5.0 RESTORATION PROPOSALS

5.1 Approach and Criteria

The proposals for restoration have been developed with the aim of providing a navigable waterway from St Helens to Widnes that would retain, as far as possible, the original character of the canal. Restoration is envisaged as being undertaken over a 10 year period.

Within this broad philosophy many of the problems encountered have a number of possible solutions that are equally valid in establishing a navigable waterway, albeit with different benefits and costs.

In assessing options and developing the restoration proposals the following criteria have been adopted. As far as practicable and at reasonable cost, the restored canal should:

- follow the original horizontal alignment
- follow the original vertical profile
- comply with the minimum dimensional standards contained in the study brief
- permit the two-way working of boats
- have an adequate supply of water to meet its needs
- re-use existing and original canal structures
- not increase the risk of flooding within the Sankey Valley
- maximise the potential for derivative benefits through environmental enhancement, recognition of historical significance and increased leisure and recreation opportunities

The restoration proposals are not necessarily the lowest cost options but represent practicable solutions that can be costed with a good degree of confidence and that have resultant positive benefits.

No attempt has been made to optimise fully the solutions, as this would be properly part of the detailed design stage.

5.2 Deviation from Original Alignment

A review of work undertaken by others and the asset surveys, site inspections and ground investigations undertaken as part of this study indicated that much of the original canal fabric is still intact, even where infilled. It would be possible, therefore, to restore much of the canal along its original horizontal and vertical alignments, utilising most of the original locks.

Apart from some minor variation in the proposed pound level above Newton Common Lock there are two sections where major variations to the original alignment will be required:

- **Park Road to Old Double Lock** where the original canal route has been obliterated

- **Hulme Lock to Bewsey Lock** where the Sankey Brook has been diverted along the original route of the canal

The alternatives considered for the new alignments are as discussed in Section 4 of this volume.

These revised alignments were only finally resolved after completion of the ground investigation work. For the purposes of estimating the cost of construction, the following assumptions have been made with regard to the ground conditions on these sections in areas where no borehole or trial pit information was available:

- the open space between Park Road and Boardmans Lane assumed to be filled ground but, due to the close proximity of housing, assumed to be inert and not contain active or highly contaminated waste

- the section parallel to Sankey Brook now in the original canal channel assumed to be natural ground

These assumptions would need to be verified by a ground investigation at some stage before detailed design, to confirm the overall cost estimate.

5.3 Dimensional Standards

Study Brief

The requirements contained in the study brief can be summarised as follows:

Boat usage: wide beamed inland craft above Sankey Bridges
sailing craft below Sankey Bridges

Canal width: 4.25m

Air draft: 2.0m minimum, more is desirable

Water depth: 1.5m above Sankey Bridges
2.0 below Sankey Bridges

Proposed Standards

The standards adopted for the canal restoration proposals are:

Maximum boat size 4.25 x 22m
(broad beamed inland craft)

Limitations on draft and airdraft are shown in the table below:

Section	Water Depth (minimum)	Air Draft (minimum)	Craft Accessibility	Towpath Headroom (minimum)
St Helens to Penkford Bridge	1.5m	2.0m	broad beam inland craft	1.9m
Penkford Bridge to Sankey Bridges (railway crossing)	1.5m	2.4m	broad beam inland craft	2.3m
Sankey Bridges to Spike Island Bridge	2.0m	n/a	broad beam inland craft masted vessels (a)	n/a
Spike Island Bridge to Widnes Lock	2.5/3.5m	n/a	broad beam inland craft masted vessels (b)	n/a

Notes. (a) typically yachts up to about 12.5m LOA
(b) typically yachts up to about 15m LOA

Minimum waterway width
wherever possible 14.0m

Minimum waterway width
at locks, bridges and other structures 4.8m

Minimum towpath width 3.0m
(except on aqueduct)

With limitations on headroom at structures as shown in the table above

Typical waterway cross-sections are illustrated on drawing no AY2311/120/850/021.

Air Draft

All new crossings of the canal under roads, railway lines, footbridges, pipelines etc. would be constructed, wherever practicable, to provide a minimum air draft of 2.4m. This would give sufficient clearance for all leisure craft likely to use the restored canal and, assuming level soffits with the towpath crossing, would provide full headroom for pedestrians.

There are, however, a number of crossings where providing even the minimum acceptable air draft of 2.0m would require considerable elevation and regrading of the road/railway above. In some locations the scope for regrading is severely limited by the need to observe ruling gradients and visibility sightlines or by the presence of physical obstructions.

At Penkford Bridge the existing road bridge and services crossing restrict the air draft to 1.95m above the original pound level. This could be increased to the minimum acceptable level of 2.0m by lowering Newton Common pound by only 50mm. This would be the most economical solution, it would have negligible visual impact on the pound between Newton Common and Engine Locks and has been adopted as the preferred option for the purposes of this feasibility study.

To increase the air draft to 2.4m would require either the pound level to be lowered by 0.45m, which would have a significant visual effect, unless an additional lock rising 0.45m were to be constructed upstream of the bridge. Even so, there would still be an adverse visual impact on the historically significant Newton Common Lock. Alternatively, the existing road bridge and services crossings could be reconstructed, but at considerable additional cost.

At a number of the new canal crossings within St Helens it would be difficult to gain 2.0m air draft let alone 2.4m. Acceptance of a ruling air draft of 2.0m North of Penkford Bridge would result in cost savings at new structures within St Helens, whilst still providing a worthwhile cruising length of about 17.5 km southwards to Spike Island for craft requiring 2.4m air draft

Water Depth

As the canal was originally constructed to carry Mersey Flats and other commercial sailing vessels, with a depth generally in the order of 2.5/3.5m and a clearance over lock sills of about 1.8m there would be no difficulty in meeting the requirements of the study brief in respect of minimum water depths, either within the canal channel or at existing lock structures.

5.4 Construction Details

In preparing construction details for the restoration proposals, the following general principles have been adopted:

- In-Water Sections

  Generally to be kept in-water during dredging operations as this minimises ecological impacts.

  Dredging would be undertaken using floating plant, either cutter-suction dredgers or pontoon mounted excavators with dredgings transported for disposal via pipeline or barges.

  Where these methods are not practicable, dredgings would be deposited on the banks of the canal to dewater naturally and to be later removed for reuse/stabilisation/disposal.

  By not totally dewatering the canal and by leaving silt within the bed it is assumed that the self-sealing ability would be maintained and a liner would not be needed.

  Special care would be needed if the canal is dewatered, for example, to undertake wall repairs.

- Infilled Sections

  Where infill material is inert, excavation taken to new formation level to suit required new water depth and cross-section and the canal bed liner.

  Where the canal has been infilled with refuse, all active and contaminated material would be removed and the canal bed lined.

  Where economical to do so the formation level resulting from the excavation of all infill material could be raised to the new canal bed level by compacting surplus, uncontaminated excavated material or lime stabilised silt. The possibility of re-using silt dredged from the canal, after stabilisation with lime and other materials, is discussed in Volume 3.

- Canal Liner

  It has been assumed that all new channel construction and the re-excavation of infilled sections would be lined to minimise water losses.

  It is usually assumed that canals were constructed with puddled clay. However, as discussed previously, it is by no means certain that puddled clay was originally used in the construction of the St Helens Canal. With no historic or heritage imperative for puddled clay to be used in the canal restoration, it would be only one of several possible materials/methods to be considered for obtaining an impermeable lining to the canal. In practice, it is often difficult to obtain clay of a suitable consistent quality and the purchase, transport and placement costs can be high.

  For the purposes of this study, therefore, it has been assumed that the canal liner would be formed using an impermeable membrane for example HDPE sheeting protected by an in-situ concrete overlay. This method has been used elsewhere on canal restoration projects and can reduce water losses to a minimal level.

  On side slopes the concrete overlay can be formed using Armater, a geosynthetic material with a honeycomb structure. The individual cells are filled with concrete up to water level. At and above water level the cells can be filled with soil and planted to create a soft, natural environment for plants and wildlife.

The silt stabilisation trials described in Volume 3 demonstrated that it would be possible, with addition of lime and bentonite, to produce from the dredged silt, a material with permeability values as low as a good puddled clay. Field trials would be necessary to determine if this would be a viable option to using a membrane liner and to disposing of the silt elsewhere.

- Vertical Walls

Where the existing walls are in good condition or can be repaired at economical costs they would be retained.

Where new channels are constructed, former channels re-excavated or the walls are no longer present or are beyond repair, new vertical walls would be needed to retain the bank at mooring locations alongside the towpath.

It has been assumed that these would be formed using stone filled gabions, with a concrete coping where appropriate, or pre-cast concrete retaining wall units.

Where necessary these bank retaining structures could be faced with stone to match existing walls.

- Towpath

A 3m wide towpath adjacent to the canal has been assumed, constructed with a quarry waste stone base, surfaced and rolled with stone dust.

There may be conflicts on a multi-user towpath and, wherever practicable, it is suggested that cyclists and horse riders should be separated from pedestrians and anglers by the addition of a widened or, preferably, a separate path.

- Fencing

Unless specifically stated otherwise boundary fences have not been included because, for much of its length, the canal passes through the Sankey Valley Park and, after restoration, access to the canal by park users will still be required. In sections where the canal passes through urban areas, it is already fenced from the surrounding properties, housing and industry adjacent to it.

- Winding Holes

It is proposed that winding holes for the boats longer than the canal width be provided at the following locations:

Chalon Court Hotel
New Junction Lock
Penkford Bridge
Sankey Bridges

The canal at Widnes is presently wide enough to turn a 22 metre boat but it may be advantageous to designate a specific turning area.

- Fixed Bridges

Typical arrangements for crossing highways or railways using box culverts are shown on drawing no AY2311/120/850/022.

At many crossings the thickness of construction will be severely restricted. For the purposes of the feasibility study, separate culverts have generally been assumed for the canal channel and the towpath, as this minimises the span and, hence, thickness of the roof.

The drawing shows the towpath maintained on a straight alignment at crossings, which is in accordance with good design principles for pedestrian underpasses or subways. At most crossings it should be possible to separate the two culverts to achieve a "traditional" symmetrical narrowing of the channel which would be easier to navigate in full-width boats.

At detailed design stage it may be found that on long crossings, where HSE guidelines require an emergency escape route or where adequate cover is available, the use of a single, wider culvert may be practicable and economical.

- Moveable Bridges

Moveable bridges are proposed between Sankey Bridges and Widnes, where unrestricted air draft is required for masted craft, where site restrictions prevent the use of fixed bridges with the requisite air draft, or where preferred for reasons of heritage.

Generally, power operated swing bridges have been assumed for road crossings and hand operated lift bridges for footpaths and light access tracks.

At detailed design stage, each bridge would be the subject of an appraisal of the site specific requirements including structural, economic, heritage and aesthetic aspects.

5.5 Environmental Enhancement of Canal Track

It was recognised at commencement of the study that restoration of the St Helens Canal was likely to be expensive and that the cost benefit analysis was likely to be finely balanced. In these circumstances, the additional cost of a full, historically accurate, restoration was unlikely to be justified as a public sector funded project.

The general principle of approach to the restoration has been to provide the minimum acceptable solution which will meet the adopted criteria and which will provide all the basic amenities of a cruising waterway and a multi-user canal corridor. This has then been costed and subjected to a cost benefit appraisal.

For example, the provision of stonework or brick facing to box culvert bridges and their approach wing walls has not been included, except where specifically stated on "heritage" sections. Such items are recognised as aesthetically desirable but not essential to a working canal and their universal inclusion would adversely affect the cost benefit analysis of the restoration works. These enhancements could, however, be included as and when budgets allow. Alternatively, they could be progressively added, for example by volunteers, after the basic canal is 'up and running' as part of a process of continuing improvement.

The issues raised by the proposed restoration of the canal in terms of planning, environment, ecology and heritage are discussed in Volume 4 Technical Appendix - Planning and Ecology.

The ecological work essentially comprised a desk study, a series of consultations and brief site appraisals; the aim being to act as a scoping study which would identify the main issues and areas of concern raised by the proposal to restore the canal. Sites within 100m either side of the canal were graded according to their importance to nature conservation so that those areas of greatest significance and requiring most protection from disturbance could be established.

The sites of greatest significance within this canal corridor are shown in Table 5.1.

	Site Name	Restoration Guide
1.	Disused St Helens Canal SBI	1
2.	Union Bank Brook (survey Ref F)	3
3.	Sankey Bridges Reedbed Nature Reserve (survey Ref J)	1
4.	Sankey Valley Country Park Wetland Nature Reserve (survey Ref O)	1
5.	Callands Pool, Bog Garden Pond and wetland area north of Sankey Bridges (survey Ref P, Q, R)	2
6.	Potential SBI to west of Sankey Brook and south of M62	2
7.	Between Hey Lock and Bradley Lock	3
8.	Old Hey Wood	1
9.	Leblanc waste around Sankey Viaduct	2
10.	Havannah Flashes	2
11.	Wagon Lane Area	3
12.	Tootal's field and Blackbrook Branch	2
13.	Carr Mill Reservoir	2
14.	Merton Bank Marsh	2
15.	Gerrards Bridge Branch (Harsfinch Bank)	1
Grade 1 : Very High Value requiring protection from adverse effects: a site already designated; possessing at least 1 rare or scarce species and/or immediately adjacent to the canal; supports diverse wildlife; comprises at least three types of habitats; not easily recreated and of particular value to the canal.		
Grade 2 : High Value: possessing a number of uncommon species; supports diverse wildlife; comprising at least two types of habitat; on or near to the canal.		
Grade 3 : Medium Value: site greater than 100m from the canal; possessing some uncommon species and wildlife but not characteristic of a canal environment; opportunities for enhancement.		
Grade 4 : Low Value: not necessarily characteristic of the canal route and could be recreated.		

Table 5.1 : Sites of Ecological Importance

These gradings have been taken into account when deciding between options for restoration, where these arise, with the aim of minimising the disturbance of sensitive areas. In some locations, however, some disruption would be inevitable and mitigation measures such as the translocation of important flora would be needed prior to construction works.

In other areas, restoration of the canal would act as a catalyst of landscaping works and nature conservation projects. For example, if lagoons were to be constructed for the disposal of silt dredged from the canal, they could eventually become wetland nature reserves.

5.6 Proposed Restoration Works

The proposals for restoration of the canal are illustrated on the drawings contained in Volume 5 Technical Appendix - Restoration Proposal Drawings, comprising:

Canal Track Sheets	:	showing the existing and proposed features, structures, proposed pound levels and services in proximity of the canal
Restoration Cross Sections	:	typical cross sections along the route of the restored canal showing the form of restoration
Canal Longitudinal Section	:	showing pound levels, original and proposed locks
Typical and Miscellaneous Details	:	showing typical arrangements and dimensions and details of key features.

The following sections of the report summarise the restoration works proposed along each section of the canal and provide a commentary on the planning, environment, heritage, and ecology aspects of restoration.

5.7 Section A - Safeway to Corporation Street

Safeway to Parr Street

Proposal - *no change to existing channel*

The channel in this length would retain its present appearance and the planning impact would be limited to increased activity on the waterway. This location is not ecologically sensitive and thus no issues are raised by this proposal.

Chalon Court Winding Hole (A1)

Proposal - *Turning facilities for full length boats*

This would take a small area out of the adjacent site identified for development in the local plan and would result in removal of original stone copings. Ideally, the new facility should be lined in matching stone. The winding hole would provide an opportunity to shape any new waterfront development around it and, hence, form a feature of the development.

Liverpool - Wigan Railway Embankment (A7)

Proposal - *Concrete box culvert to replace embankment*

The removal of the embankment, which replaced the original bridge, may result in the loss of roosting areas. This work should avoid the nesting season of any birds identified as present on the embankment.

It is understood that there have been some initial discussions about replacing the existing embankment with a single span railway bridge in order to open up views of the canal, to complement the Hotties, Word of Glass project. If this were to be undertaken, it would not only restore the original vista through the bridge but also eliminate the present obstruction to navigation. Visually, the single span bridge would be preferable to a culvert but would be much more expensive. There would seem some possibility of joint funding for this crossing.

Railway Embankment (A16)

Proposal - *Replace with box culvert and re-grade railway*

The alignment of this railway is protected in the local plan for a possible future passenger service. Thus its retention is required, although in practice, the new structure may not need to be built until the line is required for use.

The embankment sides would provide an opportunity for colonisation and, possibly, counter the loss of nesting sites at structure A7.

Parr Street Dual Carriageway (A19)

Proposal - *Twin box culverts, carrying the canal and towpath*

The Unitary Development Plan indicates a footpath/cycleway crossing the road. The provision of a second box culvert in this location would provide for the continuity of the multi-user route across a busy dual carriageway. Within an urban area a pedestrian tunnel of this length will require careful design. Particular attention to the alignment will be necessary to ensure that visibility through the tunnel for some distance either side can be achieved. Potential conflicts between pedestrians and cyclists will also need to be resolved at the design stage.

Parr Street to Builders Yard

Proposal - *HDPE lined channel, 14m wide at water level, gabions at waterside for mooring*

This proposal is consistent with the hard landscaping of the length of canal through St Helens. The addition of water and activity to the site should significantly improve the chances of attracting development. The site has only recently been cleared of its previous land uses and no ecological issues arise.

Builders Yard to Corporation Street

Proposal - *4.8m wide reinforced concrete channel.*

This is the minimum channel width for navigation, necessitated by the presence of Salisbury House alongside. Nevertheless, with appropriate surface treatment of the towpath this proposal is consistent with the general landscape quality of the area. The site is currently vacant and no ecological issues arise.

5.8 Section B - Corporation Street to Islands Brow

Corporation Street to New Double Lock

Proposal - *no change to existing channel*

The channel in this length would retain its present appearance and the planning impact would be limited to increased activity on the waterway. This location is not ecologically sensitive and thus no issues are raised by this proposal.

Pocket Nook Street/Technology Campus Access (B11)

Proposal - *Box culvert for navigation only*

This would be a long crossing, about 90m in length and would require the Technology Campus Access Road to be raised and regraded. The need for the towpath to change sides of the canal at this point would require additional space for a roving bridge type crossing and ramps at one end. This would not only increase the cost but also would be difficult to accommodate in a form which would maintain a pedestrian's feeling of safety. However, traffic on Pocket Nook Street is controlled by lights on the nearby weak bridge over the railway and, apart from peak periods, current traffic levels do not cause concern for pedestrians and cyclists crossing.

For the purposes of this study, therefore, a single box culvert for navigation only has been assumed, with the towpath crossing at road level. This would also make the canal more visible and accessible within the immediate area.

It is understood that proposals for the Inner Ring Road and future strengthening of the bridge over the railway may increase road traffic on this route. This may affect the acceptability of the towpath crossing at road level and the situation should be kept under review. Co-ordination will be required to ensure that any road improvement scheme facilitates rather than hinders a future navigable canal crossing.

New Double Lock to Islands Brow (Merton Bank Bridge)

Proposal - *dredge existing channel*

The visual quality of this length would be improved, although at the cost of removing vegetation from the canal. This vegetation is of low value and the opportunity for marginal vegetation to establish itself should balance the loss of vegetation from the main channel.

It should be noted that this proposal does not extend over the full length of the Gerrards Bridge Branch, an environmentally sensitive area which would be left untouched by the existing proposals, apart from having a retained water level. Should this branch be considered for restoration either with moorings or as part of a link to the Leeds and Liverpool Canal, the ecological situation should be re-appraised.

Merton Bank Road Bridge (B26)

Proposal - *Box culvert for navigation only*

This bridge would be a key access point to the canal towpath, as a large housing area lies just to the north of the canal on the non-towpath side. By routing the towpath over the road at this structure maximum accessibility would be achieved. Traffic flows on Merton Bank Road do not give cause for concern.

5.9 Section C - Islands Brow to Blackbrook

Islands Brow to Park Road

Proposal - *Dredge existing channel*

The dredging of this section of the channel would remove, from the canal, the tall vegetation which is important as a bird habitat. Ideally this should be reinstated on the offside, clear of the navigation channel, in order to maintain the insect population and associated bird habitats dependent on this vegetation.

Visually, the canal would be considerably enhanced within sight of a large number of houses, benefiting the residents of the area. A properly maintained canal, clearly visible, would also be safer than the existing silted channel.

Park Road Lock (C4A)

Proposal - *New lock on site of car wash*

As with Merton Bank Road Bridge, Park Road Lock will be a significant point of access to the canal, possibly more so as it will also be a centre of activity as boats pass through. It is important that pedestrians can readily gain access to the canal from Park Road and the surrounding area.

Park Road Crossing (C6)

Proposal - *Twin box culverts under Park Road*

Particular attention will be required at the detailed design stage due to the length of the pedestrian tunnel at this location. For feasibility purposes the tunnel has been

included to avoid crossing Park Road but, of necessity, the tunnel must be 'secure by design' and include adequate lighting

Park Road to Boardmans Lane

Proposal - *Reinforced concrete channel in cutting and alongside Sankey Brook*

The reprofiling of the land behind the houses on Park Road/Boardmans Lane would offer opportunities for planting and landscaping to the benefit of the area. This would not only offer visual and ecological benefits but allow the canal to form a local amenity at this point.

By grading the slopes at one in two, the safety problems of retaining walls would be avoided and the canal need not be fenced off. This has the additional safety advantage of making the canal accessible in the event of accidents occurring in the water.

At present the site is informal open space, though unused, unattractive and of no ecological value. Therefore no ecological issues are raised by this section.

Boardmans Lane Crossing (C6A)

Proposal - *Box culvert for navigation only*

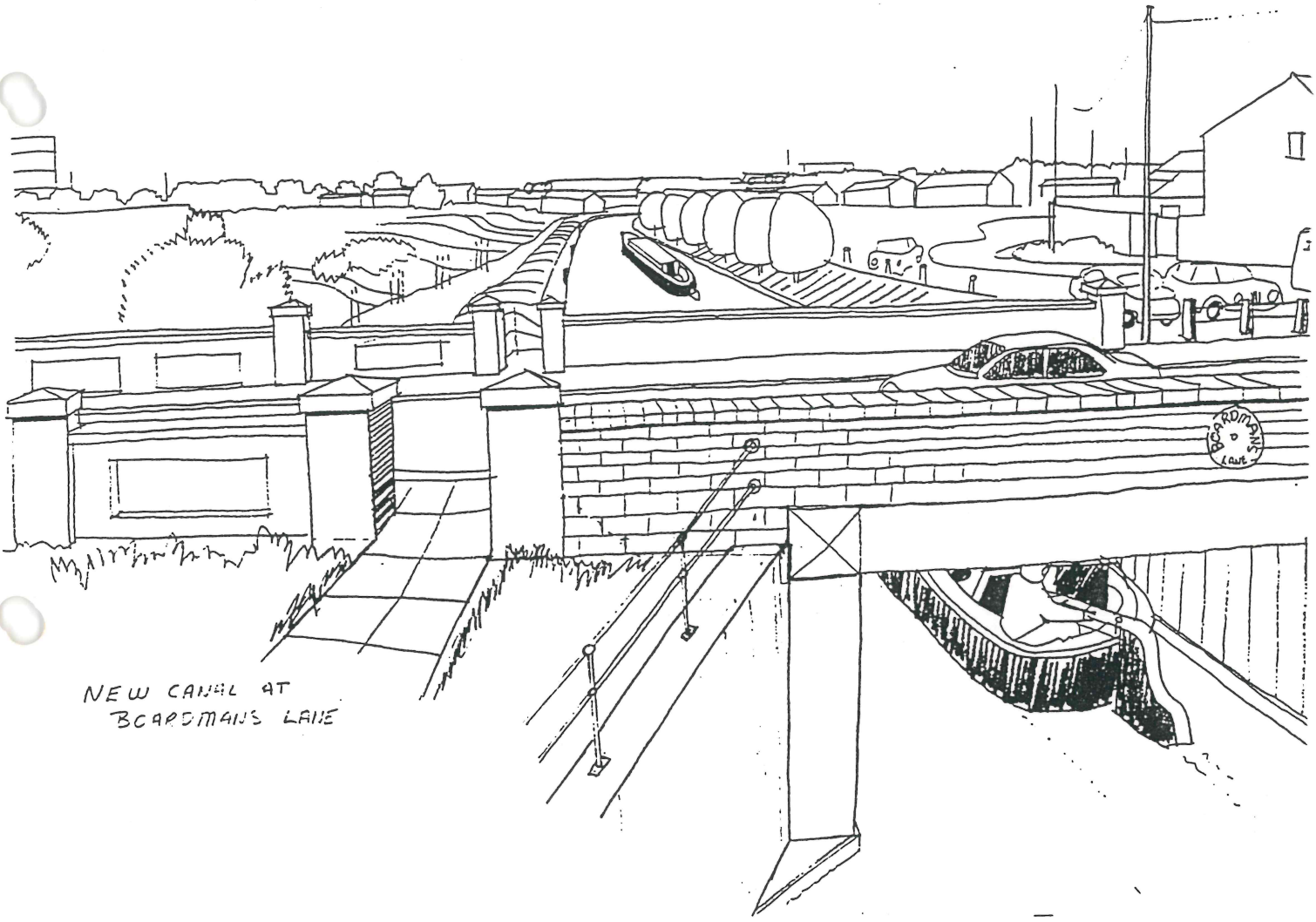
The close proximity of this crossing to the existing Parr Bridge would preclude the use of a second box culvert to carry the towpath. Traffic flows on Boardmans Lane do not give cause for concern. Access to the road at this point would allow a circular walk via the playing fields and Old Double Lock.

Boardmans Lane to Old Double Lock

Proposal - *reinforced concrete channel in cutting alongside playing fields*

As with the previous section, the grading of the cutting sides presents planting opportunities. By establishing significant planting, such as trees, on the cutting slopes, the additional benefit of screening the sewage works from the playing fields would be achieved.

Although some safety fencing would still be needed, sloping banks would avoid the potential problems of a sheer drop into the canal from the playing fields and help



NEW CANAL AT
BOARDMANS LANE

make the canal an integral amenity feature. The land is currently mown grass and no ecological issues would be raised.

Old Double Lock to Blackbrook Terminus

Proposal - *do nothing, only minor improvements to hydraulic capacity*

As this section would be left unchanged, the existing sensitive habitat would be left undisturbed.

New Junction Lock (C11A)

Proposal - *two rise staircase lock adjacent to Old Double Lock*

The relative levels of the new lock and the existing structure, ie. new pound level marginally above old upper chamber sill, would allow plenty of scope for historic interpretation of the old lock alongside, which could include modifying the chamber infill to allow Old Double Lock to be used as a bywash and thus add life to the chambers. It would probably be necessary to provide safety railings around the top chamber of the Old Double Lock as any fall would be onto a hard surface rather than into water.

Once operational, New Junction Lock would be likely to prove a magnet for visitors to this area. There is no direct road access but, as discussed elsewhere, the Old Double Lock would form one end of a trail from the Sankey Valley Visitors Centre and, therefore, problems of car parking would not be expected. Additionally, the Old Double Lock chambers would provide an opportunity to establish plant colonies lost by the restoration of other stone locks on the canal. Detail design of the bywash can maximise this feature.

5.10 Section D - Old Double Lock to Engine Lock

Old Double Lock to Engine Lock

Proposal - *clear channel and line with HDPE. Gabions on both sides for moorings*

The original stone canal walls would be lost as a result of this scheme but they are in poor condition and currently barely visible due to the depth of silt. Their retention would not be a high priority. Certain species of pondweed are currently found in the canal and, whilst not exactly rare, their retention would help improve the ecological

character and diversity of this length. If possible, these should be removed from the site and protected for replacement after the construction work is completed.

The restoration of the canal here would enhance the overall environmental quality of the corridor and increase the attractiveness of the canal route for towpath users.

Engine Lock (D18)

Proposal - rebuild lock.

Exploratory excavations may reveal that the exiting, partially buried lock is capable of restoration.

5.11 Section E - Engine Lock to Penkford Bridge

Engine Lock to Penkford Bridge

Proposal - *excavate infilled channel, HDPE liner, gabions for towpath moorings*

A number of ponds on the line of the canal would be lost as a result of the restoration scheme. They are of varying ecological quality, some in particular have recently lost all plant life having caught fire during the 1995 drought. Other species may be worthy of translocation either to the Havannah Flashes or the canal margin.

By leaving a gentle slope to the offside bank, with the Armater left open over the HDPE, silt could accumulate in the honeycomb structure of the Armater allowing gradual colonisation of the bank. This has already been noted to good effect on the Montgomery Canal where this system has been adopted. Such a detail incorporated in the design would allow the canal to compliment the Havannah Flashes both visually and ecologically. Care would need to be taken during the construction phase not to disturb the Flashes in any way.

5.12 Section F - Penkford Bridge to Bradley Lock

Penkford Bridge to Newton Common Lock

Proposal - *excavate infilled channel, HDPE liner, gabions for towpath moorings*

This is considerably less sensitive than the previous length discussed. The proposal would enhance this section both visually and ecologically.

Approaching Newton Common Lock, the restored canal would be near a residential area. However, it is sufficiently distant to add to the local amenity value rather than representing an intrusion into the area.

Newton Common Lock (F4)

Proposal - *Excavate lock and refurbish*

This lock is a key heritage feature of the canal and sensitive restoration would be required to preserve its heritage value. It is likely that pedestrians, cyclists and car-based visitors would wish to access the canal here, due to its proximity to Earlestown, the main road and the visual impact of the Sankey Viaduct.

Newton Common Lock to Bradley Lock

Proposal - *excavate channel and line with HDPE, reinstate stone walls on both sides*

Because of the historic significance of this length of canal, it is important that the restoration resembles the original canal as closely as possible. For this reason the original proportions should be maintained and both banks stone lined reflecting how the canal was originally built. The alignment is currently infilled and covered with grass and no ecological issues would arise from this proposal.

5.13 Section G - Bradley Lock to Newton Brook

Bradley Lock to Newton Brook

Proposal - *dredge channel*

For this in-water section dredging would be likely to be undertaken by floating plant, either a cutter-section dredger or a hydraulic excavator mounted on a pontoon, with dredgings removed from site. Care would be required to avoid damage to marginal plant life. In view of the need to protect the aquatic margin, dredging with a dragline would not be suitable and the deposition of dredgings behind a steel sheet piled wall would not be appropriate.

Once completed, the canal will largely retain its present appearance but would be navigable. There are no planning or heritage implications of this.

Above Hey Lock, Old Hey Wood is a Grade 1 site. It is important that the restoration process does not disturb this area. Ideally, if a shallow canal margin were left for ecological reasons, this would also preclude mooring and discourage access to the wood.

Bradley Lock (G1)

Proposal - *Refurbish lock*

As with Newton Common Lock, this has considerable heritage value and great care should be taken during its refurbishment.

Hey Lock (G10)

Proposal - *Refurbish lock*

This lock currently hosts colonies of Gorse and Male Fern which would be lost by excavation and restoration of the chamber. These could be translocated to Old Hulme Lock or Old Double Lock.

Currently a well used footpath crosses the lock chamber, linking an adjacent car park with the towpath. It is likely that this lock and its surrounds would be very popular with visitors. Visitor management measures, including either control or expansion of car parking may be necessary.

5.14 **Section H - Newton Brook to Winwick and Section J (Part) - Winwick to Dallam (New Hulme Lock)**

Newton Brook to Dallam (New Hulme Lock)

Proposal - *excavate channel and line with HDPE, gabions for mooring on towpath side.*

As elsewhere, the adaption of this form of construction would allow the establishment of marginal plant life on the offside, to the benefit of the canal environment.

In general terms, no planning or ecological issues are raised by this section. However, in the vicinity of Winwick Quay, care must be taken that the new canal layout does not impinge on the old dry dock, an important heritage feature with

ecological opportunities. Nor should the layout encourage boats to linger by the former canal workshops, which are now a private residence and workshop.

Winwick Lock (H11)

Proposal - *excavate and refurbish lock*

Re-using the original lock chamber would provide another important heritage feature of the canal in an area comparatively remote from the others. The restoration, as proposed, would preserve the heritage value of this lock. If it were decided to move the location of the change of pound level to south of the M62, consideration should be given to preserving the chamber as a "narrows" thus retaining it as a heritage feature and allowing interpretation of the canal's past.

M62 Crossing (H15)

Proposal - *Box culvert for navigation only, towpath under existing viaduct*

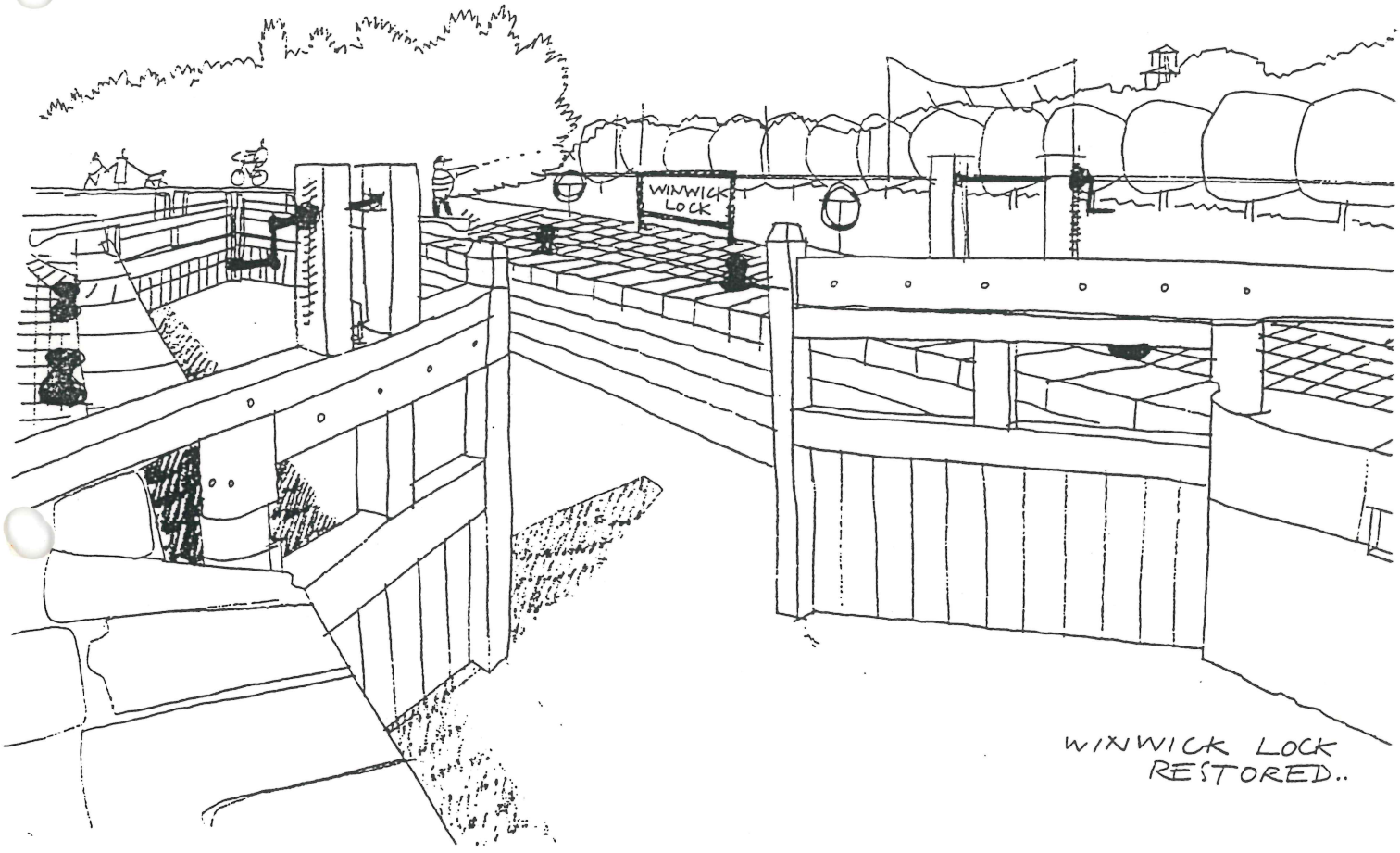
There would be marginal loss of vegetation including some trees, on the slopes of the M62 embankment. However, this vegetation is recently established and the widening of the M62 is likely to have a far greater impact. The real planning issues lie at the adjacent Winwick Quay and affect the southern approach to this structure. One of the original Winwick Quay buildings is now a private residence, occupied in connection with the adjacent business. While it is accepted that the business may well benefit from a waterside location, great care would be required to avoid the canal intruding the privacy of the private dwelling.

Old Hulme Lock (J3)

Proposal - *Bypass old chamber, move lock to south side of Sankey Brook*

This lock would be made redundant by the arrangements to cross Sankey Brook on an aqueduct. The new alignment would pass close to the old lock but not through it.

There would be an opportunity to utilise the lock as a heritage feature, in association with the surrounding items such as the Old Dallam Sluice and the dry dock at Winwick Quay. The old chamber could also host plant colonies removed from lock chambers elsewhere on the canal.



WINWICK LOCK
RESTORED..

Hulme Aqueduct (J12) and New Hulme Lock (J3A)

Proposal - *concrete trough aqueduct with cantilever walkways/new lock*

The aqueduct, as proposed, would not extend above the level of the surrounding ground, nor impede normal flows on the Sankey Brook, thus its immediate planning and ecological impacts would be minimal. However, with the New Hulme Lock, Old Hulme Lock, Dallam Sluices and Winwick Dry Dock it would be part of an interesting group of canal structures. The activity at the lock and aqueduct would add to this and a significant local attraction would be created. The provision of footpaths along both sides of the aqueduct would aid visitor movement as well as facilitating operation of the adjacent lock.

5.15 Section J (Part) - Dallam (New Hulme Lock) to Bewsey Lock

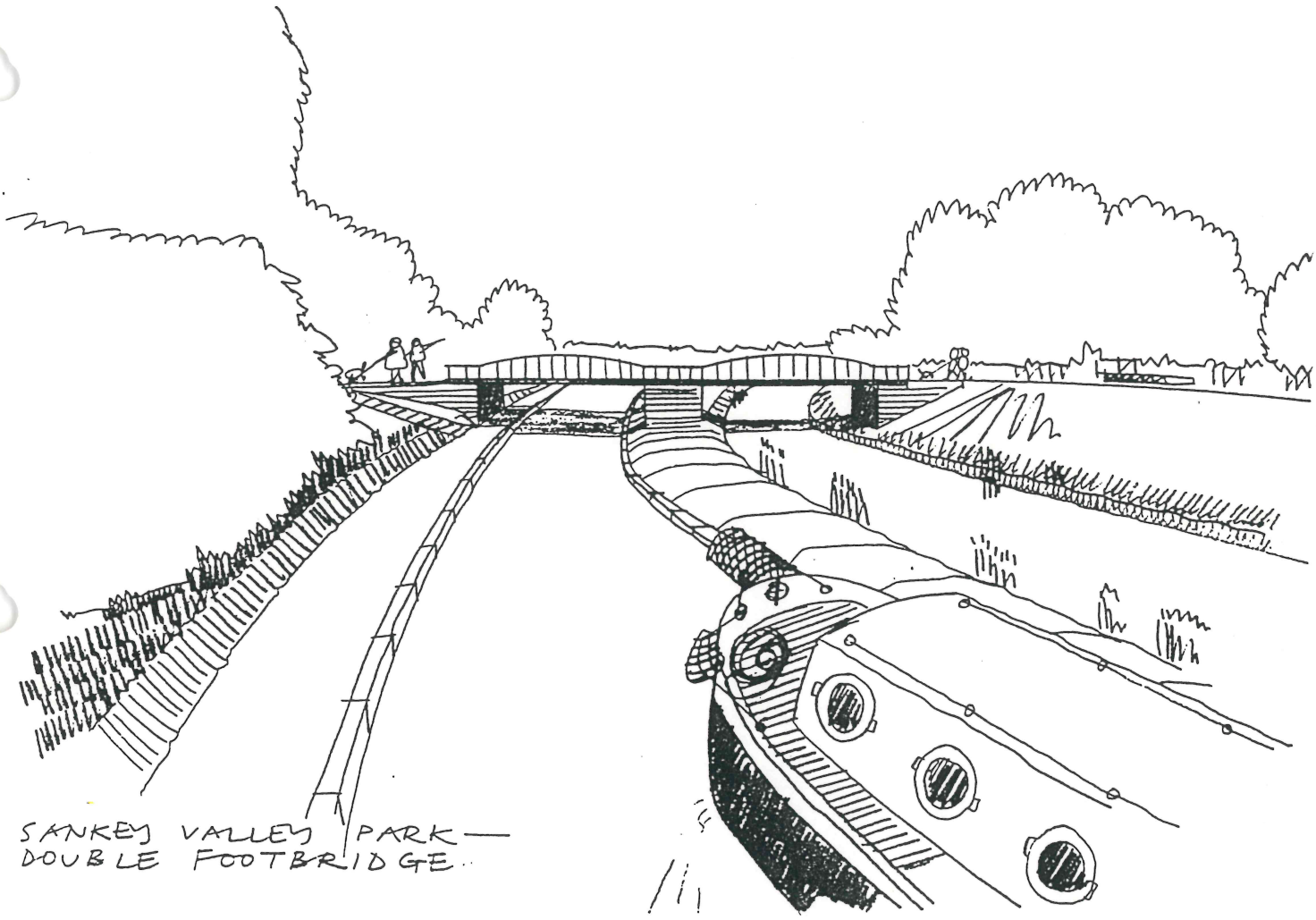
New Hulme Lock to Sankey Brook Overflow

Proposal - *new channel in shallow cutting alongside Sankey Brook*

At present this section is of low value ecologically and no issues are raised by the proposed new channel. It is important that the new canal cut should be integrated visually with the public open space which is alongside for much of this length. The gentle slope to the cutting would allow the canal to be unfenced and give landscape planting opportunities that could be of visual benefit to the area. It would be important for the central strip between the canal and the river is to be maintained in a tidy and attractive condition. As such, it would be a low maintenance feature and provide access for maintenance of Sankey Brook.

Footbridge "A" (J12), Footbridge "B" (J15) and Footbridge "C" (J16)

These footbridges are immediately adjacent to footbridges over the Sankey Brook. The principal issue here would be to ensure that the canal structures enhance the visual quality of the area, to the benefit of the surrounding parkland. Whilst steel vierendeel footbridges have been included for cost estimating purposes, consideration of alternatives will be required at the detail design stage. For example, a design matching the existing river bridges or demolition of the bridges to allow construction of a single bridge over both canal and river may be more appropriate.



SANKEY VALLEY PARK —
DOUBLE FOOTBRIDGE.

Sankey Brook Overflow to Bewsey Lock

Proposal - *HDPE liner in existing channel*

This section of the original channel is dry but a marshy habitat has developed in places and, elsewhere, there are colonies of orchids, common sedge and lesser celandine. A programme of translocation would be appropriate before restoring this section to water.

5.16 <u>Sections K to N - Bewsey to Spike Island</u>

Sections K to N Bewsey to Spike Island

Proposal - *dredging of existing canal between Bewsey Lock and Widnes Lock*

There are a number of possible methods for restoring this substantial in-water section. Dredging would, most probably, be undertaken by pontoon mounted excavators discharging to barges prior to disposal or by cutter-suction dredgers pumping direct to a disposal site.

Options for disposal of the silt include removing it completely from the canal corridor, for example, to the Manchester Ship Canal's deposit grounds at Frodsham, acquiring a nearby site to form a lagoon or artificially retaining silt within the canal track using sheet piling, with a reduced width of canal.

Establishing a local lagoon would have obvious ecological opportunities, although an appropriate site may not be available. Retaining silt within the canal on the towpath side or the offside would have considerable operational advantages. Use of the towpath itself would only be acceptable as an interim measure to facilitate dewatering of the material prior to transport for disposal off site but even this would require closure of the towpath for at least six months.

In general, the particular solution adopted would be dictated by local circumstances. Where marginal vegetation is significant, such as in the SBI at Widnes, dumping alongside the canal would not be acceptable. However, where there is potential for failure of the existing stone walls, steel piles with silt behind could provide an effective solution to instability and an economic means of silt disposal. At the detail design stage all factors must be considered before a solution for any one length is determined and, in many cases, it is likely to result from balancing economics and long term environmental gain against short term environmental losses.

5.17 Section K - Bewsey to Liverpool Road

Bewsey Lock (K4)

Proposal - *refurbish lock chamber, provide new flood relief bywash*

Bewsey Lock along with Newton Common, Hay and Winwick Locks, is an original chamber that would be re-used in the restoration of the Canal. Due to its location, Bewsey Lock would probably be the most prominent feature on the canal, in terms of the number of visitors who would see it. Ideally, the lock should be restored as a "museum" piece with all furniture as authentic as possible.

However, between the new Hulme Lock and the overflow at Sankey Bridges the canal will be required to accommodate floodwater from Sankey Brook, as part of the local flood defence system. The old spillway is a historic structure of minimal capacity which could not be easily modified to carry the increased flood flow.

The lock chamber and spillway are currently dry and home to ferns, mosses and liverworts and Callands Pond, into which the spillway discharges, is a valuable ecological site.

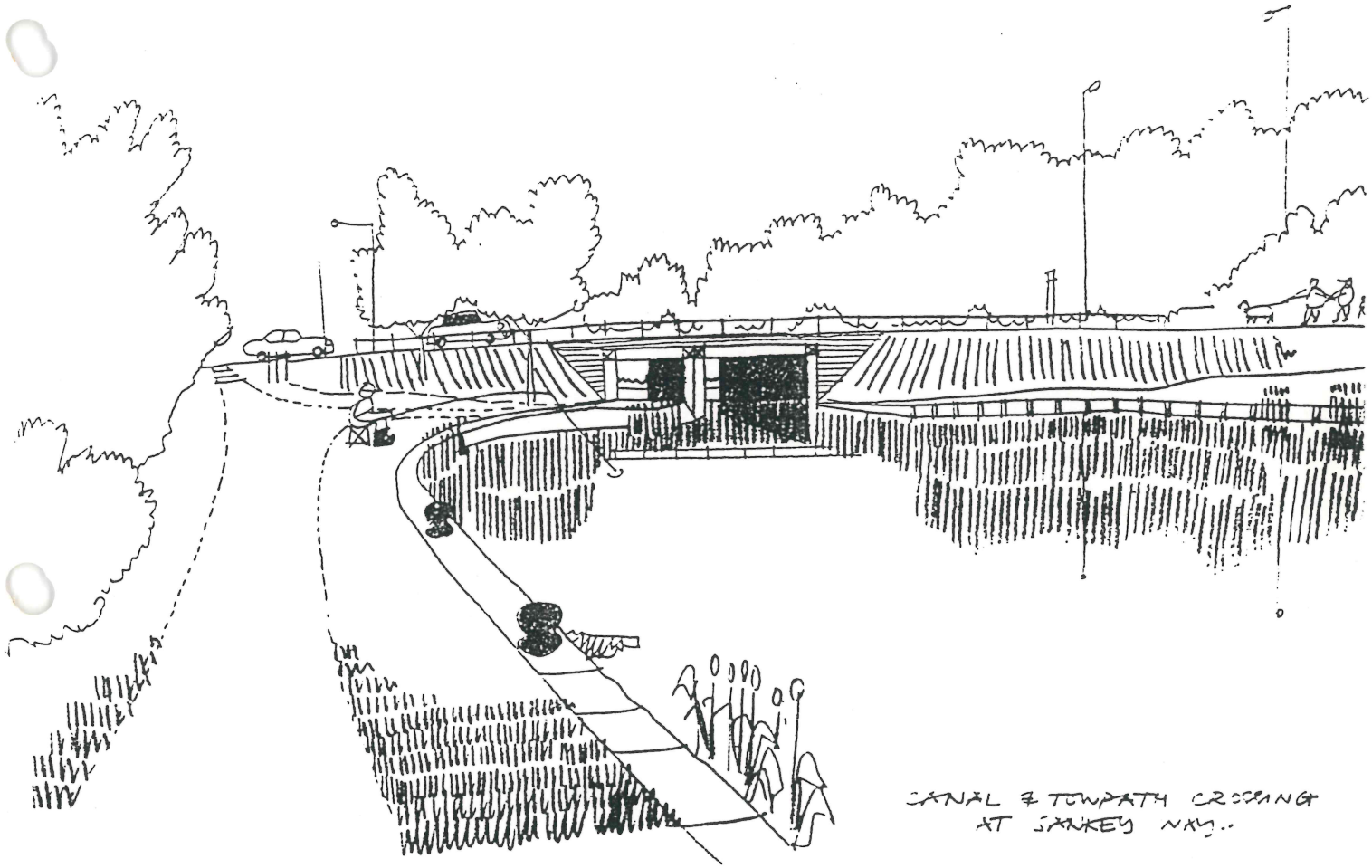
The potential loss of a historic structure and the likelihood of damage to ecologically sensitive areas was deemed to be unacceptable and it is suggested, therefore that a new grass spillway should carry the floodwater round the lock on the South-Eastern side.

If, at the detail design stage it proves impractical to provide this facility, then a re-evaluation of the heritage and environmental constraints may be required. However, the lock is only one of nine original locks being retained on the canal and is, therefore, of relatively lower value than the ecology of Callands Pool and it is our view that the installation of a guillotine gate at the top of the lock, retaining traditional mitre gates at the bottom, would be an appropriate solution.

Sankey Way Culvert (K13)

Proposal - *raised dual carriageway over twin box culverts*

The provision of the culvert for the multi-user route provides a crucial link in the traffic free corridor.



CANAL & TOWPATH CROSSING
AT SANKEY NAV..

5.18 Section L - Liverpool Road to Fiddlers Ferry

Liverpool Road Bridge (L1)

Proposal - *swing bridge*

This bridge is on a busy main road within a built-up area. The principal planning issues relate to traffic impact and any noise from the operation of the bridge.

Although Liverpool Road carries a substantial volume of traffic, it has been bypassed by Sankey Way, which replaced it as the A57. It now has only a County classification, C1025 (Class 3) and serves a purely local function. As such, maintaining or increasing capacity for through traffic is not a relevant consideration and it may be preferable that through traffic be actively discouraged. The proposed swing bridge would act as a traffic calming measure by discouraging through traffic, especially if advance signing were placed at the point where traffic joins Liverpool Road.

There is a possibility that vehicles approaching the bridge from the west may be tempted to "rat-run" through Hood Lane to reach Sankey Way. This situation would need to be monitored when the bridge is operation and traffic management measures introduced if required.

Detailed design of the crossing would need to take account of pedestrians and cyclists using the towpath through the provision of a controlled crossing of the highway.

The noise issues would require assessment at the detail design stage. However, the location is not particularly noise sensitive unless warning sirens were very loud. Nighttime operation of the bridge would not be expected.

As with the other proposed swing bridges, discussions will be needed with the respective Highway Authorities over potential disruption to the highway network, the need for traffic management, advance warning signs and the routing of emergency services.

Warrington Widnes Railway Bridge (L3)

Proposal - *raised railway over twin box culverts*

By raising the railway tracks there could be potential for some visual intrusion through the long approach ramps required on each side, however the existing land uses would not be sensitive to this.

The provision of a separate culvert for the towpath would enhance the multi-user corridor. Currently, it is necessary to cross the tracks and, even though trains are infrequent, this discourages many cyclist such as family groups. The condition of the present crossing also necessitate cyclists physically lifting their bikes over the track, again proving a disincentive to using the towpath. The twin box culverts would remove the obstacle currently presented by this crossing to the use of the towpath.

Fiddlers Ferry Bridge (L11) and Marsh House Bridge (L24)

Proposal - *replace existing structures with swing bridges*

The issues raised by these structures relate entirely to traffic control. Due to the close proximity of the adjacent railway line, the swing bridge barriers would have to protect the railway level crossing in addition to the bridge, to ensure that vehicles are not left stranded in the path of an oncoming train. In addition, advance signing or signals may be necessary for the Marsh House Bridge, as it is located immediately beyond a right angle bend, where hedges restrict sideways visibility.

5.19 <u>Section M - Fiddlers Ferry to Carterhouse Swing Bridge</u>

Carterhouse Swing Bridge (M18)

Proposal - *replace with hand operated lift bridge*

Although a new overhead structure would be required here, the location is not visually sensitive and no problems should arise as a result.

5.20 Section N - Carterhouse Swing Bridge to Spike Island

Spike Island Bridge (N2)

Proposal -- *replace with hand operated lift bridge*

This bridge is in an area of local landscape value, as designated by Halton Borough Council. However, it is on the fringe of the area and would act, to some extent, as a "gateway" into Spike Island. As the overhead structure will not be that substantial, it is likely to be acceptable in the context of the bridge's setting.

Widnes Lock Bridges (N3A)

These are not part of the restoration proposals, as they are not necessary for restoring the canal to navigation, and no allowance has been made in the cost estimates for their construction.

However, they would be required to provide access to Spike Island. Like Spike Island bridge, they would be in an area of local landscape value but much more centrally located. This area relies, in the main, on horizontal features. It is a flat area bordered by the built-up area of Widnes, with views out onto the Mersey Estuary.

The suggested lift bridges would require superstructures which could be designed as a central feature or focus for the area. Alternatively, if these superstructures were considered to be an unacceptable intrusion into this area, bascule or swing bridges could be considered.