# RJH Structural Engineering

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Orange Tree Relaxation Centre, Rosedale, North Yorkshire

## Conversion of existing outhouse to staff accommodation

#### Introduction

It is proposed to convert an existing outhouse at the Orange Tree Relaxation Centre into staff accommodation. This will involve some structural works to the building. The planning authority has requested a structural appraisal of the existing building and the proposed works.

### **Existing building**

The existing building is a single storey structure with substantial load bearing masonry walls. The building has a monopitch tiled roof on timber rafters. The ground to the front and sides of the building is level. To the rear of the building the ground slopes away. Internally the building is divided into two rooms by a cross wall at approximately 2m from the northwest end of the building. The cross wall is of similar construction to the external walls.

The front and side walls are in good condition. The end sections of the rear wall are also in good condition however the central section of the wall is in a poor condition, particularly at lower level, where sections of the wall do not appear to be properly bonded. There is a visible bow to the wall in this area. The internal cross wall is in good condition.

A portion of the original front wall has been replaced at some point with a single skin masonry wall. The rafters in this area are supported on timber beams which sit on a masonry pier on the line of the original wall.

The rear wall has been raised at some point to provide extra headroom. As a result the pitch of the roof is too shallow to provide effective drainage which has led to water ingress into the building. The existing roof is in reasonable condition but is likely to deteriorate rapidly if water continues to enter the building.

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## **Proposed works**

A small extension is to be built to the central section of the rear elevation. The extension will comprise cavity walls supporting a pitched roof. The central section of the existing wall will be removed to provide access to the extension. Steel beams will be provided to support the roof over the opening.

The pier and timber beams on the front elevation are to be replaced with a new blockwork inner leaf tied into the existing wall. The front wall is to be built up by approximately 200mm to increase the pitch of the roof to 17.5°. A new roof comprising interlocking tiles on timber rafters is to be provided.

A new opening for a single door is to be created in the cross wall. A lintel will be provided to support the wall above.