# THE DEVELOPMENT AND IMPLEMENTATION OF WELSH WATER'S SEWERAGE STRATEGY FOR WALES

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**Abstract**
This paper is a case study on the approach to major organisational change, using the principles of asset management. It covers the development of an asset management strategy, testing of the strategy within the client organisation, identifying roles and responsibilities, piloting the arrangements, selection processes and establishment.

The paper will challenge many commonly held assumptions, particularly on outsourcing, and will discuss how to approach determining new contractual arrangements from an asset management perspective.

The paper will be of value to those organisations who are carrying out a strategic review on the operation and/or maintenance of their assets, are considering outsourcing as an option for the future, or are not convinced that they are getting best value from their current contractual arrangements.

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## HISTORY AND BACKGROUND TO THE OPERATION OF THE SEWERAGE NETWORK IN ENGLAND AND WALES

Responsibility for managing the sewerage network in England and Wales has been with the local councils for many decades and only recently have there been changes. Up until 1974 and the formation of the water authorities, local councils had looked after both the sewage treatment works and the sewerage networks throughout England and Wales. The formation of the water authorities in 1974 transferred the ownership of both sewage treatment works and sewerage networks across to the newly formed water authorities. The operation and maintenance of the sewerage network itself, however, remained with the local councils under agency arrangements. This situation continued until the privatisation of the water industry in 1989 when the private water companies had the freedom under The Water Act to determine who should operate and maintain their sewerage networks in the future.

The approach taken by all ten water companies into their plans for operation and maintenance of the sewerage network varied considerably after privatisation. Many took the view that the councils had not performed over the years in operating and maintaining the networks and either insourced or wholly outsourced the sewerage activity. These decisions came as a shock to many of the local councils who still had not really grasped the fact that the sewerage network was now actually owned by the water companies and was not their responsibility for operating or maintaining by right.

Welsh Water continued with the agency arrangements until 1993 when they started to formalise the agency arrangements into sewerage management contracts, which are now in place across the whole of Wales and terminating in April 2001. One sewerage management contract was transferred to an external company in the mid-1990's from the relevant council and in other areas the councils are not carrying out all the necessary functions. For example, in Powys and Gwynedd the Mechanical & Electrical (M&E) activities are carried out by Welsh Water. In some other areas, technical aspects of the sewerage network are carried out by Welsh Water. Full details of roles and responsibilities that are currently in operation can be found in Appendix 1.

The range of involvement of local councils in the sewerage activity across Wales varied considerably across the 29 sewerage management contracts, with North Shropshire (population 10,000) responsible for just 10 km of sewers and no pumping stations, to Cardiff (population 306,600 with 1,518 km of sewers and 32 pumping stations.

## THE CHALLENGES FACING WELSH WATER IN OPERATING AND MAINTAINING THE SEWERAGE NETWORK IN WALES

MCL Consultancy were called in to assist Welsh Water in June 1998 in the development and implementation of a new strategy for operating and maintaining the sewerage network in Wales for commencement in April 2001. The model for the new arrangements was to be based on asset management principles with the new contracts to be based on partnering arrangements with the client.

In examining the current arrangements, it was immediately clear that sewer networks do not align themselves with council boundaries, with some sewer networks being operated by as many as three different councils. There was the potential for passing problems "down the line", with no overall ownership for the performance of the network by any one organisation. A change in the way the sewer networks were managed, using catchment-based principles, was necessary.

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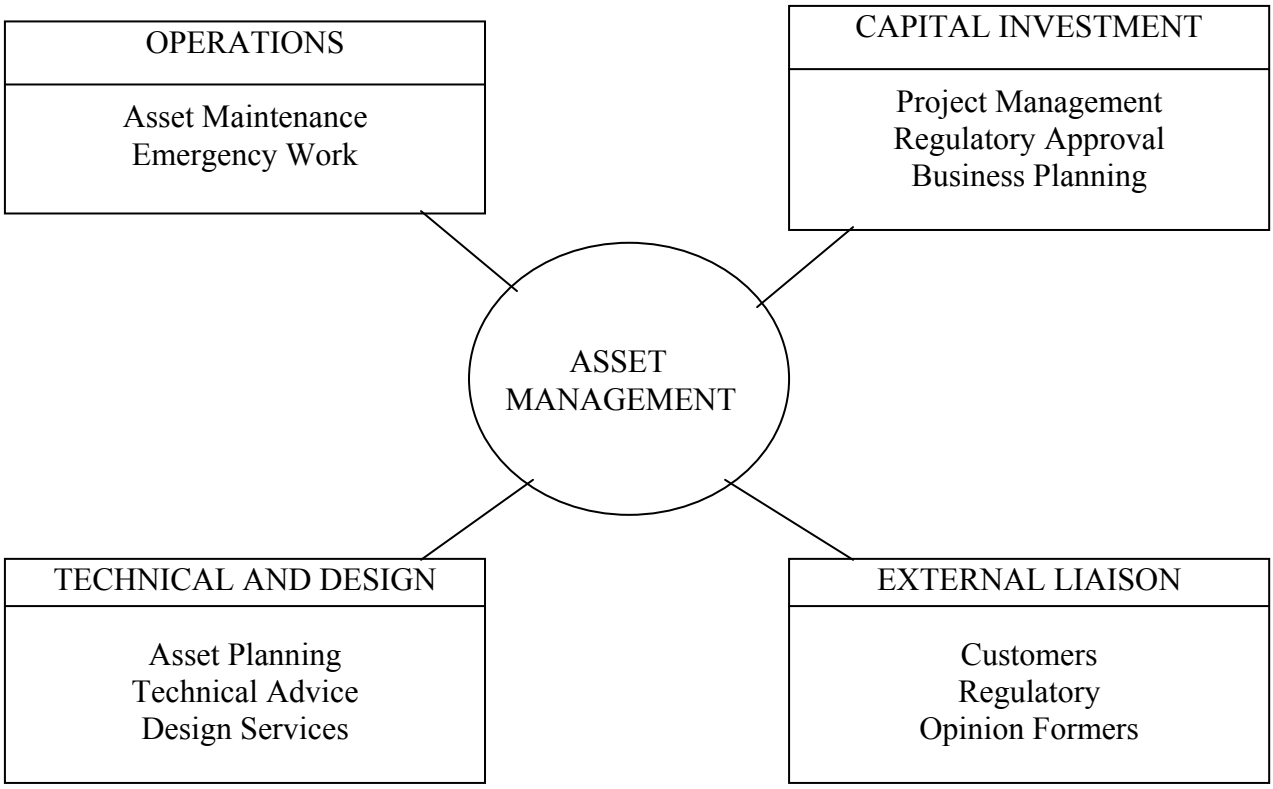
This decision was further supported when examining the European Union regulations for disposal of sewage and the Green Seas initiative in Wales. The demographics of Wales, unlike many of the other privatised water companies, has all its major centres of population on the coast and therefore historically, disposal of sewage has been directly out to sea. Throughout the first 10 years of privatisation Welsh Water commenced construction of major new sewage treatment facilities serving these major centres of population. Whereas previously waste going out to sea would dissipate without any noticeable effect on the environment, any discharges or spills of effluents, acids, contaminants or the like would now go to a sewage treatment works, having a potentially catastrophic effect on the operation of such a facility.

One of the key objectives for Welsh Water was to establish contracts whereby Welsh Water's input would be very much at a high level of contract management with a slimmed down sewerage management team allowing the successful contracting organisations to make day to day decisions without involving the client in operation and maintenance of the sewerage network. There had to be absolute confidence that the organisations who took on this responsibility were capable of actually delivering successfully without the client having to monitor their activities.

**DEVELOPMENT OF A WORKING MODEL FOR MANAGING, OPERATING AND MAINTAINING THE SEWERAGE NETWORK USING ASSET MANAGEMENT PRINCIPLES**

How do you approach the development of a working model for managing, operating and maintaining the sewerage network? The first area of examination was a full activity analysis on all the functions that are currently carried out in operating and maintaining the sewerage network. The Welsh Water sewerage management team then listed activities under the five key headings of Operations, Technical, Capital Investment, External Liaison and Asset Management. With Welsh Water at the centre of the operation as asset managers, the four other activity areas had then to be tested to establish that all the activities had been covered. This was carried out through a one-day workshop inviting all those stakeholders within Welsh Water that deal with the sewerage function to contribute and develop the model.

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Not only did the workshop delegates develop the model, they also identified appropriate performance measures to ensure that the assets were managed effectively and determined three options for the future operation and maintenance of the sewerage infrastructure. These options were then tested within the workshop and the preferred way forward identified.

The preferred model for the future moved from the situation of 29 sewerage management contractors each carrying out in general all areas of activity, to a significantly reduced number of specialist organisations who would work together in delivering the full service. The three key functional specialists were that of sewer operation and maintenance, M&E operation and maintenance in relation to the sewage pumping stations, and technical specialists dealing with network development control issues and the technical aspects of sewer improvement.

**IMPLEMENTING NEW WORKING METHODOLOGIES, TESTING NEW IDEAS, AND GAINING BUY-IN FROM THE CURRENT SUPPLIERS (PREDOMINANTLY LOCAL COUNCILS)**

Having developed a new methodology the acid test still had to be taken as to whether these new arrangements would actually work in practice in the field. It was necessary to test out these proposals with the local councils and the proposals were presented to a meeting of all 29 sewerage management contractors, receiving a mixed reception to say the least. These varied from disbelief that the councils were actually being challenged about the way they did things, right through to them understanding Welsh Water's ideas for the future, and wanting to assist in the development.

The councils were invited to nominate areas for piloting to test out the new arrangements, in particular to test the relationship between operational and technical aspects of running the contracts. Pilots were established in South East Wales and North Wales where groups of councils joined together to operate in the new working arrangement. The M&E proposals were not trialled as Welsh Water considered that the sewage pumping stations could be satisfactorily managed under separate arrangements.

The trials operated for some six months from April 1999 through until October 1999. In that period the roles and responsibilities, particularly of sewer operating and technical development were firmly defined. As a result of this, two key roles of Sewer Operating Contractors (SOC's) and Network Development Controllers (NDC's) were identified and the outputs from the pilots were presented back to all 29 SOC's.

The pilot also identified that the whole of Wales should be divided into three regions, namely North, South West and South East Wales, for the M&E contract arrangements and also the NDC's. Within these areas there would be operational contracts covering three areas in the north, two in the South West and five in the South East.

The ten operational areas were not only based on catchment but also of such a size to enable groups of councils to bid for this work in the future. It could not be assumed that all the operational contracts could be won successfully by external organisations but it might actually be more appropriate for council consortia to actually run and manage these facilities provided they proved to be commercially acceptable.

As part of the presentation to all the Sewerage Management Contractors in October 1999 they were actually grouped together in their ten new operating areas to enable them to discuss how they would go forward with Welsh Water's new arrangements. An implementation forum was established in which ten representatives from each of the ten areas finalised and developed the new working

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arrangements, which also enabled the council groups to prepare as consortia for bidding for the future work. The implementation forum lasted from October 1999 through till March 2000 and by then only six representatives were still involved in the process.

Throughout the process of involving the councils, MCL Consultancy advised Welsh Water that not all the councils would want to engage, some would walk away at the outset, some would come so far with the process but then decide that this was not for them, and others would go all the way through to bidding for the work. In this way those councils that were serious about delivering best value to the client in the future would have a strong and realistic chance of securing the long-term contracts after April 2001.

## ESTABLISHING APPROPRIATE OBJECTIVES, PERFORMANCE MEASURES AND REWARD MECHANISMS FOR MANAGE, OPERATE AND MAINTAIN CONTRACTS

Although the existing arrangements did not terminate until April 2001 it was important to recognise that award of contracts to M&E organisations for operation and maintenance of the sewage pumping stations would require an early involvement prior to actually commencing the period of tenure. It was determined that the selection process for appointing M&E Contractors should commence in the middle period of 1999 with a view to appointment in early 2000, giving a 12-month lead-in for the new contractors to familiarise themselves with the assets and prepare their routines for maintaining and operating them in the future.

The selection process for the SOC's and the NDC's were to take place in parallel commencing March 2000 with the aim of appointing in October 2000 allowing a six months lead-in for these organisations to determine their operational strategies.

### Contractual Arrangements

Forms of contract adopted for all three new arrangements were the Engineering and Construction Contract (ECC) Option 'C' (target cost and gainshare). The use of ECC, which carries less adversarial language than the more traditional contracts, would enable the client to focus on developing the right organisations with the right relationships to operate and manage the sewerage network in the future.

Financial management was to change significantly under these arrangements. Instead of the client setting the budget and the contractor working within it, and expecting the client to provide additional funding for overspend in exceptional circumstances, the principle of target costing and contractor managed minor capital allocation was introduced into these arrangements. Target cost would be established annually and agreed between the successful contractors and the client together with the targets against each of the relevant Key Performance Indicators (KPI's). Gainshare would be paid only if the targets on KPI's were achieved with the targets for the first incentivised year 2001 to 2002 being based on the actual performance from the previous year.

The challenge of setting objectives and hence KPI's triggered a large amount of debate. One principle, which under-pinned the final decision, was not to encumber the successful contractors with large numbers of KPI's against any one of which they could fail and therefore not achieve their gainshare. As a result the aim was to focus on the two or three critical measures that truly indicated that the assets were performing. These measures are as follows:

| | |
|---|---|
| M&E Contractors | Number of pumping station failures<br>Number of pump failures |

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| | |
|---|---|
| SOC's | Number of internal property flooding incidents<br>Number of serious external property flooding incidents<br>Watercourse pollution incidents |
| NDC's | Turn round time for simple enquiries<br>Turn round time for complex enquiries<br>Income collection as a percentage of target cost |

The measures established for the SOC's are directly linked to the regulatory targets for sewerage with Welsh Water. In this way the operating contractors take responsibility for achieving Welsh Water's OFWAT targets.

It was also recognised that in a day-to-day business, the SOC's and the M&E Contractors had to work extremely closely together. If they looked after their respective areas without consultation between each other then issues such as pumping stations being turned off without notification leading to flooding incidents in the sewer network and also the SOC's flushing blockages down a sewer to the pumping stations would mean that the relationship would not work effectively. To facilitate close working arrangements linkage was obtained within the contractual gainshare mechanism. Provided the KPI's for the SOC's and the relevant associated M&E Contractor were achieved on both sides then gainshare could be awarded in full. Any Sewer Operating Contractor or M&E Contractor who achieves his KPI's in any one year and delivers a saving against target cost will share 80% of that saving with the client. The remaining 20% is held back and only awarded if the appropriate partnering contractor also achieves his target.

Should the contractor overspend against target cost then the share of that overspend is limited to twice his declared profit. Should the overspend actually move beyond this position then it triggers a contract review process whereby either the target cost is re-examined or if the contractor is failing to achieve his contractual commitments may well lead to dismissal from the contract. Many contracts of this nature tend to transfer all the financial responsibility to the contractor when the overspend is above a set level. This can be counter productive as the contractor's focus will move from achieving KPI's to saving money, and hence is detrimental to the client.

**SELECTION PROCESSES THAT BRING BEST VALUE TECHNICALLY, MANAGERIALLY AND COMMERCIALLY**

Determining the appropriate selection processes to ensure that the client gets the right organisations working for him at the end of the day is a notoriously difficult process. Some utilities have used exhaustive mechanisms over periods of many months even running into years to determine who their long term partners should be. This can work against the client in the long term, as those unsuccessful organisations who have spent considerable time and money on the client's selection process, with no guarantee of success, may well be required for their expertise in the future. The client risks losing them as a potential supplier in the long term.

The approach to selection processes that MCL Consultancy used was first of all to determine whether the bidding organisations were technically and managerially capable of delivering the work. There is little point in examining the commercial aspects of proposals if the contractor cannot actually do the job. The second key element to examine before looking at the commercial aspects of submissions is whether the organisations bidding will work in the best interests of the client. Again there is little point in setting on an organisation whose sole interest is in pursuing their own agenda and needs when operating such a sensitive facility as a sewerage network or

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pumping station, which can lead to regulatory and environmental organisations taking action against the client.

For all three areas of activity the bidders technical and managerial proposals were scrutinised and each bidder was interviewed. The bidders proposals were discussed in the interviews, together with how they intended to approach the contract, particularly in terms of their relationship with the client, other contractors and key stakeholders. On completion of interview each bidder was scored for technical and managerial competency, and their ability to work with others. From this basis a shortlist of organisations capable of working together and an understanding of their preferred geographical areas for the contract was pieced together. Different satisfactory final scenarios were prepared and prioritised before the commercials were addressed to ensure that all those options were commercially competitive. Follow-up interviews took place to confirm any outstanding questions whether technical, managerial, partnering or of a commercial nature with the potential candidates before a final decision was recommended to Welsh Water's Board.

Following approval by the Board contracts were awarded to three M&E contractors, four SOC's and two NDC's as shown in Appendix 2.

**THE ESTABLISHMENT PERIOD, TUPE AND HANDOVER ISSUES, AND THE PROCESSES FOR DETERMINING TARGET COST**

The establishment period for the M&E Contractors was 12 months and the SOC's and NDC's was 6 months. This may at first sight seem an extended period, but if new organisations are brought in to what has been an old established arrangement for a significant period time, then there will be a lot of unknown issues that need bringing out and resolving, and time needs to be given for that to take place.

The approach to TUPE by many organisations continues to cause great concern. There seems in some organisations a macho approach to outsourcing activities and particularly to the impact it has on the individuals who are affected. On many occasions, organisations claim that from making a decision on outsourcing to actually handing over the personnel can be as little as 6 weeks. Who do they really think benefits from this sort of thinking? The client, in reality, will live with the consequences of such short and fast decision making for a long time to come. The contracted companies have to deal with an unhappy transferred workforce, who are resentful towards their original employers.

For this reason the long establishment periods were planned for the M&E Contractors, SOC's and NDC's. The aim in the first half of this establishment period is for the incumbent personnel to see the new organisation that potentially they may transfer to and for them to organise and get themselves in a position where they can make a valued decision about their future and what they would wish to do, before discussing this with their current employer. The formal elements of TUPE negotiation can take place in the last three months before transfer. In this situation, the receiving companies should then be taking on people who have made their decisions and made up their minds and are happy to go ahead and move across. The benefits to the client are substantial in that the contractors start the incentivised four years of the new contractual arrangements with employees who are motivated and willing to perform and deliver the needs of the contract.

The process of setting target costs can also be fraught and contentious. If the agreed target cost is established through negotiation and concession, then neither party will feel satisfied with the outcome, leading to difficulties and problems further down the line, some of which may prove insurmountable, and the working relationship could well collapse. Target cost setting and

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understanding how this could come about should be done jointly and not negotiated. There are instances where negotiated target costs have ended in tears for one side or the other (usually both), and subsequent recriminations.

Each of the relevant organisations in these contracts will go through a dummy cost setting process to enable them to look at the different ways of approaching this and find the most satisfactory solution for all those involved.

Throughout the establishment period there are workshops for getting the appropriate organisational groups together as M&E Contractors, SOC's and NDC's, so that they can determine how to share technical knowledge between themselves as well as more focussed area based workshops covering North Wales, South East Wales and South West Wales, where the day to day operational arrangements can be established.

**CONTRACT PERFORMANCE 2001/02**

The first full year of operation of the contracts resulted in most of the contractors achieving very close to their target costs for the year. One organisation overspent by 0.6% and the biggest gainshare to be achieved was of the order of 3.9%. The financial benefit delivered compared to the previous arrangements showed a 10% saving in this first full year of operation realising almost £1m.

The final actual cost included compensation events which accounted for 10% of the overall cost and in this financial year (2002/03) the level of compensation events has dropped significantly as the contractors now have effective planned maintenance routines in place to minimise the unpredictable failures. It is anticipated that a further significant benefit will be realised with this level of compensation event reduction.

KPI's for the SOC's and M&E contractors were successfully met and, significantly, moved DCWW up the OPA league table of water companies from eighth to third in the privatised water industry as a result of particularly significant improvement in DG5 measures. Although strategic capital investment had a part to play in the improved performance in regulatory measures, the overall step change was achieved through improved operation and maintenance of the assets.

There were some minor changes to KPI's with the measurement of pollution incidents being removed from the SOC KPI's as it was felt it was not a true reflection of the SOC's performance. For the M&E contractors an additional KPI identifying flooding due to pumping station failure has been identified and is currently undergoing evaluation.

With confidence having been built in the gainshare mechanism the objective in 2002/03 is to set tougher targets but aim to introduce a sliding scale of benefit in order to maximise the contractors focus even further on asset performance.

**LESSONS LEARNED AND SUMMARY**

When approaching a major change programme of this kind, involving a large number of organisations, then allowing plenty of time for the right ideas to be developed will lead to a successful outcome. It is always worth remembering that: -

- The way forward should be based on the needs of the assets, NOT on whether outsourcing or insourcing is the right solution.

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- Any future proposal should be challengeable, particularly by those currently executing the work.

- New arrangements should be piloted to ensure that they work in practice.

- Management contracts require a culture change, particularly with contracting organisations. They are not used to taking on the client's risk.

- Don't assume that external organisations will solve all your problems for you – they won't.

- If you want successful contractual arrangements then look after the people who are affected. TUPE is a difficult process, and needs sensitive handling.

- Selection processes for management contracts are about capability to deliver, not just bottom line cost.

- The selection process must:
    - set out what you are looking for, listing all aspects
    - have a scoring systems weighted to provide focus and emphasis on the key aspects of the new arrangements
    - be objective in analysing the results

- Budgets are set by the client, target costs are driven by the supplier.

- Look after your suppliers, address their needs and they'll look after you.

DCWW's Sewerage Manager, Dave Bayliss, recently offered the following observations since successful establishment and running of the new contractual arrangements:

"DCWW's performance on its sewerage assets has resulted in us being ranked third in the OPA measures, up from eighth, and I believe a lot of this is due to the DG5 performance improvements. While there will always be some ups and downs, I feel this is where we are benefiting from focussed contractors. Interestingly I do not feel that the gainshare is the major motivator but the desire to succeed and be recognised as successful is more important. This is, of course, helped by the comfort that there will be no loss and should be a profit, as well as providing other marketing opportunities for the contractors."

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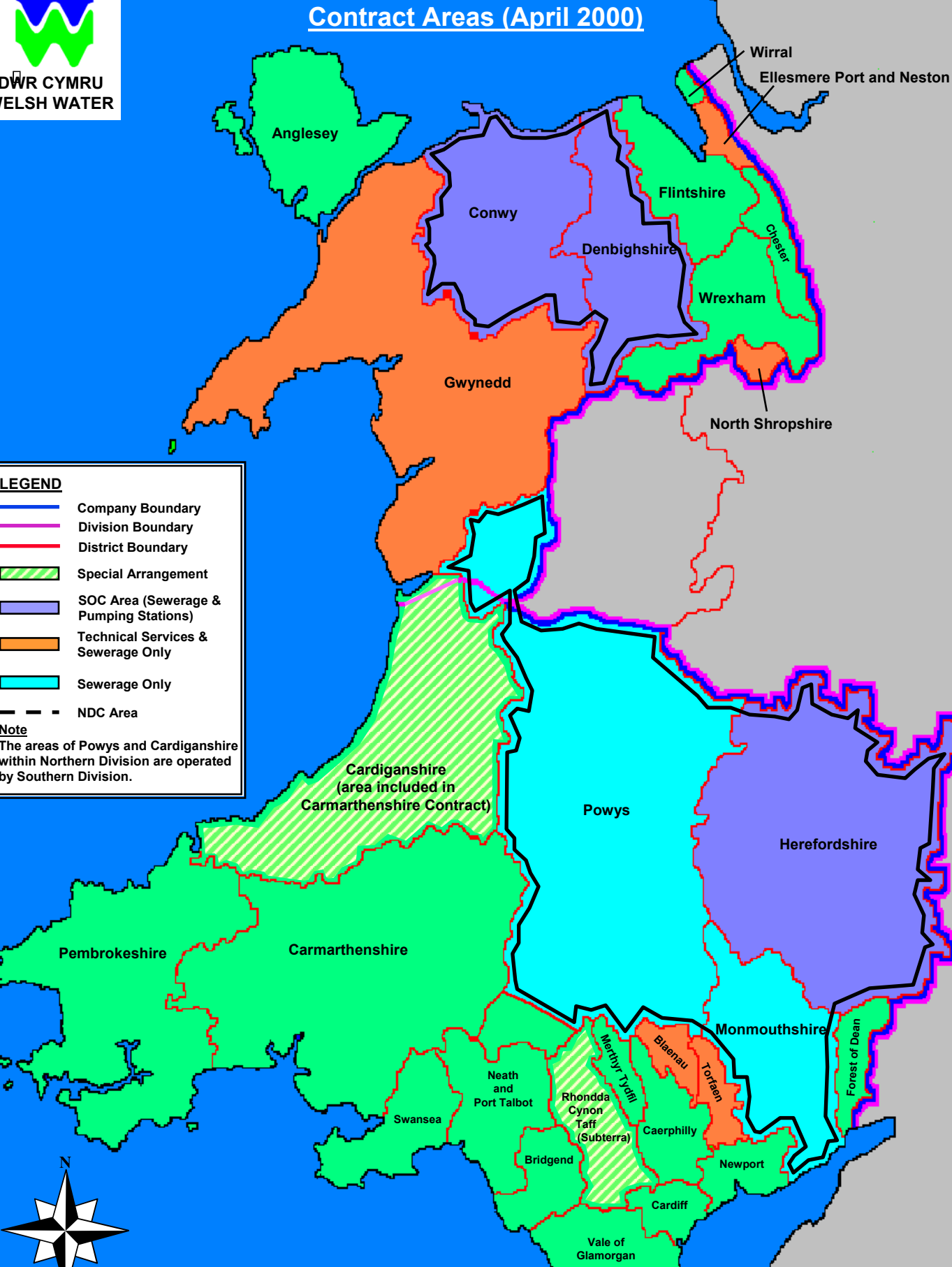
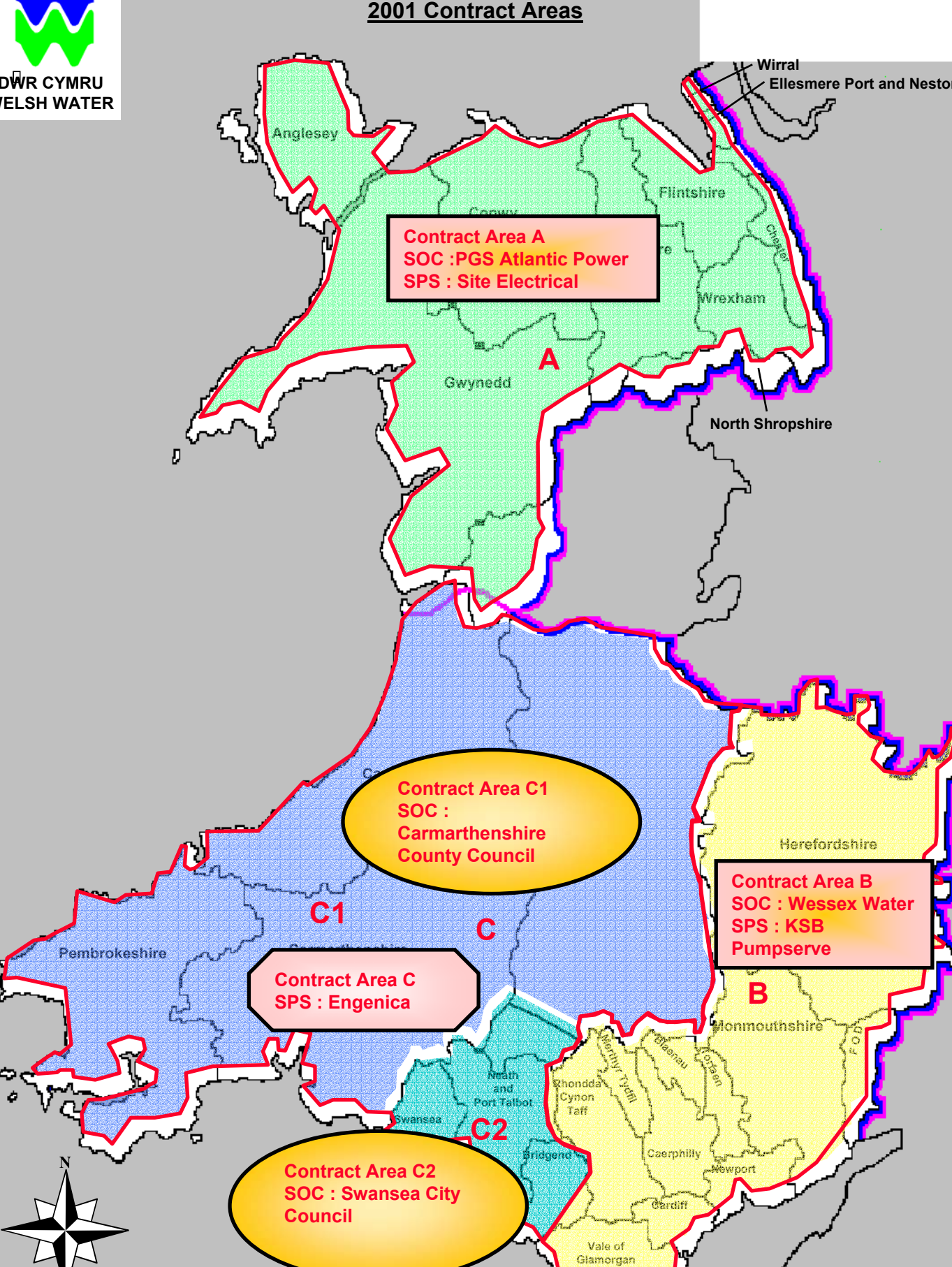
# Contract Areas (April 2000)



# 2001 Contract Areas