



Directional drilling services below the A50

ECI

The ECI process was to take the outline design through to a fully designed scheme and establish the Target cost. Amey who became the Staffordshire CC partner for delivery of works successfully took the scheme through planning in 2014 and the compulsory purchase stage in 2015.

Following the issue of preliminary designs the CTP were asked to build up a Target cost for agreement. An excellent working relationship was established early in the process with assistance from the CTP tender team who provided a dedicated Project Manager and Planner. Very early in the process it became apparent that the scheme would be considerably over budget therefore CTP looked at areas where they could make changes without reducing the scope of the works.

The central issues were to resolve some difficult ground conditions, secure a local source of fill material and find an efficient solution to deal with some extensive statutory undertakers requirements. By complex and involved programming CTP were able to suggest alternative methods of reducing the impact of the earthworks and extensive statutory undertakers diversions that were planned to go over the bridge deck.

Following initial earthworks designs CTP employed their geotechnical specialists to review further options to eliminate some complex and risky ground treatment works. To understand the problem in more detail they

undertook additional testing that established a more cost effective solution that simply would be to excavate and replace the poor ground and introduce a settlement period which could be accommodated within the programme without adding any additional time to the critical path resulting in savings of over £1.5m In addition joint meetings were held with Statutory Undertakers to work through solutions to constraints imposed by some comprehensive service diversions. BT's requirement to divert key fibre optic cables was particularly problematic due to concerns the cables may stretch if fill was placed over them. A proposal was made to directionally drill across the A50 rather than wait to transfer the BT fibre optic cables over the new bridge deck. A directional drill company was consulted and an alternative solution to bore under the A50 was developed. Extensive planning was undertaken with the stats authorities to realign the services and get orders placed early to ensure the diversions ran to programme saving around 6months on the programme

A dedicated services corridor was proposed to aid the construction.



Lightweight PFA used for the main embankments

The volume of imported fill created significant challenges to source a material at an affordable rate, CTP proposed the use of PFA a waste product from the local power station in lieu of a natural aggregate to secure a supply of fill that would bring the scheme within budget. Of particular concern to the designers was the poor quality of the existing ground. Designs went through a number of iterations and CTP employed a specialist geotechnical consultancy who implemented additional ground investigation techniques to establish an alternative method of treating the poor ground conditions.

“I’d like to take this opportunity to thank you all and your team, for the assistance you have afforded me to getting to this point it has been a pleasure working with such a professional team. I hope that we will cross paths again in the future.”

Andy Mason, Principal Project Manager, Staffordshire County Council/Amey

Key achievements

Throughout the target cost build up over £6 million of savings were made to the proposed works to bring the scheme in under budget. The savings are summarised in the table below.

DETAIL	SAVING
Staff roles shared between SCC and CTP van driver and Chain person	£115k
Alternative embankment design utilising Pulverised Fuel Ash (PFA) sourced from local power stations instead of class 1A granular fill material of approximately 224,000m ³ (£2.5m saving dependent upon price of material at time of order, could be £2.0m as prices are due to rise in 2017).	£2.5m
Omitting requirement for break down service during works, instead utilising the AA (£100k saving)	£100k
The design had an in-balance of cut to fill due to programme constraints and the class 1A embankment designs. We suggested leaving in place an existing embankment on the north side of the A50 (bridge embankment of the demolished A522 bridge) which would be made redundant (£500k saving). There is the potential also for ecological diversity benefits from leaving the embankment.	£500k
Highlighting cost of removing inert surplus material to tip, utilising instead SCC surplus land locally for stockpiling for use in future phases (£510k saving on tip fees Phase A)	£510k
Review of topsoil volumes, suggesting thickening some landscape areas to avoid removal of 6500m ³ to tip (£214k saving)	£214k
Remaining topsoil stockpiled for future use alongside inert material (£180k saving on tip fees)	£180k
Carillion's earthworks review highlighted potential to stabilise class 2 site-won material for embankments up to 2m high (£400k saving)	£400k
Review of planned deep soil mixing as requested by SCC, involving testing undertaken and paid for at risk by Carillion in order to develop an alternative quicker and cheaper solution, led to savings on programme (mainly omitting the design of soil mixing as well as 1 month of actual site delivery) and cost through allowing natural settlement of embankment PFA material, which is lighter and reduces the settlement effect (£1.5m saving)	£ 1.5m
Removal of stabilised shoulder detail after review (£300k saving)	£300k
Alternative solutions to BT constraints (£144k saving)	£144k
Not undertaking ground improvements (£500k saving)	As above
Programme alterations to account for increasing price of PFA post 31st March 2017 (£148k saving)	£148k

In order that the scheme was not delayed whilst the contract documents were finalised, CTP were requested to carry out some advance works in particular to enable the site clearance to be undertaken outside the bird nesting season and establish the site compound and offices to ensure an efficient start to the works. The main contract was awarded in May 2016 and works on site commenced in June 2016.

“I am pleased with the proactive way Carillion Tarmac have collaborated with us during the ECI period on the A50 Uttoxeter project, to find a cost effective and practical solution to the challenging ground conditions”

Andy Mason, Principal Project Manager,
Staffordshire County Council/Amey



Collaborative Planning in action on the A50



Collaboration

At the inception of the works a collaborative partnering workshop was held to establish good working relationships and project objectives. This helped to continue the excellent rapport established at tender stage and formed the values and framework prior to the commencement of the works. The event was hosted by Jon Broome a specialist and contributor to the NEC 3 form of contract. The output from the workshop was a set of targets aligned to the MHA set of KPI's and agreed the principle requirements for a strong joint relationship. This was

developed further by following the guidelines of BS11000 to instigate an formalise Joint Relationship Management plan between SCC/ Amey and CTP.

CASE STUDY:

> A very Successful ECI

> Background

Due to the strict funding restrictions imposed by Highways England it was made clear by SCC from the outset that unless the scheme could be brought within the Client's budget the scheme may not go ahead.

In October 2014 Carillion Tarmac Partnership (CTP), a joint venture formed to deliver highways frameworks, were appointed by Staffordshire County Council (SCC) as preferred bidder for the Early Contractor Involvement (ECI) phase of the A50 Growth Corridor Project A. The appointment was established through a mini tender via the Midlands Highway Alliance (MHA) Medium Schemes Framework involving the three incumbent contractors. If CTP were successful during the ECI phase they would be appointed as the contractor for the construction of the works.

Currently the A50 Trunk Road forms part of the Highways England Strategic Road Network running through the North Midlands linking the M6 in the west with the M1 in the East. The improvements will benefit a number of major commercial and industrial developments located adjacent to the route. Michelin, Rolls Royce, Toyota and JCB all have large manufacturing plants in the region which requires an efficient road network to support the business development. Traffic to Alton Towers also extensively uses the A50 Growth Corridor. In addition the scheme will also provide improved access for a proposed housing development and to new employment sites to the west of Uttoxeter

The scheme involves the construction of a grade separated junction fundamentally to facilitate the growth of businesses in the region and in addition improve traffic flows and provide safer access to the A50 at the junction with the A522.

As the successful bidder the CTP worked closely with SCC to develop the scheme and agree a Target cost for the works.

Project:
A50 Growth Corridor Project A

Client:
Staffordshire County Council

Partner/Associate:
Carillion Tarmac Partnership (JV)

Contract Value: **£28M**

Length of Project: **118 wks**

Completion date:
November 2018



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