

# TENDER STAGE RISK REGISTER

**PROJECT NAME:** A19/A1058 Coast Road Junction Improvement Scheme  
**PROJECT REFERENCE:** Annex C  
**REVISION NUMBER:** 2  
**PREPARED BY:** Name redacted under Sec 40 of the FOIA  
**CHECKED BY:** Name redacted under Sec 40 of the FOIA  
**CLIENT:** Highways England  
**LATEST REVISION:** 08/02/2018  
**PREVIOUS REVISION:** 01/07/2015



Number	Risk or Opportunity Description	Proposed action to deal with risk	Effect of risk (or opportunity) on programme and cost
1	A19 project could make traffic issues worse at Middle Engine Lane / Battle Hill Drive / Addington Drive roundabout during construction	Run traffic management through software modelling, to allow optimisation of TM design, resulting in reduced delay. Provide recovery vehicles, TSCO. Dedicated TM team, regular meetings with LA traffic managers and Tyne tunnel operator. Simple TM phases to reduce user confusion. Provide driver information via VMS and social media.	Delay and disruption to travelling public. Increased risk of incident. Cost increase and programme delay
2	Temporary works required to support A1058 embankment are greater or more complicated than anticipated	Temporary works to be reviewed when full design completed and released. Early temporary works design where possible, SI & topo verification. Design wing walls considering contiguous piles to eliminate risk. Full understanding of all temporary works requirement at tender stage.	Programme delay from additional temp works, risk of increased cost
3	Existing structures unable to carry 4 lanes of traffic	Carry out initial design checks to verify condition of parapets, carry out structural repairs on the bridge or implement a 2+1 contraflow. Conduct pre-construction bridge survey. Any strengthening works to bridge beams are carried out during buildability stage.	Cost increase and programme delay
4	Overall economic case (BCR) not sufficiently robust. BCR could go down as a consequence of the construction increase in costs	Provide the most economic solution with accurate cost forecasting and close monitoring transparent and open way. Provide VE options, scope reductions.	Programme Delay or Cancellation of scheme and additional costs incurred through buildability phase
5	Additional mitigation measures required as a consequence of the outcome of PINS report	Flexible during development phase to incorporate additional works as required	Cost increase and programme delay
6	Development of Travelodge site may restrict working methods and delay overall works	Assumed compound can be established as per works information, however it will be possible to construct the wall via access using Bitten Close. Delivery of materials to be co-ordinated with the programme to reduce quantity of materials stored on site at any one time.	Cost increase and programme delay
7	Following SoS decision objectors launch a challenge	Assist client in promoting the scheme, and provide case evidence. Collaboratively attending meetings and provide expert witnesses as necessary.	Programme Delay and potential for cost increase
8	Poor or inadequate media coverage or bad/inadequate PR (Poor communication approach prior construction)	Provide assistance to pre-publicise construction works, exhibitions, letter drops. Customer engagement, early establishment of scheme signage.	Programme Delay and potential for cost increase
9	Poor or inadequate media coverage or bad/inadequate PR (Poor communication approach prior construction)	We will pre-publicise construction works, exhibitions, letter drops. Customer engagement, early establishment of scheme signage.	Programme Delay and potential for cost increase
10	Additional constraints imposed and increased mitigation required during construction due to complaints from local residents / businesses	Careful selection of plant and construction methodology. Regular communication. Regular environmental monitoring and environmental protection measures implemented. Relocation of residents. Agree levels with EHO. Regular liaison between PLO and local residents / businesses	Cost increase and programme delay
11	Loss of revenue by landowners and / or business rate rebate claims during construction works greater than anticipated	Maintain full access to all properties at all times. Run traffic management through software modelling, to allow optimisation of TM design, resulting in reduce delay. Provide recovery vehicles, TSCO. Dedicated TM team, regular meetings with LA traffic managers and Tyne tunnel operator. Simple TM phases to reduce user confusion. Provide driver information via VMS and social media. Early liaison with landowners at design phase to prevent loss of earnings and provide businesses with what they need	Possible programme delay and cost increase
12	Increased risk of flooding due to vertical alignment of A19	At design stage the following design mitigation will be considered: Combined kerb and drainage / increased design parameters Possibly flood sensor warning system Permanent CCTV, RCC linked Permanent information signs in central reserve and verge Possible installation of pumping station	Cost increase and programme delay

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13	Encountering any UXOs during construction works	Desktop study on the likelihood of discovering UXOs. Toolbox talk training provided at site level. Undertake GPR surveys prior to breaking ground.	Cost increase and programme delay
14	A major subcontractor may become insolvent.	Carry out financial and credit checks on suppliers, in accordance with procurement approval process. Procure necessary sureties. Self-perform the majority of tasks and directly procure materials. Monitor supply chain for cash flow problems. Potential payment plan that increases cash flow.	Cost increase and programme delay
15	Actual inflation will rise over and above the contract inflation indices.	Awareness of specific cost fluctuations of bulk materials e.g. concrete, bitumen and diesel etc. Fixed price risk from tender to Start on Site, Passed down.	Cost increase and potential impact on programme
16	The location of local tips for acceptance of excavated material	Early contact with local tip to establish capability, sourcing of other tips in the vicinity. Contact local authorities or businesses for issue of inert material or landscaping etc.	Cost increase and programme delay
17	The local tip does not have the capacity to accept quantities described within the works information	Early contact with local tip to establish capability, sourcing of other tips in the vicinity. Contact local authorities or businesses for issue of inert material or landscaping etc.	Cost increase and programme delay
18	Signal failure, of both temporary and permanent lights, during construction	Establish asset list within our remit. Planning to minimise use, and duration, of temporary traffic lights. Regular checks and maintenance regime. Review condition of signals	Cost increase and programme delay
19	Mud on highways caused by SL construction vehicles	Provide suitable wheel spinner and or jet washer facility dependant upon vehicle type. Employer road sweeper as a backup	Cost increase but limited impact on programme
20	Continuity of category management suppliers	Early engagement with key supply chain members, alternative suppliers or products identified as back-up. Continual liaison with supply chain throughout the scheme.	Delay to programme and / or additional cost
21	Clash of existing service utilities with new works	Ensure design is at construction status prior to commencement of works. Locate asset drawings from major utilities and know utilities. Undertake early surveys - CCTV, GPR, 3D co-ordinate surveys of known existing services. Input this information into BIM, run clash detection and re-design accordingly to mitigate delay and additional costs	Delay to programme and / or additional cost
22	Maintenance of the existing street light levels throughout the construction works	Establish asset list within our remit. Plan works to avoid need for temporary lighting where possible. Liaise with local highways authority to establish necessity for lighting level during works. Regular checks and maintenance regime of assets and temporary's within our control	Delay to programme and / or additional cost
23	Protestor Action encountered during enabling and construction phase	Provide suitable security dependant upon assessment of objectors. Throughout project maintain high level of stakeholder engagement.	Delay to programme and / or additional cost
24	Failure to identify and fully engage with all stakeholders	Employ a Public Liaison Officer who has local area knowledge. Thoroughly research all stakeholders in the area and arrange to meet and understand any potential concerns.	Delay to programme and / or additional cost
25	A pollution incident on site would contaminate the existing ground	Compilation and agreement of CEMP and Surface Water Management Plan inc environmental mitigation, location of Hydro Units to treat water prior to discharge, implement exclusion zones, environmental emergency plan in place.	Cost increase and programme delay

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26	Noise, dust and vibration recordings taken at site boundary reveal that additional environmental mitigation measures are required	Continuous monitoring and recording of environmental nuisances throughout the project. Selection of plant to reduce nuisance, Implementation of additional measures such as dampening down of works, installation of anti-noise matting on site hoarding.	Cost increase and programme delay
27	Construction activities will create a noise and / or dust nuisance	Prepare construction methodology advising on potentially sensitive areas through consultation and apply techniques to eliminate potential nuisance. Programme disruptive activities to take place during periods of closure and vacancy. Agree Section 61 consents with the LA prior to commencement of construction.	Cost increase and programme delay
28	A major or minor uncharted service will be discovered during construction.	GPR surveys prior to commencing excavation works to build a more robust profile of existing services. Engage with HE and other SU's to collate historic data, enter finding into BIM to establish level of action	Cost increase and programme delay
29	Ground conditions are worse than described in the site investigation (e.g. hard rock, soft ground, soft rock, obstructions, rock head level different)	Ensure flexibility in the programme to facilitate redeployment to other tasks. Avoid working in areas of poor ground until weather is favourable.	Cost increase and programme delay
30	Ground conditions discovered during construction are worse than envisaged	Prepare and develop Environment Statement and undertake detailed investigations	Cost increase and programme delay
31	There may be a delay in obtaining design approvals and consents	Prioritise critical approvals with design team, regular meetings to ensure design is being developed in line with information release schedule. Design works to follow standards.	Delay to programme and / or additional cost
32	The outcome of Road Safety Audits results in additional work or scope	Undertake road safety review during the design development prior to formal RSAs. Planning and co-ordination with Local Highways authority to ensure that design incorporates all road safety requirements. Develop BIM models to model junctions and key areas	Cost increase and programme delay
33	There will be a shortage or non-availability of suitably skilled labour to construct the scheme	Early understanding of local supply. Provision of significant direct labour supply as required. Detailed resource scheduling to identify needs. Work with local tier1 supply chain partners to assist with this issue. Consider pre fabricated solutions where possible.	Cost increase and programme delay
34	Weather conditions affecting the contract programme - Rain causing flooding to site operations	Include time risk allowance in the development of the construction programme. Include flexibility in the programme to enable redeployment to less susceptible tasks. Provide suitable surfaces to enable materials to be moved around the site at all times of the year.	Delay to programme and additional cost
35	Poor Public Utility performance	Working closely with SU to reinforce and achieve programme. Consider self delivery of certain elements within their agreement.	Cost increase and programme delay
36	Weather conditions affecting the contract programme - Wind	Monitor weather forecasts. Minimise lifting activities where possible through pre-fabrication. Selection of plant less susceptible to low wind speeds.	Delay to programme and / or additional cost
37	Weather conditions affecting the contract programme - Snow & Ice	Look at forecasts, prepare site accordingly in advance - snow ploughs, shovels, rock salt, protect welfare services	Delay to programme and / or additional cost

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38	Weather conditions affecting the contract programme - Low temperatures	Postpone temperature critical activities in Dec / Early Jan. Consider concrete additives or heating concreting water. Re-programme non-critical works where possible.	Delay to programme and / or additional cost
39	Invasive species will be discovered during construction activities.	Undertake appropriate surveys prior to construction. Ensure flexibility in the construction programme to redeploy to other areas. Ensure ongoing consultation with EA.	Delay to programme and additional cost
40	Any mineworkings encountered during excavation or piling works	Use of GPR to identify any anomalies during survey period. Intrusive surveys into any anomalies. Pre-designed library of solutions prior to construction to cover all eventualities.	Delay to programme and additional cost
41	Quantity mis-measure / errors in measurement from either SL or S/C's during estimating	Major Quantity check, independent check within JV partnership	Delay to programme and / or additional cost
42	Interface with live traffic including HGV's	Improving road user behaviours: Simple, non-confusing and well signed TM; Well communicated TM (Twitter, SMS text, VMS signage, newsletters, local and national media, web); Orange Corridor implementation; Maintaining two lanes of traffic each way during daytime; And Protecting Staff: Maximising safe working zones; De-risking works eg directional drilling; Use of Varioguard barriers;	Delay to programme and / or additional cost
43	People/Plant interface on a confined site	Good Housekeeping: Provide formal housekeeping training; 3m exclusion zone (where practicable); Materials stored away from workface and delivered just in time; Staff competence: Banksman for major construction plant items using Thumbs Up initiative; Safety videos of learning from people involved in real incidents; 'Lead by Example' initiative; 'Don't Walk By' Culture; Systems automation: Proximity plant shut off system; Reversing alarm with PPE sensors; CPCs accreditation minimum for plant operators;	Delay to programme and / or additional cost
44	Interface with buried and overhead services	Extensive planning and co-ordination: Service avoidance packs; Permit to break ground system; Markers for key services; Incorporating services into BIM model; Interface reduction: GPR surveys; Services diverted ahead of works operations commencing; Services maps loaded onto site-held tablets for Supervisors;	Cost increase and programme delay

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45	Working at height	Risk avoidance by changing work method: Top down construction; Maximise prefabrication eg parapets cast onto edge beams; Reducing risk for necessary work at height: Elevated working platforms for working on signs, cladding retaining walls; Maximise pre fitting and cabling of VMS signs /gantries; Managed with suitably qualified and quantity of Supervision	Cost increase and programme delay
46	Security of site	Risk avoidance by segregation: 1.8m high fences around all safety critical works areas Traffic Marshals at interfaces with public and our plant; Divert NMU routes early; CCTV camera monitoring; Site compound: Biometric system to access and egress site; Full time security and fully hoarded off; Don't Walk By culture:	Delay to programme and / or additional cost
47	Slips, trips and falls	Take Time initiative – before work starts or when environment changes; Observation Cards; Targeted toolbox talks; Good Housekeeping: Logistic Manager / Just in Time deliveries; 20 second scan initiative; Product approach: Supply chain innovation forum and knowledge bank:	Delay to programme and / or additional cost
48	Unforeseen protected species (animals, mammals, fauna, flora) will be discovered during construction activities.	Undertake appropriate surveys prior to construction. Ensure flexibility in the construction programme to redeploy to other areas. Ensure ongoing consultation with EA and employ licensed animal handler.	Delay to programme and additional cost
49	There will be a shortage or non-availability of specialist plant to construct the scheme and within planned durations	Early understanding of local supply chain. Early engagement with national tier 1 suppliers, engagement during tender stage to advise employer of issue within tender return. Consider and suggest alternative solutions if possible. Specialist plant identified as craneage and piling rigs.	Delay to programme and additional cost
50	There will be a shortage or non-availability of materials required to achieve specification	Early engagement with local supply chain. Early engagement with category management contractors. Price from further afield where necessary during tender stage. Consider alternative materials. Ensure design is complete and released inline with IRS. Programme according to material supply rates and allow for long lead items.	Delay to programme and additional cost
51	Poor workmanship issues during construction leads to revisit of works during maintenance period	Correct quantum of supervision identified. ISO9001 Quality procedures followed. Employer / JV sign off at every stage. Target zero defects and snag as we go.	Delay to programme and additional cost
52	Unions influence on trades within the project lifetime, influencing working hours and rates	Employ non-affiliated employees and sub contractors	Delay to programme and additional cost
53	Damage to existing highway due to use by site traffic	Financial allowance for risk repairs during construction phase. Employ suitable site supervision. Comprehensive Dilapidation survey undertaken prior to commencement. Frequent monitoring and records take through duration of works.	Delay to programme and additional cost



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54	Design Growth from detailed development, in particular unknowns	Ensure adequate resources and suitably experience resource are applied. Ensure design information is completed prior to construction commencement, not requiring a revisit. Regular contractor involvement to resolve buildability issues	Delay to programme and additional cost
55	Existing overlay / inlay road pavements do not have sufficient residual life	Review at design stage, and undertake further review of current road surfacing to identify and explore any areas of concern, undertake Intrusive testing of existing carriageway prior to commencement of works to allow influence of re-design and pricing accordingly.	Delay to programme and additional cost
56	Failure to effectively collaborate / co-ordinate as an integrated team	Effective leadership, creating a scheme vision that can be bought into by all, a 'can-do' collaborative culture, team-building exercises, development of 'role models', co-location, meetings and briefings, feedback sessions, recognition for good behaviours, effective communications and knowledge sharing	Delay to programme and / or additional cost
57	Scope increase due to additional works or works not contained within works information	Review current scope at buildability phase. Areas where design or items of works not covered, design out where possible to prevent growth. Further value engineering to reduce scope	Additional cost and / or programme delay
58	Vibration caused by piling rigs exceeds the ground acceleration limit determine by local gas network operator	Pre-auger for sheet piles to minimise vibration caused by driving.	Additional cost and / or programme delay
59	Inadequacy of subgrade encountered during installation of formation laid CGBM preventing machinery from traversing formation	Review design and site investigation. Conduct testing from core samples and CPT's to pre-determine adequacy of formation	Additional cost and / or programme delay
60	Third party damage, to carriageway asset requiring repair via the maintenance clause, resulting in Green and Red claims	Minimise lane occupancy and traffic management durations,	Additional cost and / or programme delay
61	Improved weather window than previously thought and allowed for within the programme	Opportunity	Reduction in Costs and Reduced Programme
62	Re-use of CCTV cameras	Opportunity	Reduction in Costs and possible reduction in programme
63	Re-use of traffic lights	Opportunity	Reduction in Costs and possible reduction in programme
64	Re-use of street lighting	Opportunity	Reduction in Costs and possible reduction in programme
65	Re-use of planned material as subgrade aggregates	Opportunity	Reduction in Costs and possible reduction in programme
66	Re-design of piles to allow installation using CFA rigs	Opportunity	Reduction in Costs and Reduced Programme
67	Material classified for beneficial use as backfill off sites - such as landfill capping	Opportunity	Reduction in Costs and possible reduction in programme
68	Increase areas of low maintenance grass seeded areas	Opportunity	Reduction in Costs and possible reduction in programme