

Ok Birim Tailings Storage Facility Project

Environmental and Social Impact Assessment

Attachment 1

EIS Guidelines and EIR Cross-Check



OK BIRIM TAILINGS STORAGE FACILITY PROJECT

Environmental and Social Impact Assessment – Attachment 1

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1. EIS GUIDELINES AND EIR CROSS-CHECK

Table 1.1 and Table 1.2 provide a reconciliation between the contents of Ok Birim Tailings Storage Facility Project Environmental and Social Impact Assessment (ESIA), and the PNG Government Guideline for Preparation of Environmental Impact Statements and the specialist studies program presented in the Environmental Inception Report (EIR) for the project. Table 1.1 addresses the EIS guidelines and Table 1.2 summarises the specialist studies proposed in the EIR.

Table 1.1 Reconciliation with the PNG Government EIS guidelines

EIS Assessment Guidelines	Relevant section of EIS
<p>Letter of Transmittal or Cover Letter</p> <p>It is important that an Environmental Impact Statement on the proposal must be transmitted to DEC [now CEPA] with a cover letter signed by the responsible company official or its authorised representative (i.e., consultant - engaged by the company to act on its behalf).</p> <p>If an external consultant is used, the letter must also authorise the consultant to make statements and provide further information on behalf of the company in relation to the application.</p>	Cover letter from OTML
<p>1. Executive Summary or Overview of Proposal</p> <p>One of the main objectives of this section is to provide an explanation of the project for non-technical readers.</p> <p>Information provided in the Executive Summary shall concisely describe:</p> <ul style="list-style-type: none"> • The proposed development activity and its objectives. • Anticipated bio-physical and socio-economic impacts (direct/indirect, reversible/irreversible) of the activity. • Details of remedial actions that are proposed. • All benefits to be derived from the project. • Details of consultation program undertaken by the applicant, including degree of public interest. • Rehabilitation and/or end-use plans for the development activity in relation to community needs. 	Executive summary
<p>2. Purpose of the development</p> <p>The purpose of this section is to ensure that only development activities that are in the best interest of all Papua New Guineans, and therefore in line with the PNG Government's overall development strategy and planning guidelines, are considered for approval.</p> <p>NOTE: Demonstrate commitment to the conservation of natural ecosystems and protection of environmental values within the proposed development area.</p> <p>This section shall include but not be limited to the following:</p> <ul style="list-style-type: none"> • Describe if the development is in line with the Fourth National Goal and Directive Principle of the National Constitution of PNG. • Explain if the proposed development is compatible with National, Provincial and Local Level Government development goals and planning guidelines. • Detail the economic benefits to the Nation, Province, Local Level Governments and to the local community being impacted. 	Chapter 2

EIS Assessment Guidelines	Relevant section of EIS
<p>3. <i>Viability of the project</i> Provide information on the viability of the proposed development activity. These details shall include but not be limited to the following:</p> <ul style="list-style-type: none"> • Information on the capital cost associated with the development. • Details of the proponent's technological expertise and resources. • Results of any feasibility investigations that have been carried out. • Information on the extent of landowner and/or resource owner support, including a copy of the formal written approval of their consent. • Details of the life-span and development phases of the project. 	<p>Chapter 2</p> <p>Section 2.2.2</p> <p>Section 2.2.1</p> <p>Section 2.2.3, Chapter 6</p> <p>Chapter 5. Formal written approval of consent to be provided once obtained.</p> <p>Chapter 6</p>
<p>4. <i>Description of the proposed development activity</i> All details on the proposed development activity required under this section should be provided where applicable to the proposal. Details to be provided under this section may include the following:</p> <ul style="list-style-type: none"> • Background information to the proposal, process technologies to be employed, etc. • Detailed location maps (drawn to scale), site layout, etc. • Information on method of site selection including alternatives investigated, plant or building designs, relevant diagrams and drawings. • Detailed flowcharts, mass balances (including feedstocks, products and wastes generated, etc.). • Description of nearby development activities that may contribute to background pollution levels or other baseline conditions. • Information on associated infrastructure/facilities to be constructed. 	<p>Chapter 6</p> <p>Chapter 6</p> <p>Chapter 1, 6</p> <p>Chapter 6, 7</p> <p>Chapter 6</p> <p>Chapter 8, Chapter 12</p> <p>Chapter 6</p>
<p>5. <i>Development timetable</i> Information on the development timetable provided under this section should be clear and easy for DEC to understand the different phases in the development proposal. For reasons of clarity, a flow chart, Gantt or PERT chart should be used where appropriate. Information provided in this section shall include but not be limited to the following:</p> <ul style="list-style-type: none"> • Information on funding arrangements for proposed activity or if availability of funds subject to this or other approvals being granted. • Details of preconstruction activities. • Information on consultation program with all affected parties (i.e., parties that may be directly and indirectly affected). • Details of construction schedule, staging, etc. • Details of commissioning and operational schedules. • Details of infrastructure development schedule. • Details of closure and rehabilitation schedule. 	<p>Chapter 6</p> <p>Confidential information, can be provided to CEPA separately</p> <p>Chapter 6</p> <p>Chapter 5</p> <p>Chapter 6</p> <p>Chapter 6</p> <p>Chapter 6</p> <p>Chapter 6, Attachment 3</p>
<p>6. <i>Characteristics of the receiving environment</i> Available Environmental Studies & Investigations</p>	<p>Chapter 8, 9, Appendices B, D, E, F, H, I, K, L, M</p>

EIS Assessment Guidelines	Relevant section of EIS
<p>Information provided in this sub-section shall include but not be limited to the following:</p> <ul style="list-style-type: none"> • Historic or current baseline data on physical, biological and social systems. • A written estimate of research and/or study time already expended and to be further undertaken. 	
<p>Physical Environment</p> <p>Provide details on the existing physical environment including data on ambient environmental quality of various segments of the environment, including the following:</p> <ul style="list-style-type: none"> • Geomorphological, topographical and geological characteristics. • Any natural or induced hazard in the area (e.g. flood, earthquake, volcanic zone). • Climatic regime (e.g., rainfall, temperature). • Air quality and meteorological data set for air dispersion modelling, etc. • Seasonal surface water quality and hydrological information. • Seasonal ground water quality and flow regime. • Noise levels. 	<p>Chapter 8, Appendices B, D, E, H, I</p> <p>Section 8.2</p> <p>Section 8.1, 8.2, Chapter 13</p> <p>Section 8.1</p> <p>Section 8.7, Appendix H</p> <p>Section 8.3, Appendices B, E</p> <p>Section 8.4, Appendix D</p> <p>Section 8.9, Appendix I</p>
<p>Biological Environment</p> <p>Detailed information should be provided on the existing biological environment, including the following:</p> <ul style="list-style-type: none"> • Presence of a protected area (Conservation Area or Wildlife Management Area), if any. • Details of any special purpose areas (e.g., wetland area). • Aquatic and terrestrial ecology of the area. • Information on vulnerable (endangered) species. • Other relevant biological information. 	<p>Sections 8.5, 8.6, Appendices E, F</p> <p>Section 8.6, Appendix G</p> <p>Section 8.6, Appendix G</p> <p>Sections 8.5, 8.6, Appendices E, F</p> <p>Sections 8.5, 8.6, Appendices E, F</p> <p>Sections 8.5, 8.6, Appendices E, F</p>
<p>Social Environment</p> <p>This sub-section deals with the existing social structure and socio-economic data on the resource/land owners, Local Level Government, the Province and PNG as a whole.</p> <p>Issues that may arise within and outside of the project area should be identified including whether this is a direct or indirect outcome of the physical, biological or socio-economic effects of the proposed development activity.</p> <p>The outcome of the Social Impact Assessment process is the Social Impact Statement, which is included in this section of the Environmental Impact Statement that is submitted to DEC for assessment.</p> <p>Information provided in this sub-section shall include but not be limited to the following details:</p> <ul style="list-style-type: none"> • Demographic information. • Information on existing infrastructure. • Information on public health issues (if applicable). • Information on present economic status of the project area. 	<p>Chapter 9, 11, Appendices L, M</p> <p>Chapter 9, Appendix M</p> <p>Chapter 9, Appendix M</p> <p>Chapter 9, Appendix M</p> <p>Chapter 9, Appendix M</p>

EIS Assessment Guidelines		Relevant section of EIS
	<ul style="list-style-type: none"> Description of existing social services. Details of archaeological, historical, cultural or religious features of the project area under consideration, etc. 	Chapter 9, Appendix M Appendix M
7.	<p><i>Waste minimisation, cleaner production and energy balance</i></p> <p>Information detailed in this section should include consideration of options associated with waste minimisation, cleaner production and energy balance and the ability of the proponent to employ these strategies in its proposed activity. Detailed information to be covered in this section shall include but not be limited to the following:</p> <ul style="list-style-type: none"> Details of alternative ‘cleaner production’ technologies or processes that have been considered. Information on the basis for choosing the proposed technology or process. Available technical background on the process chosen. Details of the Waste Minimisation Strategy developed for the proposal. Details of an ‘energy balance’ for the proposal. 	Chapter 6, 7 Chapter 6, 7 Chapter 6, 7 Chapter 6 Chapter 6
8.	<p><i>Environmental management, monitoring and reporting</i></p> <p>Sufficient information should be provided in this section of the Environmental Impact Statement to enable DEC to anticipate possible environmental management, monitoring and reporting requirements for an Environment Permit. Information listed should reflect the proponent’s environmental policy (environment management system) and the translation of that policy to meet the requirements under this Section and Section 7 (Potential Impacts of Proposal) during different stages in the project life, from construction to decommissioning and closure. Information detailed in this section shall include but not be limited to the following:</p> <ul style="list-style-type: none"> Details of information on plant operating conditions, including management and monitoring strategy. Information on socio-economic management and monitoring strategy. Mechanism and frequency for reporting monitoring results to DEC [now CEPA] and other stakeholders, especially to directly affected stakeholder groups. Availability of contingency and/or emergency plans drawn up for the proposal. Details of Environment Improvement Plan. Details of Waste Minimisation and/or Management Plans. Information on potential rehabilitation issues and strategies including Rehabilitation Plan. 	Chapter 14, Attachment 2 Chapter 14, Attachment 2 Chapter 14, Attachment 2 Chapter 14 Not relevant Attachment 2 (incorporated under sub-plans for relevant environmental aspects) Attachment 2 (incorporated under sub-plans for relevant environmental aspects) and 3
9.	<p><i>Other statutory decisions</i></p> <p>Provide detailed information on other statutory decision(s) that are relevant to this proposed development activity. Provide the draft or finalised Project Development Contract, Memorandum of Agreements or other similar legal decisions that are relevant to the proposal.</p>	In progress and a subject of separate consultations with relevant PNG government departments and agencies

EIS Assessment Guidelines		Relevant section of EIS
10.	Confidential information Details of classified information relating to a manufacturing or industrial process or trade secret used in carrying on or operating any particular undertaking or equipment or information of a business or financial nature in relation to the proposed activity should be clearly defined. Such information would be classified as 'confidential information' and excluded from the Environmental Impact Statement before the document is made available for public review.	Noted
11.	References Provide details of reference materials used in sourcing information and/or data used in the Environmental Impact Statement.	Chapter 18
12.	Acknowledgements Detail relevant acknowledgements.	Chapter 17
13.	Study team Provide detailed information on persons who assisted in the conduct of the Environmental Impact Assessment study and compilation of the Environmental Impact Statement. Persons involved should be the same as those approved in the Environmental Inception Report.	Chapter 16

Table 1.2 Reconciliation with the EIR specialist studies program

Technical study	Key objectives	Tasks	EIS Section or Chapter
Climate and meteorology	<ul style="list-style-type: none"> Obtain site-specific meteorological data as needed. Characterise climate and meteorological conditions of the project area and surrounding region. 	<ul style="list-style-type: none"> Collect and compile climate and meteorology data for the project area, largely based on existing data available from OTML. Prepare climate and meteorology inputs into the EIS and relevant technical studies. 	Section 8.1
Tailings geochemistry	<ul style="list-style-type: none"> Geochemically characterise tailings (including final tailings and embankment construction material) and determine the potential for acid generation and solubilisation of contained metals. Inform the separate assessment of the quality and quantity of surface water discharges from the TSF to inform the need (or not) for a permitted mixing zone downstream of the TSF spillway or discharge point. Determine the need for selective handling and management for tailings (including cycloned tailings material). Describe the geochemical implications of stopping riverine discharge of tails for the Ok Tedi system. 	<ul style="list-style-type: none"> Geochemically characterise the various size fractions of the tailings to determine sulfide oxidation rates and characterise potential leachate water quality. Provide input to predictions of the quality of water that will be discharged from the TSF to watercourses under various flow scenarios. Compare these predictions with current knowledge from OTML's existing operations. Assess downstream implications on dredging operations at Bige. Evaluate the long-term AMD implications for closure planning (e.g., groundwater seepage / contamination, surface water runoff). Propose measures to avoid, manage and mitigate potential AMD impacts. Prepare geochemical characterisation inputs into the EIS and relevant technical studies. 	Chapter 6, Section 10.3, Appendix A
Hydrology and sediment transport	<ul style="list-style-type: none"> Characterise stream flows in the project's likely area of influence including downstream. Establish the background range of suspended sediment conditions and variation with flow. Characterise existing sediment transport processes. Describe flood regime and catchment hydrology. 	<ul style="list-style-type: none"> Collect and compile hydrology and sediment data for the project area, largely based on existing data available from OTML. Conduct water flow sampling at locations on the Ok Tedi, with regular sampling capturing both high (wet season) and low flow (dry season) events and ongoing opportunistic high flow events. Obtain bed sediment samples from Ok Birim. Estimate existing suspended and bed load sediment transport rates at key locations. Conduct mapping and ground-truthing of key drainage lines potentially affected by project. Prepare technical report for inclusion as appendix to EIS. 	Section 8.3, Appendices B, E
Surface water quality	<ul style="list-style-type: none"> Characterise the range of background water and sediment quality conditions in surface waters, against which future conditions can be compared. 	<ul style="list-style-type: none"> Conduct surface water quality sampling for the Ok Birim area, capturing both high and low flow events. Analyse water and bed sediment samples for metals, physical and chemical parameters. Characterise the surface water quality conditions in potentially affected catchment (and reference catchment). Prepare technical report for inclusion as appendix to EIS. 	Section 8.3, Appendices C, E

Technical study	Key objectives	Tasks	EIS Section or Chapter
Aquatic ecology	<ul style="list-style-type: none"> Characterise the aquatic fauna (including selected invertebrates), flora (including riparian vegetation) and habitats within the project's area of influence. Define relevant background/reference sites for upstream / downstream locations. 	<ul style="list-style-type: none"> Review existing information relevant to the project area. Characterise the aquatic ecology of watercourses draining the project area. Conduct aquatic habitat mapping over the project area and confirm aquatic priority habitat types present, novel species and significant environmental constraints / sensitivities. Conduct targeted investigations within the Ok Birim and Upper Ok Tedi systems for aquatic fauna and flora species (including aquatic macro-invertebrates), communities and habitats; with a focus on aquatic species of high conservation value, conservation status of aquatic vegetation / habitat quality, presence of aquatic priority species (i.e. endemic, globally rare or threatened), and presence of invasive alien species. Characterise aquatic resource use by local communities. Collect flesh and liver samples from aquatic biota (e.g., fish, prawns) consumed by local communities and conduct metals analyses. Prepare technical report for inclusion as appendix to EIS. 	<p>Section 8.5, 9.2, Appendix E, Section 9.2</p> <p>Results from 2025 macroinvertebrate sampling to be provided to CEPA under separate cover.</p>
Terrestrial ecology	<ul style="list-style-type: none"> Characterise the terrestrial biological environment within the project's likely area of influence. 	<ul style="list-style-type: none"> Review existing information relevant to the project area. Characterise terrestrial fauna and their habitats, flora and vegetation communities (type and condition) and their distribution in the project area. Conduct terrestrial habitat mapping over the project area and targeted terrestrial habitat, flora and fauna surveys recording the presence and location of invasive exotic flora and fauna species as well as species and habitats of national or international conservation significance. Document rare, threatened, undescribed or otherwise noteworthy terrestrial fauna and flora species (i.e., IUCN-listed or community significance), communities and habitats present within the study area. Identify and describe the human uses of terrestrial flora and fauna species (i.e., those providing ecosystem services including the provision of subsistence, commercial income, materials, cultural functions) by holding discussions with members of the local communities. Prepare technical report for inclusion as appendix to EIS. 	<p>Section 8.6, Section 9.2, Appendix F</p>
Air quality and greenhouse gases	<ul style="list-style-type: none"> Characterise the ambient air environment within and surrounding the project area. Estimate greenhouse gas emissions and energy consumption associated with the project development. Determine the impacts of project components with respect to air quality and greenhouse gas emissions during construction and operations. Develop mitigation measures to limit air quality and greenhouse gas emissions from the project. 	<ul style="list-style-type: none"> Develop appropriate environmental air quality goals. Characterise the existing air quality environment. Model existing meteorological conditions by reference to existing data sets. Identify potential sensitive receptors and major sources of air quality and greenhouse gas emissions. Assess air quality impacts associated with the project, including quantitative air quality emissions modelling. Undertake a greenhouse gas assessment to estimate major Scope 1 and 2 emissions associated with project construction and operations. Identify and describe mitigation and management measures for reducing/controlling air quality and greenhouse gas impacts (if required). 	<p>Section 10.7, 10.8, Appendix H</p>

Technical study	Key objectives	Tasks	EIS Section or Chapter
		<ul style="list-style-type: none"> Assess residual impacts on air quality and greenhouse gases associated with project construction and operation after implementation of proposed mitigation measures. Prepare technical report for inclusion as appendix to EIS. 	
Noise	<ul style="list-style-type: none"> Determine the impacts of the project with respect to noise levels during construction and operations. Assist with project optimisation to comply with appropriate noise constraints. Develop mitigation measures to limit noise emissions from the project. 	<ul style="list-style-type: none"> Develop appropriate environmental noise level goals. Identify potential sensitive receptors and major noise sources and their mode of operations associated with proposed project activities and transportation. Assess potential noise impacts associated with the project, including quantitative noise prediction modelling. Consider proposed mitigation and management measures for reducing/controlling noise impacts (if required). Assess residual noise impacts associated with project construction and operation after implementation of mitigation measures. Prepare technical report for inclusion as appendix to EIS. 	Section 10.9, Appendix I
Groundwater	<ul style="list-style-type: none"> Characterise the groundwater values and characteristics in the project's area of influence. Assess the likely changes to local groundwater flows and quality due to project development. Predict quality, quantity and fate of potential seepage water from the TSF. 	<ul style="list-style-type: none"> Describe the existing groundwater regime (quality, flows and water level) in the project's area of influence. Describe groundwater and surface water interactions and build a conceptual hydrogeological model of the project area. Determine the potential for contamination of groundwater from project components during construction, operations and post-closure. Assess the potential impacts to groundwater and groundwater dependent ecosystems. Quantify the long-term impact of the project on local and regional groundwater resources during project operations and post-closure. Propose measures to avoid, manage and mitigate impacts. Assess the residual impact of project components (e.g., from TSF seepage) on local and regional groundwater resources. Prepare technical report for inclusion as appendix to EIS. 	Section 8.4, 10.4, Appendix D
Soils characterisation and land capability	<ul style="list-style-type: none"> Characterise the range of background soil conditions in proposed project footprint area/s. Characterise the erosion and sedimentation risk for the project footprint area/s. Determine the potential impacts of the project with respect to handling, storing, and rehabilitation of soils, during construction and operations. 	<ul style="list-style-type: none"> Characterise soils within the project area, including the suitability for rehabilitation and future land use activities. Assess the impacts of the project on soils, landform and land capability. Evaluate residual impacts on soils, landform and land capability due to the project after implementation of proposed mitigation measures. Prepare technical inputs for inclusion in EIS. 	Section 8.2, 10.2, Appendix K,
Hydrology and sediment transport impact assessment	<ul style="list-style-type: none"> Predict hydrological changes to watercourses (compared to existing conditions) and flood regime as a result of the project. 	<ul style="list-style-type: none"> Conduct flood and sediment transport modelling specific to the project building on existing models developed for Ok Tedi operations. 	Section 10.3, Appendix B

Technical study	Key objectives	Tasks	EIS Section or Chapter
	<ul style="list-style-type: none"> Predict geomorphological changes to watercourses (compared to existing conditions) as a result of the project. Evaluate the impacts associated with sediment transport resulting from the project. Develop mitigation measures and predict project-related changes in suspended and bed load sediment transport rates, and downstream implications. 	<ul style="list-style-type: none"> Identify project-wide sources of fugitive sediment generation, and work with the project design team to produce feasible measures to mitigate fugitive sediment generation. Evaluate appropriate climate change projections in the assessment. Assess the likely changes to bed levels, stream morphology, flooding, over-bank sedimentation and sediment effects downstream during construction, operations and post-closure. Assess residual impact of the project (e.g., from TSF discharges) with proposed mitigation measures implemented. Prepare technical report for inclusion as appendix to EIS. 	
Downstream surface water quality assessment	<ul style="list-style-type: none"> Assess impacts on surface waters from the development and operation of proposed project components. Predict impacts on water quality with reference to baseline and current conditions and applicable water quality criteria. 	<ul style="list-style-type: none"> Identify the appropriate assessment framework and assessment end-points. Draw on information relevant to the assessment, including the sediment transport, groundwater, and geochemical characterisation studies. Identify the project activities that are potential sources of impact to water quality, and the issues associated with these impacts. Conduct surface water quality modelling to predict TSF discharge and describe changes to downstream water quality with reference to current conditions and applicable discharge criteria during operations and post-closure. Provide inputs for determining the requirement for mixing zone/s and compliance point/s for TSF discharges during operations and/or post-closure. Describe the measures to avoid, minimise or mitigate potential impacts to receiving waters. Assess the residual impacts of the project on surface water quality with respect to applicable water quality criteria, taking into consideration management and mitigation measures. Prepare technical report for inclusion as appendix to EIS. 	Section 10.3, Appendix C
Aquatic ecology impact assessment	<ul style="list-style-type: none"> Predict the extent to which the proposed project will impact the aquatic ecology within the project's likely area of influence. 	<ul style="list-style-type: none"> Assess the sensitivity of aquatic fauna and flora to changes in turbidity and sediment loads, chemical water quality and natural flow regimes downstream and evaluate impacts on aquatic biodiversity values associated with proposed project activities. Assess project impacts to the ecological health of waterbodies within and downstream of the project area, with consideration of existing impacts from upstream mining activities. Evaluate the nature and extent of project impacts on aquatic biodiversity values. If there are aquatic priority habitat types present or novel species, determine the potential nature and extent of project impact to these habitats and species. Identify measures to avoid, minimise, or mitigate adverse impacts upon aquatic biodiversity values. Assess residual impacts on aquatic biodiversity values associated with project construction and operation with implementation of mitigation measures. Prepare technical report for inclusion as appendix to EIS. 	Section 10.5, Appendix E

Technical study	Key objectives	Tasks	EIS Section or Chapter
Terrestrial ecology impact assessment	<ul style="list-style-type: none"> Evaluate the direct and indirect effects of the project components on the terrestrial biological environment, develop mitigation measures and assess residual impacts. 	<ul style="list-style-type: none"> Draw on findings of relevant terrestrial ecology studies to define environmental values with regards to terrestrial biodiversity within the study area and assess their sensitivity. Identify anticipated project impacts and interaction with terrestrial flora and fauna species and biodiversity conservation, local ecosystem services and natural resource use (e.g. hunting), terrestrial habitat loss and fragmentation, and impacts of project related in-migration and improved access to areas on levels of hunting and collection of forest products in the project area. Assess the potential for, and implications of, the introduction of new invasive species into the project area. Propose management and mitigation measures to reduce and/or mitigate project impacts. Predict the residual impacts of the project to terrestrial biodiversity. Prepare technical report for inclusion as appendix to EIS. 	Section 10.6, Appendix G
Climate change risks	<ul style="list-style-type: none"> Develop a climate change risk assessment to document and assess current and anticipated climate related risks of the project. Recommend in-principle measures which address residual climate related risks, taking into account OTML existing plans, processes, policies and systems relating to climate change. 	<ul style="list-style-type: none"> Review the regulatory framework and policy context pertaining to climate change associated with the project. Complete a climate change risk assessment. Assess the project's vulnerabilities to climate change (e.g., changing patterns of rainfall, hydrology, temperature and extreme weather events). Prepare technical report for inclusion as appendix to EIS. 	Chapter 13, Appendix J
Conceptual closure and rehabilitation	<ul style="list-style-type: none"> Identify the likely environmental and social issues associated with the closure and rehabilitation of the project. Outline the proposed end land use and closure objectives. Identify residual risks and liabilities associated with closure and the means in which they might be controlled to an acceptable level. 	<ul style="list-style-type: none"> Review project design and relevant information to develop and refine conceptual closure objectives and criteria for project components. Consider vegetation establishment trials undertaken by OTML to support closure of project components, including lessons learned from closure activities implemented at the Bige site. Prepare a conceptual closure and rehabilitation plan for the project. 	Attachment 3
Socio-economic characterisation	<ul style="list-style-type: none"> Characterise the socio-economic context of communities and peoples potentially affected by the project development. 	<ul style="list-style-type: none"> Define the project's social area of influence and review and analyse existing information relevant to the project. Undertake surveys in relevant project communities to collect data on matters including, but not limited to: <ul style="list-style-type: none"> Governance structure at local level Demography and migration Cultural diversity and heritage Physical and community infrastructure and services Economy, income and livelihoods 	Chapter 9, Appendix M

Technical study	Key objectives	Tasks	EIS Section or Chapter
		<ul style="list-style-type: none"> Education and literacy Community health and security Employment and business Housing Land use and natural resources Food security Character, amenity and sense of place Community issues Consideration of vulnerable groups including women and youth. <ul style="list-style-type: none"> Prepare technical report for inclusion as appendix to EIS. 	
Resource use	<ul style="list-style-type: none"> Characterise land and water resource use by people near, and immediately downstream of project components. Describe the resource use by project affected local communities and assess the relative importance of each resource to local people. 	<ul style="list-style-type: none"> Identify and map the location of land and water resources used by the local community. Characterise communal water uses potentially affected by the project. Describe subsistence and commercial activity. Document and map land uses (e.g., gardening, bush resource use for hunting and fishing, sago stands) within the project development area and potentially affected immediately downstream areas. Prepare technical inputs for inclusion in EIS. 	Section 9.2, Appendix M
Archaeology and cultural heritage	<ul style="list-style-type: none"> Characterise the archaeology and cultural heritage of the project area and surrounds. Identify and understand areas of archaeological or cultural importance in the project area. 	<ul style="list-style-type: none"> Review existing information relevant to the project area, if available. Consult with potentially affected communities to identify known archaeological and cultural heritage sites and resources. Conduct targeted archaeology and cultural heritage surveys in the project area, in particular land impacted by the project footprints. Identify sites of archaeological or cultural significance that could impose constraints on the location of project facilities or otherwise require specific management. Prepare technical report for inclusion as appendix to EIS. 	Section 9.3, Appendix L
Socio-economic impact assessment (including resource use)	<ul style="list-style-type: none"> Assess the anticipated positive and negative socio-economic impacts of the project. Identify suitable measures to enhance the positive and minimise the negative impacts of the project. 	<ul style="list-style-type: none"> Articulate qualitatively the socio-economic benefits of the project at local, regional and national scale. Identify and assess the direct and indirect social, community health and economic impacts (both negative and positive) associated with the project. Identify and assess impacted land use, assets and/or resource use associated with the project, including impacts to access. Propose measures to enhance the positive and minimise the negative socio-economic effects of the project. 	Chapter 11

Technical study	Key objectives	Tasks	EIS Section or Chapter
		<ul style="list-style-type: none"> Assess residual socio-economic impacts associated with project construction and operation after implementation of mitigation measures. Prepare assessment for inclusion in the EIS. 	
Social - ecosystems services assessment	<ul style="list-style-type: none"> Identify the ecosystem services applicable to the project area and determine impacts and opportunities posed by the project. 	<ul style="list-style-type: none"> Review relevant existing information and data. Develop an ecosystem services assessment, including: <ul style="list-style-type: none"> Identify the ecosystem services applicable to the project area and immediately downstream. Screen the ecosystem services to determine those that are most relevant to the project, including considering whether the project will impact on these. Prepare assessment for inclusion in the EIS. 	Section 9.2, 11.4, Appendix M
Social – human rights impact assessment	<ul style="list-style-type: none"> Identify and assess the human rights impacts posed by the project during construction and operations. 	<ul style="list-style-type: none"> Review relevant project documentation to inform preliminary identification of human right impacts and identify if a management framework exists to manages identified risks and impacts. Develop a high-level human rights impact assessment to identify the salience of identified human rights impacts and adequacy of the project's current framework for mitigating and managing these. Consideration will be given to populations vulnerable to human rights impacts, including women and children. Prepare assessment for inclusion in the EIS. 	Section 11.5
Archaeology and cultural heritage impact assessment	<ul style="list-style-type: none"> Determine the potential impacts of the project with respect to known archaeological and cultural resources for mitigation. 	<ul style="list-style-type: none"> Identify project impacts and disturbances on known archaeological and cultural resources. Propose mitigation and management measures for minimising impacts to archaeology and cultural heritage. Establish a 'Chance Find Procedure' for the management of chance finds and physical cultural resources for the project. Describe requirements for salvaging and relocation of artefacts / cultural resources prior to project development, where applicable. Assess the residual impacts on archaeology and cultural heritage values with implementation of proposed mitigation measures. Prepare assessment for inclusion in the EIS. 	Section 10.3, Appendix L, Attachment 2
Landscape and visual amenity	<ul style="list-style-type: none"> Determine the extent to which the project may modify the existing landscape and visual amenity. 	<ul style="list-style-type: none"> Conduct digital 3D modelling of project infrastructure on the existing landscape character from the perspective of sensitive receptors. Prepare assessment and selected photomontages for inclusion in the EIS. 	Chapter 10