

Project Name: Boxted Solar Farm

Report Name: Response to LLFA Holding Objection

Author: Lucy Ginn

Approved by: Simon Jacques

Date: 30/01/2025

Project Number: P21-2950

Introduction

This document provides a response to the holding objection received from Suffolk County Council as Lead Local Flood Authority to the proposed Boxted Solar Farm (application no: DC/23/05127-FUL). The holding objection was received on the 15th November 2023 from Jason Skilton (Flood and Water Engineer). The LLFA's comments are enclosed at the end of this document. The comments detail that "the applicant needs to make a minor amendment to the surface water drainage strategy" and request that the submitted Flood Risk Assessment and surface water drainage strategy are re-submitted "referencing the LLFA Standing Advice – Solar Panels (PV) and Solar Farms (January 2022)". This standing advice document is enclosed at the end of this document.

Following receipt of the LLFA's comments, a meeting was held on 28th February 2024 between Pegasus Group (attended by Lucy Ginn – Senior Flood Risk Consultant and Luke Johnson – Principal Engineer) and Suffolk County Council LLFA (attended by Jason Skilton – Flood and Water Engineer). This meeting was held for the benefit of Pegasus Group to better understand what the LLFA would expect to see to address their holding objection. The response presented here to the LLFA holding objection is in accordance with the discussions held with the LLFA in February 2024.

This document has been split into sections identified as the key concerns raised by the LLFA during the meeting held in February 2024 and seek to ensure the proposals make reference to the standing advice as requested in the LFFA holding objection.

Risk of Erosion Between Rows of Solar Panels

The risk of erosion between rows of solar panels was raised as a concern by the LLFA during the meeting in February 2024. The LLFA's standing advice (enclosed) does not specifically highlight the risk of erosion between solar panels but details that "the density, height and number of PV panels will dictate the type of surface water management system that is required by the LLFA. This can be done by using perimeter swales or filter strips every 5th row of PV panels".

During the meeting in February 2024, the LLFA detailed that they would consider two options to address the risk of erosion between solar panels:

- a) Implementing filter strips every 5th row of PV panels.
- b) Implementing a low grazing density regime one site.

It is confirmed that the grazing regime on site will remain low. The applicant will provide a detailed grazing regime for the site at a later date, and it is requested that the provision of this regime is conditioned. With a low density grazing regime on site, it is not considered necessary to provide filter strips on site to manage the risk or erosion between rows of solar panels. The implementation of a low grazing density regime on site will ensure sufficient vegetation cover is maintained on site. The proposed Landscape Masterplan for the site in enclosed. Land beneath the solar panels proposed on site will be maintained as grass/wildflower seed mix and not be left as bare ground which could be eroded. Cook and McCuen's



2013 report on the "Hydrologic Response of Solar Farms" states that "with well-maintained grass underneath the panels, the solar panels themselves do not have much effect on total volumes of the runoff". It is therefore considered that the proposed landscaping on site will offer sufficient mitigation measures against the potential for erosion between rows of solar panels.

Swales to Capture Overland Flows

As discussed above, the LLFA's standing advice (enclosed) details that "the density, height and number of PV panels will dictate the type of surface water management system that is required by the LLFA. This can be done by using perimeter swales or filter strips every 5th row of PV panels". During the meeting held in February 2024, the LLFA confirmed that they would expect to see perimeter swales installed on site to ensure overland flows do not impact neighbouring land.

The LLFA have raised concerns about the impact of the proposed solar panels on the volume and concentration of overland flows and how this may impact neighbouring area of land. To minimise the risk of increased overland flows, the LLFA have requested that additional mitigation measures are considered.

In response to these concerns, we would like to point the LLFA to the proposed access track details. A typical access track detail is enclosed at the end of this document. The track section shows that the design has accounted for a drainage swale to be located on the downslope side to the access tracks. Many of the proposed solar panel blocks include an access track and associated drainage swale alongside them. These swales will help capture overland flows on site to reduce the risk of impacting neighbouring land. In addition, the proposed site layout and topographic survey have been reviewed to identify any locations at the downslope side of a proposed block of solar panels where there is not currently an access track and associated swale proposed. Here, additional swales or gravel trenches have been added to capture any overland flows from the development and promote infiltration of this surface water. A drawing which highlights where current access track drainage swales are proposed and where additional swales and gravel trenches will now also be proposed is enclosed at the end of this document. Stone will be placed at the end of solar table rows to allow for maintenance vehicles to turn across swales during operation of the solar farm.

Historic Flood Records

The LLFA's standing advice (enclosed) details that "the FRA should include reference to any historical flood instances that have been recorded". The submitted FRA (ROO1v2-IN_P21-2950-FRA & Surface Water Drainage Strategy) assessed historic flood records held by the Environment Agency and included in the Babergh and Mid Suffolk SFRA (2020), concluding that here were no known historic flood events impacting the site. The assessment of LLFA historic flood records was requested during the meeting with the LLFA in February 2024. LLFA historic flood records were received in February 2024 and are enclosed at the end of this document. The LLFA's historic flood records do not highlight any historic flood events that have impacted the site. There is a "flood incident record – medium priority" recorded just outside the site boundary.

Maintenance of SuDS Features

The LLFA's standing advice (enclosed) details that "as below the panel will normally be laid to grass or pastureland, the type of maintenance will vary depending on how the ground below and around the panels is to be utilised". The proposed SuDS on site will also require maintenance. It is requested that an Operation and Maintenance Manual is secured by condition.

Surface Water Flow Routes

The LLFA's standing advice (enclosed) details that "existing flood flow routes or blue corridors should be maintained". As detailed in the submitted Flood Risk Assessment (ROO1v2-IN_P21-2950-FRA & Surface Water Drainage Strategy), the impact of the proposed solar panels on existing flow routes is considered



to be negligible and a surface water drainage strategy has been proposed to ensure the infrastructure proposed on site also does not impact existing flow routes.

Summary

Based on the above, we would request that the LLFA review the additional information provided and remove their holding objection. We would welcome your earliest consideration of this additional information.

Enclosures

Suffolk County Council LLFA Holding Objection

Suffolk County Council Standing Advice - Solar Panels (PV) and Solar Farms (January 2022)

Landscape Masterplan

Typical Access Track Detail

LLFA Historic Flood Records

Proposed Mitigation Measures - Swales & Gravel Trench Drawing

Sent: 15 Nov 2023 10:22:48

To: Cc:

Subject: FW: 2023-11-15 JS reply Land West Of Boxted Ref DC/23/05127 - FUL

Attachments:

From: GHI Floods Planning <floods.planning@suffolk.gov.uk>

Sent: Wednesday, November 15, 2023 10:19 AM

To: BMSDC Planning Area Team Green <planninggreen@baberghmidsuffolk.gov.uk>

Cc: Isaac Stringer < Isaac. Stringer@baberghmidsuffolk.gov.uk>

Subject: 2023-11-15 JS reply Land West Of Boxted Ref DC/23/05127 - FUL

Dear Issac Stringer,

Subject: Land West Of Boxted Ref DC/23/05127 - FUL

Suffolk County Council, as Lead Local Flood Authority (LLFA), have reviewed application ref DC/23/05127

The following submitted documents have/has been reviewed and the LLFA recommends a **holding objection** at this time:

Flood Risk Assessment and Surface Water Drainage Strategy Ref Pegasus Ref: P21-2950 Date: 23/10/2023

A holding objection is necessary because the applicant needs to make a minor amendment to the surface water drainage strategy.

The holding objection is a temporary position to allow reasonable time for the applicant and the LLFA to discuss what additional information is required to overcome the objection(s). This Holding Objection will remain the LLFA's formal position until the local planning authority (LPA) is advised to the contrary. If the LLFA position remains as a Holding Objection at the point the LPA wishes to determine the application, the LPA should treat the Holding Objection as a Formal Objection and recommendation for Refusal to the proposed development. The LPA should provide at least 2 weeks prior notice of the publication of the committee report so that the LLFA can review matters and provide suggested planning conditions, even if the LLFA position is a Formal Objection.

The points below detail the actions required to overcome our current objection:-

- Resubmit the Flood Risk Assessment and Surface Water Drainage Strategy referencing the LLFA Standing Advice Solar Panels (PV) and Solar Farms (January 2022).
 - a. Note this is the LLFA stand way to manage surface water from this type of development and is based on best practise across the country.

Kind Regards

Jason Skilton Flood and Water Engineer Suffolk County Council

The Suffolk SuDS Guide has been updated (March 2023)

----Original Message-----

From: planninggreen@baberghmidsuffolk.gov.uk <planninggreen@baberghmidsuffolk.gov.uk>

Sent: Monday, November 6, 2023 5:03 PM

To: GHI Floods Planning <floods.planning@suffolk.gov.uk>

Subject: BDC Planning Consultation Request - DC/23/05127 - FUL

Please find attached planning consultation request letter relating to planning application - DC/23/05127 - Land West Of Boxted, ,

Kind Regards

Planning Support Team

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Standing Advice - Solar Panels (PV) and Solar Farms

Introduction

Suffolk County Council as Lead Local Flood Authority (LLFA) has identified the need for additional guidance and clarification in relation to planning application for Solar Panels (PV) and Solar Farms relating to flood risk and surface water drainage. This builds on principles established by Solar Arrays which have formed part of Nationally Strategic Infrastructure Projects and neighbouring counties flood risk and SuDS guidance with respect to solar arrays.

Flood Risk

It is generally accepted that PV panels and the associated auxiliary buildings/structures have a limited impact on flood risk due to their comparatively small footprint and lack of ground contacting surfaces. However, it does not mean that this does not need to be fully considered. The LLFA will still expect a site-specific flood risk assessment (FRA) to be submitted with every PV application that is more than 1 hectare in size or is in a flood risk area. If the site is within a area at risk of flooding, the flood risk sequential and exception test maybe applied by the local planning authority.

There are several flood risks that need to be assessed, including.

- Fluvial (river)/ Tidal (sea)
- Pluvial (surface water)
- Reservoir
- Groundwater
- Foul/Sewer Flooding

The FRA should include reference to any historical flood instances that have been recorded.

For flood incident records, please contact the lead local flood authority by emailing them <u>floods@suffolk.gov.uk</u>.

If you need assistance with understanding what is required this is the current guidance <u>Flood</u> risk assessments if you're applying for planning permission - GOV.UK (www.gov.uk).

Surface Water Drainage

The density, height and number of PV panels will dictate the type of surface water management system that is required by the LLFA.

This can be done by utilising perimeter swales or filter strips every 5th row of PV panels.

Auxiliary buildings, depending on where they are located, and their plan area can normally have the surface water drainage design/built in accordance with Building Regulations Part H. However, a surface water drainage strategy utilising SuDS principles may be required if the LLFA believe this is necessary depending on the site.



Below Panel Maintenance

As below the panel will normally be laid to grass or pastureland, the type of maintenance will vary depending on how the ground below and around the panels is to be utilised.

<u>Grass</u>

If the area is to be laid to grass, it is recommended that a seed mix is used which provides a ratio of approximately 80/20% grass/wildflower seeds to allow for biodiversity enhancement/net gain. The management of this area should then be carried out in accordance with a management plan that focuses on the target species that are to benefit of the grass and wildflower areas, such as invertebrates and birds. Careful consideration shall be given to the use of wheeled machinery to avoid soil compaction.

Pastureland

If the area below the panels is to be used for pastureland or grazing land, consideration should be given to

- Choice of species of grazing stock (usually sheep)
- Density of livestock stocking (this would usually be expected to be at a low density)
- Intensity of grazing (intermittent conservation grazing would usually be expected)
- Avoidance of soil compaction caused by grazing

Surface Water Flow Routes

Existing flood flow routes or blue corridors should be maintained.

Ordinary Watercourses

If you want to do works to a watercourse in Suffolk, it is likely that you will need to be granted consent by either SCC LLFA, an Internal Drainage Board, or the Environment Agency.

Main rivers are the responsibility of the Environment Agency, and <u>applications to work on main rivers</u> must be submitted to them. You can <u>use this map</u> created by the Environment Agency to find out whether or not the application in question is on a main watercourse.

The responsibility to manage flood risk from ordinary watercourses (streams and ditches, etc) in Suffolk rests with us, as the Lead Local Flood Authority (LLFA). Therefore, anyone who intends to carry out works in, over, under or near an ordinary watercourse in Suffolk must contact us to obtain Land Drainage Consent before starting the work. The reason for this is to ensure that any works do not endanger life or property by increasing the risk of flooding, or cause harm to the water environment.

More details can be found here



ID	Plant Species	Size	Primary seconds species
A.c	Acer campestre	12-14cm, 350-425cm ht	Р
C.b.	Carpinus betulus	12-14cm, 350-425cm ht	Р
J.r	Juglans regia	12-14cm, 350-425cm ht	S
M.s	Malus sylvestris	12-14cm, 350-425cm ht	Р
P.a	Prunus avium	12-14cm, 350-425cm ht	S
Q.r	Quercus robur	10-12cm, 350-425cm ht	P
		lu u u m	la.
ID	Plant Species	Height/Pot Size	%
	Plant Species Acer campestre	Selected to 900mm ht	%
ID A.c A.c	Plant Species Acer campestre Acer campestre	Selected to 900mm ht 2m Feathered	 %
ID A.c A.c	Plant Species Acer campestre	Selected to 900mm ht	%
	Plant Species Acer campestre Acer campestre	Selected to 900mm ht 2m Feathered	%
ID A.c A.c C.s	Plant Species Acer campestre Acer campestre Cornus sanguinea	Selected to 900mm ht 2m Feathered Selected to 900mm ht	%
ID A.c A.c C.s	Plant Species Acer campestre Acer campestre Cornus sanguinea Corylus avellana	Selected to 900mm ht 2m Feathered Selected to 900mm ht Selected to 900mm ht	%
ID A.c A.c C.s C.a C.m	Plant Species Acer campestre Acer campestre Cornus sanguinea Corylus avellana Crataegus monogyna	Selected to 900mm ht 2m Feathered Selected to 900mm ht Selected to 900mm ht Selected to 900mm ht	%
ID A.c A.c C.s C.a C.m	Plant Species Acer campestre Acer campestre Cornus sanguinea Corylus avellana Crataegus monogyna Crataegus monogyna	Selected to 900mm ht 2m Feathered Selected to 900mm ht Selected to 900mm ht Selected to 900mm ht 1.5m Feathered	%
ID A.c A.c C.s C.a C.m C.m	Plant Species Acer campestre Acer campestre Cornus sanguinea Corylus avellana Crataegus monogyna Crataegus monogyna Euonymus europaeus	Selected to 900mm ht 2m Feathered Selected to 900mm ht Selected to 900mm ht Selected to 900mm ht 1.5m Feathered Selected to 900mm ht	%

ID	Plant Species	Height	%
A.p	Acer pseudoplatanus	1.75m Feathered	2.5
C.b.	Carpinus betulus	1.75m Feathered	10
Co.s	Cornus sanguinea	400-600mm ht	5
C.a	Corylus avellana	Selected to 900mm ht	10
C.m	Crataegus monogyna	Selected to 900mm ht	15
Eu,eu.	Euonymus europaeus	Selected to 900mm ht	10
.a	llex aquifolium	200-300mm ht	5
.,р	Lonicera periclymenum	200-300mm ht	2.5
⁹ .a.	Prunus avium	1.75m Feathered	2.5
Q.r	Quercus robur	1.75m Feathered	5
Q.r	Quercus robur	Selected to 900mm ht	10
S.c*	Salix caprea	Selected to 900mm ht	5
S.a	Sorbus aucuparia	1.75m Feathered	10
V.I.	Viburnum lantana	Selected to 900mm ht	7.5

Q.r	Quercus robur	1.75m Feathered	5
Q.r	Quercus robur	Selected to 900mm ht	10
S.c*	Salix caprea	Selected to 900mm ht	5
S.a	Sorbus aucuparia	1.75m Feathered	10
V.I.	Viburnum lantana	Selected to 900mm ht	7.5

W	oodland Mix Planting			D	23.01.25	LAB	Updated to revised layout
		ī	I	С	26.10.23	VR	Minor amend to landscape notes
	Plant Species		Planting Height (m)	В	18.10.23	VR	Updates following receipt of ecologist's comments
	Acer campestre Carpinus betulus	12-14cm	3.5-4.0 3.5-4.0	Α	09.10.23	FH	Client comments
	Prunus avium Quercus robur		3.5-4.0 3.0-3.5	Rev	Date	Ву	Note

Landscape Masterplan

Boxted Solar Farm

Client: RES Ltd. REV: D DRWG No: P21-2960_EN_004 Drawn by: LAB Approved by: FH **PEGASUS** Scale: 1:2,000 @ A1

for site's ground conditions to be agreed (outside the security fence) 🗈 Pegasus Planning Group Limited. 🕲 Crown copyright and database rights OS 100042093. Promap Licence number 100020449. EmapSite Licence number 0100031673. Terms & Conditions @ pegasusgroup.co.uk

rees and vegetation

Root Protection Areas

Native woodland mix

Overhead line

• • • • • • Public Rights of Way

PROPOSED

Standard trees within woodland mix planting

Swale: Emorsgate EM8 Meadow Mixture for Wetlands

ground conditions to be agreed (within the security fence)

for site's ground conditions to be agreed (outside the security fence)

Grass / Wildflower seed mix: Emorsgate Hedgerow Mixture EH1 or similar approved suitable

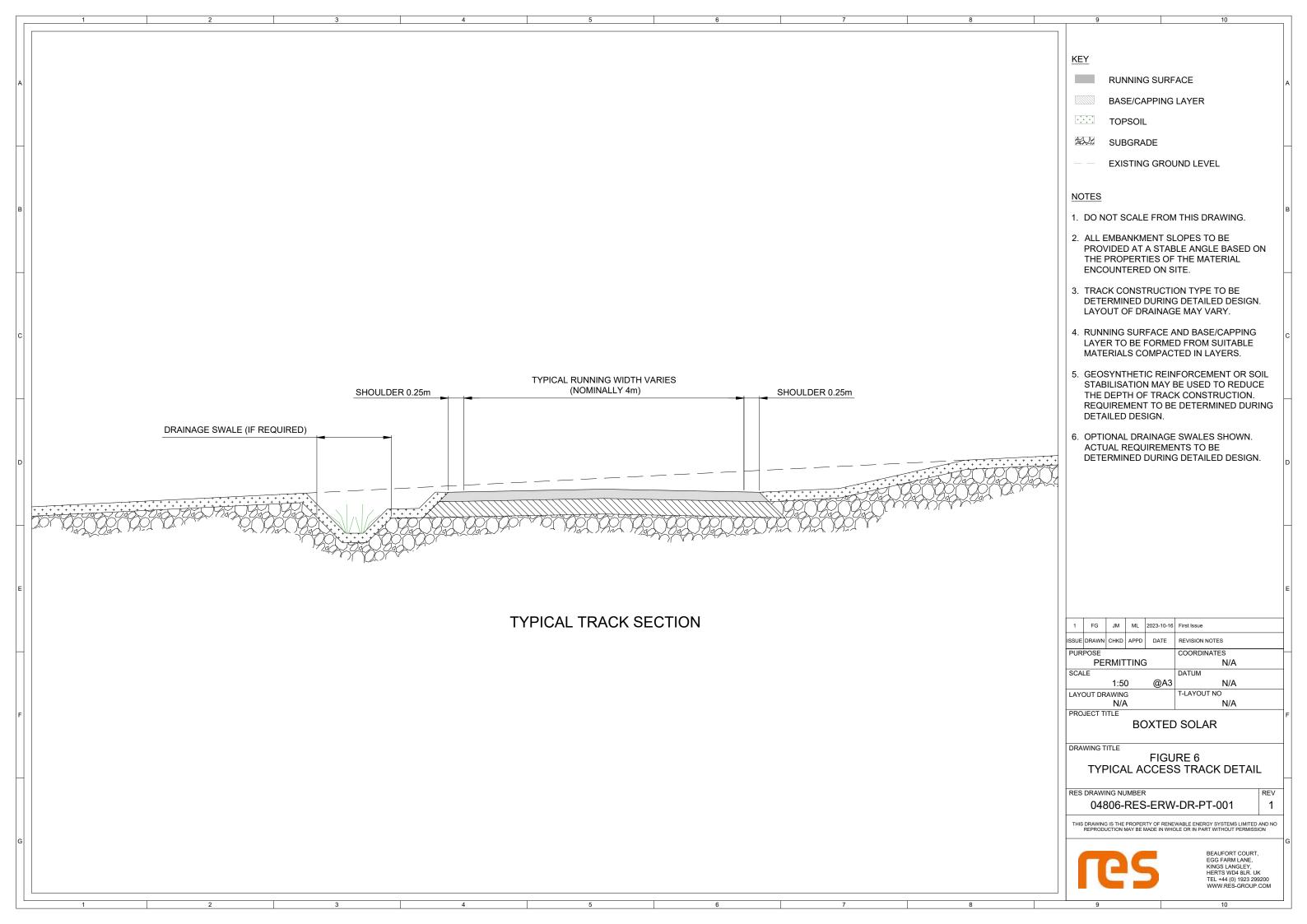
Grass / Wildflower seed mix: Emorsgate Woodland mixture EW1 or similar approved suitable

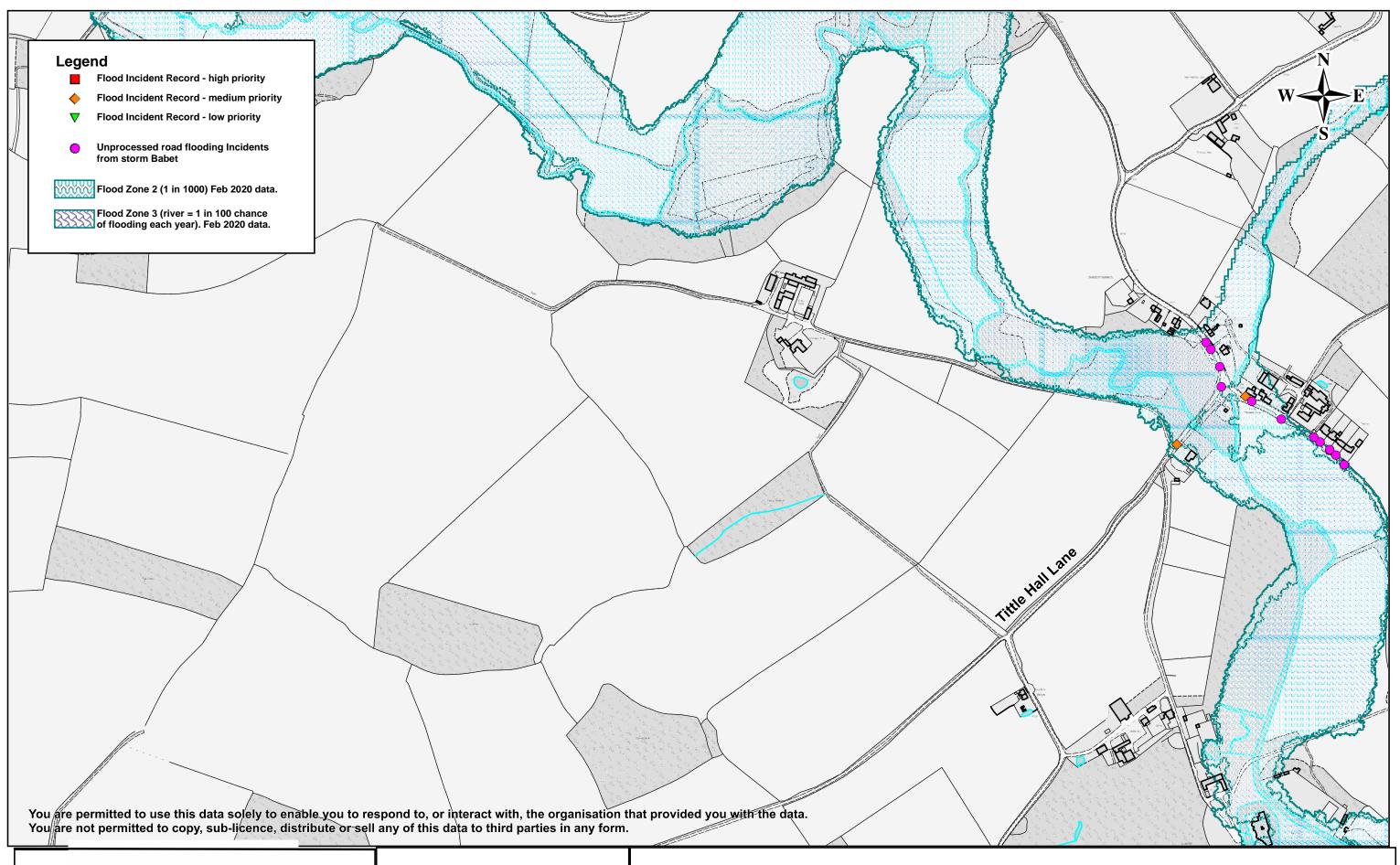
Grass / Wildflower seed mix: Grazing mixture - species-rich grassland suitable for site's

Native mixed hedgerow planting

native mixed hedgerow

Strategic infill planting where required:







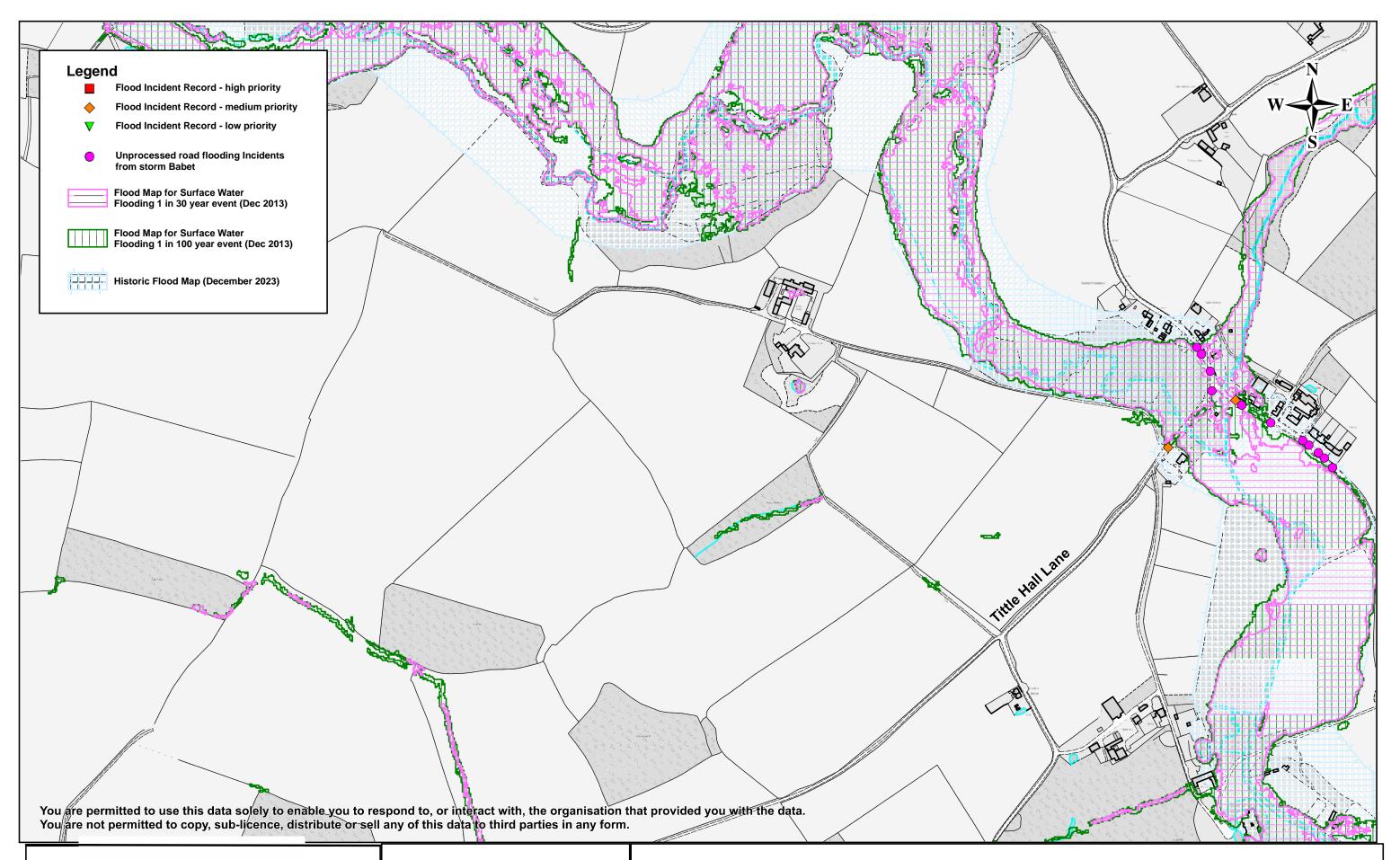
Growth, Highways and Infrastructure. Endeavour House, 8 Russell Road, Ipswich, Suffolk. IP1 2BX. 0 250 meters Scale 1:5,000

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* Please note this map should not be used to assess flood risk for individual properties, it should only be viewed at a local area scale to give an approximate flood extent. For example, small flood defences may not have been incorporated into these flood maps which can influence flood risk.

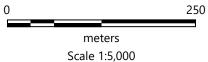
Map data valid for 6 months after publish date.

06/02/2024





Growth, Highways and Infrastructure. Endeavour House, 8 Russell Road, Ipswich, Suffolk. IP1 2BX.



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* Please note this map should not be used to assess flood risk for individual properties, it should only be viewed at a local area scale to give an approximate flood extent. For example, small drainage ditches may not have been incorporated into these flood maps which can influence flood risk.

Map data valid for 6 months after publish date.

06/02/2024

