

Next Navigation East:

Part 2: Summary of Proposals

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2 Summary of Restoration Proposals

2.1 Introduction

- 2.1.1 The proposals for the restoration of the Chesterfield Canal between Staveley and Killamarsh were presented in the preceding companion report “Next Navigation West”. **The proposals in Next Navigation West are now being delivered.** In particular key lengths of Section One - Staveley and Section Three - Renishaw are under construction and nearing completion (September 2009). Funding is in place for further significant elements at both Staveley and Renishaw. Detailed designs have been prepared for all significant civil engineering structures along the route and planning permission for all remaining elements is being sought.
- 2.1.2 This part of the report describes in outline the proposed route of the restored canal and the key works required for each section of the Canal from Killamarsh to Kiveton Park.
- 2.1.3 The environmental setting of the proposed works from Killamarsh to Kiveton Park is described in this volume in Parts Four to Eight. This considers the economic and social context, the modern environment and the built heritage of the canal and the risks, hazards and the impact of the project upon the environment. Supporting evidence for these chapters is given in **Volume Two: Appendices & Evidence: Appendix A: Environmental & Ecological Data** and **Appendix B: Heritage & Archaeology Data**.
- 2.1.4 The restoration and reinstatement proposals are detailed in Chapters Nine to Fifteen. This includes the Conservation Management Strategy and Design Principles (Chapter Nine) together with key structural design elements (Chapter Ten). How these come together in each section to produce an integrated design which incorporates environmental protection, mitigation, compensation and enhancement measures is given in Chapters Eleven to Fifteen. The required landtake is itemised in **Appendix C: Landownership for the Canal Track and Adjacent Land**. The channel works, structures, heritage management tasks and ecological management & enhancement works along the Killamarsh to Kiveton Park length are listed in a series of tables and illustrated in the large scale fold-out plans given in **Appendix D: Design Proposals**.
- 2.1.5 Copies of the consultants’ reports which underpin or support these proposals together with further supporting information are also given in **Volume Two: Appendices & Evidence**.

2.2 Project Outline: Killamarsh to Kiveton Park

- 2.2.1 The Eastern Division is shorter than the Western but has a greater number of technical challenges. The overall feasibility of restoration from Killamarsh to Kiveton Park was demonstrated in the Halcrow Study in 1995 and further underscored by the Arup Study in 2008. Five key challenges have been identified:
- Securing a route through Killamarsh

- Restoration of the Norwood Flight
- Gaining a route under the M1
- Replacing the Norwood Tunnel with a surface route
- Connecting the surface route to the national network.

2.2.2 Studies by Jacobs-Babtie, Arup, British Waterways and the Canal Partnership have examined a number of options to overcome these challenges. They have identified cost effective, feasible and deliverable preferred solutions.

2.2.3 The main features of the Eastern Division restoration are therefore now clear and work is proceeding to undertake site investigations and carry out detailed design work. It should be noted that there will inevitably be changes to the detail of the scheme as this design work is carried forward.

2.3 The Eastern Division: Killamarsh to Kiveton Park

NB: *The Western Division from Staveley to Killamarsh is currently underway and the proposals given here build upon that progress.*

The Restoration Section Numbers below follow on from those for the Staveley to Killamarsh length: *they form part of the same project and the use of unique numbers prevents confusion between western and eastern divisions.*

2.3.1 The restoration of the Chesterfield Canal between Killamarsh and Kiveton Park is challenging but has the potential to offer significant environmental, economic and social benefits. The project will entail reinstatement, reconstruction or construction of:

- 6.4 km (c.4 miles) of canal channel
- 6 main road bridges
- 4 minor road bridges
- 2 accommodation/occupation bridges (vehicle tracks)
- 9 foot, cycle or bridleway bridges
- 13 historic locks (4 structures)
- 26 new locks (11 structures)
- 1 minor historic reservoir
- 1 water supply channel
- 3 water control / management structures
- 2 culverts
- 2 marinas

- 2.3.2 The restoration is a long-term programme. The proposed order of construction is discussed below, however, it should be noted that It is not intended to undertake all the works proposed here simultaneously.
- 2.3.3 By spreading out the works' sequence, the immediate environmental impact of the scheme is reduced but, conversely, it will be extended at lower levels over several years. It is acknowledged that the natural environment is always changing and that many key potential impacts will need to be reassessed prior to works' commencement as each project section or length is brought forward.
- 2.3.4 This document is a summary statement intended to provide a broad framework for understanding the Killamarsh to Kiveton Park Project. Individual reports covering aspects of the built and natural heritage and engineering design are included as appendices and should be referred to for further detail.
- 2.3.5 The termination of the Western Division lies on the West Side of Walford Road in Killamarsh. The Eastern Division commences there.

2.4 Restoration Section 6: Killamarsh Town

Securing a route through Killamarsh

- 2.4.1 In the 1970's house building took place on part of the original canal line through Killamarsh. In 2004 the Chesterfield Canal Partnership commissioned Jacobs-Babtie to undertake a detailed study of possible routes to replace the built upon section. Routes through and around the village were considered. The community were closely involved in the entire process and following extensive consultation a preferred route has been agreed which both avoids demolishing existing properties and meets the requirements of the community for the canal to pass through the heart of the village.
- 2.4.2 In outline the agreed route follows the original line of the canal (where it is not built on) from Old Hall Farm to near Killamarsh Leisure Centre. From there it leaves the original line and heads down-hill to pass under Sheffield Road following an existing storm drain route. The canal then passes through a flood control gate and enters Nethermoor Lake. It is proposed to develop Nethermoor Lake as a low-key mooring site.
- 2.4.3 This will be among the last sections to be reinstated and there are still a number of detailed issues which require resolution. Nevertheless, the preferred route through the village has been protected against development through incorporation into the North East Derbyshire Local Area Plan and the replacement Local Development Framework.
- 2.4.4 The Killamarsh Town section commences at the winding hole to the east of the LD&ECR (Westthorpe Mineral Railway) Bridge. At this point the canal used to make a shallow loop around a very low hill spur. On the north (downslope) side the towpath bank has been structurally undermined by garden extensions cutting into the toe of the embankment and increasing the slope rest angle. It is proposed to construct a new lock at this location (Old Hall Farm Lock N^o.6a) to lower the bed level of the canal for two reasons; First, this will allow re-profiling of the hill slope /

embankment slope to accommodate these changes. Second, it will drop the level of the canal by c.2m and enable passage under Walford Road.

2.4.5 Between the new lock and Walford Road a new footbridge will be required to maintain existing connectivity. This may take the form of a lock tail bridge or a stand alone structure (New Spooner Bridge, N^o.26a).

2.4.6 Walford Road post dates the closure of the canal. It is a significant urban road and although the canal adjacent to the crossing point has not been built upon the site is severely constrained by the presence of houses, driveway access and an electricity substation. Two alternative crossing have been investigated to create Walford Road Bridge (N^o.26b);

- A thin deck bridge crossing the canal. This would require raising the road level by c.1m to gain sufficient clearance even with a lowered water level.
- A lifting bridge. A modern steel double bascule bridge (the bridge deck is divided into two and both sides lift thereby preventing vehicles accidentally entering the water when the bridge is raised). Similar bridges in the Netherlands (and proposed for use on the Cotswolds Canals) are timer-controlled to prevent use during periods of high road-traffic flow.

2.4.7 The restrictions on raising the road level near the crossing make the lifting bridge the more likely option at this time.

2.4.8 Beyond Walford Road the canal channel is completely infilled and runs through an area of urban parkland. Two new foot and cycle bridges over the canal will be required to maintain continuity of connection and movement between the surrounding housing and the town centre (New Leah's Bridge N^o.26c and Chandos Bridge N^o.26d). Sufficient space is available for a shallow cutting to carry the lowered canal channel and this would help to delimit the canal and separate it from the surrounding park.

2.4.9 Shortly before Bridge Street and the site of Mallinders Bridge the canal channel briefly reappears albeit partially infilled. Some retaining and underpinning work will be required to lower the canal level along this section.

2.4.10 Mallinders Bridge (also called Bridge Street Bridge, N^o.27) was dropped and culverted in the 1970's and only fragments of the wing and abutment walls remain. Reconstruction in the original style is not possible due to Highways Agency requirements to maintain the current long profile of the road. A concrete thin deck structure with cosmetic brick cladding is proposed.

2.4.11 After Mallinders Bridge the canal channel is infilled although it is clearly marked by a surfaced urban footpath. Some revetment work to one upslope structure will be required to lower the bed level. The Canal track reaches the open area adjacent to the Leisure Centre (SK 4587 8105) where the first of the five new Killamarsh Town Locks is planned.

2.4.12 Killamarsh Town Top Locks (Locks N^o.6b & 6c) are two "staircase" locks and are on an angle to the slope. The canal then passes under a tail bridge while turning to the

- north until the flight is descending perpendicular to the hill slope. A further pair of staircase locks, Killamarsh Town Middle Locks (Locks N^o.6d & 6e), lead to a further very short pound and the Killamarsh Town Bottom Lock (Lock N^o.6f).
- 2.4.13 The pounds between the locks are very short and are only intended to permit two full-sized boats to pass each other. Even with larger than average by-washes these very short pounds will tend to drain rapidly. Given that there is insufficient space on adjacent land to construct side ponds of suitable dimensions a permanent back-pumping system is envisaged.
- 2.4.14 Continuity of access from the housing around Nethermoor Lane and the village church to the leisure centre is afforded by a new foot and cycle bridge over the tail of the first lock-pair – Killamarsh Town Locks Bridge (N^o.27a).
- 2.4.15 Killamarsh Town Bottom Lock takes the canal down into a concrete box culvert which runs under the end of Nethermoor Road and then under Sheffield Road to emerge on the north side of the road in a narrow space occupied by a public footpath and a drainage ditch occupied by an unnamed stream (probably the Dale Brook which runs under the housing estate from the Dale Valley to the south east) . The culvert roof will extend for c. 50 m along this space allowing the footpath to be carried above the canal until the available site opens out and there is sufficient space to permit the footpath to resume its position beside the canal.
- 2.4.16 A further very short length of new canal will bring the channel to the Flood Defence bank which lies between Killamarsh and Nethermoor Lake and which is part of Rother Valley County Park. To cross the flood defence bank and descend to the level of Nethermoor lake a flood control lock has been designed (Nethermoor Lock, N^o.6f). This lock incorporates a guillotine gate at the downstream end which can be remotely controlled in conjunction with flood defence system in this reach of the Rother Valley. The flood defence barrier can only raised when conditions are suitable.
- 2.4.17 Nethermoor lake is the southernmost of the lakes which were created following open cast-coal mining in the Rother Valley during the 1980's. The lake was intended to be a fishing lake but this has not been successful.
- 2.4.18 It is proposed that part of the lake will be utilised as quiet moorings. Subject to agreement with the Environment Agency a short floating (rise and fall) pontoon will be constructed running northwards from the southern shore of the lake. This will initially accommodate 10 boats and be designed to cope with the maximum possible rise and fall of the lake during flood conditions (Upton-on-Seven Marina on the River Severn has pontoons with a rise and fall distances of 5 metres – here the maximum is 3 metres). There is scope to extend the length or number of pontoons depending upon demand. A bonded gravel-substitute surfaced path will link the pontoons with the towpath and the path along the top of the flood bank which provides alternative access routes to the village. Each of these existing routes will be upgraded and require additional signposting.
- 2.4.19 No facilities are planned within the moorings - the intention is that services and supplies can be obtained from within Killamarsh village some 100 m distant. Facilities for mechanical work on boats will not be available on this site as there are opportunities for such developments on the Killamarsh to Kiveton Section.

2.5 Restoration Section 7: Killamarsh East

- 2.5.1 The Killamarsh East restoration section extends from Nethermoor Lake to Norwood Bridge near the foot of the Norwood Flight.
- 2.5.2 The section commences at the Nethermoor Lake moorings. The new route leaves the eastern side of the lake via short length of new cut. This passes under Barber's Lane Bridge (No.28), a new minor road bridge, before reaching the bottom of the Moorhouse Flight. The flight raises the canal from Nethermoor Lake back to the original line of the canal.
- 2.5.3 The Moorhouse Flight consists of six locks; A five-rise group followed by a short pound and then a single lock at the point where the new route re-joins the original canal line. The junction will be adjacent to the site of Ellison's Cottages (now on the edge of Norwood Industrial Estate).
- 2.5.4 The Moorhouse Flight is located in the Rother Valley Country Park and has the potential to be additional tourist attraction. It will be a striking and very prominent feature which will provide striking views over the southern end of the Park, while the operation of locks, especially those as intricate as this flight, provides a constant source of entertainment to onlookers. With that in mind particular attention is being paid to accessibility, quality of materials and appearance and the integration of the site into the wider landscape in the design process.
- 2.5.5 From the outset it is envisaged that back-pumping will be required on the flight. A small pumphouse is located at the foot of the flight adjacent to Barber's Lane. This will potentially be an attractive structure and could double as a visitor orientation point, ice cream kiosk, lock keepers office and/or maintenance workers bothy.
- 2.5.6 A foot and cycleway bridge over the tail of the uppermost lock (Moorhouse Junction Lock) and the short pound will connect the original towpath line to the new towpath.
- 2.5.7 From Moorhouse Junction southwards the original canal will be reinstated and a winding hole constructed at the southern end adjacent to Primrose Lane. This arm will be used for low key moorings (the Primrose Lane Moorings) and as partially off-line nature reserve.
- 2.5.8 From Moorhouse Junction northwards the section from Ellison's Cottages to Rotherham Road (A618) past Norwood Colliery Wharf (intact and partially restored) will be dredged and rewatered. At present the canal channel contains some partially-watered lengths with considerable biodiversity and ecological value. These lengths are not currently managed and there is evidence that they are gradually drying out (only half the water area mapped in 1980 remains).
- 2.5.9 Restoration will restore the lost open water area by dredging. In order to retain the current biodiversity shallow water off-line reserves will be created and the areas of off-bank reedswamp extended with reed shelves.
- 2.5.10 Between Ellison's Cottages to the Norwood End stop plank narrows there are several areas of irregular off-bank flooding due to mining subsidence. These will be retained, enlarged and separated from the main channel by a shallow bund with waterflow regulated by buried pipes and silt screens. Some of the flora from the

main channel dredging will be transplanted to the new ponds. These Norwood End or Gannow side-ponds will form an off-line reserve with clear water conditions which will enable the re-colonisation of the main channel following repeated dredging.

- 2.5.11 Between the Norwood End stop plank narrows and Rotherham Road Bridge new reed shelves on the off-bank will be created wherever possible. Attention will also be paid the renovation and public interpretation of the Norwood Colliery Wharf.
- 2.5.12 By Rotherham Road the canal is running in a shallow cutting. The new bridge (on the site of Gannow Lane Bridge No.29) will require only a modest increase in the road level to achieve a navigable height passage under the A618. Fortunately the sight lines here are excellent and there are no side turnings in the area of the works.
- 2.5.13 The Rotherham Road Bridge will permit reconnection with the in-water section which runs eastwards from the road, under the grade 2 listed Norwood Bridge, to the foot of the Norwood Flight. This section is silted in places but otherwise retains water. Immediately south of Norwood Bridge is the (unmarked) boundary where the canal passes from Derbyshire into South Yorkshire (Rotherham MBC).
- 2.5.14 Section Seven nominally ends at Norwood Bridge. Norwood Bridge is included in Section Eight as it is the first significant heritage feature of the main Norwood Lock Flight group.

2.6 Restoration Section 8: Norwood

Restoration of the Norwood Flight

- 2.6.1 The Norwood Flight is the most important built heritage on the yet to be restored canal and arguably the most important on the entire navigation. The 13 locks of the Norwood Flight lift the canal 76 ft in just under 3/4 mile and are an un-sung wonder of the early canal age.
- 2.6.2 The Norwood Locks are arranged in four staircases consisting of a three-rise, a three-rise, a three-rise and a four-rise. These are separated by three ponds and side-ponds which regulate flow and provide water storage. When built the lock-flight bywash drained a dry-dock and provided water to power a timber sawmill and carpenter's shop.
- 2.6.3 When construction of the canal started in 1771 the flight and its work yards were one of the first features to be built. The workshops turned out work boats, timber work such as centring for bridges and the tunnel and the lock gates for the western half of the canal.
- 2.6.4 The locks were probably extensively rebuilt the 1830's along with much of the rest of the canal and the visible lock walls are largely of red brick, rather than stone, construction. The walls also show evidence of successive rebuilding's and later patching with different types and colours of brick. The locks fell into disuse following the collapse of the Norwood Tunnel in 1907 and the cessation of traffic on the western end of the canal by the First World War. Over time the side-ponds became silted, the lock gates were removed and weirs were installed in the lock chambers. The middle three rise lock group was infilled completely and water flow maintained by a pipe.

- 2.6.5 The lower three rise lock groups are in reasonable condition. The upper four-rise lock group is the most heavily damaged, but even here the condition is no worse than that seen on the Turnerwood and Thorpe Flights prior to restoration by British Waterways.
- 2.6.6 Water continues to flow down the flight, some of it draining from the surrounding Nor Wood and some from the remains of the Norwood Tunnel. This water feeds the recently dredged side-ponds (which are now in-water as ornamental fish ponds) and the in-water section from the end of the Norwood Flight to Rotherham Road Bridge.
- 2.6.7 Work to restore the flight to its last operating condition will commence with detailed archaeological investigation and mitigation works to protect the flora and fauna. The weirs and infilling will be removed and the lock walls stabilised using the techniques successfully applied to the Thorpe and Turnerwood Flights. Repairs to the fabric of the lock chamber will utilise heritage materials and methods.
- 2.6.8 No lock gates or paddle gear survive. Photographs show the gates and gear present prior to disuse were similar to those used elsewhere on the Chesterfield Canal. The design of the new lock gates and paddle gear will be based on these traditional designs. Like the replicated paddle gear used on the Thorpe and Turnerwood restorations the new materials will be discretely date stamped so as to avoid future confusion over its origins.
- 2.6.9 Minor repairs are required to the Grade 2 listed Norwood Bridge at the bottom of the lock flight and entirely new accommodation bridges will be required to provide access to the private houses at the top and bottom of the flight. These will have to fit in very constrained locations and while it may be possible to design a suitable fixed bridge at the lower end of the flight it is likely that a lifting- or swing-bridge design will be necessary at the upper site.
- 2.6.10 The water supply for the flight originally came via a feeder leat from the Woodall and Killamarsh Ponds in the hills above Nor Wood. The feeder leat is overgrown and infilled with mud in places but is generally in good condition. The Killamarsh pond has been slightly lowered but is in use as fishing pond. The Woodall pond dam has been greatly lowered although there are plans for a partial re-watering as a further fishing pond. At present no water from the ponds or feeder leat enters the canal and all water on the flight is derived from drainage from the Norwood Tunnel and overland flow from the Nor Wood.
- 2.6.11 While it is not possible to restore both ponds to their 18th century capacity, the repair of the feeder leat will enable some water to be drawn from them. In addition water will continue to be received from drainage and the remains of the tunnel. Further water will come from groundwater sources, the new summit level and the small summit reservoir in the adjacent Wales Section.
- 2.6.12 These water sources alone will be unable to supply the flight during extended operation or a prolonged dry spell. Consequently back-pumping will be installed throughout the flight to conserve water during operation. Given the sites heritage value this will have to be done sensitively but it is essential to ensure long term viability. The possibility of powering the back-pumps with a wind turbine or other alternative energy source is being actively pursued.

2.7 Restoration Section 9: Wales

Gaining a route under the M1 & Replacing the Norwood Tunnel

- 2.7.1 The Wales Section commences at the Western portal of the Norwood Tunnel and extends eastward to the western edge of the former Kiveton Colliery Site.
- 2.7.2 The major problems facing this length are the replacement of the collapsed Norwood Tunnel and achieving a passage under the M1 Motorway which now runs above and across the tunnel site. To determine the best solution a feasibility and outline design study was commissioned from Arup in 2007 (Arup 2008).
- 2.7.3 The Arup study demonstrated that the western portion of the Norwood Tunnel cannot reasonably be restored – some sections have collapsed, others were infilled by the National Coal Board and one length was injection grouted when the M1 was built.
- 2.7.4 Arup examined four alternatives and concluded that the most cost effective and sustainable option for replacing the tunnel was the construction of a new surface route. This is possible because the tunnel lies at a very shallow depth (barely 4m or 12ft below ground surface) and there is an existing farm underpass suitable for conversion to canal channel. Arup noted that a similar conversion had been successfully carried out on the Rochdale Canal during restoration in the 1990's.
- 2.7.5 Arup made recommendations for further work. The proposals here reflect the development of the Arup proposals in the light of that work.
- 2.7.6 The current plan for the Wales restoration section has a new length of canal channel leaving the original line on the off-bank around 75 m from the standing West Portal of the Norwood Tunnel. The new line will be carried in shallow cutting to the south of the tunnel entrance wing wall.
- 2.7.7 The towpath will be carried up and around the top of the original Norwood Tunnel mouth across the site once occupied by the Tunnel Keepers cottage and the towing horse stables. The towpath will then rejoin the north bank of the waterway.
- 2.7.8 After 50 m the cutting will deepen and enter the first of the “Norwood Extension Locks”. A bridge over the lock tail will maintain connectivity between the towpath and the public right of way extending south through the Nor Wood to Killamarsh.
- 2.7.9 The Norwood Extension Locks consist of two three-rise locks. The first is the Norwood High Treble Locks (No.'s 19a, 19b and 19c). At the top of this multiple lock the canal enters a short pound and the canal track turns slightly before entering the second three rise group – the Norwood Top Treble Locks (No.'s 19d, 19e and 19f). At the top of the second group the canal turns north-east and reaches the west entrance to the farm underpass below the M1 Motorway.
- 2.7.10 There are two options to the use of the underpass. The simplest involves foundation underpinning, excavation of the farm track surface and insertion of a new canal channel. The towpath would run beside the water channel.
- 2.7.11 The second option involve deep piling beneath the underpass, excavation and the insertion of a concrete culvert at depth followed by re-filling to the current surface

level. The culvert would only large enough for single boat and the towpath would pass through the underpass above the canal.

- 2.7.12 This option would require longer cuttings on both east and west flanks of the ridge but would reduce the number of locks by four (2 up and 2 down), extend the summit pound and increase water storage. It would also allow the underpass to be retained for farm traffic.
- 2.7.13 The second option obviously requires more complex civil engineering but the increased cost can be balanced by a reduction in lock construction costs and long term reductions in maintenance costs. It should be noted that the two options do not affect the horizontal alignment of the canal and the track required is the same.
- 2.7.14 On the eastern side of the motorway the canal would run for a short distance a shallow cutting before running on or around the current ground surface. A foot and cycleway bridge over the canal maintains rights of way connectivity.
- 2.7.15 The new summit pound will be relatively short irrespective of which option is adopted. To increase water storage two new side ponds will be created on the off bank. These will also form new off-line wetland nature reserves. The ponds will link, via separate feeders, to the main canal channel to the east and west of a single flood-gate / lock gate. This will be counterbalanced to swing closed after use and will divide the waters in the western and eastern halves of the section. This is intended to ensure separation of the waters of the Rother and Idle catchments in line with the catchment management strategy of the Environment Agency.
- 2.7.16 Beyond the ponds, at the eastern end of this short summit pound, the canal will run onto a short length of low embankment before descending a two-rise staircase lock.
- 2.7.17 At the tail of the lock flight a minor bridge will carry Coalpit Lane over the canal. The route then follows a gently sinuous course across a relatively level area following the edges of the existing field layout. The route proposed utilises the approximate line of existing field edge drains and adopts the extant hedge line as the off-bank boundary.
- 2.7.18 At the western edge of the former Kiveton Colliery Tip (now reclaimed and landscaped as amenity woodlands and country park) the canal descends via a further two locks in a staircase configuration (the Wales Double Locks). Below the locks the canal will be at the Kiveton Waters pound level.
- 2.7.19 A tail-bridge below the locks (Wales Bridge) provides a foot & cycle-path connection between Wales/Kiveton, the community woodlands and Harthill. At this point drainage for the tip is received having been filtered in a reedbed to remove sediment and improve water quality.
- 2.7.20 Beyond this point the canal enters the Kiveton Park section.

2.8 Restoration Section 10: Kiveton Park

Connecting the surface route to the national network

- 2.8.1 The Kiveton Park restoration section commences to the east of Wales Bridge and extends eastwards to the eastern portal of Norwood Tunnel.

- 2.8.2 East of the Wales Locks and Wales Bridge the canal is at the Kiveton Waters pond level. It then skirts the north-west boundary of the former colliery tip utilising the line of an existing trackway and drain before entering the former colliery site itself.
- 2.8.3 The route within the Kiveton Colliery site has already been defined by the construction of a canal channel and deep cutting. This prepared and protected route was built when the landscaping of the former colliery site was undertaken by English Partnerships. At the same time three large ponds, Kiveton Waters, were constructed on the colliery site at the summit level. These ponds are located to the north of the intended “main line” and were cut to a navigable depth profile with the intention that they can be converted into a marina once the canal is restored. In the interim they are let as fishing ponds.
- 2.8.4 Joining Kiveton Waters and the national network will involve use of the eastern surviving fragment of the Norwood Tunnel. This was inspected by British Waterways in 2001. It was found to be intact and in good condition for a distance of around 400 m from the East Portal. The first blockage occurs just to the east of Hard Lane.
- 2.8.5 The link will be made by excavating a cutting to the west of Hard Lane. Within the cutting a three-rise staircase lock will lower the canal to the tunnel pound level. A culvert will take the canal beneath Hard Lane and make a junction with the intact section of the tunnel.
- 2.8.6 The 400 m long tunnel fragment will then bring the canal out of the former eastern portal of the Norwood Tunnel into the cutting west of Kiveton Park Station. This is the current head of navigation from West Stockwith on the British Waterways section.
- 2.8.7 The land corridor required for the new canal, marina and works within the former colliery site, together with the remaining tunnel fragment, are all owned by British Waterways.
- 2.8.8 It is likely that the Kiveton Park section will be the first phase of the Eastern Division to be completed. Reinstatement through the eastern tunnel fragment will enable Kiveton Waters to be developed by British Waterways as a marina and temporary head of navigation prior to the completion of the through connection to Chesterfield. The length of canal through the cutting to the site of the Wales Locks would be used as a further interim fishing pond.
- 2.8.9 There is strong evidence that the development of the Kiveton Waters site as a marina would have considerable economic benefit for the surrounding communities.

2.9 Restoration Phasing

- 2.9.1 The Eastern division reinstatement is complex but achievable. None of the proposed solutions are novel and all have successfully implemented precedents on other waterways. It will not, however, be achieved quickly and a co-ordinated step-wise approach is required to maximise resources and to gain interim economic and social benefits. At this time the following phasing is indicated:

Phase 1a

2.9.2 Connection of the existing canal at Kiveton Park with Kiveton Waters. This forms the eastern half of Restoration Section Ten. This provides a new marina at Kiveton Waters and will enable the canal to begin to contribute to economic development in Rotherham.

Phase 1b

2.9.3 Excavation of the canal line through the colliery site to the foot of the first new locks. This forms the western half of Restoration Section Ten. This will enable this length to be used for overspill (event) moorings and as a fishing area to replace fishing lost when the Kiveton Waters ponds are converted to a marina.

2.9.4 It is anticipated that Phase 1 will take place in parallel with the implementation of the Western Division plans for the sections from Staveley to Renishaw and from Renishaw to Killamarsh. Phase two will only be able to commence once the link from Renishaw to Killamarsh is in place.

Phase 2

2.9.5 Construction of the route through Killamarsh linking Walford Road to Nethermoor Lake. This is the whole of Restoration Section Six. This provides a temporary eastern terminus to the isolated section and gives the opportunity to develop moorings in Rother Valley Country Park and again contribute economically to Rotherham and the wider area.

2.9.6 Phase two may be undertaken in conjunction with housing re-development in Killamarsh. This may open the way for public-private partnership funding.

Phase 3

2.9.7 Construction of the summit (Tunnel Top) length forming the Eastern Half of Restoration Section Nine. This includes all structures (locks, side ponds and back pumping system, bridges, etc) east of the M1 Motorway. Prior to final through connection this will again provide additional fishing facilities.

2.9.8 It should be noted that the landscape setting makes this section very suitable for delivery by volunteer labour.

Phase 4a

2.9.9 Restoration of the original canal line to the west of Rotherham Road. This forms the central part of Restoration Section Seven. Interim benefits would accrue from local amenity and fishing use. It may be possible to deliver this earlier if an adjacent housing scheme goes forward.

Phase 4b

2.9.10 Construction of the lock flight from Nethermoor Lake to the original canal line west of Rotherham Road. This is the western part of Restoration Section Seven.

Phase 4c

2.9.11 Raising of Rotherham Road Bridge and restoration of canal line to the foot of Norwood Flight. This is the eastern part of Restoration Section Seven.

Phase 5

2.9.12 Conversion of the M1 underpass to take the canal channel.

Phase 6a

- 2.9.13 Construction of the new locks between the M1 and the top of the historic Norwood Flight. This is the western half of Restoration Section Nine.

Phase 6a

- 2.9.14 Restoration of the Norwood Flight. Restoration Section Eight.
- 2.9.15 Note that if alternative funding streams become available this order may well be varied. For example, certain lengths might be brought into use for fishing if there is pressure for additional fishing facilities after the conversion of the Kiveton Waters Ponds into a marina.

2.10 Funding Strategy

- 2.10.1 The restoration of the canal will deliver a range of social and economic benefits (see part 3). Some of these are direct (the creation of employment opportunities, increased visitor numbers and spend, etc.) others are indirect and include greater access to the countryside, increased health and well being in local communities and increased social cohesion. In each case there are different funding streams available to encourage these developments.
- 2.10.2 The Canal Partnership's funding strategy is therefore opportunistic and takes full advantage of current funding programmes wherever these are relevant to the objectives of the project as a whole. In other words aspects of restoration or construction may be carried out while delivering other objects, such as training, which are of direct concern to the funding stream.
- 2.10.3 For example, the reconstruction of existing locks and the construction of new locks requires a range of heritage construction skills. Heritage skills are recognised by English Heritage and the Construction Industry Training Board as a national skills shortage area. The Canal Partnership is a founding participant in a national training framework for the growth of heritage skills on the Inland Waterways. It is developing training programmes working with local colleges and national institutions to provide training and give participants "real life" experience working with skilled crafts-people. The students will receive training and in turn will also contribute to the restoration of the waterway.
- 2.10.4 Many of the participants in this scheme are from the local area and this has the additional benefit of securing greater feelings of "ownership" of the waterway from those participating. As with other programmes we have an especial emphasis on working with young people and this, in the medium term, may also help to reduce antisocial behaviour.
- 2.10.5 Funding will be sought from or through:
- The East Midlands Development Agency (for works in Derbyshire)
 - Yorkshire Forward (for works in Rotherham)
 - Commercial development partnerships (on the model of the Chesterfield Waterside Partnership)

- Learning and Skills Councils and successors.
- Big Lottery Fund
- Heritage Lottery Fund
- Wren, Virador & Biffaward
- Private Charitable Trusts
- Public Fundraising Campaigns
- Commercial Sponsorship

2.10.6 The Partnership has considerable experience of generating overlapping funding streams to achieve larger projects. This approach will be used extensively here.

2.10.7 It should be noted that we expect a considerable proportion of the works to be undertaken by volunteers. Experience from other heritage projects shows that volunteer teams with professional support can achieve complex civil engineering outcomes – stunning examples include the Huddersfield Narrow Canal and the Welsh Highland Railway.