

PROPOSED ELECTRICAL VEHICLE CHARGING POINTS AND JET WASH BAYS AT SLEAFORD SERVICE STATION, FARNHAM ROAD, SLEAFORD, EAST HAMPSHIRE

FLOOD RISK ASSESSMENT

NOVEMBER 2023 REPORT REF: 3322/RE/11-23/01



CONTRACT

Evans Rivers and Coastal Ltd has been commissioned by Wyeth Projects Services acting as agents for and on behalf of Motor Fuel Limited (MFG) to carry out a flood risk assessment for proposed electrical vehicle charging points and vehicle jet wash bays at Sleaford Service Station, Farnham Road, Sleaford, East Hampshire.

QUALITY ASSURANCE, ENVIRONMENT AND HEALTH AND SAFETY

Evans Rivers and Coastal Ltd operates a Quality Assurance, Environmental, and Health and Safety Policy.

This project comprises various stages including data collection; depth analysis; and reporting. Quality will be maintained throughout the project by producing specific methodologies for each work stage. Quality will also be maintained by providing specifications to third parties such as surveyors; initiating internal quality procedures including the validation of third party deliverables; creation of an audit trail to record any changes made; and document control using a database and correspondence log file system.

To adhere to the Environmental Policy, data will be obtained and issued in electronic format and alternatively by post. Paper use will also be minimised by communicating via email or telephone where possible. Documents and drawings will be transferred in electronic format where possible and all waste paper will be recycled. Meetings away from the office of Evans Rivers and Coastal Ltd will be minimised to prevent unnecessary travel, however for those meetings deemed essential, public transport will be used in preference to car journeys.

The project will follow the commitment and objectives outlined in the Health and Safety Policy operated by Evans Rivers and Coastal Ltd. All employees will be equipped with suitable personal protective equipment prior to any site visits and a risk assessment will be completed and checked before any site visit. Other factors which have been taken into consideration are the wider safety of the public whilst operating on site, and the importance of safety when working close to a water source and highway. Any designs resulting from this project and directly created by Evans Rivers and Coastal Ltd will also take into account safety measures within a "designers risk assessment".

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1. INTRODUCTION

1.1 Project Scope

- 1.1.1 Evans Rivers and Coastal Ltd has been commissioned by Wyeth Projects Services acting as agents for and on behalf of Motor Fuel Limited (MFG) to carry out a flood risk assessment for proposed electrical vehicle charging points and vehicle jet wash bays at Sleaford Service Station, Farnham Road, Sleaford, East Hampshire.
- 1.1.2 It is understood that this Flood Risk Assessment will be submitted to the Planning Authority as part of a planning application. Specifically, this assessment intends to:
 - a) Consider the impacts of tidal and fluvial events in accordance with NPPF;
 - b) Determine the extents of the aforementioned NPPF Flood Zones across the site, together with depths of floodwater and hazard;
 - c) Assess the risks to people and property and propose mitigation measures accordingly;
 - d) Review existing evacuation and warning procedures for the area;
 - e) Carry out an appraisal of flood risk from any other sources such as groundwater as required by NPPF;
 - f) Report findings and recommendations.
- 1.1.3 This assessment is carried out in accordance with the requirements of the National Planning Policy Framework (NPPF) dated 2021. Other documents which have been consulted include:

DEFRA/EA document entitled Framework and guidance for assessing and managing flood risk for new development Phase 2 (FD2320/TR2), 2005;

Communities and Local Government 2007. Improving the Flood Performance of New Buildings. HMSO.

DEFRA/EA document entitled The flood risks to people methodology (FD2321/TR1), 2006;

EA Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purpose, 2008;

National Planning Practice Guidance – Flood Risk and Coastal Change.

UK Government's climate change allowances guidance.

East Hampshire District Council Level 1 Strategic Flood Risk Assessment (SFRA) dated May 2022.

2. DATA COLLECTION

2.1 To assist with this report, the data collected included:

Ordnance Survey 1:10,000 street view map (Evans Rivers and Coastal Ltd OS licence number AC0000814628).

British Geological Survey Online Geology Viewer.

British Geological Survey Groundwater Susceptibility Map.

Filtered LIDAR data at 1m resolution.

Environment Agency defence information via <u>https://environment.data.gov.uk/asset-management/index.html</u>

3. SITE CHARACTERISTICS

- 3.1 Existing Site Characteristics and Location
- 3.1.1 The site is located at Sleaford Service Station, Farnham Road, Sleaford, East Hampshire. The approximate Ordnance Survey (OS) grid reference for the site is 480386 138512 and the location of the site is shown on Figure 1.



Figure 1: Site location plan (Source: Ordnance Survey)

- 3.1.2 The site comprises a service station shop/sales building, forecourt, hardstanding area, vegetated area and wash bay. The site is accessed from Farnham Road adjacent to the western frontage of the site. The existing site layout can be seen on Drawing Number WPS-MFG-425-EX-01C.
- 3.1.3 Filtered LIDAR survey data at 1m resolution has been obtained to determine the topography across the site and surrounding area and is shown on Figure 2.
- 3.1.4 Inspection of the data indicates that the area intended for the EV charging points and jet wash bays is set at 68.20m AOD.



Figure 2: LIDAR survey data where higher ground is denoted as orange and yellow colours and lower areas denoted by blue and green colours

- 3.2 Site Proposals
- 3.2.1 It is the Client's intention to provide electric vehicle charging points and jet wash bays across the site as shown on Drawing Number WPS-MFG-2061-P-03.
- 3.2.2 Annex 3 of the NPPF confirms that this proposal is classified as a 'less-vulnerable' use.

4. BASELINE INFORMATION

- 4.1 Environment Agency Flood Zone Map
- 4.1.1 The Environment Agency's Flood Zone Map (Figure 3) and Figure 6F/01 of the SFRA shows that the site is located within the NPPF defined Flood Zone 3, 2 and 1 associated with the River Slea located 25m east of the site.



Figure 3: Environment Agency Flood Zone Map (Source: Environment Agency)

- 4.2 Flood Defences
- 4.2.1 The Environment Agency flood defence information via <u>https://environment.data.gov.uk/asset-management/index.html</u> shows that there are no formal raised flood defences at this location.
- 4.3 Flood Data
- 4.3.1 Paragraph 5.1.18 of the SFRA states that in the absence of detailed modelling data, the Flood Zone 2/1000yr extent (as shown on Figure 3 above) can be used as a proxy when considering the climate change 1 in 100 year event.
- 4.3.2 The flood zone extents have been imported onto the survey data and the flood contour for the (Zone 2) 1 in 1000 year event is 67.60m AOD.
- 4.3.3 Therefore, the proposals are located across an area of the site which is set above the flood level.

- 4.4 Flood Warning and Emergency Planning
- 4.4.1 The site is located within Environment Agency Flood Alert area 061WAF30UpperWey Upper River Wey.
- 4.4.2 Sites at risk of fluvial flooding could have a minimum of 2 hours warning before any of the levels of flood warning is issued.
- 4.4.3 Flood Alerts, Flood Warnings and Severe Flood Warnings are issued to residents and businesses within flood risk areas by the Agency's Floodline Warnings Direct (FWD) service. This system is managed by the Environment Agency and dials out a message to the recipient when a particular category of flood warning is being advised. The message is conveyed by a constant ringing of the telephone or can alternatively be communicated to mobile phones and computers. The system functions at all times, issuing flood warnings and alerts in conjunction with announcements on radio and other media. Owners and occupiers of dwellings or businesses thought to be at risk can sign up to the scheme. The owners are encouraged to confirm details with the Agency and to sign up for these warnings. The various flood warning codes can be seen on Figure 4.



Figure 4: Flood warning codes (Source: Environment Agency)

4.4.4 It is understood that in the event of flooding, evacuation is managed by a multi-agency team in conjunction with the Police. The multi-agency team provides suitable premises for shelter, first aid, refreshments and possible transportation with consideration given to the elderly and vulnerable groups. It is essential that occupants produce robust Emergency Flood Plans to avoid putting themselves or emergency services at risk and that they do not rely solely on emergency services during the event.

5. FLUVIAL FLOOD RISK

- 5.1 It has been determined that the proposals are located within the Flood Zone 2 area, which can be used as a proxy when considering the climate change 1 in 100 year event.
- 5.2 The flood level is 67.60m AOD and the proposals are located across an area of the site which is set above the flood level.
- 5.3 The proposals do not require any employees to be permanently located at the site (only a small amount of visits for monitoring and maintenance purposes). In this regard, the number of people accessing the site will represent a very minor increase from the existing function of the land and those visits will be short and pre-planned.

6. FLOOD RISK MITIGATION AND EVACUATION

- 6.1 Reducing Exposure to the Hazard
- 6.1.1 In order to assess and reduce the exposure to the hazard and the vulnerability to the hazard after the site has been developed, the guidance outlined in the DCLG/DEFRA/EA document entitled Flood Risk Assessment Guidance for New Development Phase 2; Flood Risks to People, Phase 2; Improving the Flood Performance of New Buildings has been consulted.
- 6.1.2 In accordance with the Agency's recommendations and Paragraph 002 of the NPPF Planning Practice Guidance, the 'design' event in this case is the flood level of 67.60m AOD.
- 6.1.3 Paragraph 004 of the NPPF Planning Practice Guidance states that the first preference is to avoid flood risk by raising floor levels above the design flood level.
- 6.1.4 The proposals will be set above the flood level, and upon receipt of a Flood Alert these utilities will be shut down as part of the site management plan.
- 6.2 Reducing Vulnerability to the Hazard
- 6.2.1 Maintenance personnel will only be occupying the site infrequently and during normal working hours, and the risk will therefore be reduced. The number of visits to the site will be low and for maintenance and monitoring purposes.
- 6.2.2 It is recommended that the site owners register with Flood Warnings Direct service and ensure that they are aware of the flood risk so that they have the option to shut down the EV units and evacuate the area upon receipt of a Flood Alert or upon the instruction of the emergency services.
- 6.2.3 Signs and information plaques should be located regularly across the site to inform people of the flood risk. Maintenance workers will be asked to check the Flood Warnings Direct service before visiting the site and will postpone any visit if there is a flood risk identified.
- 6.2.4 It is recommended that a Business Flood Plan is developed. Formal training would also be required and the plan would include information on what to do when receiving a flood warning, together with evacuation procedures and routes. The plan should also cover people based at the site who will be using the facilities to charge their vehicles.

6.3 Safe Access/Egress

6.3.1 During the fluvial flood event, by reviewing the flood data and LIDAR survey it can be seen that the hazard to people from the site would be Very low.

7. OTHER SOURCES OF FLOODING

- 7.1 Groundwater Flooding
- 7.1.1 In order to assess the potential for groundwater flooding during higher return period rainfall events, the Jacobs/DEFRA report entitled Strategy for Flood and Coastal Erosion Risk Management: Groundwater Flooding Scoping Study, published in May 2004, was consulted, together with the guidance offered within the document entitled Groundwater flooding records collation, monitoring and risk assessment (ref HA5), commissioned by DEFRA and carried out by Jacobs in 2006.

Soil and Geology at the Site

7.1.2 It can be seen from the various soil and hydrogeological data, listed in Section 2, that the soil types and geology across the site comprise clay, silt, sand and gravel.

Groundwater Flooding Potential at the Site

- 7.1.3 There have been no recorded groundwater flood events across the area between 2000 and 2003, as indicated by the Jacobs study.
- 7.1.4 Figure 4B/01 of the SFRA shows no historical groundwater flood records at the site and that there is potential for groundwater flooding of property below the ground level.
- 7.1.5 It is considered that the groundwater flood risk at the site will be low.
- 7.2 Surface Water Flooding and Sewer Flooding
- 7.2.1 Surface water and sewer flooding across urban areas is often a result of high intensity storm events which exceed the capacity of the sewers thus causing them to surcharge and flood. Poorly maintained sewer networks and blockages can also exacerbate the potential for sewer flooding.
- 7.2.2 Figure 9/01 of the SFRA shows that there 11-15 incidents of sewer flooding across this postcode area.
- 7.2.3 The Agency's Surface Water Flooding Map (Figure 5) and Figure 10B/01 of the SFRA indicates that across the site there is a very low risk (i.e. chance of flooding less than 1 in 1000 years).
- 7.2.4 It is generally accepted that the low risk flood event (i.e. between 1 in 1000 years and 1 in 100 years) on the Agency's map is used as a substitute for the climate change 1 in 100 year event to provide a worst-case scenario.



Agency)

- 7.3 Reservoirs, Canals And Other Artificial Sources
- 7.3.1 The failure of man-made infrastructure such as flood defences and other structures can result in unexpected flooding. Flooding from artificial sources such as reservoirs, canals and lakes can occur suddenly and without warning, leading to high depths and velocities of flood water which pose a safety risk to people and property.
- 7.3.2 The Environment Agency's "Risk of flooding from reservoirs" map suggests that the site is not at risk from reservoirs or other artificial sources.

8. CONCLUSIONS

The site is located within the NPPF Flood Zone 3, 2 and 1.

Paragraph 5.1.18 of the SFRA states that in the absence of detailed modelling data, the Flood Zone 2/1000yr extent can be used as a proxy when considering the climate change 1 in 100 year event.

The flood zone extents have been imported onto the survey data and the flood contour for the (Zone 2) 1 in 1000 year event is up to 67.60m AOD. The proposals are located across an area of the site which is set above the flood level.

The proposals do not require any employees to be permanently located at the site (only a small amount of visits for monitoring and maintenance purposes). In this regard, the number of people accessing the site will represent a very minor increase from the existing function of the land and those visits will be short and pre-planned.

The proposals will be set above the flood level, and upon receipt of a Flood Alert these utilities will be shut down as part of the site management plan.

A warning and evacuation strategy has been developed within this assessment. It is proposed that the site management register with the Agency's Flood Warnings Direct and prepare a Business Flood Plan.

It is considered that there is a low risk of groundwater flooding and a very low risk of flooding from surface water.

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DRAWINGS





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Legend Existing walls & columns Proposed brick/blockwork walls Proposed internal stud walls Items removed

Existing Schedule of Areas					
Sho p	Sq. Ft.	m²			
Gross External GF Area	1076	100			
Gross Internal GF Area	940	87.3			
Retail Sales Area	500	46.4			
Back of House Area	434	40.3			



С

C 08-11-23 AF Site boundary revised, Drawing number revised to avoid duplicate the







08/11/23 AF Drawing created. rev date by description CLIENT



PROJECT LOCATION Sleaford Service Station Farnham Road Sleaford, GU35 0QP DRAWING

Proposed Site Layout Plan



Scale: 1:100

new meter

Fence

The Cart Shed, Amberley Court, Amberley Lane, Milford, Surrey, GU8 5EB, United Kingdom Wyeth © This drawing is the copyright of WYETH PROJECTS SERVICES Ltd.

Draw By: AF A1 November 2023 original plot siz

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Rev

