# FLOOD RISK ASSESSMENT

# and

# DRAINAGE STRATEGY

## for

# RIBBLE VALLEY VIEW

## PROPOSED HOLIDAY LODGES

## at

## RIBBLE VALLEY VIEW

## OLD LANGHO ROAD, LANGHO, BB6 8AW

## APRIL 2021


**REFORD**

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# 1. INTRODUCTION

1.1 This flood risk assessment and drainage strategy has been produced on behalf of Ribble Valley View in support of a planning application for a proposed extension to the existing Ribble Valley View Lodge Park, Old Langho Road, Langho, BB6 8AW. A location plan is included within Appendix A.

1.2 The Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the Planning Practice Guidance (NPPG) in relation to Flood Risk and Coastal Change, and describes the existing site conditions and proposed development. It assesses the potential sources of flooding to the site from tidal, fluvial, groundwater, surface water and other sources, taking a risk based approach in accordance with National Policy.

1.3 The drainage strategy assesses the potential impact of proposals on existing drainage and includes a proposed strategy for the provision of new drainage to serve the proposed development.

**Site summary**

| | |
|---|---|
| Site Name | Ribble Valley View |
| Location | Old Langho Road, Langho, BB6 8AW |
| NGR (approx.) | SD698359 |
| Application site area | 1.9 ha (approx.) |
| Development type | Holiday lodges |
| Vulnerability | Less Vulnerable |
| Indicative Flood Zone | Flood Zone 1 |
| Local Planning Authority | Ribble Valley Borough Council |

# 2. DESCRIPTION OF THE SITE

**Existing site**

2.1 The proposal relates to land (approx. 1.9 hectares) at Ribble Valley View Holiday Lodge Park that lies off Old Langho Road, Langho, BB6 8AW.

2.2 The site is located on the west side of Brockhall Village, separated by an area of woodland. At the front of the site to the south is the Black Bull, a public house and restaurant that lies on Old Langho Road. To the north and west of the site there are open fields. The River Ribble lies approx. 1.3 km to the north.

2.3 The site itself is an established holiday lodge site that has 30 lodges already on it. The site has access to the side of the Black Bull to the front. The lodges are arranged around a central spine road and have individual parking allocated to them. The lodges are all of the 'timber' log style and have external balcony areas.

2.4 The Dinckley Brook lies approx. 70m to the northwest of the site and flows to the north to discharge into the River Ribble.

2.5 The existing site comprises grassland.

2.6 The site has a general fall towards the northern boundary of the site and beyond to the Dinckley Brook.

**Proposed development**

2.7 It is proposed that the development will comprise 16 holiday lodges. The site layout plan is shown on drawing RS1108-901 accompanying the planning application.

2.8 It is proposed that the vehicle access into the developed site will be from the existing site access from Old Langho Road.

# 3. SCOPE OF THE ASSESSMENT

**Flood risk planning policy**

3.1 The National Planning Policy Framework (NPPF) sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Supporting Planning Practice Guidance is also available.

3.2 The NPPF sets out the vulnerability to flooding of different land uses. It encourages development to be located away from areas at highest risk (whether existing or future), and states that where development is necessary in such areas, the development should be made safe for its lifetime. It also stresses the importance of preventing increases in flood risk offsite to the wider catchment area.

3.3 The NPPF also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

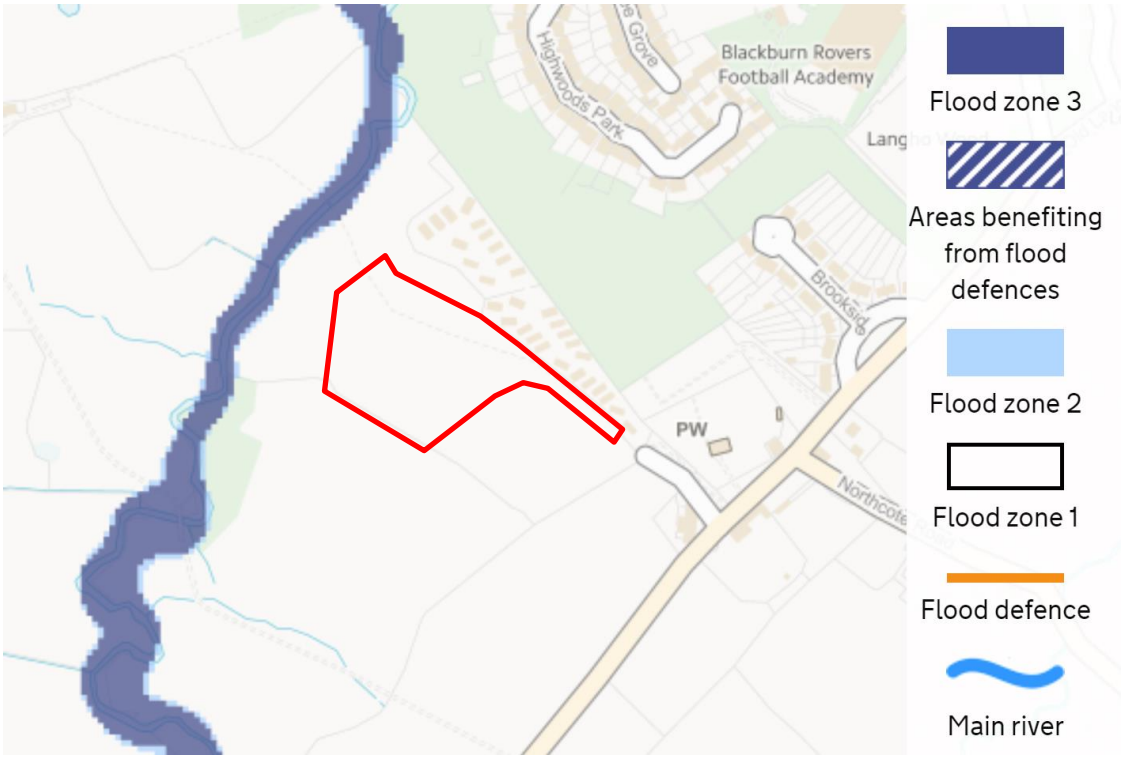
3.4 As set out in NPPF, local planning authorities should only consider development in flood risk areas appropriate where informed by a site specific Flood Risk Assessment. This document will identify and assess the risk associated with all forms of flooding to and from the development. Where necessary it will demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

3.5 This Flood Risk Assessment is written in accordance with the NPPF and the Planning Practice Guidance in relation to Flood Risk and Coastal Change.

**Flood zones**

3.6 In investigating the flood risk relating to the site, the Environment Agency flood zone mapping identifies the proposed development site lies within Flood Zone 1. Flood Zone 1 is the lowest risk and is identified as land assessed as having a less than 1 in 1000 annual probability of river or sea flooding (<0.1%).

3.7 An extract from the Environment Agency's Flood Zone Map for Planning is shown below.




**Strategic Flood Risk Assessment**

3.8 The site is within the area covered by the Ribble Valley Borough Council Strategic Flood Risk Assessment, Level One, Adoption Report, May 2010.

3.9 No reference is made to the application site or Langho within the SFRA.

**Sequential Test**

3.10 A requirement of NPPF is that all plans should apply a sequential, risk-based approach to the location of development, taking into account the current and future impacts of climate change so as to avoid, where possible, flood risk to people and property. The aim of the sequential test is to steer new development to areas with the lowest risk of flooding.

3.11 Strategic Flood Risk Assessments (SFRA) refine information on the probability of flooding, taking other sources of flooding and the impacts of climate change into account. They provide the basis for applying the Sequential Test, on the basis of the flood zones in NPPG Table 1.

3.12 The flood zones are the starting point for this sequential approach. As already stated, the Environment Agency's flood mapping identifies the site as lying within Flood Zone 1, the lowest risk.

3.13 With reference to NPPF, Environment Agency Flood Maps and the SFRA, the site lies within an area identified as being potentially developable and following the sequential approach, all of the development is located within Flood Zone 1.

3.14 The current development proposals are classified as "Less Vulnerable" for holiday lodges. Table 3 within NPPG indicates Flood Risk Vulnerability and Flood Zone 'compatibility'. Using Zone 1 and the "Less Vulnerable" classification for holiday lodges, NPPG considers that a development of this type would be deemed appropriate for development within Flood Zone 1.

3.15 Subject to the suitable assessment of flood risk, the development would be considered sequentially preferable in this location.

# 4. CONSULTATIONS AND DATA ACQUISITIONS

**Environment Agency**

4.1 The Environment Agency's flood zone mapping confirms that the site lies within an area of Flood Zone 1, the lowest risk. There is no record of any historic flooding occurring at the site.

**United Utilities**

4.2 There are no public sewers within the development site. The nearest public sewer is located at Old Langho Road.

**Topographical Survey**

4.3 A topographical survey has been carried out for this site. The site has a general fall towards the northern boundary of the site and beyond to the Dinckley Brook.

**Site Investigation**

4.4 Site investigations have not been carried out for the site.

4.5 The online Soilscapes viewer has identified that the geology encountered will be slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage. This has been confirmed when carrying out work within the established site, the nature of the soils found comprising clays.

4.6 Based upon the ground conditions identified, infiltration is unlikely to provide a viable drainage solution for surface water runoff generated by the site. Infiltration tests have therefore not been carried out.

**Site Inspections**

4.7 A site visit was made to examine site conditions and levels as well as any significant visible features that would affect the flood characteristics of the sites. Such inspections are limited to areas that could readily and safely be accessed and no intrusive investigations or drainage surveys were carried out.

# 5. SOURCES OF FLOOD RISK

**Potential Sources of Flood Risk**

5.1 Potential sources of flood risk to the site are identified below. The significance of these sources is investigated further into Section 6.

*Fluvial flooding*

5.2 The Dinckley Brook lies approx. 70m to the northwest of the site and flows to the north to discharge into the River Ribble.

5.3 The site to be developed is identified as lying within Flood Zone 1 on the Environment Agency's flood maps, land assessed as having an annual probability of flooding of less than 1 in 1000 (<0.1%).

*Tidal flooding*

5.4 The site is a significant distance from the nearest tidal estuary and is, therefore, not at risk of flooding from the sea. The site is not identified as being at risk of flooding from the sea by any Environment Agency Flood Zone maps or within the SFRA for the area. As such, coastal and tidal flooding is not considered further within this assessment.

*Canals, reservoirs and other artificial sources*

5.5 There are no canals or other artificial sources local to the site.

5.6 There are four reservoirs within the vicinity of the site: Dean Clough reservoir approx. 3.2km to the southeast; Parsonage reservoir approx. 3.8km to the south; and the Spade Mill reservoir and Alston reservoir approx. 9.5km to the west.

5.7 The Environment Agency risk of flooding from reservoirs map identifies the site is not at risk.

*Groundwater*

5.8 Groundwater flooding tends to occur after much longer periods of sustained high rainfall. The areas that are at risk tend to be those low-lying areas where the water table is shallow. Flooding tends to occur in areas that are underlain by major aquifers, although groundwater flooding is also noted in localised floodplain sands and gravels. The main causes of groundwater flooding are:

- Natural groundwater rising due to tidal influence, or exceptionally wet periods leading to rapid recharge;
- Groundwater rebound due to cessation of abstraction and mine dewatering;
- Existence of confined aquifers and springs.

*Sewers*

5.9 Flooding from a drainage system occurs when flow entering a system exceeds its discharge capacity, the system becomes blocked or, in the case of surface water sewers, it cannot discharge due to high water level in the receiving watercourse. Sewer flooding is often caused by surface water discharging into the combined sewerage system, sewer capacity is exceeded in large rainfall events causing backing up of flood waters within properties or discharging through manholes.

5.10 There are no public sewers within the development site. The nearest public sewer is located at Old Langho Road.

*Pluvial runoff*

5.11 The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water flooding. A very low risk means that each year, this area has a chance of flooding of less than 1 in 1000 (0.1%).

5.12 It should be noted that surface water flooding can be difficult to predict, much more so than river or sea flooding as it is hard to forecast exactly where or how much rain will fall in any storm. In addition, local features can greatly affect the chance and severity of flooding.

*Development drainage*

5.13 Surface water (including the risk of sewers and culverted watercourses surcharging) poses the highest risk of more frequent flooding. Surface water drainage from new developments is critical in reducing the risk of localised flooding.

5.14 If surface water runoff is not managed appropriately, there may be an increased risk presented elsewhere from development drainage, and the aim should be to implement appropriate sustainable drainage systems (SuDS) to treat and contain flows and mimic the existing conditions.

5.15 Where possible the preference for dealing with surface water runoff from the developed site is for it to infiltrate back into the ground or alternatively to a waterbody or watercourse. Only if it is not possible for either of these options is surface water from the development to be allowed into public sewers.

5.16 The proposed development will increase the area of impermeable hardstanding on site, which has the potential to significantly alter the surface water runoff regime of the site and have an adverse effect on flood risk elsewhere in the wider catchment.

# 6. FLOOD RISK ASSESSMENT

6.1 This section of the Flood Risk Assessment looks at the flood risk to the site before any mitigation measures are put into place and hence identifies where mitigation will be required. Section 7 continues to explain the mitigation measures proposed and the residual risk following implementation of any proposed mitigation.

**Risk of Flooding to Proposed Development**

*Fluvial Flood Risk*

6.2 The site to be developed is identified as lying within Flood Zone 1 on the Environment Agency's flood maps, the lowest risk.

6.3 The Dinckley Brook lies approx. 70m to the northwest of the site and lies considerably lower than the development site. There is no flood risk to the site associated with the Dinckley Brook.

6.4 The risk of fluvial flooding to the proposed development is therefore very low.

*Canals, reservoirs and other artificial sources*

6.5 There are no canals or other artificial sources that are local to or affect the site.

6.6 The Environment Agency's risk of flooding from reservoirs mapping identifies no risk of flooding from reservoirs.

6.7 As such the risk of flooding from canals, reservoirs and other artificial sources is low.

*Groundwater*

6.8 The Ribble Catchment Flood Management Plan states that groundwater flooding is not seen as a major issue in the area. Any groundwater rebound, associated with the end of historical water pumping, is thought to be negligible.

6.9 There are no recorded incidents of flooding associated with groundwater levels within the site.

6.10 The risk from groundwater flooding is therefore considered to be low.

*Sewer Flooding and Pluvial Runoff*

6.11 There are no public sewers within the development site. The nearest public sewer is located at Old Langho Road. The risk of flooding from sewers is therefore low.

6.12 The Environment Agency Risk of Flooding from Surface Water map indicates the site is at a very low risk of surface water flooding. A very low risk means that each year, this area has a chance of flooding of less than 1 in 1000 (0.1%).

6.13 Due to the nature and topography of the adjoining areas there is only limited potential for pluvial runoff from heavy rainfall events to be conveyed towards the site.

6.14 As such the risk is low from sewer flooding and pluvial runoff.

**Effect of the Development on the Wider Catchment**

*Development Drainage*

6.15 The proposed development will introduce an area of impermeable hardstanding on site, which has the potential to significantly alter the surface water runoff regime of the site and have an adverse effect on flood risk elsewhere in the wider catchment.

6.16 The ground is not conducive to infiltration.

6.17 Surface water runoff from the development site will follow the general fall of the ground towards the northern boundary of the site and beyond to the Dinckley Brook.

6.18 It is intended that new surface water drainage will be constructed, appropriately sized to take all surface water runoff from the new roofs and hardstanding areas, to discharge into the Dinckley Brook, mimicking the existing scenario.

6.19 As the surface water runoff from the development will be attenuated to pre-development runoff rates, there will be no change to the flood risk upstream or downstream of this location.

6.20 As a result of the mitigation measures, the risk of flooding from the development drainage is low.

# 7. PREDICTED IMPACTS AND MITIGATION

7.1 This section of the FRA sets out the mitigation measures recommended to reduce the risk of flooding to the proposed development and outlines any residual impacts.

**Site arrangements**

*Access / Egress*

7.2 If an extreme event was to occur, the access to the site would be from Old Langho Road that lies within Flood Zone 1.

*Upstream and downstream effects*

7.3 There is no material effect on the floodplain due to the proposed development.

7.4 It is intended that surface water attenuation will be provided within the development site to restrict surface water flows from the developed site to pre-development runoff rates, allowing a discharge to be made into the Dinckley Brook that lies to the north of the development site. There will, therefore, be no additional risk to upstream or downstream properties.

# 8. DRAINAGE STRATEGY

**Surface water drainage**

8.1 Surface water (including the risk of sewers and culverted watercourses surcharging) poses the highest risk of more frequent flooding. Surface water drainage from new developments is critical in reducing the risk of localised flooding.

8.2 Flooding from drainage system occurs when flow entering a system exceeds its discharge capacity, the system becomes blocked or, in the case of surface water sewers, it cannot discharge due to high water level in the receiving watercourse. Sewer flooding is often caused by surface water discharging into the combined sewerage system, sewer capacity is exceeded in large rainfall events causing backing up of flood waters within properties or discharging through manholes.

8.3 Guidance for the disposal of surface water from a development site is for soakaways to be considered as the primary solution. If this is not practical, discharge to a waterbody or watercourse is to be considered as the next available alternative. Only if neither of these options is available, and other sustainable drainage methods not possible, should the use of the public sewerage system be considered.

8.4 The online Soilscapes viewer has identified that the geology encountered will be slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage. This has been confirmed when carrying out work within the established site, the nature of the soils found comprising clays. As such, based upon the ground conditions identified, infiltration is unlikely to provide a viable drainage solution for surface water runoff generated by the site.

8.5 A private drainage system collects surface water from the existing roofs and hardstanding areas within the established site. The surface water from each lodge is attenuated within a gravel area positioned for each individual lodge and a pipe overflow takes surface water through a reed bed in an adjacent area of land prior to a discharge being made into the Dinckley Brook. Essentially there is a Greenfield runoff into the brook.

8.6 It is intended that surface water runoff from the proposed lodges will be dealt with in the same way as the existing site and a discharge also made into the Dinckley Brook to the north of the development site.

8.7 An attenuation area to store $3m^3$ surface water runoff is required for each lodge to cater for the 100 year plus 40% added for climate change event.

8.8 Surface water runoff from the access road will be collected by a drain laid alongside and a discharge made into the Dinckley Brook to the north of the development site.

8.9 Surface water within any non-drained areas of the site such as public open spaces, soft landscaping, etc. will be allowed to infiltrate into the upper strata and be stored and will be either taken up by plants or evaporated. There will, potentially, be periods where the upper strata may become saturated and surface ponding may occur but this will be shallow in depth and will disappear over a short period of time.

**Foul water drainage**

8.10 Foul water from the existing site is collected by a piped system into an existing pumping station that pumps foul water to a manhole that lies at the highest point of the existing site. The foul water then drains by gravity to the public sewer that lies at Old Langho Road.

8.11 It is intended that foul water from the proposed lodges will also be collected by a piped system, and a discharge made into the public sewer that lies at Old Langho Road, having first been pumped to the existing manhole and gravity drain.

# 9. CONCLUSIONS

9.1 This flood risk assessment and drainage strategy has been produced on behalf of Ribble Valley View in support of a planning application for a proposed extension to the existing Ribble Valley View Lodge Park, Old Langho Road, Langho, BB6 8AW.

9.2 The Site lies within Flood Zone 1, the lowest risk which is identified as land assessed as having a less than 1 in 1000 annual probability of river or sea flooding (<0.1%).

9.3 The risk of fluvial flooding is very low.

9.4 There are no recorded instances of historic flooding at the site.

9.5 The risk of flooding from canals, reservoirs and other artificial sources is low.

9.6 The flood risk from groundwater is low.

9.7 The risk from sewer flooding and pluvial runoff is low.

9.8 The risk of flooding from the development drainage is low.

9.9 Surface water runoff from the proposed site will be dealt with in the same way as the existing site, a discharge being made into the Dinckley Brook to the north of the development site.

9.10 Foul water from the proposed lodges will be collected by a piped system, and a discharge made into the public sewer that lies at Old Langho Road, having first been pumped to the existing manhole and gravity drain.

# APPENDIX A


**LOCATION PLAN**