

## Halcrow Group Limited

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## Bigman - Stockingfield Junction Footbridge

### Introduction

The project has been developed over the course of two years in response to the recognised need for a crossing and improved environmental design around the Stockingfield Junction of the Forth & Clyde Canal. During this period, the project team has developed several original concepts into the current preferred option.

This £4.5M landmark footbridge over the Forth and Clyde canal in Glasgow will incorporate a major piece of public artwork from local artist/sculptor Andy Scott ([www.scottsculptures.co.uk](http://www.scottsculptures.co.uk)). All aspects of the structural engineering have been undertaken by Glasgow based civil engineering firm, Halcrow Group Ltd ([www.halcrow.com](http://www.halcrow.com)).

The project is currently under review by the Canal Partnership.

### Sculpture



1/10<sup>th</sup> scale model, 3m high.

Andy Scott has produced 1/10th scale model (approximately 3m high) of the final piece of sculpture that will be integral with the footbridge. This is currently available to view at his Maryhill workshop within North Glasgow Trading Estate.

Using tried and tested techniques the structural steel pylon will be clad in a myriad of rolled steel tube sections. These will be built around the pylon skeleton to create a stunning colossal sculpture.

In effect the sculpture will appear to lift the bridge and support the central "hub" above the canal. It has been calculated that to perform this function adequately the Bigman will have to stand around 30 metres tall from water level. The sculpture will therefore become a very prominent and striking feature on the skyline, as well as performing the engineering role required of him.

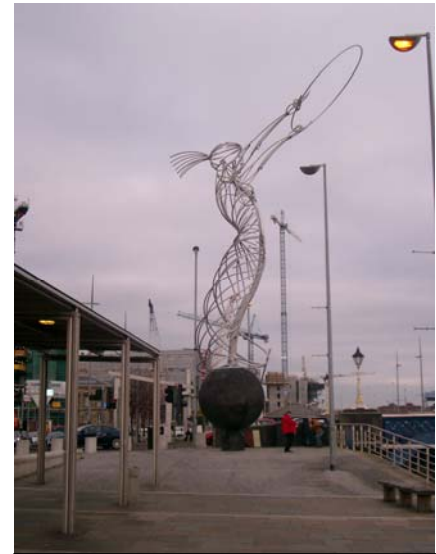
The structure itself is a three way spanning footbridge supported by a 30m tall sculpted figure constructed from stainless steel tubular members. The figure will mask the main structural pylon that provides support to the deck. The figure will include feature lighting which will concentrate light on those muscle groups that will be experiencing stress as the figure supports the deck.

Andy has produced several large pieces of work and anyone who has visited Glasgow may be familiar with his 'Heavy Horse' piece in Easterhouses adjacent to the M8. This open figure is constructed from small diameter stainless steel members and adopts a similar technique to the Bigman.

Andy has a proven track record in delivering large pieces of public artwork with his previous 20m high Thanksgiving Square Beacon statue in Belfast. This sculpture demonstrates the same principles that will be adopted for the footbridge. The figure has a central structural spine that supports the additional steel tubes creating the figure. By integrating his work with a footbridge, it is envisaged that we shall produce a unique structure which will act as a stimulus for regeneration in this area of the city.

### Footbridge

The footbridge will consist of a steel structure formed from steel tubular members that provides a focal "hub" over the canal. Three arms radiating out from the hub will then connect the three approaches to the structure. To accommodate the level differences on site, approach structures will be required on the north-east and north-west towpaths. These approach structures will be formed of similar steel tubular members to the main footbridge structure.



Thanksgiving Square Beacon statue, Belfast.



The three spans meet at a central section over the canal. Each deck comprises three longitudinal steel circular hollow sections braced together to form a truss. The north east and south west abutments comprise a trestle arrangement which consists of a set of four tubular steel columns which are integral with the deck. The south east abutment is a reinforced concrete cantilever and provides access to the bearings directly supporting the deck.

An A-frame pylon straddling the south east deck provides support to the 3 hangers that support the suspended deck. The pylon is tied back to two anchor blocks on the south east of the structure. These anchor blocks comprise a circular hollow steel section on a piled concrete footing.



### Sub Structures

The trestles, pylon and anchor blocks are supported on reinforced concrete pilecaps and bored concrete piles.

Steel piles with timber rubbing strips protect the pylon substructure within the canal from errant canal vessels.

Approach ramp structures provide access to the north west and south east abutments and connect the footbridge to the existing canal towpath. Ramp structures comprise longitudinal steel hollow section supports on a series of central



columns. The columns are supported on reinforced concrete pile caps with bored concrete piles. The lower end of the approach ramps comprises reinforced concrete troughs.

A series of inclined ramps and stepped ramps provide access from the tow paths to Lochburn Road to the north of the structure and the Ruchill residential estate to the south east.

The elevated ramps and footbridge are surfaced in a proprietary non slip surfacing and the connecting ramps are surfaced with bituminous materials.



