

Oxford City Council
Planning Control
St Aldate's Chambers 109-113 St
Aldate's
Oxford
Oxfordshire
OX1 1DS

Our ref: WA/2021/129257/02-L01
Your ref: 21/02007/PA18
Date: 01 November 2021

Dear Sir/Madam

Application for Prior Approval - Part 18 of General Permitted Development Order (GPDO). Oxford railway station proposed west side engineering works to construct an additional platform 5 railway line with associated platform canopy cover and platform enclosures providing passenger facilities, along with a stair and lift access to a subway connection to a proposed secondary station entrance incorporating retail, public toilets, an open concourse, staff accommodation and a relocated station refuse area. Proposed replacement rail and pedestrian bridges over Botley Road along with alterations to the road to provide grade separated pavements each side. Reconfiguration of Roger Dudman Way to connect onto Cripsey Road and replacement of Sheepwash Bridge. Proposed demolition of the single storey railway buildings at the rear of platform 4, along with the Youth Hostel and removal of two small single storey commercial units between Cripsey Road and Roger Dudman Way. Formation of public realm to the west side of the proposed station building along with cycle parking facilities.

Oxford Railway Station, Park End Street, Oxford.

Thank you for consulting the Environment Agency on this application on 23 September 2021, we apologise for the delay in our response.

We have reviewed the following:

- Flood Risk Assessment, which is contained within Appendix 14.1 of the Environmental Statement.
- Flood Model Technical Report, reference 163390_JAC-REP-EEN 14003, revision A01, dated October 2021. The applicant supplied model files to support this model report.
- Letter from Network Rail dated 23 September 2021.
- Proposed GA Plan Level 00, reference 163390-IDO-00-DCL-DRG-EAR-000007, Revision P02

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- Memorandum from Jacobs dated 21 October 2021

Hydraulic modelling has been undertaken by the applicant based on the Environment Agency's Oxford Flood Alleviation Scheme 2018 Model to better understand the baseline flood risk and the potential impact of the proposed western entrance building.

The applicants have now confirmed in their letter (23.09.2021) the current footprint and proposed built footprint, with an increase of 6m² (1773m² to 1779m²). We would have liked to understand footprint changes within the 1% annual probability flood with a suitable allowance for climate change. The applicant has undertaken flood modelling to assess the proposed changes, which includes lowering of Botley Road. The land at the front of the proposed western entrance is proposed to be lowered. This has the potential to offer additional flood volumes and provide betterment. We can see the western entrance does not extend beyond the existing Oxford Youth Hostels Association (YHA) building that is proposed to be demolished. Therefore there is existing built footprint in the location of the western entrance.

The applicant has re-run the model for the following return periods:

- 1% annual probability flood
- 1% annual probability flood with a 35% allowance
- 1% annual probability flood with a 70% allowance

The climate change guidance has recently been updated (July 2021). Please see www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

This now advises for essential infrastructure the higher central allowance should be used rather than the upper end. The new climate change guidance advises the higher central allowance in the location of the proposed development is 41%. This allowance has not been used to assess the development. There is some gaps in the reporting with regard to the 35% allowance. The 70% allowance has been included.

The results of the modelling show that during the 1% annual probability flood with a 70% allowance there are some areas identified near the station entrance that receive betterment in the proposed scenario. Whilst this is the case, the model report findings explain that the peak flow (velocity) at Frideswide Square is approximately 0.2m³/s higher with the Scheme compared to the baseline. Also the water level difference to the south of the site at Osney Cemetery is higher than the baseline between +5mm and +50mm. This level change would be beyond model tolerance. Therefore the results are showing increase flood risk (depths) at the cemetery. This appears to be contained at the cemetery site only. The applicant only submitted 1% flood and 1% flood plus 70% allowance mapping. The allowance that should be used to assess the development is now 41%. Therefore, 70% is an exceedance event. It may be that during a 41% allowance, the increased flood depths shown at Osney cemetery are not occurring but as we do not have mapping for the 35% we cannot provide commentary about whether the cemetery is shown to have increased flood depth during the 35% allowance that was modelled as that has not been supplied. Therefore there is some uncertainty about the potential for there to be an increase in flood risk at this site. It is for the local planning authority to consider if this uncertainty is acceptable when determining this prior approval.

Typically, we would wish to see a number of return periods supplied to demonstrate there is no detriment from the lowest relevant flood return period up to the 1% flood with a 41% allowance as advised in the latest climate change guidance. This is to understand changes in levels and whether there is any detriment throughout the various return periods. However, as shown in the reporting we can see the only area of detriment is to the cemetery during the 1% annual probability flood with a 70%

allowance. As the applicant has not supplied mapping for the 35% allowance we cannot see if this is the case for the 35% return period. This would be an exceedance event beyond 41% but as described above we haven't been able to confirm this is the case for 41%. Some reporting around this issue would help to clarify but may require further mapped model runs to confirm increased risk at Osney cemetery during this return period.

The application proposes to lower Botley Road to improve clearance for the road. By the nature of lowering the road within in the floodplain, flood depths will increase in this location. This would also result in the flood hazard increasing. The flood memo dated 21 October 2021 explains that the existing flood depth along Botley Road in during a 1% annual probability flood (no allowance applied) is 0.89m, and 1.6m during the 1% annual probability flood with a 70% allowance. When considering hazard (*Supplementary note on flood hazard ratings and thresholds for development planning and control purpose – clarification of the table 13.1 of fd2320/tr2 and figure 3.2 of fd2321/tr1*), 0.89m is classed as '**danger for most**' people (considering low velocity in the floodplain). 1.6m would be considered '**danger for all**'. Therefore, the existing scenario has high flood hazards associated with this location. Given the depths, the road during this magnitude of flooding would likely be impassable for vehicles and we would assume the road is likely to be closed. The applicant has indicated they need to work with the relevant emergency planners and multi-agencies to discuss emergency planning in this location. The applicant is proposing to improve access along Botley Road for pedestrian and cycle users, which will provide a betterment over the existing access/ egress arrangements with respect to flood hazards. Please refer to the **Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purpose**, which is attached for information. It is for the local planning authority to determine if this increase in flood hazard rating is acceptable and suitably mitigated by the emergency plans for all users of this access/egress route.

The applicant states in letter (23.09.2021) that they considered a subway and footbridge prior to proposing a subterranean underpass. Network Rail provided further information in letter (23.09.2021) to state the subway and western entrance would be closed to customers before water entered and then said that "if for any reason this did not happen flood water would enter gradually and rise over a period of time (as the wider streets water level gradually rose) allowing users time to exit. The maximum anticipated water depth is 1.15m".

Flood resilience/ resistance measures

We would recommend Network Rail considers flood resilience measures for the station and retail units. We understand due to the nature of the proposal, it may be challenging to raise finished floor levels above the 1% annual probability flood with a 41% allowance for climate change. Flood resilience measures could be considered up to this level. e.g. electric sockets above this level, flood resilient materials etc.

There could also be consideration of raised thresholds within the station to offer additional reliance from floodwater.

If Network Rail consider future flood resistance measures (not currently proposed) e.g. flood barriers/ gates, we recommend this be assessed to understand potential impacts and whether this would increase flood risk elsewhere.

Model File Review

We have undertaken a review of the supplied model files. Our model review finds that the model build is generally acceptable with an appropriate approach taken.

One change highlighted in the report is the realignment of ground levels at Roger Dudman Way. The reporting explains the following:

'The road level along Roger Dudman Way would therefore need to be lowered to tie into road levels along Cripsey Road. This will require lowering Roger Dudman Way by approximately 1.4-1.7m for 70m upstream of the junction with Cripsey Road.'

However, no such modification has been applied. There is potential for flow mechanisms around the area to be missed. We would usually request some commentary in relation to this and possibly further modelling runs in order to understand whether this would have any issues on the results.

Another concern is in relation to the stability of the 1D domain. The report states that instability occurs prior to the peak, so should not be an issue. This assessment could be acceptable if the instability occurred well away from the site and was unlikely to have an impact. However, the instability appears to occur at the Osney Bridge, not far removed from the site. While the instability might occur towards the start of the simulation, there is potential for a knock-on effect to the peak later on in the simulation. Ideally, this model instability should be corrected or there should be some commentary supplied to address this point. The 1D parameters have been changed from the defaults, these changes help to mask potential instability rather addressing the causes. This might be legacy issue from the provided original catchment model, in which case the reporting should state this. This may not result in an issue but as set out above, we would usually request some commentary in relation to this and possibly the need for further information to be supplied to understand whether this would have any issues on the results.

Potential planning conditions

If the local planning authority is minded to approve this prior approval, consideration should be given to any alterations or minor additions proposed in future e.g. to walls or structures that may impede flood flow or reduce flood storage, there should be measures in place to ensure these alterations/ additions do not increase flood risk elsewhere. For example, if it is proposed to include barriers to the front of the station or concrete planters, these may reduce flood storage or impede flood flow. Therefore a planning condition could be considered that makes reference to ensuring structures that have the potential to impede flood flow or reduce flood storage that have not been included as part of this submission, or included within the model build (represented in the model) should be designed as to not increase flood risk elsewhere.

Proposed works at Sheepwash Bridge

A Flood Risk Activity Permit (FRAP) will be required from the Environment Agency under the terms of the Environmental Permitting (England and Wales) (Amendment) (No. 2) Regulations 2016 for any proposed works or structures, in, under, over or within 8 metres of the top of the bank of designated 'main rivers'. Some activities are also now [excluded](#) or [exempt](#). An environmental permit is in addition to and a separate process from obtaining planning permission or prior approval. Further details and guidance are available on the GOV.UK website:

<https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>.

We are unable to comment at this stage on whether or not a permit would be granted. The applicant and FRA have confirmed that the predicted flood level will be below bridge soffit height, but we have not seen any plans at this stage. We recommend contacting us in advance of submission of permit application to discuss the proposed works.

If you have any queries regarding our comments please contact me.

Yours faithfully

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cc Network Rail Infrastructure Ltd