

<p><i>Record of Assessment of Likely Significant Effect on European Sites (Stage 2):</i> Form HR01: Proforma for new applications within Stage 2 criteria.</p>	
<p>Under Regulation 48 (1) of the Habitats Regulations 1994, transposed from the Habitats Directive (92/43/EEC), a Habitat Regulation Assessment (HRA) is required in respect of any plan or project which:</p> <p>a. either alone or in combination with other plans or projects would be likely to have a significant effect on a European Site; and,</p> <p>b. is not directly connected with the management of the site for nature conservation.</p> <p>The effects considered by HRA may be direct or indirect, temporary or permanent, beneficial or harmful to the site, or any combination of these. As such, before any competent authority decides to give any consent, permission or other authorization for this project, the completion of an Appropriate Assessment is required. An Appropriate Assessment is the assessment of the effects of a plan or project on a European site to enable a judgement on whether there is an adverse effect on the site's integrity and any implications in respect of the site's conservation objectives.</p> <p>This HRA screening/scoping exercise has been undertaken to determine if an Appropriate Assessment is required for the proposed Yazor Brook Flood Alleviation Scheme (FAS). The proposed FAS involves the creation of a below-ground channel to link the Yazor Brook at Credenhill with the River Wye, approximately 3 km upstream of Hereford, Herefordshire. Hydraulic modelling shows the proposed FAS to significantly reduce flood risk in Hereford and within smaller communities between Credenhill and Hereford. The modelling also shows the proposed development does not increase flood risk on adjoining land or further downstream of the River Wye. This HRA concludes the proposed development will not result in significant effects on the River Wye Special Area of Conservation (SAC) and thus an Appropriate Assessment is not required.</p>	
PART A	
1. Type of permission/activity:	Proposed Flood Alleviation Scheme – Town and Country Planning Act Application
2. Brief description of proposal:	<p>The Yazor Brook FAS involves the creation of a below-ground culverted channel to link the Yazor Brook with the River Wye approximately 3 km upstream from Hereford. This will result in flows entering the River Wye prior to the existing confluence located at Hereford.</p> <p>The proposed design includes an off-take structure from the Yazor Brook, a flow control flume structure within the Yazor Brook channel, a below-ground culverted channel between the Yazor Brook and the River Wye incorporating a energy dissipation chamber and then outfall into the River Wye floodplain, with scour protection at the point where the flow exits the culvert and inundates the floodplain.</p> <p>It is proposed that during flooding events, flows from the Yazor Brook will enter the off-take structure and culvert, travel through the energy dissipation chamber and then flow onto the floodplain, opening onto an area of rip rap (or similar) scour protection, to flow over ridges and furrows which are to be created on the existing grassland further dissipating flow energy, before they finally enter the River Wye.</p>
3. European site name(s), Status and EU Code:	
River Wye Special Area of Conservation (SAC) - SAC EU code: UK0012642	
4. European site name(s) and general habitats:	<i>Qualifying Features of International Importance and Status</i>
<p>River Wye SAC Total area: 2234.89 ha General habitats:</p> <ul style="list-style-type: none"> • 52.5% inland water bodies; • 12.3% broad-leaved deciduous woodland; • 10.4% improved grassland; • 9.5% tidal rivers / estuaries / mud flats / sand flats / lagoons; • 5.3% dry grassland; • 3.1% bogs / marsh / water fringed vegetation / fens; • 2.4% humid grassland / mesophile grassland; • 1.8% other land; • 1.5% salt marsh / salt pastures / salt steppers; • 1% heath / scrub / maquis and garrigue / phygrana; and • 0.2% inland rocks / screes / sands 	<p>SAC Features:</p> <ul style="list-style-type: none"> • Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation • Transition mires and quaking bogs • Sea lamprey <i>Petromyzon marinus</i> • River lamprey <i>Lampetra fluviatilis</i> • Twaite shad <i>Alosa fallax</i> • Allis shad <i>Alosa alosa</i> • Brook lamprey <i>Lampetra planeri</i> • Atlantic salmon <i>Salmo salar</i> • Bullhead <i>Cottus gobio</i> • White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i> • Otter <i>Lutra lutra</i>
5. Is the proposal directly connected with or necessary to the management of the site for nature conservation?	No

6. What potential hazards are likely to affect the interest features? Are the interest features potentially exposed to the hazard?		
Sensitive Interest Feature:	Potential hazard:	Potential exposure to hazard and mechanism of effect/impact if known:
River Wye SAC		
Rivers (Water courses of plain to montane levels with the <i>Ranuncion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation)	Changes in Flood Inundation / Frequency	<p>The River Wye supports water-crowfoot and water-starwort vegetation (<i>Ranuncion fluitantis</i> and <i>Callitricho-Batrachion</i>). These aquatic plant species act as 'floating mats' on the water's surface. These 'floating mats' may modify water flow; promote fine sediment deposition; and provide shelter and food for fish and invertebrate animals. In the middle reaches of the River Wye the channel is dominated by submerged flowering plants including beds of water crowfoot.</p> <p>Changes in Flood Inundation / Frequency</p> <p>Convergence of the FAS flow with the River Wye has the potential to cause an increase in flow. A hydrological assessment has determined that the increase in flow rates will be equal to 0.8% of the River Wye's peak flow with temporarily slightly deeper water depths (changes in depth is a maximum increase of 0.014 m). However, this is low and results in the scheme being assessed as having a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall during the scheme's operational phase. If these aquatic plant species are present, this may cause some changes to the hydrological and thermal regime of their habitat downstream of the outfall in the River Wye, however these changes are likely to be negligible.</p>
	Community Simplification / Complexity	<p>Community Simplification / Complexity</p> <p>Discharges from the FAS into the River Wye may cause an increase in deposition of sediment. A qualitative appraisal of the sediment deposition associated with the FAS has concluded that sediment quantities transported from the Yazor Brook to the River Wye are likely to be low (maximum load under flood of 100 mg/l) and that any sediment is likely to be deposited over land at the outfall structure rather than into the River Wye. It is therefore considered that sediment deposition is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall once the FAS is operational. Flow rates during times of flooding are unlikely to be increased significantly beyond the peak flow of the River Wye. Overall, there is unlikely to be a significant change in habitat and therefore no significant community change arising from the FAS.</p>
	Disturbance	<p>Disturbance</p> <p>Construction works for the culvert, energy dissipation chamber and outfall structure are to be set back some distance from the bank of the River Wye, with only earthworks being undertaken near the river bank. This negates the need to construct a structure to converge the FAS with the River Wye and minimises the disturbance to the bank, river and associated habitats. There will therefore be some temporary, minor disturbance to the banks of the river relating to this but this disturbance is unlikely to be of significance to these macrophytes.</p>
	Changes in Water Quality	<p>Changes in Water Quality</p> <p>The land use for the area where the outfall will run over the land is currently pastoral with sheep grazing. This is not anticipated to change during the proposed work and compaction of the soil by heavy plant machinery may also create greater surface run-off during the construction phase. High levels of nutrients are associated with this type of land use. Convergence of the FAS flow with the River Wye has the potential to cause an increase in nutrient load.</p> <p>Nutrient loading adds nitrogen, ammonia, phosphorous and other chemicals into the water body and, where nutrient levels are increased, processes such as eutrophication can occur, creating unfavourable water quality conditions for some sensitive species. Associated organic pollution can cause de-oxygenation of the water or cause toxic effects on aquatic animals and plants. Eutrophication can limit species diversity, particularly for invertebrates and macrophytes and potentially reduce the abundance of water-crowfoots and water-starworts in the River Wye. Consideration of potential impacts arising from nutrient load to the River Wye as a result of run-off over the arable land at the outfall has been undertaken. It is considered that excessive run-off from the FAS will only be experienced in a flood event and that, under these conditions, while nutrient load may increase, water volume will correspondingly increase and have a diluting effect. It is therefore considered that, overall, nutrient load is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall during the scheme's operational phase, and therefore no significant effect on the habitat is expected.</p>
	Habitat Loss	<p>Habitat Loss</p> <p>Construction works for the culvert, energy dissipation chamber and outfall structure are to be set back some distance from the bank of the River Wye, with only earthworks being</p>
	Physical Damage	
	Changes in Physical Regime	
	Land Use Change	
	Changes to Groundwater Levels	
	Siltation	
Turbidity		

		<p>undertaken near the river bank. This negates the need to construct a structure to converge the FAS with the River Wye and minimises the disturbance to the bank, river and associated habitats. There will therefore be some temporary, minor disturbance to the banks of the river relating to this but this will not result in habitat loss for these aquatic plants.</p> <p>Physical Damage</p> <p>There is a possibility that soft engineering may be used along the bank of the River Wye, such as planting willows along the River Wye for structural enhancement, but only if this is required to support the river bank and prevent scour. This is unlikely but may potentially cause temporary physical damage to the River Wye during the construction phase. Such works are unlikely to impact significantly on qualifying aquatic plant species.</p> <p>Changes to the Physical Regime</p> <p>The changes described above and assessed are not considered to impact on the physical regime of the riverbanks to an extent that will significantly effect these qualifying aquatic plant species.</p> <p>Land Use Change</p> <p>The land use for the area where the outfall will run over the land and into the River Wye is currently pastoral with sheep grazing. This is not anticipated to change during the proposed works or operational phase of the FAS, and so will not impact on these qualifying aquatic plant species.</p> <p>Changes to Groundwater Levels</p> <p>Groundwater levels in the area of the proposed FAS are considered to rise and fall so slowly that they do not respond quickly to wet weather. Negligible changes in groundwater conditions are therefore anticipated as a consequence of the FAS and so this factor is unlikely to impact upon these qualifying aquatic plants.</p> <p>Siltation</p> <p>The proposed scheme will redirect additional flood flows from Yazor Brook onto an area of pasture prior to entering the River Wye. Increases in siltation, if excessive, may have a negative impact on these qualifying aquatic plants. Siltation of the river bed can smother and infill coarse gravels, adversely affecting the establishment of submerged plants, including water-crowfoot. A qualitative appraisal of the sediment deposition associated with the FAS has concluded that sediment quantities transported from the Yazor Brook to the River Wye are likely to be low and that any sediment is likely to be deposited over land at the outfall structure rather than into the River Wye. It is therefore considered that sediment deposition is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are anticipated downstream of the outfall once the FAS is operational and therefore it is unlikely that there will be an adverse impact on these species.</p> <p>Turbidity</p> <p>The speed of the water flow through the River Wye is predicted to increase during the operation of the FAS (increase in peak flow predicted to be approximately 6.5m³/s) which may temporarily affect turbidity in the river during these periods. Ranunculus species require turbulent conditions so this will not negatively impact the condition of these species in the River Wye and may have a positive impact upon the autecology of these species, albeit very minor.</p> <p>Conclusion - No significant effect.</p>
<p>Bogs and wet habitats (Transition mires and quaking bogs)</p>	<p>Changes in Flood Inundation / Frequency</p> <p>Community Simplification / Complexity</p> <p>Disturbance</p> <p>Changes in Water Quality</p> <p>Habitat Loss</p> <p>Physical Damage</p> <p>Changes in Physical Regime</p>	<p>'Transition mires' are a habitat in the transition between acid bog and alkaline fens. Quaking bogs are wetlands that have formed across the surface of shallow ponds. The roots and horizontal stems of invading wetland plants form floating mats across the pond, which creates an unstable, "quaking" surface. These habitats are often dominated by water-crowfoot. These mires and bogs are not in the immediate vicinity of where the new channel will be diverted to the River Wye. However, mires and bogs slightly downstream of these works may be impacted.</p> <p>Changes in Flood Inundation / Frequency</p> <p>Convergence of the FAS flow with the River Wye has the potential to cause an increase in flow. A hydrological assessment has determined that the increase in flow rates will be equal to 0.8% of the River Wye's peak flow with temporarily slightly increased water depths (changes in depth is a maximum increase of 0.014 m). However, this is low and results in the scheme being assessed as having a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall during the scheme's operational phase. These habitats, which are sensitive to changes in water level, are not present in the immediate vicinity of the works and so are unlikely to be effected by these negligible impacts. In addition, it is anticipated that the changes are so slight as to have a negligible effect, if any, on the mires and bogs downstream.</p>

	<p>Land Use Change</p> <p>Changes to Groundwater Levels</p> <p>Siltation</p> <p>Turbidity</p>	<p>Habitat / Community Simplification / Complexity</p> <p>The hydrological assessment and sediment deposition appraisal consider that increases in flow and sedimentation will be negligible in the River Wye downstream of the FAS. These factors are therefore unlikely to result in a significant change in existing conditions downstream. As such, it is considered that there will be no significant community change arising from the FAS.</p> <p>Disturbance</p> <p>Construction works are to be set back some distance from the bank of the River Wye, with only earthworks being undertaken near the river bank, minimising the disturbance to the bank, river and associated habitats. There will therefore be some temporary, minor disturbance to the banks of the river relating to this but this disturbance is unlikely to be of significance to these habitats, which are not present at the outfall location.</p> <p>Changes in Water Quality</p> <p>Transition mires and quaking bogs are sensitive to changes in water quality as it could potentially alter the pH balance of these habitats. Enrichment or eutrophication can result in substantial adverse changes to key plant communities. Consideration of potential impacts arising from nutrient load to the bogs and wet habitats as a result of run-off over the arable land at the outfall has been undertaken. It is considered, however, that excessive run-off from the FAS will only be experienced in a flood event and that, under these conditions, while nutrient load may increase, water volume will correspondingly increase and have a diluting effect. It is therefore considered that, overall, nutrient load is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall during the scheme's operational phase.</p> <p>Habitat Loss</p> <p>Since there is no bog and wet habitat present at the site of the FAS no habitat loss will occur as a result of the construction.</p> <p>Physical Damage</p> <p>As above, any soft engineering that may be required in order to support the banks and / or prevent scour, is not anticipated to impact on these habitats, as these habitats are not present in the vicinity of the works.</p> <p>Changes in Physical Regime</p> <p>As above, as these habitats are not present in the vicinity of the FAS no changes to the physical regime in terms of the transitional habitat are expected.</p> <p>Land Use Change</p> <p>As above, the continuation of sheep grazing around the FAS is not expected to effect this transition habitat as it is not present in this area.</p> <p>Changes to Groundwater Levels</p> <p>Groundwater conditions are fundamental for bog formation, therefore changes to groundwater conditions could impact on these habitats. Negligible changes in groundwater conditions are anticipated as a consequence of the FAS and so no significant effects are expected on these habitats.</p> <p>Siltation</p> <p>A qualitative appraisal of the sediment deposition associated with the FAS has concluded that sediment quantities transported from the Yazor Brook to the River Wye are likely to be low and that any sediment is likely to be deposited over land at the outfall structure rather than into the River Wye. It is therefore considered that sediment deposition is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are not expected to have a significant effect on this transitional habitat since they are not located in the vicinity of the works. Furthermore, no significant effects is anticipated on these habitats located downstream.</p> <p>Turbidity</p> <p>Turbidity may temporarily increase during flood events when peak flow increases. This is not anticipated to impact on these habitats as they are not within the vicinity of the works. In addition, it is anticipated that the changes are so slight as to have a negligible effect, if any, on the mires and bogs downstream.</p> <p>Conclusion - No significant effect.</p>
<p>Migratory and non-migratory fish (Sea lamprey; River lamprey; Twaite shad; Allis</p>	<p>Changes in Flood Inundation / Frequency</p> <p>Community</p>	<p>The Sea lamprey is reasonably widespread in UK rivers. In some places it is still common, but it has declined in parts of its range and has become extinct in a number of rivers. The River lamprey is widespread in the UK, occurring in many rivers and populations are strong. Spawning stocks of Twaite shad are known to occur in only a few rivers in Wales and on the England / Wales border. The Allis shad is rare in the UK. The Atlantic salmon is widespread</p>

<p>shad; Atlantic salmon; Brook lamprey; Bullhead)</p>	<p>Simplification / Complexity</p> <p>Disturbance</p> <p>Changes in Water Quality</p> <p>Habitat Loss</p> <p>Physical Damage</p> <p>Changes in Physical Regime</p> <p>Land Use Change</p> <p>Changes to Groundwater Levels</p> <p>Siltation</p> <p>Turbidity</p>	<p>in the UK and is found in several hundred rivers, many of which have adult runs in excess of 1000. The Brook lamprey has declined in parts of the UK, although it is still widespread. This species is the most abundant and widespread of the UK lampreys. Bullhead is found in good populations in freshwaters widely across almost the whole England and much of Wales.</p> <p>Changes in Flood Inundation / Frequency</p> <p>It is likely that under heavy spate conditions the floodplain of the River Wye will retain temporarily increased depths (a maximum increase of 0.014 m) of water. This is a negligible and temporary increase and is therefore unlikely to have any impact upon fish species.</p> <p>Community Simplification / Complexity</p> <p>The proposed scheme has the potential to increase habitat diversity through recommended enhancement (i.e. the fish refuge habitat which is to be created north of the Yazor Brook as part of the FAS proposals) which has the potential to be of value to fish. The fish community may experience minor beneficial effects of those enhancements. Fish are unlikely to be effected by other aspects of the proposals, which are considered likely to cause negligible changes in environmental conditions.</p> <p>Disturbance</p> <p>Fish will not be disturbed by the proposed works.</p> <p>Changes in Water Quality</p> <p>Poor water quality can significantly impact migratory fish species such as salmonids and shad. The greatest risk to water quality arising from the scheme are impacts of nutrient load to the River Wye, resulting from run-off over the pastoral land at the outfall. This can cause eutrophication, which limits species diversity. An appraisal of this impact has been undertaken. It is considered that excessive run-off from the FAS will only be experienced in a flood event when water volume will correspondingly increase and have a diluting effect. It is therefore considered that, overall, nutrient load is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall during the scheme's operational phase. No impacts are therefore anticipated on fish species.</p> <p>Habitat Loss</p> <p>The scheme will not constitute a loss in habitat for this species.</p> <p>Physical Damage</p> <p>There is a possibility that soft engineering may be used along the bank of the River Wye, such as planting willows along the River Wye for structural enhancement, but only if this is required to support the bank and prevent scour. This is unlikely but may potentially cause temporary physical damage to the River Wye during the construction phase. Such works are unlikely to impact significantly on fish species.</p> <p>Changes in Physical Regime</p> <p>The changes described above and assessed are considered to have no overall significant impact on fish species although there is potential for some minor beneficial impacts arising from habitat creation.</p> <p>Land Use Change</p> <p>The land use for the area where the outfall will run over the land and into the River Wye is currently pastoral with sheep grazing. This is not anticipated to change during the proposed works or operational phase of the FAS and as such no significant effects on the fish species are anticipated as a result of land use change.</p> <p>Changes to Groundwater Levels</p> <p>Negligible changes in groundwater conditions are therefore anticipated as a consequence of the FAS and so this factor is unlikely to present an impact. Fish will not be impacted by changes to groundwater levels.</p> <p>Siltation</p> <p>An increase in sedimentation, if excessive, may negatively impact fish migration. It may also have a negative impact on potential salmonid spawning habitats within the River Wye. A qualitative appraisal of the sediment deposition associated with the FAS has concluded that sediment quantities transported from the Yazor Brook to the River Wye are likely to be low and that any sediment is likely to be deposited over land at the outfall structure rather than into the River Wye. It is therefore considered that sediment deposition is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are anticipated downstream of the outfall once the FAS is operational and therefore it is unlikely that there will be a significant adverse impact on fish species.</p>
--	--	---

		<p>Turbidity</p> <p>Turbidity may temporarily increase during flooding events when peak flow increases. Changes in flow are assessed as being negligible as a result of the FAS, so turbidity is only anticipated to slightly increase temporarily. There may be some negligible adverse effect encountered by these species arising from increased turbidity, but this is considered unlikely to be significant.</p> <p>Conclusion - No significant effect.</p>
<p>Invertebrates of rivers (White-clawed crayfish)</p>	<p>Changes in Flood Inundation / Frequency</p> <p>Community Simplification / Complexity</p> <p>Disturbance</p> <p>Changes in Water Quality</p> <p>Habitat Loss</p> <p>Physical Damage</p> <p>Changes in Physical Regime</p> <p>Land Use Change</p> <p>Changes to Groundwater Levels</p> <p>Siltation</p> <p>Turbidity</p>	<p>White-clawed crayfish were not found within the catchment of the proposed works during surveys to the Yazor Brook commissioned as part of the ES FAS. Nevertheless, owing to their known presence within the River Wye as a whole, which may include locations downstream of the proposed FAS, potential impacts of the FAS on white-clawed crayfish are therefore considered here.</p> <p>Changes in Flood Inundation / Frequency</p> <p>White-clawed crayfish are typically found in watercourses of 0.75 m to 1.25 m deep, but may be found in very shallow (5 cm) and in deeper, slow-flowing (2.5 m) watercourses. It is likely that under heavy spate conditions the River Wye will retain temporarily greater depths (a maximum increase of 0.014 m). This increase is negligible and is unlikely to have a significant impact upon these species. No white-clawed crayfish were found at the location of the outfall convergence with the River Wye and so no significant effect is anticipated on site or downstream.</p> <p>Habitat / Community Simplification / Complexity</p> <p>No white-clawed crayfish were recorded during the survey carried out at the location of the FAS convergence with the River Rye. Impacts from flow and sedimentation have been assessed as negligible. The white-clawed crayfish community are unlikely to be impacted in this way by the proposals.</p> <p>Disturbance</p> <p>White-clawed crayfish will not be disturbed by the proposed works.</p> <p>Changes in Water Quality</p> <p>Pollution (including pesticides and sewage) is the greatest threat to white-clawed crayfish survival. A potential risk to water quality arising from the FAS is eutrophication through altered nutrient loads. This impact has been given consideration and it is understood that excessive run-off from the FAS will only be experienced during a flood event when water volume will correspondingly increase and have a diluting effect. It is therefore considered that, overall, nutrient load is likely to have a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated downstream of the outfall during the scheme's operational phase. No significant effects are anticipated to the white-clawed crayfish as a result of this negligible potential increase.</p> <p>Habitat Loss</p> <p>The scheme will not constitute a loss in habitat for this species.</p> <p>Physical Damage</p> <p>White-clawed crayfish have not been recorded during surveys of the reach of the River Wye affected by the FAS. Physical damage to their habitat is not anticipated. No significant effects are therefore anticipated on white-clawed crayfish.</p> <p>Changes to the Physical Regime</p> <p>The changes described above and assessed are considered to have no significant effects on these species.</p> <p>Land Use Change</p> <p>The land use for the area where the outfall will run over the land and into the River Wye is currently pastoral with sheep grazing. This is not anticipated to change during the proposed works or operational phase of the FAS.</p> <p>Changes to Groundwater Levels</p> <p>White-clawed crayfish will not be affected by changes to groundwater levels.</p> <p>Siltation</p> <p>White-clawed crayfish were not recorded in the scheme catchment during surveys and so will not be directly impacted by the FAS. Negligible changes in sediment deposition are anticipated downstream of the outfall once the FAS is operational and therefore it is considered that white-clawed crayfish that may be present further downstream are unlikely to be significantly effected by increases in siltation.</p>

		<p>Turbidity</p> <p>White-clawed crayfish were not recorded in the scheme catchment during surveys and so will not be directly impacted by the FAS. White-clawed crayfish that may be present further downstream are unlikely to be significantly impacted by temporary negligible increases to turbidity during infrequent flood events when the FAS is in use.</p> <p>Conclusion - No significant effect.</p>
<p>Mammals of riverine habitats (Otter)</p>	<p>Changes in Flood Inundation / Frequency</p> <p>Community Simplification / Complexity</p> <p>Disturbance</p> <p>Changes in Water Quality</p> <p>Habitat Loss</p> <p>Physical Damage</p> <p>Changes in Physical Regime</p> <p>Land Use Change</p> <p>Changes to Groundwater Levels</p> <p>Siltation</p> <p>Turbidity</p>	<p>Otter signs were found in the River Wye and Yazor Brook during the survey commissioned for the FAS and otter have been recorded using the River Wye in 2003.</p> <p>Changes in Flood Inundation / Frequency</p> <p>Flood water inundation and frequency is likely to increase in the River Wye where the FAS converges with the River Wye. Otters require conditions where there is little risk of flooding to their breeding sites. A hydrological assessment has determined that the increase in flow rates will be equal to 0.8% of the River Wye's peak flow with temporarily slightly increased water depths (a maximum increase of 0.014 m). This is low and results in the scheme being assessed as having a negligible adverse impact on the River Wye. Negligible changes in environmental conditions are therefore anticipated both on site and downstream of the outfall during the scheme's operational phase. Negligible impacts are therefore anticipated on this species.</p> <p>Habitat / Community Simplification / Complexity</p> <p>Changes in flow and sediment deposition as a result of the FAS, and therefore the effects of these factors on the aquatic habitat and species (including the food sources of otters), are considered to be negligible. The construction phase of the FAS will require a licence as the works are likely to present potential impacts to otters. The EIA contains appropriate mitigation measures which are required to be taken with respect to otters and, if these measures, including obtaining a licence to undertake the works, are adhered to, then no resultant significant impact is anticipated. Overall, impacts anticipated upon otters as a result of the FAS are not considered to be significant, assuming the mitigation measures contained within the EIA of the FAS are followed appropriately.</p> <p>It is understood that an otter underpass is to be provided below the A438 in order to reduce otter fatalities. Assuming this is appropriately undertaken, this will present a beneficial impact to otters.</p> <p>Disturbance</p> <p>Construction works for the culvert, energy dissipation chamber and outfall structure are confined to one bank of the River Wye and are to be set back some distance from the bank, with only earthworks being undertaken near the river itself. This minimises the disturbance to the bank, river and associated habitats. There will be some temporary, minor disturbance to the banks of the river in the form of noise, dust, vehicular movement and human presence. Otters are curious and there is potential that otters may investigate the works and therefore appropriate mitigation measures have been set in place through the scheme's EIA to reduce adverse effects that these species may encounter. It is considered that the residual effects of this disturbance are unlikely to be of significance to otters.</p> <p>Changes in Water Quality</p> <p>Deterioration of water quality has the potential to reduce fish populations and therefore indirectly impact otters. However, as described above, negligible changes in water quality are anticipated downstream of the outfall during the scheme's operational phase. No significant effects are anticipated on fish species and, therefore, no significant effects are anticipated to the otter as a result of changes in water quality.</p> <p>Habitat Loss</p> <p>Construction works for the culvert, energy dissipation chamber and outfall structure are to be set back some distance from the bank of the River Wye, with only earthworks being undertaken near the river bank to minimise disturbance to the bank, river and associated habitats. There will therefore be no loss of riparian habitat along the River Wye for this species and thus no significant effects are anticipated to the otter as a result of habitat loss.</p> <p>Physical Damage</p> <p>There is a possibility that soft engineering may be used along the bank of the River Wye, such as planting willows along the River Wye for structural enhancement, but only if this is required to support the bank and prevent scour. This is unlikely but may potentially cause temporary physical damage to the River Wye during the construction phase. If this is necessary, potential impacts upon otters will be appropriately mitigated as outlined in the EIA for the FAS. This temporary impact and its residual effects are considered to not have significant impacts on otters, assuming that the recommended mitigation measures outlined in the EIA for the scheme are followed. These mitigation measures include obtaining a licence to undertake the works.</p>

		<p>Changes to the Physical Regime</p> <p>The changes described above and assessed are considered to have no significant effect on otters.</p> <p>Land Use Change</p> <p>The land use for the area where the outfall will run over the land and into the River Wye is currently pastoral with sheep grazing. This is not anticipated to change during the proposed works or operational phase of the FAS and as such no significant effect on otters are anticipated.</p> <p>Changes to Groundwater Levels</p> <p>Negligible changes in groundwater conditions are anticipated as a consequence of the FAS and so this factor is unlikely to impact upon otters.</p> <p>Siltation</p> <p>Impacts of siltation are unlikely to have a direct impact upon otters but may indirectly impact otters if the fish community is adversely impacted. Negligible changes in sediment deposition are anticipated downstream of the outfall once the FAS is operational. As such, it is therefore it is unlikely that there will be an adverse impact on fish species and, indirectly, otters.</p> <p>Turbidity</p> <p>Turbidity is anticipated to be increased temporarily to a negligible degree. Otters are unlikely to be directly impacted by turbidity changes. Their prey items, however, i.e. fish, could be negatively impacted as it may interfere with their migration and potential salmonid spawning habitats within the River Wye. It is considered that there may be some negligible adverse effect encountered by fish species as a result, but this is unlikely to be significant and as such no significant effect is anticipated for otters as a result of changes in turbidity.</p> <p>Conclusion - No significant effect.</p>
<p>7. <i>Is the potential scale or magnitude of any effect likely to be significant?</i></p>		
<p>a) Alone? (explain conclusion, e.g. in relation to de minimis criteria)</p>	<p>No</p> <p>Consideration has been given to the potential impacts of the proposed FAS on the habitats and species supported by the River Wye. Specific considerations have been given to particular factors: changes in flood inundation / frequency (arising from changes in flow); community simplification / complexity (arising from changes in flow and sediment deposition); disturbance (arising from the works during the construction phase); changes in water quality (arising from increases in nutrient load causing eutrophication); habitat loss (arising from the works during the construction phase); physical damage (arising from the works during the construction phase); changes in the physical regime (arising from all factors); land use change (arising from scheme proposals); changes to groundwater levels (arising from scheme proposals); increased siltation (arising from sediment deposition); increased turbidity (arising from changes in flow and sediment deposition).</p> <p>The hydrological assessment of the FAS determined that the increase in flow rates and water depth as a result of the FAS are low and assessed as having a negligible adverse impact on the River Wye. A qualitative appraisal of the sediment deposition associated with the FAS has concluded that sediment deposition is likely to have a negligible adverse impact on the River Wye. An appraisal of impacts arising from nutrient load (potentially leading to eutrophication and deterioration in water quality) to the River Wye as a result of run-off over the arable land at the outfall, considered that, overall, this is likely to have a negligible adverse impact on the River Wye. Negligible impacts upon species and habitats as a result of changes in flow, sediment deposition and nutrient load are therefore anticipated downstream of the outfall during the scheme's operational phase.</p> <p>Overall, it is considered that the proposed FAS constitutes negligible adverse impacts upon the River Wye and the species and habitats supported with regard to these factors and the proposed construction methods. As such no significant effects on the SAC are anticipated.</p> <p>This HRA is undertaken with awareness of the Environmental Impact Assessment (EIA) prepared in support of the Planning Application for the FAS development (submitted July 2009) and impacts are accordingly considered with the knowledge of the mitigation measures recommended to be taken. Assuming that these measures are fully implemented, it is considered that no significant effects are likely and that no further assessment is required.</p>	

<p>b) In combination with other Herefordshire County Council permissions and/or other plans or projects?</p>	<p>No Consideration has been given to other relevant Herefordshire plans:</p> <ul style="list-style-type: none"> • Herefordshire Unitary Development Plan (UDP) (2007) The Herefordshire UDP sets out the main planning policy framework for Herefordshire, including the ESG scheme of which the FAS development is part. Since the proposed FAS development is in line with this plan and since other elements of the ESG scheme will not be brought forward until the FAS development is complete, in combination significant effects are considered unlikely. • Edgar Street Grid Design Framework Supplementary Planning Document (SPD) (2007) This SPD provides a design framework to guide future developments within the ESG area. The SPD recognizes the flood risk arising in parts of the ESG area such as Merton Meadow and the Police Playing Field. For both of these locations, the SPD identifies the opportunity that exists to alleviate flooding by the implementation of such measures as realignment of the Yazor Brook and other flood mitigation works on land both within and outside the ESG area. Since the proposed FAS development is in line with this plan and since other elements of the ESG scheme will not be brought forward until the FAS development is complete, in combination significant effects are considered unlikely. • Herefordshire Strategic Flood Risk Assessment (SFRA) Herefordshire Council has prepared a Strategic Flood Risk Assessment (SFRA) as part of work on the emerging Local Development Framework. The SFRA supports the ESG proposed approach as it is strategically robust. It concludes that the FAS will bring considerable relief from flooding to those areas of Hereford along the Yazor and Widemarsh Brook corridors, as well as enabling the ESG proposals to go ahead, supported by further on site measures to meet planning requirements. <p>No additional permissions or projects have been identified which could result in an in combination effect on the SAC.</p>
<p>c) In combination with permissions and/or plans/projects of other Competent Authorities?</p>	<p>No Consideration has been given to other relevant Competent Authority plans:</p> <ul style="list-style-type: none"> • West Midlands Regional Spatial Strategy (RSS, (June 2004 revised in January 2008)) This Strategy recognises Hereford as one of five 'sub-regional foci' in the region, designated settlements which are to act as a focus for development outside the main conurbation. The RSS calls for Hereford to act as a focus for new investment in its sub-region, with major retail, leisure and office development directed to the city centre. The Herefordshire UDP is in line with this regional Strategy and as such, as set out above, in combination significant effects are considered unlikely. • Draft Wye and Usk Catchment Flood Management Plan (CFMP) and associated HRA (Environment Agency (2008)). The Environment Agency's draft Wye and Usk Catchment Flood Management Plan (October 2008) provides a framework for the management of flood risk in the catchment and sets both policies and an action plan to achieve the policy goals. The Plan identifies 7 discrete policy areas and assigns a policy approach to each. For the Hereford policy area, the proposed approach is to continue with existing or alternative actions to manage flood risk at the current level. The accompanying HRA concluded that with appropriate mitigation no significant effects were likely as a result of this policy selection. Since this FAS development is in line with the CFMP policy selection and furthermore no significant effects have been identified as likely, in combination significant effects are considered unlikely. • Wye Catchment Abstraction Management Strategy (CAMS) (Environment Agency (2008)). The Wye CAMS covers an area of 4171 km² and encompasses the Rivers Wye, Lugg and their tributaries. The main urban areas within the catchment are Hereford, Monmouth, Leominster, Ross-on-Wye and Hay-on-Wye. The plan sets sustainable management of water resources in the catchment involving water allocation and abstraction licensing. The CAMS identifies that the existing Resource Availability Status as No Water Abstraction. For the River Wye SAC the Wye Habitats Directive Review of Consents process will determine the level of abstraction where "no adverse effect" on the integrity of the SAC can be concluded. The FAS development will not affect the existing or target availability status of the River Wye, and as such no significant in combination effects are anticipated. • River Wye Salmon Action Plan (SAP) (Environment Agency, 2003). The SAP aims to optimise the number of salmon returning to home water fisheries and maintain and improve fitness and diversity of salmon stocks, by ensuring the water resource requirements of salmon are met, improving habitat quality and availability, where necessary and facilitating the access of adult salmon to the spawning grounds, and the access of smolts to the sea. The FAS development will maintain and enhance the River Wye during construction and have negligible impacts during operation. As such a significant adverse in combination effect between these plans and the CFMP is not considered likely. <p>No additional permissions or projects have been identified which could result in an in combination effect on the SAC.</p>

<p>8. Conclusion: Is the proposal likely to have a significant effect 'alone and/or in combination' on a European site?</p>	<p>No</p> <p>It is considered that there will be no significant effect of this proposed development when considered alone.</p> <p>It is considered that there will be no significant effect of this proposed development when considered in combination with other proposed developments.</p>	
<p>9. Outline of Consultation Process:</p>	<p>Consultations have been carried out during the development of the FAS development design and as part of the EIA process in order to assist in the preparation of the final FAS development alignment and mitigation proposals. Those consulted throughout the process of this FAS development included the following:</p> <ul style="list-style-type: none"> • Herefordshire Council (HC); • Environment Agency (EA); • Natural England (NE); • National Trust; • English Heritage; and, • Local landowners. <p>Although this consultation was not been directly on the contents of this HRA, comments on the need for and scope of an HRA were received from some consultees. These are summarised below:</p> <p><i>Herefordshire Council Comments, Russell Pryce</i></p> <ul style="list-style-type: none"> • An HRA under the 1994 Habitats Regs will be required. Suggest scoping be undertaken to assess for a likely significant effect upon the designated features of the River Wye SAC. LPA will require information regarding the presence of any of the species that are the designated features and how a negative impact upon them will be avoided. • Highlights Natural England guidance on HRA: http://www.mceu.gov.uk/MCEU_LOCAL/Ref-Docs/EN-HabsRegs-AA.pdf <p><i>Natural England Comments, Hayley Pankhurst</i></p> <ul style="list-style-type: none"> • As this proposal is not directly connected with the management of the site an HRA will be required. It must be shown that the development is not having a significant adverse effect upon the conservation interests of the River Wye. • Highlights Part I B of ODPM Circular 06/2005 guidance: http://www.communities.gov.uk/documents/planningandbuilding/pdf/147570.pdf <p>In addition to the above comments on the scope of the HRA, comments received from the consultees also resulted in alterations to the FAS development, particularly in terms of the offtake and outfall. These comments helped to shape the final proposed scheme as assessed within this HRA.</p>	
<p>10. Natural England comment on assessment:</p>	<p>Response provided from Natural England via letter dated 9th September 2009 (Reference SO44/WM1491).</p> <p>The following is an extract from the aforementioned letter:</p> <p><i>"Based on the information provided, Natural England has no objection to the proposed development on the grounds of HRA, subject to the proposal being carried out in strict accordance with the details of the application. It is our view that, either alone or in combination with other plans or projects, it would not be likely to have a significant effect on the important interest features of the River Wye Special Area Of Conservation or any of the special scientific interest features of the Site of Special Scientific Interest.</i></p> <p><i>Our reasoning is based on consideration of the outfall design and energy dissipation measures, the views of the Environment Agency and the findings of the HRA Screening Assessment supplied as part of this application."</i></p>	
<p>11. Name of Natural England Officer:</p>	<p>Hayley Pankhurst (Environmental Planner), Natural England</p>	<p>Date: 9th September 2009</p>
<p>12. Other Competent Authority comment on assessment:</p>	<p>N/A</p>	
<p>13. Name of other Competent Authority Officer:</p>	<p>N/A</p>	<p>N/A</p>