



**Water Environment (Controlled Activities) (Scotland) Regulations
2011**

LICENCE APPLICANT GUIDANCE

**FORM E – BUILDING AND ENGINEERING
WORKS WITHIN, OR WITHIN THE VICINITY OF,
INLAND WATERS**

Engineering Application Form E Guidance

SECTION 1: ASSOCIATED OR DEPENDENT ENGINEERING ACTIVITIES

This table should be completed for all engineering activities being applied for as part of one authorisation. Please refer to the CAR Practical Guide available from SEPA's website at www.sepa.org.uk/water/water_regulation/car_application_forms.aspx for guidance on the appropriate level of authorisation. A greyed out box indicates that level of authorisation is not available for the listed activity.

Enter the number of each activity at each level of authorisation. Associated activities applied for under a single authorisation will be subject to reduced charges. Activities upon which another controlled activity depends (e.g. bed reinforcement associated with a bridge) are classed as dependent engineering activities and will not be subject to charges. All dependent and associated activities should be included in the table.

Registration activities which are associated with the licence activities should be included in the table. There is a separate form for these activities which can be accessed at www.sepa.org.uk/water/water_regulation/car_application_forms.aspx

Where the registration level activity is associated with a licensable controlled activity, the registration application form should be appended to this licence application. This allows associated activities to be grouped into one authorisation document.

The following table provides further guidance on the definition of each activity type within the table.

Activity Category	Activity Type	Definition
RIVER and LOCH CROSSINGS	Bridges	Includes span bridges and bridges with piers (in stream supports).
	Bridging culverts	Pipe, box or arch culverts for river crossings only, not for land gain.
	Causeways	Raised transport route constructed across Lochs.
	Fords	River or Loch crossing but is not raised, is at bed level. May be natural substrate or reinforced with artificial material. Consider under 'Bed Reinforcement' category of CAR practical guide.
	Pipeline/cable crossings	Pipeline or cable laid below the bed, submerged, or spanned across a river above the water surface.
	Removal of crossings	Removal of any of the crossing structures listed above.
IN-STREAM or LOCH STRUCTURES	Jetties, platforms, marinas	This includes jetties (piers), fishing platforms and marinas, can include solid and stilted structures. Considered either under 'Loch structures' or 'Other river structures' categories in CAR practical guide.
	Boat slips	Reinforced structure impacting the bank/shore and sometimes the bed of rivers and lochs. Considered either under 'Loch structures' or 'Other river structures' categories in CAR practical guide.
	Boulder placements	Boulders placed in-river usually for fisheries enhancement, can be used in restoration. Manipulates river flow.

Activity Category	Activity Type	Definition
	Croys, groynes, flow deflectors	Structures placed in-river or in-loch. Usually for fisheries enhancement or bank/shore protection. Manipulates flow and sediment movement. Considered either under 'Loch structures' or 'Other river structures' categories in CAR practical guide.
	Bed reinforcement	Reinforcement of bed only using either artificial (i.e. gabions, concrete) or natural (i.e. rock) materials.
	Removal of structures	Removal of any of the in-stream or loch structures listed above.
CHANNEL MODIFICATIONS	Straightening and/or re-sectioning	Any alteration to a river channel which reduces its naturalness, i.e. takes it to a less natural state. Re-sectioning is where the channel width and/or depth is increased.
	Realignment	Where channel is modified or moved but the natural state is maintained or improved. For example, restoration of a modified river to more natural channel pattern by re meandering. Can also include diverting a channel while maintaining its naturalness.
	Culverting for land gain	Permanent under-grounding of watercourses for land gain. Excludes culverts for river crossings. This category does not include the construction of open culverts (i.e. channels with artificial bed and banks).
	Removal of land gain culvert	Removal of culvert previously used for land gain, excludes culverts for river crossings.
	Flood by-pass channel	Additional flow route, normally associated with flood management schemes.
SEDIMENT MANAGEMENT	Sediment removal (<50% channel width affected)	Removal of substrate from rivers or lochs. Does not extend greater than 50% of the channel/loch width. If removing from >50% of channel or loch width then record as dredging. Considered under 'Sediment Management' category in CAR practical guide.
	Dredging (>50% channel width affected)	Removal of river or loch substrate from more than 50% of the surface water width. Considered under 'Sediment Management' category in CAR practical guide.
	Sediment introduction	Sediment imported from external source or re-introduced from other part of surface water after a period of storage. May be carried out as part of restoration activities. Considered under 'Sediment Management' category in CAR practical guide.
	Sediment manipulation	Movement of sediment within a surface water. For example, for maintenance of fishing pools, where sediment is not removed but displaced in channel. Considered under 'Sediment Management' category in CAR practical guide.
BANK MODIFICATIONS	Green bank protection (soft)	This includes the use of materials such as rip-rap restricted to the bank toe, biodegradable geotextiles and untreated log revetments restricted to the bank toe.
	Grey bank protection (hard)	This includes the use of materials such as rip-rap over the full height of the bank, gabion baskets, concrete, grouted stone, brick or block stonework, sheet piling, wood piling and non-biodegradable geotextiles.
	Bank re-profiling	Changing the slope of a bank/shore. Does not include heightening of bank or shore.

Activity Category	Activity Type	Definition
	Set-back reinforcement	Reinforcement placed back from river bank or loch shore, allows some lateral movement of surface water before reinforcement is exposed. Use the 'Green bank reinforcement' category to determine appropriate level of authorisation in CAR practical guide.
	Embankments	Construction of a embankment within one channel width of bank top to protect adjacent areas from flooding. Includes land raising.
	Set-back embankments	Construction of embankments set back from the bank top a distance greater than one channel width. Includes land raising. Use the 'embankments' category to determine appropriate level of authorisation in CAR practical guide.
	Floodwalls	Walls constructed for the purpose of flood management. Not erosion control.
	Removal of bank modifications	Removal of any of the bank modifications listed above.
OTHER ENGINEERING ACTIVITIES		Please enter any other engineering activities which are not defined elsewhere in this table. SEPA would normally only require an application for activities not defined elsewhere in this table if a significant adverse impact was likely. Please check with your local SEPA office before submitting an application for an activity in this category.

SECTION 2: ENGINEERING ACTIVITIES - DETAILS

This section of the application form is comprised of two parts.

The first part (Section 2.1) relates to best management practice. It allows SEPA to assess if principles of best practice are being followed for each activity. Where the information in this part varies between activities listed in Section 1, Section 2.1 should be completed separately for each activity. Further guidance is provided below.

The second part (Section 2.2) asks for details of each activity listed in Section 1 of the form. A sheet is provided for each activity category defined in Section 1 (Sheets E1 to E6). Please complete a separate sheet for each activity listed in Section 1. Further guidance is provided below.

Section 2.1: Best Management Practice

Under CAR, SEPA has a duty to ensure efficient and sustainable use of the water environment. Everybody undertaking a controlled activity has a duty to take all reasonable steps to secure efficient and sustainable use of the water environment. SEPA is responsible for enforcing the Regulations and therefore needs to ensure that the activities being applied for are consistent with principles of best practice.

To achieve this, SEPA has defined a series of questions to assess best practice. Please complete each question as fully as possible. If required, you can attach a separate sheet or reference a supporting document which should be attached to your application.

Best practice guidance is available from SEPA for a range of activities. Before completing this section of the application, please contact your local SEPA office, or visit our website to obtain a copy of relevant best practice material.

Where SEPA is not satisfied that best practice is being followed, more detailed information on impacts and mitigation measures may be requested. This may in turn result in a delay in processing your application. Therefore, please discuss with your local SEPA office, the principles of best practice before completing this section of the application.

Section 2.1.1: Justification for Activity

Please indicate the reason the proposed activity is being undertaken. For example, if bank reinforcement is being carried out to protect property or infrastructure from erosion, please state this as the reason and give details of the property or infrastructure at risk. If sediment is being removed from a surface water, please give an indication why this is being done. Is it for use as aggregate, for flood prevention (if so, what is being protected) or for maintenance of fisheries?

Also indicate where relevant, the underlying nature or cause of the problem being addressed. For example, if a bank erosion problem is being treated, please indicate as far as possible, the cause of that erosion and the rates of erosion. Is the erosion resulting from natural river processes, or being caused by an existing in-stream structure? Where available, please provide evidence to support your understanding of underlying cause. This could take the form of photographs, historic maps or survey data. Guidance on underlying cause is available in relevant best practice material available from SEPA.

Section 2.1.2: Alternative Approaches

It is a basic principle of best practice to consider a range of alternatives in addressing an identified problem or need. Without consideration of alternatives, it is not possible to determine if the approach represents the best environmental option.

In Section 2.1.2 please detail all the alternative approaches that have been considered to address the need identified in Section 2.1.1. For example, for a river crossing, you may have considered constructing a clear span bridge, a ford, a bridging culvert, or considered using an existing crossing. As part of the range of alternatives, for particular types of activities (e.g. sediment management, bank protection) you should consider the possibility of taking no action to address the problem identified.

Further guidance on alternative approaches to various engineering activities is available for SEPA. Please contact your local office or visit our website to obtain a copy.

Section 2.1.3: Best Practical Environmental Option

The purpose of SEPA's best practice tests is to ensure that the proposed approach represents the best practical environmental option. This doesn't always mean adopting a soft engineering approach. Best practical environmental option means the approach that is effective at addressing the problem, while minimising environmental impacts as far as practical. It also has to be cost effective (i.e. harm is minimised at a cost which is not disproportionate) and achievable for the applicant.

You should use this section of the form to explain why your selected approach represents the best practical environmental option. You should explain why alternatives outlined in Section 2.1.2 which would have less environmental impact, where not selected. This may be for reasons of cost, effectiveness or feasibility (e.g. the underlying cause of a sediment management problem may lie further upstream in the catchment on somebody else's property, therefore ruling out options of addressing the problem at source).

Where cost is given as a reason for rejecting an option with less environmental impact, please provide details.

Section 2.2: Activity Sheets (Sheets E1 to E6)

A sheet is provided for each category of activity listed in the table in Section 1. Please complete a separate sheet for each activity being applied for.

Activity Sheets E1 to E6 – Part 1: All Activities

The first part of the activity sheets follows a standard format.

Q1 – please tick the appropriate box to indicate the type of activity being applied for. For guidance on activity definitions, please refer to Section 1 guidance above.

Q2 – please indicate the appropriate level of authorisation. This information is also required to complete Section 1 above. For details of levels of authorisation please refer to the CAR practical guide which is available from your local SEPA office or our website.

Q3 & Q4 – please indicate the type and name of surface water affected by the proposed activity. If unsure about a surface water name, please refer to an Ordnance Survey map of the area. If an unnamed water please state “tributary of ‘*named water*’”.

Q5 & Q6 – please also provide details of the planned start and end date of the works. Please note that the determination period for licence applications is 4 months.

Q7 – Part 1 of the activity sheets also requires a 10-character national grid reference for each activity. Guidance on determining national grid references is available in the supporting guidance to Form A. Please provide a grid reference for the centre point of each activity.

Q8 – In order to assess the impacts from a proposal, it is necessary to understand the size of the affected surface water. Please indicate the width of the surface water in metres (m) at the centre point of the proposed activity. In estimating width for rivers and lochs, please include any areas of open water and un-vegetated sediments.

Q9 & Q10 – If the activity requires planning permission please tick the appropriate box. If planning permission has already been applied for, please include the planning reference number.

Q11 – please list all dependent engineering activities associated with this activity. This may include bed reinforcement associated with a bridge, or bank re-profiling associated with a culvert. Dependent activities are defined as those activities upon which another controlled activity relies for its integrity. Dependent activities require authorisation, but do not attract separate charges.

Q12 & Q13 (Sheets E2 to E6) – please indicate if the activity qualifies as an environmental service. Further guidance on environmental service is provided in the water environment charging scheme guidance.

Sheet E1 (River and Loch Crossings) – Part 2: Bridges

Q12 – please indicate the number of in-channel supports associated with the bridge. If the bridge spans the bed of the surface water and therefore requires no in-channel supports, please enter ‘none’.

Q13 – please enter the total length of abutments in metres (m) associated with the bridge that affect the bank or shore of the surface water.

Sheet E1 (River and Loch Crossings) – Part 3: Bridging Culverts

Q14 & Q15 – please enter the length and diameter of the culvert in metres (m). For Box and Arch culverts, the diameter should be taken as the maximum width of the culvert.

Q16 – please tick the type of culvert being installed. Box culverts are square or rectangular in section. Pipe culverts are circular. Arch culverts are bottomless structures, which allow a natural bed to form.

Sheet E1 (River and Loch Crossings) – Part 4: Fords and Causeways

Q17 – please enter the length of bed affected in metres (m). This should be measured parallel to the bank/shore. This is not the length of the ford or causeway, which will be taken as the width of the surface water entered under Q8 above.

Q18 – please provide details of the predominant material(s) used in the construction of the ford or causeway.

Sheet E1 (River and Loch Crossings) – Part 5: Pipeline/Cable Crossings

Q19 – please indicate the diameter in metres (m) of the pipeline or cable. Where a single crossing is being used to support multiple pipelines or cables, please provide a total diameter (e.g. if a crossing supports two 0.5m pipelines, enter 1.0m).

Q20 – please indicate the number of in-channel supports associated with the pipeline/cable crossing. If the crossing is below the bed, submerged, or spans the bed of the surface water and therefore requires no in-channel supports, please enter 'none' or '0'.

Q21 – please indicate the position of the pipeline/cable relative to the channel bed. Below bed indicates the pipeline/cable is buried below the surface water. Submerged indicates the pipeline/cable is on or above the bed, but would normally be below the water surface. Above channel means a pipeline or cable which is located above the water surface.

Sheet E2 (In-Stream or Loch Structures) – Part 2: Jetties, Platforms, Marinas and Boat Slips

Q14 & Q15 – please enter the total length in metres (m) of bank or shore affected by the structure and the length the structure extends into the surface water. This length should be measured perpendicular to the banks/shore.

Q16 – for lochs and wetlands, please indicate the total area in square metres (m²) of the surface water affected by the structure (i.e. the structure's 'footprint'). Where the structures form an enclosure (for example in the case of a marina), the area enclosed should be entered.

Q17 – for jetties, platforms and marinas, please indicate if the structure is predominately solid (i.e. allows no movement of water through the structure) or constructed on stilts.

Sheet E2 (In-Stream or Loch Structures) – Part 3: Boulder Placements

Q18 & Q19 – please indicate the total length in metres (m) of reach affected by boulder placements. This should be the distance measured along the river centreline between the first and last boulders. Please also indicate the total number of boulders placed into the channel within this reach.

Sheet E2 (In-Stream or Loch Structures) – Part 4: Croys, Groynes and Flow Deflectors

Q20 & Q21 – please indicate the total length in metres (m) of bank/shore affected by the structure, and the distance in metres (measured perpendicular to the bank/shore) that the structure extends into the surface water.

Sheet E2 (In-Stream or Loch Structures) – Part 5: Bed Reinforcement

Q22 – please enter the length in metres (m) of bed affected. This should be measured parallel to the bank/shore.

Q23 – please provide details of the predominant material(s) used in the construction of the ford or causeway.

Sheet E3 (Channel Modifications) – Part 2: Straightening, Re-sectioning and Re-alignment

Q14 – please enter the length in metres (m) of channel affected by the works. For straightening and realignment, this should be the length of channel pre-construction.

Q15 – where the length of original channel is altered, i.e. by straightening or realignment, please enter the length in metres (m) of channel post-construction.

Sheet E3 (Channel Modifications) – Part 3: Culverting for Land Gain

Q16 & Q17 – please indicate the length in metres (m) of proposed culvert and type of culvert. Three options are provided; Box culverts which are square or rectangular in section; Pipe culverts which have a circular cross section; and Arch culverts which are bottomless structures, that allow a natural bed to form.

Sheet E3 (Channel Modifications) – Part 4: Flood By-Pass Channels

Q18 & Q19 – please enter the length in metres (m) of by-pass channel to be constructed. Please also enter the length in metres (m) of original channel affected by the by-pass. This should be measured along the channel centreline from the point of off-take to the point of return. Where the by-pass channel does not re-enter the same watercourse further downstream, please enter 'not returned' in response to Q20.

Q20 – please enter the operational return period for the by-pass channel. This should be a frequency of operation expressed in years (e.g. 1 in 2 years) or a percentage of time (e.g. 95%) it is expected to be used.

Q21 & Q22 – where the water is not returned by the by-pass to the original watercourse, please indicate a catchment transfer is involved and provide details in a separate document. This should include a clear plan, national grid references and names of affected surface waters.

Sheet E4 (Sediment Management) – Part 2: Sediment Removal and Dredging

Q14 – for rivers, please provide the length in metres (m) of river affected. For lochs and wetlands, please indicate the area affected in square metres (m²).

Q15, Q16 & Q17 – please provide an estimate of the volume of sediment in cubic metres (m³) to be removed. Also indicate if you are applying to carry this out on an annual basis, as a one-off operation or on another frequency basis. If other, please provide details on a separate sheet or in another document of the times you would require sediment removal or dredging to be undertaken. This can be a programme of dates, or a programme designed to respond to natural events or other triggers.

Sheet E4 (Sediment Management) – Part 3: Sediment Manipulation

Q18 – for rivers, please provide the length of river affected in metres (m). For lochs and wetlands, please indicate the area affected in square metres (m²).

Q19 – please provide an estimate of the volume of sediment in cubic metres (m³) that will be manipulated as part of the application.

Sheet E4 (Sediment Management) – Part 4: Sediment Addition/Re-introduction

Q20 – for rivers, please provide the length of river affected in metres (m). For lochs and wetlands, please indicate the area affected in square metres (m²).

Q21 – please provide an estimate of the volume of sediment in cubic metres (m³) that will be added or re-introduced as part of the application.

Sheet E5 (Bank Modifications) – Part 2: Set-Back Reinforcement

Q14 – please enter the distance in metres (m) that the reinforcement will be set-back from the bank top. Where the distance varies, an average set-back distance should be entered.

Q15 – please enter the length in metres (m) of set-back reinforcement proposed. The length should be measured parallel to the bank/shore.

Q16 – please enter the type of reinforcement proposed, either green (soft) or grey (hard). Green reinforcement includes the use of materials such as rip-rap restricted to the base of the structure, biodegradable geotextiles and untreated log revetments restricted to structure base. Grey reinforcement includes the use of materials such as rip-rap over the full height of the structure, gabion baskets, concrete, grouted stone, brick or block stonework, sheet piling, wood piling and non-biodegradable geotextiles.

Q17 – for rivers, please indicate which bank is affected, right or left. The banks are defined right or left when viewed in a downstream direction.

Sheet E5 (Bank Modifications) – Part 3: Green and Grey Bank Reinforcement

Q18 – please enter the length in metres (m) of reinforcement proposed. The length should be measured parallel to the bank/shore.

Q19 – for rivers, please indicate which bank is affected, right or left. The banks are defined right or left when viewed in a downstream direction.

Sheet E5 (Bank Modifications) – Part 4: Embankments, Set-Back Embankments and Floodwalls

Q20 – please enter the length in metres (m) of the proposed modification. The length should be measured parallel to the bank/shore.

Q21 – for rivers, please indicate which bank is affected, right or left. The banks are defined right or left when viewed in a downstream direction.

Q22 – please enter the distance in metres (m) that the embankment or floodwall will be set-back from the bank top. Where the distance varies, an average set-back distance should be entered. Where the embankment or floodwall forms part of the bank (i.e. is not set-back) please enter '0'.

Q23 – please enter the height in metres (m) over the structure above the natural bank height. Where the height varies, please enter an average.

Sheet E5 (Bank Modifications) – Part 5: Removal of Bank Modifications

Q24 – please enter the length in metres (m) of the proposed bank modification removal. The length should be measured parallel to the bank/shore.

Q25 – for rivers, please indicate which bank is affected, right or left. The banks are defined when viewed in a downstream direction.

SECTION 3: ADDITIONAL INFORMATION

In addition to completing the relevant sections above, additional information is required by SEPA to assess applications for engineering works. This additional information includes details of working methods, drawings of structures and modifications, photographs of the site and details of other engineering works in the vicinity of the application.

Please note, in particular circumstances SEPA may require further information on the justification for your proposals, their environmental impact and necessary mitigation measures. To avoid delays in processing your application, please discuss with your local SEPA office if your activity is likely to require these assessments.

The following sections provide more guidance on these requirements.

Section 3.1: Scale Drawings

Engineering Drawings are required for all structures and proposed channel and bank modifications.

The following information should be shown on drawings submitted in support of the application:

1. Location of the site and the water environment in the vicinity of the proposed works
2. The affected medium (river/loch)
3. Site establishment details (where these will be within 25m of water environment)
4. Materials that will be used in relation to any temporary and permanent structures

In addition to the above, the drawings are required to show the following details in plan (viewed from above), section (side view) and profile (front view):

1. The scope and extent of the engineering proposal (length/width of bed or banks affected)

2. Any proposed temporary works where these will impact on the water environment (include details of any temporary structures which will impact on the water environment)
3. Details of structures which will remain permanently in the water environment
4. Reinstatement details

Drawings should be to scale, clear and any annotation legible. A title box should be included on each submitted drawing clearly referencing the activity and providing details of dates and revision numbers.

Section 3.2: Site Photographs

For the location of all activities, photographs should be provided. For rivers, this should be at least one upstream and one downstream view of the affected reach. For lochs, photographs taken viewed along any affected shore line in both directions should be provided. A plan showing the locations of photographs should be provided, with the photographs clearly referenced. The photographs should be in colour and at least 10cm x 8cm in size when printed.

Section 3.3: Method Statements

A method statement is required for all engineering activities. We recognise this might not be possible for all projects at the time the application form is submitted. Therefore, you are given the option of submitting an outline method statement at the time of application, followed by a detailed method statement before work commences as a condition of any subsequent authorisation.

3.3.1: Outline Method Statement

As a detailed method statement will not always be available at the time of application, you are given the option of submitting an outline method statement to SEPA along with the application for an authorisation for engineering works.

The outline method statement submitted should provide information on the environmental risk from the engineering activities that are being applied for. Particular attention should be paid to any risk of damage to habitats and risk of pollution of the water environment during construction. The outline method statement should also include as much of the information required for a detailed method statement (see below) as possible.

3.3.2: Detailed Method Statement

The detailed method statement should be written or approved by the person or persons responsible for carrying out the work and should involve the collation of information from any design drawings, specifications and environmental risk assessments produced for the work. Where the detailed method statement is not submitted at the time of application, it must be submitted and approved by SEPA prior to work commencing on site. You should allow at least 2 weeks for this. Consultation with SEPA at an early stage prior to the production of the detailed method statement will reduce delays in assessment of an application for an authorisation.

The method statement should provide a clear statement of all working procedures involved, including details on the protection of the water environment whilst work is ongoing and after work has been completed. Substantial variations in the working method which may have an impact on the water environment must result in the submission of a revised method statement to SEPA. The method statement should provide details of any maintenance that may be required after the activity has been completed.

Engineering Activities (Points 1 – 6 normally required for outline method statement)

The method statement must provide the following information on the engineering activity being applied for:

1. Proposed start date of project
2. Brief description of the proposed works
3. The method of working that will be used to carry out the operation. Provide details of activities that will impact on the bed or banks of the watercourse (e.g., vegetation removal or excavation of river bed)
4. The temporary works that will be required (e.g., will over-pumping be required to allow works to be carried out?)
5. A description of how the works will be delivered and to what timescale (e.g., Main Contractor/Sub contractor/individual)
6. Details of site drainage in vicinity of operation
7. Details and emergency contact telephone numbers of all main contractors/subcontractors site personnel/individuals responsible for the operation
8. Details of all construction plant to be used in watercourse including details of maintenance checks carried out (dates)
9. Details of all materials stored or used within the vicinity of the watercourse. (types and quantities)

Water Environment (Points 1- 4 normally required for outline method statement)

The method statement must also provide the following details to show how the impact to the Environment of the Works will be minimised.

1. Identify all parts of the water environment (including drainage ditches) which may be impacted by the proposed operation
2. The pollution prevention measures (mitigation) that will be in place to prevent pollution of the water environment
3. How the free passage of migratory fish will be enabled during the period of the works
4. How existing waterbody habitats and features near to the site will be protected from damage during operations
5. Procedures for dealing with refuse/debris produced at the site of the works
6. Training that site personnel have undertaken with regards to protection of the water environment
7. Company policies that relate to the Environment
8. The measures and equipment available which can be used in the event of pollution of the water environment taking place

Section 3.4: Other Engineering Activities

A map and summary table should be provided detailing the locations of all other engineering activities, structures or modifications within 250m of the proposed works. For rivers, this should include activities within 250m upstream and downstream. For lochs and wetlands, engineering works within a radius of 250m should be recorded. The table in Section of Form E should be used as a basis for the types of activities that should be recorded.

APPENDIX A: SAMPLE METHOD STATEMENT

Example of information requirements for large scale river crossing by 2 no.17" pipelines for water supply purposes.

ENGINEERING ACTIVITY	
Project scope	This project involves the crossing of the Dean Water with 2 x 17" water mains by open cut technique.
Project justification	This project forms part of the water supply scheme for the city of Dundee. The existing supply main is in poor condition and is in danger of failing. These 2 pipes will replace this existing main. Failure to carry out this project could result in parts of the city of Dundee running out of drinking water.
Working Method	Construction of cofferdam by driving piles to half width of river channel. River bed now dry to be excavated to a depth of 1m and pipe placed in trench and then backfilled. Pipe will have stopend welded prior to placement to prevent ingress of silt. Concrete slabs will be placed on top of pipe surround. Backfill with 400mm of excavated river bed material. This operation will then be repeated towards south bank of river.
Temporary works requirement	River banking in field no 46 will be reduced in level by 1 – 2m to gain access for piling plant. Whaling beams will be lifted into position to span across the river to allow access for operatives. Sheet piles will be driven using a variable boom excavator suspended vibrating hammer. Work will commence at bulkhead in middle of river and proceed towards north bank of river. Piles will be lifted into place and then pitched and clamped with hammer jaws and driven to refusal in rock. Cofferdam to be created by area behind piles to be pumped dry to enable work on pipe laying to commence. Pumped water to be settled in grit trap to remove solids then run over grass before being returned to river. This whole operation will then be repeated towards south bank of river. Piles then pulled out once pipe is in place and river bed reinstated.
Reinstatement	Install turfmat along edge of existing river when bank has been reinstated to protect river edge from erosion when pipes have been pulled.
Project Delivery Timescale	Commence 6 th Feb 2006 – complete 20 Feb 2006
Names – Contact telephone no	Mr Contractor – 07732 754210
Plant Details	360 degree tracked excavators 4" water pump temporary pipe liebherr 914 HAB piling machine MS – 6 HFB vibrating hammer 330 amp welding plant oxy propane cutting equipment
Material Details	Fuel for machines

Existing site details	Field drains identified on Drg No xxxxxx. Potential for pumped river water to short circuit to river thus not being given full settlement. River water to be run over area where there are no field drains.
WATER ENVIRONMENT	
Plan provided showing controlled waters (drains/ditches/watercourses in the vicinity of the operation)	<ul style="list-style-type: none"> • Yes/No - Yes If not – why not?
Pollution Prevention Measures	<ul style="list-style-type: none"> • SEPA to be informed prior to commencement • Fuel to be stored 30m from river and refuelling to be carried out 30m from river • Plant to be parked in secure compound overnight • All pumped water to be pumped over grassland area prior to discharge to river
Equipment available in the event of watercourse pollution occurring	<ul style="list-style-type: none"> • Spill kits to be on site at all times • Operatives to be made fully aware of the environmental risks associated with the operation
Fish Passage during operation	<ul style="list-style-type: none"> • Fish can move up or down river as only one half of the river will be worked on at any particular time.
Materials on site	<ul style="list-style-type: none"> • Welding materials • Fuel oil for vehicles and plant
Refuse/debris	<ul style="list-style-type: none"> • All refuse/debris to be returned to secure compound on a daily basis to be removed by suitable certified contractor
Training of operatives in pollution prevention	<ul style="list-style-type: none"> • Toolbox talks held on a regular basis on pollution prevention and environment. Induction course highlights pollution risks associated with operations.
Environmental Policy	<ul style="list-style-type: none"> • The company has an Environmental Policy which has been submitted to SEPA. • ISO accreditation
Proposals for continuous improvement in respect of the water environment	<ul style="list-style-type: none"> • Company are working towards habitat award for the reinstatement work that they intend to carry out on this project