ARE THE WATERWAYS OF THE LOWER LEA VALLEY IN GOOD HANDS?

PROPOSAL BY BRITISH WATERWAYS
FOR A HUGE NEW LOCK
(Atkins Report 2005)

THE REGENTS NETWORK
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A Regents Network Report

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COVER PHOTO: At its southern end near the Thames the River Lea turns into a massive waterway at high tide. Bow Locks on the right links the Lee Navigation with this stretch of river which meanders down to the Thames, and is named Bow Creek. Canary Wharf and the docklands development loom in the distance.

ARE THE WATERWAYS OF THE LOWER LEA VALLEY IN GOOD HANDS?

A RESPONSE FROM THE REGENTS NETWORK TO
THE PROPOSAL BY BRITISH WATERWAYS TO CONSTRUCT
A NEW LOCK AT PRESCOTT CHANNEL (2005 Atkins Report)

A SUCCESSFUL OLYMPICS

The Regents Network supports the use of water transport for the construction phases of the 2012 Olympics, but not by way of a lock at Prescott Channel as proposed by British Waterways. This would not be operating before 2008 or later, which is well into the Olympic construction period.

We propose the use of the major waterway routes by way of Bow Locks and Limehouse through a restored waterway system to give greater penetration to the Olympic site, more flexibility and a larger tonnage.
These routes are available now in 2005.

The Prescott Channel and Waterworks Rivers are also available now for use by freight barges, and do not require a lock. However, if the new lock is constructed these waterways would be blocked off for 2 or 3 years.

Regents Network also suggests that the possibility of some form of impounding the rivers should be investigated. This could provide an enhanced amenity that would improve the long term future of the waterways in the Lower Lea Valley.

The waterways of the Lower Lea that are being restored for navigation should be given status and added protection, and reclassified as 'Cruising Waterways'.

We welcome the Olympics and support any way of making it a spectacular and successful event, but the Olympic Legacy for the waterways is so important that this must be the starting point for any Olympic development plans.

A WORTHWHILE LEGACY

INTRODUCTION

Seriously flawed
Regents Network considers the proposal by British Waterways for a new lock in Prescott Channel is seriously flawed and is being proposed for indirect motives that are not waterway related. The lock will not be a major solution for the construction of the Olympic facilities, and will not provide the most advantageous legacy.

The most practical way to get the Olympic construction freight on to water would be to re-commission Bow Locks, and return the semi-tidal regime to the Lee Navigation. Add the use of the major commercial route through Limehouse, and the Olympic construction can be fully serviced by water.

Motives to be investigated
Why construct an expensive new lock that will do no more than the existing lock? Why spend so many millions? What is British Waterways up to?

It is important to consider why British Waterways are suggesting this scheme and why they are making out that it is for freight when it appears to be flawed from the water freight perspective. We consider their motive is more likely to be encouragement and promotion of building development, and not for navigational purposes. This would be in line with BWs present prime role in London which seems to be a concentration on property development rather than as a navigation authority. For instance, British Waterways want a number of small basins in the area which are too small for flood relief, but are "to act as nodes for waterside development" (Atkins 7.8). Note, waterside development, not waterway development.

Greatest threat to our waterways
One of the most serious problems for our waterways is excessive and insensitive property development. Regents Network does not oppose property development, in fact it can be a great advantage to an area providing it is carried out in a thoughtful way. It needs to be carefully planned with knowledge and understanding of the valuable characteristics of the waterway to ensure any impact on the waterway is reduced.

The London Plan
The importance of the waterways in our capital city is featured as the 'Blue Ribbon Network' in the London Plan. A key policy is 'Design – Starting from the Water' (4C.20) so that developers should ensure their buildings 'integrate successfully with the water space'. Water freight is encouraged (4C.14), and there are concern about impounding (4C.5) and ecology.

Silting is not the problem
One of the main opposition to opening Bow Locks again comes from British Waterways, and they claim that returning to the semi-tidal regime will cause silting up of the Lee Navigation. They keep on emphasising this. What BW do not say is that the silting is caused because many years ago they themselves closed off the original water management system of locks and sluices. Once this is put back again (not a great expense), all will be well.

Waterway Advisers
Who are the waterway advisers for the Olympic delivery proposals? It is important that there is a wide waterways representation which includes the operators and waterway specialists. British Waterways of course should be included, but only in their role as a navigation authority. No one wants regeneration of the Lower Lea Valley to be property developer led. There is a strong waterway lobby which will provide all the expertise that is needed, and it must be made certain that everyone is working together for the Olympics and a great Legacy.

THE PROPOSED PRESCOTT LOCKS

Not operational until 2008

The proposed new locks on the Prescott Channel would not be available for use until well into the construction programme for the Olympics. Completion in 2008 is an estimate (Atkins, Appendix C), but completion could be later than that if there are delays during construction, or more likely because of serious delays of the starting date.

Land would have to be purchased on both sides of the waterway as its width would have to be doubled to accommodate the lock. Land purchase is lengthy and expensive, especially if compulsory purchase is required. This could delay the starting date.

The view northwards up Prescott Channel from the present footbridge. The new lock would stretch 300ft from here and the huge concrete structure would dominate the low level area. The bridge is so low cuts off navigation at high tides and would have to be raised even if the lock is not built.

Planning consent will be required as it will change the appearance of the area so dramatically, and no provision has been made in the schedule for this, nor for any appeal procedures. The construction of the new locks cannot be carried out as 'permitted development'. British Waterways claimed (8.11.05) that they had agreement for permitted development from ODPM, but this is not the case as many conditions need to be complied with first, and a consultation process still has to be carried out.

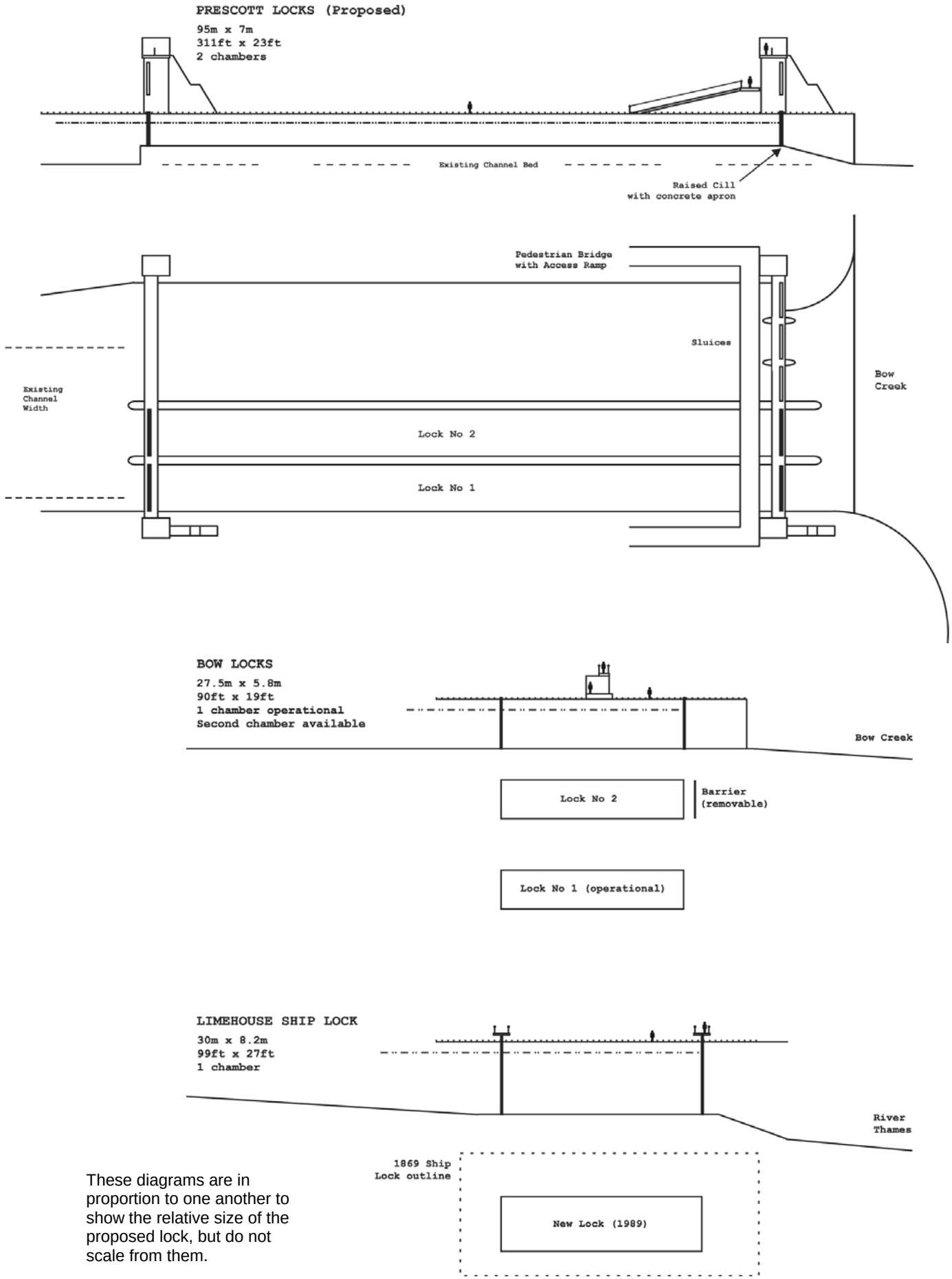
Negotiations will be required for flood relief and water management measures with the Environment Agency, and no provision has been made to include this complex and detailed consideration. As the Prescott Channel will be closed off for a few years, either partially or completely, these flood relief measures will have to be in place before any construction begins. No details of this have been given by British Waterways in their proposal.

With the Prescott Channel closed off during construction of the new lock, the flow in the Three Mills Wall River would be increased. Protection work would need to be carried out at the Historic Mill before Prescott Channel is closed, with reinstatement of the sluices etc, and the residential moorings in the river would need to be reinforced. This would cause another delay before construction of the proposed locks could be started.

Reduced operational window

The lock chambers are very long, three times the length of Bow Locks, and a bit wider. It is stated that 7,000 tons per day could pass through, and this is the same as achieved at Bow Locks in the 1950s (Atkins 3.2). As the new locks are more than twice the size of Bow, this demonstrates that the available operational window is barely half that of Bow Locks. In fact it is calculated as 4 hours on every tide, with a gap of 8 hours before it is available again on the next tide.

The main reason for this is that the cill level at the bottom gate is about 2m above the river bed, so it will take a while for the tide to reach up to that level and provide sufficient depth for a boat to move into the lock. The cill level at Bow Locks is at river bed level, so as soon as there is sufficient water to float a barge then it can move into the lock.



These diagrams are in proportion to one another to show the relative size of the proposed lock, but do not scale from them.

Huge gate structures

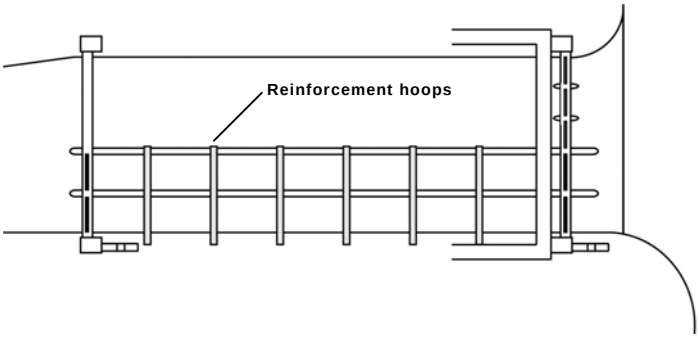
A constant water level above the locks is a requirement from British Waterways, and they do not want the waterways to be semi-tidal. BW have specified this, but no reason has been given for this requirement.

As the incoming tide has to be kept out lifting gates are favoured (Atkins 6.6) rather than mitre gates, even though these will create a more bulky structure and be far more expensive.

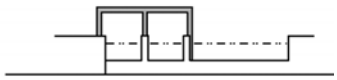
There would be very high structures (at least 10m) at both ends of the locks to operate the lifting gates. The gates need to be raised high enough for a boat to pass under, and the structures would be higher than expected, or illustrated. The large concrete structures at Barking Creek and River Mar at Dartford could be a good examples.

In the Atkins Report (6.6) it is stated that there will be "limited visual intrusion" from the new lock structure, but also say in the same paragraph it will be "visually more intrusive".

The bulk will be increased considerably with reinforcement hoops along the locks, as a 300ft concrete lock wall could not withstand the water pressure without extra strengthening.



Reinforcement structures bridging the locks along the length. These would also restrict access to the narrow lock sides.



Lock closed on neap tides

For some reason the Atkins Report does not take neap tides into account. Bow Creek up to the proposed Prescott Locks is tidal, and on neap tides the level of high water is reduced. This means that the operational window of the new lock is also reduced, and on certain tides the lock may not be available at all. A detailed study of the tide tables indicates that on some high tides there will be barely 2m of water above the cill of the Prescott Locks. As this highest point of the tide only lasts for a short period this does not allow the locks to be used by large barges.

At other stages of the cycle of neap tides the length of time that the locks can be used would be considerably reduced, especially as many tides do not reach their predicted height.

The neap tide period is about 2 weeks, followed by a spring tide period of about 2 weeks, which means that for half the year the new locks would have a reduced operational window.

It is considered that the predicted tonnages passing through the new locks cannot be achieved, and should be scaled down by at least one third to less than 5,000 tons per day.

Constant water level required?

There is no 'free flow' through the proposed new locks. This could be achieved when the river level has reached the same level as the water above the lock, and the lock gates are opened at both ends so a barge can pass straight through. As the tide continues to rise then the level of water in the channel above the lock also rises as the water continues to flow through.

As the tide turns and begins to recede, the water level in the waterway drops back to its original level at which point the lock gates are closed. Barges can continue to pass through the lock in the normal way until the tide has dropped further.

For 'free flow' the waterway above the lock has to be semi-tidal. British Waterways has specified that the water level in the impounded waterways above the proposed new lock must not vary, therefore they will not be semi-tidal and, and as a result, free flow will not be available at the Prescott Locks.

Limited capacity

It is intended that all the barges will be 'locked through' the Prescott Locks. The estimated volume of 7,000 tons passing through per day may be achieved on some days at certain times of the month, but this amount cannot be increased.

No firm requirement of tonnages to be moved daily has been given by the Olympics contractors. The Olympic construction operation may require greater tonnages at certain stages, in which case the Prescott Locks could not deliver.

No provision for flexibility in capacity has been provided by British Waterways.

Additional Flood Relief Measures

It is not detailed in the Atkins Report, but the construction of the new lock would interfere with the flood relief measures.

If the construction of the Prescott Locks goes ahead and the water level in the waterways above the lock is constant, then there must be further flood relief measures provided. It is certain that construction of a new flood relief channel will be required as a condition of installation of the new locks in the Prescott Channel.

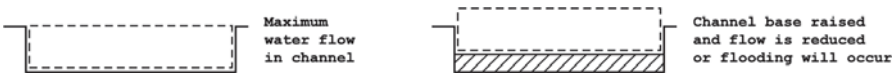
One suggestion has been for a new channel called the Newham Canal to be constructed, although it does not seem to be a canal. Its route could be from the Waterworks River just above City Mill Lock southwards to the Chanelsea River. Early details specified it as a channel less than a metre deep (width not specified). Other suggestions have been for a dry channel, or with a minimal depth of water (for appearance sake). No further details have been announced by British Waterways.

The Olympics Masterplanners have included various versions of additional channels in their proposals, but the details seem to vary considerably.

Flood relief reduced

It is specified that the channel width in the Prescott Channel is maintained when the new locks are constructed. This requires land encroachment either side of the constructions.

It is implied that the same volume of water can flow down the Prescott Channel, but this is incorrect and misleading.



The level of the base of the new locks and the sluices are to be raised by about 2m, so the same volume of water can only flow down Prescott Channel if the water level rises. This will increase the risk of flooding. The assurances in the Atkins Report on this matter are flawed.

High tide flooding

The new locks and surrounding structures will be built to 4.8m AOD to keep out normal high tides, which is the same as the level at Bow Locks. However, spring tides and other circumstances will cause the water levels in the river to rise above this, and flooding will result. The level in the channels above the new locks that are supposed to be at a constant level will rise considerably, and may cause flooding. This will occur on a regular basis and cannot be avoided.

The consequences of this are not dealt with in the Atkins Report, and British Waterways do not seem to have mentioned that this flooding will frequently occur. Do the building developers and potential residents know?

Silting problems

The waterway channels where the water will be impounded by the proposed Prescott Locks and kept at a constant level will be liable to silting. This is what occurred in the Bow Back Rivers and other channels when the water management measures were removed by British

Waterways in the 1970s and 80s, and zero flow resulted. Tidal and semi-tidal waterways can be kept clear of silting if water management measures are employed, but the proposed constant level waterways cannot.

Looking southwards down the Waterworks River from the Stratford High Road bridge. In the distance the river runs to the right through the rear of the historic Mill, but the main flow of the river runs to the left into the Prescott Channel. The normal tidal range can be seen from the dark mark running along the channel wall. At some of the highest spring tides the water level reaches to top of the wall, and on occasions may flood the surrounding area.

Impact on the ecology

There will be a considerable effect on wildlife and ecology in some of the waterways if they are impounded and kept at a constant level, and a reduced or zero flows result. The salinity of the water will also be very different. Habitats will be substantially altered, or eradicated.

For some reason this important issue is not taken into account in the Atkins Report, nor mentioned by British Waterways when they are driving their scheme forward. This shows little interest and sensitivity to the environment and wild life which form such an important element of the Lower Lea Valley.

There are plans to break out some of the river banks to insert reed beds and other waterside vegetation, and this will undoubtedly provide a certain amount of green environment and habitat. However, it needs to be assessed whether this is being carried out only for aesthetic reasons, and also whether it will make up for the overall loss of large area of green that will be concreted over for property development.

High costs not revealed

The huge gantry and structure for raising the gates would be very costly, and it seems that no substantial sum has been allowed for this. Mitre gates on the locks would be far cheaper if a semi-tidal situation was specified. Land purchase is also not included in the budget.

A very large associated cost that is not even mentioned is the construction of the Newham Channel (or other flood relief measures) that is required if the Prescott Locks are constructed. This is a multi-million project. This cost could be avoided if the proposed locks were not constructed and an alternative route found for the Olympic construction traffic (such as through Bow Locks and Limehouse).

Brief analysis reveals that the £10.6M budget is a serious under-estimation. The Atkins Report says their costings are to ‘outline the budget level’ and the costs ‘will become more refined’. This is very suspect. For British Waterways to provide incomplete and weak costings for a scheme such as this is not a responsible way to proceed.

A new lock not needed?

The Prescott Channel and Waterworks River are navigable at the present time for a number of hours on each tide. Large quantities of construction freight could be transported by that route without any lock. Also, if the new lock goes ahead this route will be blocked off for 2 or 3 years while it is being built, so this important freight route will not be available until well into the Olympics construction programme.

Much of the Olympic site is already accessible from other sections of the waterways, and certain water management controls could improve this access.

When the final plans for the Olympic construction are announced, it may become apparent that the construction of the proposed lock is not even necessary.

THE DEPENDABLE BOW LOCKS

Operational in 2005
One lock at Bow is ready for immediate use, and the second lock could be back into operation in a few weeks if the steel barrier across the entrance is lifted out.

In contrast, the proposed Prescott Locks would not be operational until 2008, or later.

Required in early stages
If it is decided to build the new lock at Prescott Channel, the construction of the proposed lock would take so many years, that the route through Bow Locks would have to be used in the early stages of the Olympics construction. This would mean that the Bow Locks would have to be re-commissioned to their full operation standard, and the second lock chamber would have to be reopened.

Well established
Bow Locks have successfully provided the access from the river to the Lee Navigation for hundreds of years. The locks have been upgraded over the decades, and the present locks date from 1930s, with improvements in 1960s.

Bow Locks at low tide, and with the lack of use, a large mud bank is building up at the entrance.

There are two lock chambers side by side, each measuring 90ft x 19ft, and the lock depth is over 16ft (5m) which is twice the depth of the proposed Prescott Locks.

Recently British Waterways have down-graded the locks, and one lock chamber has been blocked off with a steel barrier, although the gates are still intact and in working order.

Additional gates (at the left lock) have been installed to keep the river water out at high tides, although in the past the Lee Navigation has always been semi-tidal. As these new gates may not be required, they can be left in the open position

It needs to be investigated why British Waterways did this reconstruction, as it appears it was not carried out for navigational reasons.

Very high capacity

The locks at Bow are very deep and the cill is at river bed level, so they can be used soon after the tide begins to rise in the river. When barges waiting to move upstream begin to float on the tide they can enter the lock. The operational window is about eight hours on each tide.

At the top of the tide all the lock gates can be opened and barges can navigate straight through without any delays. This is termed 'free-flow', and this period lasts for 3 or 4 hours.

Well over 7,000 tons can pass through per day, which is more than the estimate for the proposed Prescott Lock.

Skill of operation

The barges that would use the Bow Locks are the smaller Thames lighters or 'Broms' which are 85ft x 18ft and can carry a load in excess of 150 tons. These are the barges that were regularly used in the past, and are larger than the Lea barges which were not so common.

These barges can be skilfully handled by experienced staff at the lock with the use of mechanical capstans which would have to be reinstated at Bow. Barges can be drawn into the lock on the capstans, and also shot out the other end into the channel. With skill the barges are accurately directed to run up the channel and be ready for a pick-up by one of the tugs. An experienced team can move dozens of barges through the locks without much effort.

The Atkins Report claims that Bow Locks are not viable if they require a number of staff to handle the barges. This may demonstrate how much they don't know about water freight and boat handling as the new lock would also need staffing. It should be considered that if millions can be saved by not building Prescott Locks, then some of these resources can be used for employing a waterway workforce, and for investing in training and job creation.

One of the locks has been blocked off with a steel barrier, but this can be lifted out to allow the lock to be used as intended.

Additional outer gates have recently been added, and these can be left in the open position to allow 'free flow' through the lock.

Highly accessible location

The Lee Navigation at Bow Locks is accessible from Bow Creek as well as from Limehouse. To Bow Locks from the Thames via Bow Creek is 4km, and from the Thames Lock at Limehouse is 2.7km. Once the barges are on the navigation then there are a variety of routes that can be taken that lead to a number of points in the Olympic site.

A 'Commercial Waterway'

The Lee Navigation and Bow Locks are designated in the statutes as a Commercial Waterway (Schedule 12, Transport Act 1968). This means that the full potential for commercial and freight use must be maintained and the Bow Locks should be re-commissioned, and the Lee Navigation returned to its original status as a semi-tidal waterway.

The recent work on the locks and blocking off of one chamber restricts the commercial use and therefore contravenes the statutes and it should never have been carried out.

Silting problems
To avoid silting in the Lee Navigation and associated channels, various sluices need to be restored so that the 1930s water management system can be operated.
(See below: 'Water Management').

Costs not high
Re-commissioning of the Bow Locks would be a relatively straight forward and inexpensive project. The budget would be a fraction of the high costs of building a new lock at Prescott Channel plus the other 'canals' and flood relief measures.

The costs of restoring the water management system need to be taken into account, but this would also be necessary if the new Prescott Locks were constructed. The cost may not be more than around the £¼ million mark.

A MAJOR ROUTE THROUGH LIMEHOUSE

Limehouse Basin is now much smaller than in its heyday with parts filled in for property development. Also its operation has changed from commercial freight and trade to leisure use as a marina.

However, the ship lock from the Thames is in good working order, and this continues to provide a transport link to the Limehouse Cut and the Lee Navigation. It is available now.

Entering the Limehouse Ship Lock from the Thames, and looking towards the basin. It can be seen how close the buildings crowd round the lock. It is still wider than many locks, but until a few years ago it was twice the size as very large ships entered the basin to unload to canal boats. The Regents Canal entrance is to the left across the basin, and the Limehouse Cut branches off to the right.

A Commercial Waterway
Limehouse Cut, the basin and the ship lock form part of the Commercial Waterway of "The River Lee Navigation from Hertford to the River Thames at Limehouse" as defined in Schedule 12 of the Transport Act 1968. This statute secures the availability of the waterway for freight, and states that it shall be the duty of the Board "to maintain the commercial waterways in a suitable condition for use by commercial freight-carrying vessels".

The navigation use of Limehouse has been compromised by property development over the past few years, and it has been downgraded in an unsuitable way as far as navigation is concerned. This development was driven by BW, and they were closely scrutinised by the Monopolies and Mergers Commission in 1993 after the basin had been 'developed'.

But freight barges can still readily pass through Limehouse, although a certain amount of work should be done to bring the waterway and access up to full commercial standard.

Accessible at all times
The Limehouse Lock can be used by barges for freight at all times, as even at low tide there is sufficient depth of water on the Thames at the entrance. The 'sector' style of lock gates that rotate can be used at any state of the tide.

Ideal location
The journey from the Thames at Limehouse to the Lee Navigation takes about half the time of the journey up Bow Creek, and it is dead straight most of the way.

From the Thames to Bow Locks via Bow Creek 4 km (2½ miles)
From the Thames to Bow Locks via Limehouse 2.7 km (1¾ miles).

Limehouse is situated at a very accessible location for all potential destinations on the Thames for supplies of aggregates, steel and other building materials. Although it is about 3 miles further up the Thames than Bow Creek, the additional journey on the main body of the Thames can be carried out at a good speed and unhindered, so this is not a great disadvantage. It is more accessible for any routes upstream, of course.

A major route
With all the attention on the use of Bow Creek and the River Lea as the major freight routes, the route from Limehouse could be considered a useful addition to increase capacity if required. However, this route needs to be investigated and assessed more carefully. It might provide a greater potential and turn out to be a more important route than at first sight, as it is accessible at all times and does not rely on the state of the tide.

Although all barges would have to be locked through, the lock chamber is large and could accommodate more than one vessel, and it could work 24 hours a day instead of just a few hours window when the tide is up. Limehouse would provide passage for double the tonnage per day than that planned for the proposed Prescott Locks. It is designated as a commercial waterway for very good reason.

It is surprising that this major commercial waterway is not suggested by the navigation authority British Waterways to assist with the construction of the Olympics sites. No reason is given for this omission by BW.

CODY DOCK BACK IN USE

Cody Dock is a large basin situated two thirds of the way up Bow Creek. It measures 100ft wide x 500ft long (30m x 150m), and although the end 100ft (50m) is filled in, the basin seems intact. It is very silted up, and the lock gates need to be replaced. The dock could easily accommodate 20 barges at a time, with a total load of over 3,000 tons.

Important restoration
Restoration of the basin would be a great asset to the area, and its use in the construction phase of the Olympic sites would be invaluable. The cost for the restoration work needs to be assessed, but as the basic structure is intact it might not be excessive.

Construction material stock pile
The main wharves for the Olympic construction phase will be further up the Lea Valley, but there is a lot of potential construction in the area of the Cody Basin (mainly residential unfortunately).

It would also be a useful area outside the high activity of the Olympic construction site, and before it is built all over, where materials (steel, aggregates, bricks etc) could be stock-

piled, and transported up the Lea Valley by road (or water) when required. This could provide an essential back-up for the construction to avoid the chance of any supply delays. A large 'delivery' area could also provide some very large economic savings.

Retained as a commercial basin

A basin in that area would have a very useful function as a legacy of the Olympics for waste and recyclates as well as small containerised freight. The area is mainly commercial at present, and could be most valuable if it is retained as a thriving commercial centre, especially with the potential use of the water freight.

It would enable a viable mixed development to be planned, which would be far more acceptable than the fate of other basins on the waterways that are surrounded by residential uses and have become dull and sterile, such as Paddington Basin. It could have a great future.

More attention to be given

This dock seems to have been identified by the Masterplanners as a possible Olympic 'supply centre', but British Waterways have not highlighted it in their scheme for water freight for the Olympics (Atkins Report), even as a back-up. No reason is given, but perhaps BW have some other use for it in mind.

The details of the ownership of the dock and surrounding land need to be confirmed. It would also be interesting to investigate the land sale transactions that have been carried out in recent years around the dock.

COMMERCIAL WATERWAYS

The canals were rescued from ignominious fate by the **Transport Act 1968** and given a potential for a long and fruitful future. The Act defined three categories for the canals, commercial waterways, cruising waterways and remainder waterways.

The most important canals had good freight potential and an economic value, and included Aire & Calder Canal, the Trent Navigation, the Weaver Navigation and parts of the Severn Navigations, but also included the Lee Navigation which not only had a good prospect but was still in commercial use at the time and for a further 15 years until well into the 1980s.

Schedule 12 of the Act classifies "The River Lee Navigation from Hertford to the River Thames at Limehouse and to the tail end of Bow Locks" as a commercial waterway.

Maintain commercial freight

The main waterways classified as "the commercial waterways" in the Transport Act 1968 are described as "to be principally available for the commercial carriage of freight" (Section 104, para 1a).

The statutes also make it clear in Section 105 that "it shall be the duty of the Waterways Board . . . to maintain the commercial waterways in a suitable condition for use by commercial freight-carrying vessels".

Following on from this, the Act deals in Section 106 with the enforcement of maintenance duties on the Board by various legal means. If these duties are not carried out then "the court may . . . require the Board to remedy that failure".

Assessment of commercial waterways

It is considered that the Lee Navigation and Limehouse Cut are not now available for full commercial operation. This may be understandable as for the last 15 years or so there has been no waterbourne freight, but nevertheless any changes and development on the waterway should have taken the potential for commercial freight into consideration, and maintained the water 'in a suitable condition'.

It may not have seemed totally practical, but it is the law. There is no doubt that there is a considerable maintenance backlog on the Lee Navigation that needs to be attended to, in order to restore it to full commercial standard.

It is a certainty that no operation or works should have been carried out that reduced the commercial potential of the Lee Navigation down to Limehouse. Some investigation may be required into this matter, including whether the Bow Locks should have been downgraded, for instance.

Re-classify the Bow Backs

The 'Bow Back Rivers' are not classified as commercial or cruising waterways in the Transport Act 1968, and they therefore are 'remainder waterways' and are not afforded any status and protection.

These waterways include the Three Mills Wall River, City Mill River, the Bow Back River, Pudding Mill River and part of the Old River Lea..

Recently these waterways have been dredged and have become navigable in parts, and this restoration as it proceeds needs to be recognised. It is important that these waterways are designated as constituting 'cruising waterways'.

This can be achieved through Defra. The Minister under Section 105 of the Transport Act 1968 can, after consultation, make such an order "as he thinks necessary or expedient in connection therewith".

This should be done urgently in anticipation of good (or reasonable) navigation standards being achieved in the near future on these waterways. This will recognise that these waterways are important and should be treated well and be developed for their full navigational potential. This would also give them some measure of protection from detrimental impact of property development and similar circumstances. This undoubtedly would be an important outcome of the 'Olympic Legacy'.

WATER MANAGEMENT in the Lower Lea

An extensive area of the Lower Lea Valley including the Lee Navigation and Limehouse Cut, as well as the River Lea connected to various channels and the 'Bow Backs', had a sophisticated water control system until recently. This was operated through sluices connecting the waterways, as well as controlled flows through locks.

1930s Flood protection

As can be seen from the Environment Agency Flood Maps (on-line at www.environment-agency.gov.uk), this area is one huge, extended flood plan. It was known as the Stratford Marshes with a number of channels wandering through it, and the lower end was a wide, extensive tidal estuary. Many centuries ago man started draining parts of the marsh, and controlling some of the channels. In fact, the earliest canal in the country was the Lee Navigation, and long straight stretches to bypass the meandering waterways were constructed in Elizabethan times.

The latest control measures were in the 1930s, and the River Lea (Flood Relief) Act legislated for extensive improvements to the complex system of waterways, to allow the tide and ground water to flow through the area in a managed way.

Self dredging

One vital characteristic of the network of sluices and locks was that the flows of the tide could be controlled and directed along various channels at different times, and the increased flow served to scour out the silt in that channel. This saved on dredging. It has been noticeable that as the flood relief measures have been removed by BW the silting has increased.

Carefully planned work undone

In the 1960s there were various changes, which have continued up to the present, and progressively most of the measures that protected the area from flooding have been undone. Sluices have been abandoned, locks closed off, channels allowed to silt up.

The first changes were the closure of the Carpenters Road Lock and City Mill Lock which were said to be 'surplus to requirements', but it has become clear that this was carried out for economic reasons to reduce staff rather than for the management of the waterways.

The result was that many of the Bow Back channels silted up, and the answer to this problem was an attempt to make the Lee Navigation non-tidal which did not wholly succeed as the highest tides still flooded across into the navigation. A low wall was constructed to hold back the tide, but the Environment Agency would not allow this to be increased in height as it compromised the flood dispersal.

Many of the channels have a reduced profile due to silting, and the flood relief capacity is much affected. The waterways are not inter-connected and cannot work together and interact to spread any potential flood flow. The blocking off of tidal movement in the Lee Navigation has created an imbalance and increased the risk of flooding in many locations. With further blocking off, the incoming tide has to go somewhere and this will back up and even have an influence on the Thames.

The overgrown sluice beside City Mill Lock. The lock is being reinstated and the sluice should also be brought back in service to restore the water management control.

The sluice beside Bow Locks has not been in use for many years, but now the gate has been replaced by a solid slab of concrete and the channel is rapidly silting up.

Automated operation

Previously the sluices were operated individually, but these days they could be operated electronically from a control centre by radio signals. This is done successfully at present for the main sluices further up the valley at Lea Bridge where the Lea branches off from the Lee Navigation.

With this sort of sophisticated equipment, the water levels can be monitored hour by hour, and the water control should be even better than when it was first introduced in the 1930s.

Assisting navigation

Controlling water levels by the reinstated water management network can assist navigation. This is especially useful as regards air draft (headroom) under bridges and structures.

The water level in the navigations could be dropped to a slightly lower level so that barge traffic can pass under the Northern Outfall Sewer, for instance, where headroom is restricted. In fact, a loaded barge needs more water depth and less headroom as it sits low in the water, whereas an empty barge floats high, and the water levels could be varied at different times of the day to suit the traffic.

Mind you, skilled operators would also be making use of the tide, and would be able to navigate tight spots with good timing.

Limited protection by Thames Barrier

Many of the reductions in flood protection have been justified by claiming the Thames Barrier reduces the risk. But this is not the answer. The barrier reduces the tidal flow, although it does not block the tide altogether, and it certainly does not control the downflow from rainfall. After all, the devastating 1934 Tottenham floods were not caused by tide, which is why the flood protection measures were introduced in the 30s.

It is well known that the life of the protection of the Thames Barrier is coming to an end, so the other protection measures 'upstream' should be increased at this time and not reduced.

The flood protection measures from the 1930s should be reinstated, and although there has been further legislation since then, it is not clear that the River Lea (Flood Relief) Act has been repealed or fully superseded.

THE THREE MILLS PROJECT

Innovative Scheme doomed?

The proposal for the historic Mill to be brought back into operation cannot be achieved if British Waterways goes ahead with the Prescott Lock project. A head of water is required for the mill's operation, but as BW have specified a constant water level above the new lock, this would not provide the necessary water supply. However, British Waterways claim that the flow of the river will be sufficient to run the water wheels, but this is not practical.

The plans to install water wheels to carry out flour milling, and for a hydro electric project may have to be shelved. Who will have to account for this serious loss of amenity?

The historic Three Mills island with the House Mill (*left*) built in 1776 being the oldest standing tidal mill in Britain and Grade I Listed. Clock Mill on the right was rebuilt in 1817. The Lea Tidal Mill Trust has restored the buildings. Numerous features have been retained inside, and the flour milling wheels and other mechanism are still intact. The Trust is raising funds to restore two of the water wheels.

COSTINGS

Lack of detailed costings

The Atkins Report gave an estimate of £10.6M for the proposed new Prescott Locks, but it was noted in their text that they had not included a number of items. The flood protection and water control systems are major items that have to be costed in, and they need to be carried out before construction can begin on the new locks.

The British Waterways Chief Executive Robin Evans at the recent BW Annual Meeting admitted that the scheme could cost about £50M. This may be realistic as it more likely takes

into account some or all of the flood protection measures, as well as the other schemes that BW have in mind but have not revealed yet.

Total sum not revealed

Construction of the Prescott Locks and weir	£10.6M estimate
Gate gantries and mechanism	£ not included in lock construction
Land purchase	£ no figure supplied
Legal fees	£ no figure supplied
Water diversion measures	£ no figure supplied
New flood relief channel (Newham 'Canal' etc)	£ no figure supplied
Reinstatement of water control sluices	£ no figure supplied
Restoration of historic Mill	£ no figure supplied
Other BW schemes in the area	£ additional

Associated costs

The new Prescott lock alone will be a huge expense, but if the water freight operation is to work then more money has to be found.

To enable barges to access the whole Olympic site, the two locks at City Mill and Carpenters Road need to be restored. The City Mill Lock may be partly funded by the adjacent property developer, especially as the new huge development is called 'The Lock'. There are also associated works to provide wharves, but no details have yet been published.

Restoration of locks	£ no figure supplied
Construction of wharves	£ no figure supplied
Operating costs	£ no figure supplied
Maintenance	£ no figure supplied

Bow Locks a bargain

The Bow Locks could be re-commissioned with a small amount of construction work. The steel barrier on the second lock needs to be lifted out, and the water management controls reconfigured. The 'reverse' gates installed recently at great expense would no longer be used, but they could remain in the open position and no further works would be required.

The associated costs (above) would still be necessary to service the Olympic site by water,. If the Lee Navigation reverts to being semi-tidal then other works will need to be done, for instance reinstating the Limehouse barrier at Commercial Road (or nearby), as well as the sluice at Bow Locks.

Re-commission Bow Locks	£ could cost £100,000
Reinstating water control works	£ could be £150,000

The public pay

As British Waterways is a public body who managed the canals on our behalf, all their money is public funds. So, whether the above costs are covered by the Olympic Fund or by British Waterways, it is still the public who pay. With the adverse financial situation British Waterways seems to be in at present and with its cash flow problems, the money will almost certainly be required from the Olympic Fund.

It may be safe to assume that the public would prefer to spend a few millions restoring the navigation, rather than £50M on a new lock, especially as the advantages of the proposed Prescott Locks do not appear to be so great.

Income?

Using water transport for construction freight will have a financial advantage, as environmental improvements and reduction of emissions can be valued according to a

formula used by TfL. British Waterways say this will be about £10M and claim that it would cover the cost of the new lock. However, it is not an income, and the money for the lock (and all the other costs BW have in mind) still has to be found.

However, if the lock is not built and the existing waterways are made use of, there is also a £10M saving. This can go towards reducing the financial burden on the tax payers, especially the London residents who will be paying for the Olympics for the next 20 years or so.

A WATER CITY

It is most worrying for the waterways in the Lower Lea area that British Waterways is the main driving force behind the notion of turning the Bow Backs into a 'water city'.

This means BW is not only encouraging dense building development along all the waterways, but also wants the creation of a city floating on the water. The waterways will be covered with a large number of what are called 'business barges' which will be floating offices and a few floating pubs and shops on the water.

It would also include a certain amount of residential mooring which would be welcome, but does not include any navigation and use of the waterway itself, particularly not for water freight. The whole thing will be static.

Business barges rejected

It is unacceptable that the water is taken away for a land-based use, and Regents Network, IWA and NABO, along with many other canal users and authorities campaign for business barges to be disallowed. The London Plan and a number of UDPs oppose their use.

There is not even a category for business barges in the canal legislation, understandably as it is a land based use. British Waterways have confirmed that they consider business barges are classified as 'houseboats' which is most bizarre. They are not a valid use of waterways.

British Waterways are continuing to introduce these unpopular craft, and have plans for over 100 business barges in London, starting with 12 in Paddington Basin where there is already over 2.2million sq ft of offices. There is no need for more offices there, especially ones that take away the valuable water.

Further up the Lea Valley an application has just been made for 6 business barges above Tottenham Lock, to take away some of the valuable waterway up there as well. This will be followed by BW plans (probably described as an Olympic strategy) to introduce a large number of business barges in the Bow Back Rivers for their 'Water City', with a few more added further up the Lea. Their attention is definitely not on navigation and an active (and productive) waterway.

The true intentions

A lot of work is being done in the background by British Waterways and others, and a "Water City Partnership" has been set up. The membership seems to be mainly property developers. Is it all for the benefit of the Olympics?

Not really, as the delivery of a 'water city' has been British Waterways objective for many, many years, and they have suggested impounding the Bow Backs by various means several years ago. It has become apparent for a long while that developers in the area have been assured that they will be provided with a nice static 'pond' in front of their developments instead of a semi-tidal and moving river. BW say that they have been taking 'key people' for boat trips around the area, and that was well before the winning of the Olympic Bid.

British Waterways produced a feasibility study in 2002 for 'restoration' of the Bow Backs which suggested impounding, and this had a varied response from a number of organisations. The interest in property development was being cultivated by BW at that time, and the coming of the Olympics to the Lea Valley dropped the opportunity into BW's lap.

WILL BW RETURN TO THE WATERWAYS?

A great deal of this report focuses on British Waterways and their part in the development of the waterways, and it challenges them. This is done for good reason. Our waterways need all the help they can get at the moment, and we need British Waterways to be at the forefront of a campaign to bring the canals and inland waterways back to life.

But what do we find, BW off doing other things rather than promoting the waterways. They should be setting up an active future, and should be the champions of our canals.

Indirect motive for the new lock

A good example of the way BW management operate is demonstrated in the Lower Lea. It is becoming clearer that BW want the new lock at Prescott Channel in order to impound the waterways above it. They have specified that the water level must be constant. The reason? For the benefit of property development, of course.

Why do the BW management operate in such a non-transparent way. You never hear the full story, and far too often not even the truth.

This is not only unsatisfactory for the waterways, it does a grave disservice to a core of very good British Waterways staff, who probably joined BW in the first place because they loved and appreciated the waterways. Morale is not high in the organisation.

Many people are wondering why BW is involved so heavily with non-water activities and property development when they are a navigation authority. Their main function is use of the waterways themselves, and it is not the carrying out of development around the edges.

Recent interest in water freight

We welcome British Waterways interest in the commercial use of the canals and waterways.

This interest in water freight and construction freight for the Olympics is all very new to BW. It is only in the last year that BW has shown any interest in water freight in London, and they have not been involved in it for decades.

British Waterway's lack of appreciation of the value and importance of water freight up to now was clear at the huge development at Paddington where not one brick went in or out by water even though it was a BW-led development. The same is not happening at the 'regeneration' at Brentford, and there are no plans for use of water freight for the huge building development at City Road Basin, although both of these are driven by BW.

It is possible that British Waterways will be quick learners and will remember how to do freight. They may discover that amongst their staff there is a lot of knowledge that should be brought to the surface. It may also bring to light that there are now too many staff who have been brought in knowing nothing about waterways and freight.

The major role for BW

It may be better that water freight is left to the commercial operators who have the expertise and whose full time job it is. British Waterways have a valuable role as the navigation authority, and with the understanding that they will have (soon!) for water freight, they will be able to make a valuable contribution to the development of a new life for the waterways.

ARE THE WATERWAYS OF THE LOWER LEA VALLEY IN GOOD HANDS?

Not at present. But they could be, firstly, with a direction change from British Waterways who should settle down to fulfil their role as stewards of our waterways and as a navigation authority, and secondly, if a wider range of waterway interests and other authorities are involved and in the lead in the Lea Valley.

THE OLYMPICS

The waterways will get you there

Use of the abundance of waterways in the Lower Lea is a valuable opportunity for an environmentally sound and highly efficient means of the construction and servicing of the Olympics.

To achieve this the waterways in the area need a long overdue update and renovation, and as the basic infrastructure is all there, this would not take a long time nor cost a great deal.

The Olympic authorities and masterplanners should have a greater appreciation of the value of the waterways, not only playing an essential part in the building and preparation, but also providing a unique character and feel to the whole Olympic scene. The 'Lea' Valley has a clue in the name, and it gives the Olympics a great starting point..

To realise this vision, the planning of the Olympics needs to have a greater input of waterway knowledge, advice and expertise. The Olympic planners need to be asked again, "Who are your waterway advisers?" There is more than a handful of them available, and they need to be used to the full and to take a leading role.

THE LEGACY

The waterways will still be there

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