

# Monmouthshire and Brecon Canals



## Crumlin Arm Action Plan 2015



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<sup>1</sup> Photos obtained with kind permission from [http://www.fourteenlocksetr.co.uk/ETR/Crumlin\\_Arm\\_Photos/Crumlin\\_Arm\\_Photos.html](http://www.fourteenlocksetr.co.uk/ETR/Crumlin_Arm_Photos/Crumlin_Arm_Photos.html).

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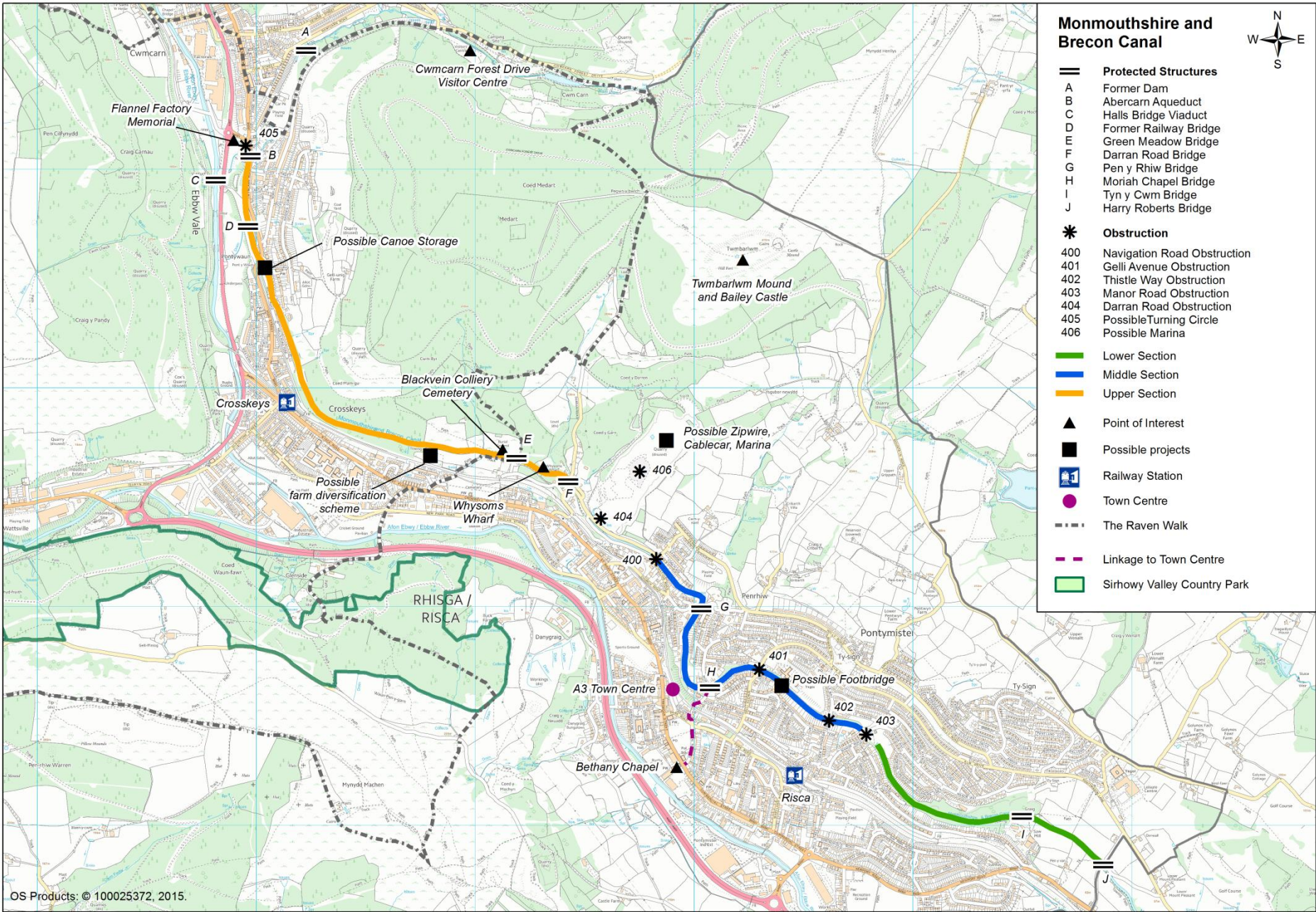
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## 1. Executive Summary

- 1.1 This document sets out the possible strategic direction for the Crumlin arm of the Monmouthshire and Brecon Canal that lies within the boundary of Caerphilly County Borough Council.
- 1.2 Caerphilly CBC is a partner in the Monmouthshire and Brecon Canal Regeneration Partnership, whose main objective is to restore the entire canal network from Brecon to Newport and then on to Cwmcarn to full navigation.
- 1.3 In 2005, following a Canal Corridor Study, which set out phases to the canal restoration, the Council agreed to carry out the first phase, which was to repair and maintain the current canal and carry out towpath enhancements. This work is largely complete, and Councillors requested that an officers group be established to consider the options available for the future canal restoration. This document is the result and highlights the following opportunities:
  - 1.3.1 A fully restored and enhanced Crumlin Arm, coupled with its close proximity to Cwmcarn Forest Drive would be a viable tourism attraction, and would stimulate economic growth.
  - 1.3.2 A fully restored Crumlin Arm would provide improved flood protection, and water management options with the potential to release development land within a current flood risk zone in Risca.
- 1.4 Any agreed strategic direction for the Crumlin Arm could feed into the Local Development Plan and the Destination Management Plan so that any future funding opportunities can be based on a previously agreed set of implementation objectives.
- 1.5 In agreeing a strategic plan for the Canal, consideration should also be given to how the plan is to be managed. A dedicated project officer assigned to co-ordinate activities and funding opportunities is desirable, but may be difficult to achieve in the current financial climate.
- 1.6 This document includes an Implementation plan as a list of possible actions that would restore and enhance the Crumlin Arm to create a four Mile Navigable stretch of Canal.
- 1.7 Each proposal in the Plan can be considered independently, or as part of a joined up approach. There is no order of priorities as this would be influenced by any successful funding proposals. The implementation plan is a fluid document where proposals can be prioritised in accordance with available funding stream criteria. For example, an ERDF bid could contain proposals for restoration to create an enhanced tourism attraction, while an ESF bid may contain a skills program directed at heritage skills. Other small pots of funding may be identified to help progress certain elements.

- 1.8 The implementation plan includes maintenance activities that are compulsory - over the past 10 years these activities have cost approximately £3.5M. Failure to invest in maintenance risks leakages which require high capital investment to protect nearby housing and other assets.

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## 2. Background

- 2.1 The Crumlin Arm of the Monmouthshire, Brecon and Abergavenny Canal (hereafter called the MBAC) is of historic significance, constructed over 200 years ago to transport cargo that helped the coal and steel industries to flourish.
- 2.2 These Canals were initially served by tram roads from the more mountainous areas such as Blaenavon. However, the tram roads and other alternative transport methods became more important and led to a decline in canal use.
- 2.3 More recently, roadways were built which blocked the canal, creating seven short sections of waterway in the Crumlin Arm connected by culverts. The longest section within Caerphilly County Borough is now 1.2km.
- 2.4 In 2001, the Council considered the future of the Crumlin Arm. It was agreed that there would be no further in-filling of the existing canal. Instead, the priority would be work to improve the canal's safety and the establishment of partnerships to explore canal improvements.
- 2.5 Caerphilly CBC is a member of the Monmouthshire & Brecon Canal Regeneration Partnership consisting of the local authorities of Caerphilly, Newport, Torfaen, Monmouthshire and Powys. The councils work alongside the Brecon Beacons National Park, the Canal and River Trust (formally British Waterways), Islwyn Canal Association and the Monmouthshire, Brecon and Abergavenny Canal Trust (MBACT).
- 2.6 In 2005, a Canal Corridor Study on the Crumlin Arm was carried out by British Waterways. This study identified two options for the future of the canal. Firstly a minimal intervention option to make further safety enhancements to the canal. Secondly, it identified the engineering requirement and benefits of restoring full navigation to the Crumlin Arm. This included creating a tourism leisure hub at Adams Quarry linked with Cwmcarn Forest Drive.
- 2.7 At that time, there was no realistic prospect of restoring full navigation from Brecon to Fourteen Locks and then on to the Caerphilly section, so the minimum intervention option was chosen. This option has cost approximately £3.5m since then, including repairs to leaks in the canal and improvements to the towpaths and signage.
- 2.8 The Crumlin Arm now has seven navigable stretches, adjacent to a good quality towpath. It has a visually attractive setting that attracts canal-side usage in the form of cyclists and walkers. However, only one boat remains on the canal, due to silting of the canal bed and the short length of the navigable stretches.
- 2.9 Since 2005, considerable restoration work has been carried out on the Mon & Brecon Canal, within neighbouring Local Authorities, with restoration works planned from Pontypool to Newport and then on to the Fourteen Locks.

- 2.10 The Monmouthshire & Brecon Canal Regeneration Partnership, of which CCBC is a partner, is the driving force behind this restoration and has been successful in obtaining funding from a number of sources.
- 2.11 MBACT as members of the Regeneration Partnership have also joined the Network of Inland Waterways Europe (NIWE), to share innovative ideas, which has the potential to submit proposals for transnational funding opportunities.
- 2.12 The Monmouthshire & Brecon Canal Regeneration Partnership has a vision of full restoration of navigation to the Canal, including the Crumlin Arm and the Partnership intends to apply for EU funding as a regional proposal. The Councils of Caerphilly, Torfaen and Newport are also considering a proposal for ERDF funding (2014-20).

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### 3. Geography

- 3.1 Wales has approximately 200 miles of canal, of which less than half is navigable. Four miles of this, known as the Crumlin Arm of the Monmouthshire and Brecon Canal, lies within the boundary of Caerphilly County Borough Council.
- 3.2 On leaving Caerphilly CBC it travels south towards Newport, before turning northwards through Cwmbran and Pontypool and on to Brecon. These canals are known collectively as the Monmouthshire, Brecon and Abergavenny canal.
- 3.3 Caerphilly's section of the Canal is at the southern limit of the Valleys Regional Park and is on a key route from the M4 corridor. It follows the natural contours of the land at a relatively constant level.
- 3.4 Its northernmost point, the canal terminus at Cwmcarn, is adjacent to Cwmcarn Forest Drive entrance.
- 3.5 It travels south through Pontywaun, then through Crosskeys and Risca and on to the Newport County Boundary at Harry Roberts Bridge.
- 3.6 The canal passes through urban development and has rural stretches with views of pasture fields, hills and mature trees. The Raven Way trail and the Cambrian Walk include parts of the canal.
- 3.7 Five roadways break the navigation, where the canal has been culverted. The culverts, often backfill with rubbish, which slows the flow of water and leads to silting and flood risk.
- 3.8 The canal runs almost parallel to the Ebbw River, and at one time, many of the river's water sources at one time also fed the canal. These feeders have previously been diverted to reduce the flood risk of the canal but have served to increase the flood risk on the River Ebbw.
- 3.9 The resurfaced level towpath forms part of the National Cycle Route linking Newport to Blackwood, which is used by cyclists, walkers and fishers.
- 3.10 The canal provides an environmental haven for over 150 species of flora (five of which are designated rare), dragonfly, butterfly, birds and at least eight different varieties of fish<sup>2</sup>.
- 3.11 The maximum size of boat that can be used on the navigable sections of the canal is 60' (18.29metres) long by 9' 2" width (2.8metres). The draught of the boat is limited to 4'7" (1.4metres). However, currently silting and low water levels means the canal can become shallower than this in many places.
- 3.12 The Crumlin Arm consists of three distinct sections: The Upper, Middle and Lower.

<sup>2</sup> 2005 Crumlin Arm-Monmouthshire & Brecon Canal Canal Corridor Study –commissioned by CCBC and the Welsh Development Agency—conducted by British Waterways

## *The Upper Section*

- 3.13 The Upper Section runs from Cwmcarn Forest Drive to Whysom's Wharf, and is navigable. Water flow is slow and silting is a major problem.
- 3.14 Mainly steep wooded slopes border the offside of the canal, while the towpath side is bordered with housing and industrial development, as well as narrow stretches of land, which historically held a tramway, but is now fenced off and overgrown with vegetation. Its elevated position allows views across the Ebbw Valley.
- 3.15 The Upper Section of the canal lies in close proximity to two Ancient Monuments, a memorial and a disaster cemetery together with five listed structures
- 3.16 The two ancient monuments are:-
- The former Cwmcarn Dam, (marked A on Map) which burst in 1875 resulting in the destruction of the flannel factory and the loss of 13 lives. The disaster is remembered with the Flannel Factory Memorial.
  - Twmbarlwm Mound and Bailey Castle, The site of an Iron Age hill fort.
- 3.17 The five listed structures include:-
- Abercarn Aqueduct and Bridge, a grade II listed structure (marked B on map). This structure is currently dry as the structure is not watertight. It requires investment and repair.
  - Halls Bridge railway viaduct, a grade II listed structure (marked C on map). This Viaduct spans the River Ebbw and is an impressive visual structure of historical interest in railway engineering.
  - Former railway bridge over the canal outfall, a grade II listed structure (marked D on map). The canal outfall emerges through a high arch as a waterfall. This bridge was to support the tramway that historically ran alongside the canal at this point. This impressive historical and visual structure is almost entirely masked by vegetation.
  - Green Meadow hump backed canal bridge, a grade II listed structure (marked E on map).
  - Darren Road canal bridge, a grade II listed structure (marked F on map).
- 3.18 The Blackvein Colliery Cemetery is an historical site linked to the Blackvein Colliery explosion in 1860, which took 146 lives. Sixty bodies were so badly disfigured that they could not be identified. They are now buried in the communal grave in the slope adjacent to the canal.

### *The Middle Section*

- 3.16 The middle section commences after a considerable break in the canal and runs from Darren Road to Manor Road, where the canal is divided into four small navigable sections connected by culverts under roads. The canal is tightly bordered by the built up residential areas of Risca, including the Communities First area of Ty Sign on its offside.
- 3.17 The middle section of the canal runs through the town of Risca, alongside residential housing and a primary school. Users of the canal can access Risca town centre via a number of road routes, the shortest being along Moriah Hill and Station Place.
- 3.18 The canal passes under two hump backed canal bridges which are listed structures.
- Pen Y Rhiw Canal bridge, a grade II listed structure (marked G on map).
  - Moriah Chapel Canal bridge, a grade II listed structure (marked H on map).

### *The Lower section*

- 3.19 The Lower Section runs from Manor Road to Harry Roberts Bridge and is navigable. This section of the canal is rural in aspect with much of it lined by steep wooded banks and views across the valley floor, as the canal travels to the border of Caerphilly and Newport local authorities at Harry Roberts Bridge.
- 3.20 The Lower Section of the canal passes under two hump backed canal bridges.
- Tyn Y Pen Y Rhiw canal bridge, a grade II listed structure (marked I on map).
  - Harry Roberts canal Bridge, grade II listed structure (marked J on map).

## 4. Strategic Context

- 4.1 The Crumlin Arm is cited in the Local Development Plan as a potential tourism development<sup>3</sup>, but the strategic direction of the canal's development and future has never been formalised.
- 4.2 The 2001 census identified that 1.5m people live within 20 miles of the canal, so the potential for day visitors is huge.
- 4.3 When combined with the canal's proximity to Cwmcarn Forest Drive, Navigation Colliery, the Crumlin viaduct and the M4 corridor, it creates the opportunity to develop a tourism hub destination, a substantial landmark for Wales attracting overnight visitors from the UK, Europe and Worldwide.
- 4.4 The Crumlin Arm is located within the South East Wales Capital Region of the Wales Spatial Plan. It lies within the Connections Corridor and links with the City Coastal Zone at Newport. It links the Coastal Zone with other regions at Brecon after travelling through the local authorities of Newport, Torfaen, Powys, Monmouth and the Brecon Beacons National Park.
- 4.5 As early as 2000, UK Government recognised the importance of the inland waterways of England and Wales in its Waterways for Tomorrow policy document. It recognised the benefits of restoring disused waterways to navigation and stated that restoration of canals to navigation has revitalised key parks of the country's transport and industrial heritage, generated jobs, and development and increased opportunities for leisure, recreation and tourism.
- 4.6 Caerphilly County Borough Council is a partner in the Monmouthshire & Brecon Regeneration Partnership, which has been a driving force in significant development and financial investment in the restoration of the canal in other partner authorities, such as the Cwmbran Water Works project and the Newport Fourteen Locks Visitors Centre. The Trust's ultimate aim is to restore full navigation of the canal from Brecon to Cwmcarn.
- 4.7 Recent estimates indicate that approximately 20% of all UK employment is in the tourism and hospitality sectors. Developing an enhanced tourism destination has the capacity to increase employment opportunities within the region. This should be factored into the future skills analysis.

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<sup>3</sup> TM1.6 – Monmouthshire & Brecon Canal, Crumlin Arm-tourism , and in the Risca and Pontymister Town Centre Action Plan 2014-19

Potentially the Monmouthshire & Brecon Canal is a valuable tourism resource, not only as a working route for boats but for its likely links into a wider waterways network. It is also a thriving nature corridor with towpaths and the Celtic Trail cycleway running alongside. As such there are attractive amenity areas, which are linked together by the proposed route of the canal that will make it an attractive development for tourists.

- 4.8 Regeneration of the canal could contribute to the “20/20/20” Climate/Energy targets<sup>4</sup>, through use of cycle networks, safe walking routes to schools and energy generating outdoor gym equipment.
- 4.9 In 2013 the American Huffington Post ranked the Mon & Brec Canal 6<sup>th</sup> in the top canals of the world to visit<sup>5</sup>, which indicates that if full navigation can be realised that the canal would be of considerable national significance to Wales.
- 4.10 The canal has the potential with efficient water management to receive much of the eastside feeder water that currently enters the Ebbw River. The canal would therefore act as a drain to reduce the existing flood risk on the Ebbw River, this would release development land that is currently unfit due to its flood risk rating.
- 4.11 Any strategic direction should give due consideration to “Caerphilly Delivers” CCBC’s Single Integrated Plan 2013-2017:
- 4.11.1 A Learning Caerphilly could utilise the canal as a multifunctional space, making use of educational opportunities such as biodiversity research through HE establishments, linking with local schools for environmental education and using seating as storyboards to educate canal users on the historical use of the area. The construction and tourism jobs created by restoration and maintenance activities would offer opportunities to provide skills training through apprenticeship and volunteer programs.
- 4.11.2 A Greener, Healthier and Safer Caerphilly could utilise the Canal and its surroundings (including Cwmcarn Forest Drive) for sport and outdoor activities, using the towpaths for walking, cycling and exercise trail, as well as using the waterway itself for canoe and boat hire, and annual events which encourages community involvement. This would create a pride in the community, which would discourage minor crimes like vandalism and anti-social behaviour. The exercise trail could include green energy exercise equipment, which could power light along safe routes, and feed back into the local energy grid.
- 4.11.3 A Prosperous Caerphilly would benefit from jobs created by enhanced activity and tourism on the Canal. Attracting more day and overnight visitors which would create an increased demand for more accommodation stimulating jobs growth in the service industry. The towns of Crosskeys, and Risca with its close proximity to the canal could benefit from tourism retail opportunities. Regeneration of the area by restoring navigation would create employment in the activity itself, e.g. boat trips, boat maintenance and sales. The canal corridor would become a more attractive place to live, encouraging private housing investment, businesses and tourism activities into the area.

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<sup>5</sup> Mon & Brec Canal Regeneration partnership Steering group minutes 10<sup>th</sup> October 2013, item 3.

<sup>4</sup> The EU’s Lisbon Strategy for Growth and Jobs, the Europe 2020 Strategy adopted in June 2010

- 4.12 The Ty Sign area of Risca is a Community First area and regenerating the canal with all its associated benefits would fit within the Welsh Government priority of Tackling Poverty and Social Exclusion.
- 4.13 The development of the canal corridor should include
- 4.10.1. Town centre development in Risca and Crosskeys
  - 4.10.2. Tourism attractions including the Cwmcarn Forest Drive and Visitors centre, Adams Quarry and Navigation Colliery
  - 4.10.3. Restoration to full navigation of the Crumlin Arm linked to restoration of the remainder of the Mon & Brec Canal, from Cwmcarn to Brecon, via Newport.
- 4.11 The Crumlin Arm should be included in Caerphilly CBC's destination management considerations, for prioritising through Visit Wales<sup>6</sup> and for future European funding applications.

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<sup>6</sup> Visit Wales (welsh Government)

## 5. Asset Value

- 5.1 The value of the Crumlin Arm is difficult to estimate because it is not just a capital asset. It has natural beauty with protected structures and monuments, which means that the canal has an intrinsic value over and above its monetary value.
- 5.1.1. The Former Dam of Cwmcarn Canal Reservoir is listed as an Ancient Monument of National Importance (marked A on Map). It is an early C18th canal dam with well-preserved remains visible in section and as the site of a major engineering disaster, which informed future practice.<sup>7</sup>
- 5.1.2. The canal is supported by a Grade II Listed structure, Abercarn Aqueduct and Bridge, (marked B on Map). “Listed as an important early C19th canal structure with later modifications of historic interest”.<sup>8</sup>
- 5.1.3. Halls Bridge Railway Viaduct over the River Ebbw and Western Valleys Railway Line is a Grade II Listed structure, (marked C on Map). “Listed for its interest in the history of railway engineering in the western Valley and as an example of standard late C19th railway technology used here on a grand scale and largely unaltered since.”<sup>9</sup>
- 5.1.4. Former railway bridge over canal outfall. A Grade II Listed structure, (marked D on Map). “Listed as a prominent railway structure from the later C19th on a huge scale and with historical associations with the canal”<sup>10</sup>
- 5.1.5. Green Meadow Canal bridge, a grade II listed structure (marked E on map). “Listed as an intact bridge from late C18th”<sup>11</sup>
- 5.1.6. Darren Road Canal bridge, a grade II listed structure (marked F on map). “Listed as an intact bridge from late C18th”<sup>12</sup>
- 5.1.7. Pen Y Rhiw Canal bridge, a grade II listed structure (marked G on map). “Listed as a late C18th canal bridge retaining its character”<sup>13</sup>
- 5.1.8. Moriah Chapel Canal bridge, a grade II listed structure (marked H on map). “Listed as a mainly intact canal bridge from the late C18th”<sup>14</sup>
- 5.1.9. Tyn Y Pen Y Rhiw Canal bridge, a grade II listed structure (marked I on map). “Listed as a late C18th canal bridge retaining its character”<sup>15</sup>
- 5.1.10. Harry Roberts Canal Bridge, grade II listed structure (marked J on map). “Listed as a late C18th canal bridge retaining its character”<sup>16</sup>
- 5.2 If the canal was built in the present day, the capital cost would be in the billions.

<sup>7</sup> CADW ancient Monument and archaeological areas act 1979 reference CAM1/1/6746, Mm259(CAE)

<sup>8</sup> Grade II Listing 21001 & 21012

<sup>9</sup> Grade II Listing 21008 & 21003

<sup>10</sup> Grade II Listing 21009

<sup>11</sup> Grade II Listing 21006 & 22509

<sup>12</sup> Grade II Listing 21007 & 22521

<sup>13</sup> Grade II Listing 22510

<sup>14</sup> Grade II Listing 22511

<sup>15</sup> Grade II Listing 22510

<sup>16</sup> Grade II Listing 22513

## 6. SWOT Analysis

### 6.1 Strengths

- Partnership approach across the Monmouthshire, Brecon and Abergavenny Canal Region, through the Regeneration Partnership.
- Proximity to existing Tourism attractions including:-
  - Cwmcarn Forest Drive
  - Cwmcarn Forest Visitor Centre
  - Cwmcarn Forest cycle trails (which remain open during the tree felling (see threats))
  - Sirhowy Valley Country Park
  - Twmbarlwm Mound and Bailey Castle
  - Fourteen Locks Visitors Centre
- Good public transport links, bus and rail
  - Close proximity to M4 Corridor
  - On National Cycle Network route
  - On the Raven Walk trail, and the Cambrian Walk
- Proximity to Risca (a principle town within Caerphilly County Borough)
  - Purpose built event site in Risca
- Rural and urban backdrops
- Proximity to Navigation Colliery
- The Newport arm of the canal relies on Crumlin Arm water feed.



## 6.2. Weaknesses

- Stretches of navigable canal are obstructed by roads.
- Culverts reduce water flow with risk of blocking and causing a flood risk
- Silting of canal/low water flow reduces water use
- Limited existing overnight tourist accommodation
- Limited signage linking the canal to Risca town centre.
- Limited width for mooring points.
- Some of the canal's water feed begins on third party land
- No Wi-Fi in Risca town
- Conflict between towpath users

## 6.3. Opportunities

- Regional approach to canal restoration and canal corridor development.
  - To apply for relevant funding.
  - To market the canal regionally
  - To encourage cross-valley corporation and movement.
- Replace culverts
  - To increase navigable stretches
  - Reduce flood risk by keeping water moving through the canal.
  - Reduce maintenance cost by reducing silting of canal bed.
  - Navigable tunnels increase interest to canal water users.
  - At Manor Road, an aqueduct would provide a tourism focus
  - Rerouting canal through Adams Quarry to restore navigation (see risk)
- Better water management
  - To ensure sufficient water quantity for water travel through to Fourteen Locks
  - To improve water quality, which is currently stagnant
  - To reduce flood risk on Ebbw River
  - To increase development potential on Ebbw River flood plains.
- Improve link with Cwmcarn Forest Drive
  - Safe crossing point at terminus of canal
  - Green Cycle route from Forest Drive to the canal
  - Improve and diversify the attractions at Cwmcarn Forest Drive

- Improve the links with Torfaen and Cwmbran via Twmbarlwn and Mynydd Maen
  - Long distance cycle routes
  
- Improve recreation both on and off water.
  - Canoes, private boats and trip boats
  - Fitness walks
  - Health rehabilitation groups
  - Safe walking routes
  
- Improve canal to town route
  - B3 Risca Town Centre Plan.
  - Movement along Moriah Hill encouraged by improving bridge with canal imagery and links to Risca Park, town centre and Bethany Chapel.
  
- Potential footbridge and outdoor community/classroom area to rear of Ty-Sign School
  - Safe school walking route, reducing emissions as walking encouraged and quicker than car routes.
  - Community involvement
  
- Potential marina, or mooring points (see risk)
- Potential ecological and heritage educational opportunities
- Better environment
  - For health
  - For ecological improvements
  - For business investment in tourism and canal-related services
  
- Housing at A3 on Risca town centre plan
  - Would be more attractive to investors - canal restoration can be linked to house price increase.
  
- Improve cycle network from town centre to canal and National Cycle Routes
- Encourage annual events to raise the profile of canal and Risca.
- Potential to explore green energy opportunities
  - A waterwheel at Cwmcarn Feeder
  - Heat retention pipes lied under the canal bed
  - Energy generating outdoor gym equipment
  
- Potential to collaborate with fibre broadband providers, since Crosskeys does not have fibre broadband (utilising towpaths).

## 6.4 Threats

- Lack of funding
- Weather can affect outdoor tourism /sport
- Perception of Cwmcam Forest larch tree felling due to Ramorum Virus
- Invasive species impeding navigation and threatening the ecology.
- Unmanaged Tree roots destroying the canal lining
- Unsafe water quality due to stagnant water and rodent infestation
- Conflict between cyclists, walkers, fishers, and waterway users.
- Planning constraints
- Flooding risks
- Fourteen Locks not releasing excess of water
- Sale of Adams Quarry
  - This could impact on the ability to [re-route](#) the blocked section of the canal
  - This would impact on the [potential marina](#), although a new owner could apply for planning permission for a marina.

## 7. Vision and Objectives

- 7.1. The Crumlin Arm of the Mon & Brec Canal is an under-utilized resource that requires ongoing maintenance expenditure. Investment in the form of time and funding has the potential to create a unique destination within Wales, and assist in flood alleviation in the vicinity.
- 7.2. This forms part of a larger regional approach of the Mon & Brec Regeneration Partnership to restore full navigation to the entire length of the canal and develop the wider canal corridor.

### 7.3. Opportunities

7.3.1 These opportunities build on the existing facilities with minimal financial outlay

- Continue the existing Mon & Brec Regen Partnership
- Encourage more volunteering
- Tree survey and management
- Invasive plant monitoring and control
- Monitor foot traffic
- Environmental surveys
- Increase foot traffic along the towpaths
- Increase marketing of the canal (across the regional partnership area)
- Improve the link with Risca town centre
- Improve canal side leisure provision
- Exercise equipment
- Increase water traffic on the existing canal (approach canoe and boat clubs to encourage use)
- Forge links with education establishments and develop education programs
- Forge links with local community groups
- Link with Cwmcarn Forest Drive as a tourism attraction.
- Explore energy generating options from water, wind and exercise.
- Explore fibre cabling along the towpath.

### 7.3. Ambitions

7.3.1. These ambitions build on the existing canal infrastructure to create a safer more desirable location, which will attract more waterway users, assist flood control and create a tourist destination hub with Cwmcarn Forest Drive.

7.3.2. These ambitions would be a catalyst to drive forward other opportunities and encourage inward investment. Due to their nature, these opportunities take longer to complete and require significant funding.

- Restoration of the middle section of the canal to full navigation
  - Creation of a tunnel to remove the [Gelli Road obstruction](#)
  - Creation of a two way tunnel to remove the [Thistle Road obstruction](#)
  - Creation of a tunnel removing the [Navigation road obstruction](#)
- Creation of a safe crossing point linking the canal terminus with Cwmcarn Forest Drive.
- Engage with volunteer, skills and jobs programs
- Creation of safe crossing points where the road obstructs the canal
- Creation of a turning circle, mooring and parking at the [canal terminus](#)
- Enhancement of the activity provision at Forest Drive
- Creation of a community area and safe walking route to [Ty Sign Primary School](#).
- Creation of a canoe/boat store near the [hall road car park](#)
- Encourage more private investment in business and housing

## 7.4. Long Term Vision

7.4.1. The restoration to full navigation of the canal from Brecon to Newport and then on to an activity hub at Cwmcarn Forest Drive would create a substantial landmark for Wales, attracting overnight visitors from the UK, Europe and Worldwide.

- Restoration of the full length of the Crumlin Arm of the canal to Navigation
- Creation of an aqueduct (or tunnel) removing the [Manor Road Obstruction](#)
- Re-routing the canal through Adams Quarry to remove the [Darren Road obstruction](#).
- Restoration of full navigation down to Fourteen Locks (Newport LA)
- Restoration of Fourteen Locks (Newport LA)
- Restoration of full length of Mon & Brec Canal from Fourteen Locks to Brecon (partnership)

7.4.2. A restored Crumlin Arm would provide a complete water corridor for

- Better water management,
- Reduced flood risk and
- Potentially releasing current flood risk land for development.

7.4.3. In collaboration with Cwmcarn Forest Drive and /or private business.

- Creation of an aerial ropes course
- Creation of a zip wire attraction and/or marina at [Adams Quarry](#)
- Construction of a cable car as a major tourist attraction.
- Creation of an Alpine Roller Coaster
- Re-open Cwmcarn Forest Drive following the tree feeling

7.4.4. In collaboration with Torfaen County Borough Council and Natural Resources Wales.

- Creating a link between Cwmcarn and Cwmbran
- Further strengthening of links as outlined in the Twmbarlwm and Mynydd Maen scoping study.<sup>17</sup>

<sup>17</sup> Produced in 2013 by Haire Landscape Consultants Ltd on behalf of Torfaen and Caerphilly Local authorities.

## 8. Implementation Plan

8.1. The Implementation plan is a list of possible actions that would restore and enhance the Crumlin Arm to create a four mile navigable stretch of canal. Each action can be carried out independently but would be beneficial to the whole. The plan is not set out as a step by step process, as acquiring sufficient funding is a barrier to many of the plan's actions. The plan should be re-visited as and when funding becomes available, to identify which actions fulfil the criteria of the funding available and prioritised at that time.

8.2. For ease of understanding, the penultimate column in the table has been colour coded as :-

**C=Compulsory** (requiring continuing revenue expenditure)

**R=Realistic** (requiring commitment and minimal additional funding)

**V=Visionary** (requiring significant capital and revenue funding)

Implementation Plan							
Plan	Actions	Action description/ Recommendations	Potential Funder/Partners	Priority			Cost
				C	R	V	
Maintenance	<a href="#">Structural Integrity</a> <a href="#">Flooding prevention</a> <a href="#">Safety of areas</a>	The canal requires regular maintenance and monitoring to ensure the structural integrity of the canal to ensure that flood risks from leaks and blockages causing overflow are minimised. The operation of in-flow and overflow methods needs to be operational and activated as required.	CCBC Water board MBACT				
	Water Quantity and Water Quality	The appropriate management and regulation at in-flow and outflow points will not only reduce the risk of overtopping during storm events but also help to maintain an acceptable water level during dryer months to permit safe boat and canoe use. Maintaining water flow will also assist with water quality issues. The control structures that should be considered for upgrading are: ○ Nant Carn Feeder ○ Manor Road Feeder ○ Cwm Byr Stream ○ Darran Stream ○ Coed Y Garn stream ○ Pontywaun Overflows ○ Crosskeys Deeps Overflow ○ Fernlea Overflow ○ Strathaven Overflow ○ Gelli Avenue Overflow. <sup>18</sup>	CCBC (Parks and Engineering) Water Board MBACT				

<sup>18</sup> P56 Canal Corridor study 2005

Maintenance	Invasive Species survey and control	Establish a programme for the eradication of invasive plant species including Japanese Knotweed and invasive in-channel vegetation following recommendations from the Environment Agency and Centre for Aquatic Plant Management.	CCBC (Parks and Engineering) MBACT			
	Biodiversity Enhancements	Some of the land adjoining the canal could be reseeded, and with invasive species control and improved water quality, many native plant species could flourish.	CCBC (Parks) Community groups Land owners			
	Dredging of Canal De weeding	Significant investment to make the seven separate sections of the canal navigable would be required and dredging to remove silt and invasive species control would be required to maintain its navigational status. (To protect what we have now). The silt is classed as waste and is expensive to dispose of due to its biological content. (see farm diversification)	CCBC (Parks and Engineering) MBACT			
	Removal of rubbish	The removal of rubbish in the form of tree branches and discarded waste items is required to keep culverts clear to prevent culvert blockage which increases flooding risk. The involvement of CCBC Community Safety in relation to dog fouling and littering would be beneficial. The use of volunteers or community groups should also be considered, possibly led by CCBC Parks.	CCBC MBACT Volunteers Community groups			
Education	Volunteering Skills programs	The Waterways project in Cwmbran has benefitted from a significant level of volunteer time, through formal sources such as help into work schemes/skills schemes as well as local residents. Volunteers can assist in the regular maintenance and development projects. Skills based work projects can also provide qualifications and experience for NEETs.	CCBC MBC Regen Partnership Passport/Jobs Growth Wales/Apprenticeships Communities First employment support Groundwork (Peoples Postcode Trust?)			
Maintenance	Tree survey Tree management Plan	The offside of the canal is lined with trees, many of which overhang the canal waterway. The towpath side also has trees as part of the towpath hedge. The maintenance of trees is essential as they can damage the lining of the canal and can be a health and safety issue with a danger of fallen trees/branches onto users of the towpath and waterway. In addition, fallen branches can cause culverts to block and become an unseen barrier to any boat users. Dense trees can also prevent marginal vegetation, which helps bind the canal edges.	CCBC MBC Regen Partnership			
	Regional maintenance team	As volunteers are trained and gain experience in canal restoration and maintenance, there is potential for the future maintenance of the canal to be outsourced or managed by a regional team of volunteers and employees. Logs from tree maintenance could be distributed to volunteers, low income	CCBC MBC Regen Partnership			



		families or sold.					
	Safe Road Crossing points	Cycle and pedestrian safe crossing points should be constructed at the five canal obstructions where the road breaks the canal, as well as at the origin of the canal where a safe crossing point should be located to link the canal with Cwmcarn Forest Drive. Disabled users should also be considered. If culverts are replaced by navigable tunnels under the road then a safe road crossing point could be under the road alongside the canal if tunnel height permits.	CCBC MBC Regen Partnership				
	Broadband cable	The canal towpath has been identified in other regions as a potential site for expanding broadband and TV cabling into hard to reach areas as the towpath offers a direct route through both urban and rural areas. Finance raised through such a venture could be used to fund some of the other initiatives.	CCBC Cabling companies				
Monitoring	Traffic counter	To count the number of pedestrians, cycle users, etc, to establish a baseline of usage and to monitor the impact of any activities.	CCBC				
	Surveys	Traffic counters provide dry, quantitative data, which should be supplemented by qualitative information on where the user lives, works and why they are visiting. Schools could do surveys to support numeracy skills at primary school level and provide geography project data for secondary school pupils.	CCBC/schools				
	Walking logs	Canal users could use apps or websites to record geographical location, mileage etc. Competitions and events could be run nationally for the most canal mileage per age group, family group etc.	CCBC Canal users Communities First (digital inclusion)				
	Twmbarlwm & Mynydd Mean	Improve the links between East Torfaen and Cwmcarn, to encourage walkers, and long distance cyclists to link between the two areas. This would also include the closing of the area, which is subject to landscape crime by motorcycles.	CCBC Torfaen Partnerships Communities Land owners				
	Conflict resolution	Conflict sometimes occurs between cyclists, walkers, anglers and other water users. A system to deal with conflict should be implemented.	CCBC MBACT				

Plan	Actions	Action description/ Recommendations	Potential Funder/Partners	Priority			Cost
				C	R	V	
Education	Educational programs/ Traditional and Heritage skills programs	The Scottish Canals Trust has developed curriculum-linked educational programs around the canals and the experience of applying traditional heritage skills. A similar scheme could be built around any restoration work undertaken, with NEETs and volunteers obtaining skills qualification during the restoration work.	CCBC/Scottish canals trust Schools Welsh Government				
	Educational Labels	Educational labels placed on trees, near flora, and in areas where certain wildlife is expected, will help children, residents and tourists learn as they enjoy the canal environment. If trees have to be felled, age labels could be added to tree stumps, to inspire future environmental scientists.	CCBC School Community Environmental groups MBC Regen Partnership				
	Environmental field trips/ species surveys, Wildlife safari.	Encourage further education establishments, as part of their courses, to carry out environmental studies along the canal, requesting access to relevant study data. Schools, local residents and tourists could engage with surveys and studies by reporting sightings, and numbers to websites via an app.	CCBC / schools FE establishments Community groups Canal users/tourists MBC Regen Partnership				
	Heritage trail	Benches adopted by schools, community fundraising or local businesses could be engraved with the history of the area, eg, details of Thomas Dadford, who designed the canal some 200 years ago, items carried by barge, etc.	CCBC Education Schools History Societies Heritage Lottery				
	<a href="#">Create a safe route to school, community woodland area and foot bridge at the rear of Ty Sign Primary School</a>	The Tree survey could be used to identify if the area of land at the rear of Ty Sign Primary school is suitable to be converted into a diverse community/school area such as an outdoor classroom, play area, community area. A site survey is required to consider the feasibility of a footbridge and a gate in the school fencing.	CCBC School Community MBC Regen Partnership				

Plan	Actions	Action description/ Recommendations	Partners/Funding	Priority			Cost
				C	R	V	
Town Centre Links	Town centre canal links	<p><b>P27 B3 of Risca and Pontymister Town Centre action plan 14-19</b>                      Increase movement of pedestrians from the National Cycle Network and Mon and Brec Canal to the town centre, encouraging cyclists/walkers to spend time in the town. The route along Station Place and Moriah Hill could be enhanced with interpretation to make it interesting and provide a resting point along a steep route. There is also opportunity for interpretation in Tredegar Grounds Park Risca to promote the canal.</p> <p><b>P37 1.21 of Risca and Pontymister Town Centre action plan 14-19</b> The Town is located in close proximity to Cwmcarn Forest Drive and the canal. However, visitors to the town do not benefit from this proximity as the town lacks any signage and visibility to promote these assets.</p>	CCBC Town Centre Management Highways				
	Refreshment grocery stops	Work with local businesses to provide canal-side advertising and directions to local restaurants, pubs, and grocery and tourist/curiosity shops. Attracting more visitors to the canal will bring a desire to eat, drink and buy souvenirs. The fish and chip shop may be suitable for expansion/change of use to a cafe/grocery point especially if navigation down to Fourteen Locks is restored.	CCBC SME business investment Partnership with existing business				
Tourism	Marketing Raising the profile	<p>Engage with local schools</p> <ul style="list-style-type: none"> <li>• Regular feature on Risca schools Radio Cuckoo FM</li> <li>• Column in schools news letters</li> <li>• Canal group to attend new school entrants parents evenings</li> <li>• Canal ambassadors to be elected at schools</li> </ul> <p>Engage with FE establishments</p> <ul style="list-style-type: none"> <li>• Suitable for environmental and geography surveys</li> <li>• Coleg Gwent has set up a Community Partnership Group to engage with local partners.</li> </ul> <p>Engage with local community groups e.g. anglers, cyclist clubs                      Encourage businesses to sponsor parts of a heritage trail and art boards.                      Treasure trail leaflets at Cwmcarn Forest Drive, CADW sites and other strategic locations.                      Publicise pictures of what we have, run events etc.                      App and Bblog –see below</p>	CCBC Schools Community groups Local businesses Cwmcarn Forest Drive CADW MBC Regen Partnership Newspapers				
	Treasure trail leaflets/events	Leaflets designed similar to a treasure map could ask the user to solve riddles/use a compass to locate certain objects. There could be several ability levels and events staged around teams racing to find items first. Events could be run in a similar way to orienteering events with card clickers	CCBC Tourism & Events Orienteering groups MBC Regen Partnership				

		to punch cards required or numbers similar to bar codes to be engraved into static objects which participants would need to record in correct spaces on the treasure leaflet.	Cwmcarn Forest Drive			
Crumlin Arm APP Blog.		Develop an app and blog where treasure trails, heritage trail, events, walking logs, volunteer opportunities, photos, etc can be found. This could be linked to a wider tourism initiative for all major tourism destinations.	CCBC MBC Regen Partnership General public			
Art exhibitions Art boards		Walkers and waterway users pass slowly through the area. Therefore, an outdoor exhibition which could be static or rotated would provide focal points throughout the stretch of the canal. Static art could take the form of sculptures and/or mosaics permanently fixed while display board could provide points for rotated art and business advertising points. Local schools and community groups and/or national competitions could provide the material for these exhibitions	CCBC School Community Gallery in Caerphilly Existing online competitions			
Mile markers/Art boards		Mile markers used to exist along canal stretches. Canal River Trust is considering erecting new markers along the canal from Crumlin to Brecon. Art boards could be attached to these markers, some for permanent displays and some for rotating displays. The rotating displays would allow the canal to change displays in line with community themes to create ongoing and cross valley interest	CCBC MBC Regen Partnership Community			
Restaurant boats Static		There is a possible mooring site in the middle section where it may be possible to moor a narrowboat that could be converted to a restaurant boat. This could be as a new business investment, a partnership with a nearby fish and chip shop, or as a community group purchase scheme, (using local labour teaching catering skills)	CCBC SME business investment Partnership with existing business Community group Skills for employment			
Mobile Restaurant Dinner cruises		If the canal channel in this middle section was extended by removing the road obstructions this boat could offer dinner cruises.	CCBC SME business investment Partnership with existing business Community group Skills for employment			

	Events	The Mon & Brec Regen Partnership arranges an annual Canalathon involving cycling, canoeing and walking over a 35mile route. The Crumlin arm could arrange a similar event, with cycling starting in the Forest Drive and down to the canal, where canoes can be used and carried over the roadway obstructions to the boundary with Newport. It could be extended to Fourteen Locks where walking could commence on toward a further location. Other events such as a duck race could be arranged on a smaller scale depending on community engagement.	CCBC MBC Regen Partnership Cwmcarn Forest Drive			
Leisure	Cycle hire Stations	Cycle hire stations similar to those in major cities to encourage visitors to hire cycles and visit Cwmcarn forest drive, the six listed canal bridges and Fourteen Locks in Newport area. Cycle stations at Manor Road, Hall Road car park and in partner LA areas such as at Fourteen Locks Newport, Five Locks Cwmbran and at other strategic points en-route to Brecon. This could be part of a wider network of hire and return stations, meaning that returning to the point of origin is not required.	CCBC MBC Regen Partnership Cycle hire businesses SME investment. British Waterways Cwmcarn Forest Drive			
	Canoeing Rowing	Encouraging the use of the canal waterway itself through use of canoe and rowboats should be encouraged as regular movement through the water helps with reducing the silt build-up. Engage with local clubs and SMEs to set up canoe and hire stations, linking with the Forest Drive to make it an activity hub. Facilities for disabled canoeists should be made available. Canoe trips with overnight camping could be possible at Cwmcarn and if full navigation was restored canoes travelling 6-8miles per day could leave Brecon and travel to Cwmcarn, which would benefit local campgrounds and businesses (pubs and shops).	CCBC Cwmcarn Forest Drive Caerphilly Adventure Group Local boat clubs SME/ business investment MBC Regen Partnership			
	Waterway regulation/advice boards	There are health and safety regulations applicable to waterway users, e.g. no movement of boats after dusk. Information boards advising canoeists, motorised boats, etc should be erected. Directions to showers, restrooms and other facilities should be included where applicable.	CCBC Local boat clubs			
	<a href="#">Canoe/boat Store</a>	The Hall Road car park has been identified as a possible development site with a strip of land that could house a small canoe or boat store. This is near a boat slip way for ease of canal access. There is a metal church adjacent to this part of the canal which could offer a partnership opportunity between SME boat owner investment and the church where restroom and dry tuition could be delivered. A similar hire point could possibly be sited at Manor Road if full navigation to the upper and middle sections is achieved.	CCBC Metal Church SME/ business investment Local canoe/boat clubs			
	Angling clubs	There are existing angling clubs using various sections of the canal. CCBC	CCBC			

		should encourage closer links with the clubs, and regular cyclists and residents. Consideration should be given to engaging with National Fishery in relation to the fish stock in the canal	Angling clubs Residents National Fishery			
	Segway Tours	The canal towpath would lend itself to novice “segway” users. Tours could be run by SME businesses to link up with heritage, educational, Art exhibitions as well as linking with an off road segway track that could be developed at the Forest Drive	CCBC SME/ business investment Cwmcam Forest Drive			
	Motorised boats	Privately owned and business boats should be encouraged to the area as their waterways licence brings in revenue. The more attractive and longer the navigable sections the more boats that will be attracted to the area. At present, a trip boat may be viable on the lower (southern section) from Manor Road to Harry Roberts Bridge. Motorised boats on the canal should attract micro-business investment in the form of boat repairer/mechanic workshops. Trip boats, day hire, overnight timeshares, boat hotels, and sea going craft will all be attracted to the area if full navigation could be restored.	CCBC business investment Local canoe/boat clubs			
	Horse drawn trip boats	In addition to motorised trip boats. Horse-drawn trip boats would provide an added attraction.	CCBC Business investment Local canoe/boat clubs			
	Exercise trail	Exercise equipment at suitable points alongside the towpath, such as pull-up bars, hand bikes and cross trainers. Siting individual pieces throughout the stretch of canal would encourage movement throughout the canal and not just at one location. Equipment can be family and disabled friendly as well as pieces for the serious athlete.	CCBC Community groups Business investment			
	Green Energy Exercise equipment	Exercise equipment such as the cross trainer, rowing machines and hand bikes, amongst others can generate 50-100watts of energy depending on the fitness of the user. This equipment can be used to charge mobile phone and power canal side lights, and possibly, depending on location, send power into the local grid.	CCBC Community groups Business investment Green energy grants.			
	Walking tours Health tours	In partnership with local GPs and Aneurin Bevan Health Board, walks and exercise programs can be developed to offer patients, such as cardiac recovery and other physiotherapy patients, the opportunity to recover in the outdoors.	CCBC ABHB Local GPs			
	Boat Taxi	Encourage a boat taxi from Whysom’s Wharf to the Forest Drive. As the canal is lengthened, boat taxis could operate along the full stretch of CCBC’s canal and also from Fourteen Locks in Newport, stopping at strategic points for tourism and business links.	CCBC Local SMEs MBC Regen Partnership.			

Plan	Action	Action description/ Recommendations	Partners/Funding	Priority			Cost
				C	R	V	
	Energy schemes	Both water and wind energy could be researched. A waterwheel at the Cwmcarn Feeder (under the Former Railway Bridge) to generate energy and raise water up to the main canal is a potential that viability could be explored. Laying horizontal heat retention pipes under the canal bed during restoration works could retain heat that that could be piped to the local grid. The viability of this could be explored when canal beds are dry for restoration work.	CCBC MBC Regen Partnership				
Cwmcarn Forest Drive	Enhanced attractions at Cwmcarn Forest Drive	In addition to the existing facilities, which include cycle trails, walking trails, picnic areas, glamping and the visitor centre, the site would lend itself to other attractions which would blend with the natural contours of the land and have little environmental impact. For example <ul style="list-style-type: none"> <li>• Zip Wire</li> <li>• Zip Wire Canopy tour</li> <li>• Zip Wire rollercoaster</li> <li>• Aerial bikes</li> <li>• Leap of faith</li> <li>• Alpine roller-coaster</li> <li>• Aqua ball dry track</li> <li>• Aqua ball on canal/lake-aqua ball football</li> <li>• Aerial bikes (cycle suspended on wire and propelled by rider).</li> </ul> Business investment could create such activities, either on an ad hoc individual attraction basis or investment sought from a large enterprise to create and develop it as a whole. An approach to such an attraction by canal all the way from Brecon would enhance the appeal of both the Forest Drive and the canal.					
	<a href="#">Safe crossing point to Forest Drive</a>	At the northernmost end of the canal, a crossing point on Twyncarn Road would link the canal to the entrance of Cwmcarn Forest Drive.	CCBC Forest Drive				
	Green cycle route from the centre to the Canal.	Cycle Route 47 is the nearest current route to Cwmcarn Forest, though this leaves the canal at Crosskeys. The towpath is of good quality and can be ridden to the end of the canal opposite the entrance to Cwmcarn Forest. Cyclists would then need to use the access road to get to the site. A new cycle route to link from the canal to the visitor centre could be constructed. (see safe crossing point above)	CCBC Business investment				£50-70K



Cwmcarn Activity Hub	This will provide a general sense of arrival and anticipation of what the site will offer, clear signage and banners reflecting the site's varied use. Clear and welcoming site interpretation and directional signage located in two new areas at each end of the car park. Soft landscaping and removal of wooden fencing to be replaced with natural stonework.	CCBC				£100-120K
Rationalise layout of valley floor	The main proposal involves the moving of the existing campsite as detailed below, the former campsite can then be developed into a family friendly area including family cycling trail, maze, adventure play area, picnic and entertainment space. This will provide much needed recreational space within the valley floor.	CCBC				£300-£500K
Amphitheatre and viewing platform	An events space located further up the valley floor and serviced by the new improved parking at the pit wheel. A number of recreational improvements could be incorporated in this area including access to existing walking network, outdoor natural play and picnic facilities.	CCBC				£80-100K
New campsite location	It has been proposed that the campsite be re-located to the slopes further up the valley. This would free up space within the valley floor for further recreational facilities. This development would require major engineering works to create and develop the new site. The new location would provide a better view than the existing valley floor location and hold the sun longer into the evenings. Further study required for exact costs.	CCBC				£2-2.5m
New pit wheel car park	Parking on site is limited during the summer months with the main car park occupied with mountain bikers. New enhanced parking facilities have been planned for the existing pit wheel location that can link into other proposed enhancements in this area. An estimated additional 40 parking spaces could be created within this quieter part of the site that is a perfect location to access to many walks around the site.	CCBC				£85K
Additional/improved car parking	Resurface existing main car park and provide additional parking.	CCBC				£70K
Landscape management	Various improvements throughout the valley floor with regards to persevering the natural environment and control of natural invasive species. Removal of non-required fencing, improvements to surfaces on footpaths (to encourage all use) standardise fencing and furniture around the site & improved signage.	CCBC				£150-200K
Zipwire Risca Quarry	This is a current proposal that it in negotiations with a private sector organisation.  Please note that the sale of Adams Quarry Includes a clause to protect the viability of the re-routing of the canal to restore full navigation of the Crumlin	Private sector				£750k



		<u>Arm</u>				
	High ropes facility	The nearest similar attraction to that proposed at Cwmcarn is Margam Park that operates with Go Ape. A similar style site could be constructed at Cwmcarn although the site offers the opportunity for longer zip wire length due the heights involved. This could also link into the zip wire concept with one of the longest UK zip wire proposed previously.	CCBC Business investment			£1-1.5M
	Alpine Roller Coaster	It is believed that there are currently no Alpine Coasters in the UK, making the construction at Cwmcarn a UK first and therefore a great attraction. It would require some sort of uplift, which would link it to the cable car project below.	CCBC Business investment			£1.5m
	Cable car	The 2005 canal study suggested a cable car to run from a marina in Adam's Quarry to Cwmcarn Forest Drive near the Twmbarlwm Hill Fort (an ancient monument). This cable car would be 30% longer and twice the height of the "Heights of Abraham" cable car (in Derbyshire) which in 2004 received almost 200,000 visitors. While the development of a cable car would require funding at a minimum of £6m, it would provide jobs and skills growth in the construction itself, together with approximately 12 FTE jobs to run and maintain the cable car without the associated growth of other business and tourism activities. In 2005, the Canal Corridor Study (without the marina and cable car) estimated over 100,000 visitors each year, so a cable car and marina would be expected to increase that number considerably. A conservative estimate at 100,000 visitors to the cable car each paying £10 which would include entrance to Forest Drive has a possibility to yield £1m in revenue income. The running costs (maintenance, staffing etc) estimated at £0.5m would indicate a possible profit of £0.5m annually. This attraction would appeal to cyclists who would utilise the cable car to avoid any uphill cycling.	CCBC Business investment Forest Drive CADW National Heritage Adam's Quarry owners			£4-6M estimate
Agriculture	Farm Diversification	There is a narrow belt of land between Crosskeys and Darren Bridge, which is designated as a special landscape area. It has the potential subject to the necessary permissions to house a farm diversification scheme as long as it is well integrated within the existing landscape. If this becomes viable then the farm could consider making use of the silt dredged from the canal as fertiliser which will reduce the LA costs on waste disposal of the silt. (There may be grant funding if a young farmer (under 40) is setting up for the first time as head of holding).	CCBC Business investment			

Plan	Action	Action/Descriptions	Partner/Funding	Priority			Cost
				C	R	V	
Canal Restoration	Nant Carn Feeder Pontywaun overflow	The Nantcarn Feeder and Pontywaun overflows would need to be improved to ensure sufficient water enters the canal for navigation to be achievable all year. These developments would also provide enhanced flood protection for the length of the canal.					
	Fourteen Locks procedures	Formalised procedures should be agreed with Newport LA who have ownership of the Fourteen Locks to agree flood and guaranteed flow procedures. Both CCBC and Newport rely on each other to regulate water flow in both the CCBC and Newport canal areas.	CCBC Newport LA				
	<a href="#">Tunnel replacing the Gelli Road Obstruction</a>	Navigation Road to Moriah Chapel Bridge is the highest flood risk area. Removal of the Gelli Road obstruction by creating a tunnel to improve water flow and accommodate a narrow boat, would prevent the build up of rubbish at the culvert which has been slowing water flow and causes silt build up. This would help to reduce the flood issue and increase the navigable distance in the middle section. A safe road crossing point could run alongside the canal if tunnel height permits.	CCBC MBC Regen Partnership Skills development Community engagement				2005 £0.5M
	<a href="#">Two way Tunnel Thistle Road obstruction</a>	Removing the Thistle Road obstruction will increase the flow of water out of the higher risk areas. The creation of tunnels that would create a two way traffic system would benefit the long term navigational possibilities for the canal. A safe road crossing point could run alongside the canal if tunnel height permits.	CCBC MBC Regen Partnership Skills development Community engagement				2005 £1.2M
	<a href="#">Tunnel Replacing the Navigation Road obstruction</a>	Removing the Navigation Road obstruction would create a middle section of canal fully navigable from Manor Road to Darren Road. This would be of sufficient length to run a dinner cruise boat, and encourage other private and commercial boat use. A safe road crossing point could run alongside the canal if tunnel height permits.	CCBC MBC Regen Partnership Skills development Community engagement				2005 £0.3M

<a href="#">Removing the Manor Road Obstruction</a>	<p>Removing this obstruction would link Risca to Newport LA by water transport. Newport has two bridges that need to be raised within their boundary, which would allow navigation from Fourteen Locks to Manor Road. Removing the Manor Road obstruction would make navigation from Newport LA to Darren Road possible. Removing this obstruction would also encourage water flow into the rural areas to the south of Risca, which would significantly reduce the flood risk to the urban areas.</p> <p>In 2005 a tunnel was considered more appropriate, due to engineering issues with an aqueduct. However, with advances in technology, an aqueduct or other visually unique engineering idea may now be viable, which would attract more visitors as opposed to a tunnel. So the cost of an alternative to a tunnel should be compared with possible tourism revenue. The Neath Canal built a pre-cast concrete aqueduct near Resolven as a cost effective solution while the Falkirk Wheel in Scotland is an example of an innovative idea that has increased tourism revenue.</p>	<p>CCBC MBC Regen Partnership Skills development Community engagement</p>				<p>2005 Tunnel £1.5M 2014 Aqueduct £?M</p>
<a href="#">Removing the Darren Road obstruction</a>	<p>The Darren Road obstruction would require the canal to be redirected into Adams Quarry, as this is the longest break. It would require substantial funding, but it would open up Adam's Quarry as a possible development site for a marina and other linked tourism needs, so a large business enterprise may wish to invest in this. Removing this obstruction would restore navigation to the full length of the Crumlin Arm.</p>	<p>CCBC MBC Regen Partnership Skills development Community engagement Business investment Owners of Adam's Quarry</p>				<p>2005 £4.5M</p>
Pontywaun Aqueduct	<p>This is a listed structure approximately 50 metres in length, which currently leaks. In order to create the Canal turning point at the terminus, this structure would need repair. Any work on this structure would need to be with the approval of CADW.</p>	<p>CCBC MBC Regen Partnership CADW</p>				<p>£0.5m</p>
<a href="#">Canal Turning point</a>	<p>Design and build a canal turning point, with mooring points and a parking area opposite the entrance to Forest Drive to provide a destination for boat users, a winding hole and a link to Forest Drive</p>	<p>CCBC MBC Regen Partnership</p>				
<a href="#">Adam's Quarry Marina and car Parking</a>	<p>Adam's Quarry, subject to planning and land ownership, could be a potential site for a marina to house 30 boats and provide parking for 100 cars. This marina could site hire boats, amenities, grocery, tourism shops and encourage local B&amp;B, restaurant and curio shop activity. This could provide sustainable jobs for the locality.</p>	<p>CCBC MBC Regen Partnership Skills development Community engagement Business investment Owners of Adam's Quarry</p>				<p>2005 £3M</p>

DRAFT

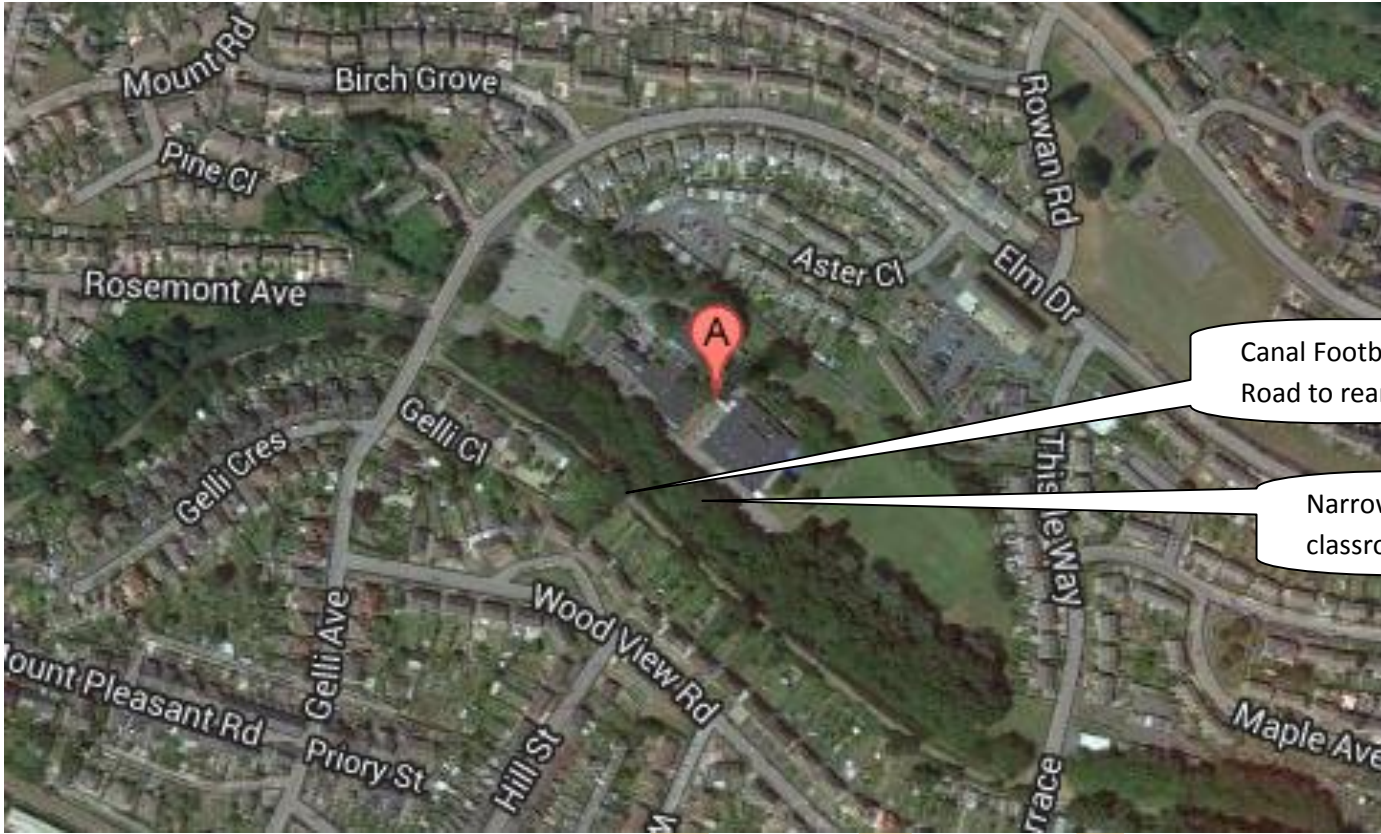
Appendix- Site of proposed canoe store



Site of proposed canoe/boat store

Possible partnership with church

Appendix-Proposed site of community area, footbridge, safe walk to Ty Sign School route




Canal Footbridge would connect walkway from Wood View Road to rear Ty Sign School

Narrow wooded strip of land has potential as an outdoor classroom, wooded play area, community BBQ site.

Appendix-Turning circle and car park to link the canal to Cwmcarn Forest Drive.

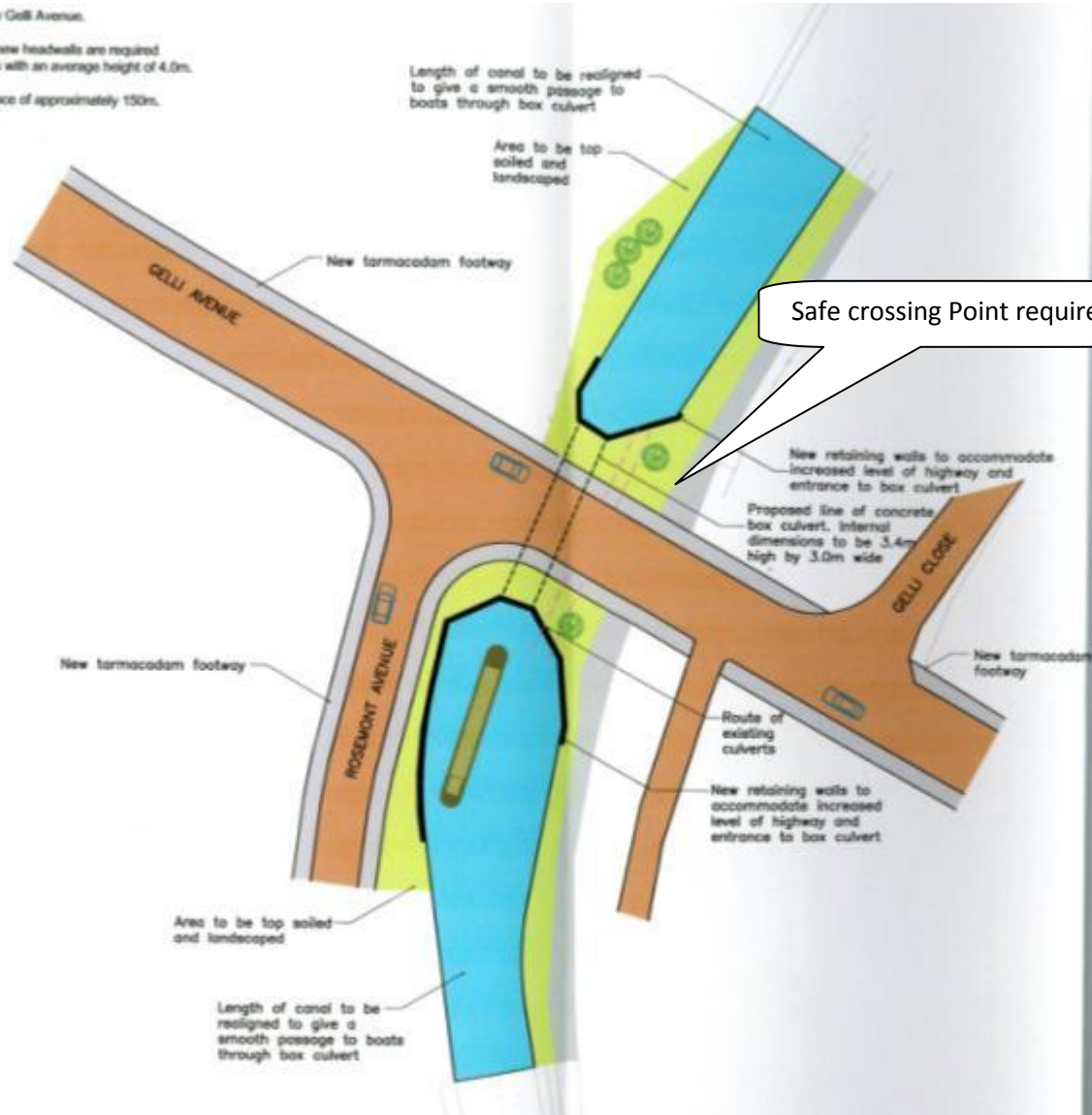


	ENGINEERING CONSULTANCY Directorate of the Environment Chief Engineer – David Williams BSc MSc DipTE CDipAF CEng FICE	project title CRUMLIN ARM – MONMOUTHSHIRE & BRECON CANAL CANAL CORRIDOR STUDY
		drawing title OUTLINE ARRANGEMENT FOR A PROPOSED TURNING FACILITY AT PONTYWAUN
THIS DRAWING SHALL NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS PERMISSION OF THE CONSULTANCY GROUP.		
scale NTS	date JAN 05	drawn LJ
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APPROVAL <input type="checkbox"/>	COMMENT <input type="checkbox"/>	INFORMATION <input checked="" type="checkbox"/>
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Appendix—Gelli Avenue Road Obstruction 2005 estimate £0.5M

- Provide a 20m length of box culvert to cross below Gelli Avenue.
- To formalise the entrance and exit of the culvert, new headwalls are required together with approximately 50m of retaining walls with an average height of 4.0m.
- Raise the level of Gelli Avenue Road over a distance of approximately 150m.

Estimated Cost = £0.5 million.



ENGINEERING CONSULTANCY  
 Directorate of the Environment  
 Chief Engineer – David Williams BSc  
 MSc DipTE CDipAF CEng FICE

project title CRUMLIN ARM – MONMOUTHSHIRE & BRECON CANAL CORRIDOR STUDY  
 drawing title OUTLINE PROPOSAL TO RE-ESTABLISH NAVIGATION AT GELLI AVENUE

scale	date	drawn	checked
NTS	JAN 05	LJ	KJK
project ref.	drawing no.		rev.
TH634	401		
APPROVAL	COMMENT	INFORMATION	
DRAFT	TENDER CONTRACT	AS CONSTRUCTED	

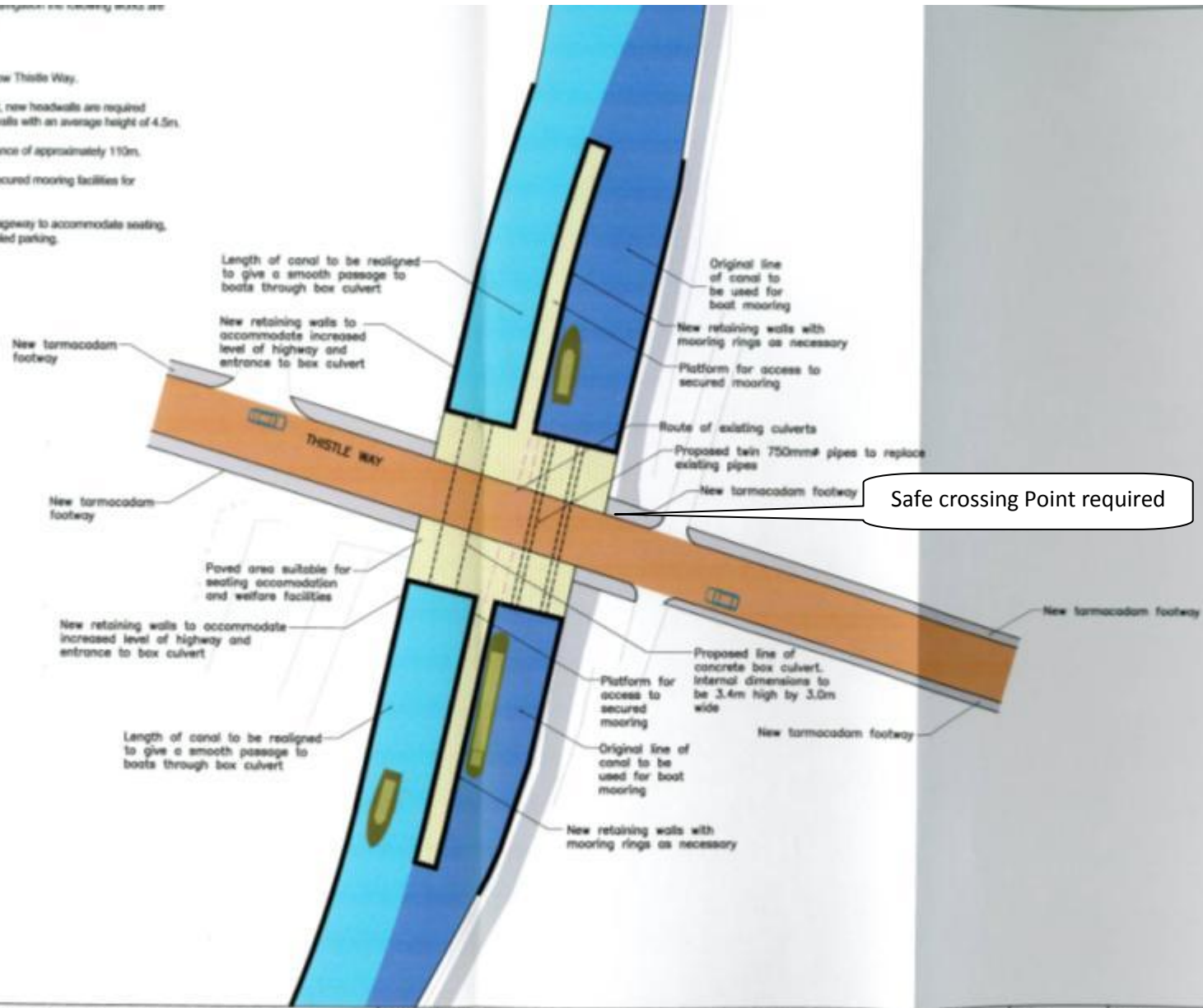


Appendix -Thistle Way Road Obstruction 2005 estimate £1.2M

To remove the restriction at Thistle Way and restore navigation the following works are required:

- Re-align 150m length of existing Canal.
- Provide a 30m length of box culvert to cross below Thistle Way.
- To formalise the entrance and exit of the culvert, new headwalls are required together with approximately 310m of retaining walls with an average height of 4.5m.
- Raise the level of Thistle Way Road over a distance of approximately 110m.
- Provide 2m wide, 30m long platforms offering secured mooring facilities for boats.
- Provide a paving area on both sides of the carriageway to accommodate seating, toilet facilities and/or a designated area for disabled parking.

Estimated Cost = £1.2 million.



Safe crossing Point required

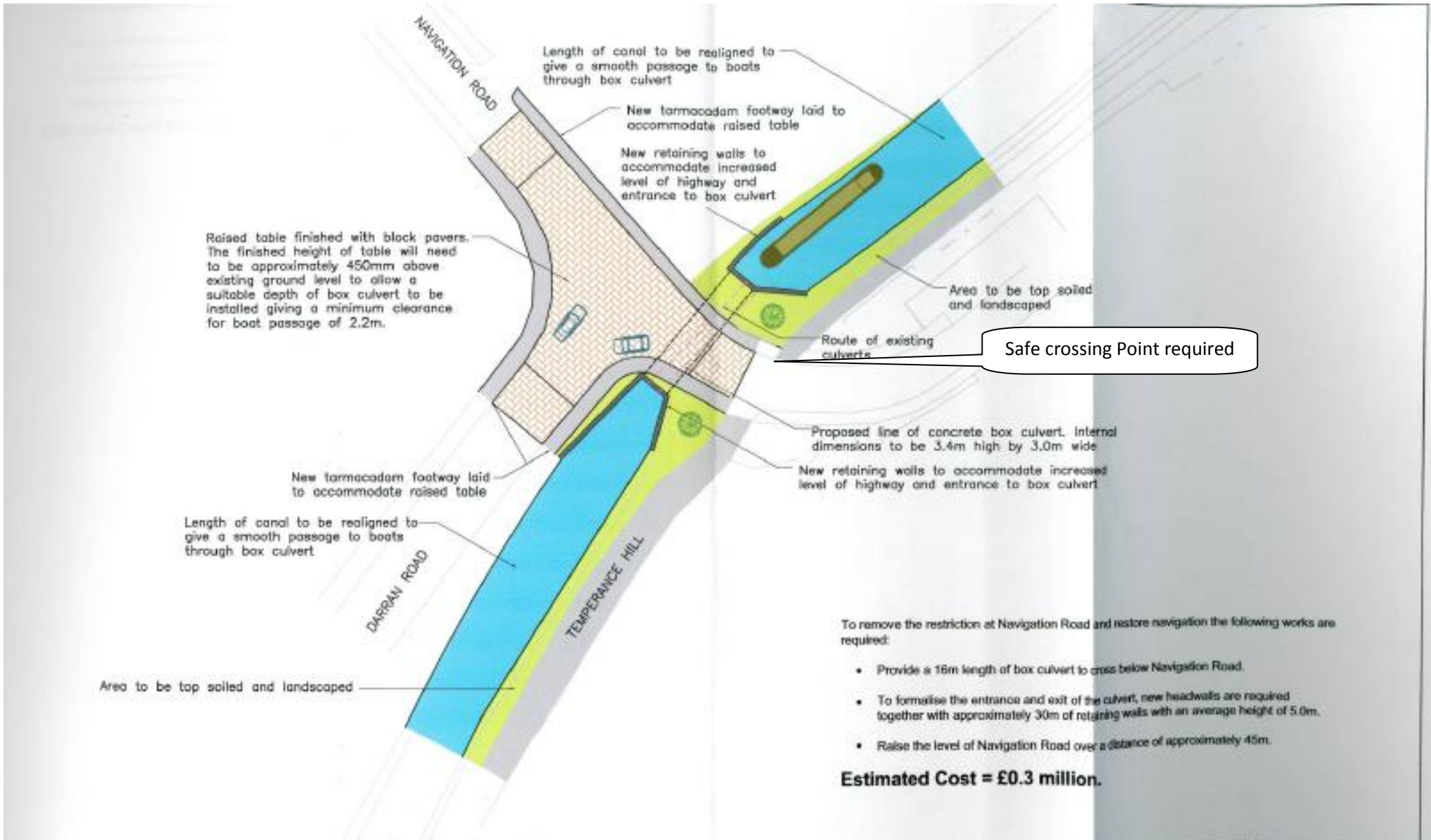


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project title	CRUMLIN ARM – MONMOUTHSHIRE & BRECON CANAL CANAL CORRIDOR STUDY
drawing title	OUTLINE PROPOSAL TO RE-ESTABLISH NAVIGATION AT THISTLE WAY

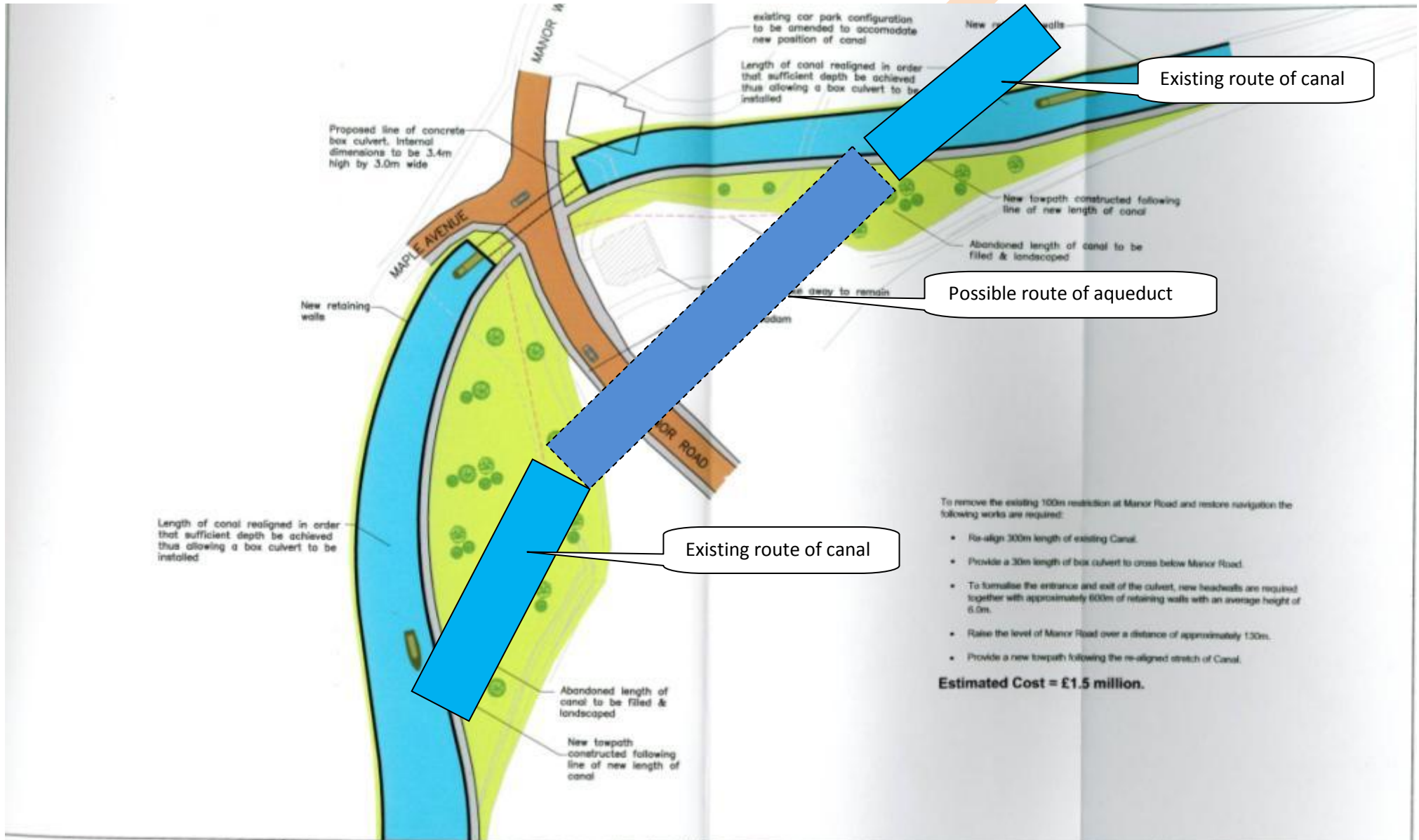
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NTS	JAN 05	LJ	KJK
project ref.	drawing no.		rev.
TH634	402		
APPROVAL	COMMENT	INFORMATION	
DRAFT	TENDER	AS CONSTRUCTED	

Appendix—Navigation Road Obstruction 2005 estimate £0.3M



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		drawing title OUTLINE PROPOSAL TO RE-ESTABLISH NAVIGATION AT NAVIGATION ROAD	project ref. TH634	drawing no. 400		rev.	
			APPROVAL DWNT	COMMENT TENDER	INFORMATION CONTRACT	AS CONSTRUCTED	

Appendix-Manor Road Obstruction-2005 estimate at £1.5M for a Tunnel consider an aqueduct



To remove the existing 100m restriction at Manor Road and restore navigation the following works are required:

- Re-align 300m length of existing Canal.
- Provide a 30m length of box culvert to cross below Manor Road.
- To formalise the entrance and exit of the culvert, new headwalls are required together with approximately 600m of retaining walls with an average height of 6.0m.
- Raise the level of Manor Road over a distance of approximately 130m.
- Provide a new towpath following the re-aligned stretch of Canal.

**Estimated Cost = £1.5 million.**



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project title  
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 BRECON CANAL  
 CANAL CORRIDOR STUDY

drawing title  
 OUTLINE PROPOSAL TO RE-ESTABLISH  
 NAVIGATION AT MANOR ROAD

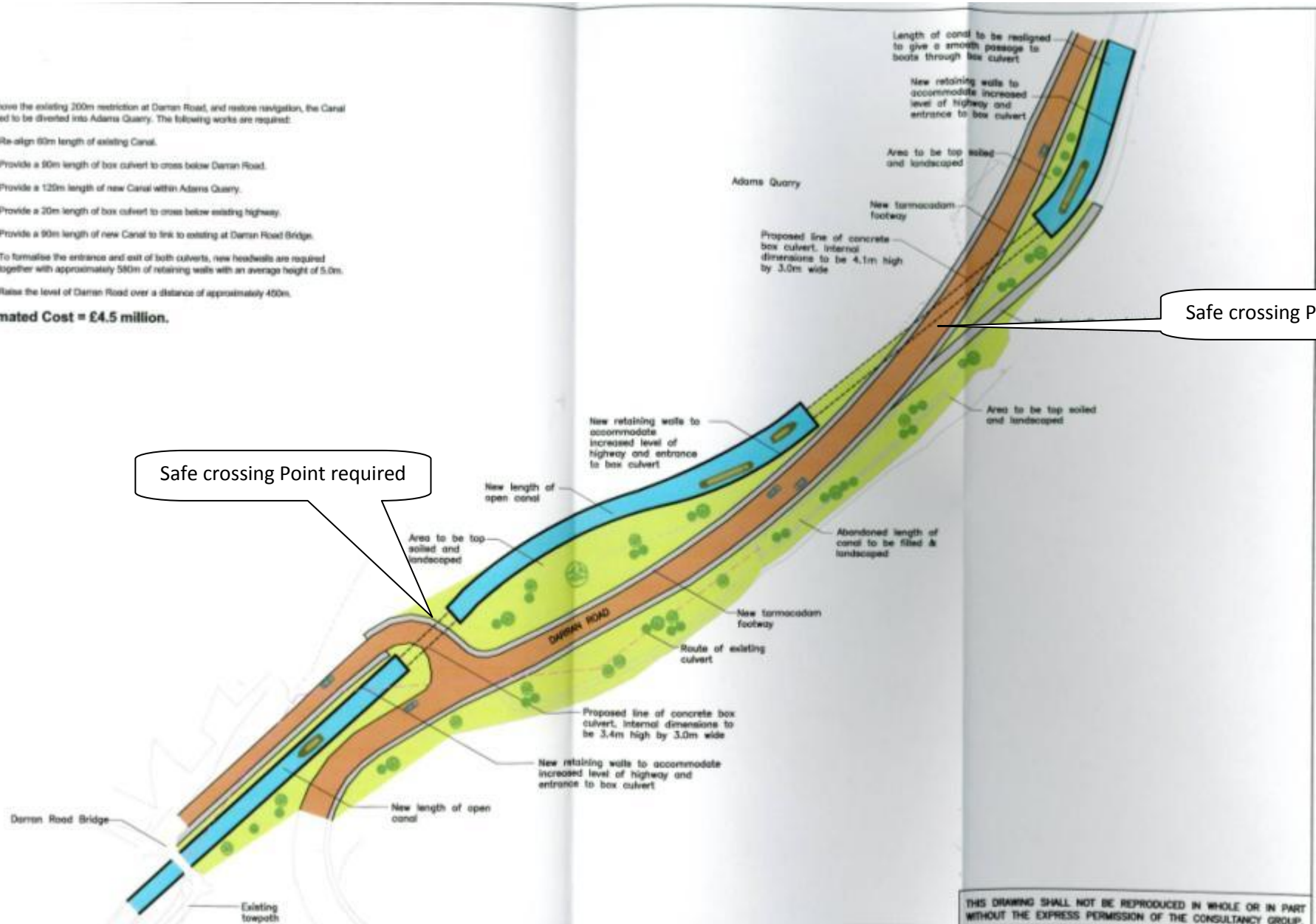
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DRAFT <input type="checkbox"/>	TENDER <input type="checkbox"/>	AS CONSTRUCTED <input type="checkbox"/>	

Appendix—Darren Road Obstruction 2005 estimate diverting canal into Adam's Quarry £4.5M

To remove the existing 200m restriction at Darren Road, and restore navigation, the Canal will need to be diverted into Adam's Quarry. The following works are required:

- Re-align 60m length of existing Canal.
- Provide a 90m length of box culvert to cross below Darren Road.
- Provide a 125m length of new Canal within Adam's Quarry.
- Provide a 20m length of box culvert to cross below existing highway.
- Provide a 90m length of new Canal to link to existing at Darren Road Bridge.
- To formalise the entrance and exit of both culverts, new headwalls are required together with approximately 500m of retaining walls with an average height of 5.0m.
- Raise the level of Darren Road over a distance of approximately 400m.

Estimated Cost = £4.5 million.



Safe crossing Point required

Safe crossing Point required



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project title	CRUMLIN ARM – MONMOUTHSHIRE & BRECON CANAL CORRIDOR STUDY
drawing title	OUTLINE PROPOSAL TO RE-ESTABLISH NAVIGATION AT DARRAN ROAD

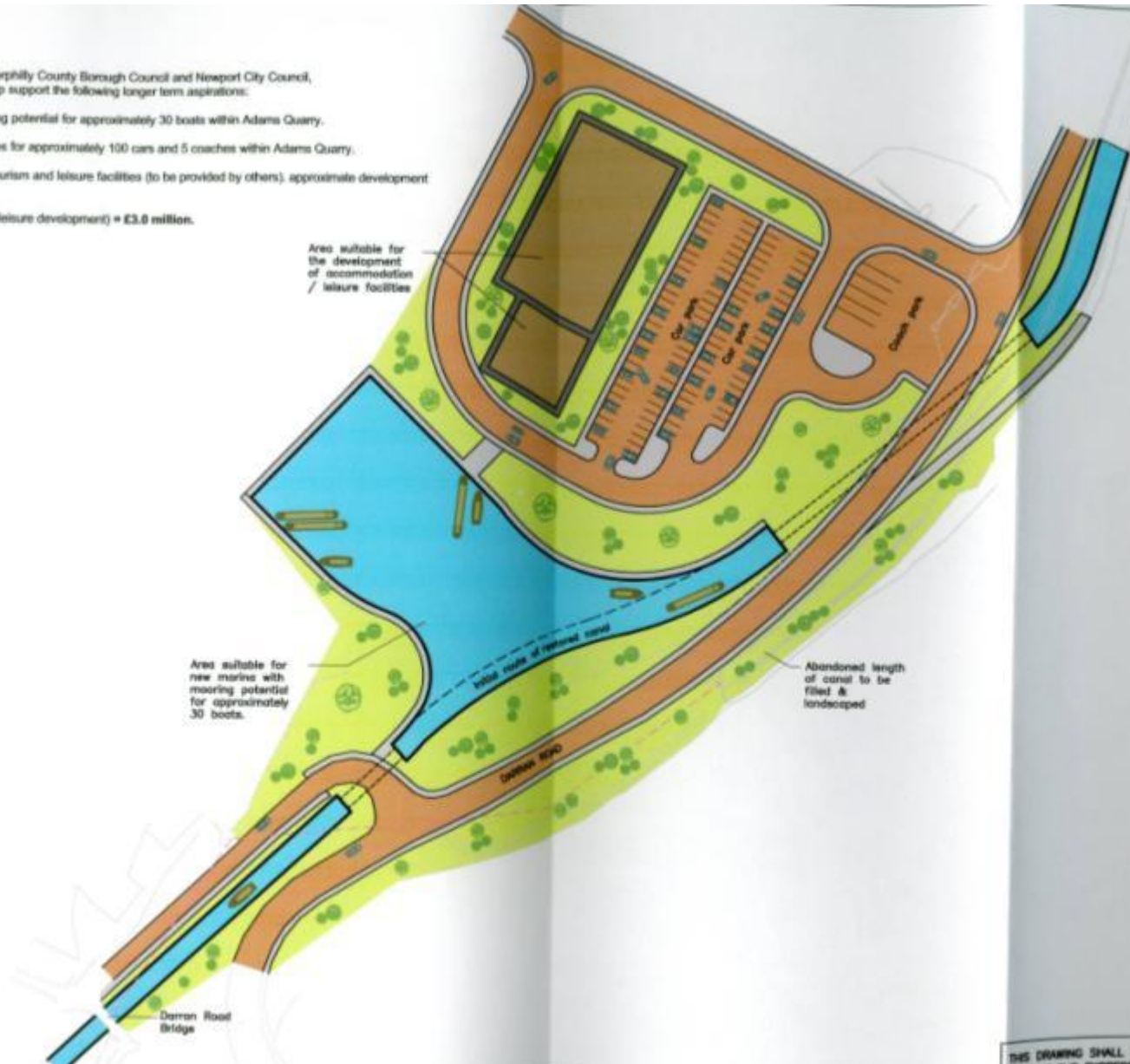
THIS DRAWING SHALL NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE EXPRESS PERMISSION OF THE CONSULTANCY GROUP.			
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project ref.	drawing no.	rev.	
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DRAFT <input type="checkbox"/>	TENDER <input type="checkbox"/>	CONTRACT <input type="checkbox"/>	
		AS CONSTRUCTED <input type="checkbox"/>	

Appendix- Adam's Quarry Marina 2005 estimate £3M

If the Canal is fully restored within Caerphilly County Borough Council and Newport City Council, and if viability is proven, this could help support the following longer term aspirations:

- A Marina development with the mooring potential for approximately 30 boats within Adams Quarry.
- A highway access with parking facilities for approximately 100 cars and 5 coaches within Adams Quarry.
- An area suitable for development of tourism and leisure facilities (to be provided by others), approximate development area 1900m<sup>2</sup>.

Estimated Cost (Excluding tourism & leisure development) = £3.6 million.



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 BRECON CANAL  
 CANAL CORRIDOR STUDY

drawing title  
 ADAMS QUARRY – POTENTIAL MARINA AND  
 LEISURE DEVELOPMENT

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scale	date	drawn	checked
NTS	JAN 05	LJ	KJK
project ref.	drawing no.		rev.
TH634	406		
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DRAFT <input type="checkbox"/>	TENDER <input type="checkbox"/>	CONTRACT <input type="checkbox"/>	AS CONSTRUCTED <input type="checkbox"/>

Canal Maintenance Pictures of relining work

