



KNAPP HICKS & PARTNERS LTD

CONSULTING STRUCTURAL, CIVIL & GEOTECHNICAL ENGINEERS



DRAINAGE STRATEGY SUD'S REPORT

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**38-40 DUCKS HILL ROAD
RUISLIP
MIDDLESEX
HA6 2SB**

**JANUARY 2019
36033C/R/001/AJB**



SAFETY
SCHEMIS IN
PROCUREMENT

APPROVAL SHEET AND FOREWORD

**Drainage Strategy, SUD's Report
For
38/40 Ducks Hill Road HA6 2SB**

Report Status: Final Date of Issue: January 2019		
	Name	Signature & Date
Author:	Claire Taylor	<i>Claire Taylor 29/1/19</i>
Checked & Approved:	Andrew Bird	<i>ABird</i>

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This report shall not be used for engineering or contractual purposes unless signed above by the author and the checker/approver, and unless the report status is "Final".

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	THAMES WATER'S ASSET PLANS

EXECUTIVE SUMMARY

	Item	Comment
1	Development description	Small residential redevelopment
2	Location	TQ 08152 91431
3	Site Area	2,288 m2
4	Planning Authority	Hillingdon Council
5	Current Land Use	Residential
7	EA Flood Zone Classification	1
8	Site Level	Not known
10	Drainage	Surface water to Sewer

1 INTRODUCTION

Knapp Hicks & Partners Ltd have been appointed to undertake a Drainage Strategy and SUD's report for a residential development located at 38/40 Ducks Hill Road, HA6 2SB.

1.1 REQUIREMENT FOR A DRAINAGE STRATEGY, SUD'S REPORT

This report has been prepared to assist with a Planning Application.

Planning application ref 71798/APP/2017/2381

Condition 12. Prior to commencement, a scheme for the provision of sustainable water management shall be submitted to and approved in writing by the Local Authority.

The scheme shall clearly demonstrate how it manages water and demonstrate ways of controlling the surface water on site by providing information on:

a) SUD's Features

i). Incorporating sustainable urban drainage (SUD's) in accordance with the hierarchy set out in Policy 5.15 of the London Plan. Where the proposal does not utilise the most sustainable solution, justification must be provided.

ii) Calculations showing storm period and intensity and volume of storage required to control surface water and size of features to control that volume to Greenfield run off rates at a variety of return periods including 1 in 1, 1 in 30, 1 in 100, and 1 in 100 year plus climate change.

iii). Where it is intended to have above ground storage, overland flooding should be mapped, both designed and exceedance routes above the 100, plus climate change, including flow paths depths and velocities identified as well as any hazards, (safe access and egress must be demonstrated);

iv) Where infiltration techniques (soakaways) a site investigation must be provided to establish the level of groundwater on the site, and demonstrate the suitability of infiltration techniques proposed on the site. (This should be undertaken at the appropriate time of the year as groundwater levels fluctuate.)

B) minimise Water Use

i) Incorporate water saving measures and equipment

ii) Provide details of how rain and grey water will be recycled and reused in the development.

C)

i). Provide a management and maintenance plan to include details of inspection regime, performance specification, (remediation and timescale for resolving of issues where a PMC)

ii). Where overland flooding is proposed, the plan should include the appropriate actions to define those areas and actions required to ensure the safety of the users of the site should that be required.

iii). Clear plans showing all the drainage network above and below ground. The responsibility of the different parties such as the landowner. Thereafter the development

shall be implemented and retained/maintained in accordance with these details for as long as the development remains in existence.

1.2 SITE SPECIFIC DOCUMENTS

The following documents and drawings have also been consulted for the preparation of this flood risk assessment:-

- Proposed Site Plan, Dwg. 1272/P/1a, by DDA, dated June 2017, included at Appendix A
- Topographical Survey, dwg 915440, by The Survey Association dated October 2015, included at Appendix A

2 EXISTING SITE DESCRIPTION

2.1 LOCATION

The site is located at NGR TQ 08152 91431 as is located west of the A4180 (Ducks Hill Road) and adjacent to Mallard Road

The development is the demolition of two existing properties and the redevelopment of two new residential dwellings



2.2 TOPOGRAPHY

The site is located on the outskirts of a residential conurbation and backs onto open land to the rear

Site levels indicate that the existing land is relatively flat with a slight fall away from the road and other developed areas.

2.3 GEOLOGY

The Geology of Britain Viewer indicates the geology underlying the site to be Lambeth Formation, comprising clay, silt and sand. It is believed that the infiltration rates of the Lambeth would not offer sufficient meaningful percolation to be able to utilise a soakage solution.

2.4 HYDROLOGY

There are no watercourses close to the development however there is a large pond to the north of the site. The presence of this pond may suggest that infiltration into the ground would not be viable in this area.

2.5 HYDROGEOLOGY

The underlying soil is mapped as a Minor Aquifer High.

2.6 THE SITE ITSELF IS NOT LOCATED WITHIN A SOURCE PROTECTION ZONE (SPZ). EFFECT OF CLIMATE CHANGE

It is now accepted that climate change will increase the risk of flooding as rainfall events become more intense, frequent and prolonged. *Table 5: Recommended national precautionary sensitivity ranges for peak rainfall intensities, peak river flows, offshore wind speeds and wave heights* (ref 2) provides guidance on the enhancement which should be applied to hydrological models. It is predicted that peak rainfall intensity will have increased by up to 30% by 2085 and therefore surface water designs for residential developments should make allowance for this increase.

2.7 EXISTING SITE

The current impermeable area of the site is circa 335m², made up of hardstanding to the front and the roof areas of the existing properties.

The existing method of surface water disposal is currently thought to be via a Public surface water sewer located in Ducks Hill Road. (see attached Thames Water asset plan Appendix B) and based on 50mm rainfall event would discharge at a peak rate of 5L/s

3 PROPOSED DEVELOPMENT

It has been proposed to re-develop the existing Brown field site and to construct 2 properties with associated parking courts. The proposed re-development will increase the impermeable areas to circa 730m² including for both parking areas and roof areas.

4 SURFACE WATER MANAGEMENT

The site is Brownfield and the proposed development will have an increased impermeable area and overall will generate an increase in both the peak rate and volume of surface water runoff from the site.

The Building Regulations specify that the proposed surface water outfalls comply with the following order of preference

- a) Infiltration
- b) Watercourse
- c) Surface water sewerage
- d) Combined sewerage

Options a and b above would not be suitable for this development as there are no watercourse in close proximity of this development and it is highly unlikely that the soil would provide sufficient meaningful percolation to be able to utilise a soakage solution

There would be an increase in both volume of surface water and discharge rates of surface water for the new development over the rates of current surface water discharged from the existing site.

In line with the policy 5.15 of the London Plan, surface water flows should be reduced to Greenfield rates or as close as is practicable possible. Therefore, surface water flows from the proposed development will need to be managed to a rate no greater than 5L/s.

It is proposed to collect surface water from the roof areas and discharge into the permeable paved parking area, located to the front of the properties. Infiltration from the parking areas would discharge directly through the permeable paving. (see attached drainage schematic Appendix B). As it is highly unlikely that the soil would provide sufficient meaningful percolation to be able to utilise a soakage solution, it is proposed to line the permeable paving with a visqueen membrane (non soakage) and for the permeable paving to be collected via a perforated pipe or filter strip and to discharge at a controlled rate via a vortex control into the adjacent surface water sewer. The permeable paving is required to have a minimum sub-base storage depth of 379mm to provide sufficient storage volumes for the 1 in 100 year rainfall return period plus a 30% allowance for climate change with a maximum discharge rate of 5L/s. (See WinDes calculation in Appendix B)

The permeable paving will provide a suitable filter to retain and treat hydro-carbons prior to discharging into the surface water sewer.

Device	Description	Purpose
Permeable Pavement	These structures allow surface water run-off to permeate through and into a granular sub-base. The sub-base will provide attenuation with the sub-base material having a 30% void ration. The granular material will also provide an element of natural pollution prevention by degrading any Hydro-carbons that may filter through. The porous paving is to be wrapped in a Visqueen material and will provide attenuation only.	Water quality treatment Attenuation

5. Management and Maintenance.

The management and maintenance of this system will require no specialised equipment and general cleaning and inspection of the inlets and sweeping of the permeable paving will be required as needed.

Inspection of the vortex control will need to be monitored as detailed below.

As this requires only a low level of maintenance it is assumed that this can be undertaken by the residence or property owners.

ITEM	TASK	FREQUENCY	SPECIFIC SAFETY MEASURES
GEOCELLULAR STORAGE & PERMEABLE PAVING	Litter and debris removal from catchment surface	Monthly	
	Remove sediment from pre-treatment chambers	Annually	
	Inspect and identify any areas that are not operating correctly	As required.	
FLOW CONTROL DEVICES	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly/after large storms.	Correct PPE/equipment to be used at all times. Correct training provided for the use of equipment
INLETS & OUTLETS	Inspect inlets, outlets and overflows for blockages, and clear if required	Weekly/after large storms.	
	Remove sediment from inlets and outlets.	Annually (or as required)	Correct PPE/equipment to be used at all times. Correct training provided for the use of equipment
	Repair/rehabilitation of inlets, outlets and overflows	As required.	

5 CONCLUSION

The site is Brownfield and the proposed development will have an increased impermeable area and overall will generate an increase in both the peak rate and volume of surface water runoff from the site

There are no watercourse in close proximity to this development and it is highly unlikely that the soil would provide sufficient meaningful percolation to be able to utilise a soakage solution.

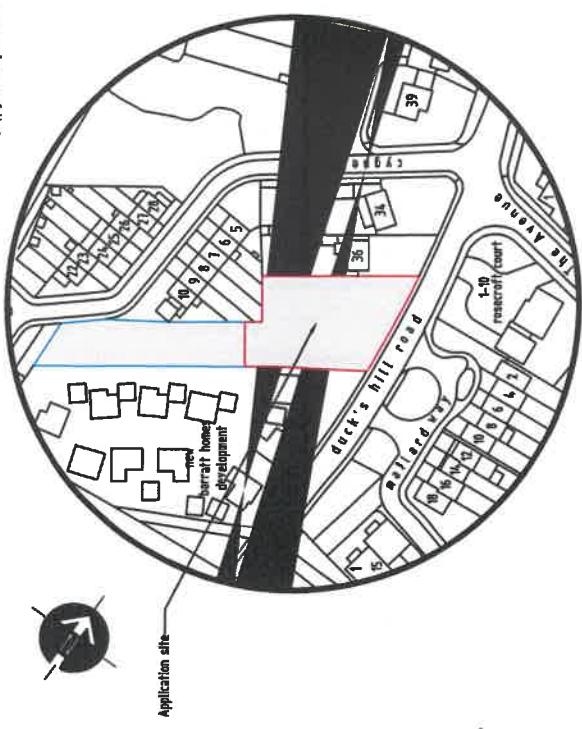
It is proposed to collect surface water from the roof areas and discharge into the permeable paved parking area, located to the front of the properties. Infiltration from the parking areas would discharge directly through the permeable paving.

The permeable paving is required to have a minimum sub-base storage depth of 379mm to provide sufficient storage volumes for the 1 in 100 year rainfall return period plus a 30% allowance for climate change with a maximum discharge rate of 5L/s.

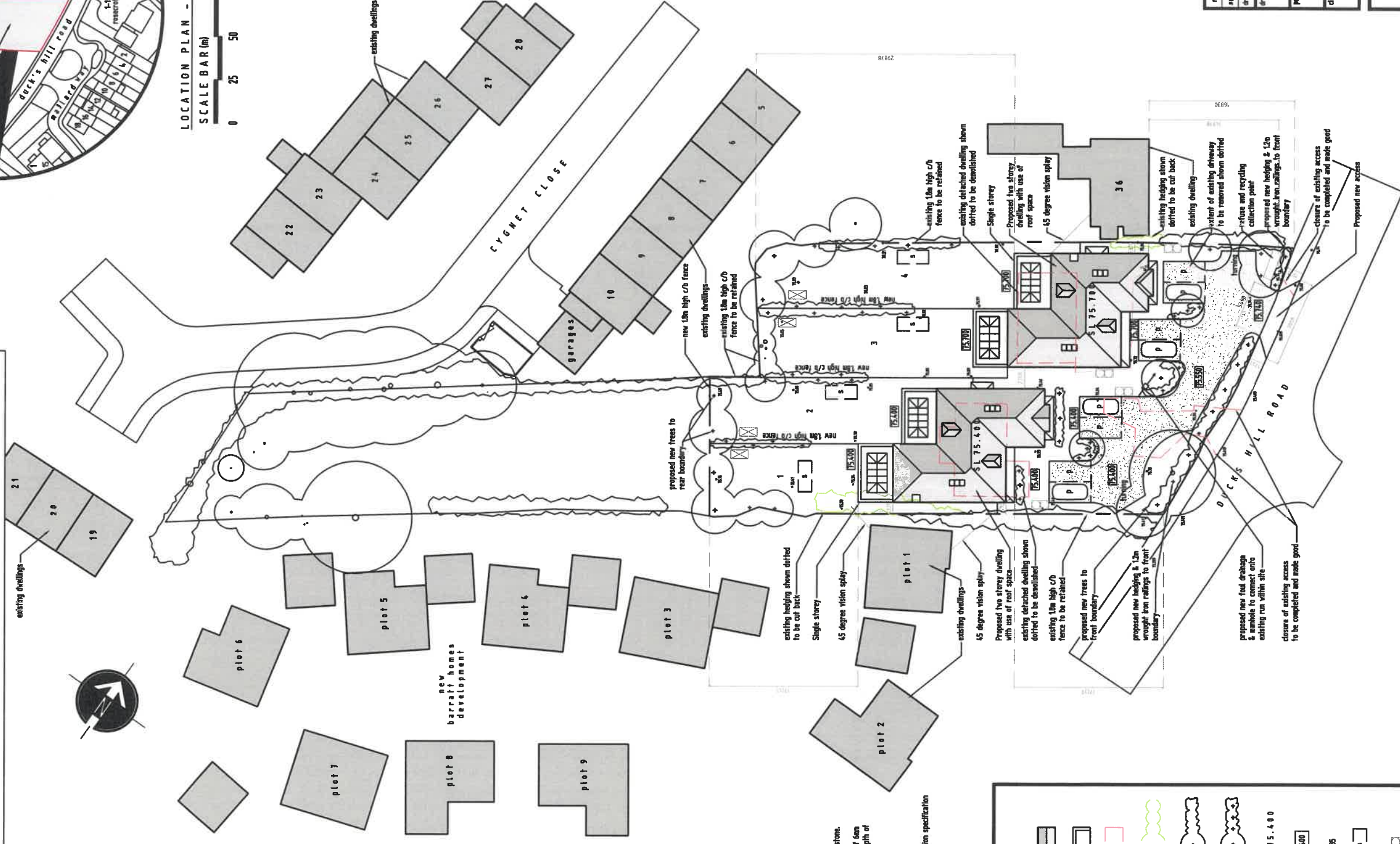
It is recommended that the surface water drainage system is monitored annually and maintained as necessary.

APPENDIX A

DRAWINGS



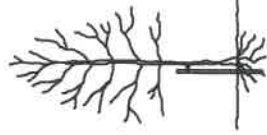
LOCATION PLAN - SCALE 1:1250



SITE LAYOUT PLAN - SCALE 1:250

**HARD & SOFT LANDSCAPED AREAS
TO FRONTAGE**

- * TOTAL AREA OF FRONTAGE EQUATES TO 566 SQM
- * TOTAL AREA OF FRONTAGE TO BE SOFT LANDSCAPING EQUATES TO 269 SQM
- * POLICY STATES 75% OF THE FRONTAGE (14.15 SQM) HAS TO BE SOFT LANDSCAPING. & IN THIS CASE WE EXCEED THIS REQUIREMENT



TREE STAKING DETAIL

TREE STAKING SPECIFICATION

For selected standard trees o/a height 3.0-3.5m. Support using stakes extending to 1.0-1.2m above ground and 0.6-0.75m below ground level (depending on ground conditions).

Supported by single non reinforced tie 75mm from top of stake.

Remove stake on onset of or during the second growing season after planting.

LANDSCAPE SPECIFICATION

Landscaping generally to be carried out in accordance with BS.4428. All new trees to be supplied as selected standards unless otherwise noted.

Overall height 3.0-3.5m and 1.6-2.1m, straight stem to BS3936 Part 1 1992. Trees supplied with bareroots with polythene wrapping or as noted otherwise, and planted in a mix of 3.0 litres peat. Planting beds to be excavated and lined with screened topsoil enriched with peat free compost/fertiliser or similar mature 50mm deep, top dressed with 75mm deep forest bark mesh.

Site to be cleared of all builders rubble and rotavated levelled and tilled before planting commences. Front gardens to be turfed and rear gardens seeded.

All turfing to BS3936 1990.

Pernicious weeds are to be treated with translocated herbicide during growing season (spot treated)

Sub-soil areas below planting to be de-compacted before planting commences.

Tree protection to be carried out in accordance with B.S.5837 2012.

DRIVEWAY SPECIFICATION

Driveway to be finished with permeable concrete pavers, finished with a permeable 6mm joint filled with clean crushed stone.

Below the above you need a laying course of a 50mm depth of 6mm clean crushed stone, followed with a sub-base of a 200mm depth of 20mm clean crushed stone with well defined edges.

Crossover to be finished in permeable black tar mac. Construction specification in accordance with local authorities requirements.

LEGEND

Proposed two storey building

Proposed single storey building

Illustration of existing structures
to be demolished

Existing trees & planting to be removed

Existing trees & planting to remain

Proposed new trees & shrubs

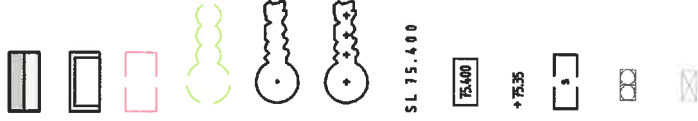
Proposed structural ground
floor slab (mml)

Proposed Level

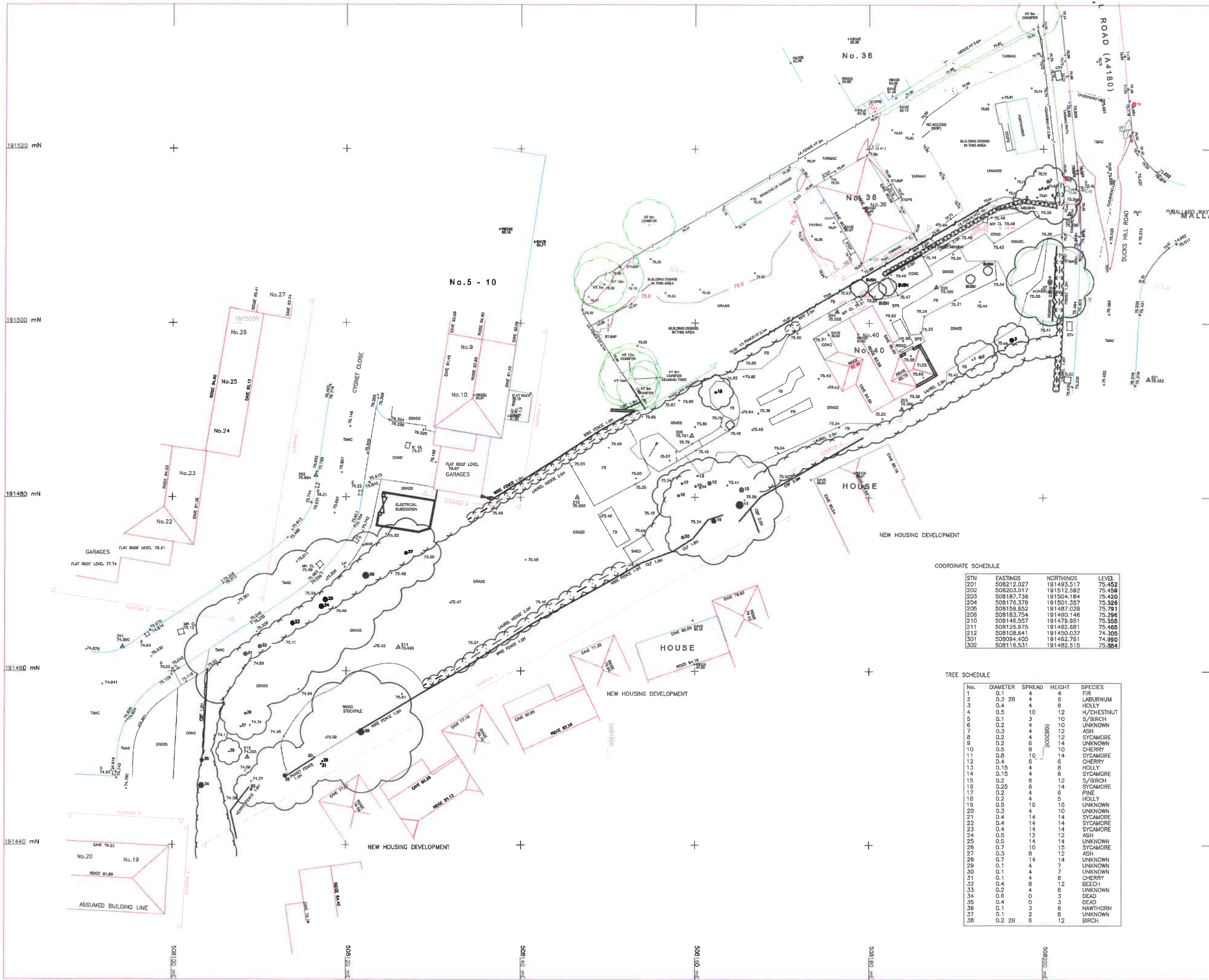
Existing Levels

refuse and recycling
storage point, specific
stored on paving slab

Proposed secure cycle storage unit



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ABBREVIATIONS

AD	As Built	CH	Chute Height	PWF	Post & Rail Fence
B	Back Slope	CL	Center Line	PWF	Post & Wire Fence
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road
BS	Back Slope	CL	Center Line	R	Road

LEVEL NOTE.
ALL COORDINATES RELATE TO THE ORDNANCE SURVEY GRID AND DATUM VIA GPS OBSERVATIONS.
OBSERVED: 12/10/15



COORDINATE SCHEDULE

STN	EASTINGS	NORTHINGS	LEVEL
201	508212.027	191493.517	75.452
202	508203.017	191512.592	75.458
203	508187.736	191504.184	75.420
204	508176.379	191501.357	75.526
205	508159.852	191487.029	75.791
206	508183.754	191490.146	75.296
210	508146.557	191479.951	75.555
211	508125.975	191462.681	75.465
212	508108.841	191450.037	74.305
301	508094.405	191462.761	74.980
302	508116.531	191482.515	75.884

TREE SCHEDULE

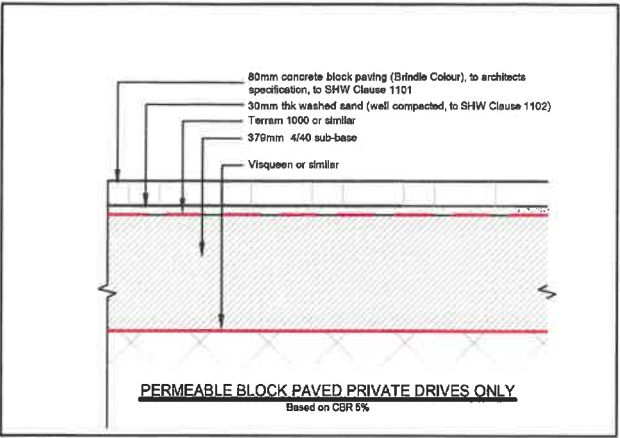
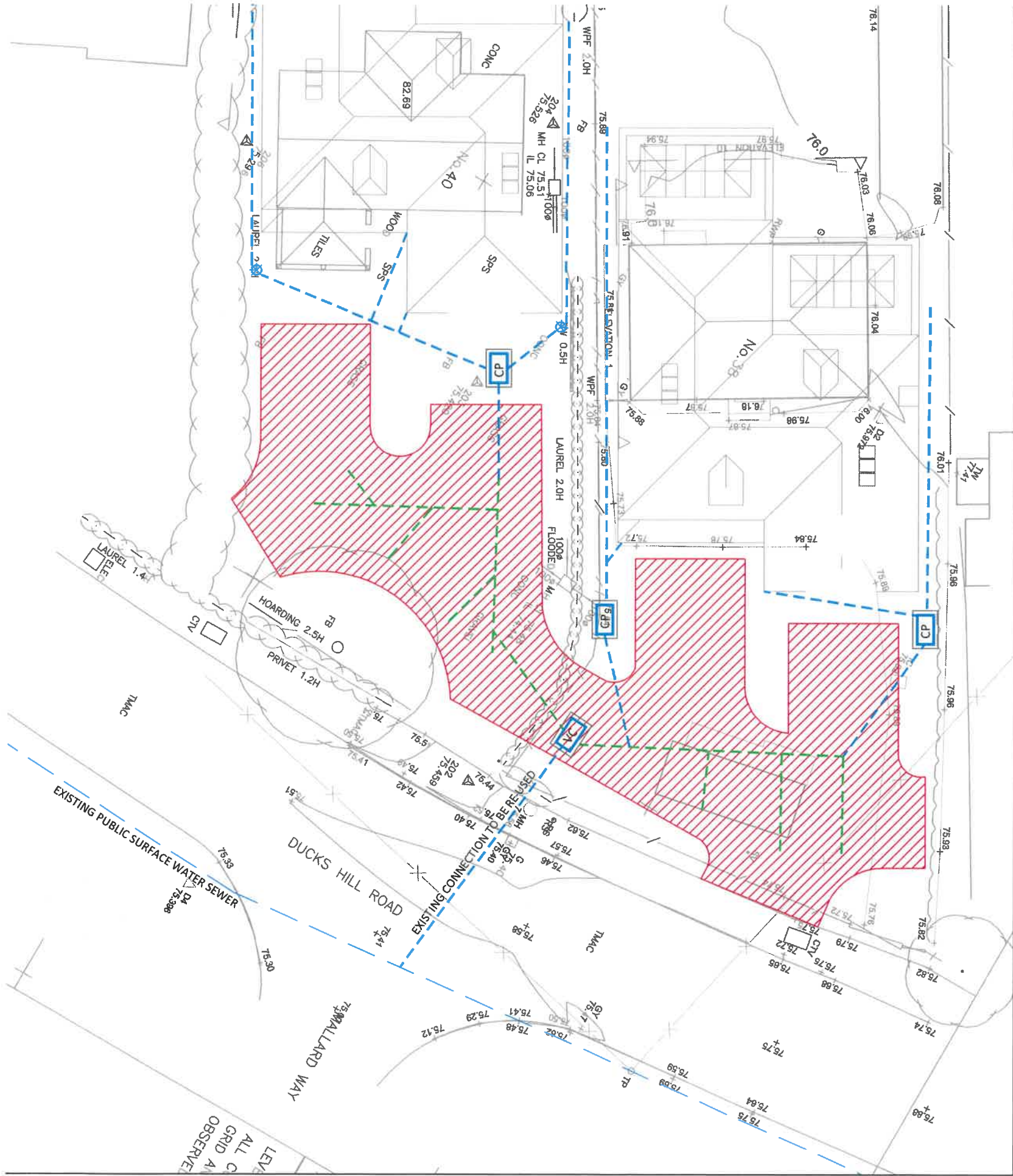
No.	DIAMETER	SPREAD	HEIGHT	SPECIES
1	0.1	4	4	FIR
2	0.3 2B	4	6	LABURNUM
3	0.4	4	8	HOLLY
4	0.5	10	12	H/CHESTNUT
5	0.1	3	10	S/BIRCH
6	0.2	4	10	UNKNOWN
7	0.3	4	12	ASH
8	0.2	4	12	SYCAMORE
9	0.2	6	14	UNKNOWN
10	0.5	8	10	CHERRY
11	0.8	10	14	SYCAMORE
12	0.4	5	6	CHERRY
13	0.15	4	8	HOLLY
14	0.15	4	6	SYCAMORE
15	0.2	6	12	S/BIRCH
16	0.25	6	14	SYCAMORE
17	0.2	4	6	PINE
18	0.2	4	5	HOLLY
19	0.5	10	15	UNKNOWN
20	0.3	4	10	SYCAMORE
21	0.4	14	14	SYCAMORE
22	0.4	14	14	SYCAMORE
23	0.4	14	14	SYCAMORE
24	0.5	12	12	ASH
25	0.5	14	14	UNKNOWN
26	0.7	10	15	SYCAMORE
27	0.3	8	12	ASH
28	0.7	14	14	UNKNOWN
29	0.1	4	7	UNKNOWN
30	0.1	4	7	UNKNOWN
31	0.1	4	8	CHERRY
32	0.4	8	12	BEECH
33	0.2	4	8	UNKNOWN
34	0.6	0	3	DEAD
35	0.4	0	3	DEAD
36	0.1	2	6	HAWTHORN
37	0.1	2	6	UNKNOWN
38	0.2 2B	6	12	BIRCH

Revisions	Date
Date	OCT 2015
Drawn	TPA
Scale	A1@ 1:200
Checked	CYP
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Job No.	915440
Client	
OVERBRIDGE TRADES LTD.	
Dwg. Title	
LAND SURVEY	
Project Title	
40 DUCKS HILL ROAD, NORTHWOOD, HA6 2SB	

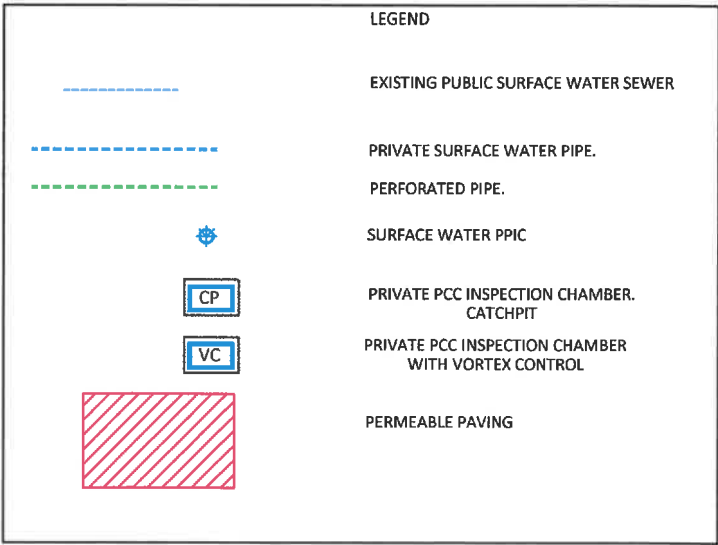
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APPENDIX B

DRANAGE STRATEGY WINDES CALCLATIONS THAMES WATER'S ASSET PLANS



- NOTES**
1. Invert levels and positions of existing drains / channels / sewers where new connections are to be made must be checked and confirmed to the engineer prior to the commencement of any work.
 2. All drainage works shall be carried out in accordance with the requirements of the Local Authority, the Environment Agency and in conjunction with all relevant British Standards, Codes of Practice and Sewers for Adoption 6th Edition and any addendums as appropriate.
 3. All drainage shall comply with the typical details and the requirements of BS EN 752 and Part H of the Building Regulations.
 4. Any part of the existing drainage system to be retained as part of the new scheme shall be cleaned and inspected. Any structural defects shall be repaired using appropriate and approved means.
 5. Refer to manhole schedules or drawings for manhole types, sizes, depths and specific requirements.
 6. For setting-out dimensions of SWP's, RW's etc, refer to Architect's or Mechanical Engineer's drawings. Positions shown are indicative and subject to final design.
 7. All foul connections shall be 100mm diameter unless otherwise specified.
 8. All surface water drainage shall be 150mm diameter unless otherwise stated.
 9. All precast concrete units used in the drainage works shall be manufactured using sulphate resisting cement.
 10. Manhole covers and frames shall be BS EN 124 and shall be aluminium. Covers and frames shall be heavy duty D400 in carriageways and vehicular areas and medium duty S125 in footways and soft landscaping. In blocked/concrete paved areas covers shall be recessed flush with level.
 11. Refer to structural drawings for details of manholes and sewers constructed within floor slabs and foundations.
 12. Cover levels are to be adjusted locally to suit finished ground levels.
 13. At least one soil pipe at the head of each foul run shall vent to the atmosphere.
 14. HEALTH AND SAFETY: The works shall be carried out by specialist competent and experienced contractors who are members of a recognised national organisation.
 15. Operators shall have received full and appropriate training for the operations they are to undertake. All work shall be carried out in accordance with all pertinent Health and Safety Regulations.
 16. Existing drainage to be removed is to be broken out to bed level and void backfilled with granular material, compacted in layers not exceeding 250mm.
 17. All manholes / inspection chambers in block paved areas, to have recessed covers. MH covers in paved areas to have cover & frame orientated 'square' with paving to minimise cut slips or blocks.
 18. All drain runs from SWP's, stub stacks or for gullies to be laid at 1:60 gradient unless otherwise stated.
 19. Access panels are to be provided to all reinserter pipes, a max. 600 above finished ground level.
 20. All manholes / inspection chambers in block paved areas, to have recessed covers. MH covers in paved areas to have cover & frame orientated 'square' with paving to minimise cut slips or blocks.
 21. All gradients at drainage runs are indicative, runs to be laid invert to invert.
 22. Generally pipes to have granular bed & surround in accordance with manufacturers recommendations, ensuring adequate protection with respect to depth and location.
 23. All private drainage to be laid to levels shown using bedding, jointed pipes, either uPVC to BS 4566 and BS 5483 or vitrified clayware to BS EN 285.
 24. Depth and location of existing services to be traced prior to any excavation.
 25. All abandoned, buried obstructions encountered during the construction of Highway & Drainage Works are to be broken out to bed level of drains and sewers, and to the formation of car parks and drives etc., and to sufficient depth to allow for laying service company's mains and services.
 26. Buried concrete to satisfy the requirements of BRE Special Digest 1 = AC 1 & Site Investigation Report.
 27. Rodding eyes, etc are to be laid to manufacturers minimum cover and depth to allow adequate fall from adjoining unit.
 28. Groundworker to ensure proposed finished ground profile is formed by evenly grading between the spot levels shown.



KEY OF SYMBOLS

- RISK OF FALLING
- RISK OF COLLAPSE
- LIFTING HAZARD
- OBSTACLE CONSIDERATION ACCESS TO ELEMENTS AT HIGH LEVEL
- CAUTION STEEP ROOF PITCH - ACCESS BY SUITABLY QUALIFIED PERSONS/EQUIPMENT ONLY

NOTES
1) GENERAL

- A)
B)

CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015
DESIGNERS HAZARD INFORMATION FOR CONSTRUCTION

1. SERVICES TO BE LOCATED
2. MANUAL LIFTING
3. HOT MATERIAL WORKING
4. CUTTING/DUST
5. CONCRETE, HANDING, LIFTING, PLACEMENT
6. DEEP EXCAVATIONS, COLLAPSE/FALLING
7. SERVICE VOIDS/RISERS, FALLING

Rev	Date	Revision	By	Chk
A	20.09.20	INITIAL ISSUE	X	X

Project **38-40 DUCKS HILL**

Drawing Title
SURFACE WATER DRAINAGE STRATEGY

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SCALE	NTS	DRAWN	AJB	A1
DATE	JAN 19	CHECK	Check	

PRELIMINARY

36033/C/100 /

Kingston House

Long Barrow Road

Orbital Park Ashford

Date 25/01/2019 16:23

File porous car park test.srcx

Designed by charlesc

Checked by

Causeway

Source Control 2015.1



Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 32 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	9.810	0.310	0.0	5.0	5.0	13.7	Flood Risk
30 min Summer	9.839	0.339	0.0	5.0	5.0	15.8	Flood Risk
60 min Summer	9.839	0.339	0.0	5.0	5.0	15.8	Flood Risk
120 min Summer	9.814	0.314	0.0	5.0	5.0	14.0	Flood Risk
180 min Summer	9.781	0.281	0.0	5.0	5.0	11.6	Flood Risk
240 min Summer	9.748	0.248	0.0	5.0	5.0	9.3	Flood Risk
360 min Summer	9.687	0.187	0.0	5.0	5.0	5.2	O K
480 min Summer	9.628	0.128	0.0	5.0	5.0	2.5	O K
600 min Summer	9.571	0.071	0.0	5.0	5.0	0.8	O K
15 min Winter	9.840	0.340	0.0	5.0	5.0	15.9	Flood Risk
30 min Winter	9.879	0.379	0.0	5.0	5.0	18.8	Flood Risk
60 min Winter	9.878	0.378	0.0	5.0	5.0	18.7	Flood Risk
120 min Winter	9.838	0.338	0.0	5.0	5.0	15.8	Flood Risk
180 min Winter	9.786	0.286	0.0	5.0	5.0	12.0	Flood Risk
240 min Winter	9.736	0.236	0.0	5.0	5.0	8.4	Flood Risk
360 min Winter	9.634	0.134	0.0	5.0	5.0	2.7	O K
480 min Winter	9.500	0.000	0.0	5.0	5.0	0.0	O K
600 min Winter	9.500	0.000	0.0	4.2	4.2	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	138.153	0.0	17.7	16
30 min Summer	90.705	0.0	23.5	29
60 min Summer	56.713	0.0	30.1	46
120 min Summer	34.246	0.0	36.0	80
180 min Summer	25.149	0.0	39.9	114
240 min Summer	20.078	0.0	42.5	146
360 min Summer	14.585	0.0	46.7	206
480 min Summer	11.622	0.0	49.3	262
600 min Summer	9.738	0.0	51.9	314
15 min Winter	138.153	0.0	19.9	17
30 min Winter	90.705	0.0	26.6	30
60 min Winter	56.713	0.0	33.5	50
120 min Winter	34.246	0.0	40.9	88
180 min Winter	25.149	0.0	45.0	122
240 min Winter	20.078	0.0	48.0	154
360 min Winter	14.585	0.0	52.2	212
480 min Winter	11.622	0.0	55.6	0
600 min Winter	9.738	0.0	58.2	0

Kingston House

Long Barrow Road

Orbital Park Ashford

Date 25/01/2019 16:23

File porous car park test.srcx

Designed by charlesc

Checked by

Causeway

Source Control 2015.1



Model Details

Storage is Online Cover Level (m) 10.000

Porous Car Park Structure

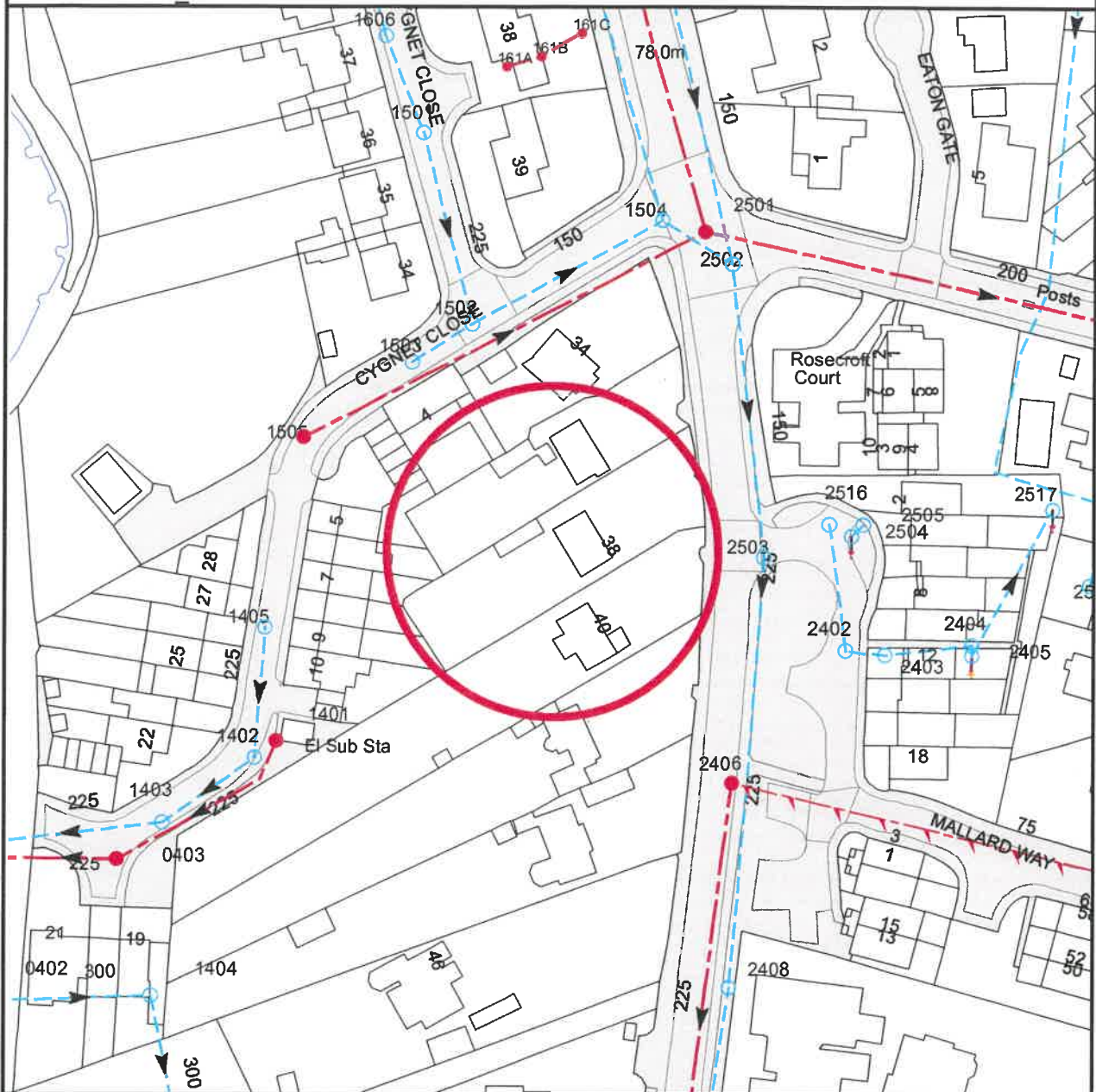
Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0
Membrane Percolation (mm/hr)	1000	Length (m)	24.3
Max Percolation (l/s)	67.5	Slope (1:X)	100.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	9.500	Cap Volume Depth (m)	0.000

Depth/Flow Relationship Outflow Control

Invert Level (m) 0.000

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.000	5.0000	2.000	5.0000

**Residential CON29DW Drainage & Water Search Sewer Map-DWS/DWS
Standard/2014 2927065**



The width of the displayed area is 200m

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

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