

**PROPOSED RESIDENTIAL DEVELOPMENT**

**AT**

**CLAYTON ROAD, THURNSCOE**

**FOR**

**Mr. S. FIRTH**

**DRAINAGE REPORT**

**AND**

**FLOOD RISK ASSESSMENT**

**Howarth Associates  
30 King Edwards Drive  
HARROGATE  
North Yorkshire  
HG1 4HL**

**Job No. 2039  
Date: April 2008**

---

## 1.0 INTRODUCTION

---

- 1.1 The proposed development site is located on the west side of Clayton Road, north of the village of Thurnscoe. The site is set at around 60 metres above Ordnance datum. Although the present use of the site features a large building, the site has a predominant slope from north to south.
- 1.2 The site is presently used for industrial purposes and features a large rectangular building together with a number of smaller buildings and accompanying tarmac/concrete hardstanding and parking areas. The overall impermeable area amounts to some 10,318 m<sup>2</sup> (1.032 ha). Plan 2039/A showing the existing assessments is attached as Appendix A.
- 1.3 The site appears to be well served by drainage including surface drainage in the form of road gullies etc. However, no outfall to existing ditches/watercourses are evident on site.
- 1.4 Foul and surface water sewers exist in Clayton Lane some 200 metres south of the application site. The foul sewer is 150 mm in diameter and the surface water 300 mm diameter. It is expected that Yorkshire Water will accept foul flows from the site but that no increases in discharge will be accepted to the surface water sewer.

---

## 2.0 PROPOSED DEVELOPMENT

---

- 2.1 Planning consent is to be sought to redevelop the site into approximately 19 homes with apartment garaging, driveways and roads as shown on 2039/B, at Appendix B.
- 2.2 The impermeable areas of the proposed development are expected to be as follows:-

|              |                     |
|--------------|---------------------|
| Buildings    | 2346 m <sup>2</sup> |
| Yards/drives | 1698 m <sup>2</sup> |
| Roads        | 944 m <sup>2</sup>  |
| <hr/>        |                     |
| Total        | 4988 m <sup>2</sup> |
| <hr/>        |                     |

### 2.3 **Foul Drainage**

The foul discharge from the site should be made to connect it to the existing Yorkshire Water sewer in Clayton Lane, approximately 200 metres south of the application site. A detailed drainage survey of the site may reveal an existing connection to the sewer which, if found to be in a serviceable or repairable condition may be re-used. A new sewer may be laid beneath Clayton Lane, if adopted by the water company, or by negotiation with the landowner, across the adjacent fields. The off-site sewer is requisitionable under the Water Industry Act.

### 2.4 **Surface Water Drainage**

- 2.4.1 The redevelopment of the site must be undertaken using sustainable drainage principles. Wherever practicable, surface water run off must be discharged to ground infiltration systems. A detailed ground investigation must be undertaken to assess the permeability of the subsoil and thereby formulate a strategy for dealing with surface water run off.
- 2.4.2 Sustainable drainage incorporated into the development may include the following practices:-
- a) Rainwater harvesting: Appropriate for high value homes such as this development where each dwelling is provided with its own system.
  - b) Ground infiltration: May be appropriate if subsurface soils are suitable. Dwellings and/or garages may be fitted with soakaways. Permeable surfaces may be used and may be particularly effective given the large areas of private, block paved driveways and forecourts. Permeable block

paving such as Marshalls "Piora" is an effective method of attenuating run off even into soils of relatively low permeability.

- c) Swales/detention ponds: Given the limited use of adoptable public highway and the proximity of buildings to the highway, grassed swales are unlikely to be an option. Further, highway authorities are notoriously reluctant to accept ground infiltration as an acceptable method of disposing of highway run off.

- 2.4.3 As noted above, the overall impermeable area following redevelopment of this brownfield site will reduce from around 10,318 m<sup>2</sup> to around 4,988 m<sup>2</sup>. Further improvements to the surface water run off regime may be achieved by the use of rainwater harvesting, soakaways and the installation of permeable paving. Subject to ground tests, it is possible that run off from this site may be reduced by up to 90%. If, however, none of the sustainable drainage principles are adopted, the impermeable area will still be reduced by 52%.
- 2.4.4 A surface water sewer vested in the water company exists in Clayton Lane. The developer may connect surface water to this sewer, subject to Yorkshire Water approval and conditions, similar to the concept outlined in 2.3 above.

---

### 3.0 FLOOD RISK ASSESSMENT

---

- 3.1 Planning Policy Statement 25 "Development and Flood Risk" (December 2006) requires a prospective developer to undertake an assessment of flood risk to be submitted as part of a planning application. The basis upon which assessments must be made are set out in Annex E of PPS 25.
- 3.2 The complexity of the assessments are based largely on the flood risk classification of each site from Zone 1 being low risk to Zone 3b being the functional flood plain. From the Environment Agency flood map (see appendix 3) the site is located in Flood Zone 1 (low probability). Paragraph D1 (Annex D) of PPS 25 recommends the aim is to new development to the areas of lowest probability (Zone 1).
- 3.3 The development therefore passes the sequential test for the site.
- 3.4 Surface water (sheet) flooding of the site during excessive storm conditions is unlikely due to the fact that the site is located only slightly below the ridge on Clayton Road between Thurnscoe and nearby Clayton. Land in the immediate vicinity of the site falls south west away from the development site.
- 3.5 Due to the small nature of the site and also the small catchment area above the site (less than 0.5 square kilometres) climate change is not expected to have any impact on the site.
- 3.6 Given the site has an existing brownfield use and an impermeable area far in excess of the proposed impermeable area, such reductions will have a marked benefit to the site in particular and the surrounding environs in general, in lowering the risk of flooding both of the site under consideration and its surrounding land. The development will therefore act to reduce the level of flooding (if any) of the surrounding lands and should therefore be promoted.
- 3.7 Since the impermeable area will be substantially reduced, there are no residual issues to consider.

---

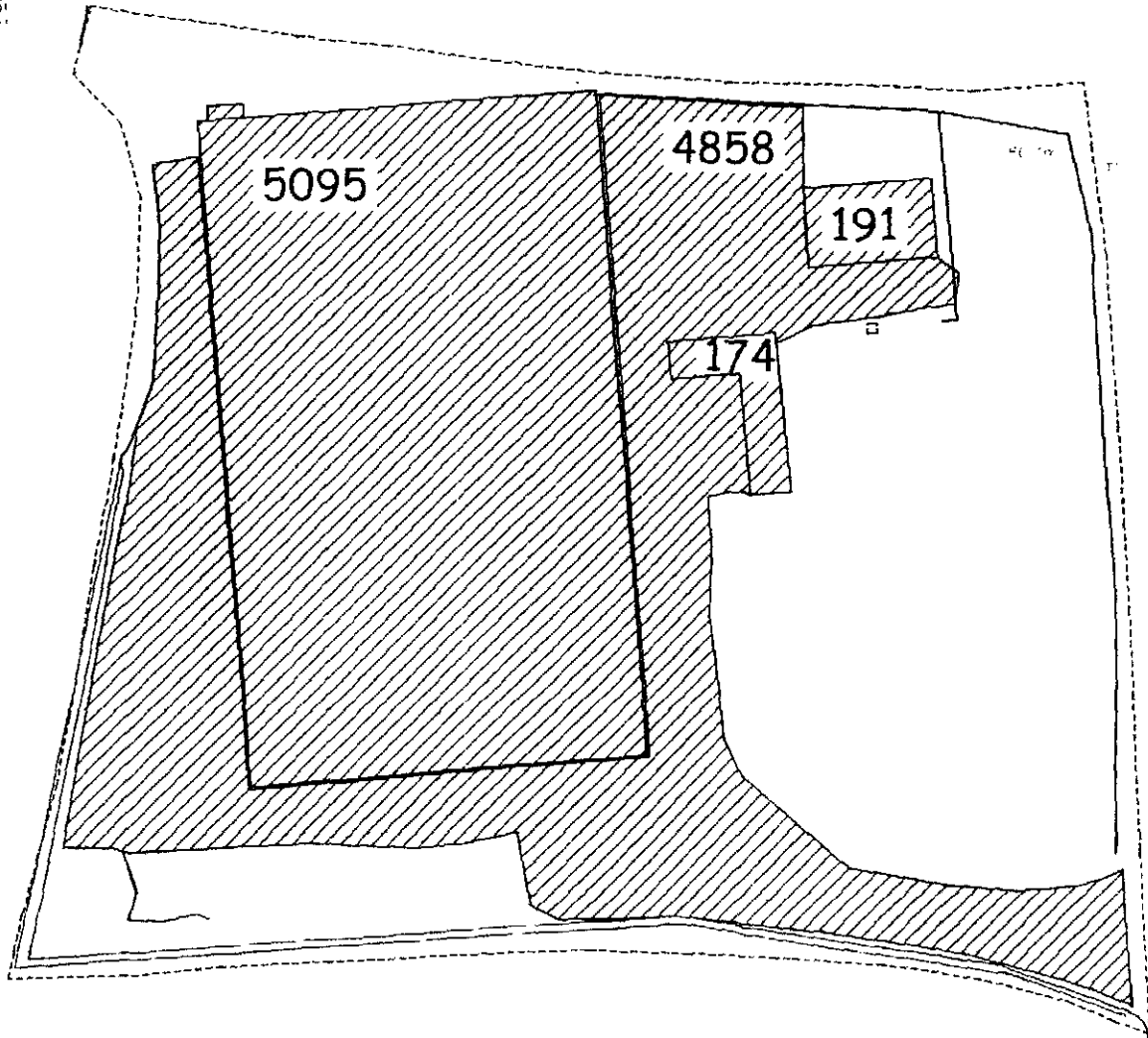
#### **4.0 CONCLUSIONS**

---

- 4.1 The site under consideration is an existing industrial site featuring large areas of impermeable roof and hardstanding.
- 4.2 Upon redevelopment the impermeable area will reduce to at least 48% of the present impermeable area and, if sustainable drainage is incorporated into the design as recommended above, the impermeable area will be reduced by up to 90%.
- 4.3 Such a development given the reduction in impermeable area and modern SUDs principles, the site will assist in minimising run off and flood risk to both the site and its immediate environment and will therefore have a positive impact in reducing the risk of flooding.

**D. J. HOWARTH**  
**28 April 2008**

## APPENDIX A



92

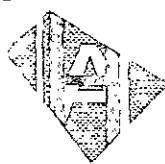
Site Plan - Location

EXISTING IMPROVABLE AREAS

Sub Area 1  
Sub Area 2  
Sub Area 3  
Sub Area 4

H. J. WARD & ASSOCIATES

1000 10th Ave  
1000 10th Ave  
1000 10th Ave  
1000 10th Ave



Site  
Data  
Drawings  
Site  
Drawing  
Date  
Exhibit

Site Plan  
Location  
Drawing  
Date  
Exhibit

## APPENDIX B



## APPENDIX C

You are at: [Home](#) > Flood Map

I'm looking for...

## What's in your Backyard?

### Interactive Map

Click on [Learn more](#), then click the symbol or area on the map to see more information.

Click on the map to ...

[Zoom](#) [Learn more](#)

Current map scale: 1:25,000

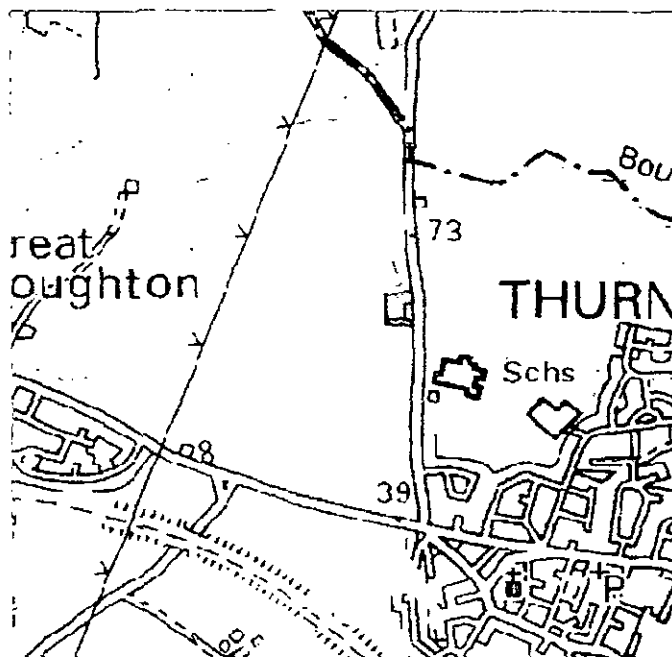
Search for another location

Search for

Place name

Postcode

Search for



### What's on the map?

1. Tick the boxes.
2. Click the name next to the box to find out more.

### Flood maps

Click [Learn more](#) to see details

Flooding from rivers or sea without defences

Extent of extreme flood

☐ Flood defences

☒ Areas benefiting from flood defences

Click [Learn more](#) to find out what else is in your backyard

© Crown copyright. All rights reserved. Environment Agency, 100026380, 2008

We are not responsible for the content of other web sites