



Phase 2 Cottonmill Lane Allotments to Sopwell Mill Open Space

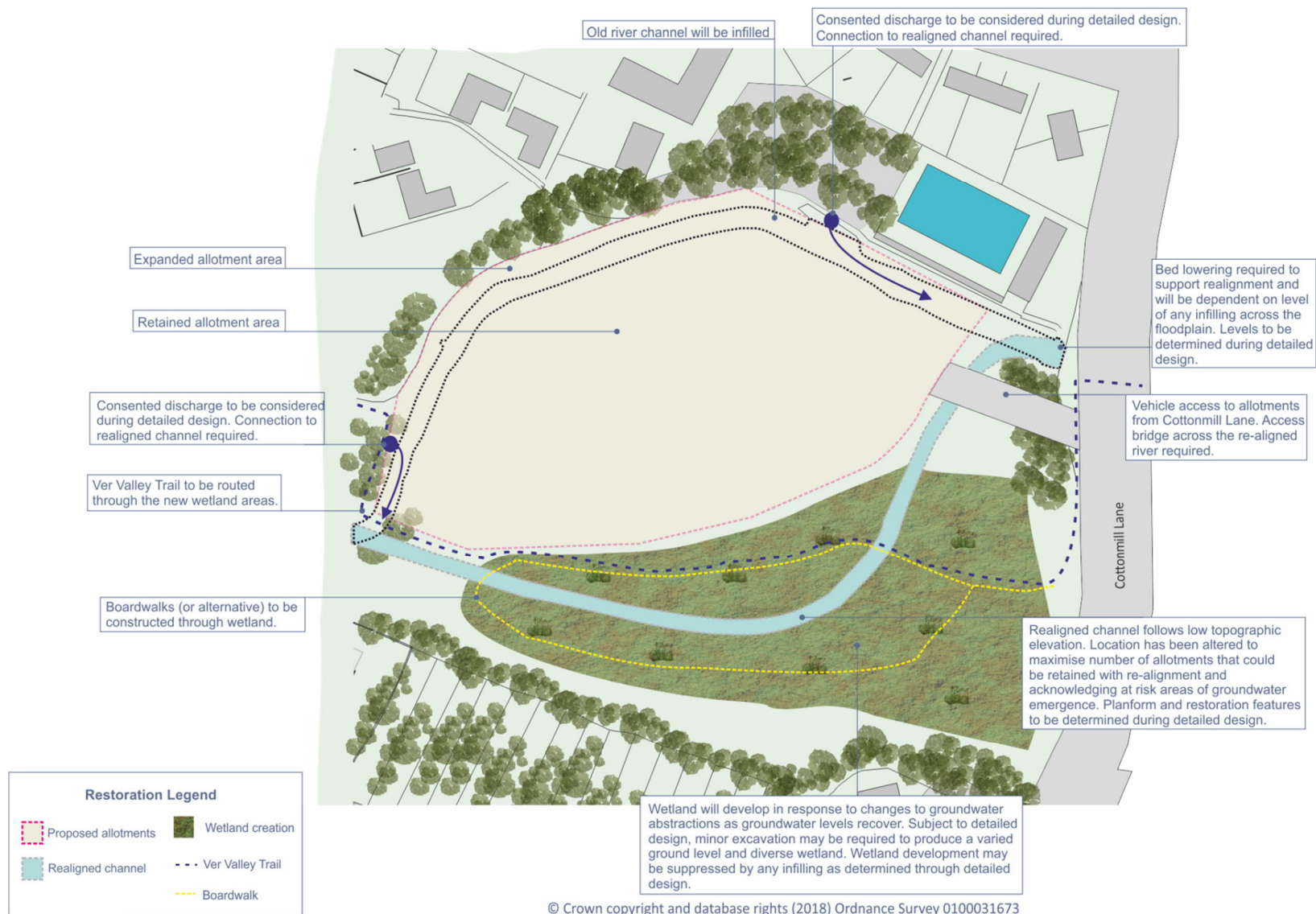


Figure 7.4 Reach 4 Final Outline Proposal Plan (post engagement)

Table 7.3 Outline Environmental Appraisal of the Reach 4 Preferred Option

| Resource/ Feature | Overview | Effect or Potential Effect of Scenario | Potential Mitigation | Likely Significance |
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| Hydrogeology/ Groundwater connectivity | Does the scheme affect connectivity between surface water and groundwater? | <ul style="list-style-type: none"> The river and groundwater would be re-connected by realigning the channel through the natural valley bottom. This would represent a naturalisation of the system and enable natural chalk stream functioning. | <ul style="list-style-type: none"> Groundwater monitoring should be undertaken to improve the hydrogeological understanding and inform the detailed design. | <ul style="list-style-type: none"> Beneficial |
| Geo-environmental | Does the scheme potentially result in a new pathway for contaminants to enter the river? | <ul style="list-style-type: none"> Re-alignment would occur through an area that is presently allotments. This would provide a direct route for contaminants and nutrients to be introduced into the river and would have an impact upon water quality in the river for the short term at least. It is noted that there is currently a pathway for these to enter the river indirectly, via runoff. Our view is that this is a significant constraint although not insurmountable. Further studies and analysis would be needed, such as soil testing through the allotments, to better inform the risk and ultimately the design. Inclusion of wetlands through this reach would help retain some of the pollutants. | <ul style="list-style-type: none"> A soil sampling strategy should be devised and enacted during the detailed design to confirm any risk and what mitigation should be undertaken, if any. | <ul style="list-style-type: none"> With inclusion of suitable mitigation there would be at least a neutral effect that may end up being beneficial. |
| Flood Risk | Does the scheme result in an increase of decrease in flood risk to people and properties? | <ul style="list-style-type: none"> The allotment site is threatened by rising groundwater levels as a result of future sustainability reductions. Our study / appendix C predicts a rise of groundwater levels of more than 1 m in this area and it is expected that the site will flood most years. This option provides an opportunity to address these issues and provide a sustainable solution. The option would reconnect the river to valley bottom and its floodplain. The area around the new channel will flood more often and will not be used for allotments. Our modelling indicated that fluvial flood risk to people and properties is predicted to decrease as a result of the works. | <ul style="list-style-type: none"> As part of detailed design is it likely that the scheme will be refined and iterated. Revised schemes should be hydraulically modelling, and flood risk should be assessed throughout, to ensure that there is no increase in flood risk to people or properties as part of the works. Minor mitigation, should as land raising can be included as part of the scheme to ensure that this occurs. | <ul style="list-style-type: none"> Neutral (potentially beneficial) |
| Other hydrology | Does the scheme result in other changes to the hydrology that could impact upon other water users or receptors? | <ul style="list-style-type: none"> Significant existing channel re-profiling works would be required at the downstream end where the realigned channel reconnects with the main channel as a result of the level discrepancy with the channel in the natural valley bottom reconnecting to the current perched channel. There are no surface water abstractions in or close to this reach and so no effect of the scheme on these (note sustainability reductions influence flow through the reach however). | <ul style="list-style-type: none"> Detailed design modelling should ultimately ensure that a hydrologically functioning river system is created, bearing in mind other aspects (like minimising service crossing). | <ul style="list-style-type: none"> Neutral |
| Hydromorphology | Does the scheme improve the hydromorphological functioning of the reach? | <ul style="list-style-type: none"> The realignment works would locate the channel back in the natural valley bottom and is therefore likely to improve the flow and habitat diversity, particularly with the inclusion of an appropriate morphology as specified. This should increase the hydraulic habitat diversity with a greater frequency of higher energy riffle units. | <ul style="list-style-type: none"> Hydromorphological gains should continue to be sought from the scheme as detailed design progresses. | <ul style="list-style-type: none"> Beneficial |
| Water quality | Does the scheme result in a deterioration or improvement of water quality, for example less flow would result in less dilution of consented discharges? | <ul style="list-style-type: none"> There are two consented discharges at the top of this reach. These belong to Affinity Water and are linked to their groundwater abstractions in St Albans. As such they are likely to be of good water quality (so no impact upon river water quality anticipated as a result of the option due to the hydrological changes) although they would need to be accounted for during the works (i.e. connected to the re-routed river). The quality of the discharges should be tested to confirm this theory. In general, hydromorphological improvements should help improve general water quality through the reach. | <ul style="list-style-type: none"> Detailed design should account for these. Some work may be required to re-connect these to the river before it is re-aligned. | <ul style="list-style-type: none"> Neutral to beneficial if water quality improvements can be made as part of the reconnection (for example by including reeds beds downstream of the outfalls as part of the reconnections). |
| Statutory Sites or Non-Statutory Designated Sites | Does the scheme affect designated and or wildlife sites? | <ul style="list-style-type: none"> There are no designated or Local Wildlife Sites in this reach and so this option would not impact upon them. | <ul style="list-style-type: none"> n/a | <ul style="list-style-type: none"> n/a |
| Other Biodiversity | Wildlife can be impacted during construction while scheme may result in positive, neutral or negative effects to species. | <ul style="list-style-type: none"> The river and groundwater would be re-connected by realigning the channel through the natural valley bottom. This would represent a naturalisation of the system and enable natural chalk stream functioning. Scheme would result in an improvement to the health of the river and provide additional habitats | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Heritage | Does the scheme potentially impact upon Scheduled Monuments or other archaeological features? | <ul style="list-style-type: none"> The option is unlikely to have a significant effect of features of archaeological importance. Two features are located on the northern/ left bank at the downstream end of the reach. They should be accounted for as part of any reconnection works although are not considered to be prohibitive to the option. Costs may be high if remains are found during the works. | <ul style="list-style-type: none"> Detailed design should continue to suitably account for Heritage, for example not result in excessive excavation to areas of archaeological significance. A Heritage officer with a Watching Brief during the works is anticipated. | <ul style="list-style-type: none"> Neutral/ minor adverse |
| Tree Protection Orders (TPO) | Consideration of the effect of Tree Protection Orders on the option | <ul style="list-style-type: none"> There are no TPOs in this reach and so no effect on the scheme. | <ul style="list-style-type: none"> A limited number of trees may need to be removed in order for channel to be re-aligned. These should be considered further during detailed design (regarding ecological effect). Plan for fruit trees in allotment yet to be | <ul style="list-style-type: none"> Neutral regarding TPOs |

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| | | | determined. | |
| Landscape impact | Does the option have a significant visual impact? | <ul style="list-style-type: none"> The option should result in an improved looking and more natural appearing river that is better connected to its flood plain. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Recreation and amenity | Does the option have significant impacts upon recreation and/ or amenity | <ul style="list-style-type: none"> The option includes re-alignment through a popular allotment site with strong community feeling. However, much of the site is threatened by future sustainability reductions irrespective of these proposals. This option offers a much-improved river, with an accessible wetland area that should be appealing for people to visit and is considered to be a sustainable long term option. | <ul style="list-style-type: none"> A detailed plan that can maximise plots that can remain on the site and for re-locating allotment holders should be devised and implemented. Public access needs to be planned thoroughly to allow people to access nature in a way that is sympathetic to wildlife whilst enabling learning and engagement experiences. This may include some access restrictions in sections that contain higher wildlife value. This should be considered through the detailed design. | <ul style="list-style-type: none"> Minor adverse for allotment holders with mitigation/ beneficial for other recreation and amenity |
| Riparian ownership issues | Does the option affect properties? | <ul style="list-style-type: none"> St Albans City and District Council own the land throughout this reach and so no riparian ownership issues are anticipated. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Neutral |
| Construction only | | | | |
| Water Mains and Sewers (foul and surface water) | Consideration of the potential effect of these on buildability of the scheme. | <ul style="list-style-type: none"> There is an Affinity Water distribution main running through the middle of the allotments that is likely to be crossed by the re-aligned channel. This is at a depth of around 1.4m bgl and would need to be accounted for during any works, which would be expensive. There is also a pair of distribution mains under the Cottonmill Lane Bridge that would need to be accounted for if culvert adjustment works are anticipated there. Replacement of a more appropriate service crossing would likely be required as a result of this option due to the necessary re-profiling works to allow this option to function. Similarly, there is a pair of Thames Water surface water sewers running parallel with Cottonmill Lane, ending either side of the actual bridge crossing. The pipeline located on the upstream side of the bridge is approximately 1m bgl. Both would need to be accounted for if culvert adjustment works are anticipated where the re-aligned channel is proposed to re-join the existing channel course. | <ul style="list-style-type: none"> Utilities should be considered through the detailed design and should be suitably accounted for during any construction works. Thames Water may insist on no excavation works with 10m of their sewer .and have indicated that sewer may also be in a slightly different location to what is shown on their mapping. Early consultation with Thames water is recommended. They are also likely to ask for CCTV survey before and after the works to prove that the integrity of the sewer has not been compromised by the works. Further surveys are recommended. | <ul style="list-style-type: none"> Neutral |
| Other Utilities | Consideration of the potential effect of these on buildability of the scheme. | <ul style="list-style-type: none"> A BT Openreach line follows the course of Cottonmill Lane, crossing the bridge at a minimum depth of 0.35m bgl. This would need to be accounted for if culvert adjustment works are anticipated where the re-aligned channel is proposed to re-join the existing channel course. Both high and low voltage UK Power Networks cables follow the course of Cottonmill Lane, with the high voltage line crossing the bridge at a depth of 0.80m bgl. Additional pair of lines following the same course are set at unknown depths; therefore further site investigation would be required to inform line status. A pair of National Grid low pressure gas mains follow the course of Cottonmill Lane, crossing the bridge at an unknown depth. This would need to be further investigated and accounted for if culvert adjustment works are anticipated where the re-aligned channel is proposed to re-join the existing channel course. Replacement of a more appropriate service crossing would likely be required as a result of this option due to the necessary re-profiling works to allow this option to function. | | <ul style="list-style-type: none"> Neutral |
| Pedestrian access | Consideration of the potential need for footpaths to be diverted. For example Public Rights of Way may need to be re-routed if works are planned over their route. | <ul style="list-style-type: none"> No public right of way near the site. Ver Valley Trail follows existing river through this reach. This may need to be diverted during the re-connecting works at the downstream end of the reach. | <ul style="list-style-type: none"> None regarding Public Rights of Way although the Ver Valley Trail, a recreational route, will be affected by the works during construction and should be diverted appropriately. | <ul style="list-style-type: none"> Neutral |
| Access | Consideration of access to the works area. Access may be difficult and even prohibitively expensive under certain circumstances | <ul style="list-style-type: none"> Access for works should be straightforward from Cottonmill Lane. This is a popular allotment site. While disruption to allotments should be minimised H&S considerations mean that parts or all of the site would need to be closed while work takes place. Works should be carried out at the time of the year least disruptive to tenants although it must be acknowledged that high groundwater levels, which can occur in the allotment area, may affect plant operations and works. It is assumed that the allotments would be decommissioned in advance of the works. High groundwater levels, which can occur in the allotment area, would affect plant operations and works should be undertaken at times when these are low. | <ul style="list-style-type: none"> Access should be determined during detailed design and confirmed by the contractor delivering the works. Traffic management order may be required. | <ul style="list-style-type: none"> Neutral |

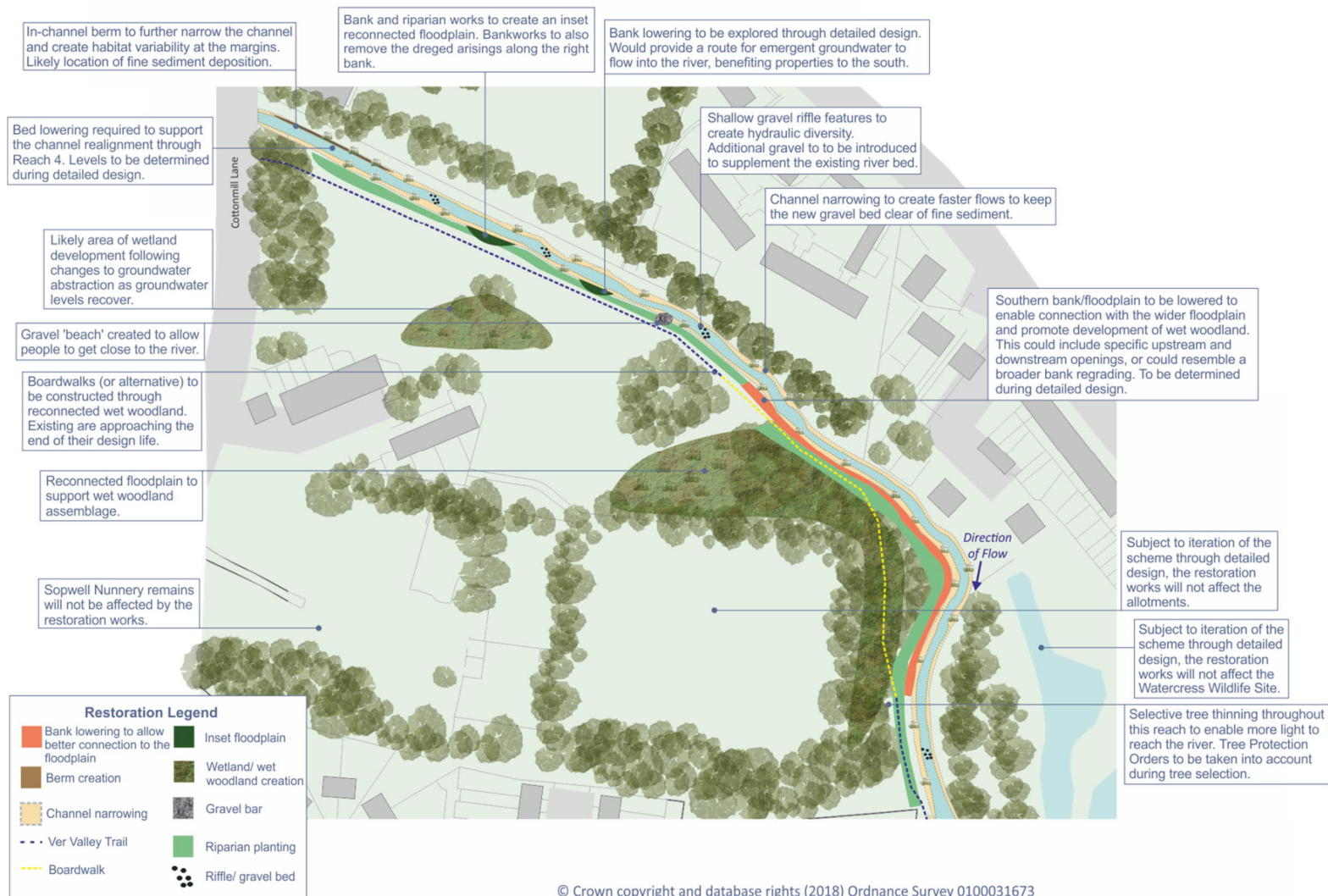


Figure 8.4 Reach 5 Final Outline Proposal Plan (post engagement)

Table 8.3 Outline Environmental Appraisal of the Reach 5 Preferred Option

| Resource/ Feature | Overview | Effect or Potential Effect of Scenario | Potential Mitigation | Likely Significance |
|---|---|--|---|---|
| Hydrogeology/ Groundwater connectivity | Does the scheme affect connectivity between surface water and groundwater? | <ul style="list-style-type: none"> The wet woodland creation within the identified high groundwater level zone would improve the groundwater connectivity to the fluvial system Approximate bed levels would be confirmed following completion of the hydraulic modelling, at which point any improvements in river flow the connectivity with the groundwater table can be discussed further. | <ul style="list-style-type: none"> Groundwater monitoring should be undertaken to improve the hydrogeological understanding and inform the detailed design. | <ul style="list-style-type: none"> Beneficial |
| Geo-environmental | Does the scheme potentially result in a new pathway for contaminants to enter the river? | <ul style="list-style-type: none"> Increased floodplain connection would provide a direct route for contaminants and nutrients to be introduced into the river (if present in the floodplain sediments) and would have an impact upon water quality in the river for the short term at least. It is noted that there is currently a pathway for these to enter the river indirectly, via runoff. | <ul style="list-style-type: none"> A soil sampling strategy should be devised and enacted during the detailed design to confirm any risk and what mitigation should be undertaken, if any. | <ul style="list-style-type: none"> With inclusion of suitable mitigation, if required, there would be a beneficial effect as wetland plants will help filter out any contaminants. |
| Flood Risk | Does the scheme result in an increase of decrease in flood risk to people and properties? | <ul style="list-style-type: none"> The outline design shows limited floodplain connection to right bank/ field adjacent to Old Sopwell Gardens (largely due to bed lowering at the top of the reach to tie in with the Reach 4 restoration). Groundwater emergence is likely to be a more significant issue in this reach and outflow from this area to the river can be included within the detailed design to ultimately reduce the risk of flooding to these properties. Outline scheme would slightly increase flows to Watercress Wildlife Site. This may be acceptable as having met with the operator's additional flow is sought, although detailed design should look into the further in consultation with the operators and the Environment Agency water resources licensing team. | <ul style="list-style-type: none"> As part of detailed design is it likely that the scheme will be refined and iterated. Revised schemes should be hydraulically modelling, and flood risk should be assessed throughout, to ensure that there is no increase in flood risk to people or properties as part of the works. Minor mitigation, should as land raising can be included as part of the scheme to ensure that this occurs. Detailed design and modelling should acknowledge the effect of the sustainability reductions on groundwater levels and river flow. | <ul style="list-style-type: none"> Neutral |
| Other hydrology | Does the scheme result in other changes to the hydrology that could impact upon other water users or receptors? | <ul style="list-style-type: none"> Hydrology through this reach unaffected by the proposed restoration in Reach 5, or upstream. No surface water abstractions in this reach and so no effect of the scheme on these. Effect to Watercress Wildlife Association is discussed above under Flood Risk. | <ul style="list-style-type: none"> Detailed design should continue to look at the hydrology and ensure no detrimental effect to other users. | <ul style="list-style-type: none"> Neutral |
| Hydromorphology | Does the scheme improve the hydromorphological functioning of the reach? | <ul style="list-style-type: none"> The in-channel features, creation of a wet woodland zone and floodplain reconnection works would improve the flow and habitat diversity as well as overall morphological functionality of this reach. This should increase the hydraulic habitat diversity with a greater frequency of higher energy riffle units. The wet woodland zone would extend the existing wet woodland area. | <ul style="list-style-type: none"> Hydromorphological gains should continue to be sought from the scheme as detailed design progresses. | <ul style="list-style-type: none"> Beneficial |
| Water quality | Does the scheme result in a deterioration or improvement of water quality, for example less flow would result in less dilution of consented discharges? | <ul style="list-style-type: none"> Restoration and wetland should help improve water quality through this reach (for example reeds could filter out pollutants). There are no consented discharges in this reach and there would be no changes as a result of this option. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Statutory Sites or Non-Statutory Designated Sites | Does the scheme affect designated and or wildlife sites? | <ul style="list-style-type: none"> Inflows into the Watercress Wildlife Site may increase as a consequence of the design and would be assessed using hydraulic modelling. Such changes may be beneficial though should be considered further. This is discussed under Flood Risk above. | <ul style="list-style-type: none"> As under Flood Risk above. | <ul style="list-style-type: none"> As under Flood Risk above. |
| Other Biodiversity | Wildlife can be impacted during construction while scheme may result in positive, neutral or negative effects to species. | <ul style="list-style-type: none"> Scheme would result in an improvement to the health of the river and provide additional habitats | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Heritage | Does the scheme potentially impact upon Scheduled Monuments or other archaeological features? | <ul style="list-style-type: none"> The option would result in works close to Sopwell Nunnery scheduled monument. The asset is of high heritage value and its surrounding landscape is of importance regarding its designation. No significant impacts on the monument are anticipated as a result of the option, however, though Heritage should continue to be considered throughout the project lifetime. | <ul style="list-style-type: none"> Detailed design should continue to suitably account for Heritage, for example not result in excessive excavation to areas of archaeological significance. A Heritage officer with a Watching Brief during the works is anticipated. | <ul style="list-style-type: none"> Neutral/ minor adverse |
| Tree Protection Orders (TPO) | Consideration of the effect of Tree Protection Orders on the option | <ul style="list-style-type: none"> There are a few TPOs in this reach although north of the river and the scheme can be designed so that these would not be impacted by the option or associated construction activities. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Neutral |
| Landscape impact | Does the option have a significant visual impact? | <ul style="list-style-type: none"> The option should result in an improved looking and more natural appearing river that is better connected to its flood plain. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Recreation and amenity | Does the option have significant impacts upon | <ul style="list-style-type: none"> The scheme should result in accessible wet woodland and more visually | <ul style="list-style-type: none"> Public access needs to be planned thoroughly to allow | <ul style="list-style-type: none"> Beneficial |

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| | recreation and/ or amenity | interesting river that would encourage visitors | people to access nature in a way that is sympathetic to wildlife whilst enabling learning and engagement experiences. This may include some access restrictions in sections that contain higher wildlife value. This should be considered through the detailed design. | |
| Riparian ownership issues | Does the option affect properties? | <ul style="list-style-type: none"> There are a number of owners of the riparian area to the north of the river through this reach. The option would not result in a re-alignment of the river through the north of the river and so no significant or prohibitive impacts are anticipated. Channel works have the potential to affect flooding close to the river. | <ul style="list-style-type: none"> See response regarding flood risk, described above. | <ul style="list-style-type: none"> |
| Construction only | | | | |
| Water Mains and Sewers (foul and surface water) | Consideration of the potential effect of these on buildability of the scheme. | <ul style="list-style-type: none"> Affinity Water mains (depths to be confirmed through trial holes) and Thames Water foul sewers (depths approximately 2.7m bgl) would likely be crossed by plant and should be accounted for. No works are anticipated close to mains or sewers, however. There are 3 surface water sewers in this reach which discharge into the existing channel via the northern/ left bank. The scheme would not result in significant changes to the hydrology through this reach and so no impact upon the rivers ability to dilute these discharges is anticipated. It should be noted that there are assets under Cottonmill Lane that may be impacted, although any effect would likely depend on the Reach 4 option that is progressed with. | <ul style="list-style-type: none"> Utilities should be considered through the detailed design and should be suitably accounted for during any construction works. Further surveys are recommended. | <ul style="list-style-type: none"> Neutral |
| Other Utilities | Consideration of the potential effect of these on buildability of the scheme. | <ul style="list-style-type: none"> There are a number of utilities at the top end of reach, under Cottonmill Lane. These would need to be accounted for if culvert/ structural adjustment works are required. | | <ul style="list-style-type: none"> Neutral |
| Pedestrian access | Consideration of the potential need for footpaths to be diverted, for example Public Rights of Way may need to be diverted if works are would occur over their route | <ul style="list-style-type: none"> A footpath extends throughout the route of the works proposed by this scenario and parts of it may need to be diverted for the duration of the works. The path is also boardwalk for much of the reach and this is apparently near the end of its design life so should be replaced as part of any works. | <ul style="list-style-type: none"> None regarding Public Rights of Way although the Ver Valley Trail, a recreational route, will be affected by the works during construction and should be diverted if possible. This might not be possible through the boardwalk area unless a new path is installed before the old path is removed. | <ul style="list-style-type: none"> Neutral |
| Access | Consideration of access to the works area. Access may be difficult and even prohibitively expensive under certain circumstances | <ul style="list-style-type: none"> Access for works should be relatively straightforward and be from Cottonmill Lane or Old Sopwell Gardens. High groundwater levels, which can occur in the Sopwell Nunnery area, would affect plant operations and works should be undertaken at times when these are low. Works would require that the boardwalks are temporarily removed which would have cost and timing implications. | <ul style="list-style-type: none"> Access should be determined during detailed design and confirmed by the contractor delivering the works. Traffic management order may be required. | <ul style="list-style-type: none"> Neutral |

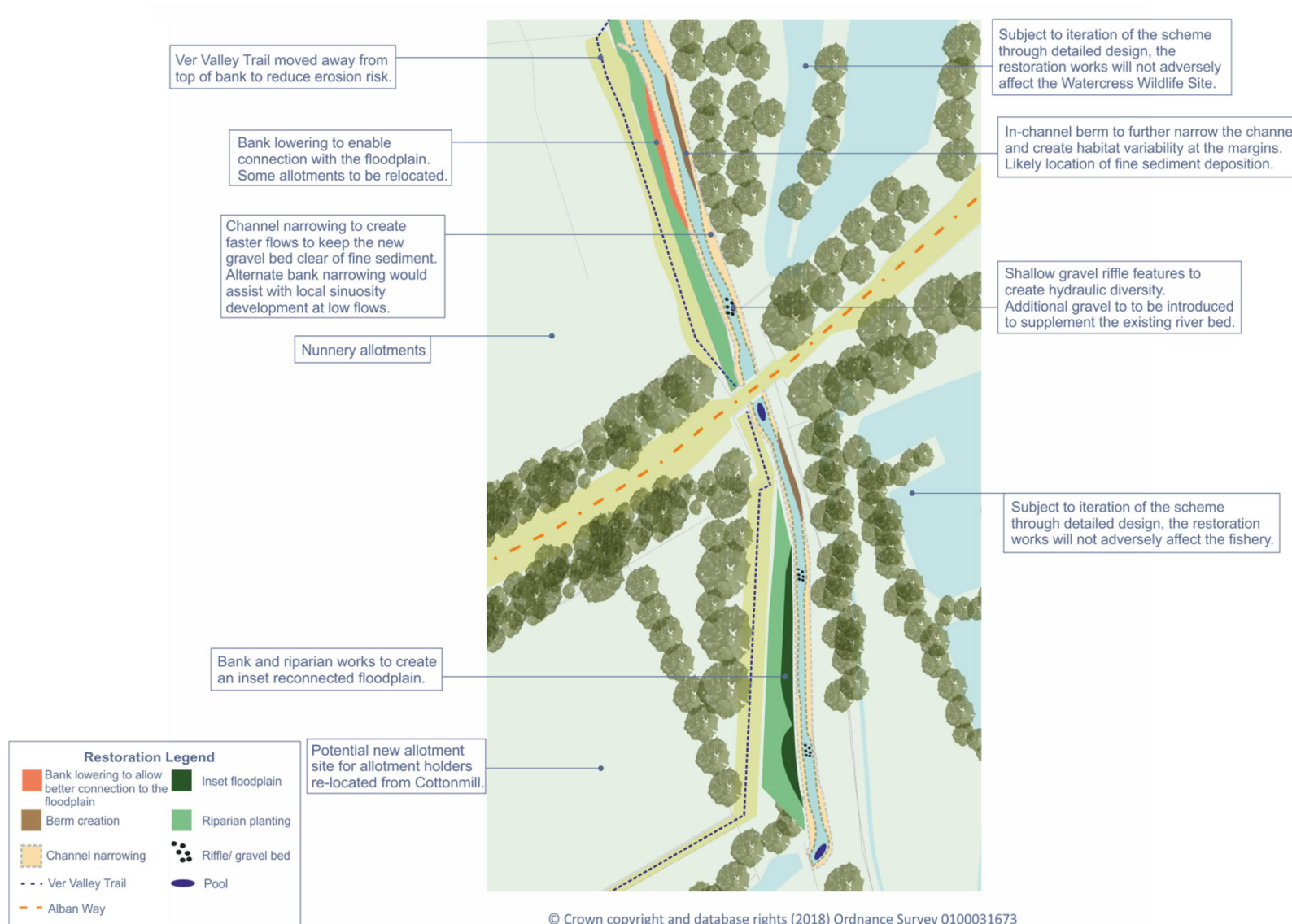


Figure 9.4 Reach 6 Final Outline Proposal Plan (post engagement)

Table 9.2 Outline Environmental Appraisal of the Reach 6 Preferred Option

| Resource/ Feature | Overview | Effect or Potential Effect of Scenario | Potential Mitigation | Likely Significance |
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| Hydrogeology/ Groundwater connectivity | Does the scheme affect connectivity between surface water and groundwater? | <ul style="list-style-type: none"> There are unlikely to be any significant improvements to groundwater connectivity through this reach as the existing channel alignment is being retained. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Neutral |
| Geo-environmental | Does the scheme potentially result in a new pathway for contaminants to enter the river? | <ul style="list-style-type: none"> Increased floodplain connection would provide a direct route for contaminants and nutrients to be introduced into the river (if present in the floodplain sediments) and would have an impact upon water quality in the river for the short term at least. It is noted that there is currently a pathway for these to enter the river indirectly, via runoff. | <ul style="list-style-type: none"> A soil sampling strategy should be devised and enacted during the detailed design to confirm any risk and what mitigation should be undertaken, if any. | <ul style="list-style-type: none"> With inclusion of suitable mitigation there would be a neutral effect. |
| Flood Risk | Does the scheme result in an increase of decrease in flood risk to people and properties? | <ul style="list-style-type: none"> Some changes to Wildlife Watercress Association and downstream fish farm during extreme flood events are associated with the current outline design. There is unlikely to be any other significant flood risk impact associated to the modifications to the existing channel for this option. | <ul style="list-style-type: none"> As part of detailed design is it likely that the scheme will be refined and iterated. Revised schemes should be hydraulically modelling, and flood risk should be assessed throughout, to ensure that there is no increase in flood risk to people or properties as part of the works or detrimental hydrological effects to others. | <ul style="list-style-type: none"> Neutral |
| Other hydrology | Does the scheme result in other changes to the hydrology that could impact upon other water users or receptors? | <ul style="list-style-type: none"> There are no abstractions in this reach or any flow splits so no other hydrological effects are anticipated. Outline scheme would slightly increase flows to Watercress Wildlife Site. This may be acceptable as having met with the operator's additional flow is sought, although detailed design should look into the further in consultation with the operators and the Environment Agency water resources licensing team. | | <ul style="list-style-type: none"> Neutral |
| Hydromorphology | Does the scheme improve the hydromorphological functioning of the reach? | <ul style="list-style-type: none"> The proposed morphological improvements to the existing channel for this option would help to reduce the tendency for fine sediment deposition and create a more diverse hydraulic habitat through the reach. This would include a higher proportion of higher energy riffled units. Local riparian zone improvements would be created as a result of the proposed right bank works. | <ul style="list-style-type: none"> Hydromorphological gains should continue to be sought from the scheme as detailed design progresses. | <ul style="list-style-type: none"> Beneficial |
| Water quality | Does the scheme result in a deterioration or improvement of water quality, for example less flow would result in less dilution of consented discharges? | <ul style="list-style-type: none"> There are no active consented discharges in this reach and there would be no changes as a result of this option. Riparian planting and hydromorphological improvements should help improve general water quality through the reach. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Statutory Sites or Non-Statutory Designated Sites | Does the scheme affect designated and or wildlife sites? | <ul style="list-style-type: none"> Minor changes linked to the hydrology may occur with the outline design. These are described above and may even be beneficial. | <ul style="list-style-type: none"> See response to Flood Risk/ Other hydrology above | <ul style="list-style-type: none"> Neutral |
| Other Biodiversity | Wildlife can be impacted during construction while scheme may result in positive, neutral or negative effects to species. | <ul style="list-style-type: none"> Scheme would result in an improvement to the health of the river and provide additional habitats | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Heritage | Does the scheme potentially impact upon Scheduled Monuments or other archaeological features? | <ul style="list-style-type: none"> The option is unlikely to have a significant effect of features of archaeological importance. | <ul style="list-style-type: none"> Detailed design should continue to suitably account for Heritage, for example not result in excessive excavation to areas of archaeological significance. A Heritage officer with a Watching Brief during the works may be required. | <ul style="list-style-type: none"> Neutral/ minor adverse |
| Tree Protection Orders (TPO) | Consideration of the effect of Tree Protection Orders on the option | <ul style="list-style-type: none"> There are no TPOs in this reach and so no effect on the scheme. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Neutral |
| Landscape impact | Does the option have a significant visual impact? | <ul style="list-style-type: none"> The option should result in a slightly improved looking and more natural appearing river that is better connected to its flood plain. | <ul style="list-style-type: none"> None required | <ul style="list-style-type: none"> Beneficial |
| Recreation and amenity | Does the option have significant impacts upon recreation and/ or amenity | <ul style="list-style-type: none"> The option would result in a more accessible river which should be appealing for people to visit. Works would not extend in the recreational area and so no loss of playing grounds is anticipated (although some of this land may be used for new allotments to replace some of those relocated from Reach 4). | <ul style="list-style-type: none"> Public access needs to be planned thoroughly to allow people to access nature in a way that is sympathetic to wildlife whilst enabling learning and engagement experiences. This may include some access restrictions in sections that contain higher wildlife value. This should be considered through the detailed design. | <ul style="list-style-type: none"> Neutral |
| Riparian ownership issues | Does the option affect properties? | <ul style="list-style-type: none"> See other hydrology regarding Watercress Wildlife Association site. St Albans City and District Council have advised that they own all the area that would be affected by this option and so no other riparian ownership issues are anticipated. | <ul style="list-style-type: none"> See response to Flood Risk/ Other hydrology above | <ul style="list-style-type: none"> Neutral |
| Construction only | | | | |
| Water Mains and Sewers (foul and surface water) | Consideration of the potential effect of these on buildability of the scheme. | <ul style="list-style-type: none"> There is a Thames Water surface water sewer that enters the river towards the top end of Reach 6. This enters at the right bank where works are proposed. The works would | <ul style="list-style-type: none"> Utilities should be considered through the detailed design and should be suitably | <ul style="list-style-type: none"> Neutral |

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| | | <p>need to account for this and depth of the structure should be confirmed to determine how this is accounted for.</p> <ul style="list-style-type: none"> • The scheme would not result in significant changes to the hydrology through this reach and so no impact upon the rivers ability to dilute the associated discharge is anticipated. | <p>accounted for during any construction works.</p> <ul style="list-style-type: none"> • Thames Water may insist on no excavation works with 10m of their sewer .and have indicated that sewer may also be in a slightly different location to what is shown on their mapping. Early consultation with Thames water is recommended. They are also likely to ask for CCTV survey before and after the works to prove that the integrity of the sewer has not been compromised by the works. • Further surveys are recommended. | |
| Other Utilities | Consideration of the potential effect of these on buildability of the scheme. | <ul style="list-style-type: none"> • No impacts on other utilities are anticipated with this option. | | <ul style="list-style-type: none"> • Neutral |
| Pedestrian access | Consideration of the potential need for footpaths to be diverted, for example Public Rights of Way may need to be diverted if works are would occur over their route | <ul style="list-style-type: none"> • A public right of way extends throughout the route of the works proposed by this scenario and would need to be diverted for the duration of the works. | <ul style="list-style-type: none"> • None regarding Public Rights of Way although the Ver Valley Trail, a recreational route, will be affected by the works during construction and could be diverted. | <ul style="list-style-type: none"> • Neutral |
| Access | Consideration of access to the works area. Access may be difficult and even prohibitively expensive under certain circumstances | <ul style="list-style-type: none"> • Access for works should be relatively straightforward and likely be from the west/ south west. | <ul style="list-style-type: none"> • Access should be determined during detailed design and confirmed by the contractor delivering the works. • Traffic management order may be required. | <ul style="list-style-type: none"> • Neutral |