

Routine Maintenance Work of Drainage Assets

Statement of services available

The Water Management Alliance administers Drainage Boards with the need for safe, resilient and reliable infrastructure and assets. As such we have extensive experience and knowledge in the maintenance of drainage channels, watercourses and pump infrastructure.

Our Engineers undertake work in areas where drainage is managed by pumps and by gravity and we appreciate the subtle difference in maintenance techniques required in both systems to give the most efficient and sustainable results.



The Broads National Park: As part of the Broads Internal Drainage Board we maintain over 340Km of watercourse and 37 pumps in this internationally protected environment, as well as many other items of infrastructure, which are critical to the function and sustainability of the area.

Concept to Completion

The Drainage Boards we administer all have assets which operate through areas of environmental designation, agricultural importance and urban centres. As a result we are experienced in selecting and implementing maintenance for the most effective and suitable outcome.

Our technical engineering and environmental staff are highly skilled, experienced, versatile and adaptable. We also have an in-house resource of specialist machines and attachments to deliver efficient and safe clearance works, as well as hand work operatives and chainsaw crews.

Our Mechanical and Electrical Engineers are able to undertake routine servicing and maintenance on pumps, weed-screens, flap-doors and electrical panels, to ensure reliable and efficient operation at all times.

We are also able to offer an incident response service for blockage removal or breakdowns.

Being a public body we are able to utilise the Public Sector Cooperation Agreement with other public sector bodies, enabling highly cost effective delivery of work.



Scope of Services Available

- Design and delivery of routine watercourse weed cutting, flailing and silt removal
- Pioneer clearance works
- Tree work by chainsaw gang or machine mounted tree shears
- Design of 'Slow The Flow' civil engineering solutions, river restoration and silt management systems
- Advice, surveying and design of maintenance schedules and asset management plans
- Option assessment, preliminary design development and full project management
- Assessment of existing asset condition and function
- Environmental impact appraisal, statutory approvals and Water Framework Directive Assessments
- Flap Door and Flap Valve installation and replacement
- Pump engineering services across Norfolk and Suffolk
- Temporary pumping facilities
- Out of hours services for breakdowns and incident response

Project Examples

Norfolk Rivers IDB Annual Channel Maintenance:

Areas within the Norfolk Rivers IDB are drained by gravity, through watercourses which require a variety of management techniques.

Annually we clear over 400Km of watercourse, which encompasses de-silting, weedcutting, bank flailing and tree clearance, as well as high pressure jetting of culverts and maintenance of numerous water control structures.

A detailed, risk-based, 5 year rolling programme of works is managed and implemented by our in-house engineers, ecologists and operatives.

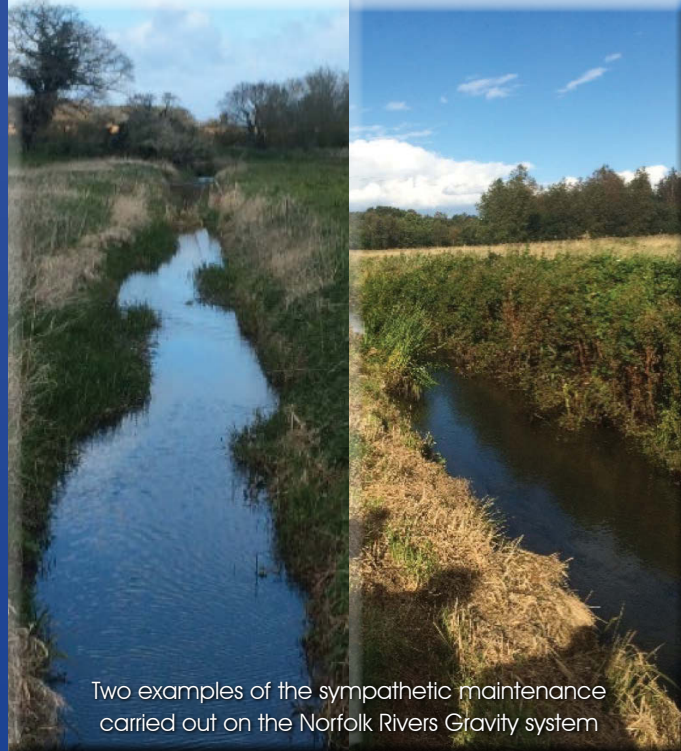
Kirkley Stream Pioneer Clearance:

We were recently engaged under Public Sector Co-operation Agreement to undertake pioneer clearance work to an ordinary watercourse in Suffolk, on behalf of Suffolk County Council to alleviate recent flooding to homes.

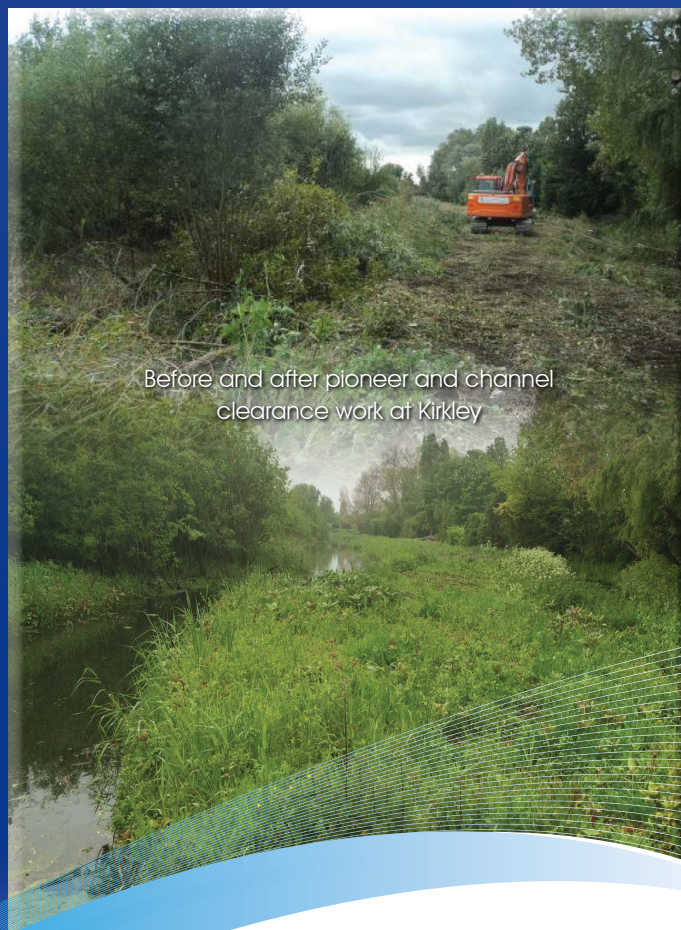
Detailed topographic & baseline environmental surveys were undertaken to identify the high risk mitigation and delivery priority areas optimising multiple outcomes with the limited funds available.

The work was completed under budget and included a new safe access for future maintenance. The improved design has enhanced the water quality, environmental potential for protected species whilst reducing flood risk, restoring channel capacity for optimum conveyance.

These examples represent some of the many services we can offer our clients.



Two examples of the sympathetic maintenance carried out on the Norfolk Rivers Gravity system



Before and after pioneer and channel clearance work at Kirkley



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For more information on our services or to discuss specific project requirements, please contact:

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Mechanical & Electrical Pump Engineering Services

Statement of services available

The Water Management Alliance (WMA) administers Drainage Boards with the need for safe, resilient and reliable infrastructure and assets. As such we have invested strongly in our Mechanical and Electrical Engineering teams to develop a skill set that is knowledgeable, versatile and adaptable.

Our Engineers undertake a variety of mechanical and electrical engineering work on many different drainage infrastructure assets and can be called on to solve problems and fix assets or to support our client organisations' workforces.

All our engineers are experienced in incident response and we also have a fully equipped workshop facility, which allows work to be undertaken safely and securely by our qualified staff.

***The Broads National Park:** As part of the Broads Internal Drainage Board we maintain over 35 pumps in this internationally protected environment, as well as many other items of infrastructure, which are critical to the function and sustainability of the area.*

Concept to Completion

Pump Engineering is an essential part of many infrastructure systems, whether for land drainage, flood defence or temporary situations.

A thorough understanding of the relative merits and suitability of different options, together with an appreciable knowledge of particular design requirements, has been developed through the WMA's wide-ranging experience.

The WMA also has extensive site supervision experience and can offer essential advice and involvement during the construction stage of a project.

Our engineers are at the forefront of pump technology and innovation and routinely work with many public and private sector organisations.

Being a public body we are able to utilise the Public Sector Cooperation Agreement with other public sector bodies, enabling a highly cost effective means of work delivery.

Scope of Services Available

- Pump Engineering services across Norfolk and Suffolk
- Pump refurbishment, replacement, upgrades and routine maintenance
- Weed-screen cleaner design, manufacture, installation and maintenance
- Electrical Engineering
- Panel installations, upgrades, refurbishments and variable speed drives
- Advice and guidance on infrastructure requirements and asset management plans
- Flap Door and Flap Valve installation and replacement
- Siphon Valve works
- Fish and Eel pass design and installation
- Temporary pumping facilities
- Out of hours services for breakdowns and incident response
- Option assessment, preliminary design development and project management
- Assessment of existing asset condition and function
- Environmental impact appraisal
- Construction advice, guidance and site supervision

Project Examples

Variable Speed Drives:

At Somerton (within the Broads Internal Drainage Board) we were one of the first Boards to install a variable speed drive on our pump in direct response to the challenging environmental conditions within the flood cell.

These related to Ocre and Salinity issues, as well as well as providing safe zones for fish in distress as a result of toxic prymnesium algal bloom outbreaks.

Horsey Emergency Works:

In January 2016 the failure of a box culvert led to flooding in the Horsey area of the Broads IDB. This emergency situation meant changes to our pumping requirements were urgently required.

In incident response mode and using our in-house skill set, we upgraded pumps and moved other pump assets across the district within 48 hours to enable the drainage of our systems and protect the nationally important site.

This quick action minimised damage to the environment and protected assets which were operating outside their capacity, with obvious benefits to our Board and the wider area.

Seven Mile House Pump improvements:

At our Seven Mile House pump we recently modified our pump outfall arrangements to reduce maintenance and improve safety of inspections on the asset.

We designed and installed the work in-house, whilst maintaining pumped levels at all times.

The work has delivered a greatly improved asset for the client.

These examples represent some of the many services we can offer our clients.



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Civil Engineering & Asset Management Services

Statement of services available

The Water Management Alliance (WMA) administers Drainage Boards with the need for safe, robust and reliable infrastructure and assets. As such we have Civil Engineering teams at the core of our business.

Our Engineers are responsible for a variety of engineering assets and actively programme their maintenance, monitor their performance and design solutions when required.



River Mermaid Restoration Works: Designed and constructed in-house, the project will optimise flow conditions, reducing the need for maintenance and improving the ecology of the watercourse.

Concept to Completion

With our work ranging from asset refurbishment and maintenance, to wholesale asset replacement, our engineers have a versatile civil engineering skill set and are used to dealing with complex challenges and delivering safe, cost effective solutions.

A thorough understanding of the relative merits and suitability of different options, together with an appreciable knowledge of particular design requirements, codes and standards has been developed through the WMA's wide-ranging experience.

Our Engineering teams are fully conversant with the CDM Regs. and have experience in all roles, including principal designer. All our engineers are also SMSTS trained for site supervision, frequently fulfilling the Principal Contractor role.

We have GPS surveying equipment for undertaking detailed topographic surveys, as well as AutoCAD and GIS capabilities.

Being a public body we are able to utilise the Public Sector Cooperation Agreement with other public sector bodies, enabling a highly cost effective means of work delivery.



Scope of Services Available

- Civil Engineering Design and Project Management
- Programme Development and Management
- Topographic Surveys
- AutoCAD and GIS Services
- Option assessment and preliminary design development
- Assessment of existing asset condition and function
- Environmental impact appraisal and Environmental Clerk of Works services
- Public Safety Inspection and remedial works
- Construction advice, guidance and site supervision
- Design and Construction management, including appointment and management of specialist sub-contractors
- Flood Emergency response – Mechanical failure, temporary pumping and demountable defence deployment

Project Examples

River Bank Stabilisation:

Under Public Sector Cooperation agreement we designed and installed a system of bank protection and stabilisation following a bank failure. This modest and simple design was completed quickly and effectively for our client meeting visual as well as operational requirements.

Salle 'Slow the Flow' Project:

In order to reduce sediment reaching the River Wensum, in Norfolk, we undertook detailed design and construction supervision of four large silt traps in Salle, Norfolk.

Using run-off data provided by the Broads Authority we calculated optimum pond sizes and worked with landowners and partner organisations to design effective silt traps which would ensure safe and easy maintenance in the future.

This sustainable project was highly effective in improving the environment and meeting Water Framework Directive targets.

Asset Management:

We actively manage the assets of 5 Drainage Boards, with a net value in excess of £100m. This management encompasses civil engineering as well as mechanical engineering assets and covers routine maintenance and major replacement.

These examples represent some of the many services we can offer our clients.



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Bespoke Coastal Civils Team

Statement of services available

Through the East Suffolk Water Management Board, the WMA have a bespoke coastal maintenance team, consisting of team members with specific skills in repair, maintenance and minor coastal civils works.

***Coastal Erosion Stabilisation:** WMA Engineers worked with a private landowner to address the severe risk of cliff top failure and property loss. We developed an emergency stabilisation scheme with East Suffolk Council to mitigate immediate damage.*

Day to Day Repair & Maintenance:

- Works to repair and maintain concrete, timber, rock and geotextile structures.
- Public safety warning, control and exclusion works.
- Local redistribution of beach material.
- The replacement, repair and recoating of Navigational Aids.
- The repair and replacement of public access and amenity structures.
- Short notice response to asset damage and / or storm and flood tide warnings.
- Demolition, making safe and removal of structures.
- Out of hours Emergency Response services.

Find out more in our [Coastal Civils brochure](#)



Repair Projects

- Works to concrete, timber and rock structures
- Promenade resurfacing
- Slope stabilisation
- Structure scour protection
- Public access (ramps, steps, footpaths, etc) and amenity structures

