6.0 RESTORATION COSTS

6.1 Estimated Costs

Within a feasibility study a number of broad assumptions must be made and, therefore, the cost estimates must be treated as preliminary budget estimates. All estimates, therefore, should be verified during the detail design stage before inviting tenders for construction.

The costs of restoration have been estimated under the following categories and are scheduled in the tables as indicated:

- Restoration of the canal channel including excavation of infilled sections and dredging of in-water sections — Table 6.1
- Structures including bridges, locks and culverts — Table 6.2
- Services diversions — Table 6.3
- Augmentation of the water supply/Flood alleviation measures — Table 6.4

The estimated costs are based on unit rates and prices taken from similar schemes undertaken elsewhere and from informal discussions with British Waterways and with civil engineering and dredging contractors. The cost base date is Q4 1995.

Included in the costs are:

- Contract Preliminaries - a 20% margin has been added to the unit rates and prices for the work to allow for contractor's overheads, on costs and profit
- Contingency - a 10% contingency has been added to all costings to cover for items which are not apparent at the feasibility study stage but emerge during the transition to detail design and construction
- Design costs - it would be necessary to engage professional engineers to undertake the detailed design, negotiations, prepare contract documents and supervise the contract. The level of fees varies considerably depending on the value of the works and complexity of the design. For the purposes of this study a uniform figure of 6% of the works value has been assumed for design work.

- Site Supervision - the costs of supervision of construction works are directly related to the staff engaged on site, who could be local authority or consultants staff. For the purpose of this study a uniform figure of 4% of the works value has been assumed for the cost of on-site supervision.

- Topographical Survey and Site Investigation - both are essential to enable the works to be fully designed, allow the preparation of contract documents to be undertaken and to ensure that a contractor has sufficient information at the tender stage. Without adequate surveys and site investigation the sponsor would be exposed to significant risk of increased costs. For the purposes of this study a uniform figure of 4% of the works value has been assumed for the cost of topographical surveys and site investigations.

Not included in the cost estimates are:

- land purchase costs
- temporary easements

on the basis that the three local authorities already own most of the canal corridor and access routes can be readily achieved over their land or rights of way.

Also not included in the cost estimates are any compensation, legal or loan charges or the cost of removing contamination from land adjoining the canal.

Canal Channel Restoration Proposals

Section	Chainage (m)	Current Status (In-Water/ Infilled)	Restoration Proposal	Length	Total Cost of Restoration	Dredging/ excavation volume (m^3)	Comments
N	0.00 - 600	In-Water	Widnes Lock to Spike Island Bridge:- As Spike Island will become a major attraction it is proposed to provide mooring both sides of the canal, dredge the canal to its original depth and refurbish the existing masonary walls.	600	1,463,519	34,020	Cost may be borne as part of Spike Island development costs.
N - M	600 - 3,180	In-Water	Spike Island Bridge to Cuerdley Marsh:- Dredge navigable channel of reduced width and 2m depth. Leave silt within the channel on the non-towpath side.	2,580	1,256,736	32,000	
M	3,180 - 3,570	In-Water	Cuerdley Marsh:- Dredge navigable channel. Remove silt, stabilize and dispose. Place secondary sheet pile walls 2m from the existing canal wall to protect gas mains from movement during dredging operation. This will result in a 7m wide channel.	390	189,022	3,930	
M - L	3,570 - 5,440	In-Water	Cuerdley Marsh to Fiddlers Ferry Yacht Haven:- Dredge navigable channel. Leave silt within the channel on the non-towpath side.	1,870	1,604,302	40,850	
L	5,440 - 6,335	In-Water	Fiddlers Ferry Yacht Haven to Penketh Bridge:- This will be another area where significant numbers of boats will moor. Therefore, provide moorings both sides of the canal, dredge to 2m depth.	895	511,727	13,030	
L	6,335 - 7,775	In-Water	Penketh Bridge to Meyer Swing Bridge:- Dredge navigable channel. Leave silt within the channel on the non-towpath side.	1,440	678,637	17,280	
L	7,775 - 8,035	In-Water	Meyer Swing Bridge to Warrington/Widnes Railway:- This will be an area where significant numbers of boats will moor and turn. Therefore, provide moorings both sides of the canal, dredge to 2m depth.	260	268,294	4,190	

Table 6.1: Canal Channel Restoration Proposals

Canal Channel Restoration Proposals

Section	Chainage (m)	Current Status (In-Water/ Infilled)	Restoration Proposal	Length	Total Cost of Restoration	Dredging/ excavation volume (m^3)	Comments
L - K	8,035 - 10,280	In-Water	Warrington/Widnes Railway to Bewsey Swing Bridge:- Dredge navigable channel 1.5m deep. Leave silt within the channel on the non-towpath side.	2,245	669,997	17,060	
K	10,280 - 10,460	In-Water	Bewsey Swing Bridge to Bewsey Lock:- This will be an area where significant numbers of boats will moor and turn. Therefore, provide moorings both sides of the canal, dredge to 1.5m depth.	180	62,051	1,580	
J	10,460 - 11,060	Dry Overflow channel	Bewsey Lock to Sankey Brook Overflow:- Utilize existing dry channel. Line with HDPE and provide mooring on 1 side.	600	227,635	-	No excavation required.
J	11,060 - 12,485	Infilled	Sankey Brook Overflow to Hulme Lock (old):- Provide new, HDPE lined, 2-way working channel parallel to the Sankey Brook. Sankey Brook crossing included in structural costs.	1,425	1,203,755	53,080	Assumes uncontaminated fill.
			provide 3No. Stormwater overflows in this section @ £50,000 each. Continuation flow discharges to Sankey, whilst stormflow outfalls to the restored canal.		222,300		
J	12,485 - 12,950	Infilled	Hulme Lock (old) to Winwick Lock:- Provide new, HDPE lined, 2-way working channel.	465	678,793	18,050	
H	12,950 - 14,635	Infilled	M62 (Winwick Quay) to Newton Brook:- Excavate domestic refuse and dispose to licenced tip. Line with HDPE and restore/rennovate the masonry walls.	1,685	5,668,832	85,940	
G	14,635 - 16,375	In-Water	Newton Brook to Bradley Lock:- Dredge navigable channel. Leave silt within the channel on the non-towpath side.	1,740	738,036	18,790	
F	16,375 - 17,375	Infilled	Bradley Lock to Newton Common Lock:- Provide new, HDPE lined, 2- way working channel.	1,000	1,460,036	27,000	
			Require 2No. cut-off drains to take contaminated groundwater to foul sewer. NRA estimated cost is £30,000 each		88,920		Contaminated groundwater can enter foul sewer by gravity.

Table 6.1: Canal Channel Restoration Proposals

Canal Channel Restoration Proposals

Section	Chainage (m)	Current Status (In-Water/ Infilled)	Restoration Proposal	Length	Total Cost of Restoration	Dredging/ excavation volume (m^3)	Comments
E	17,375 - 19,795	Infilled	Newton Common Lock to Engine Lock:- Provide new, HDPE lined, 2- way working channel.	2,420	3,084,982	65,340	
D	19,795 - 20,695	Channel of Brook	Engine Lock to Old Double Locks:- Depth of 1.5m. Line new canal section with HDPE and provide mooring facilities both sides of the canal.	900	474,462	-	
C	BB00-BB800	In-Water	Blackbrook Branch:- Minor work to improve hydraulic capacity and prevent flooding.	800	44,460	-	Retain branch as canal feeder. Restoration to navigable standard not proposed at this stage.
C	20,695 - 21,090	Infilled	Old Double Lock to Boardmans Lane Bridge:- Provide new channel on new alignment and new water level.	395	1,215,240	28,750	
C	21,090 - 21,525	Infilled	Boardmans Lane Bridge to Park Road Lock:- Provide new channel on new alignment and new water level.	435	906,984	31,220	
C	21,525 - 22,425	Channel of Brook	Park Road Lock to Merton Bank Road:- Provide new channel for 2-way working and mooring on the towpath side.	900	746,197	6,525	
B	22,425 - 22,750	In-Water	Merton Bank Road to New Double Locks:- Dredge 1.5m deep navigable channel. Leave silt within the channel on the non-towpath side.	325	407,679	7,069	
B	GB00 - GB350	In-Water	Gerrard's Bridge Branch:- Dredge navigable channel. Leave silt within the channel on the non-towpath side.	350	432,243	7,612	
B	22,750 - 23,580	In-Water	New Double Locks to Corporation Street Bridge:- Navigable depth and width provided by existing channel. therefore, no work proposed.	830	0	-	

Table 6.1: Canal Channel Restoration Proposals

Canal Channel Restoration Proposals

Section	Chainage (m)	Current Status (In-Water/ Infilled)	Restoration Proposal	Length	Total Cost of Restoration	Dredging/ excavation volume (m^3)	Comments
A	23,580 - 23,670	Infilled	Corporation Street to Builder's Yard:- Restricted width due to developments on either side. Provide reinforced concrete channel for 1-way working. (Restoration costs may be borne by a private Developer on the site.)	90	111,532	1,210	
A	23,670 - 23,800	Infilled	Builder's Yard to Parr Street Bridge:- Provide a new HDPE lined channel for 2-way working and mooring on both banks. (Restoration costs may be borne by a private Developer on the site.)	130	148,618	3,640	
A	23,800 - 24,275	In-Water	Parr Street Bridge to Pilkington's Weir:- Navigable depth and width provided by existing channel. New Winding hole at terminus.	475	103,740	-	
			Totals	25,425	24,668,729		

Table 6.1: Canal Channel Restoration Proposals

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Temporary Bridge	24,390	A7A	Demolish	Demolish to allow navigation	7,524	St Helens Rennaisance	None
Liverpool-Wigan Railway Embankment	24,350	A7	Replace	New reinforced concrete box culvert	306,841	Railtrack	None
Weir in Canal	24,275	A10	Demolish	Demolish to allow navigation	7,524	Canal	None
Railway Embankment	23,930	A16	Replace	New reinforced concrete box culvert and regrading of railway	319,770	Railtrack	BOC
Parr Street Dual Carriageway	23,800	A19	New	New reinforced concrete box culvert	305,775	Highway Authority	None
Corporation Street Footbridge	23,615	B1A	New	New steel Veirendeel footbridge	55,979	N/A	None
Technology Campus Access	23,220	B11	New	New reinforced concrete box culvert	478,075	Highway Authority	Norweb, BT & BOC
Ravenshead Glass Access	22,825	B17	New	New reinforced concrete box culvert	87,429	Ravenshead Glass	BOC
Steel Footbridge	22,580	B26A	Modify	New raised abutments, retain super-structure	10,233	St Helens MBC	None
Merton Bank Road Bridge	22,425	B26	Replace	New reinforced concrete box culvert	168,989	Highway Authority	Norweb

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Park Road Lock	21,525	C4A	New	New lock chamber	327,144	N/A	None
Park Road Crossing	21,275	C6	New	New reinforced concrete twin box culvert	389,141	Highway Authority	
Boardmans Lane Crossing	21,090	C6A	New	New reinforced concrete box culvert	106,841	Highway Authority	
New Junction Lock	20,695	C11A	New	New double lock chamber	737,690	N/A	
New Junction Lock Footbridge	20,695	C11B	New	New lock footbridge	18,058	N/A	None
Concrete Pipe Bridge	20,395	D7	Demolish	Demolish existing pipe bridge **(costed elsewhere)**		Not Known	Not Known
Black Brook Culvert	20,075	D12	New	New culvert	11,286	Not Known	None
Sankey Brook/Canal Footbridge	19,995	D15	Demolish	Demolish footbridge	7,524	St Helens MBC	None
Engine Lock	19,795	D18	Rebuild	Rebuild Lock	172,300	Canal	None
Havannah Flash Footbridge	19,285	E9	New	New steel Veirendeel footbridge	28,892	St Helens MBC	None
Overhead Pipework	17,670	E14	Demolish	Demolish pipe bridge and divert services **(costed elsewhere)**		North West Water	NWW

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Newton Common Bridge	17,260	F4A	New	New reinforced concrete box culvert	48,304	N/A	None
Newton Common Lock	17,225	F4	Rebuild	Rebuild lock	167,334	Canal	None
Bradley Lock	16,375	G1	Refurbish	Repairs, new gates, new bywash	62,500	Canal	None
Bradley Swing Bridge	16,075	G3	Rebuild	Rebuild bridge	245,884	Canal	None
Hey Lock	15,185	G10	Rebuild	Rebuild lock	83,215	Canal	None
Hey Lock Footbridge	15,185	G10A	New	New lock footbridge	18,058	N/A	None
Newton Brook Crossing	14,635	G17	Replace	New reinforced concrete box culvert	68,017	NRA	None
Alder Lane Crossing	13,365	H9	New	New swing bridge	380,112	Highway Authority	None
Winwick Lock	12,950	H12	Rebuild	Rebuild Lock	77,046	Canal	None
M62 Motorway Crossing	12,795	H15	New	New reinforced concrete box culvert under motorway	2,257,200	Highways Agency	NWW
Winwick Quay South Bridge	12,695	H15A	New	New reinforced concrete box culvert	46,197	N/A	None

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Hulme Aqueduct	12,115	J12A	New	New aqueduct over Sankey Brook	348,813	NRA	None
New Hulme Lock	12,055	J3A	New	New lock	353,026	N/A	None
New Hulme Lock Footbridge	12,055	J3B	New	New lock footbridge	18,058	N/A	None
Footbridge 'A'	11,875	J12	New	New steel Veirendeel footbridge	48,756	Warrington BC	NWW, Gas
Cromwell Avenue Bridge	11,815	J13	New	New twin reinforced concrete box culvert	143,558	Highway Authority	NWW
Footbridge 'B'	11,715	J15	New	New steel Veirendeel footbridge	48,756	Warrington BC	NWW, Norweb
Footbridge 'C'	11,165	J16	New	New steel Veirendeel footbridge	48,756	Warrington BC	Norweb
Bewsey Lock	10,460	K4	Refurbish	Repairs, new gates, new bywash/ overflow	62,500	Canal	None
Bewsey Lock Footbridge	10,460	K4A	Replace	Replace existing bridge with new footbridge	22,572	Canal	None
Bewsey Swing Bridge	10,280	K6	Replace	New swing bridge	402,835	Warrington BC	Norweb
Bewsey Footbridge	10,275	K6A	Demolish	Demolish existing bridge (inc. in K6)	-	Warrington BC	Norweb
Sankey Way Culvert	8,855	K13	Replace	New reinforced concrete box culvert	457,760	Highway Authority	NWW, BT

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Liverpool Road Bridge	8,155	L1	Replace	New swing bridge	540,223	Highway Authority	Norweb, Gas, ICI, Shell
Disused Swing Bridge	8,140	L2	-	Retain as feature	-	Canal	Norweb, Gas, ICI, Shell
Service Bridge	8,040	L3A	Divert	Remove existing pipe bridge **(costed elsewhere)**	-	Not Known	NWW, Sewer
Warrington-Widnes Railway Bridge	8,035	L3	Replace	New reinforced concrete box culvert and regrading of railway	269,359	Railtrack	Norweb, Gas, ICI, Shell
Mayers Swing Bridge	7,775	L7	Replace	New steel lift bridge	127,306	Warrington BC	NWW
Penketh Bridge	6,335	L9	Modify	Timber lift bridge	51,615	Canal	None
Fiddlers Ferry Swing Bridge	5,835	L11	Replace	New swing bridge	394,107	Warrington BC	Norweb
Marsh House Bridge	5,310	L24	Replace	New swing bridge	394,107	Warrington BC	BT, Sewer

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Liverpool Road Bridge	8,155	L1	Replace	New swing bridge	540,223	Highway Authority	Norweb, Gas, ICI, Shell
Disused Swing Bridge	8,140	L2	-	Retain as feature	-	Canal	Norweb, Gas, ICI, Shell
Service Bridge	8,040	L3A	Divert	Remove existing pipe bridge **(costed elsewhere)**	-	Not Known	NWW, Sewer
Warrington-Widnes Railway Bridge	8,035	L3	Replace	New reinforced concrete box culvert and regrading of railway	269,359	Railtrack	Norweb, Gas, ICI, Shell
Mayers Swing Bridge	7,775	L7	Replace	New steel lift bridge	127,306	Warrington BC	NWW
Penketh Bridge	6,335	L9	Modify	Timber lift bridge	51,615	Canal	None
Fiddlers Ferry Swing Bridge	5,835	L11	Replace	New swing bridge	394,107	Warrington BC	Norweb
Marsh House Bridge	5,310	L24	Replace	New swing bridge	394,107	Warrington BC	BT, Sewer

Structure Name	Chainage	Structure Reference	Scheme Type	Proposal/Schemes	Cost £	Owner of Existing Structure or Liason Authority	Services NWW, Norweb, Gas, BT, BOC
Powergen Causeway	4,760	M2	Divert	Divert slurry pipes **(costed elsewhere)**	-	Powergen	Powergen
Concrete Wall	3,580	M9	Demolish	Demolish wall	6,019	Powergen	None
Johnsons Lane Culvert	3,100	M12	Divert	Divert sewer **(costed elsewhere)**	-	Halton BC	Gas, Powergen
Carter House Swing Bridge	1,770	M18	Replace	New lift bridge	145,364	Halton BC	None
Spike Island Bridge	600	N2	Replace	New lift bridge	126,930	Halton BC	None

GRAND TOTAL £ 11,011,299

Service	Utility Company	chainage	ref.to structure	Description	Description of diversion	Cost £
electricity	Manweb	0	N3	33kV crossing canal	Replace with similar	13110
gas	B.G	120		Abandoned-in canal	remove	13110
electricity	Manweb	210		33kV along canal	no action	
electricity	Manweb	480		33kV along canal	no action	
gas	B.G.	530		main along canal	no action	
Brook		740	N1	Bowers Brook culvert along and into canal	no action	
Brook		1120		private	no action	
surface	H.B.C.	1770		600mm crossing canal	no action	
surface	H.B.C.	1770		private crossing canal	no action	
gas	B.G.	2680		16" along canal	no action	
sewer	H.B.C.	3100	M12	Public open sewer	Syphon under canal.This is part of Fiddlers Ferry and could be removed completely if the site is abandoned.	39330
water	NWW	5310		0.75" crossing canal	no action	
water	NWW	5310	L24	80mm on bridge-private	Replace with similar connection under canal	45885
electricity	Manweb	5560		415kV along canal	no action	
electricity	Manweb	5560		11kV along canal	no action	
water electricity	NWW Manweb	5835	L11	25mm crossing 1no.11kV and 1no.415kV	Replace with similar connection under canal	6555
sewer	H.B.C.	6335	L9	400mm pumping main	no action	
electricity	Manweb	6335		33kV along canal	no action	
		6335		o/h along canal	no action	
surface	W.B.C.	7390		15" under canal	no action	
gas	B.G.	7390		16" under canal	no action	
surface	W.B.C.	7390		24" under canal	no action	
sewer	NWW	7775	L7	400m pumping main on bridge	400 DI beneath canal	78660
water	NWW	8040	L3A	10" crossing canal	Replace with similar under canal	39330
water	NWW	8040		8" crossing canal	Replace with similar under canal	39330
sewer	NWW	8100		775mm crossing canal	no action	
multiple	Shell ICI B.G.	8000 to 8300	L3 L2 L1	6" steel hydrogen,16" steel gas,10.75" PFD in canal	Put services in East bank of restored canal.Design road and rail abutments to suit.	131100
electricity	Manweb	8155	L1 L2 L3	2no. 415kV on Sankey Br. 3no.11kV in canal 2no.33kV in canal 1no.33kV on Railway Br.	Replace with similar under canal	83904
surface	W.B.C	8400		450mm outfall into canal	no action	
	NWW	8755	K13	16" water in road	Replace with similar under canal	19665
surface	W.B.C.	8755		750mm crossing canal	no action	
surface	W.B.C.	9805	K10	2no.1000mm crossing canal	no action	
water	NWW	9805		600mm astbestos cement crossing canal	no action	
electricity	Manweb	9900		3no.11kV along canal	no action	
surface	W.B.C.	10000		2no.1000mm crossing canal	no action	
sewer	W.B.C.	10050		525mm foul crossing canal	no action	
electricity	Manweb	10200		2no.11kV along canal	no action	
electricity	Manweb	10280	K6A,K6	2no.11kV across bridge	Replace with similar under canal	15732
water	NWW	10280		1" under canal	no action	
sewer	W.B.C.	10575	K1	1500mm foul crossing canal	no action	
gas	B.G.	10825		16"main	no action	
sewer	W.B.C.	11100		2no.1000mm crossing canal	no action	
electricity	Manweb	11165	J16	2no.11kV across bridge	Replace with similar under canal	15732
sewer	W.B.C.	11700		outfall	Syphon under the canal	13110
electricity	Manweb	11715	J15	1no.11kV across bridge	Replace with similar	10488
		11715	J15	1no.33kV across bridge	Replace with similar	13110
water	NWW	11715	J15	300mm main crossing bridge		

TABLE 6.3 SERVICES IN THE CANAL

Service	Utility Company	chainage	ref.to structure	Description	Description of diversion	Cost £
sewer	W.B.C.	11715	J15	outfall	Syphon overflow to canal	13110
water	NWW		J13	400mm crossing bridge		
sewer	W.B.C.	11750		outfall	no action	
gas	B.G.	11875	J12	324mm steel across foot bridge	Cross Sankey Brook at proposed canal aqueduct crossing	89148
water	NWW	11875	J12	400mm crossing on bridge		
electricity	Manweb	11900		1no.11kV crossing canal	no action	
sewer	W.B.C.	12125		750mm foul crossing canal	Levels indicate that with new	
					location of Hulme Lock,canal will pass over this	
water	NWW	12795	H15	Private gas crosses on both sides of M62	Replace with similar under canal	32775
sewer	W.B.C.	14475		450mm foul crossing	Syphon beneath channel	78660
sewer	W.B.C.	14475		450mm	no action	
Brook		14635	G17	Newton Brook	Pass through 1m high 3m box culvert beneath canal	26220
sewer	ST.H.	16075	G3	1350mm crossing canal	Replace with similar under canal	426075
sewer	ST.H.	16455		300mm foul crossing	Syphon beneath canal	39330
sewer	ST.H.	16455		300mm	no action	
gas	B.G.	17075		24" steel crossing canal	Replace with similar under canal	157320
telecom	B.T.	17100		o/h cables	no action	
gas	B.G.	17190		450mm crossing canal	Replace with similar under canal	78660
ethylene		17425		suspected 12" crossing	Replace with similar under canal	557175
ethylene		17560		suspected 12" crossing	Replace with similar under canal	557175
sewer	ST.H.	17675	E14	450mm crossing canal	Replace with similar under canal	117990
water	NWW	19900		10" crossing canal	Replace with similar under canal	13110
multiple	Shell ICI,B.G.	21275	C6	12"Shell,8"ICI,16" gas in road bridge	Provide similar on new structure	589950
electricity	Manweb	21275	C6	415kV crossing	no action	
electricity	Manweb	22425	B26	11kV crossing	Provide similar on new structure	10488
BOC (Gerards br.)	Shell ICI,B.G.	22425	B26	2no.200mm hydrogen, hydrogen/nitrogen pipes	Diverted prior to construction	524400
BOC	Shell ICI,B.G.	22825	B17	2no.200mm hydrogen, hydrogen/nitrogen pipes	Provide similar on new structure	524400
gas telecom lectricity BOC	B.G. Manweb Shell ICI,B.G.	23220	B11	6" abandoned in bridge (Church St.) 2no.33kV crossing 2no.200mm hydrogen, hydrogen/nitrogen pipes	Provide similar on new structure	546687
BOC	Shell ICI,B.G.	23800	A19	2no.200mm hydrogen, hydrogen/nitrogen pipes	No action	
					TOTAL	4960824

BLACKBROOK BRANCH

Service	Utility Company	chainage	ref.to structure	Description	Description of diversion	Cost £
gas	B.G.	BB200		12.75" steel crossing	Replace with similar under canal	15732
multiple	Shell ICI B.G.	BB200 to BB800	C14	12" Shell,8" ICI,16" gas in bed,8" and 18" gas in path East Bank	As regulations for moving such pipes are very stringent,and the surrounding area is mainly residential, finding a new route may prove very difficult.As yet a new route has not been identified. Notional diversion cost:	3080850
ater	NWW	BB500	C14	15"crossing canal	Brook Rd. structure	19665

MISCELLANEOUS WORKS - WATER SUPPLY/FLOOD ALLEVIATION		
Section	**Proposed Works**	**Capital Cost £**
J	Hulme Aqueduct by-pass weir and channel from Sankey Brook to canal, including telemetry system	271,539
K	Overflow weir and channel from canal to Sankey Brook	58,169
L	Flood relief channel to by-pass Bewsey Lock	123,080
M	Improvements to existing overflow from canal to estuary	133,380
N	Backpumping installation at Widnes with connections between canal, old dock and estuary	153,380
Total		739,548

Table 6.4

Total Cost

The total cost of restoration has been estimated to be:

Canal Channel	£24,668,729
Structures	£11,011,299
Services	£ 4,960,824
Water Supply/Flood Alleviation	£ 739,548
Total	£41,380,400

6.2 Commentary on Costs

Sensitivity

The estimated costs have been prepared on the basis of the restoration proposals, the methods of construction and other factors assumed for the purpose of the feasibility study. Some of these may change as the project evolves, detail designs prepared and sections constructed. During these processes, the estimated costs should be monitored and reviewed.

For example, unless specifically stated otherwise for particular structures or locations, costs are based on normal spread load foundations with no allowance for possible poor ground conditions or specialised geotechnical procedures.

Construction

Whilst costs overall can be considered to be robust, caution is needed if attempts are made to compare the costs of individual structures or to calculate a cost per metre of restored channel.

For example, on the Park Road to Boardmans Lane section there would be no need for and no advantages to be gained from constructing the new channel, new lock and road crossings separately. It is envisaged, therefore, that this section would be constructed as a single contract with the benefits of shared access, working areas and site overheads.

On the other hand, it is likely that the M62 crossing would be constructed out of sequence from the re-excavation of the canal track on either side or construction may be split into phases with the basic structure completed first, to be followed subsequently by completion of the waterway and towpath. Other factors affecting this crossing include the likelihood of poor ground conditions and high ground water, the possibility that the existing pipes under the motorway may need to be utilised to obtain hydraulic continuity for the canal on an interim basis and the probability that they may have to be removed. Access to this location for construction traffic will be difficult and, unless shared with another contract, ie canal track restoration or motorway widening, presents a significant cost to the crossing.

Excavation of Infilled Sections

It has been assumed that materials excavated from the infilled sections of canal would be taken for disposal at a local landfill site. An assessment of the type of materials requiring disposal from each section has been made on the basis of the information gained in the course of this study and the estimated costs include for typical tipping charges in respect of the anticipated volumes of inert or contaminated materials, as appropriate.

Tipping charges, which are based on the weight (tonnage) of material, show a wide variation between inert and contaminated materials and are likely to vary as a result of changes in supply and demand. For example, typical current rates range from about £1.50/tonne for clean, inert, uncontaminated, easily compatible granular material, though £8.50/tonne for soils with a moderate degree of contamination, to £14.50/tonne for materials with a high degree of contamination and £20.00/tonne or more for special wastes. For the purposes of this report, tipping charges of £5.00/m^3 for inert materials and £16.50/m^3 for contaminated or active materials have been assumed.

In addition to changes in tipping charges, the cost of disposal would also be subject to change through variations from the assumptions made in the estimates in terms of volumes, composition, density and moisture content of the materials, as excavated.

Dredging of In-Water Sections

The dredging costs have been based on the nett volumes of material estimated, from the assumed cross-sections, that would need to be removed from the canal to achieve the navigation widths and depths required. The unit rates have been based on the assumption the dredging would be undertaken using a hydraulic excavator mounted on a pontoon, with dredgings loaded into barges and taken along the canal for transport to a local site licensed for the disposal of dredgings.

There would, in practice, be a range of options for dredging methods and disposal of dredgings, each with differing unit costs.

The lowest would undoubtedly be achieved through using a cutter-suction dredger, with local disposal of dredgings operating on a single large contract with no width or airdraft restrictions to the dredger and no submerged obstructions.

Realistically, this is not likely to be achieved on some sections of canal and, even on others where a cutter-suction dredger could be used given favourable circumstances, it may need to be supplemented in local areas by other forms of dredging.

These might include the use of land based excavators, the possibility of temporarily depositing dredgings on the canal banks to dewater naturally prior to removal for disposal elsewhere or even the most expensive of all being the disposal of wet dredgings in sealed lorry transport for disposal at an external tip.

In some locations which are not ecologically sensitive and where narrowing of the canal would be acceptable, an alternative would be to place steel sheet piling in front of the bank and to deposit dredgings behind.

It is likely that more than one method would be used, the choice being determined by the relevant environmental and economic factors at the time of commissioning the dredging operations.

Dredging volumes are notoriously difficult to estimate in advance and the unit cost is sensitive to the method of dredging, disposal, environmental factors and the regulatory regime at the time of dredging.

The actual costs, therefore, could vary depending on the relative mix of high and low cost methods.

Landfill Tax

During the course of the study the Government announced in their November 1995 budget the introduction of a Landfill Tax to be effective from October 1996. The rates, which were published in January 1995, have been set at a standard rate of £7 per tonne and a lower rate of £2 per tonne which will apply to inactive waste. No exemptions from the tax were proposed in respect of dredgings.

In view of the degree of contamination found in the silt and the materials used to infill the canal, the application of the standard rate to most of the materials removed from the canal for disposal would add substantially to the cost of restoration.

Following persistent lobbying in Parliament by interested parties, including the British Marine Industries Federation, Inland Waterways Association, Royal Yachting Association and, not least, the Manchester Ship Canal Company, the Government subsequently agreed to look at a method of exempting dredgings. The exact wording

of that exemption was not available when the cost estimates for this report were being finalised but it seems most likely that the disposal of dredgings from the canal will be exempt from Landfill Tax[5].

The cost estimates now include, therefore, Landfill Tax[5] in respect of material excavated from the infilled sections but not for dredgings.

Re-use of Materials

The costs that are likely to be incurred through tipping charges and Landfill Tax are such that there would be significant benefits to be gained from planning and programming the construction work to maximise the re-use of suitable surplus excavated materials and, where it is economic to do so, use lime stabilised silt as a construction material. The re-use of these materials would be subject to discussions with the Environment Agency.

Water Supplies

Additional works associated with securing water supplies and ensuring the canal restoration compliments the existing flood defence provision in Warrington, are costed in Table 6.4. However, it should be noted that specific measures to utilise the existing resources in St Helens would not need significant capital investment but co-operation with the current operators would need to be maintained. Carr Mill Dam has recently been offered for sale at £1.00. However, the on-going liability of such a reservoir and its downstream channel would need to be considered carefully. The possibility of British Waterways' involvement in managing the canal could be highly beneficial in this respect.

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[5] Landfill Tax HM Customs and Excise Landfill Tax Information Note 1/96 (Revised) issued on 1 July 1996 confirmed that dredgings which arise from the maintenance of inland waterways and harbours will be exempt from landfill tax. It indicates that waste resulting from the clearing up of historically contaminated land will also be exempt and that landfill contractors can obtain tax credits against voluntary contributions to approved environmental trusts.

Information Note 3/96 Issued 24 July 1996 clarifies that waste resulting from the clearance of contaminated land will be exempt from landfill tax where the clearance is necessary to allow the site to be developed, conserved, made into a public park or other amenity, amongst other reasons.

It is not yet clear how this exemption may apply to those sections of the canal that have been infilled with refuse.

Information Note 4/96 Calculating the Weight of Waste has not yet been issued.

To ensure that the releases from Carr Mill Dam are contained in the canal network, some minor dredging of the Black Brook branch channel would be required. This has been included in the track restoration costs.

There has been identified the need for an additional source of water for the lower pound. However, the scale and cost of this infrastructure is highly dependant on the possible conjunctive use of the existing pumping station owned by PowerGen. Within the horizon of the canal's restoration the future of the Fiddlers Ferry Power Station may become clearer and, should the station close, the suitability of the pump house and associated settlement lagoons is such that transfer of this asset may be negotiated. In view of the need for detailed negotiations over the abstraction of water from the River Mersey, it is considered premature, at this stage, to attempt to estimate the capital cost associated with this potential source of water.

In the intervening period the proposed scheme of backpumping at Widnes Lock would minimise losses and provide some inflow to this lower pound.