Appendix D: DESIGNER'S RESPONSE Audit date: 7/2/2026

M4 Junction 47 Stage 1 Audit ATSS Ref: 260110 Response Date: 9/2/2026

Para	Location/Problem	Recommendation	Designer's Response
2.1	**Location** – On the gyratory at the proposed new traffic lane for the A48 **Summary** – Risk of loss-of-control collisions due to road surface condition The method of removal for the hatched road markings has not been described and the exposure to the underlying surface could present a different texture and grip level compared to the remaining running lane. An inconsistency in skid resistance and surface finish, particularly under wet conditions, introduces a heightened risk of loss-of-control collisions, especially for two-wheeled vehicles and during braking or evasive manoeuvres for the signals. Drivers may also be visually misled by any residual markings or discoloration, reducing their ability to judge lane discipline and road alignment accurately.	Ensure that the final road surface provides consistent skid resistance and texture across the full width of the running lane and that no residual or 'ghost' markings are present that could cause driver confusion.	Recommendation accepted. The road surface provided as part of construction of the works will provide consistent skid resistance and texture across the full width of the running lane.
2.2	**Location** – On southern part of the gyratory in proximity to the exit leg for A48 **Summary** – Risk of rear-end shunt and side-swipe collisions due to lane impediment During the site visit it was observed (at times) that there is limited stacking space at the signal controlled arm beyond the A48 exit. This queue on the roundabout causes vehicles to slow or stop unexpectedly. The proposed two-lane exit could create high exit volumes and when a queue forms on the gyratory could create an increased risk of shunts or side-swipes at this conflict point as vehicles may make sudden lane changes.	Ensure safe operation of the proposed modifications can be achieved through means of a traffic model to predict capacity, queues and delays at key junctions of the roundabout. Signal timings may need adjusting to account for the extra lane.	Recommendation accepted. Junction modelling has been undertaken and presented in the supporting planning application, which shows that the modifications provide an overall betterment to the existing operation of the junction. The junction modelling shows that in the future year scenarios, which include committed development, it becomes increasingly difficult to exit the A48 westbound due to the volume of traffic on the roundabout junction. This is exacerbated as a result of the development generated traffic, however, this

			would be a capacity issue for future years with or without the proposed development. Reopening of the circulatory carriageway increases capacity at the junction and enables traffic along the A48 westbound to merge onto the roundabout at the uncontrolled priority junction. Development generated traffic will be evenly dispersed over the highway. The volume of additional traffic onto the A48 westbound as a result of the proposed development is relatively low, particularly in comparison to the existing base flow and committed development flows. However, the purpose of the proposed modifications is to increase capacity at the roundabout and provide an overall betterment to the operation of Junction 47. It is not expected that the two-lane exit would create significantly higher exit volumes onto the A48 westbound compared to the existing traffic flows.
2.3	**Location** – On the gyratory on approach to proposed modified traffic lane arrangements **Summary** – Risk of side-swipe collisions due to absence of lane guidance information There is an absence of clear lane guidance information and priority for the new traffic lane and two-lane merge section. Obscured road markings (due to heavy traffic) and lack of advanced signage could lead to uncertainty in lane positioning,	Ensure road markings are clear and evident and advanced signage is present to guide driver behaviour, particularly in preparing drivers of the upcoming exit merge.	Recommendation accepted. Road markings will be provided to clearly identify the two lane merge. Vehicles will then merge in turn on the A48 exit of the roundabout junction.

	particularly at the multi-lane approach to the junction and merge area. This could lead to hesitation or aggressive behaviour and side-swipes as drivers may unintentionally deviate from their intended path, especially during periods of heavy traffic or poor visibility (e.g. night-time or adverse weather).		
2.4	**Location** – Downstream of roundabout exit at proposed two-lane/merge area on the A48 **Summary** – Risk of loss-of-control collisions due to poor carriageway condition The carriageway surface downstream of the roundabout exit is severely worn and contains potholes. This creates an uneven and degraded road surface where vehicles are expected to accelerate and/or brake to merge, increasing the risk of loss-of-control, particularly for two-wheeled vehicles. The poor condition also leads to erratic vehicle movements as drivers attempt to avoid the defect, potentially resulting in side-swipe or rear-end collisions during the merge. Furthermore, the damaged surface poses ongoing maintenance implications and may discourage proper lane discipline.	Resurface the affected section of carriageway to restore an even and safe driving surface. The resurfacing should extend through the merge area to ensure consistent skid resistance and surface quality.	Recommendation accepted. Resurface of the affected section of carriageway will be carried out as part of the construction of the works.
2.5	**Location** – Across the proposed carriageway widening and two-lane exit from the roundabout **Summary** – Risk of loss-of-control and side-swipe collisions between vehicles due to potential for adverse camber/opposing crossfalls The proposal includes for the widening and realignment of the carriageway and modification of the splitter island to form a two-lane exit from the roundabout. The site has an existing crossfall from east to west towards the proposed widening and the	Review crossfalls across the widened carriageway, exit taper and splitter island to demonstrate a safe and consistent arrangement with no adverse cambers.	Recommendation accepted. A review of crossfalls across the widened carriageway, exit taper and splitter island will be undertaken as part of completion of the detailed design stage.

	central section of the two-lane exit will utilise part of the existing offside northbound lane, creating a risk of inconsistent crossfalls across the full width of the exit. No cross-section information has been provided as part of the submission. As a result, the audit team is unable to determine how surface water drainage will be safely accommodated or whether the proposed layout will introduce adverse camber across the widened carriageway, the exit taper, or between adjacent lanes. If inappropriate or inconsistent crossfalls are introduced, there is an increased risk of loss-of-control type incidents due to vehicle instability, surface water ponding and side-swipe collisions where vehicles are accelerating and diverging.		
2.6	**Location** – At the two-lane exit from the roundabout **Summary** – Risk of nose-to-tail collisions between vehicles due to impeded forward visibility The general arrangement drawing indicates a visibility distance of 48m on the A48 exit, measured along the back edge of the existing shared-use footway. However, it was observed during the site visit that vegetation currently encroaches into this visibility envelope. If vegetation is not removed and regularly maintained, visibility may be reduced below that required for safe operation of the exit, increasing the risk of late decision-	Reassess the visibility splay to account for existing and future vegetation growth, and that the design minimises reliance on maintenance to achieve the required visibility.	Recommendation accepted. A regular maintenance regime will be implemented post construction, to ensure the existing vegetation does not encroach onto the existing shared-use footway and restrict the required visibility.

	making by drivers exiting the roundabout and leading to nose-to-tail collisions.		
2.7	**Location** – Along north western extents of the A48 carriageway widening **Summary** – Risk of vehicle conflict and loss-of-control type collisions due to bank instability and compromised trees through earth works Widening of the carriageway requires excavation into the existing verge on the western side of the carriageway. This is likely to result in a steep embankment and significant disruption to existing vegetation, including a number of trees. If trees are retained close to the carriageway edge or on newly formed banks, they may become unstable or present a fixed-object hazard, particularly during high winds or adverse weather. Unstable or poorly protected trees and steep verge banking close to the carriageway could result in trees or branches falling into the carriageway, posing a hazard to road users. There is also the increased severity factor of run-off road collisions due to rigid objects being located close to the carriageway edge.	Carry out a detailed assessment of the verge stability and undertake a tree retention/removal plan as part of the detailed design. Trees that cannot be safely retained at an appropriate distance from the carriageway should be removed to reduce collision severity and weather related hazards.	Recommendation accepted. A detailed assessment of the verge stability will be undertaken at detailed design stage, together with a tree retention/removal plan.
2.8	**Location** – Full extents of the western A48 verge **Summary** – Risk of loss-of-control, side-swipes and rear-end shunt type collisions due to lack of signing information No details have been provided regarding existing or proposed signing and street lighting, including whether current assets will be retained, relocated or replaced as part of the scheme. In the absence of this information, signs or lighting columns may cause obstruction to forward visibility or if located within the carriageway or clear zone from carriageway edge result in a collision risk. If substandard advanced signing information is	Provide detailed signing and lighting layouts, identifying the location, relocation or removal of existing assets, to ensure adequate visibility, illumination and roadside safety. Note the existing lane destination sign on this approach reflects the existing 3 lane approach, so will need to be	Recommendation accepted. Detailed signing and lighting layouts will be provided at detailed design stage. This will identify the location, relocation or removal of existing assets, to ensure adequate visibility, illumination and roadside safety.

	provided, there is a risk of driver confusion and hesitation, which may lead to side-swipes and rear-end shunts. This risk would be exacerbated if inadequate illumination is available, particularly during heavy traffic, poor visibility conditions or hours of darkness.	updated to reflect the proposed 2 lane approach	
2.9	**Location** – General **Summary** – Risk of loss-of-control type collisions due to absence of drainage provision No drainage details have been provided as part of the Stage 1 submission, including the location of gullies and anticipated surface water flows. Without this information, surface water may not be adequately drained, leading to ponding on the carriageway and an increased risk of skidding in wet or icy conditions, reducing safety for all road users, particularly motorcyclists and cyclists.	Provide details of drainage proposals, including surface water flow paths and gully locations to demonstrate effective surface water management and avoidance of carriageway ponding.	Recommendation accepted. Details of the drainage proposals will be provided at detailed design stage, including surface water flow paths and gully locations to demonstrate effective surface water management.
2.10	**Location** – General **Summary** – Risk of loss-of-control collisions due to carriageway surfacing joints and irregularities No information has been provided for audit regarding the proposed resurfacing strategy for the widened carriageway and exit lanes. Longitudinal and transverse joints may occur within the wheel tracks. These joints are likely to deteriorate more rapidly, leading to uneven surfaces. This could lead to surface irregularities and furthermore, joints present an increased risk for two-wheeled vehicles.	Provided a uniform high-quality running surface across the full width of the amended carriageway extents, avoiding patches and joints within wheel tracks wherever practicable.	Recommendation accepted. High-quality running surface across the full width of the amended carriageway extents will be provided as part of the construction of the works. This will avoid patches and joints within wheel tracks wherever practicable.