Appendix B: SEA Submission Checklist

Project Details

|  | Item | Details |
| --- | --- | --- |
| 1 | Project Name | *[this field is compulsory]* |
| 2 | Organisation accountable for Design/Specialist Engineering Assessment | *[this field is compulsory]* |
| 3 | Sydney Water Asset(s) numbers requiring assessment | *[this field is compulsory]* |
| 4 | Asset details: including but not limited to size, depth, type – pipe, culvert, oviform, unreinforced concrete tunnel lining | *[this field is compulsory]* |
| 5 | Proponent’s external activities: such as basement excavations, tunnelling, piling/ foundations, crane operation, other | *[this field is compulsory]* |
| 6 | Engineering Disciplines involved in assessment | *[this field is compulsory]* |
| 7 | Independent Verifier Required (as per Eng. Competency Standard)? | Yes/ No |
| 8 | If “Yes” for item “7”; IV Certificate Signed off and included with SEA? | Yes/ No |

Checklist for Assessment Activities (All cells must be filled)

| No. | Key Items | Yes/ No/ NA | Comment/ Details/Reference to Report Section  |
| --- | --- | --- | --- |
|  | Define External Activities or Building works |  |  |
|  | Excavation, tunnelling, filling, piling, shallow foundation, groundwater lowering, other |  | *[this field is compulsory]* |
|  | Define influence zone from external activities (conservative qualitative assessment) |  | *[this field is compulsory]* |
|  | List all Sydney Water assets in influence zone |  |  |
|  | Obtain Work As Completed (WAC) drawings |  | *[this field is compulsory]* |
|  | Provide details of all architectural and structural drawings indicating proximity to Sydney Water assets, including plans, cross sections and long sections |  | *[this field is compulsory]* |
|  |  Engineering Competency Requirements met for: |  |  |
|  | Geotechnical investigations, modelling, ground-structure interaction analyses, risk assessments |  | *[this field is compulsory]* |
|  | Civil- pipelines |  | *[this field is compulsory]* |
|  | Structural |  | *[this field is compulsory]* |
|  | *Other disciplines (include all as necessary)* |  | *[this field is compulsory]* |
|  | Supporting studies/investigations: such as survey, visual assessment, CCTV inspections, other |  | *[this field is compulsory]* |
|  |  Gather background information relevant to assets listed in item 2 |  |  |
|  | Desktop Study* HYDRA/WAC drawings
* Past condition assessment reports
* Geological/geotechnical reports
* Published information on soils, geology and groundwater
* Existing survey/potholing information
* Past impact assessments
* Other
 |  | *[this field is compulsory]* |
|  | Further studies/investigations to inform engineering assessment* Survey and potholing to confirm asset location
* Pre-Construction condition assessment
	+ Internal
	+ External
	+ Confirm asset data (e.g. dimensions, materials)
* Geotechnical investigations in accordance with Sydney Water Civil Technical Specifications and relevant Australian Standards
* Any other studies / investigations
 |  | *[this field is compulsory]* |
|  | Requirements from BOA Guidelines, Stormwater BOA Guidelines |  | *[this field is compulsory]* |
|  | Future Asset operation and maintenance* Access to maintenance structures
* Minimum clearances
* Safety of O&M staff and Public
 |  | *[this field is compulsory]* |
|  | Electrical considerations  |  | *[this field is compulsory]* |
|  | All assets impacted by external activities confirmed  |  | *[this field is compulsory]* |
|  |  Geotechnical and Structural Appraisal |  |  |
|  | Description of appraisal methodology* Aim of appraisal
* Basis of appraisal
* Consideration of asset condition, and materials/ properties and workmanship at time of construction
* Analytical methods and software used
* Applicable codes, standards, references
 |  | *[this field is compulsory]* |
|  | Ground Structure Interaction Analyses * Existing dead/live loads
* Ground conditions, including groundwater
* Asset dimensions and materials, including allowances construction methods and sequence
* Past impacts/stress history
* Details of current external activities
* Key assumptions, parameters
* Sensitivity analysis for geotechnical and structural parameters, with suggested ranges
* Predicted impacts
	+ Additional axial, bending and shear stresses/strains and their orientation
	+ Ground movements including vertical settlement or heave, lateral displacement
* Discussion regarding analysis uncertainties and confidence in predicted impacts using credible upper bound, design, credible lower bound
 |  | *[this field is compulsory]* |
|  | Structural appraisal of predicted impacts on Sydney Water assets * Ultimate limit states:
	+ Stability - buckling, sliding, overturning
	+ Strength
	+ Fatigue
* Serviceability limit states:
	+ Deflection
	+ Cracking
	+ Reduced asset performance
	+ Durability
* Other limit state to ensure robustness/reliability
* Impact of Sydney Water asset failure, or future O&M activities on proponents temporary and permanent works considered?
 |  | *[this field is compulsory]* |
|  | Threshold/ impact criteria * Site specific impact criteria nominated
* Nominated criteria include allowances for asset condition and any other site-specific risks (e.g. Safety, environmental or community risks etc.)
* Site specific impact criteria do not exceed threshold limits
 |  | *[this field is compulsory]* |
|  | Asset protection measures specified where impacts are excessive.* Bridging or protection slab
* Asset relocation/renewal
* Asset rehabilitation/strengthening
* Other measures
 |  | *[this field is compulsory]* |
|  | Instrumentation and Monitoring Plan  |  |  |
|  | Pre and post-construction condition assessment |  | *[this field is compulsory]* |
|  | General site surveillance:* Work methods in accordance with accepted Work Method Statement
* Leakage and odours or other unexpected occurrences
 |  | *[this field is compulsory]* |
|  | Vibration monitoring |  | *[this field is compulsory]* |
|  | Conventional survey methods to monitor ground surface and excavation face movements |  | *[this field is compulsory]* |
|  | Specialist geotechnical and structural monitoring equipment, including but not limited to inclinometers, extensometers, strain gauges and piezometers |  | *[this field is compulsory]* |
|  | Monitoring locations specified |  | *[this field is compulsory]* |
|  | Monitoring frequency established at key stages pre/during/post-construction |  | *[this field is compulsory]* |
|  | Monitoring trigger values established based on results of engineering assessments at alert, action and alarm levels, and implementation of Contingency Plan |  | *[this field is compulsory]* |
|  | Responsibility for monitoring actions defined |  | *[this field is compulsory]* |
|  | Work Method Statement (WMS) |  |  |
|  | WMS incorporates requirements of SEA |  | *[this field is compulsory]* |
|  | Sequence of work specified |  | *[this field is compulsory]* |
|  | WMS references the Monitoring Plan |  | *[this field is compulsory]* |
|  | Contingency Plan |  |  |
|  | Provision of resources (personnel, materials, plant, repair methods) for timely response to an incident |  | *[this field is compulsory]* |
|  | Action plan with roles and responsibilities in the event of an incident |  | *[this field is compulsory]* |
|  | Approval of any deviations from requirements nominated the SEA procedure have been approved by Sydney Water |  | *[this field is compulsory]* |
|  | Obtain independent Verification, as required by Sydney Water Engineering Competency Standard |  | *[this field is compulsory]* |

Assessment Personnel and Signatures

| Discipline | Specific Skills Relevant to this assessment1 | Designer | Verifier | Signature | Relevant Engineering Competency Classification2,3 |
| --- | --- | --- | --- | --- | --- |
| Geotechnical Engineering | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* |
|  |  |  |  |  |
| Civil Engineering | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* |
|  |  |  |  |  |
| Structural Engineering | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* | *[this field is compulsory]* |
|  |  |  |  |  |

Notes:

1. List all “specific” skills required for the SEA. Generic no. of experience in a particular engineering discipline is not acceptable.
2. Additional details required by the Sydney Water Engineering Competency Standard must be submitted separately, including evidence of competency claimed above.
3. List all relevant engineering disciplines.