

Proportionate Flood Risk Assessment

For the proposed surface works at
The Burrows, Wargrave Road,
Remenham, RG9 2LT

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updated to address EA comments May 2025



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1 Introduction

1.1 Site location

The project is at “The Burrows”, Wargrave Road, Remenham, RG9 2LT (see Figure 1).



Figure 1: Site location plan, with North topmost.

1.2 Development description

The site is an existing developed site and the proposed work is classed as minor development.

The application is a “Full application for subterranean ground strengthening works adjacent to the access track and installation of permeable hardstanding and 1no. lean-to store for woodland management/forestry use (Retrospective).”

This report covers:

1. An area of external ground strengthening.
2. A storage area.
3. A lean-to storage structure with base.

All plans to be submitted under separate cover.

1.2.1 Climate change allowances

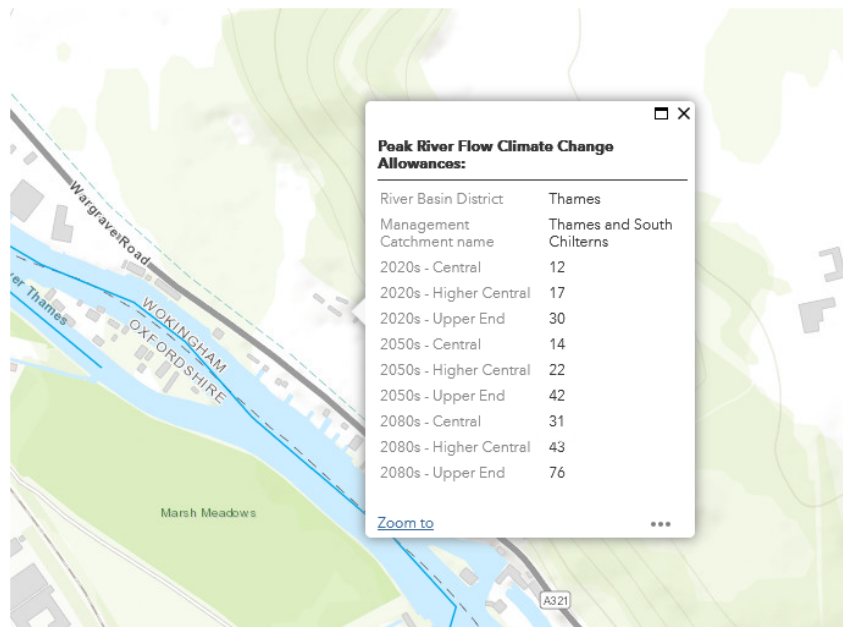


Figure 2: Revised climate change allowances

1.2.2 Nature of the lean-to structures

The agent has provided the following statement with which the author concurs:

“Please find additional photos in this link: Images

In environmental and flood risk contexts, we understand a floodable structure is one that:

- Is designed or allowed to fill with water during flood events.
- Can tolerate inundation without critical damage (e.g., corrosion, structural failure, or contamination).
- Often includes water-compatible uses, such as car parks, open storage yards, green infrastructure, or buildings with sacrificial ground floors.

To confirm:

- The timber structures are open on all 4 sides so water could naturally flow into or accumulate at the location.
- The timber structures are placed on the ground without concrete foundations to anchor them to the substrate.
- Only one of the timber (lean-to) structures presents a base to keep wood away from the ground. The remaining structures have no base.

- Wooden pallets have been laid over the ground to provide support to stored materials.
- These elements allow water to flow.
- No significant damage will be caused to these structures or the stored items in the event of flooding.
- They are considered to be a water-compatible use.

We hope this is sufficient to prove the structures are floodable.

2 Flood risk analysis

2.1 Sources of potential flooding

Flood risk from various sources at the site is analysed in this section.

2.2 Flood data

The fluvial flood mapping and data now presented is taken from the Thames (Sonning to Hurley) 2019 model.

2.2.1 Flood risk from sea and rivers

Flooding can occur from the sea due to a particularly high tide or surge, or combination of both.

The site is not at risk from tidal flooding.

Flooding can also take place from flows that are not contained within the channel due to high levels of rainfall in the catchment.

With reference to the Environment Agency flood mapping, as at Figure 3 it can be seen that the location of the storage area is predominantly within present day Flood Zone 2 (Note the 25.04.25 update has not changed this).

The storage area falls within Zone 3a when an allowance for climate change is applied as shown in Figure 4.

With respect to the lean-to storage structure it is in:

- Present day: Zone 2.
- Year 2025 - year 2049: Predicted Zone 2 based on + 17% CC.
- Year 2050 - year 2079: Predicted Zone 2 based on + 22% CC.
- Year 2080 - year 2125: Predicted Zone 3 based on + 31% CC.

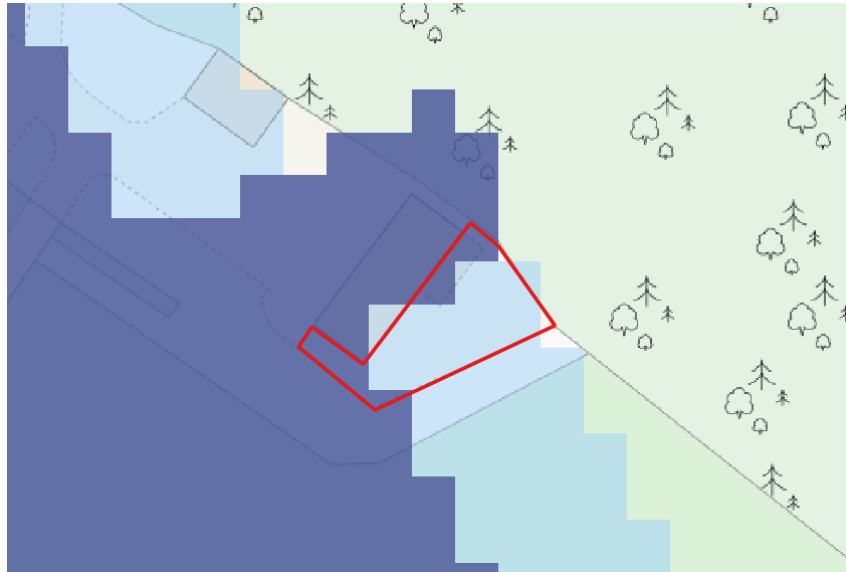


Figure 3: Extents of present day Flood Zones 2 & 3 based on Thames Sonning to Hurley 1 in 100yr and 1 in 1000yr data

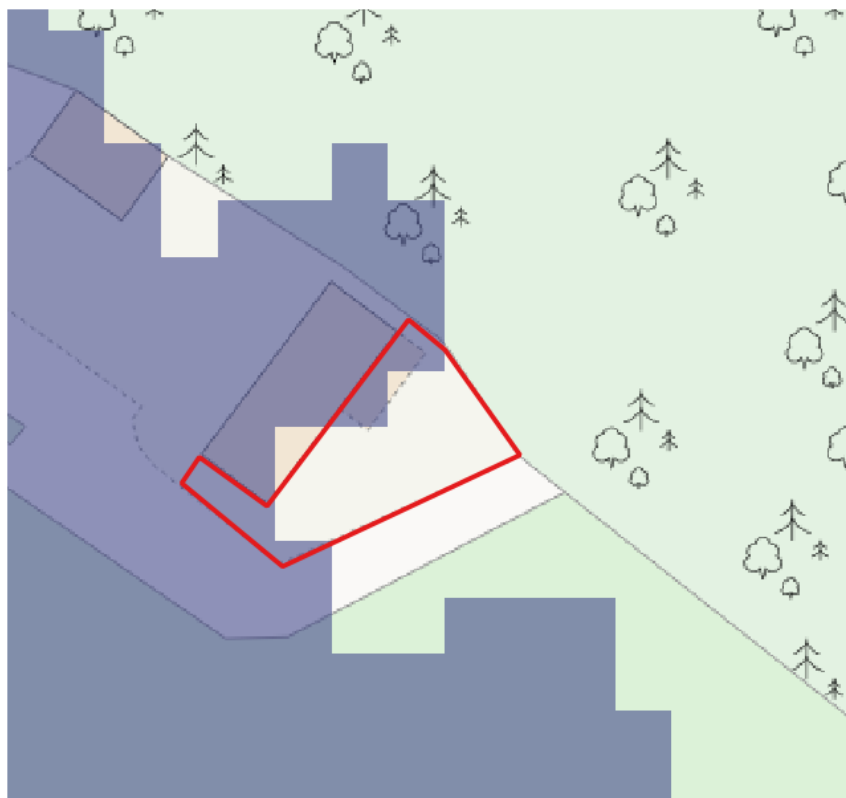


Figure 4: Extents of Flood Zone 3, as defined by the 1 in 100yr extents with a +25% allowance for climate change relative to the storage area up to year 2079.

The area of local reinforcement is wholly within Flood Zone 3a with the Southern most third also in Flood Zone 3b (as defined by the 1 in 30yr flood extents).



Figure 5: Extents of Flood Zone 3b, as defined by the 1 in 30yr flood extents, relative to the area of local ground reinforcement (Area A).

2.2.2 Flood risk from groundwater

Groundwater flooding occurs when water levels in the ground rise above surface levels. It is most common in low-lying areas underlain by permeable rock (aquifers), usually due to extended periods of wet weather. The site's geology is classified as having low susceptibility to groundwater flooding, <25%.

Hence, the risk of groundwater flooding on the proposed site can be considered to be Low.

2.2.3 Flood risk from sewer and highway drains

Flooding occurs when combined, foul or surface water sewers and highway drains are temporarily over-loaded due to excessive rainfall or due to blockage.

There are no indicators to Sewer flooding at the site.

Hence, the risk of sewer and highway flooding to the proposed site can be considered to be Low.

2.2.4 Flooding risk from surface water

Flooding occurs when rainfall fall on a surface (on or off the site) which acts as run-off which has not infiltrated into the ground or entered into a drainage system.

With reference to the E.A's RoFSW data, Figure 6, both locations are in an area with a very Low risk of flooding from surface water and hence not at risk.



Figure 6: SW Flood risk 1 (1 in 1000yr) relative to the site. Data from RoSWF data set overlain on a Google map image. The area of both elements of the works is not shown to be at risk from surface water flooding

2.2.5 Flood risk from infrastructure failure

Flooding occurs because of canals, reservoirs, industrial processes, burst water mains or failed pumping stations.

The site is not shown to be at a Low flood risk from reservoir failure.

2.3 Impact on flood risk elsewhere

Given that:

- The ground levels are not being raised hence there will be no loss in flood plain capacity,
- The lean-to structure is “floodable” and hence will not displace flood water,

then the proposals will not impact on flood risk elsewhere.

3 Levels

3.1 Flood levels

3.1.1 Ground strengthening (Area A)

Refer to Figure 7.

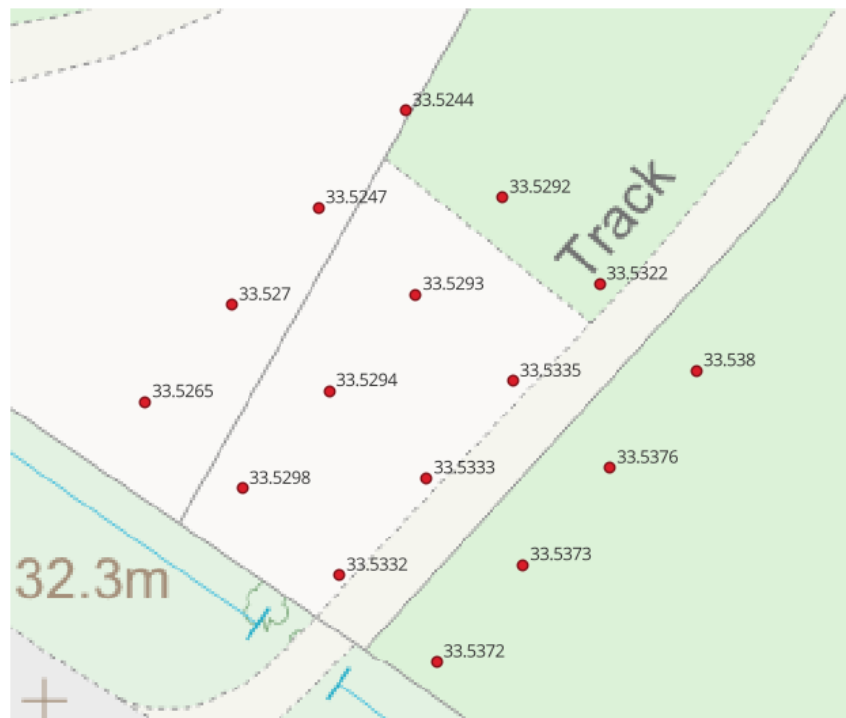


Figure 7: 1 in 100y+35% flood levels, mAOD

3.1.2 Storage area (Area B)

This is for design period flood events (up until year 2079).

Refer to Figure 8. Nodes without values = nil.



Figure 8: 1 in 100y+25% flood levels, mAOD

3.2 Flood Depths

3.2.1 Ground strengthening (Area A)

Refer to Figure 9.

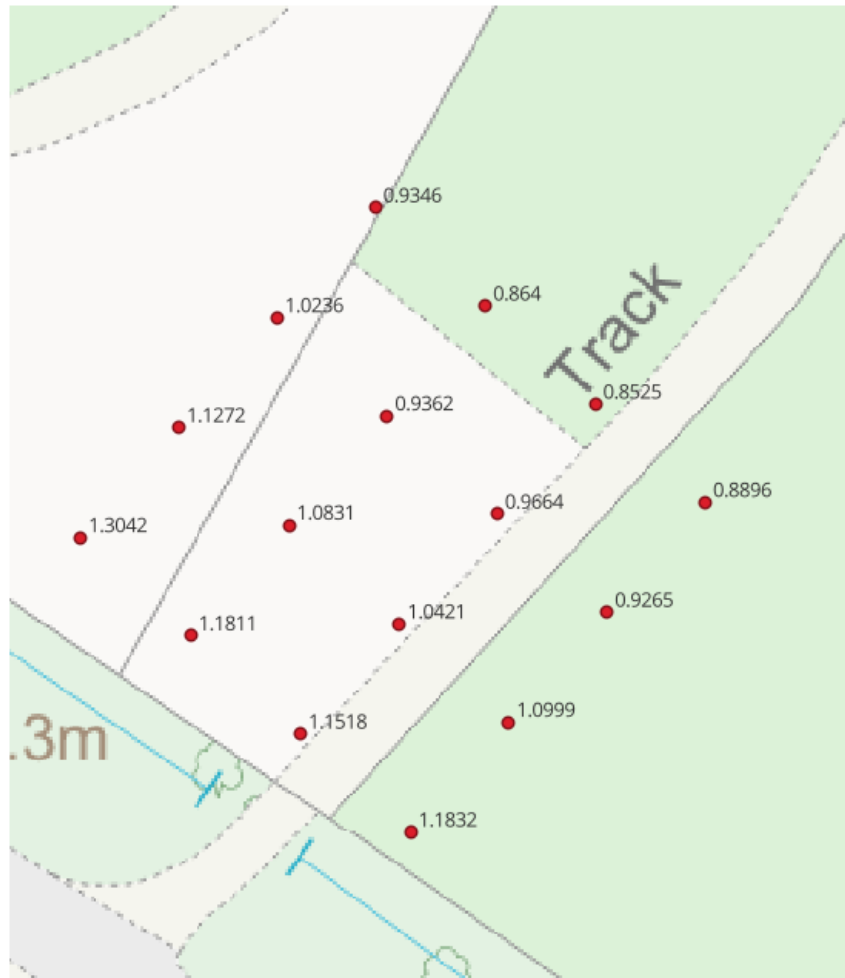


Figure 9: 1 in 100y+35% flood depths, m

3.2.2 Storage area (Area B)

Refer to Figure 10. Nodes without values = 0.



Figure 10: 1 in 100y+25% flood depths, m

3.3 External ground levels

3.3.1 Area of ground strengthening

It is understood that the ground level is not being raised, only strengthened by the use of a reinforcement grid material (Bodpave).

3.3.2 Storage Area

This area is not being raised only surfaced by the use of a free draining material (understood to be gravel) as previously approved under application 210519.

3.4 Management of flood risk

3.4.1 Flood resilience and resistance

No specific flood resilience measure are required to either the area of local ground reinforcement or the storage area and associated temporary lightweight “log storage” timber structures.

3.4.2 Appropriateness

With reference to the NPPF: Annexe 3 and Figure 11:

- The storage area is classed as “less vulnerable¹” and is “Appropriate development” in Flood Zone 2.
- Carparks are classed as Less vulnerable and this is not appropriate development in Flood Zone 3b. However, the submitted planning statement comments:

“Now that application 210519 has been implemented, there is sufficient area for parking and material storage within ‘The Burrow’ which means the land subject to this application is no longer required for parking purposes.”

- Hence the area of local ground reinforcement is now classed as “water compatible²” and is “Appropriate development” in Flood Zones 3a and 3b.

¹Land and buildings used for agriculture and forestry

²Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms.

Flood risk vulnerability classification (see table 2)		Essential infrastructure	Water compatible	Highly vulnerable	More vulnerable	Less vulnerable
Flood zone (see table 1)	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test required	✓	✓
	Zone 3a	Exception Test required	✓	✗	Exception Test required	✓
	Zone 3b functional floodplain	Exception Test required	✓	✗	✗	✗

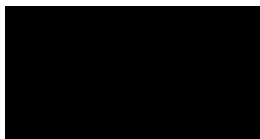
Figure 11: Appropriateness of development

4 Summary

- The Storage area is predominantly in present day Flood Zone 2 and future Flood Zone 2 up until epoch 2080;
- The Storage area is formed using a pervious freely draining material (understood to be loose gravel);
- Given the use of a pervious surface the use of this area for storage will not increase flood risk elsewhere;
- The lean-to structure with a base is considered 100% flood-able and hence will not increase flood risk elsewhere;
- The area of “Bodpave” reinforcement is wholly in Flood Zone 3 and in part in flood Zone 3b;
- The ground levels are not being raised hence there will be no loss in flood plain capacity;
- The “Bodpave” system does not affect the natural drainage of the area hence there will be no additional run-off from this area;

In conclusion, neither the gravelled storage area, the storage structure, nor area of local surface reinforcement will increase flood risk elsewhere and hence from a flood risk perspective both schemes are considered to be acceptable.

Signed:



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Date: 12th June, 2025