Waldeck

14-3072

Flood Risk Assessment &

Drainage Strategy

For

Extensions at Monkshouse Primary School, Spalding

Lincolnshire

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Disclaimer

This study is a risk-based assessment based on the information available to Waldeck. If the information is found to be inaccurate or incomplete the results could differ. Waldeck accepts no liability should this prove to be the case. The information presented and the conclusions drawn are for guidance purposes only and offer no guarantee to the accuracy of the predicted water levels described.

1.0 Executive Summary

This flood risk assessment assesses all the potential sources of flooding and concludes that the risk of flooding for the site, and in particular the extension from all sources is low.

The main issue with this proposal is to demonstrate how the proposed extension will change post development. This assessment proposes that there will be no change for the surface water drainage outfall rate by the altered drainage infrastructure to the existing school and the extension.

2 Introduction

2.1 Introductions

Waldeck Associates Limited has been commissioned by Mouchel (who is acting on behalf of Lincolnshire County Council) to provide a Flood Risk Assessment (FRA) to accompany the planning application for the proposed extensions at Monkshouse Primary School, located off Pennygate Road, Spalding, Lincolnshire.

The existing school site is shown within Flood Zone 3 of the Environment Agency's Flood Zone Map. The latest Flood Zone Maps have been created as a tool to raise awareness of flood risk with the public and partner organisations, such as Local Authorities, Emergency Services and Drainage Authorities. The Maps do not take into account any flood defences.

The existing school grounds are approximately 1.3ha although the proposed combined extension areas are approximately 508m^2. As the site is located within a Flood Zone 3 a FRA is required to accompany the planning application.

The FRA has been compiled in accordance with the ''National Planning Policy Framework (NPPF)'' published by the Communities and Local Government in March 2014 and the ''Planning Practice Guidance web-based resource to the National Planning Policy Framework''.

This Flood Risk Assessment considers the impact of the proposed development in addition to the common ways in which flooding can occur. The conditions that currently exist in the location of the site are described, together with the methods used to identify and assess potential impacts caused from the development proposals.

2.2 Objectives

The objective of this report is to advise interested parties in the development to the potential risk of flooding and the management of surface water from a drainage perspective. The report both assesses flood risk and describes a strategy to drain the site in respect of surface water drainage.

2.3 Reference documents

This report has been prepared using the following documents for guidance:

- "National Planning Policy Framework" by the Department for Communities and Local Government,
- "Planning Practice guidance web-based resource to the National Planning Policy Framework" by the Department for Communities and Local Government.

3 Other investigations

3.1 Consultation with Environment Agency

The Environment Agency (EA) was consulted as part of the investigation works of the FRA. The EA confirmed within their response (letter dated 24th September 2014, reference CCN/2014/37645,) that "*there are no formal defences protecting the site from the River Welland through Spalding downstream from the beginning of the Coronation Channel, but this section of the channel of the Welland provides a nominal protection against a flood event with a 1% (1 in 100) chance of occurring in any year*". The EA also confirm within their same response that they *"inspect the channel regularly to ensure that any potential defects are identified early*".

In addition to the above, the EA also confirmed that with regards to historical flooding, they "*do not have any records of flooding in this area*".
The EA response is presented within this report. (Ref. Appendix E)

3.2 Ground investigation report

Nicholls Colton Geotechnical (NCG) was consulted as part of the investigation works of the FRA. The NCG confirmed within their report (dated October 2014, reference G14223) that ''*a groundwater seepage was encountered within borehole WS1 at a depth of 1.00m. No level was formed on completion of drilling operations. Borehole WS2 encountered a groundwater seepage at a depth of 1.00m. A water level of 1.90 was recorded upon the completion of drilling operations*''.

It is therefore considered that soakaways drainage will not provide a suitable drainage solution for the proposed extension.

The NCG report is presented within this report. (Ref. Appendix F)

3.3 Welland and Deepings

The Welland & Deeping Internal Drainage Board (IDB) also was consulted as part of the investigation process. Mr. Nick Morris of the Welland & Deeping IDB confirmed within their email response (Ref. Appendix G) that although they have a piped Pennygate Road Drain which runs along the south side of Pennygate and along the frontage of Monkshouse Primary School, they have no record of any recent (or historical) flooding within the area.

4 Description and history of the site and development

4.1 Location, Description and history of the site

As previously mentioned within this report, the proposed works are located within the existing school grounds of Monkshouse Primary School, situated off Pennygate Road, Spalding, (grid reference TF 23205 22436). The majority of the proposed extensions are located within existing hard paved areas and therefore defined as brownfield areas. For the proposed Hall there is a minimal amount of grassed area taken by the new room, this being 69m^2.

A site location plan is attached in Appendix A of this report.

4.2 Development Proposal and Flood Risk Vulnerability

As the proposed works are an extension to the existing Monkshouse Primary School, this places the site in the "More Vulnerable" category, according to Table 2 of NPPF – Planning Practice Guidance.

A copy of Table 2 is provided below with the development type highlighted.

Table 2: Flood Risk Vulnerability Classification

Vulnerability	Development Types
More vulnerable	•Hospitals
	•Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels.
	•Buildings used for dwelling houses, student halls of residence, drinking establishments, nightclubs and hotels.
	• Non–residential uses for health services, nurseries and educational establishments.
	• Landfill and sites used for waste management facilities for hazardous waste
	•Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.

It is proposed that the floor levels to the new extensions will match the existing school floor levels, therefore providing the same current level of protection to onsite flooding as the existing school.

5 Identification of Potential Flooding Sources and Existing Flood Risk

5.1 Potential Flooding Sources

In general, the main sources of flood risk are:

- Fluvial/Tidal,
- Alterations to the Floodplain,
- Surface Flow,
- Sewers/Drains,
- Water mains.

For the development in question, the main concern is the disposal of surface water drainage in a manner that minimises the risk of flooding both to the proposed development and surrounding sites.

5.2 Fluvial/Tidal

The River Welland is the closes Main River located to the site in question, which runs through the southern end of Spalding in a north/ easterly direction. The River Welland is situated approximately 1300m east of the proposed development.

The development site is circa 24kM from the nearest coast line, therefore flooding from seas is considered a low risk.

5.3 Alterations to the Floodplain

The proposed extensions do not impact upon the existing floodplain as the extensions are predominately located within existing hard paved areas.

5.4 Surface Flows

Flooding from the surface is caused when rainfall flows off the site on top of a neighbouring site. Given the topography of the site it is considered that with the proposed extensions within existing hard paved area it is unlikely that this form of flooding could constitute a significant risk to any neighbouring sites.

5.5 Sewers/Drains

Flooding caused by sewers/drains are usually caused by either blockages within the sewer/drain, road gullies and a storm events causing the sewers to be at capacity during such times.

To prevent blockages occurring in either main sewers or road gullies, this can be achieved by regular maintenance. The sewers are adopted and maintained by Anglian Water and will come under their maintenance programme, and the road gullies will come under the maintenance of the Local Highway Authority.

Private drains within the school grounds are the responsibility of the school, and therefore will come under their own regular maintenance programme.

5.6 Water Mains

Burst water mains are a potential source of flooding. Provided that any new mains to the extension will be constructed to the requirements of Anglian Water, then the risk should be acceptably low. There are no special circumstances that are known that would increase the risk to the site compared to any other development.

6.0 Storm Water Drainage Strategy

As the new school extensions are predominately located within hard paved areas it is considered that any new roof drainage will connect into the adjacent on-site surface water drains. As previously mentioned within this report the proposed new hall does encompass a very small grassed area, this being 69m^2. Given the minimal area lost it is considered that this will have little effect/impact on the existing on-site surface water drains.

The proposed extension to the existing car park, located at the front of the school, (these being parking bays numbered 1 to 10 on Mouchel Proposed Site Plan drawing 3008, dated December 2014) are not considered to be an increase to the impermeable area of the school. At the time of writing the report, it is understood from liaising with Mouchel that the extended car park will be constructed of a Grasscrete pavement system (or similar) and therefore will act as a permeable area.

The proposed hall is located within an area than has a number of existing surface water manholes. Therefore the existing surface water drains within this area may need diverting, but these issues should be addressed during the detailed design stage, with further liaison with both the Client and the School.

Overall as the new extensions are predominately located within existing hard paved areas which already connect into the existing surface water drainages. It is considered then to be a like for like arrangement with no increase to the surface water that currently discharges off the site.

7.0 Foul Water Drainage Strategy

The two new class rooms (and associated boys & girls toilet blocks) located to the rear of the school can connect to the existing foul drainage located within the vicinity of the extensions.

The new hall location (as with the surface water drainage) affects parts of the existing foul drainage. Therefore there may be a need to undertake some diversion works which can be designed during the detailed design stage and subject to further liaison with the Client and School.

The increase in appliances (i.e. washbasins and WC's) and additional flows will require the need for a Section 106 application being made to Anglian Water.

8.0 Conclusions

Based on the work carried out in preparation of this report the following summary, conclusions and recommendations are made:

1 The new extensions are predominately located within existing impermeable areas, with minimal increase within the new Hall location (this being 69m^2). Given this being such a small increase it is considered there will a negligible effect to the on-site surface water drains.

2 From the Environment Agency's Flood Map the site is characterised as Flood Zone 3.

3 The proposed finished floor levels to the extensions will be as per the existing school, therefore the level of protection from any on-site flooding will what is currently provided to the existing school.

4 Maintenance to the existing drainage will need to be maintained to minimize the risk of blockages and possible on-site flooding caused by blockages.