Project:	AEG0786_TW11_Teddington_07 A		
Author:	OH	Checked by: JA/NDD	
Revision:	Draft	Date:	13 November 2024

Surface Water Drainage Strategy Addendum

Aegaea have been commissioned to produce an addendum to the existing Surface Water Drainage Strategy completed in Nov 2022 (ref: AEG0786_TW11_Teddington_07). The addendum has been produced in response to comments received from the LLFA (London Borough of Richmond) dated August 2024 (ref: 24/P0163/PREAPP).

For context, the site of the proposed development is 24a Manor Road, Teddington, TW11 8AB. The new proposals are for the construction of a carport and reduce the undercroft parking from two cars to one for the new house granted planning permission under ref.17/0788 and amended under ref. 23/2839/VRC.

Existing Drainage Infrastructure

As part of the previously approved development a rainwater harvesting system (RainSava GRP 'submarine' tank) was installed, providing attenuation and water reuse for the dwelling.

It is recommended that the existing drainage infrastructure associated with the existing dwelling remain unchanged, with a new connection from the proposed car port into the private drainage network.

InfoDrainage Modelling Criteria

InfoDrainage Software (v2025.2.3) was used to calculate the indicative attenuation volumes from the development proposals area, the criteria shown in Table 1.

The proposed car port totals 17.5m^2. InfoDrainage Software only calculates areas in Hectares to three decimal places, therefore a total of 0.002Ha was included within the calculations. No urban creep allowance was factored into the calculations due to the nature of the development. It should be noted that the car port area is considered to be 100% impermeable surfacing and assumed to drain into the adjacent drain/gulley.

Table 1: Input Parameters

Catchment Area Simulation Parameters	
Rainfall Data	FSR
M5-60	20.0mm
Total Area	0.002 ha
Ratio R	0.406
Return Periods	1, 30, 30+35% for climate change, 100, 100 +40% for Climate Change. Summer and Winter
Storm Durations	15, 30, 60, 120, 240, 360, 480, 960, 1440 minute
Volumetric Runoff Coefficient	0.900 (summer and winter storms)
Percentage Impervious	100%
Time of Concentration	5 minutes

The addendum and calculations only focus on the proposed new car port area. All drainage infrastructure associated with the existing dwelling should remain as per previously approved scheme.

The Environment Agency Peak Rainfall Climate Change Allowance guidance was reviewed and subsequently the Defra Peak Rainfall Allowances Map was assessed to determine appropriate climate change allowances to inform the surface water drainage strategy. The upper end allowances for the London Management Catchment have been used for both the 1% and 3.3% annual exceedance probability events for the 2070s epoch (40% and 35% respectively for the 1% and 3.3% events).

Surface Water Drainage Strategy

There are a number of limiting factors when assessing which potential SuDS options are appropriate to incorporate into the development. The primary factor for this site would be space limitations and size of the development.

In accordance with the SuDS management train approach, the use of various SuDS measures to reduce and control surface water flows have been considered in detail for the development. The management of surface water has been considered in respect to the SuDS hierarchy in **Error! Not a valid bookmark self-reference.** below, as detailed in the London Plan.

Table 2: SuDS Drainage Hierarchy

SUDS DRAINAGE HIERARCHY				
			Suitability	**Comment**
	1.	**Store rainwater for later use**	✓	There is currently a RainSava GRP 'submarine' tank associated with the existing dwelling on site.
	2.	**Use infiltration techniques, such as porous surfaces in non-clay areas**	x	No infiltration testing has been carried out at the time of writing. Given the mapped underlying geology at the site and the limited space for soakaways, infiltration has been discounted as the primary method of surface water management.
	3.	**Attenuate rainwater in ponds or open water features for gradual release**	x	No space on site for above ground SuDS.
	4.	**Attenuate rainwater by storing in tanks or sealed water features for gradual release**	✓	Existing rainwater harvesting tank can be reused to accommodate the new car port
	5.	**Discharge rainwater direct to a watercourse**	x	No watercourses within feasible distance of the site.
	6.	**Discharge rainwater to a surface water sewer/drain**	✓	Reuse the existing drainage infrastructure associated with the existing dwelling.
	7.	**Discharge rainwater to Combined Sewer**	x	Public sewers in area are separate surface water and foul, not combined.

The proposed outline surface water drainage layout for the proposed development can be found in Appendix B of this report. It is proposed to attenuate runoff as per the existing drainage infrastructure associated with the existing dwelling. All existing drainage associated with the dwelling will remain as existing, including the limiting flow control device of 1l/s into the Thames Water public sewer.

InfoDrainage Results

The full calculation outputs can be found in Appendix C of this report.

A simplified model has been produced in InfoDrainage software (v 2025.3.2) whereby inflow catchments representing the proposed car port area is applied as an inflow throughout the network.

Results indicate that in order to limit runoff to 1l/s within the existing network a total of 0.164m^3 of additional attenuation would be required. This volume is considered negligible and can be accommodated within the private drainage infrastructure.

Surface Water Drainage Arrangement

Runoff should be captured from the proposed car port roof area via a series of downpipes to a new private drain running underneath the access road to connect into the private drainage infrastructure.

The proposed connection point into the is the existing manhole (M4), located to the western side of the property.

Runoff will be attenuated (and reused within the property) within the RainSava GRP 'submarine' tank. Any excess flows will be discharged into the downstream Thames Water public sewer (as per the existing scenario).

Maintenance

Maintenance of the surface water drainage infrastructure within the bounds of the site curtilage should be the responsibility of the site owner or maintenance company appointed by the owner. Specifically, in relation to the proposed development at 24a Manor Road, responsibility over the proposed drainage strategy features should be organised by the owner of the property.

Visual Inspection/Sweep

This should include a systematic review of the drainage infrastructure. Each element should be inspected to determine if remedial actions are needed. Where access chambers are provided, these should be used to access below ground infrastructure:

- Rodding eyes / inspection chambers are provided at both ends of all perforated pipes; these should be used to determine the level of silt within the system.

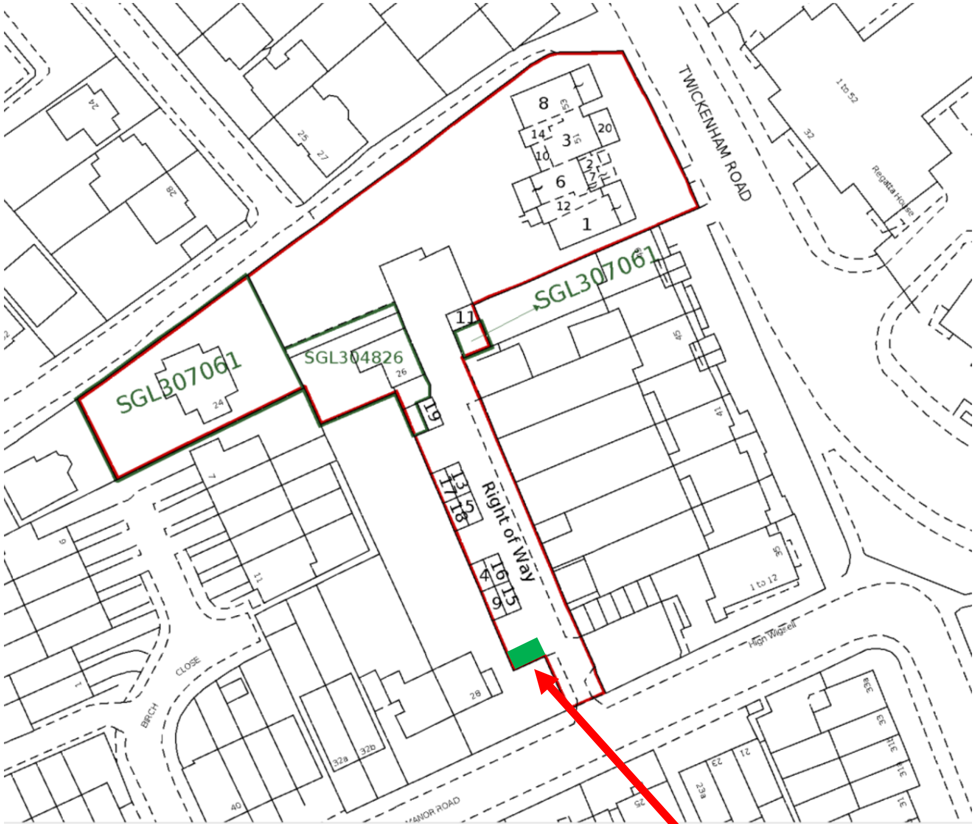
- Non-man entry inspection chambers are provided for the geo-cellular structure.
- Permeable paving should be inspected for vegetation / defects (rocking blocks), it should be swept clear of debris.

Surface Water Management During Construction

The surface water runoff generated during construction has the potential to have higher concentration of oils and sediments from heavy machinery and earthworks respectively. As such, it is necessary to devise appropriate surface water management plans tailored to specific construction activities and receptors of runoff. Specific considerations are:

- Provision of appropriate bunding/containment for potentially hazardous materials or chemicals.
- Re-fuelling of plant and equipment to take place only within designated areas, with suitable pollution containment.
- Good housekeeping on site to prevent accidental spillages, and spill kits to be provided as appropriate.
- Vehicle wash down areas / wheel cleaning to be located in areas with appropriate pollution control measures.
- If water/spray dust suppression is needed, the run-off should be directed to a temporary containment area and should not be allowed to discharge to the public sewer / infiltration devices.
- The installed surface water drainage network should be routinely inspected during construction, especially the infiltration devices; and,
- Suitable protection measures should be in place during construction to protect the watercourse and groundwater resources.

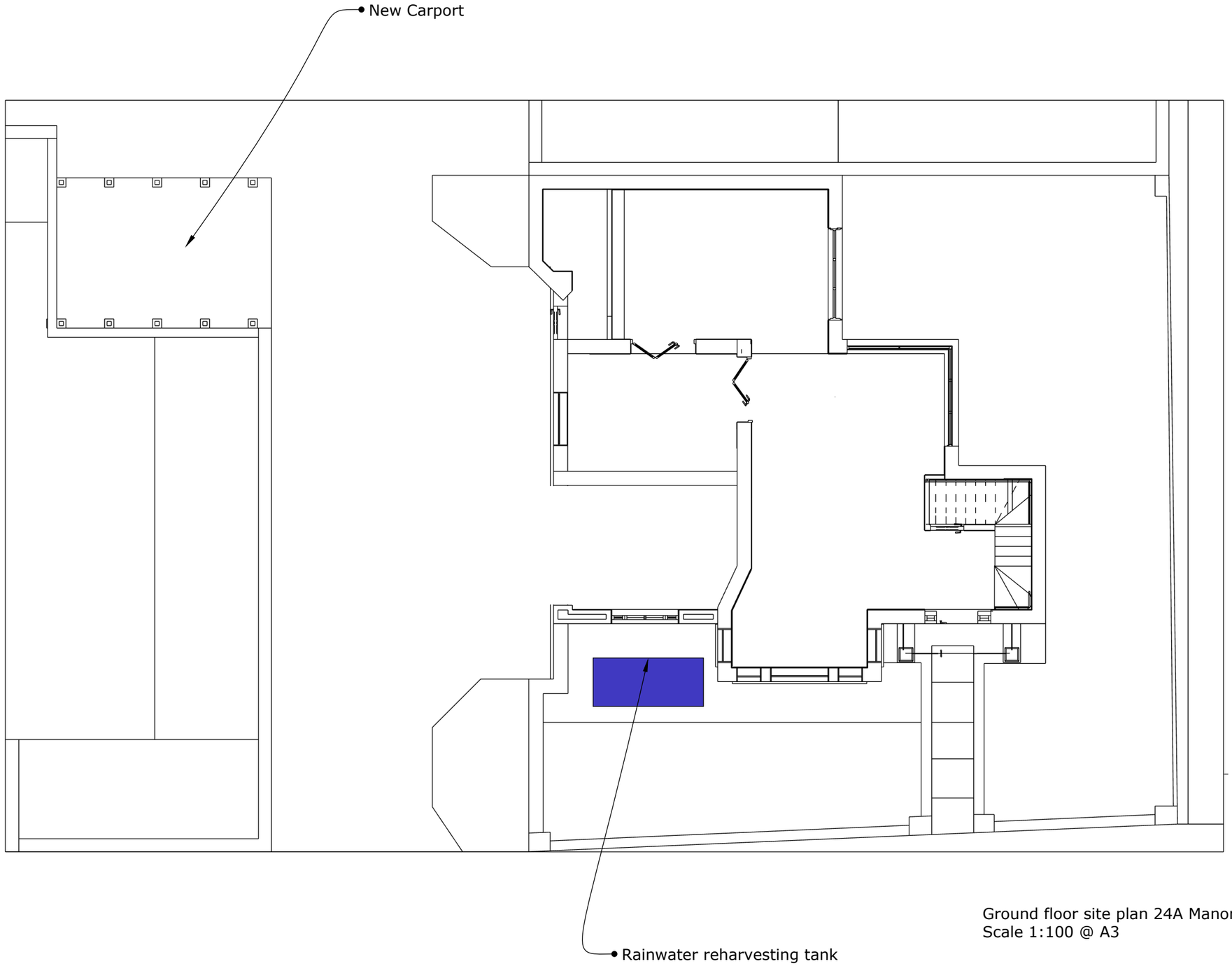
Appendix A - Car Port Plans


SGL307061
SGL304826
SGL307061
Right of Way
TWICKENHAM ROAD


5m


3.5m


3.5m



Ground floor site plan 24A Manor Road TW11 8AB
Scale 1:100 @ A3

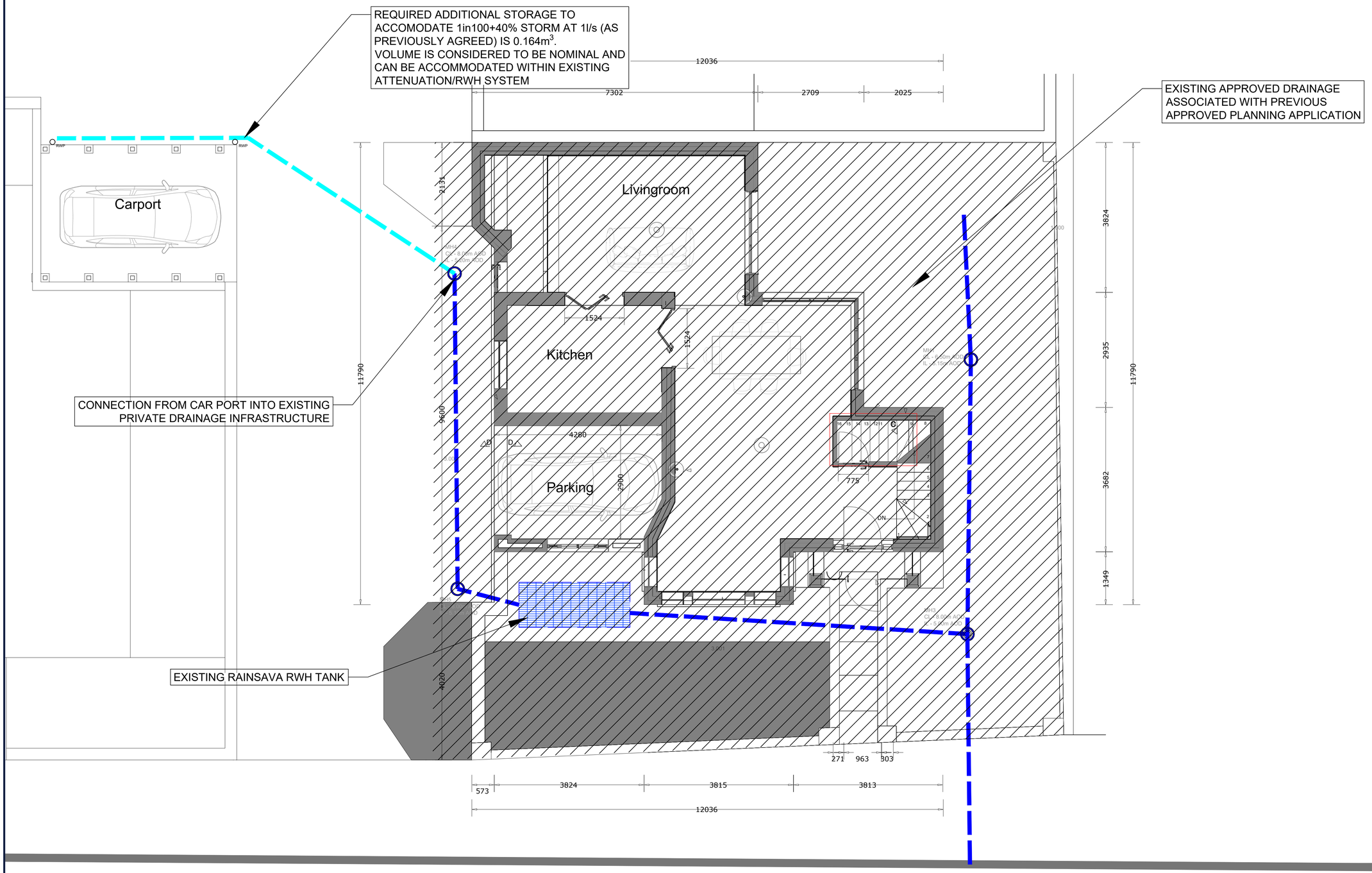
Appendix B - Surface Water Drainage Strategy Layout

REQUIRED ADDITIONAL STORAGE TO ACCOMODATE 1in100+40% STORM AT 1l/s (AS PREVIOUSLY AGREED) IS 0.164m^3.
VOLUME IS CONSIDERED TO BE NOMINAL AND CAN BE ACCOMMODATED WITHIN EXISTING ATTENUATION/RWH SYSTEM

EXISTING APPROVED DRAINAGE ASSOCIATED WITH PREVIOUS APPROVED PLANNING APPLICATION

CONNECTION FROM CAR PORT INTO EXISTING PRIVATE DRAINAGE INFRASTRUCTURE

EXISTING RAINSAVA RWH TANK



NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT REPORTS, PLANS AND ARCHITECTURAL DRAWINGS
2. THIS DRAWING SHOULD NOT BE SCALED. THERE SHOULD BE NO RELIANCE ON THIS DRAWING WITH REGARDS TO DIMENSIONS. ALL DIMENSIONS SHOULD BE CONFIRMED ON SITE.
3. ANY DISCREPANCY ON THIS DRAWING SHOULD BE REPORTED TO AEGAEA IMMEDIATELY FOR CLARIFICATION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORKS AND FOR THE STABILITY, INSTALLATION AND HEALTH AND SAFETY OF THE WORKS.
5. AEGAEA HAVE PRODUCED THIS DRAWING BASED ON THE DRAWINGS AND INFORMATION PROVIDED BY THE CLIENT AVAILABLE AT THE TIME OF PRODUCTION. WE CANNOT ACCEPT RESPONSIBILITY FOR DISCREPANCIES RESULTING FROM NEW PLANS/ INFORMATION BEING ISSUED POST-ISSUE OF THIS DRAWING. THE CONTRACTOR SHOULD REVIEW THIS DRAWING IN LIGHT OF WIDER SITE INFORMATION SUCH AS CONTAMINATION, UTILITIES SURVEYS AND SITE INVESTIGATIONS
6. IT IS THE RESPONSIBILITY OF THE PRINCIPLE CONTRACTOR TO MAKE THE DESIGNER AND CLIENT AWARE OF SITE-SPECIFIC RISKS AND HAZARDS THAT MAY AFFECT THE DRAWING AND SPECIFICATION

LEGEND

- PUBLIC SURFACE WATER SEWER
- RWP — RAINWATER PIPE
- EXISTING PRIVATE SW DRAIN
- HYDROBRAKE MANHOLE
- SURFACE WATER MANHOLE
- PROPOSED SURFACE WATER DRAIN
- ATTENUATION
- EXISTING DWELLING CATCHMENT
- CATCHMENT AREA

CLIENT: FOSTER KENNY DEVELOPMENTS LTD

SITE: 21A MANOR ROAD, TEDDINGTON, TW11 8AH

DRAWING: SURFACE WATER DRAINAGE STRATEGY

DRAWING NUMBER: AEG0786-DR01

DATE: 11/11/2024 | **REV: A**

DRAWN BY: OH

DRAWING SCALE: SEE DRAWING FOR SCALE BAR

PRELIMINARY DRAWING FOR PLANNING ONLY - NOT FOR CONSTRUCTION

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Appendix C - InfoDrainage Calculations

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by:	Checked by:	Approved By:
	OH	OM	NDD
Report Details: Type: Inflows Storm Phase: Phase	Company Address: Aegaea		

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Car Port

Type : Catchment Area

Area (ha)	0.002

Dynamic Sizing

Runoff Method	Time of Concentration
Summer Volumetric Runoff	0.900
Winter Volumetric Runoff	0.900
Time of Concentration (mins)	5
Percentage Impervious (%)	100

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by:	Checked by:	Approved By:
	OH	OM	NDD
Report Details: Type: Stormwater Controls Storm Phase: Phase	Company Address: Aegaea		

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Cellular Storage

Type : Cellular Storage

Dimensions

Exceedance Level (m)	8.000
Depth (m)	0.400
Base Level (m)	7.000
Number of Crates Long	3
Number of Crates Wide	1
Number of Crates High	1
Porosity (%)	100
Crate Length (m)	0.4
Crate Width (m)	0.4
Crate Height (m)	0.4
Total Volume (m³)	0.792

Inlets

Inlet

Inlet Type	Point Inflow
Incoming Item(s)	Car Port
Bypass Destination	(None)
Capacity Type	No Restriction

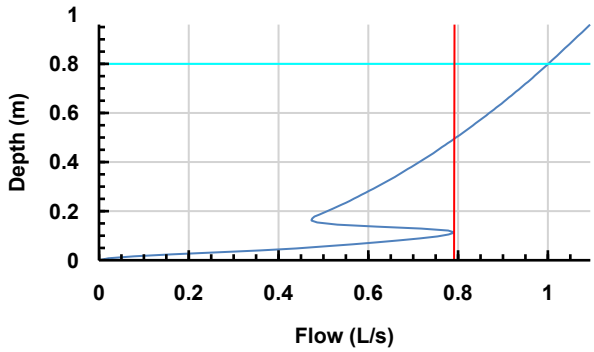
Outlets

Outlet

Outgoing Connection	Pipe
Outlet Type	Hydro-Brake®

Invert Level (m)	7.000
Design Depth (m)	0.800
Design Flow (L/s)	1.0
Objective	Minimise Upstream Storage Requirements
Application	Surface Water Only
Sump Available	☐

Unit Reference	CHE-0048-1000-0800-1000



Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by: OH	Checked by: OM	Approved By: NDD
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address: Aegaea		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
MH4	8.000 5.200	Diameter / Length: 0.450	{1} Pipe	Pipe	5.200	Diam/Width:100	Manhole
E:395.065 N:285.303	2.800						Not Applicable

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by:	Checked by:	Approved By:
	OH	OM	NDD
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address: Aegaea		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Car Port	Cellular Storage		Time of Concentration	0.002	100	10	110	0.002
TOTAL		**0.0**		**0.002**				**0.002**

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port		Designed by:	Checked by:	Approved By:
		OH	OM	NDD
Report Title:	Company Address:		
Rainfall Analysis Criteria	Aegaea		

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Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Shortest
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	10
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by: OH	Checked by: OM	Approved By: NDD
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FSR: 1 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Cellular Storage	FSR: 1 years: +0 %: 15 mins: Summer	7.040	7.040	0.040	0.040	0.3	0.019	0.000	0.3	0.000	0.134	97.603	OK

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by:	Checked by:	Approved By:
	OH	OM	NDD
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FSR: 30 years: Increase Rainfall (%): +0: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Cellular Storage	FSR: 30 years: +0 %: 15 mins: Summer	7.083	7.083	0.083	0.083	0.8	0.040	0.000	0.6	0.000	0.329	94.958	OK

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by: OH	Checked by: OM	Approved By: NDD
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FSR: 30 years: Increase Rainfall (%): +35: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Cellular Storage	FSR: 30 years: +35 %: 15 mins: Summer	7.162	7.162	0.162	0.162	1.0	0.078	0.000	0.8	0.000	0.443	90.132	OK

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by: OH	Checked by: OM	Approved By: NDD
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

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

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Cellular Storage	FSR: 100 years: +0 %: 15 mins: Summer	7.112	7.112	0.112	0.112	1.0	0.054	0.000	0.8	0.000	0.425	93.229	OK

Project:	Date:		
AEG0786_TW11_Teddington_07 A 24A Manor Road, Teddington TW11 8AB Proposed Network - Car Port	11/11/2024		
	Designed by: OH	Checked by: OM	Approved By: NDD
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address: Aegaea		

FSR: 100 years: Increase Rainfall (%): +40: Critical Storm Per Item: Rank By: Max. Resident Volume

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Lost Volume (m³)	Total Discharge Volume (m³)	Percentage Available (%)	Status
Cellular Storage	FSR: 100 years: +40 %: 15 mins: Summer	7.342	7.342	0.342	0.342	1.4	0.164	0.000	0.7	0.000	0.596	79.230	OK

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