

**NRDD Quality Management System:  
FORM**

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**DESIGN  
DELIVERY**



**Design Risk Assessment**

|                               |                                                   |                       |                               |                      |                                        |
|-------------------------------|---------------------------------------------------|-----------------------|-------------------------------|----------------------|----------------------------------------|
| <b>DESIGN RISK ASSESSMENT</b> | Project Ref: LJT1 MILL RIVER                      | Project Title:        | <b>LJT1 MILL RIVER</b>        | Doc ref:<br>Version: | 162882-NRD-ST2-LJT1-<br>RSA-ECV-000001 |
| Design Stage:<br>GRIP 5       | Civil Scour mitigation design for LJT1 Mill River | Status:               | Open                          | Version:             | A01                                    |
|                               |                                                   | Prepared by:<br>Sign: | J Howells<br><i>J Howells</i> | Checked by:<br>Sign: | I FOX<br><i>I FOX</i>                  |
|                               |                                                   | Date:                 | 28/10/2021                    | Date:                | 28/10/2021                             |
|                               |                                                   | Approved by:<br>Sign: | Iain Fox<br><i>Iain Fox</i>   |                      |                                        |
|                               |                                                   | Date:                 | 28/10/2021                    |                      |                                        |

All=All; A=Architecture; B=Buildings; C=Civils; D=Drainage; Eo=E&P OLE; Ei=E&P LV; E3=E&P 3<sup>rd</sup> rail; G=Geotech; L=Level Xings; M=M&E; O=Operations; S=Sig'g; Te=Telecoms; Tr=Track; Z=Other

| Discipline(s) | Ref | Hazard description                 | Hazard consequence | Phase                                        | Risk level                        |          | Mitigation measures<br><br>The reason for providing no mitigation must be explained.<br><br>Eliminate = E<br>Reduce = R | Residual hazard                       | Residual risk level               |          | Residual risk<br><br>- and -<br><br>Method of communicating mitigation measures and residual risk<br><br>Inform = I | Responsibility for control of risk (beyond this design stage)<br><br>Control = C | Notes (including assumptions, dependencies and constraints) |
|---------------|-----|------------------------------------|--------------------|----------------------------------------------|-----------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-----------------------------------|----------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------|
|               |     |                                    |                    | Construction / Operation / Mtce / Demolition | High<br>Medium<br>Low<br>Very Low |          |                                                                                                                         | Reduced or Eliminated or Not Changed, | High<br>Medium<br>Low<br>Very Low |          |                                                                                                                     |                                                                                  |                                                             |
|               |     |                                    |                    |                                              | Likelihood                        | Severity |                                                                                                                         |                                       | Likelihood                        | Severity |                                                                                                                     |                                                                                  |                                                             |
| A             | 01  | Working alongside a tidal estuary. | Injury, drowning.  | C                                            | M                                 | V<br>H   | Work to carried out in Summer when water levels are reduced.<br><br>Competent contractors to carry out the works.       | R                                     | L                                 | M        | Construction plan/ Programme.                                                                                       | Contractor                                                                       |                                                             |

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|               |     |                                                                 |                                                                                   |                                              | Likelihood                        | Severity |                                                                                                                                                          |                                       | Likelihood                        | Severity |                                                                                                                     |                                                                                  |                                                             |
| C             | 02  | Failure of Temporary works.                                     | Flooding, injury of workers, damage to construction machinery.                    | C                                            | M                                 | H        | Competent contractor to carry out temporary works.<br><br>Carried out in summer reducing flood pressure.                                                 | R                                     | L                                 | H        | Designers Risk Assessment.                                                                                          | Contractor.                                                                      |                                                             |
| A             | 03  | Weil's Disease.                                                 | Catching of Disease.                                                              | C                                            | L                                 | H        | Low risk due to moving water.<br><br>Correct PPE to be work.<br><br>SSOW to be always carried out.                                                       | R                                     | VL                                | H        | Designers Risk Assessment.                                                                                          | Contractor                                                                       |                                                             |
| A             | 04  | Environmental damage/issues.                                    | Our work causing disruption to the existing environment.<br><br>SSSI site nearby. | C                                            | H                                 | M        | Liaison with NRW throughout design and construction is required.<br><br>Contractor to adhere to all environmental requirements. NRW are already engaged. | R                                     | L                                 | M        | Design Drawings.                                                                                                    | Designer/ Contractor                                                             |                                                             |
| C             | 05  | Removal of old gabions may contain loose wire or corroded pins. | Risk of impalement.                                                               | C                                            | H                                 | M        | Competent contractors carry out the works.<br><br>Full PPE to be worn.                                                                                   | R                                     | L                                 | M        | Design/ Designers Risk Assessment.                                                                                  | Contractor.                                                                      |                                                             |

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|               |     |                                                                                                        |                                                                                     |                                              | Likelihood                        | Severity |                                                                                                                                                                                                |                                       | Likelihood                        | Severity |                                                                                                                     |                                                                                  |                                                             |
| C             | 06  | Brittle Cast iron pipe within construction vicinity.                                                   | Damaging pipe and causing leakage into the watercourse.                             | C                                            | M                                 | M        | Competent contractors to carry out the works.<br><br>Use banksmen when required.<br><br>Contractor construction methodology to avoid tracking over pipe or within close proximity to the pipe. | R                                     | L                                 | M        | Design/ Designers Risk Assessment.                                                                                  | Contractor.                                                                      |                                                             |
| C             | 07  | SSCS fond mats are specialist material and therefore require further instructions during installation. | Equipment installed incorrectly meaning the material wouldn't work in required way. | C                                            | M                                 | H        | Supervision from SSCS to be present during installed of the fond mats.<br><br>Installation to be carried out to manufactures guidance.                                                         | R                                     | L                                 | H        | Design/ Designers Risk Assessment.                                                                                  | Contractor.                                                                      |                                                             |

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|               |     |                                                                                    |                                                                                                                                                                  |                                               | Likelihood                        | Severity |                                                                                                                                                                                                                                                                                                                       |                                       | Likelihood                        | Severity |                                                                                                                     |                                                                                  |                                                             |
| C             | 08  | Protection of the DCWW pipe during and after construction of the scour mitigation. | Causing damage to a third-party asset during construction.<br><br>Proposing scour protection to the structure without ensuring protection of the cast iron pipe. | C                                             | M                                 | M        | Design has proposed a softer engineering approach in opposition to the harder engineering rock armour protection.<br><br>The installation of the SSCS fond mats will allow protection of the railway structure and the DCWW pipe through natural sedimentation therefore reducing risk of damage during construction. | R                                     | VL                                | M        | Design/ Designers Risk Assessment.                                                                                  |                                                                                  |                                                             |

### User notes:

- When this is included within a report or other design document, the author may choose whether to strike-out or remove the signature panel so that the DRA is under the signatures on the front of that report or document.
- For convenience during compilation, separate DRAs may be maintained per discipline, but subsequent issue or combination into a single DRA must be subjected to IDC.
- Rows may be grouped to concentrate items into 'topic areas'. Use topic prefixes in the item references (eg A1, A2,..., B1, B2... etc) so that extra rows can easily be added to each topic. This broadly aligns with the former SDG design log that had separate sections for individual points, signals etc. If using this approach, amend the signatures explanation accordingly.
- The DRA may be maintained through more than one GRIP stage, so use the space in the bottom right hand corner of the signature block for clarity regarding signatures.
- See NRDD Guidance Document [NR-DD-GD-482](#) section 8 and Appendix A for examples of DRA

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