**TAG Water Environment Impacts Worksheet**

| Description of study area/ summary of potential impacts | Key environmental resource | Features | Quality | Scale | Rarity | Substitutability | Importance | Magnitude | Significance |
|---|---|---|---|---|---|---|---|---|---|
| The study area comprises the A4 Route between A4 and M5 junction roundabout to the A4 Hotwell Road. The study area considers a 500m buffer either side of the route, which is considered appropriate owing to the distance between the proposed works and key water receptors, and using best professional judgement.<br><br>The works include: Proposed footway widening to shared-use path, edging kerb, proposed road making modification due to road space reallocation, raising table, minor widening to exisiting 1.4m pinch point due to existing median strip and land ownership, and proposed traffic islands. | The River Avon (Bristol) flows approximately 50m west of A4 Portway route at its closest point. | Water quality (Construction Phase) | The Bristol Avon River (ID: GB530905415405) is classified as traditional water body having an ecological status of moderate and a chemical status of fail due to mercury and its compounds and polybrominated diphenyl ethers (PBDE) under the Water Framework Directive (WFD). The reach of the River Avon within the study area is tidally influenced. The hydromorphological designation for the Bristol Avon waterbody is 'heavily modified' | Regional | Scarce | Not practicable . | High | **Negligible:**<br>Construction good practice would mitigate the potential risks associated with pollution due to entrainment of suspended solids and other contaminants from worksite areas, resulting in a Negligible magnitude of impact. | Insignificant |
| Surface Water Potential Impacts:<br>Construction phase -<br>Temporary increases in pollution risks (silt, oils, fuels etc.) to surface waters in proximity to proposed works. It is considered that the proposed works would not result in any temporary changes to the land drainage regime or flood risk. Although no new watercourse crossings are proposed, given the proximity of several watercourses to the A4 Portway, it is possible that some construction works could take place within their riparian corridors. Hence effects on hydromorphology during construction need to considered.<br><br>Operational phase -<br>Given that the proposed works do not increase the area of impermeable surfaces from the baseline, and that no works to watercourses are proposed, it is considered unlikely that there would be any permanent changes to the land drainage regime, flood risk and hydromorphology. | | Water quality (Operational Phase) | | | | | | **Negligible:**<br>Operational drainage facilitating pollution control, in accordance with applicable design standards, would reduce the magnitude of impact on the water quality attributes of surface waters to Negligible. | Insignificant |
| | | Flood risk and land drainage regime | The Bristol Avon has a floodplain denoted by the Environmental Agency Map as at a moderate and at high risk of flooding from rivers. It is tidally influenced at this location. The proposed works are located approximately north and south of the floodplain associated with the River Bristol Avon. The river runs parallel to the A4 Portway and up to the works along Cumberland basin road.<br><br>There are areas of Flood Zone 2 and 3 within the study area, including at the north-western end of the A4 Portway, near Avonmouth, and to the south-east in the vicinity of Sea Mills. Land in Flood Zone 2 has an annual chance of flooding from rivers of between 1 in 100 (1%) and 1 in 1000 (0.1%) or from the sea of between 1 in 200 (0.5%) and 1 in 1,000 (0.1%). Land in Flood Zone 3 has an annual chance of flooding from rivers greater than 1 in 100 (1%) or greater than 1 in 200 (0.5%) from the sea. | Regional | High surface water and fluvial flood risk at some parts along the route of proposed works. | Not practicable for the River Bristol Avon | High | **Negligible/Slightly adverse:**<br>The development proposals would result in Negligible changes to flood risk and the land drainage regime given that the impermeable surface area would not change.<br><br>Although no new watercourse crossings are proposed, given the proximity of several watercourses to the A4 Portway, it is possible that some construction works could take place within their riparian corridors. Hence effects on hydromorphology during construction is anticipated | Insignificant/Low significance |
| | | Aesthetics, Cultural Heritage, Recreation and Value to the economy | The Bristol Avon is a major watercourse within the study area and the wider Bristol urbanised area. It supports several functions and is integral to the landscape character. | | The River Avon is a major watercourse within the Bristol urban area. | Not practicable. | | **Negligible:**<br>The development proposals would result in Negligible changes to the recreational and economic value of the Bristol Avon following the implementation of best practice and appropriate design and mitigation measures. | Insignificant |
| | Trym - source to conf R Avon (Bristol) | Water quality (Construction Phase) | The Trym - source to confluence River Avon (ID: GB109053027530) is classified as having an ecological status of moderate and a chemical status of fail due to mercury and its compounds, Benzo(g-h-i)perylene and polybrominated diphenyl ethers (PBDE) under the Water Framework Directive (WFD). The hydromorphological designation for the Trym WFD waterbodies is 'heavily modified'. The river runs beneath the A4 Portway bridge and parallel to Sea Mills lane. | Regional | Scarce | Not practicable. | Medium | **Negligible:**<br>Construction good practice would mitigate the potential risks associated with pollution due to entrainment of suspended solids and other contaminants from worksite areas, resulting in a Negligible magnitude of impact. | Insignificant |
| | | Water quality (Operational Phase) | | | | | | **Negligible:**<br>Operational drainage facilitating pollution control, in accordance with applicable design standards, would reduce the magnitude of impact on the water quality attributes of surface waters to Negligible. | Insignificant |
| | | Flood risk and land drainage regime | The Trym - source to confluence River Avon has a floodplain denoted by the Environmental Agency Map as at a high and moderate risk of flooding from rivers. It is tidally influenced at this location. The proposed works are located approximately north and south of the floodplain associated with the River Bristol Avon.<br><br>There are areas of Flood Zone 2 and 3 within the study area, including at the north-western end of the A4 Portway, near Avonmouth, and to the south-east in the vicinity of Sea Mills. Land in Flood Zone 2 has an annual chance of flooding from rivers of between 1 in 100 (1%) and 1 in 1000 (0.1%) or from the sea of between 1 in 200 (0.5%) and 1 in 1,000 (0.1%). Land in Flood Zone 3 has an annual chance of flooding from rivers greater than 1 in 100 (1%) or greater than 1 in 200 (0.5%) from the sea. | Regional | High surface water and fluvial flood risk at some parts along the route of proposed works. | Not practicable for the River Bristol Avon | High | **Negligible / Slight Adverse:**<br>Appropriate drainage measures would need to be incorporated into the design to attenuate rainfall runoff, in accordance with applicable design standards. A Negligible magnitude of impact on land drainage is predicted.<br><br>Works to the culverts and land drains would be undertaken in accordance with Ordinary Watercourse Consent from the Lead Local Flood Authority. It is therefore considered that this would result in a Slight Adverse magnitude of impact.<br><br>The proposed development is not anticipated to result in a loss of floodplain storage and hence is not expected to increase tidal flood risk to third parties. A Negligible magnitude of impact on floodplain storage is therefore predicted. | Insignificant/Low significance |
| | | Aesthetics, Cultural Heritage, Recreation and Value to the economy | Limited value for commercial activities, recreation, landscape character or for historical features. | | The River Trym is a main watercourse connecting River Bristol Avon | Not practicable. | Medium | **Negligible:**<br>Construction of the development proposals would result in Negligible changes to flow conveyance, water quality and the landscape character. Implementation of best practice and mitigation measures, would result in a Negligible magnitude of impact. | Insignificant |

**Reference Sources**

Environment Agency (EA) online mapping (Flood Map for Planning; Risk of Flooding from Surface Water; Water Abstraction licences). EA Catchment Data Explorer website accessing WFD monitoring data (2022 baseline); the Flood Estimation Handbook Web Service (Centre for Ecology & Hydrology, 2016); MAGIC website; Severn River basin district River basin management plan (EA, 2015), bespoke flood risk modelling studies (river and tidal); Bristol Local Plan (1997), Bristol Local Flood Risk Management Strategy (2023)

**Summary Assessment Score**

The summary assessment score of Insignificant/slight adverse has been assigned.

**Qualitative Comments**

FRA can provide more detail however the majority of the site is located within Flood Zone 1 (with some areas of FZ 2 and 3 at the north-western end of the A4 Portway, near Avonmouth, and to the south-east in the vicinity of Sea Mills). Surface water flood risk is considered 'very low risk'. So overall, a mostly low risk of flooding from rivers, bar the two areas mentioned above. Surface water risk can increase due to the nature of the proposed works but that can be explored in more detail in an FRA.

- Works with the potential to impact main rivers or ordinary watercourses would require Flood Risk Activity Permits (FRAPs) and ordinary watercourse consent respectively. This is a control measure that is applicable to temporary works during construction and any potential permanent structures during operation.
- A Construction Environmental Management Plan (CEMP) or similar is recommended to be implemented during construction which will implement pollution control measures.
- The drainage strategy is recommended be developed in line with local and national SuDS policy/guidance, and to achieve the performance criteria specified by the LLFA, to manage potential changes in surface water runoff as a result of the project.