

PRIORY FARM SOLAR ARRAY, GREAT WYMONDLEY

CONSTRUCTION PHASE FLOOD MANAGEMENT PLAN

Final Report v1.3
January 2025

Report Title	Priory Farm Solar Array, Great Wymondley Construction Phase Flood Management Plan Final Report v1.3
Client	AGR Solar 4 Limited
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1 INTRODUCTION

1.1 Background

Planning permission for the construction of a solar array with associated battery storage containers and ancillary development including means of access and grid connection cable on land at Graveley Lane, to the east of Great Wymondley, Hertfordshire was granted on 11 March 2024, under planning appeal reference APP/X1925/V/23/3323321 in respect of planning application reference 21/03380/FP.

Planning condition 6 requires a Construction Environmental Management Plan (CEMP) to be submitted and approved prior to the commencement of development. The condition states:

“No development shall take place (including demolition, ground works and vegetation clearance) until a construction environmental management plan (CEMP) has been submitted to, and approved in writing by, the local planning authority.”

The condition has fourteen parts. Part (xiii) of the condition states:

“The CEMP shall include details of the following:

- xiii) A flood management plan, which shall include a requirement for the contractor to sign up to the Environment Agency flood warning service, and which shall set out the actions to be taken in the event that a flood alert and/or flood warning is received from the Environment Agency (including a requirement that no new trenches are excavated until the Environment Agency has issued an All Clear).*

The development shall be implemented in accordance with the approved CEMP throughout the construction period.”

This Flood Management Plan has been prepared on behalf of AGR Solar 4 Limited (“the applicant”) to accompany an application to fully discharge part (xiii) of Condition 6.

1.2 Purpose of Report

This Flood Management Plan has been produced to ensure that site workers and visitors are aware of the potential for flooding and to instigate appropriate procedures in the event that flooding is forecast or has occurred during the construction phase of the development.

1.3 Structure of the Report

The report is structured as follows:

- Section 1** Introduction and report structure
- Section 2** Provides background information relating to the site and the potential risk of flooding
- Section 3** Summarises the roles and responsibilities for flood response and management
- Section 4** Sets out how to receive flood messages and warnings
- Section 5** Sets out how to respond safely to a flood event

1.4 Relevant Documents

The Flood Management Plan has been informed by a Flood Risk Assessment report prepared by Weetwood (issued in May 2022) and by other documents referenced therein.

2 SITE DETAILS

2.1 Details of the Development

The proposals are for the construction of photovoltaic solar panels and associated support frames, inverter/transformer stations, battery storage containers, a storage building, switchgear building, control building, access tracks, fencing, and soft landscaping (“the development”).

The development is located on a circa 88 hectare site on land located to the north and south of Graveley Lane, to the east of Great Wymondley (“the site”). The main site comprises two land parcels separated by Graveley Lane, referred to as “the northern site” and “the southern site” respectively.

In addition, there are works ‘off-site’ to connect the development to the electricity grid at the National Grid Wymondley Substation.

The construction phase of the development is expected to last 36 weeks, subject to all necessary permissions and consents being obtained.

The main site (as depicted by the red line) and route of the grid connection cabling (black line) is shown on **Figure 1**.

For clarity, the outlines and cable route shown on **Figure 1** are solely for the purpose of this Flood Management Plan and differ from the application red-line which incorporates the grid connection route and some additional land set aside for soft landscaping (not shown on **Figure 1**).

The construction phase layout is provided in **Appendix A**.

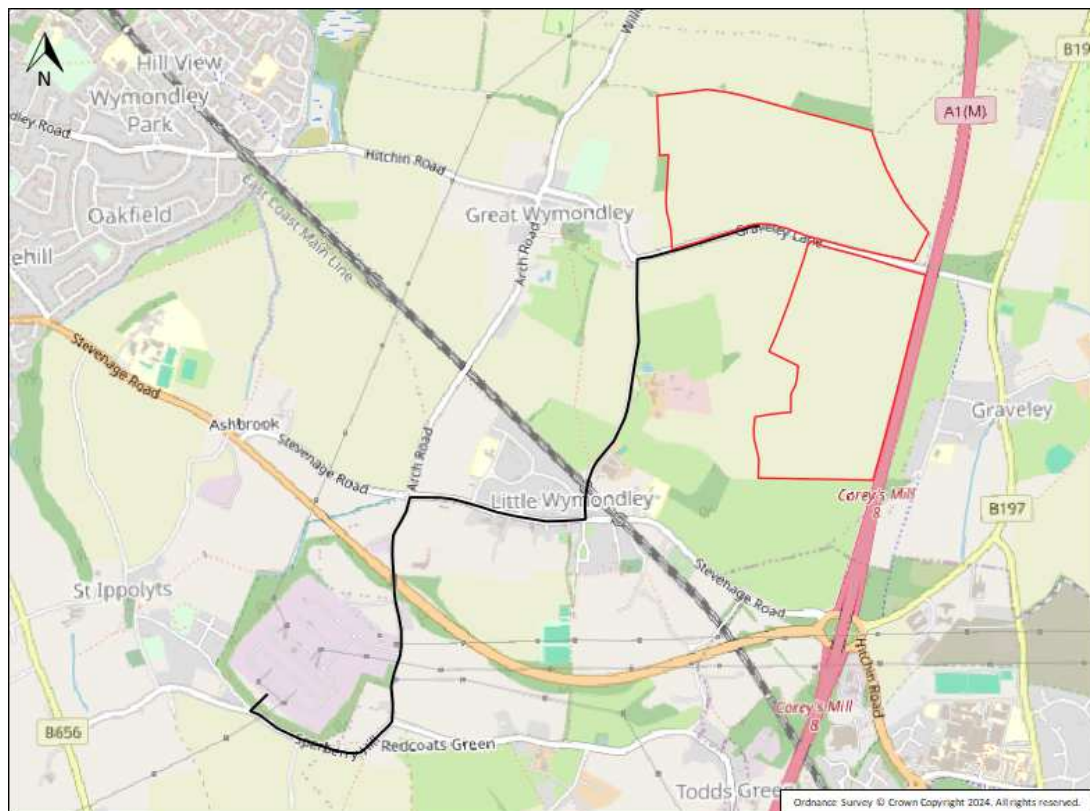


Figure 1: Site Location

2.2 Flood Risk

The best indication of the risk of flooding at the main site and also along the grid connection route is the Environment Agency Risk of Flooding from Surface Water map (see **Figure 2**). This map presents the risk of surface water flooding, but also provides a good indication of the risk of flooding from small watercourses.

The mapping indicates that small parts of the main site, and part of the grid connection route are at risk of flooding from surface water and/or from small watercourses.

To provide a more detailed representation of flood risk, the flood map presented in **Figure 2** is presented separately for the northern site (**Figure 3**), southern site (**Figure 4**), and the grid connection route (**Figures 5-7**).

The risk of flooding is presented for storm events with a 1 in 30, 1 in 100 and 1 in 1,000 chance of occurring in any one year. Whilst an event of such a severity is unlikely to occur during the construction phase, such an occurrence cannot be ruled out. Irrespective, the figures highlight potential flooding “hot-spots”, i.e. where flooding, either from surface water runoff or from a watercourse is most likely to occur.

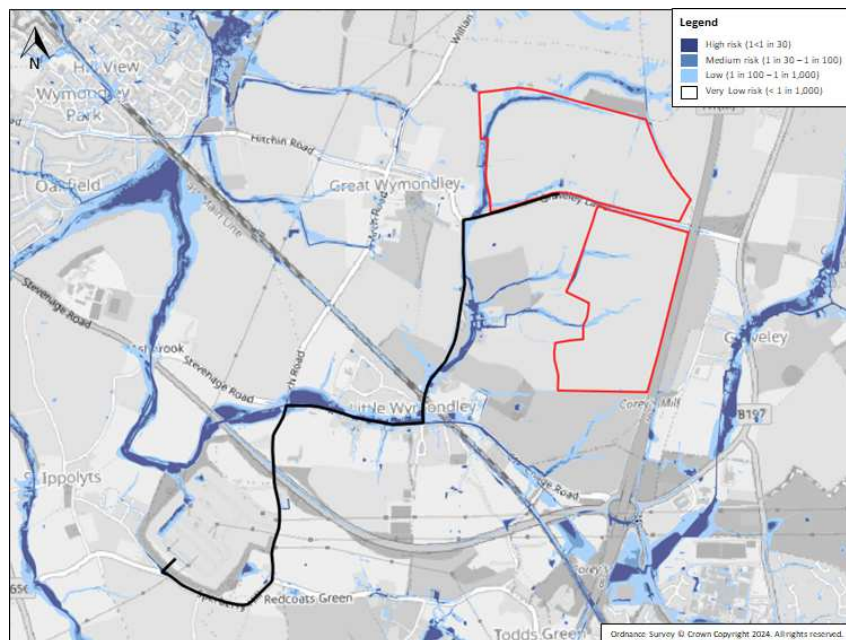


Figure 2: Risk of Flooding from Surface Water

Source: gov.uk website; Accessed: August 2024

2.3 Flood Risk Across the Northern Site (Refer Figure 3)

Overall risk of flooding is assessed to be Low.

Figure 3 indicates that an overland flow pathway may develop as follows:

- Across the north-west part of the northern site. The flow pathway corresponds to the position of a watercourse that is now piped below ground from a point on the northern boundary of the site to the north-east corner of a wooded area where the pipe outfalls to an open channel, and would only be expected to develop in the event that the pipe inlet became blocked during a storm event. The maximum depth of flooding is indicated to be in the range of 300-600 mm during an extreme (1 in 1,000) event, but would be significantly lower for less extreme events.
- In the south-east corner of the site adjacent to Gravelly Lane. This flow path would not be expected to develop except in the case of a severe (1 in 100) or extreme (1 in 1,000) event during which the maximum depth of flooding is indicated to be in the range of 150-300 mm.

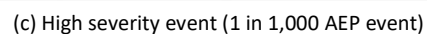
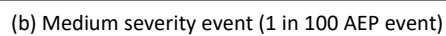


Figure 3: Risk of Flooding from Surface Water Runoff and from Small Watercourses (Northern Site)

2.4 Flood Risk Across the Southern Site (Refer Figure 4)

Overall risk of flooding is assessed to be Low.

Figure 4 indicates that the southern site is at a low risk of flooding. Two west-east overland flow pathways may develop during a severe or extreme event; however, the maximum depth of flooding is indicated to be in the range of 0 - 150 mm due to the slope of the site.

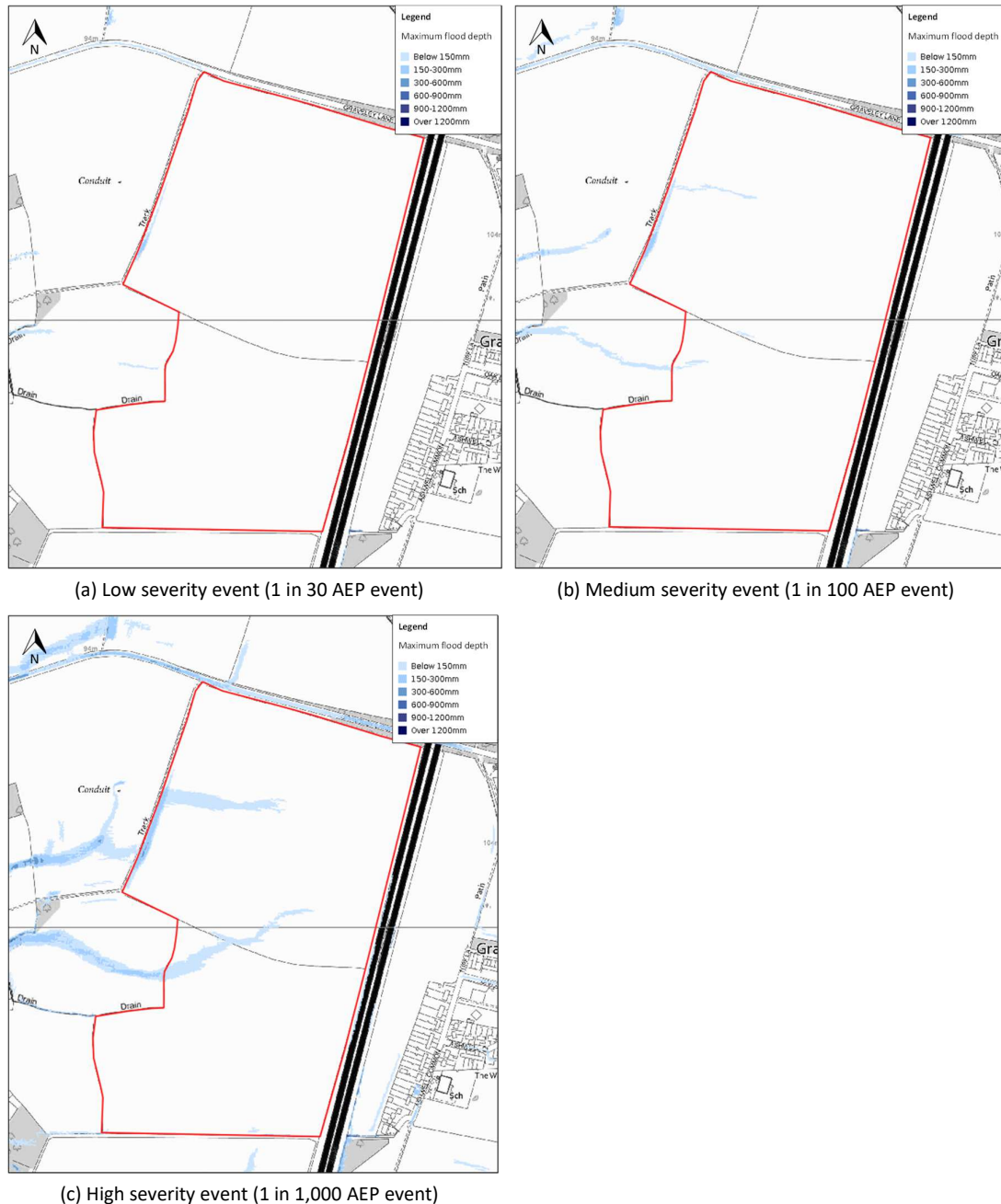


Figure 4: Risk of Flooding from Surface Water Runoff and from Small Watercourses (Southern Site)

2.5 Flood Risk Across the Cable Connection Route

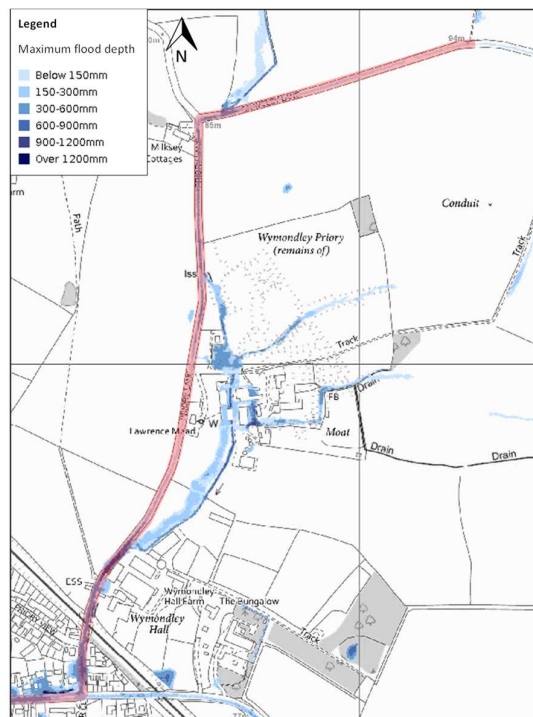
To indicate the risk of flooding along the cable connection route, the route has been sub-divided into a northern section (Figure 5), a central section (Figure 6), and a southern section (Figure 7).

2.5.1 Northern Section (Graveley Lane and Priory Lane to Railway Bridge) (Refer Figure 5) – Circa 1,400 m

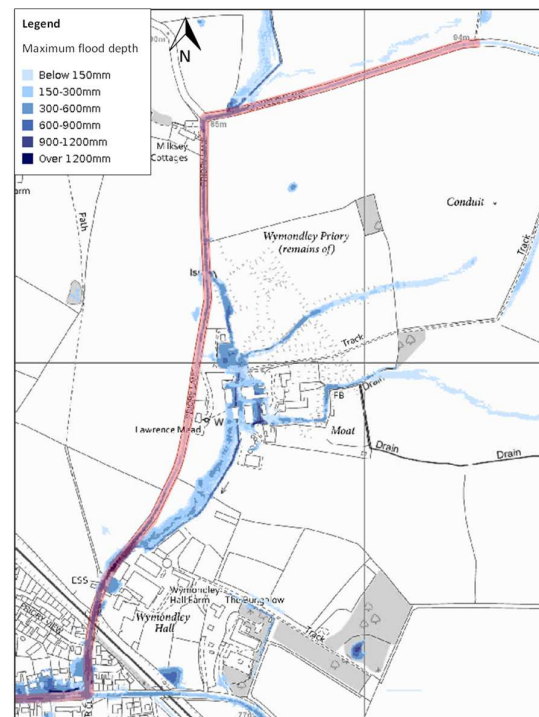
Overall risk of flooding is assessed to be Medium.

The risk of flooding is summarised as follows:

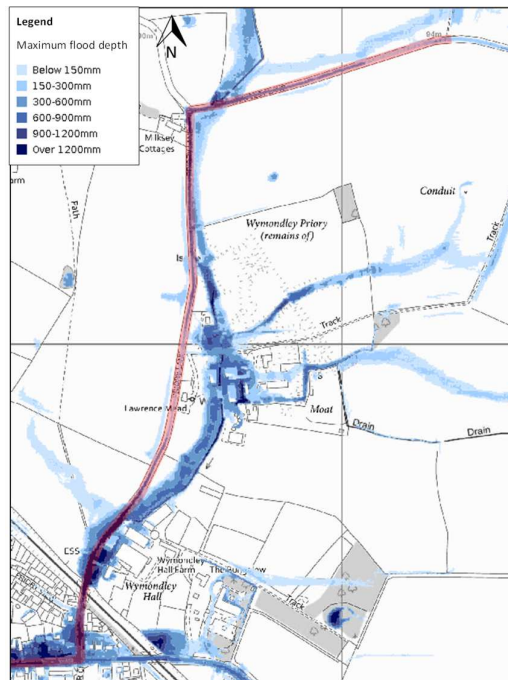
- Graveley Lane: The flood mapping indicates that the road may be susceptible to flooding due to surface water runoff and, in the vicinity of the junction with Priory Lane, due to potential flooding from Priory Lane Stream. The maximum depth of flooding is indicated to increase towards the junction with Priory Lane due to the road gradient and also the potential addition of flooding from Priory Lane Stream. During a severe (1 in 100) event, the maximum depth of flooding is indicated to be in the range of 150 - 300 mm, but this may increase to 900 - 1,200 mm adjacent to Priory Lane during an extreme flood event.
- Priory Lane (from Junction with Graveley Lane to the Railway Bridge): Priory Lane is indicated to be at a relatively high risk of flooding from surface water runoff from the fields either side of the road, and potentially from Priory Lane Stream which flows partly in a culvert under Priory Lane, and partly in an open channel to the east of the road. The mapping indicates that the depth of flooding during a severe event may be in the range of 600 - 900 mm, and exceeding 1,200 mm in places during an extreme event).



(a) Low severity event (1 in 30 AEP event)



(b) Medium severity event (1 in 100 AEP event)



(c) High severity event (1 in 1,000 AEP event)

Figure 5: Risk of Flooding from Surface Water Runoff and from Small Watercourses (Cable Route 1 of 3)

2.5.2 Central Section (Priory Lane south of Rail Bridge and Stevenage Road) – (Refer Figure 6) *Circa 780 m*

Overall risk of flooding is assessed to be High.

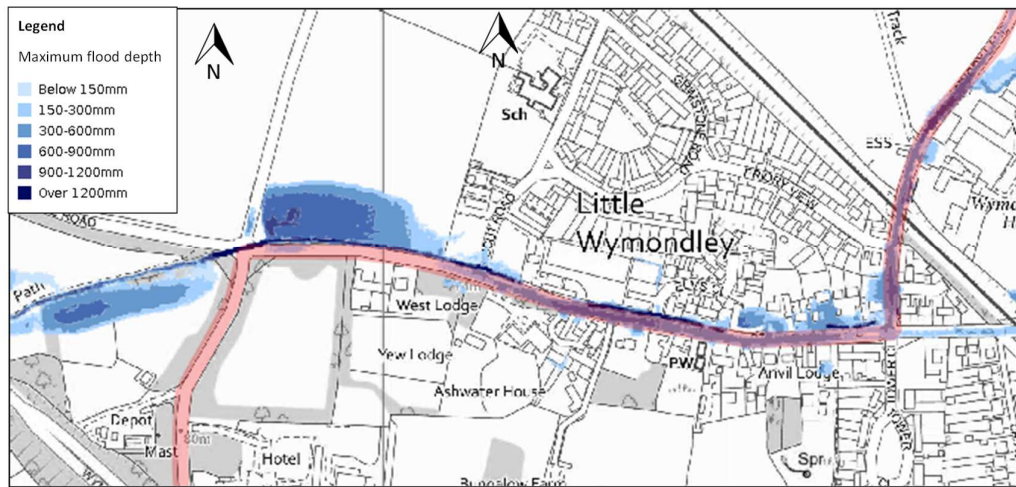
The risk of flooding is summarised as follows:

- Priory Lane: The flood mapping indicates that Priory Lane south of the rail bridge may be susceptible to flooding due to surface water runoff and from Priory Lane Stream. The potential depth of flooding varies according to the severity of the event, but may exceed 1.2 m in an extreme (1 in 1,000) event.
- Stevenage Road is at a high risk of flooding from Ash Brook. Ash Brook runs adjacent to the eastbound side of the road, flowing in open channel but with numerous lengths of culvert. Historical records indicate that significant flooding of the road occurs every few years with the maximum depth of flooding in the range of 600-1,200+ mm depending on the severity of the event.

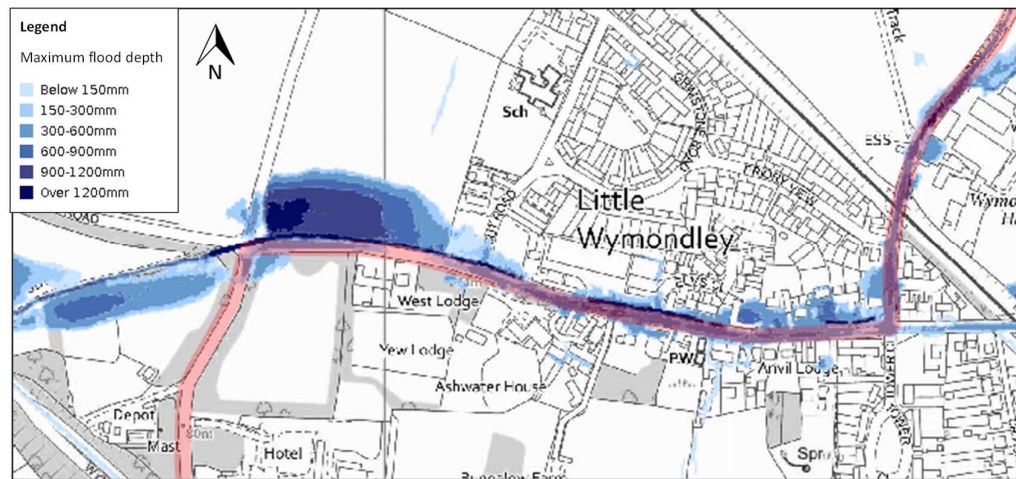
2.5.3 Southern Section (Blakemore End Road) - (Refer Figure 7) *Circa 1,500 m*

Overall risk of flooding is assessed to be Low.

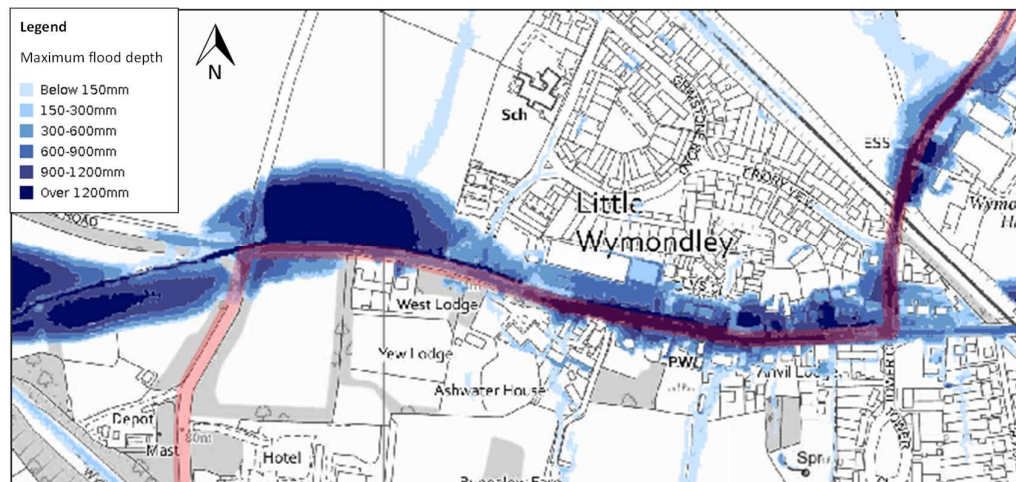
The mapping indicates the road to be generally flood free even during an extreme event, with the exception of the junction with Stevenage Road (described above).



(a) Low severity event (1 in 30 AEP event)



(b) Medium severity event (1 in 100 AEP event)



(c) High severity event (1 in 1,000 AEP event)

Figure 6: Risk of Flooding from Surface Water Runoff and from Small Watercourses (Cable Route 2 of 3)

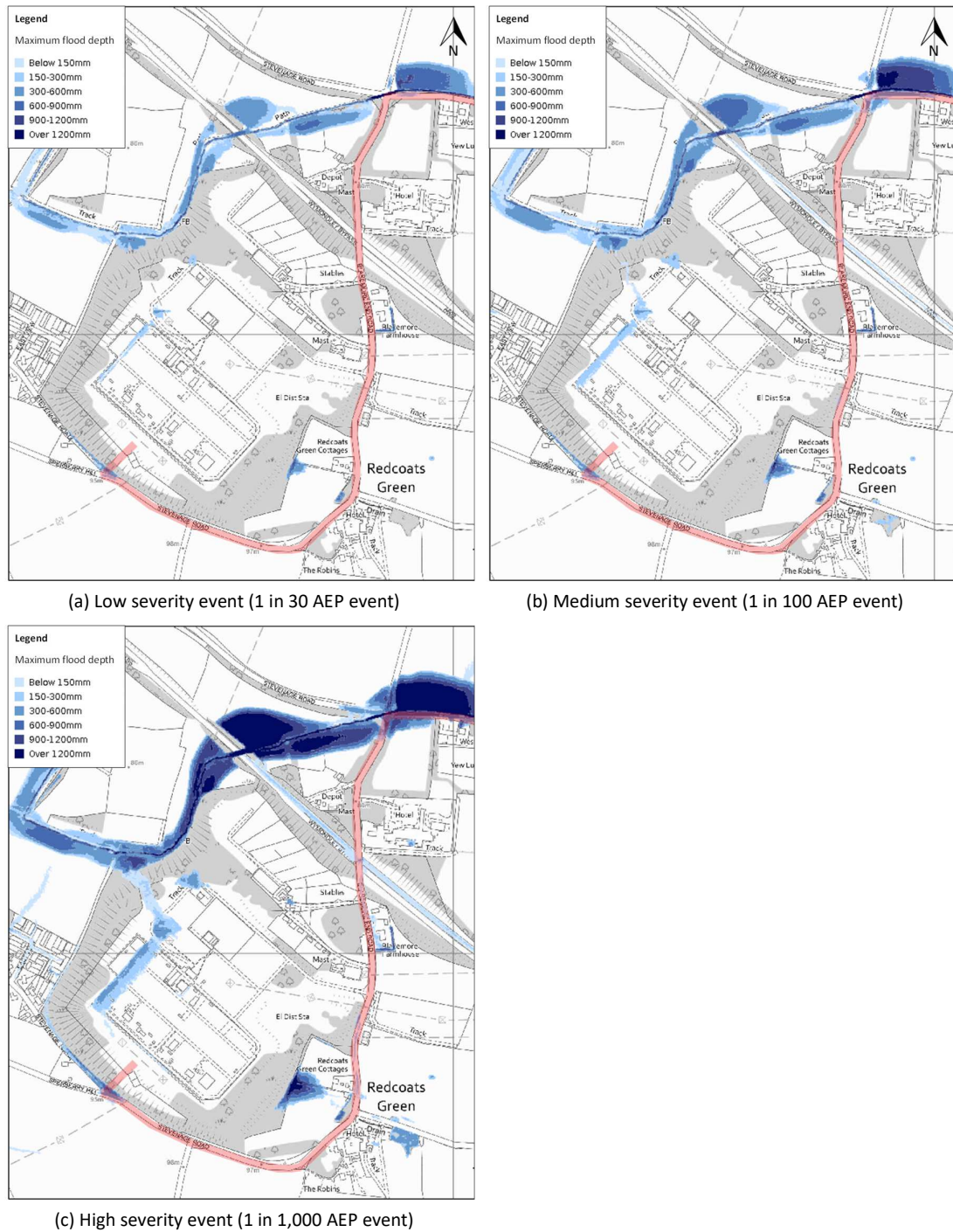


Figure 7: Risk of Flooding from Surface Water Runoff and from Small Watercourses (Cable Route 3 of 3)

3 FLOOD WARNINGS

3.1 Environment Agency Flood Alert and Flood Warning Areas

The site is included within the following Environment Agency flood alert area:

- *River Ivel in Hertfordshire and Central Bedfordshire - River Ivel from Langford to Blunham, including the rivers Purwell, Hiz, Flit and Hit (Cambridgeshire, Central Bedfordshire, Hertfordshire)*

The Ash Brook corridor through Little Wymondley is also covered by the following Environment Agency flood warning area:

- *Ash Brook, Ippollitts Brook and River Purwell at Hitchin, Ashbrook, Little Wymondley and Graveley Woolgrove Road, Green Lane, Purwell Lane, Brook View, Ninesprings Way and Oakfield Avenue in Hitchin, Stevenage Road in Ashbrook, Stevenage Road, Priory Lane and Elms Close in Little Wymondley, High Street and Church Lane in Graveley.*

3.2 Environment Agency Flood Warning Codes

The Environment Agency issues flood warnings for Little Wymondley using the following set of codes:



Flood Alert (Flooding is Possible – Be Prepared): Issued when flooding of recreational land, car parks and minor roads from rivers is possible. A Flood Alert covers a relatively large area. The purpose of a Flood Alert is to alert people that flooding is possible. Flood Alerts are issued earlier than Flood Warnings to provide advance notice of the possibility of flooding and may be issued when there is less confidence that flooding will occur in a Flood Warning Area.



Flood Warning (Flooding is Expected – Act Now): Issued when flooding of homes and businesses, rail infrastructure and roads is expected to occur. Flood Warnings cover smaller geographical areas than a Flood Alert.



Severe Flood Warning (Severe Flooding – Danger to Life): Severe Flood Warnings cover the same geographical area as a Flood Warning. A Severe Flood Warning is issued when actual flooding has occurred posing a significant risk to life and/or widespread disruption to communities. The conditions on the ground expected during a Severe Flood Warning are deep and fast flowing water, potentially with debris.

**WARNING
NO LONGER
IN FORCE**

Warning No Longer in Force (No Further Flooding Expected): Issued when a Flood Warning or Severe Flood Warning is no longer in force and when the risk of flooding has passed, and when river/sea levels have dropped back below the Flood Warning trigger level. It may be the case that there may still be standing floodwater or property flooding, so care will still need to be exercised.

4 FLOOD RESPONSE PLANNING AND PROCEDURES

4.1 Roles and Responsibilities

Details regarding the roles and responsibilities of the emergency responders are provided in **Appendix B**.

Responsibility for on and off-site flood preparedness and response rests with a Flood Response Manager. The Flood Response Manager during the construction phase of the development will be the Site Manager.

The Flood Response Manager must sign up to receive flood warnings from the Environment Agency via the Floodline service (<https://www.gov.uk/sign-up-for-flood-warnings> or 0345 988 1188). 'Live' flood warning information is provided at <https://www.gov.uk/check-flood-risk>. The website also provides a live flood warning map and five day forecast flood forecast information.

The Flood Response Manager should also complete the Flood Checklist (**Appendix C**).

4.2 Flood Response Actions Following Receipt of an Environment Agency Flood Warning

The following procedures should only be followed if it is safe to do so. At no time should the Flood Response Manager put their life or anyone else's life at risk. Advice provided by emergency responders including the emergency services, Environment Agency and North Hertfordshire Council should be adhered to.

The Flood Response Manager should liaise with emergency responders as required (refer to **Appendix C** for contact details of emergency responders) and respond to Environment Agency flood warnings as set out below.

It is the Site Manager (or designated deputy's) responsibility for disseminating a warning to everyone working on-site, including visitors, invoking the response procedures (set out below and in the Incident Management Plan), and arranging any necessary exercises to test the system.

If a **Flood Alert** is received:

1. Monitor the Environment Agency website;
2. Call Floodline if required;
3. Contact AGR Renewables Emergency Team;
4. Alert all site personal of the possibility of flooding;
5. Monitor conditions across the site and along the grid connection cable route, paying particular attention to the areas highlighted in **Section 2.3-2.5** to be at a High risk of flooding, i.e. along Graveley Lane, Priory Lane, and Stevenage Road;
6. No new trenches should be excavated along the High risk parts of the cable connection route.

If a **Flood Warning** is received:

1. Advise delivery companies to exercise caution as there may be flooding along Stevenage Road, Priory Lane, and Graveley Road;
2. Cease construction along the High risk parts of the cable connection route;
3. All equipment/plant along the High risk parts of the cable connection route should be removed;
4. All workers doing construction work along the High risk parts of the cable connection route should evacuate the area.

If a **Severe Flood Warning** is received:

1. As above; and
2. Cancel all deliveries to site;
3. Cease all construction work across the site.

Construction works along the High risk parts of the cable connection route and deliveries should only recommence once an All Clear / Warning No Longer in Force notification has been received from the Environment Agency.

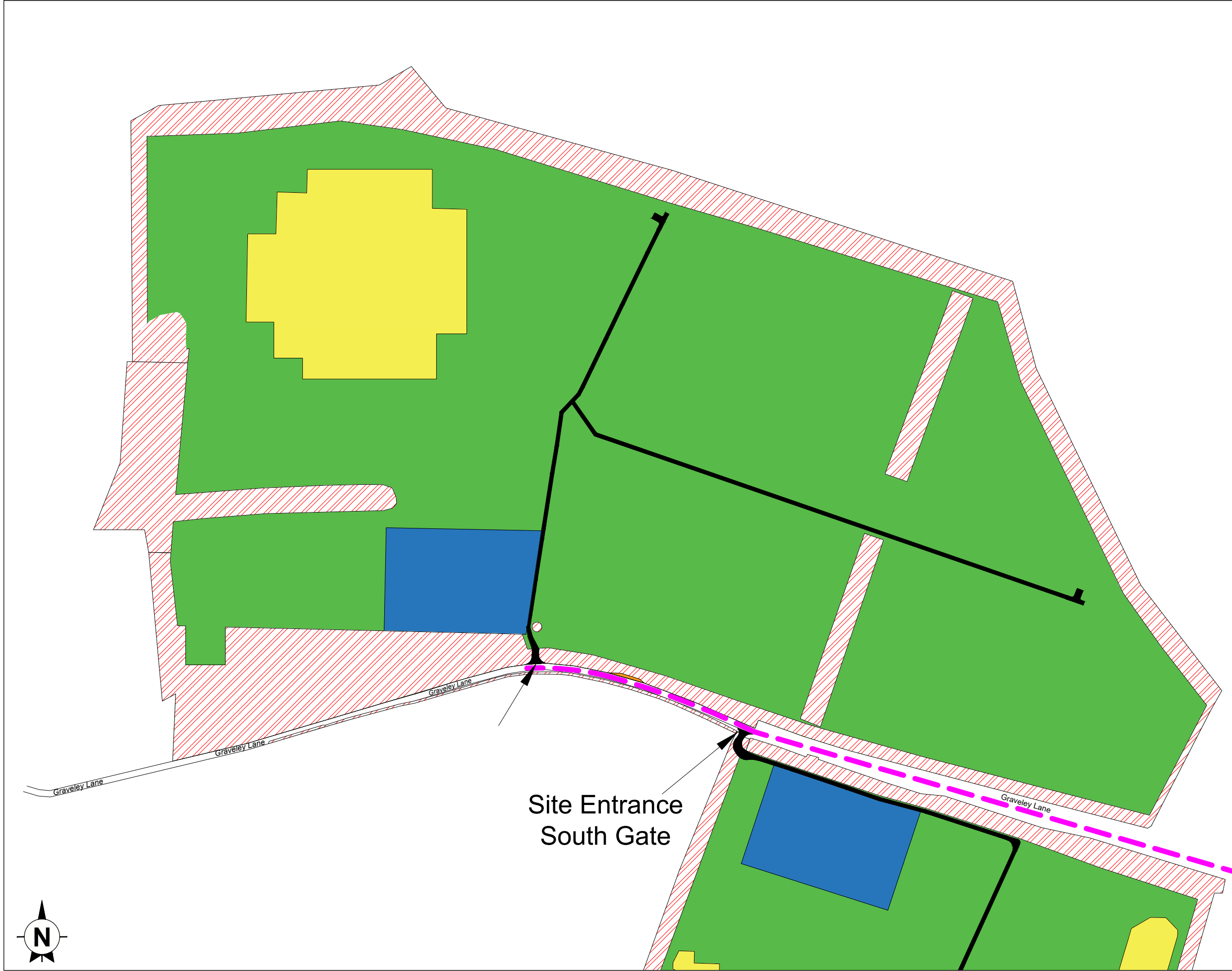
4.3 General Advice

- Don't walk through flowing water - currents can be deceptive, and shallow, fast moving water can knock you off your feet.
- If you have to walk in standing water, use a pole or stick to ensure that you do not step into deep water, open manholes or ditches.
- Don't drive through a flooded area - half a metre of floodwater can carry a car away.
- Stay away from power lines - electrical current can travel through water.
- Look before you step - after a flood, the ground can be covered with debris, which may include broken bottles, sharp objects and nails and the ground may be especially slippery.
- Avoid contact with floodwater.

APPENDIX A

Construction Phase Site Layout

Source: Construction Management Plan, Rev D)



Construction Management Plan

- Wymondley Site
- 'No Dig' Zone
- Welfare Compound & Material Laydown
- Passing Bay
- Construction Track
- No Construction Zone
- Site Fencing
- Construction Traffic Route (Public Highway)

REV	DESCRIPTION	DATE
A	Removal of redline boundary	05/07/24
B	Amendment to welfare area	12/07/24
C	Amendment to attenuation basin	19/07/24
D	Amendment to attenuation basin	01/11/24

PROJECT	
Wymondley	
DRAWING TITLE	
Construction Management Plan	
DATE	SCALE
01.11.24	NTS @ A3
DRAWN	CHECKED
EJ	TE
DRAWING NUMBER	
W-CMP-001	

Mayfair Office:
19 Heddons Street, Fourth Floor
London, W1B 4BG

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Construction Management Plan

Wymondley Site

'No Dig' Zone

Welfare Compound & Material Laydown

Passing Bay

Construction Track

No Construction Zone

Site Fencing

Construction Traffic Route (Public Highway)

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PROJECT

Wymondley

DRAWING TITLE

Construction Management Plan

DATE

01.11.24

SCALE

NTS @ A3

DRAWN

EJ

CHECKED

TE

DRAWING NUMBER

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APPENDIX B

Roles and Responsibilities of Relevant Agencies

Environment Agency

- Issues flood warnings for flooding from rivers, the sea and groundwater
- Receives and records details of flooding incidents
- Monitors the situation and advises other organisations
- Deals with emergency repairs and blockages on main rivers and own structures.

North Hertfordshire Council (Local Authority)

- Manages surface water and groundwater flooding
- Co-ordinates emergency arrangements
- Maintains safe conditions on the roads including clearing blockages on highway drainage systems, puts flood warning signs on the highway and organises road closures and traffic diversions
- May take action to protect property from flooding by water from the highway where there is a failure of the highway drainage system.

Hertfordshire Constabulary

- Takes an overall co-ordination role during a flooding incident.

Hertfordshire Fire & Rescue Service

- Responds to emergency flooding incidents as required
- Assists the public where a need is identified and the use of fire service personnel and equipment is required.

Southern Water

- Clears blockages in public sewers
- May take action to protect property from flooding by water from the public water mains or discharges from the public sewerage systems.

Electricity, Gas and Telecommunication Companies

- Attend to emergencies relating to its service at properties where life is at risk as a result of flooding
- Attend to flooding emergencies at its own serviced installations.

APPENDIX C

Flood Checklist

Address: Site Office, Wymondley Solar
Date:

Flood Response Manager (Site Manager)

Name	Contact Number(s)	Other Information

Category 1 Responders

Responder	Telephone
North Hertfordshire Council	01462 474000
Hertfordshire Constabulary (nearest station is at Lytton Way, Stevenage, SG1 1HF)	01707 354000 (999 or 101 in emergency)
Hertfordshire Fire & Rescue Service (nearest station is Hitchin Fire Station, Newtons Way, Hitchin, SG4 9JR)	0300 123 4046 (999 in emergency)
Environment Agency Floodline	0345 988 1188

Useful Contacts

Identify people who can help you before, during and after a flood:

Company	Contact Name	Telephone
Sewerage company	Anglian Water	0345 7919155
Water supply company	Affinity Water	0345 3572401
Gas leaks	National Gas reporting	0800 111999

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Flood Risk Assessments
Flood Consequences Assessments
Surface Water Drainage
Foul Water Drainage
Environmental Impact Assessments
River Realignment and Restoration
Water Framework Directive Assessments
Environmental Permit and Land Drainage Applications
Sequential, Justification and Exception Tests
Utility Assessments
Expert Witness and Planning Appeals
Discharge of Planning Conditions

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