Rainwater Harvesting Management and Maintenance Plan

Truelove Fields
Marches Road
Kingsfold
West Sussex

On Behalf of
Mr and Mrs Cooper

Prepared by
Charlotte Catton-Giltinane AssocRTPI
c.catton-giltinane@batchellermonkhouse.com
01798 877555

March 2025

CONTENTS

1 BACKGROUND 3

2 PROPOSED WATER USAGE 5

3 RAINWATER HARVESTING SYSTEM..... 7

1 BACKGROUND

1.1 Planning permission was granted via planning application reference DC/24/1179 on the 19th December 2024 and relates to the erection of a stable building, sand school and change of use of land for private equine use.

1.2 Condition 3 noted on the decision notice of DC/24/1179 states:

Pre-Commencement (Slab Level) Condition: No development above ground floor slab level shall commence until a management and maintenance plan for the rainwater harvesting system has been submitted to and approved in writing by the Local Planning Authority. The management and maintenance plan shall include the following details:

- The sampling regime and parameters etc, recognising that the sampling will need to be undertaken a DWI certified sampler and analysed by a UKAS accredited lab.
- Detail on how any failure of any samples will be investigated and managed.
- Details, including a plan or schematic, showing the supply - storage tanks, treatment etc, and means to record the total water consumption of each unit
- Detail on what type of treatment that will be installed on the supply with information clearly indicating that it is appropriate for the amount of water being used.
- Detail on how the treatment system, pipework, tanks etc will be cleaned and maintained and who will maintain them for the lifetime of the development. This should include any re-activation of the system after it has been out of use due to lack of rainfall/use.
- The completion and sharing of the Regulation 6 risk assessment by a suitably competent person (as required by the Private Water Supply (England) Regulations 2016) prior to the water supply being put into use.
- Detail on the continuity of supply during dry periods extending beyond 35 days.
- Arrangements for keeping written records of all sampling, results of analysis, inspection, cleaning, and maintenance.
- Details of contingency plans to ensure any failure's or reported concerns with the supply are investigated and rectified as soon as possible, including

timeframes. This should include notification of the investigation and corrective actions to the local authority.

The management and maintenance plan shall be operated in full at all times. No alterations or revisions to the approved management plan shall be implemented without the written approval of the Local Planning Authority.

Reason: To ensure the development is water neutral to avoid an adverse impact on the Arun Valley SACSPA and Ramsar sites in accordance with Policy 31 of the Horsham District Planning Framework (2015), Paragraphs 185 and 186 of the National Planning Policy Framework (2023), and to allow the Local Planning Authority to discharge its duties under the Conservation of Habitats and Species Regulations 2017 (as amended), and s40 of the NERC Act 2006 (Priority habitats & species).

1.3 This report provides the details of the management and maintenance of the rainwater harvesting system that will be installed to ensure the site is water neutral.

2 PROPOSED WATER USAGE

2.1 Baseline Water Usage

2.1.1 The site comprises an area of pastureland with no existing buildings or water usage being evidenced on site. Rainwater Harvesting is proposed to be installed to meet 100% of the water demand for the site but will not be for human consumption due to the equestrian nature of the development.

2.2 Proposed Water Usage

2.2.1 The proposed development consists of the erection of a stable block, tack room, WC and sand school for private use.

2.2.1 Rainwater harvesting is proposed for the horses drinking water, hygiene care and cleaning of the stables, store and tack room.

2.2.2 Rainwater harvesting is also proposed for use in the WC with foaming antibacterial hand sanitiser being provided for handwashing.

2.2.3 The applicants will be bringing their own drinking water for personal use as there are no facilities available for human consumption and no mains water connection available onsite.

2.2.4 As confirmed in the approved water neutrality report that supports the planning application a worst case scenario of rainwater required per annum is 98,221.50 litres. This is made up of:

WC Flushing

16.05 litres per day x 2 occupancy rate = 32.10 litres per day

32.10 x 365 days = 11,716.50 litres per annum

Horse Drinking Water and Wealthier

39.5 litres x 365 days x 6 horses = 86,505 litres per year

Total Rainwater Requirement

86,505 litres (Horses) + 11,716.50 litres (WC) = 98,221.50 litres per annum

2.2.5 As mentioned previously the water usage on site will not be for human consumption and will rely on 100% rainwater harvesting further details of which can be found within section 3 of this report.

3 RAINWATER HARVESTING SYSTEM

3.1 Rainwater Harvesting Systems

Application Site

3.3.1 The roof area of the application building is 203.5 sqm.

3.3.2 The site is located within the Arun at Alfoldean rainfall catchment area. Data from the UK Centre for Ecology & Hydrology shows that on average 911mm of rain falls per month. Rainfall data is provided below.

	July 2019 - June 2020	July 2020 - June 2021	July 2021 - June 2022	July 2022 - June 2023	July 2023 - June 2024	Average
July	124.26	42.14	93.38	4.14	65.63	65.91
August	51.28	29.7	95.88	38.14	52.117	53.4234
Sept	54.02	58.96	54.42	97.5	48.496	62.6792
Oct	10.74	28.46	61.52	93.82	170.073	72.9226
Nov	123.86	178.6	151.64	218.58	124.902	159.5164
Dec	116.32	63.88	43.18	107.58	123.841	90.9602
Jan	143.68	128.84	82.4	101.733	84.465	108.2236
Feb	80.5	103.22	30.875	6.239	139.722	72.1112
March	142.18	50.22	59.08	130.666	97.902	96.0096
April	55.02	33.42	41.129	88.584	84.493	60.5292
May	44.48	5.22	20.036	42.827		28.14075
June	5.32	91.78	40.525	26.251		40.969
TOTALS	**951.66**	**814.44**	**774.065**	**956.06**	**991.641**	**911.395**

3.3.3 To calculate how much rainwater can be collected by a harvesting system per year the rainfall (mm) is multiplied by the roof surface area (sqm) as follows:

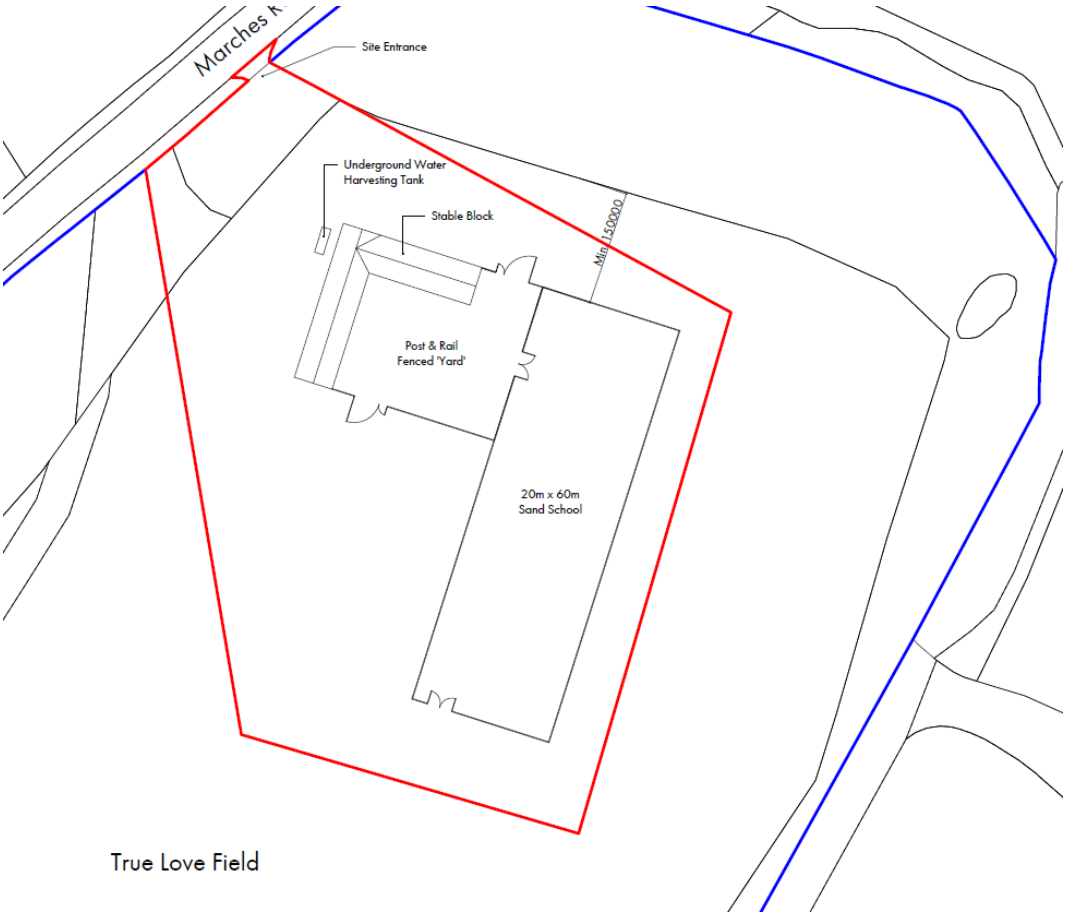
911mm x 203.5sqm = 185,388.50 litres per annum

3.3.4 To account for a coefficient yield rate of 1% for rainwater that could be lost during collection would bring this figure down to **183,534.62 litres per year.**

3.3.5 98,221.50 litres of rainwater is required to be captured per annum to serve the WC and for the drinking water for the horses and upkeep of the stable yard which is considerably less than what the roof is capable of capturing.

3.3.6 9,418.50 litres of rainwater would be required to cover a 35 day drought period but to err of the side of caution a 10,000 litre tank will be installed. This will be underground as shown on the site location plan within figure 3.1.

Figure 3.1 – Approved Site Plan

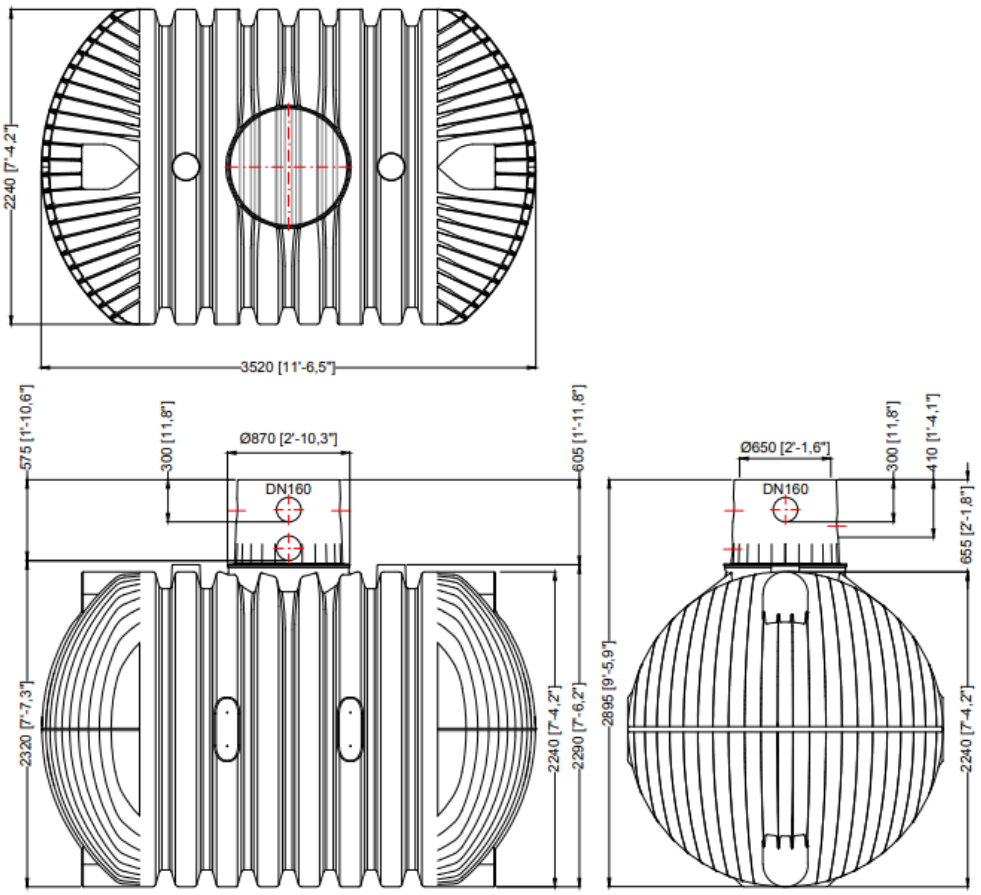


3.2 Rainwater Harvest Tank

3.2.1 The rainwater harvesting tank that will be installed is a 10,0000 GRAF CARAT XL, the dimensions of the unit are as follows:

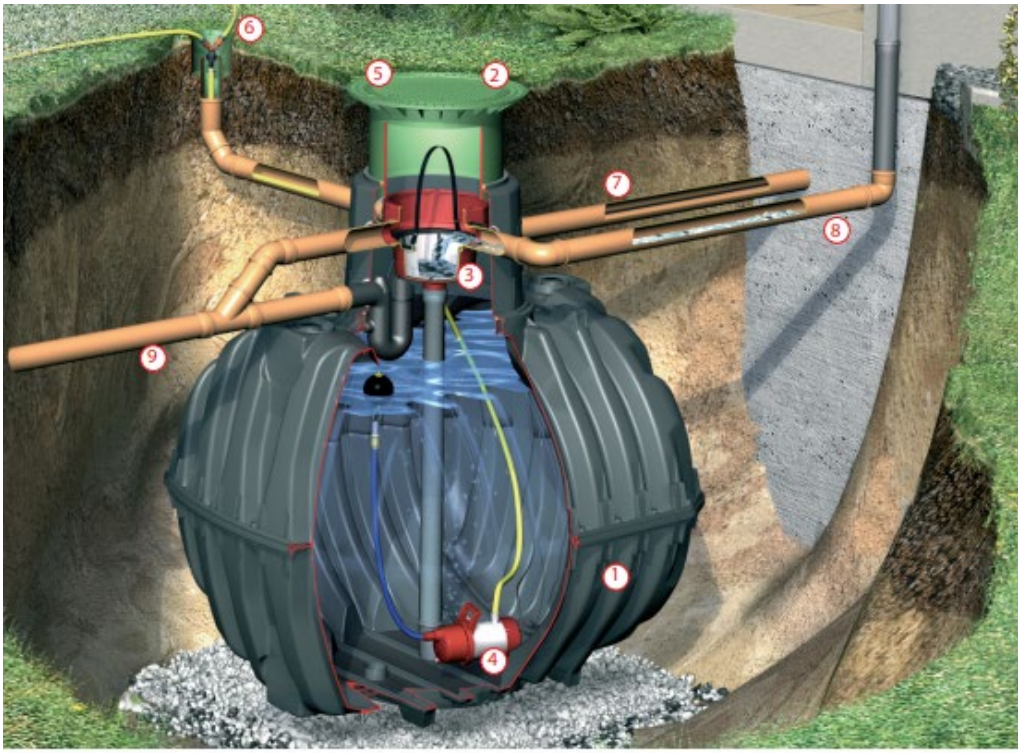
- Length: 3520mm
- Width: 2240mm
- Height: 2895mm
- Weight**:** 455kg

Figure 3.2 – Dimensions of Rainwater Harvesting Tank



3.2.2 Rainwater is collected from the roof of the stables and is fed into the 10000 litre underground tank via the downpipes. The Graf Carat 10000 Litre Package comes as standard with a PE Telescopic dome shaft so that it can be adjusted to meet the ground level. On entry to the underground tank, the water passes through a filter, to prevent any debris going into the tank. There is a pressure sensitive pump located in the underground tank which is removable and can be easily replaced. When a valve or tap is opened, water will be pumped under pressure until the valve is closed, allowing for the system to repressurise turning power off to the pump.

Figure 3.3 – Diagram of Rainwater Harvesting Tank



Scope of supply

① Underground tank (choice of tanks available, sizes vary according to property type)

② Telescopic lid (choice of telescopic lid available, depending on tank location)

③ Filter (Basket filter supplied in accordance with type of tank)

④ Submersible pump with floating water intake

⑤ Internal hose connection box

⑥ External hose connection box

Supplied by others

⑦ 100mm diameter duct pipe to contain; power cable for pump

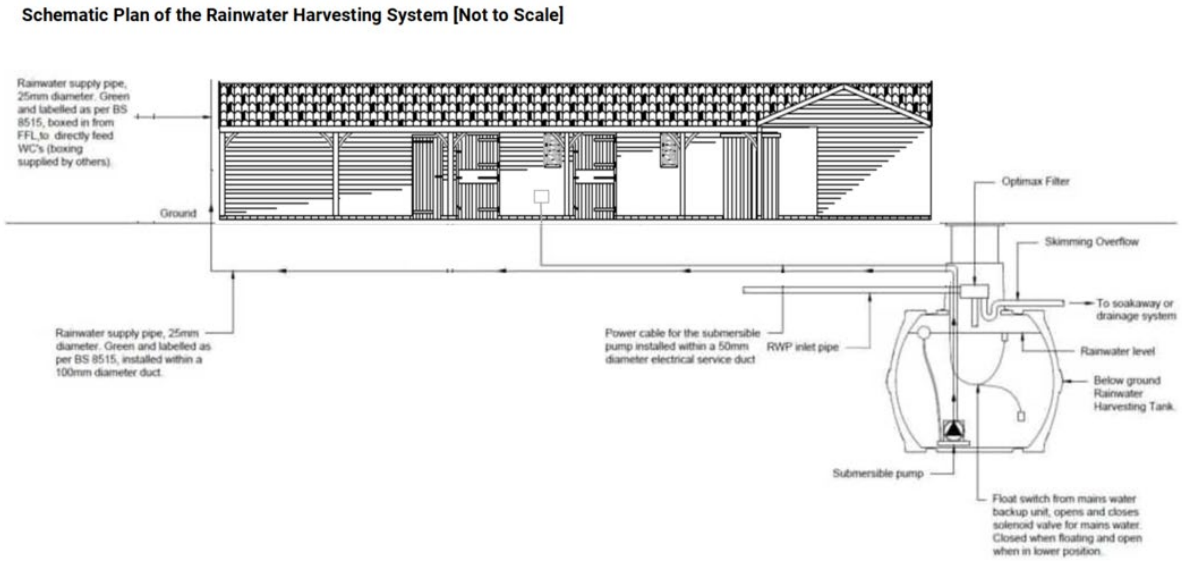
⑧ 100mm diameter drainage pipe connected from downpipes to the inlet at the top of the tank (all downpipes brought into one pipe for connection to the filter)

⑨ 100mm diameter pipe for overflow from the tank to mains drainage network or soakaway

Specification

- 10,000 Litres plastic tank
- Telescopic dome shaft, with PE-lid (for pedestrian loading)
- Optional vehicle loading lid
- Removable Filter with Sieve Mesh Width 0.35mm
- Overflow siphon with integrated rodent guard
- Integra INOX submersible pump
- Internal & external hose connection box
- Floating suction set with fine filter and hose
- 10m pressure hose
- 25m roll of rainwater harvesting pipe (25 mm, with fittings)
- 15 Year Warranty on Tank

Figure 3.3 –Schematic Diagram of Rainwater Harvesting Tank on Application Building



3.3 Filtration Measures for Rainwater

3.3.1 Due to the rainwater being used to serve only the horses drinking water and the flushing of a WC it therefore does not relate to a dwelling nor drinking water and therefore the Regulation 6 of the Private Water Supply (England) 2016 is not a legislative requirement. Regulation 6 of the Private Water Supply (England) 2016 states:

Requirement to carry out a risk assessment

6.*(1) Subject to paragraphs (2) and (3), a local authority must carry out a risk assessment for every private water supply in its area and review and update that risk assessment every 5 years (or earlier if it considers that the existing risk assessment is inadequate).*

(2) In the case of a supply provided to a single dwelling, the duty in paragraph (1) applies only where that supply is provided as part of a commercial or public activity.

(3) In the case of any other supply provided to a single dwelling, a local authority must carry out a risk assessment if requested to do so by the owner or occupier of that dwelling.

3.3.2 As noted above as the proposal does not relate to potable water for human consumption the requirement to complete a Regulation 6 risk assessment by a suitably competent person (as required by the Private Water Supply (England) Regulations 2016) prior to the water supply being put into use is not relevant to the approved application and should be deemed discharged.

3.3.3 A filter is fitted into the tank to remove any debris and particles from entering the system which will be checked and cleaned on a monthly basis by the owners of the site.

3.3.4 Leaf guards on gutters and a water filter will be provided prior to the water reaching the storage tank to ensure no debris will enter the tank. Gutters will be cleaned monthly by the applicants to ensure all debris is removed and that the rainwater capture is at its maximum potential.

3.4 Maintenance of the System

3.4.1 BS EN 16941-1:2018 for onsite non potable water does not require frequent testing to be undertaken but states that observations for water quality should be made during maintenance visits and testing should be carried out where the system is not operating satisfactory.

3.4.4 Monthly maintenance checks and filter/system cleaning will be entered into the service book where all findings will also be recorded. A copy of the logbook can be provided to the council within 14 day notice.

3.5 System Failure

3.5.1 In the unlikely event of the system failing this will be immediately reported to the installer of the rainwater harvesting system so that the issue can be resolved.

3.5.2 The service provide will allow for attendance to address re-activation of the system which would likely mean the system being out of supply for 7 days.

3.5.3 During this time the applicants would seek a supply of water to cover this period from an organisation outside of the Arun Valley catchment area. This approach was accepted by the inspector of an appeal decision at Pear Tree Farm, Henfield reference APP/Z3825/C/23/3318225 whereby the inspector concluded that *"in the unlikely event that this is a disruption to the spring supply. I am convinced that connecting to the mains supply would be an effective solution, given how long it would take for such a supply to be installed and connected. A more likely scenario would be that the occupiers of the pitches would seek a supply of bottled water or water sourced from outside the Arun Valley sites' catchment area."*

3.5.4 The above maintenance plan for the site will be in-situ for the lifetime of the development and we trust it is acceptable to the council in order to discharge Condition 3.