Hurley Palmer Flatt

Drainage Statement Condition 14

Union Park

Bulls Bridge Industrial Estate, Hayes, UB3 4QQ

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APPENDICES

1.0 INTRODUCTION

HDR Hurley Palmer Flatt have been instructed to prepare a Drainage Statement for ARK 2 Estates Ltd to discharge Planning Condition 14 under Planning reference 75111/APP/2021/2378 June 2022 for Land at Bulls Bridge Industrial Estate, North Hyde Gardens in Hayes.

The purpose of this document is to discharge Condition 14 attached to the Committee report which is to be considered by the London Borough of Hillingdon's Major Applications Planning Committee. This report should be read in conjunction with current HDR Flood Risk Assessment HDR-0571-XX-XX-RP-C-91010 March 2022 under this planning consent.

1.1 Lead Local Flood Authority - Condition 14

The London Borough of Hillingdon LLFA department have provided the following Condition 14:

"Prior to commence of development (not including demolition) a detailed surface water drainage scheme shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall detail the specific measures to ensure the run-off from proposed developments meets the targets set out in the approved drainage strategy (Hurley Palmer Flatt, March 2022). The details must demonstrate compliance with the London Plan sustainable drainage hierarchy and detail the use of measures within the fabric of the building (i.e., living roofs) and in the landscaping (i.e., rain gardens) to meet the target run off rates. Recourse to drainage tanks should only be considered where more suitable alternatives (i.e., higher up the drainage hierarchy) are demonstrably unfeasible. The details must also demonstrate how water will be collected, stored, and reused within the development. The development must proceed and be occupied in accordance with the approved scheme."

The following documents aims to address the comments made and thus provides sufficient information to discharge Condition 14.

2.0 LOCAL SEWERS

The Thames Water Sewer records, Appendix A, indicates the Crane Valley sewer, a 2134mm diameter foul sewer trunk main, running through the site from north to south. The sewer is approximately 15m to invert below ground level of the site. There is also a 150mm diameter public foul water sewer running west to east within North Hyde Gardens.

From the topographical survey and record building control information, the existing private network of the site is split into separate foul and surface water networks

The existing surface water collects highways drainage on North Hyde Gardens Road and the car park areas via a traditional gulley system. The surface water network then runs to a final manhole located between the northeast corner of the site to a 600mm diameter sewer. This conveys to a large below ground concrete tank beneath the FM Conway demise which in turn passes through an existing petrol interceptor prior to discharging into the river Crane via an existing headwall.

A full CCTV report was undertaken by Express Solutions Group dated 16th October 2020 for the existing sewers, this is found in Appendix B. Further investigation into the final outfall headwall location and condition was carried out by Eye on Drainage, the survey was undertaken on the 21st of April 2021 and the results are available within Appendix B.

It is worth noting the CCTV surveys were unable to fully survey the below ground tank as it was full of water, however it was confirmed through discussions with the survey companies' water did flow to the headwall via an existing petrol interceptor. It would suggest the tank was likely designed for attenuation storage and/or catch pit to remove silts prior to entering the river Crane.

It is recommended that any blockages or obstructions identified within the surveys should be cleared prior to operation of the development.

In answer to the Local Authority comments the headwall condition appears in good condition and in active use. A photo of the existing headwall condition from the Eye of Drainage survey can be seen in Figure 1 below.

Figure 1 Existing Headwall condition photo

3.0 RUN OFF RATE

With reference to approved FRA, the proposed peak surface water run-off within the areas to be developed is to be restricted to greenfield runoff rate and has been calculated using ICP SuDS. The maximum discharge rate for the developed site has been calculated to be 55.8l/s.

The following Table 1 demonstrates the proposed peak run-off for varying return periods which include the 1:1, 1:30 and 1:100-year return period including 40% allowance for climate change.

The proposed combined discharge from the developed site (which includes Block 1 and 2 with energy centres) will be restricted and not exceed the calculated greenfield run-off rate for all storms up to and including 1:100-year return period with an allowance for 40% climate change.

Table 1: Proposed Site Runoff

Proposed Impermeable Areas	Area (m^2)	Area (ha)	Peak Flows (L/S)		
			1yr	30yr	100yr*
HV Sub Station and VRC1	3730	0.373	2	3.9	4.1
Energy Centre 2 and VRC2 (Abellio Site)	4030	0.403	2.5	4.2	5.2
North Hyde Garden Layby	560	0.056	0.4	1.3	1.6
Main Building and site	21855	2.6645	19.1	38.9	44.9
Total catchment	30175	3.0375	23.8	48.4	55.8

*Includes an allowance for 40% Climate Change

The remainder of the unaltered development will remain as unrestricted discharge. This includes North Hyde Gardens highway and the Addison Lee site. Table 2 below shows the whole site peak discharge into the river Crane via the existing headwall.

Table 2 Total Peak Run-off for Whole Site

Proposed Impermeable Areas	Area (m^2)	Area (ha)	Restricted Flows (L/S)		
			1yr	30yr	100yr*
HV Sub Station, Energy Centre 2 (Abellio Site) and Visitor Reception Centre	7760	0.373	4.5	8.1	9.3
Main Building and site	21855	2.185	19.1	38.9	44.9
North Hyde Garden Layby	560	0.056	0.4	1.3	1.6
Undeveloped North Hyde Gardens	6150	0.615	63.7	155.8	203
Addison Lee	8500	0.850	137.1	305	305
Total catchment	44825	4.482	224.8	509.1	563.8

*Includes an allowance for 40% Climate Change

4.0 SUSTAINABLE DRAINAGE SYSTEMS (SuDS)

With reference to the London Plan 2021 Policy SI 13 Sustainable drainage and London Borough of Hillingdon Sustainable Drainage Design & Evaluation Guide, the development will utilise SuDS systems for the proposed development. These systems will aim to achieve the greenfield run-off rate and ensure that surface water run-off is managed in accordance with the following drainage hierarchy:

1. rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation) rainwater infiltration to ground at or close to source
2. rainwater attenuation in green infrastructure features for gradual release
3. (for example green roofs, rain gardens)
4. rainwater discharge direct to a watercourse (unless not appropriate)
5. controlled rainwater discharge to a surface water sewer or drain
6. controlled rainwater discharge to a combined sewer.

The following Table 3 shows the SuDS techniques that will be used within the drainage strategy for this development and a layout has been provided in Appendix C for the drainage strategy of the site. For further information and details refer to the Flood Risk Assessment.

Table 3 SuDS Techniques

SuDS TECHNIQUE	DESCRIPTION	ADVANTAGES	CONTEXT
Green / Brown Roof	Green roofs are structures purposely fitted or cultivated with vegetation. Green roofs can reduce runoff volume by retention whilst filtering out silt and other particulates through the sub soil formation. They improve water quality and provide an array of pollution control treatments as described within the SuDS Manual. Green roofs also promote an improved ecological value.	Provides an array of treatment. Provides a means of storage for surface water. Promotes wildlife and natural habitats.	As the development provides large areas of low-pitched roofs this would be an effective SuDS technique.
Permeable Paving	Permeable paving allows rainwater to infiltrate through a hard-standing surface into an underlying storage/filtration sub-base layer. The water can then either infiltrate into the ground beneath the paving via a permeable geotextile or be utilised as storage using a piped drainage system in which the construction will be underlain by an impermeable geotextile.	Provides a means of storage for surface water. Provides an array or treatment for surface water run-off.	Given the topology of the site, a large portion of the highway and impervious surfaces may require this SuDS technique as a means for water treatment.
Swales, Rain Gardens	These facilities can range from depressions in grassed areas that generally remain dry to permanent pond facilities	Provide an array of treatment properties.	The proposed site can incorporate such techniques into the drainage strategy.

SuDS TECHNIQUE	DESCRIPTION	ADVANTAGES	CONTEXT
	the level of which increase during periods of rainfall. Excess surface water is subsequently disposed of via a combination of evaporation and/or soakage whilst also being utilised as storage structures for attenuation purposes. In the right circumstances these facilities can also provide aesthetic and amenity value.	Provides a means of surface water storage. Slow overland flows and surface run-off.	
Drainage Basins, Wetlands and Ponds	These are landscaped depressions that are normally dry except during and immediately following storm events. They can be lined components where surface run-off from regular events is routed through the basin and when the flow rises, because the outlet is restricted, the basin fills and provides storage of run-off and flow attenuation. They can also be off-line components into which run-off is diverted once the flow reaches a specified threshold.	Provides a means of storage for surface water. Can provide and promote wildlife habitat to the landscape areas.	Areas of the site may be feasible to introduce such a technique.
Filtration Trenches and Filter Drains	Filtration trenches provide a means to capture surface water either from above ground overland flows or directly piped into the trench. Surface water is then filtrated via gravel medium which can be tanked or infiltrated into the ground strata.	Provide an array of treatment properties. Provides a means of surface water storage. Slow overland flows and surface run-off.	The proposed site can incorporate such techniques into the drainage strategy.
Rainwater Harvesting	Rainwater harvesting systems entail the provision of buried or above ground tanks that store filtered rainwater for later use. The rainwater is typically pumped into the process network for non-potable use such as irrigation for gardens, and evaporative cooling in the data centre cooling systems. These systems can reduce surface water run-off generated by the development should the demand exceed the supply of rainwater.	They can reduce water demand on the site and provided a means for surface water storage.	The proposed site will have a large water demand and utilising such techniques will reduce demand of the local water supply network.

Attenuation can be used throughout the site via the means of a variety of green and brown roofs, the permeable surfacing subbase storage, filtration trenches, attenuation tanks, swales, and a detention basin. Not all the proposed attenuation methods will be used and will be subject to the final stage 4 design review. The estimate attenuation for this site is approximately 2200m^3 as shown in Table 4. It should be noted that the storage shown on the current drainage drawings exceeds the required volume. Some SuDS features are for water treatment purposes and exceedance flows only.

Table 4 Proposed Attenuation Storage

SuDS Type	Area	Depth	Void Ratio	Storage
Green and brown roofs	TBC	TBC	n/a	Not included in volume
Permeable Paving	8344m^2	0.3m subbase storage	30%	750m^3
Filtration Trenches (Tanked)	290m^2	0.6m	30%	56.5m^3
Attenuation Tanks	Varies	2m depth	95%	2980m^3
Swale	600m^2	0.6m depth	n/a	325m^3
Detention Basin	323m^2	1m^2	n/a	323m^3
			Total	4344.5m^3

For Drainage Strategy drawing refer to Appendix D.

5.0 WATER QUALITY

The aim of the Proposed Development is to enhance the WFD status of the river Crane, which is currently poor, which has been identified within the SFRA. The proposed development will utilise the existing surface outfall connection within the river Crane and open water features should not receive flows directly from the development without treatment.

The proposed drainage strategy aims to manage all sources of surface water run-off to improve water quality and prevent pollution to the river Crane. In line with the LBH Sustainable Drainage Design & Evaluation Guide and set out in Policy G5 of the Mayors intend to Publish London Plan, the construction phases of the project will utilise SuDS features and temporary pollution control measures to avoid pollution of the River Crane and Grand Union Canal.

To ensure water quality is managed across the proposed development the SuDS Manual Simple Index approach will be adopted and an initial appraisal has been undertaken.

In accordance with Chapter 26.7 of the SuDS Manual the water quality treatment has been assessed using the simple index approach criteria. The development consists of mostly commercial roof area and public realm and the pollution hazard indices for this land use are in Table 5.

Table 5 Pollution hazard indices, SuDS Manual Table 26.2

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Other Roofs (commercial/industrial roofs)	Low	0.3	0.2	0.05
Low traffic roads (general access roads) and non-residential car parking with infrequent change i.e., < 300 traffic movements/day	Low	0.5	0.4	0.4
Total		0.8	0.6	0.45

Water quality treatment will be provided by ensuring all run-off is routed through an appropriate treatment via SuDS measures. The proposed drainage strategy aims to improve water quality by utilising green roofs, permeable paving, drainage basin, permeable paving, and filtration trenches whereby the level of treatment proposed is appropriate for the use of the area.

To ensure there is an adequate level of treatment for all run-off, the SuDS components should have a total pollution mitigation index (for each contaminant type) that equals or exceeds the pollution hazard index. Not all the roof run-offs can be directly routed through the green roof as a portion of the roof is brown roof or is utilised with PV panels and plant equipment

As all the roof run-offs cannot be directly treated, additional measures will be provided using filtration trenches. Run-off from the roof and hard standing areas of the Main DC Building gantries and from the MV Energy Centre will enter the filtration trenches at high level. The run-off will convey through the filtration trench where a low-level collector drain will carry the treated water to a catch pit chamber prior to entering surface waters (public sewers).

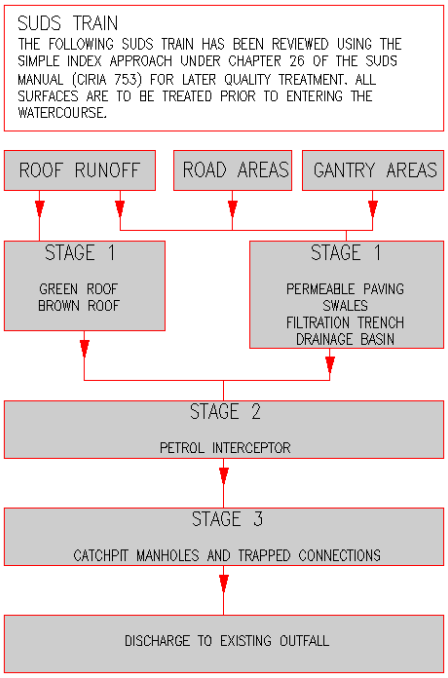
With reference to Tables 26.3 of the SuDS Manual the following pollution mitigation index has been reviewed against each contaminant type. Table 6 demonstrates this.

Table 6 Indicative SuDS mitigation indices

Land Use	Type of SuDS Component	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Other Roofs (commercial/industrial roofs)	Green Roof (Partial)	0.8	0.7	0.9
	Filtration Trench	0.4	0.4	0.5
	Total SuDS Mitigation	>0.95	>0.95	>0.95
Low traffic roads (general access roads) and non-residential car parking with infrequent change i.e., < 300 traffic movements/day	Porous Paving	0.7	0.6	0.7
	Filtration Trench	0.4	0.4	0.5
	Swale	0.5	0.6	0.6
	Detention Basin	0.5	0.5	0.6
	Total SuDS Mitigation	>0.95	>0.95	>0.95

The SuDS train visually represents the SuDS treatment for the expected contamination based on the type of land use. This also shows that all run-off generated by the development will have a form of treatment prior to leaving the site, this is represented in Appendix D.

Figure 2 SuDS train



The proposed land uses of the development together with the use of SuDS elements will ensure all water discharging to the surface waters (public sewer) would have an appropriate and acceptable level of treatment using the Simple Index Approach.

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It is worth noting the Addison Lee site benefits its own petrol interceptor system whilst the North Hyde Gardens provides traditional trapped gulley system. The unrestricted flow from these two areas then passes through the existing large tank located within FM Conway

land via the existing petrol interceptor before discharging into the river Crane. Therefore, there is means of pollution control provided within the existing system which will fall under the maintenance regime.

6.0 MAINTENANCE

The purpose of this section of the document is to outline the proposed maintenance schedule for the drainage system and all SuDS features for the proposed development, a maintenance plan layout showing the locations of the SuDS can be found in Appendix D.

The maintenance schedule set out here complies with the CIRIA SuDS Manual (c753), which is identified as providing current best practice in the industry. The information does not replace manufacturers requirements, and these should be followed for each product in addition to the information in this document.

6.1 Organisation Responsible

The client, Ark (or their chosen management company), will be responsible for undertaking maintenance of the proposed drainage for the whole life of the site. This includes the headwall and associated drainage (petrol interceptors and gullies etc.) associated to this development.

6.2 Conventional Drainage Systems and Petrol Interceptors

On completion of construction, the internal surfaces of the sewers and manholes shall be thoroughly cleansed to remove all deleterious matter, without such matter being passed forward into the existing sewers, SuDS feature or infiltration devices.

All proposed and existing trapped gullies, petrol interceptors, silt traps, manholes and catchpits are to be regularly inspected every three months and cleared out on a regular frequency for the first nine months. After this period, the frequency will be inspected once a year. The system is to be cleaned and jetted clear if/when necessary.

Any trapped oils, hydrocarbons, or sediment must be disposed of to a suitably permitted facility.

6.3 Flow Controls

The manhole containing the flow control is to be regularly inspected once a year and any debris and silt are to be removed from the sump and manhole.

Vortex flow controls should be maintained in accordance with the manufacturer’s requirements.

6.4 Below Ground Attenuation Tank

Regular inspection and maintenance are required to ensure the effective long-term operation of below ground storage systems. Maintenance responsibility for systems should be placed with a responsible organisation. Table 7Table 1 provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive, and some actions may not always be required. Maintenance Plans and schedules should be developed during the design phase and will be specific to the type of tank that is adopted. Specific maintenance needs of the system should be monitored, and maintenance schedules adjusted to suit requirements. CDM2015 requires designers to ensure that all maintenance risks have been identified, eliminated, reduced and/or controlled where appropriate. This information will be required as part of the health and safety file.

Table 7 Maintenance Schedule for Below Ground Tanks

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually.
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae, or other matter, remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays.	Annually, or as requested
Remedial Actions	Repair/rehabilitate inlets, outlet, overflows, and vents.	As required
Monitoring	Inspect/check all inlets, outlets, vents, and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of the tank for sediment build-up and remove if necessary.	Every 5 years or as required

6.5 Filtration Trench (Tanked)

The useful life and effective operation of an infiltration component is related to the frequency of maintenance and the risk of sediment being introduced into the system.

Maintenance will usually be carried out manually, although a suction tanker can be used for sediment/debris removal for larger systems. If maintenance is not undertaken for long periods, deposits can become hard-packed and require considerable effort to remove.

Replacement of the aggregate will be necessary if the system becomes blocked with silt. Effective monitoring will give information on changes in infiltration rate and provide a warning of potential failure in the long term.

Roads and/or parking areas draining to infiltration components should be regularly swept to prevent silt being washed off the surface. This will minimise the need for maintenance.

Table 8 is for soakaways but relates to this SuDS technique, the list of actions is not exhaustive, and some actions may not always be required.

Table 8 Maintenance Schedule for Filtration Trenches

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Inspect for sediment and debris in pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	Annually
	Cleaning of gutters and any filters on downpipes	Annually (or as required based on inspections)
	Trimming any roots that may be causing blockages	Annually (or as required)
Occasional maintenance	Remove sediment and debris from pre-treatment components and floor of inspection tube or chamber and inside of concrete manhole rings	As required, based on inspections
Remedial Actions	Reconstruct soakaway and/or replace or clean void fill if performance deteriorates or failure occurs	As required
	Replacement of clogged geotextile (will require reconstruction of soakaway)	As required
Monitoring	Inspect silt traps and note rate of sediment accumulation	Monthly in the first year and then annually
	Check soakaway to ensure emptying is occurring	Annually

6.6 Detention Basin and Swale

Maintenance responsibility for a swale or basin should always be placed with an appropriate organisation. Adequate access should be provided to all swales and detention basin areas for inspection and maintenance, including for appropriate equipment and vehicles. Litter and debris removal should be undertaken as part of general landscape maintenance for the site and before any other SuDS management task.

The major maintenance requirement for swales and detention basins is usually mowing. Regular mowing in and around detention basins is only required along maintenance access routes, amenity areas, across any embankment and across the mains storage area.

Occasionally sediment will need to be removed, sediments received from residential or standard road and roof areas are generally not toxic or hazardous and can therefore be

safely disposed of. Runoff from busy streets with high vehicle traffic, sediment will require testing before disposal.

Table 9 below provides a guidance on the type of operation and maintenance requirements that may be appropriate. The list of actions is not exhaustive, and some actions may not always be required.

Table 9 Maintenance Schedule for Detention Basin and Swale

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut grass – for spillways and access routes	Monthly (during growing season), or as required
	Cut grass – meadow grass in and around basin	Half yearly (Spring – before nesting season, and autumn)
	Manage other vegetation and remove nuisance plants	Monthly (At start, then as required)
	Inspect inlets, outlets, and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and facility surface for all silt accumulation. Establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required
	Check any penstocks and other mechanical devices	Annually
	Tidy all dead growth before start of growing season	Annually
	Remove sediment from inlets, outlet and forebay	Annually (or as required)
	Manage wetland plants in outlet pool – where provided	Annually
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair erosion or other damage by reseeding or returfing	As required
	Realignment of rip rap	As required
	Repair/rehabilitation of inlets, outlets, and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

6.7 Permeable Paving

Before handing over the pavement to the client, it should be inspected for clogging, litter, weeds and water ponding, and all failures should be rectified. After handover, the pavement should be inspected regularly, preferably during and after heavy rainfall to check effective operation and to identify any areas of ponding.

Pervious pavements need to be regularly cleaned of silt and other sediments to preserve their infiltration capacity. Extensive experience suggests that sweeping once per year should be sufficient to maintain an acceptable infiltration rate on most sites.

A brush and suction cleaner should be used for regular sweeping. Care should be taken in adjusting vacuuming equipment to avoid removal of jointing material. Any lost material should be replaced.

If the surface has clogged then a more specialist sweeper with water jetting and oscillating and rotating brushes may be required, especially for porous asphalt surfaces, to restore the surface infiltration rate to an acceptable level.

Materials removed from the voids or the layers below the surface may contain heavy metals and hydrocarbons and may need to be disposed of as controlled waste.

Table 10 below provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive, and some actions may not always be required.

Table 10 Maintenance Schedule for Permeable Paving

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturers recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
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 per year on less frequently used pavements
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

Maintenance Schedule	Required Action	Typical Frequency
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection	Monthly for three months after installation
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action	Three-monthly, 48 h after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

7.0 CONCLUSION

The content of this report has addressed the requirements of Condition 14 for the planning consent 75111/APP/2021/2378 and thus provides sufficient information to discharge pre-commencement Condition 14.

The report has included a tabulated breakdown of the proposed peak run-off for varying return periods which include the 1:1, 1:30 and 1:100-year return period including 40% allowance for climate change. This has been read in conjunction with the approved Flood Risk Assessment report HDR-0571-XX-XX-RP-C-91010 March 2022.

The proposed development has been assessed against the London Plan 2021 Policy SI 13 sustainable drainage hierarchy and an appraisal of the SuDS systems has incorporated into the surface water strategy. These systems will aim to achieve the greenfield run-off rate and ensure that surface water run-off is managed in accordance with the approved Flood Risk Assessment.

A condition survey of the headwall has been undertaken and is in good condition. It is recommended that any blockages or obstructions identified within the surveys should be cleared prior to operation of the development.

The private roads within the developed site have been routed through several SUDs techniques. The proposed new layby located at the north side of North Hyde Gardens will be formed of permeable paving to improve water quality and restricted to greenfield run-off rates via flow control the surface water sewers.

The unrestricted flow from remaining undeveloped areas (Addison Lee and North Hyde gardens) benefit from the existing catch pit tank located within FM Conway land which in turn coveys via the existing petrol interceptor before discharging into the river Crane. Therefore, there is means of pollution control provided within the existing system. This will fall under the drainage maintenance regime.

A maintenance regime has been provided within the report will be the responsibility of ARK and their chosen management company to service drainage systems.