

Flood Risk Assessment

Land at Pirton, Hitchin, SG5 3RA

Indicative residential development for 30 dwellings on existing arable land

Client / project	Land at Pirton - Indicative Residential Development
Site	Land at Pirton, Hitchin, SG5 3RA
Report date	9 September 2026
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Organisation	PSK Rural Limited
Status	Planning / Flood Risk Assessment
Revision	A



Purpose of report

This Flood Risk Assessment has been prepared in support of the proposed residential redevelopment of approximately 3.420 ha of existing arable land at Pirton, Hitchin, SG5 3RA. It assesses flood risk from all relevant sources, confirms the site's location within Flood Zone 1 and outside mapped areas at risk of surface water flooding, and establishes the planning-stage principles for safe and sustainable surface water management.

Executive Summary

This Flood Risk Assessment has been prepared in support of the proposed residential development of approximately 3.42 hectares of existing arable land at Pirton, Hitchin, SG5 3RA. The submitted Indicative Site Layout Plan identifies the land as existing arable farmland and shows an indicative residential layout incorporating residential areas, a playground, access infrastructure and extensive new grass and mixed scrub planting.

The indicative development comprises the following land uses:

Surface / land use	Area	Approx. proportion
Residential dwelling impermeable footprint	3,000 m ² / 0.3000 ha	8.8%
Impermeable roads, permeable parking, permeable playground and other permeable paved areas	10,704 m ² / 1.0704 ha	31.3%
Permeable hoggin pedestrian pathway	211 m ² / 0.0211 ha	0.6%
Gardens, verges, landscaping and BNG areas	20,285 m ² / 2.0285 ha	59.3%
Total	34,200 m ² / 3.4200 ha	100%

The resulting indicative impermeable area is approximately 1.3704 ha, equivalent to 40.1% of the site, whilst approximately 2.0496 ha, or 59.9%, will remain permeable.

The site lies wholly within Flood Zone 1, representing land with a less than 0.1% annual probability of river or sea flooding. The Environment Agency Surface Water Map Overlay also demonstrates that no mapped surface water flood-risk extent crosses the proposed development site.

The limited mapped surface water flooding shown on the overlay lies outside the red-line boundary, principally to the north-west.

The principal flood-risk consideration arising from the development is therefore not flooding to the site, but the potential for the introduction of approximately 1.3704 ha of impermeable surfacing to increase the rate and volume of surface-water runoff from the site if left unmanaged.

This can be satisfactorily addressed through the submitted Sustainable Drainage System (SuDS).

The final drainage scheme will control runoff to an appropriate greenfield rate, provide the necessary attenuation for extreme rainfall including climate change, manage exceedance flows safely within the site and exploit opportunities for infiltration, rainwater reuse, swales, permeable paving, rain gardens and landscape attenuation features.

Key flood-risk finding

The development site is wholly within Flood Zone 1 and outside mapped areas at risk of surface water flooding. Subject to a detailed SuDS design controlling post-development runoff, the development will be safe from flooding throughout its lifetime and will not increase flood risk elsewhere.

1. Introduction and Scope

PSK Rural Limited has prepared this Flood Risk Assessment in support of the indicative residential redevelopment of land at Pirton, Hitchin, SG5 3RA. The assessment has been prepared having regard to the indicative residential development for 30 dwellings shown on Drawing LAP SITE 001 Rev A and the accompanying Environment Agency Surface Water Map Overlay, Drawing LAP SWO 001 Rev A.

The August 2026 National Planning Policy Framework provides the applicable national policy framework. A site-specific Flood Risk Assessment is required for development in Flood Zone 1 where the site comprises one hectare or more. The application site extends to approximately 3.42 ha and consequently an FRA is required notwithstanding its location within the lowest probability Flood Zone.

This is a proportionate planning-stage FRA based upon the indicative nature of the proposals. Detailed topographical survey, infiltration testing, drainage network investigation and hydraulic drainage design will be undertaken as the scheme progresses. This assessment therefore establishes the existing flood-risk position and the principles by which flood risk and surface water will be managed.

1.1 Documents reviewed

Document	Reference / date
Indicative Site Layout Plan - Proposed Residential Development	LAP SITE 001 Rev A, August 2026
E.A. Surface Water Map Overlay - Proposed Residential Development	LAP SWO 001 Rev A, August 2026
Sustainable Drainage Systems (SuDS) Report - Land at Pirton	PSK Rural Limited, 9 September 2026

2. Site Description and Existing Conditions

The site is situated on the northern edge of Pirton and presently comprises agricultural land in arable production. The indicative layout shows the proposed residential area contained within an irregular parcel adjoining the existing settlement, with extensive landscaped areas retained around and between the principal areas of development. The

development area is bounded by existing agricultural land to the north and west, the existing settlement to the south, and Holwell Road to the east.

There are no buildings or significant areas of existing impermeable surfacing within the proposed development area. For drainage purposes, the site can therefore appropriately be treated as a greenfield catchment.

The wider Ordnance Survey base identifies ponds, drains and other drainage features elsewhere in the surrounding agricultural landscape, but no main river or watercourse is shown crossing the proposed residential development area itself.



Figure 1 - Extract from Indicative Site Layout Plan, drawing LAP SITE 001 Rev A (August 2026).

2.1 Development surface areas

The development will change the hydrological characteristics of part of the site through the creation of dwelling roofs, roads, parking areas and other hard surfaces. However, the majority of the site - approximately 59.9% - will remain as gardens, verges, landscaped areas, biodiversity habitat and permeable pedestrian surfacing.

This substantial proportion of green infrastructure provides significant scope to accommodate SuDS features as an integrated component of the development.

Surface	ha	m ²	% of site
Residential dwelling roofs	0.3000	3,000	8.77%
Impermeable paved areas	1.0704	10,704	31.30%
Permeable hoggin path	0.0211	211	0.62%
Vegetated areas	2.0285	20,285	59.31%
Total	3.4200	34,200	100.00%

3. Planning Policy and Guidance

The August 2026 National Planning Policy Framework defines Flood Zone 1 as land having a less than 0.1% annual probability of river or sea flooding. Residential dwellings are classified as more vulnerable development, but residential development is compatible with Flood Zone 1.

National policy requires development to be safe for its lifetime and not increase flood risk elsewhere. Development affecting drainage is expected to incorporate sustainable drainage systems which control flow rates and runoff volumes and, where possible, provide water-quality, biodiversity and amenity benefits.

The National Standards for Sustainable Drainage Systems require a SuDS approach based upon a hierarchy of rainwater reuse, infiltration, discharge to a surface water body, discharge to a surface water sewer and, only as the lowest priority, discharge to a combined sewer. The standards also require drainage systems to address everyday rainfall, extreme rainfall, water quality, biodiversity, amenity and long-term maintenance.

At local level, North Hertfordshire Local Plan Policies NE7 and NE8 seek to locate development away from areas at risk, require flood risk to be considered over the lifetime of the development, and support the most appropriate SuDS solution. Hertfordshire County Council, as Lead Local Flood Authority, expects greenfield development to achieve greenfield-type runoff control and to demonstrate storage for extreme events including climate change, safe exceedance routes and long-term maintenance arrangements.

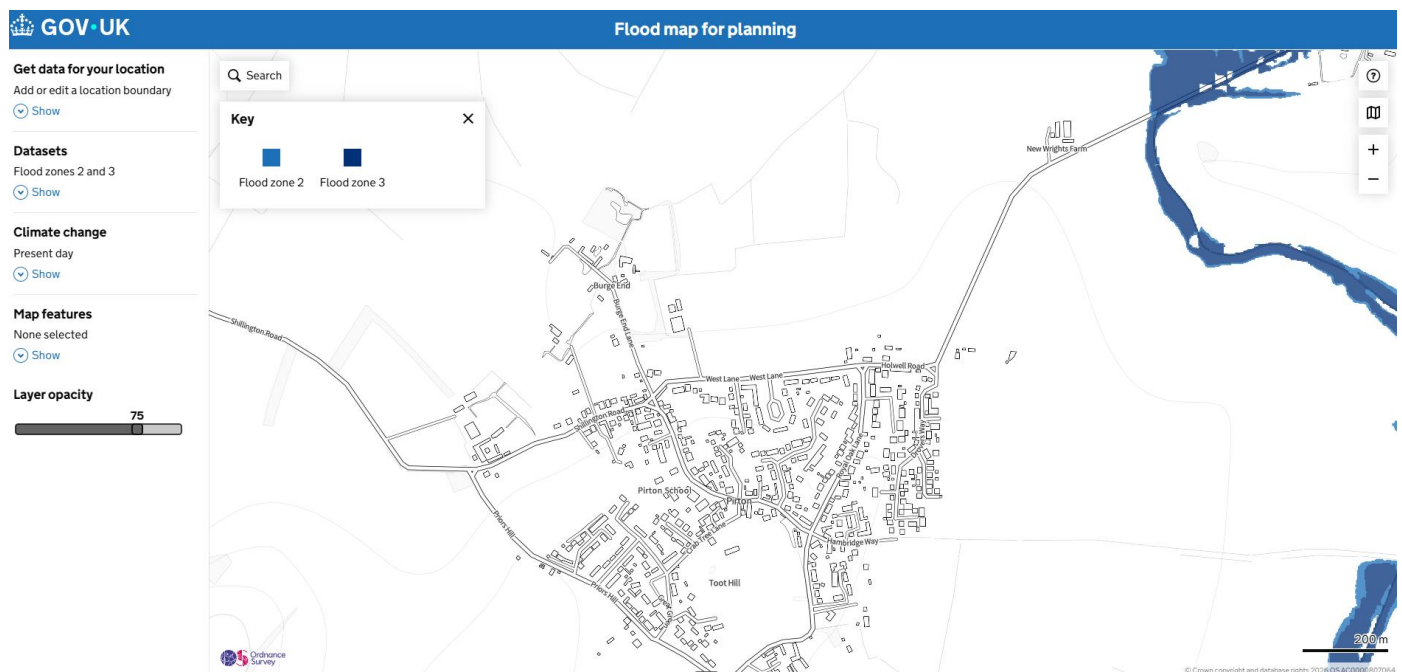
Policy / guidance	Application to this site
National Planning Policy Framework (August 2026)	Flood Zone 1 development; site-specific FRA required because the site exceeds 1 ha. Development must be safe for its lifetime and must not increase flood risk elsewhere.
National Standards for Sustainable Drainage Systems	Establish the SuDS hierarchy and requirements for interception, extreme rainfall, climate change, water quality, amenity, biodiversity, construction and maintenance.

Policy / guidance	Application to this site
North Hertfordshire Local Plan Policy NE7	Requires flood risk to be considered over the development lifetime, including safe access and avoidance of increased flood risk elsewhere.
North Hertfordshire Local Plan Policy NE8	Requires the most appropriate SuDS solution, natural drainage mimicry and compliance with the SuDS hierarchy.
Hertfordshire County Council LLFA guidance	Local expectations for greenfield runoff control, hydraulic modelling, exceedance, maintenance and evidence at planning stage.

4. Assessment of Flood Risk

4.1 River and sea flooding

The site lies wholly within Flood Zone 1. It therefore has a less than 0.1% annual probability of flooding from rivers or the sea and falls within the lowest fluvial flood-risk category defined by national policy.



There is no Main River crossing or immediately adjoining the development area and there is no requirement for floodplain compensation, flood storage replacement or development-specific fluvial flood defences. The risk of flooding from rivers and the sea is consequently assessed as Low.

4.2 Surface water flooding

The submitted Environment Agency Surface Water Map Overlay has been reviewed specifically against the proposed site boundary. The overlay identifies a limited area of mapped surface water flooding within the wider agricultural

landscape to the north-west of the proposed development. Importantly, the mapped flood extent does not extend into the proposed development site and no mapped surface water flow path crosses the proposed residential development area.

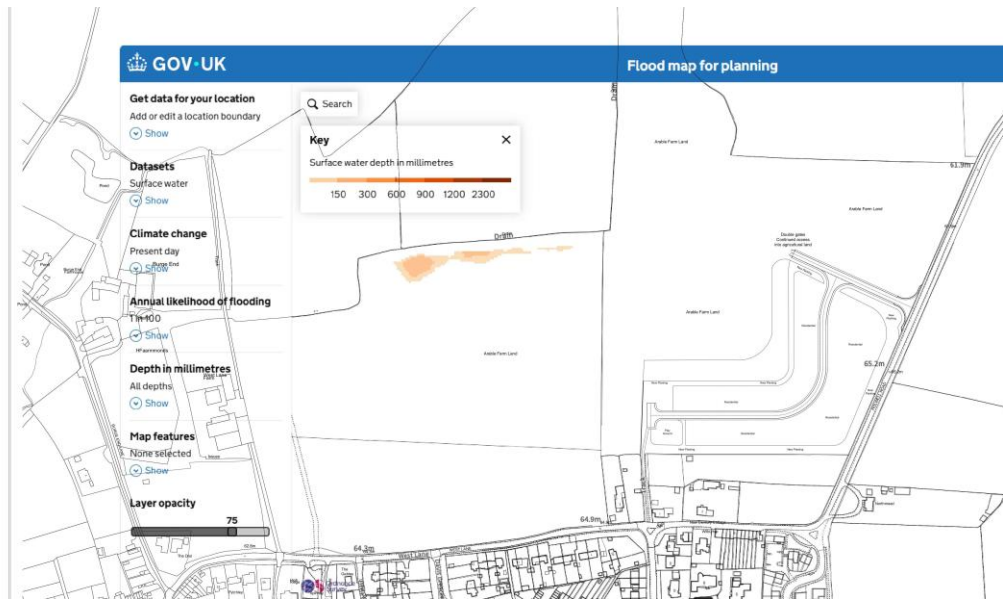


Figure 2 - Extract from E.A. Surface Water Map Overlay, drawing LAP SWO 001 Rev A (August 2026).

The existing risk of surface water flooding to the site is therefore assessed as Low. Development will nevertheless introduce additional impermeable surfaces. Without mitigation, these would increase runoff rates and volumes relative to the existing arable field. It is consequently essential that the development incorporates a properly designed SuDS system. With the drainage measures set out in this report, the development will not increase surface water flood risk either within the site or downstream.

4.3 Groundwater flooding

There is no evidence to indicate a specific history or concentration of groundwater flooding within the development site. The wider Pirton landscape is associated with Chalk and Chalk Marl and locally variable soils. This indicates that infiltration drainage may prove feasible, but it would be inappropriate to rely upon generalised geological information in place of site-specific testing.

Ground investigation and infiltration testing will therefore establish groundwater conditions and the viability of infiltration SuDS. On the presently available information, the risk of groundwater flooding is considered Low, subject to verification through site investigation.

4.4 Sewer flooding

The land is currently an undeveloped arable field and therefore does not rely upon an existing urban surface water drainage network serving development within the site. There is no evidence of historic sewer flooding affecting the development area.

Any future connection to a public sewer would require confirmation of capacity and agreement with the relevant sewerage undertaker.

Surface water will not be discharged unrestricted to the public sewer network. The present risk from sewer flooding is therefore assessed as Low.

4.5 Reservoirs, canals and artificial sources

No reservoir, canal or other major artificial waterbody is identified within or immediately adjoining the development site on the submitted plans. The likelihood of flooding from an artificial source affecting the proposed development is consequently assessed as Low on the information presently available.

4.6 Overall existing flood risk

Taking the available evidence collectively, the development site is not identified as being presently affected by fluvial, tidal or mapped surface water flooding. Other potential sources of flooding do not give rise to any identified site-specific constraint. The principal matter requiring mitigation is therefore the change in surface-water runoff generated by the proposed development itself.

Flood source	Existing risk	Planning-stage position
River / sea	Low	Site wholly within Flood Zone 1.
Surface water	Low	No mapped surface water flood extent crosses the development site.
Groundwater	Low	No identified site-specific history; verify through ground investigation where infiltration is proposed.
Sewer	Low	Greenfield site; any future connection will be controlled and subject to capacity / agreement.
Artificial sources	Low	No reservoir, canal or major artificial waterbody identified within or immediately adjoining the site.

5. Proposed Surface Water Drainage Strategy

The existing site is substantially wholly permeable. The indicative development introduces approximately 1.3704 ha of impermeable surfaces, representing approximately 40.1% of the site. It follows that unrestricted runoff from the development would not be acceptable.

The detailed drainage strategy will adopt the SuDS hierarchy and will seek first to manage rainfall as close as practicable to where it falls. Priority will be given to rainwater collection and reuse, followed by infiltration to ground where testing confirms suitability, discharge to an attenuation body, discharge to a surface water sewer and, only as a last resort, discharge to a combined sewer.

The generous landscaped area within the indicative masterplan provides substantial opportunity to integrate SuDS without compromising the residential development. At detailed design stage this is expected to include a combination of rainwater harvesting from dwelling roofs, permeable paving where appropriate, filter strips, swales, rain gardens or bioretention areas and landscaped attenuation bodies. These measures can be incorporated within the proposed verges, landscape buffers and biodiversity areas so that drainage performs a combined flood-risk, landscape, ecological and amenity function.

The 0.0211 ha hoggin pathway is identified as permeable and will remain permeable in its construction specification.

Infiltration testing will be undertaken before the final drainage design is fixed. Where infiltration is demonstrated to be viable, it will be maximised in accordance with the drainage hierarchy. Where full infiltration is not practicable, the residual runoff will be attenuated and discharged at an appropriately controlled greenfield rate, with the final outfall agreed with the LLFA and any other relevant drainage authority.

6. Attenuation, Design Events and Exceedance

The drainage system will be designed so that development does not increase flood risk elsewhere. The detailed drainage model will assess appropriate storm durations and will provide sufficient attenuation storage for the critical event.

In accordance with current national standards and Hertfordshire LLFA expectations, the drainage design will provide for extreme rainfall including climate change. The system will be designed so that flooding does not occur generally during the 3.3% annual exceedance probability event, except in areas deliberately designed to store or convey water, and so that buildings, vulnerable utility infrastructure and designated safe access routes remain protected during the 1% annual exceedance probability event including climate change.

The design will also address the interception of everyday rainfall. Should rainfall exceed the design capacity of the drainage network, overland exceedance routes will direct water away from dwellings and towards landscaped open

space and dedicated SuDS areas. Finished levels will ensure that buildings do not obstruct natural or designed exceedance routes and that floodwater cannot be directed onto adjoining property.

7. Climate Change

Climate change is an important consideration because the proposed residential development has a long design life. Residential development is to be considered over a minimum lifetime of 100 years. The final hydraulic drainage calculations will therefore incorporate the current Environment Agency upper-end peak rainfall climate-change allowance applicable to the site at the time of detailed design, together with the appropriate allowance for urban creep.

This will provide resilience against the anticipated increase in rainfall intensity during the lifetime of the development.

8. Safe Access, Egress and Development Levels

The submitted mapping identifies the proposed development area and its access as lying outside a mapped flood extent. Safe pedestrian and vehicular access can therefore be maintained without requiring occupants to pass through an identified fluvial or surface-water flood-risk area.

The final development levels will nevertheless be designed in conjunction with the surface-water drainage strategy.

Finished floor levels will be raised appropriately above surrounding external levels and will be positioned clear of all designated exceedance routes and attenuation features. Roads and landscaped open space may be used, where appropriate, as controlled exceedance routes during rainfall events exceeding the normal capacity of the drainage system, provided that safe access to residential buildings is maintained.

9. Sequential and Exception Tests

The current national policy framework establishes the sequential approach to flood risk. The Sequential Test does not need to be applied where a site-specific FRA clearly demonstrates that no built development within the site boundary - including access and escape routes, land raising or other potentially vulnerable elements - will be located within an area at risk of flooding from any source now or in the future.

The present assessment demonstrates that the development is located wholly within Flood Zone 1 and that the submitted surface-water mapping does not identify a surface-water flood extent crossing the development site. No other flood source has been identified which would render the proposed residential development area subject to material flood risk. Accordingly, on the evidence presently available, a further site-specific Sequential Test is not required.

The Exception Test is similarly not applicable, as the residential development is situated wholly within Flood Zone 1 and residential development is compatible with that Flood Zone.

10. Construction-Phase Flood Risk

Temporary changes to ground cover and soil compaction during construction have the potential to increase localised runoff and sediment mobilisation before the permanent drainage system becomes fully operational. Construction activities will therefore be undertaken so that runoff is controlled within the development site.

Control	Construction commitment
Site phasing	Maintain existing drainage paths as far as practicable and phase earthworks so that exposed catchments are minimised.
Clean / dirty water separation	Use temporary cut-off drains and bunds to keep clean off-site water separate from disturbed construction areas.
Sediment control	Provide temporary silt fences, sediment sumps / tanks, check dams or settlement features where required and inspect after significant rainfall.
Pollution prevention	Designate refuelling and chemical-storage areas, provide spill kits and prevent concrete washout, fuels or oils entering ground or surface-water systems.
Permanent SuDS protection	Protect permanent drainage from construction sediment and inspect / clean the system before commissioning.

11. Management and Maintenance

The surface water drainage system will be supported by a long-term management and maintenance strategy. The strategy will identify responsibility for inspection and maintenance of all SuDS assets and will provide appropriate schedules for permeable paving, gullies, swales, filter strips, rain gardens, flow-control structures, attenuation basins and any other drainage components incorporated within the final scheme.

Maintenance responsibility will ultimately rest with the appropriate adopting authority, management company or other formally constituted body, depending upon the final drainage design and adoption arrangements.

Asset / function	Indicative maintenance principle
Roof drainage / rainwater harvesting	Inspect routinely and after severe storms; clear leaves and debris and service harvesting components to manufacturer guidance.
Road gullies / catchpits	Inspect at least six-monthly and after severe storms; remove sediment when required.

Asset / function	Indicative maintenance principle
Vegetated SuDS	Maintain vegetation, remove litter / sediment, repair erosion and keep inlets / outlets operational.
Permeable surfaces	Maintain permeability, remove silt and weeds and reinstate surface material where required.
Flow controls / attenuation	Inspect access points and control structures routinely and after significant storms; remove blockages and undertake cleansing where necessary.
Exceedance routes	Keep routes unobstructed and maintain design levels and depressions for the lifetime of the development.

12. Outstanding Information for Detailed Design

The assessment is suitable as a planning-stage framework. The following matters will be resolved as the scheme progresses to detailed design and technical approval:

Matter	Requirement
Topographical and levels survey	Confirm catchment boundaries, proposed finished levels, positive drainage paths, attenuation levels and exceedance routes.
Ground investigation / infiltration testing	Confirm soil and chalk profile, infiltration rates, geotechnical constraints and suitability for any infiltration features.
Groundwater monitoring	Establish seasonal high groundwater where infiltration is proposed and demonstrate suitable separation beneath infiltration features.
Hydraulic modelling	Model final catchments, all critical storm durations, current climate-change allowances, pervious runoff and urban creep.
Outfall investigation	Identify and survey the lawful receiving system or waterbody and confirm ownership, capacity, levels, rights and necessary consents.
Flow control and storage	Confirm a maintainable flow-control arrangement and the storage volume required to control runoff to the agreed greenfield regime.
Exceedance / finished levels	Provide exceedance-flow mapping and confirm finished floor levels and safe access remain above design flood levels with appropriate freeboard.

13. Conclusion

- The proposed residential development occupies approximately 3.42 ha of existing arable land at Pirton and is located wholly within Flood Zone 1, the lowest category of river and sea flood risk.

- The submitted Environment Agency Surface Water Map Overlay confirms that the proposed development area is outside the mapped areas at risk of surface-water flooding. The limited mapped surface-water flooding within the wider landscape lies outside the red-line boundary.
- The principal flood-risk consequence of the development is the conversion of approximately 1.3704 ha, or 40.1% of the site, to impermeable surfaces. Approximately 59.9% of the site will remain permeable, including gardens, verges, landscaping, BNG habitat and permeable pedestrian routes.
- The development will incorporate a comprehensive SuDS strategy following the drainage hierarchy, maximising rainwater reuse and infiltration where technically feasible and controlling any residual discharge to an appropriate greenfield rate.
- The final drainage system will provide attenuation for extreme rainfall including the applicable climate-change allowance, provide safe exceedance routes and incorporate appropriate water-quality, biodiversity and amenity benefits.
- Subject to the detailed-design matters identified in this assessment, the development can be constructed and occupied safely throughout its lifetime and will not increase flood risk elsewhere. There is therefore no flood-risk reason why the principle of residential development should not proceed.

References

Ministry of Housing, Communities and Local Government. National Planning Policy Framework, August 2026.

Department for Environment, Food & Rural Affairs. National Standards for Sustainable Drainage Systems, 2025.

Environment Agency Flood Mapping (Gov.uk)

Hertfordshire County Council. Lead Local Flood Authority guidance for developers.

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