth	250mm	420mm	280mm
Material	Polypropylene	Polypropylene	Polypropylene
Colour	Black chamber	Black chamber	Black chamber
Chemical resistance	Polypropylene is resistant to the most chemicals associated with stormwater drainage systems	Polypropylene is resistant to the most chemicals associated with stormwater drainage systems	Polypropylene is resistant to the most chemicals associated with stormwater drainage systems

RIDGISTORMSEPARATE SILT TRAPS ASSOCIATED PRODUCTS

PRODUCT	DESCRIPTION	CODE
PVC 320mm cover & frame (round)	320mm sealed screw down cover & frame, includes seals and fixing screws	UG501
PVC 320mm cover & frame (square)	320mm square plastic cover with PP frame, includes seals and fixing screws	UG502
460mm silt trap cover & frame (round)	Round cover complete with seals and fixing screws (35kN test load)	UG511
460mm silt trap cover & frame (square)	Square PP cover complete with seals and fixing screws (35kN test load)	UG512
Polypropylene cover & frame	Reduced access square PP cover and frame with seals and fixing screws (35kN test load)	ICDC1
Chamber riser section	Silt trap side riser (215mm effective height)	ICDR1
Silt trap sealing ring	EPDM 110mm seal	UG488

Note: Polypropylene (PP)

Polypipe Civils

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Appendix F: Drainage Design Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	2.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
SIC1.3	0.015	2.00	30.200	600	472485.044	108279.464	0.830
SIC1.4	0.016	2.00	30.160	600	472482.468	108267.154	0.960
SIC1.5	0.018	2.00	30.160	600	472485.332	108262.125	1.660
PARKING	0.015	2.00	30.160	450	472493.517	108278.576	0.365
SIC2.0	0.000		30.160	600	472482.057	108271.554	0.910
TANK	0.000	2.00	30.160	250	472488.022	108261.510	1.910
SIC3.0	0.000	2.00	30.160	900	472487.231	108258.499	1.960
SIC3.1	0.000	2.00	30.160	900	472489.423	108252.359	2.010
SIC3.2	0.000	2.00	30.160	1200	472496.362	108250.811	2.660
EX	0.000		30.300	1200	472500.961	108249.480	3.600

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	SIC1.3	SIC1.4	12.577	1.500	29.370	29.200	0.170	74.0	150	2.21	50.0
1.001	SIC1.4	SIC1.5	5.787	1.500	29.200	29.000	0.200	28.9	150	2.53	50.0
1.002	SIC1.5	TANK	2.759	1.500	29.000	28.850	0.150	18.4	150	2.55	50.0
1.003	TANK	SIC3.0	3.113	1.500	28.250	28.200	0.050	62.3	225	2.58	50.0
1.004	SIC3.0	SIC3.1	6.520	1.500	28.200	28.150	0.050	130.4	225	2.69	50.0
1.005	SIC3.1	SIC3.2	7.110	1.500	28.150	27.500	0.650	10.9	225	2.73	50.0
1.006	SIC3.2	EX	4.788	1.500	27.500	26.700	0.800	6.0	225	2.74	50.0
2.000	PARKING	SIC2.0	13.440	1.500	29.795	29.750	0.045	298.7	150	2.44	50.0
2.001	SIC2.0	SIC1.4	4.419	1.500	29.750	29.200	0.550	8.0	150	2.47	50.0

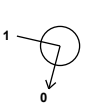
Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.019	18.0	2.0	0.680	0.810	0.015	0.0	34	0.671
1.001	1.632	28.8	6.2	0.810	1.010	0.046	0.0	47	1.295
1.002	2.049	36.2	8.7	1.010	1.160	0.064	0.0	50	1.681
1.003	1.456	57.9	8.7	1.685	1.735	0.064	0.0	58	1.042
1.004	1.004	39.9	8.7	1.735	1.785	0.064	0.0	72	0.805
1.005	3.481	138.4	8.7	1.785	2.435	0.064	0.0	38	1.933
1.006	4.708	187.2	8.7	2.435	3.375	0.064	0.0	33	2.381
2.000	0.505	8.9	2.0	0.215	0.260	0.015	0.0	49	0.408
2.001	3.103	54.8	2.0	0.260	0.810	0.015	0.0	20	1.465

Pipeline Schedule

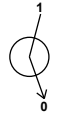
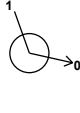
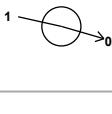
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	12.577	74.0	150	Circular	30.200	29.370	0.680	30.160	29.200	0.810
1.001	5.787	28.9	150	Circular	30.160	29.200	0.810	30.160	29.000	1.010
1.002	2.759	18.4	150	Circular	30.160	29.000	1.010	30.160	28.850	1.160
1.003	3.113	62.3	225	Circular	30.160	28.250	1.685	30.160	28.200	1.735
1.004	6.520	130.4	225	Circular	30.160	28.200	1.735	30.160	28.150	1.785
1.005	7.110	10.9	225	Circular	30.160	28.150	1.785	30.160	27.500	2.435
1.006	4.788	6.0	225	Circular	30.160	27.500	2.435	30.300	26.700	3.375
2.000	13.440	298.7	150	Circular	30.160	29.795	0.215	30.160	29.750	0.260
2.001	4.419	8.0	150	Circular	30.160	29.750	0.260	30.160	29.200	0.810

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SIC1.3	600	Manhole	Adoptable	SIC1.4	600	Manhole	Adoptable
1.001	SIC1.4	600	Manhole	Adoptable	SIC1.5	600	Manhole	Adoptable
1.002	SIC1.5	600	Manhole	Adoptable	TANK	250	Manhole	Adoptable
1.003	TANK	250	Manhole	Adoptable	SIC3.0	900	Manhole	Adoptable
1.004	SIC3.0	900	Manhole	Adoptable	SIC3.1	900	Manhole	Adoptable
1.005	SIC3.1	900	Manhole	Adoptable	SIC3.2	1200	Manhole	Adoptable
1.006	SIC3.2	1200	Manhole	Adoptable	EX	1200	Manhole	Adoptable
2.000	PARKING	450	Manhole	Adoptable	SIC2.0	600	Manhole	Adoptable
2.001	SIC2.0	600	Manhole	Adoptable	SIC1.4	600	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SIC1.3	472485.044	108279.464	30.200	0.830	600				
SIC1.4	472482.468	108267.154	30.160	0.960	600		1 2	29.370 29.200	150 150
SIC1.5	472485.332	108262.125	30.160	1.660	600		1	29.000	150
PARKING	472493.517	108278.576	30.160	0.365	450		0	29.795	150
SIC2.0	472482.057	108271.554	30.160	0.910	600		1 0	29.750 29.750	150 150
TANK	472488.022	108261.510	30.160	1.910	250		1 0	28.850 28.250	150 225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SIC3.0	472487.231	108258.499	30.160	1.960	900	 1	1.003	28.200	225
						0	1.004	28.200	225
SIC3.1	472489.423	108252.359	30.160	2.010	900	 1	1.004	28.150	225
						0	1.005	28.150	225
SIC3.2	472496.362	108250.811	30.160	2.660	1200	 1	1.005	27.500	225
						0	1.006	27.500	225
EX	472500.961	108249.480	30.300	3.600	1200	 1	1.006	26.700	225

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240
Rainfall Events	Singular	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Starting Level (m)	
Winter CV	0.840	Check Discharge Rate(s)	✓
Analysis Speed	Normal	Check Discharge Volume	✓
Skip Steady State	x	100 year +45% 360 minute (m³)	

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	------

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	0	0	0
100	45	0	0

Pre-development Discharge Rate

Site Makeup	Greenfield	SPR	0.53
Greenfield Method	IH124	Region	1
Positively Drained Area (ha)	0.098	Betterment (%)	0
SAAR (mm)		QBar	
Soil Index	5		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	FSR/FEH	Climate Change (%)	45
Positively Drained Area (ha)	0.098	Storm Duration (mins)	360
Soil Index	5	Betterment (%)	0
SPR	0.53	PR	
CWI		Runoff Volume (m³)	

Node SIC3.2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	28.250	Product Number	CTL-SHE-0061-2000-1550-2000
Design Depth (m)	1.550	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node TANK Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	28.250
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	172

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	30.0	0.0	0.800	30.0	0.0	0.801	0.0	0.0

Node PARKING Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	29.795
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	40

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	151.0	0.0	0.515	151.0	0.0	0.550	0.0	0.0

Results for 1 year Critical Storm Duration. Lowest mass balance: 90.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SIC1.3	9	29.405	0.035	2.1	0.0224	0.0000	OK
15 minute summer	SIC1.4	9	29.240	0.040	4.3	0.0246	0.0000	OK
15 minute summer	SIC1.5	9	29.050	0.050	6.8	0.0294	0.0000	OK
360 minute winter	PARKING	248	29.808	0.013	0.3	1.9692	0.0000	OK
360 minute winter	SIC2.0	248	29.755	0.005	0.1	0.0015	0.0000	OK
240 minute summer	TANK	144	28.313	0.063	2.2	1.8875	0.0000	OK
240 minute summer	SIC3.0	140	28.314	0.113	2.3	0.0722	0.0000	OK
240 minute summer	SIC3.1	136	28.316	0.166	2.1	0.1056	0.0000	OK
240 minute summer	SIC3.2	136	28.317	0.817	1.4	0.9238	0.0000	SURCHARGED
15 minute summer	EX	1	26.700	0.000	0.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SIC1.3	1.000	SIC1.4	2.1	0.613	0.117	0.0431	
15 minute summer	SIC1.4	1.001	SIC1.5	4.3	0.975	0.149	0.0255	
15 minute summer	SIC1.5	1.002	TANK	6.8	1.443	0.187	0.0130	
360 minute winter	PARKING	2.000	SIC2.0	0.1	0.255	0.012	0.0061	
360 minute winter	SIC2.0	2.001	SIC1.4	0.1	0.451	0.002	0.0026	
240 minute summer	TANK	1.003	SIC3.0	2.3	0.402	0.040	0.0451	
240 minute summer	SIC3.0	1.004	SIC3.1	2.1	0.426	0.053	0.1677	
240 minute summer	SIC3.1	1.005	SIC3.2	1.4	0.324	0.010	0.2530	
240 minute summer	SIC3.2	Hydro-Brake®	EX	1.0				6.5

Results for 30 year Critical Storm Duration. Lowest mass balance: 90.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SIC1.3	9	29.438	0.068	7.2	0.0438	0.0000	OK
15 minute summer	SIC1.4	9	29.284	0.084	14.9	0.0518	0.0000	OK
15 minute summer	SIC1.5	9	29.111	0.111	23.5	0.0659	0.0000	OK
180 minute winter	PARKING	132	29.820	0.025	1.3	3.7407	0.0000	OK
180 minute winter	SIC2.0	132	29.760	0.010	0.4	0.0028	0.0000	OK
120 minute winter	TANK	96	28.526	0.276	5.8	8.2988	0.0000	SURCHARGED
120 minute winter	SIC3.0	100	28.526	0.326	2.9	0.2075	0.0000	SURCHARGED
120 minute winter	SIC3.1	100	28.527	0.377	2.7	0.2395	0.0000	SURCHARGED
120 minute winter	SIC3.2	98	28.526	1.026	1.9	1.1604	0.0000	SURCHARGED
15 minute summer	EX	1	26.700	0.000	1.4	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SIC1.3	1.000	SIC1.4	7.2	0.803	0.400	0.1127	
15 minute summer	SIC1.4	1.001	SIC1.5	14.9	1.229	0.517	0.0699	
15 minute summer	SIC1.5	1.002	TANK	23.5	1.886	0.649	0.0343	
180 minute winter	PARKING	2.000	SIC2.0	0.4	0.399	0.050	0.0159	
180 minute winter	SIC2.0	2.001	SIC1.4	0.4	0.640	0.008	0.0068	
120 minute winter	TANK	1.003	SIC3.0	2.9	0.519	0.050	0.1238	
120 minute winter	SIC3.0	1.004	SIC3.1	2.7	0.612	0.067	0.2593	
120 minute winter	SIC3.1	1.005	SIC3.2	1.9	0.655	0.013	0.2828	
120 minute winter	SIC3.2	Hydro-Brake®	EX	1.5				17.6

Results for 100 year Critical Storm Duration. Lowest mass balance: 90.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SIC1.3	9	29.448	0.078	9.0	0.0500	0.0000	OK
15 minute summer	SIC1.4	9	29.301	0.101	18.6	0.0621	0.0000	OK
15 minute summer	SIC1.5	9	29.139	0.139	29.4	0.0825	0.0000	OK
120 minute winter	PARKING	86	29.824	0.029	2.2	4.4642	0.0000	OK
120 minute winter	SIC2.0	88	29.762	0.012	0.7	0.0033	0.0000	OK
120 minute winter	TANK	116	28.654	0.404	7.4	12.1498	0.0000	SURCHARGED
120 minute winter	SIC3.0	116	28.654	0.454	3.6	0.2889	0.0000	SURCHARGED
120 minute winter	SIC3.1	116	28.654	0.504	3.1	0.3206	0.0000	SURCHARGED
120 minute winter	SIC3.2	118	28.655	1.155	2.1	1.3058	0.0000	SURCHARGED
15 minute summer	EX	1	26.700	0.000	1.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SIC1.3	1.000	SIC1.4	9.0	0.825	0.500	0.1370	
15 minute summer	SIC1.4	1.001	SIC1.5	18.6	1.233	0.645	0.0857	
15 minute summer	SIC1.5	1.002	TANK	29.4	1.925	0.811	0.0414	
120 minute winter	PARKING	2.000	SIC2.0	0.7	0.451	0.073	0.0205	
120 minute winter	SIC2.0	2.001	SIC1.4	0.7	0.726	0.012	0.0098	
120 minute winter	TANK	1.003	SIC3.0	3.6	0.527	0.062	0.1238	
120 minute winter	SIC3.0	1.004	SIC3.1	3.1	0.629	0.079	0.2593	
120 minute winter	SIC3.1	1.005	SIC3.2	2.1	0.406	0.015	0.2828	
120 minute winter	SIC3.2	Hydro-Brake®	EX	1.5				22.7

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 90.12%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SIC1.3	9	29.566	0.196	13.1	0.1261	0.0000	SURCHARGED
15 minute summer	SIC1.4	9	29.482	0.282	26.7	0.1735	0.0000	SURCHARGED
15 minute summer	SIC1.5	9	29.295	0.295	38.6	0.1748	0.0000	SURCHARGED
120 minute winter	PARKING	84	29.834	0.039	3.1	5.9684	0.0000	OK
120 minute winter	SIC2.0	84	29.766	0.016	1.2	0.0044	0.0000	OK
180 minute winter	TANK	176	28.983	0.733	8.0	22.0195	0.0000	SURCHARGED
180 minute winter	SIC3.0	176	28.984	0.784	3.5	0.4983	0.0000	SURCHARGED
180 minute winter	SIC3.1	176	28.982	0.832	3.0	0.5294	0.0000	SURCHARGED
180 minute winter	SIC3.2	176	28.982	1.482	2.0	1.6758	0.0000	SURCHARGED
15 minute summer	EX	1	26.700	0.000	1.5	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SIC1.3	1.000	SIC1.4	12.7	0.846	0.703	0.2214	
15 minute summer	SIC1.4	1.001	SIC1.5	23.1	1.314	0.802	0.1019	
15 minute summer	SIC1.5	1.002	TANK	38.0	2.160	1.050	0.0486	
120 minute winter	PARKING	2.000	SIC2.0	1.2	0.549	0.135	0.0311	
120 minute winter	SIC2.0	2.001	SIC1.4	1.2	0.831	0.022	0.0134	
180 minute winter	TANK	1.003	SIC3.0	3.5	0.503	0.060	0.1238	
180 minute winter	SIC3.0	1.004	SIC3.1	3.0	0.613	0.075	0.2593	
180 minute winter	SIC3.1	1.005	SIC3.2	2.0	0.237	0.014	0.2828	
180 minute winter	SIC3.2	Hydro-Brake®	EX	1.5				31.2



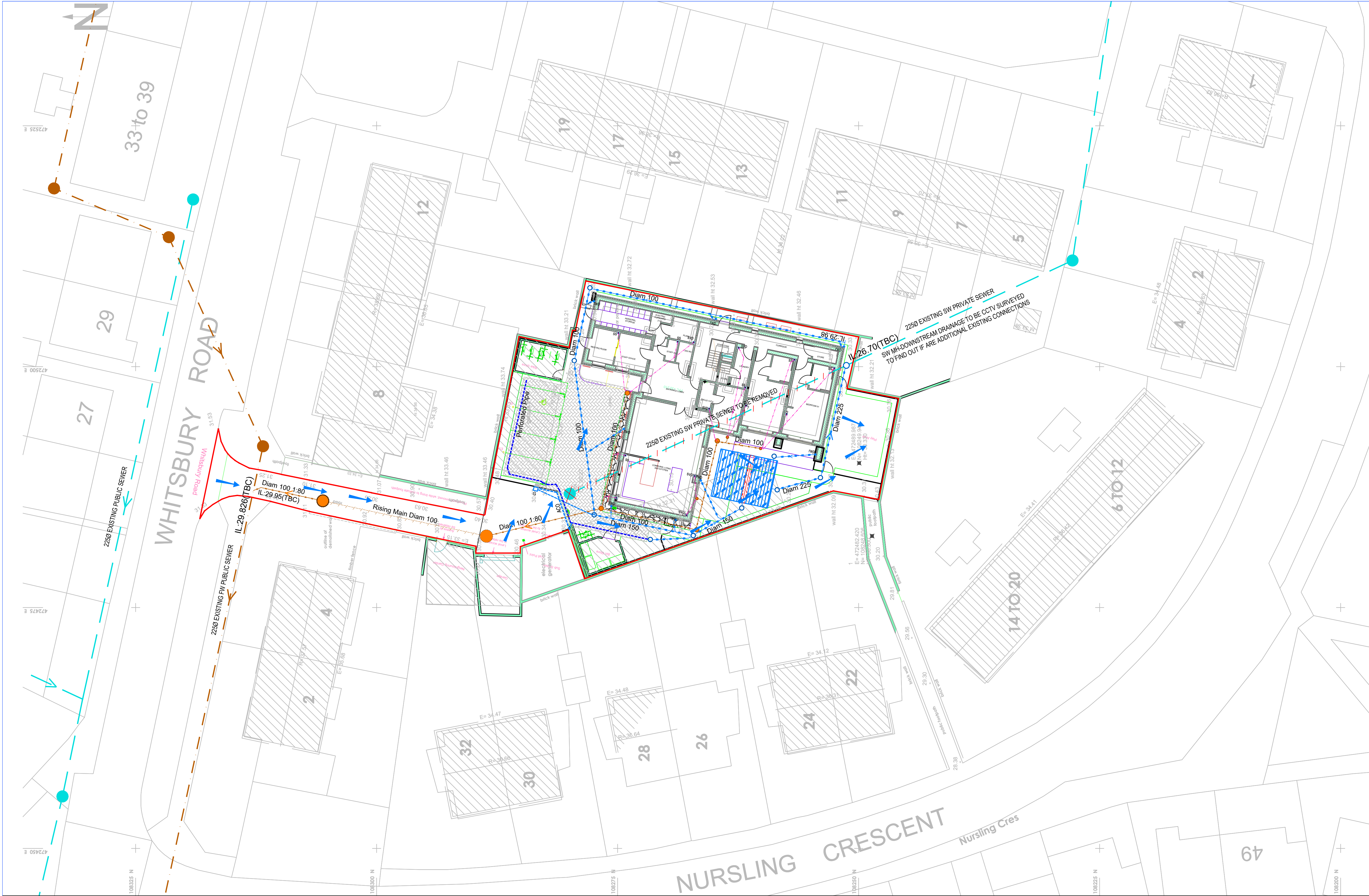
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Drainage Strategy
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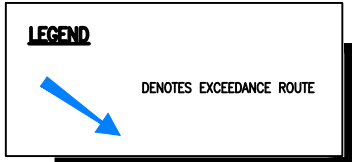
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Appendix G: Exceedance Route Plan



HEALTH & SAFETY

1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WELLS DISEASE) AND RECOMMENDED PRECAUTIONS, ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.
7. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
8. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.
9. EXCAVATION/FILL
10. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
11. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
12. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.



Notes:

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING CONSTRUCTION:

- Installation methodology to be incorporated into the design
- Where it has not been possible to mitigate the hazard by design then the residual hazard is highlighted on the relevant drawing with this symbol 

MAINTENANCE / CLEANING:

- No special measures required

DECOMMISSIONING / DEMOLITION:

- Reverse of installation methodology

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

FOR GENERAL NOTES SEE DRAWING S-00

- DRAINAGE**
1. ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION 'DESIGN AND CONSTRUCTION GUIDANCE' - CURRENT EDITION AND ADOPTING WATER AUTHORITY/SEWERAGE AGENCY REQUIREMENTS AND SPECIFICATIONS. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2015 EDITION.
 2. CONTRACTOR TO ESTABLISH POSITION, SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
 3. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
 4. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
 5. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
 6. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
 7. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
 8. STRUCTURED WALL PLASTIC PIPES TO IWS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE, SUBJECT TO ADOPTING AUTHORITY APPROVAL.
 9. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.
 10. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C250 TO BE USED IN CAR PARKING AREAS.
 11. CLASS Z BEDDING DETAIL SHALL BE PROVIDED WHERE COVER TO THE PIPE BARREL IS LESS THAN 1.2M IN VEHICULAR TRAFFICKED AREAS AND 0.9M ELSEWHERE. TO ALL ROAD GULLY CONNECTIONS AND WITHIN AREAS OF DEEP ROOTING VEGETATION.
 12. WHERE CLASS Z TRENCH BEDDING DETAIL IS USED, THE CONCRETE BED AND SURROUND SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION BY MEANS OF A SHAPED COMPRESSIBLE FILLER.
 13. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY, OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF 'THE STREET WORKS REGULATIONS 1992' AND RELEVANT PROVISIONS OF H.A.U.C. 'SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS' JUNE 1992, BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
 14. ALL TRADITIONAL RAINWATER PIPE DOWNCOMERS TO DISCHARGE TO TRAPPED GULLIES.
 15. ALL SIPHONIC DRAINAGE DOWNCOMERS TO MANUFACTURER SPECIFICATION.
 16. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
 17. ALL GULLY LEADS TO BE 150mm DIAMETER.
 18. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED. ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
 19. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
 20. ANY EXISTING DRAINAGE WHICH BECOMES UNDER TRAFFICKED AREAS IN THE NEW SCHEME SHOULD BE SUBJECT TO THE FOLLOWING REMEDIALS/REVISIONS: WHERE DEPTH OF COVER IS LESS THAN 1200MM, THE EXISTING PIPEWORK SHALL BE PROTECTED WITH 150MM CONCRETE AS CLASS 'Z' BEDDING. WHERE THE EXISTING MANHOLE COVER & FRAME IS NOT AS MANHOLE DETAIL A OR B, OR TO BS497 GRADE A, OR EN124 CLASS D, THEN IT SHOULD BE CHANGED FOR SUCH.
 21. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
 22. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
 23. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.

P2	Drainage Plan Revised	RXT	10/02/26
P1	FIRST ISSUE	RXT	22/09/25
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			
PRELIMINARY			
CLIENT NAME:			
STOP DOMESTIC ABUSE			
SITE:			
WHITSBURY ROAD HAVANT			
TITLE:			
EXCEEDANCE ROUTE PLAN			
SCALE AT A1:	DATE:	DRAWN:	CHECKED:
1:200	OCT'24	RXT	RXT
DRAWING NO:	00 TEC V1 XX DR C003	REVISION:	P2
Client No. Originator Name Level Type Role Number			



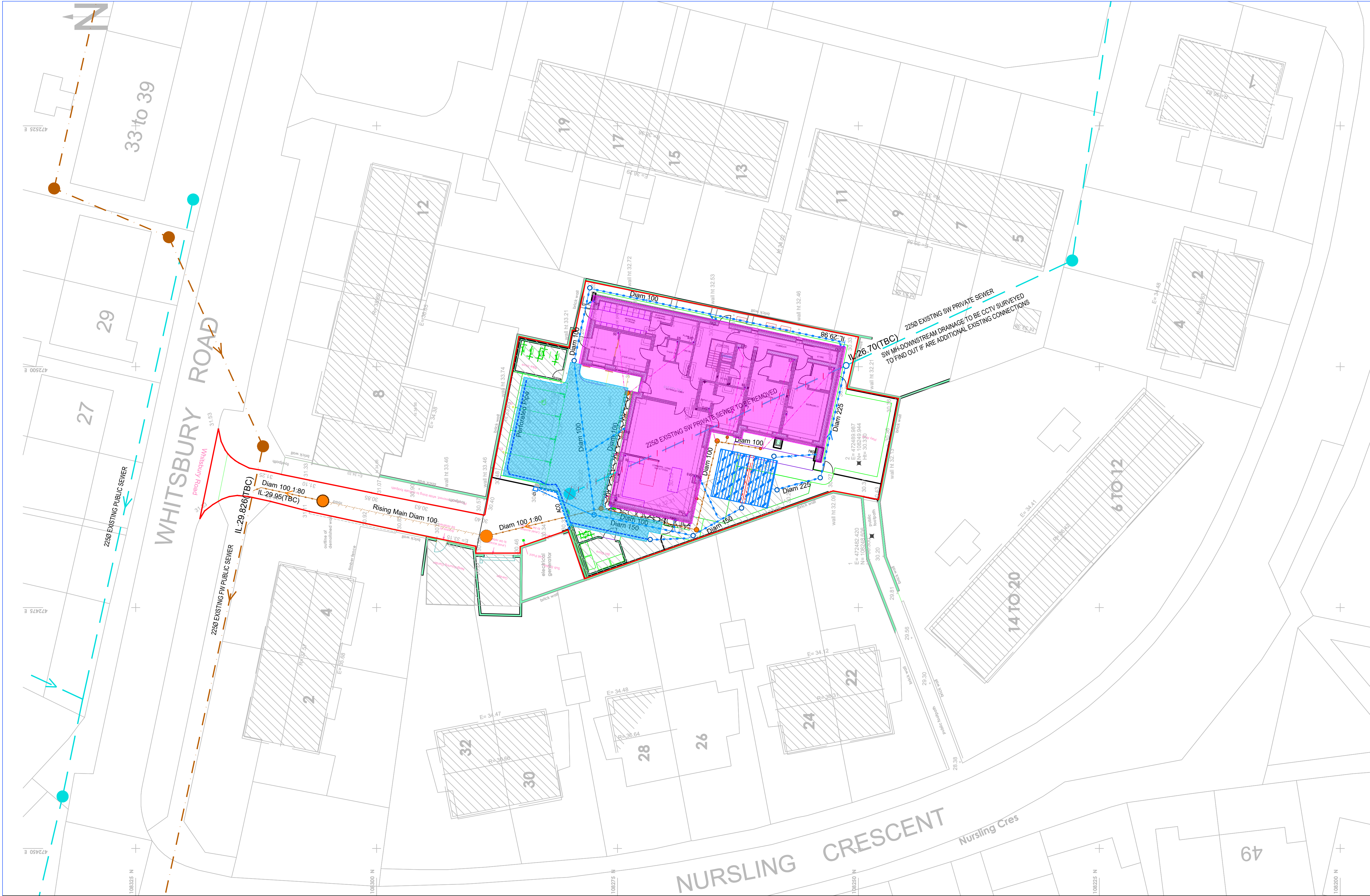
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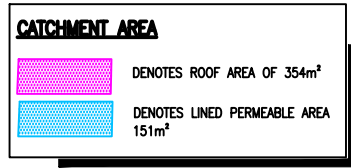
Email: engineers@thorpe.uk.com
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Appendix H: Surface Water Catchment Plan



HEALTH & SAFETY

1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.
- ROADS & DRAINAGE**
2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE.
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WELLS DISEASE) AND RECOMMENDED PRECAUTIONS, ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.
- PIPES & CABLES**
7. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
8. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.
- EXCAVATION/FILL**
9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.



Notes:

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING CONSTRUCTION:

- Installation methodology to be incorporated into the design
- Where it has not been possible to mitigate the hazard by design then the residual hazard is highlighted on the relevant drawing with this symbol 

MAINTENANCE / CLEANING:

- No special measures required

DECOMMISSIONING / DEMOLITION:

- Reverse of installation methodology

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

FOR GENERAL NOTES SEE DRAWING S-00

- DRAINAGE**
1. ALL DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION 'DESIGN AND CONSTRUCTION GUIDANCE' - CURRENT EDITION AND ADOPTING WATER AUTHORITY/SEWERAGE AGENCY REQUIREMENTS AND SPECIFICATIONS. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2015 EDITION.
2. CONTRACTOR TO ESTABLISH POSITION, SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
3. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
4. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
5. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
6. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
7. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
8. STRUCTURED WALL PLASTIC PIPES TO WIS 4-35-01 MAY BE USED FOR FOUL & SURFACE WATER DRAINAGE, SUBJECT TO ADOPTING AUTHORITY APPROVAL.
9. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.
10. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C250 TO BE USED IN CAR PARKING AREAS.
11. CLASS Z BEDDING DETAIL SHALL BE PROVIDED WHERE COVER TO THE PIPE BARREL IS LESS THAN 1.2M IN VEHICULAR TRAFFICKED AREAS AND 0.9M ELSEWHERE. TO ALL ROAD GULLY CONNECTIONS AND WITHIN AREAS OF DEEP ROOTING VEGETATION.
12. WHERE CLASS Z TRENCH BEDDING DETAIL IS USED, THE CONCRETE BED AND SURROUND SHALL BE DISCONTINUED AT EACH PIPE JOINT OVER THE FULL CROSS SECTION BY MEANS OF A SHAPED COMPRESSIBLE FILLER.
13. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY, OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF "THE STREET WORKS REGULATIONS 1992" AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992, BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
14. ALL TRADITIONAL RAINWATER PIPE DOWNCOMERS TO DISCHARGE TO TRAPPED GULLIES.
15. ALL SIPHONIC DRAINAGE DOWNCOMERS TO MANUFACTURER SPECIFICATION.
16. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
17. ALL GULLY LEADS TO BE 150mm DIAMETER.
18. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED. ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
19. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
20. ANY EXISTING DRAINAGE WHICH BECOMES UNDER TRAFFICKED AREAS IN THE NEW SCHEME SHOULD BE SUBJECT TO THE FOLLOWING REMEDIALS/REVISIONS. WHERE DEPTH OF COVER IS LESS THAN 1200MM, THE EXISTING PIPEWORK SHALL BE PROTECTED WITH 150MM CONCRETE AS CLASS "Z" BEDDING. WHERE THE EXISTING MANHOLE COVER & FRAME IS NOT AS MANHOLE DETAIL A OR B, OR TO BS497 GRADE A, OR EN124 CLASS D, THEN IT SHOULD BE CHANGED FOR SUCH.
21. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
22. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
23. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.

P2	Drainage Plan Revised			RXT	10/02/26
P1	FIRST ISSUE			RXT	22/09/25
REV:		DESCRIPTION:		BY:	DATE:
STATUS: PRELIMINARY					
CLIENT NAME:					
STOP DOMESTIC ABUSE					
SITE: WHITSBURY ROAD HAVANT					
TITLE: SURFACE WATER CATCHMENT PLAN					
SCALE AT A1: 1:200		DATE: OCT'24		DRAWN: RXT	
CHECKED: RXT				REVISION:	
DRAWING NO. 00 TEC V1 XX DR C002				P2	
Client No. Originator Volume Level Type Role Number					