

10 TOPOGRAPHY AND SOILS

10.1 SOIL EROSION

Issue:

Clarification was sought on the management strategies that would be implemented to control soil erosion, particularly wind erosion, on disturbed sites.

Submissions: 2 and 106

Response:

Management strategies would be developed for disturbed areas where the potential for soil erosion has been identified. Section 10.3.3 and Figures 10.5 and 10.6 of the Draft EIS identified the areas of low, medium, high and very high erosion potential in the EIS Study Area.

Given the relatively flat terrain and the small, contained catchments in most of the area, standard management practices would control erosion in those sections with low and moderate erosion potential (i.e. predominantly the southern infrastructure corridor and the southern route for the gas pipeline corridor options). Such practices include minimising the area of disturbance and stockpiling topsoil and cleared vegetation for subsequent re-spreading over disturbed areas to promote vegetation regrowth (refer Section 10.5.1 of the Draft EIS).

Where project infrastructure is to be located in soils of high and very high erosion potential, such as along sections of the northern route for the gas pipeline corridor options, an Erosion and Sediment Control Plan (ESCP) would be developed before disturbance works began. Depending on which gas pipeline option was chosen, the ESCP would address dunefield areas associated with the Strzelecki, Collina and Hope land systems, undulating downs and rolling hills in the Mumpie soil unit, and the bed, banks and overflow channel areas of the main watercourses. These areas are most susceptible to erosion caused by wind and rain if surface cover is disturbed (as discussed in Section 10.5.1 and Appendix U of the Draft EIS). Erosion control measures may include minimising the disturbance footprint; minimising the length of pipeline trench open at any given time; reinstating ground cover as soon as practicable; watering disturbed surfaces, particularly during periods of high wind; and limiting construction traffic movement over disturbed areas. Monitoring of disturbed areas and erosion control structures (if installed) would occur during construction activities, particularly after high rainfall and wind events, and would continue after construction until the disturbed areas were stabilised.

While soil types in the areas proposed for the landing facility and desalination plant only have a 'low' erosion potential, additional erosion control measures and site-specific ESCPs would be implemented at these sites to ensure that sediment generated from construction activities did not enter the marine waters (refer Section 10.5.1 of the Draft EIS). As for the high and very high erosion-prone areas discussed above, the ESCP for the landing facility and desalination plant would be prepared before disturbance works began (as was shown in Figure 24.4 of the Draft EIS).

10.2 ACID SULFATE SOILS

Issue:

It was requested that additional investigations be undertaken and a draft Acid Sulfate Soil Management Plan be prepared and submitted before any construction activity at the proposed landing facility and water supply pipeline began.

Submission: 2

Response:

As discussed in Section 10.3.3 of the Draft EIS, risk mapping of acid sulfate soils (ASS) suggests that coastal ASS may occur in some sections of the EIS Study Area (refer to Figure 10.7 of the Draft EIS, reproduced in the Supplementary EIS as Figure 10.1). Field sampling and analysis were undertaken at 14 sites that were considered most likely to support ASS. Section 10.5.2 of the Draft EIS discussed the potential disturbance to ASS near the proposed landing facility and adjacent to Port Bonython Road (for linear infrastructure). Investigations undertaken for the Draft EIS indicated that these soils have a low acid-generating potential and could be effectively managed. As noted in Section 10.5.2 of the Draft EIS, and confirmed again here, further investigations would be conducted during the detailed design phase (i.e. once the final disturbance footprints had been determined) to further quantify the acid-generating potential of these soils.

As noted in Section 10.6 and Appendix U (Environmental Management Program ID1.1) of the Draft EIS, an ASS Management Plan would be prepared before construction began in areas where the disturbance of potential acid sulfate soils was confirmed by field investigations. The Plan would detail the required soil handling methods and lime dosing rates. As shown in Figure 24.4 of the Draft EIS (reproduced here as Figure 10.2) ASS Management Plans would be prepared six months before construction activities for the water supply pipeline (areas adjacent to Port Bonython Road), landing facility and transmission line began.

10.3 FOSSILS

Issue:

Further information was requested on the potential impact on fossils in the vicinity of the proposed gas pipeline corridor options, particularly in relation to the Lake Palankarina and Lake Callabonna fossil reserves.

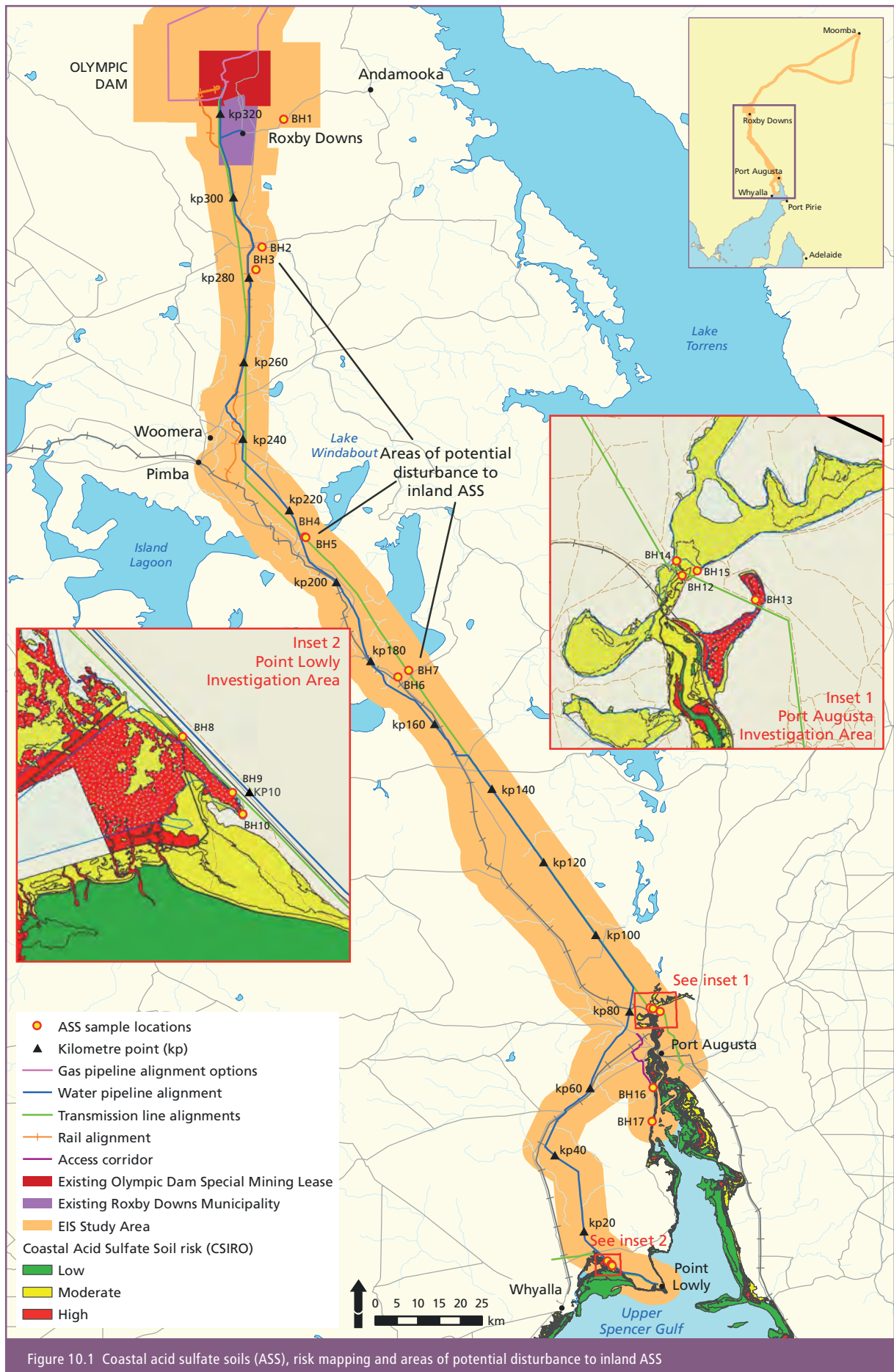
Submission: 1

Response:

There would be no direct disturbance to these fossil reserves as a result of the project.

As discussed in Section 10.3.4 and shown in Figure 10.8 of the Draft EIS (reproduced in the Supplementary EIS as Figure 10.3), both the Lake Palankarina and the Lake Callabonna fossil reserves are outside the EIS Study Area. The Lake Palankarina reserve is 30 km north of the nearest gas pipeline corridor option, while the Lake Callabonna reserve is about 1 km from the study corridor of the nearest gas pipeline corridor option – and therefore at least 6 km from the proposed centre-line of a gas pipeline easement (the study corridor was 5 km wide on each side of the proposed centre-line).

Any potential indirect impacts would be managed by locating temporary construction camps away from the fossil reserves, and, if deemed desirable by the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC), appropriate information about the importance of the fossil reserves would be included in the contractor induction programs. As concluded in Section 10.6 of the Draft EIS, the likelihood of encountering fossils in the EIS Study Area is low and the residual impact was categorised as negligible.



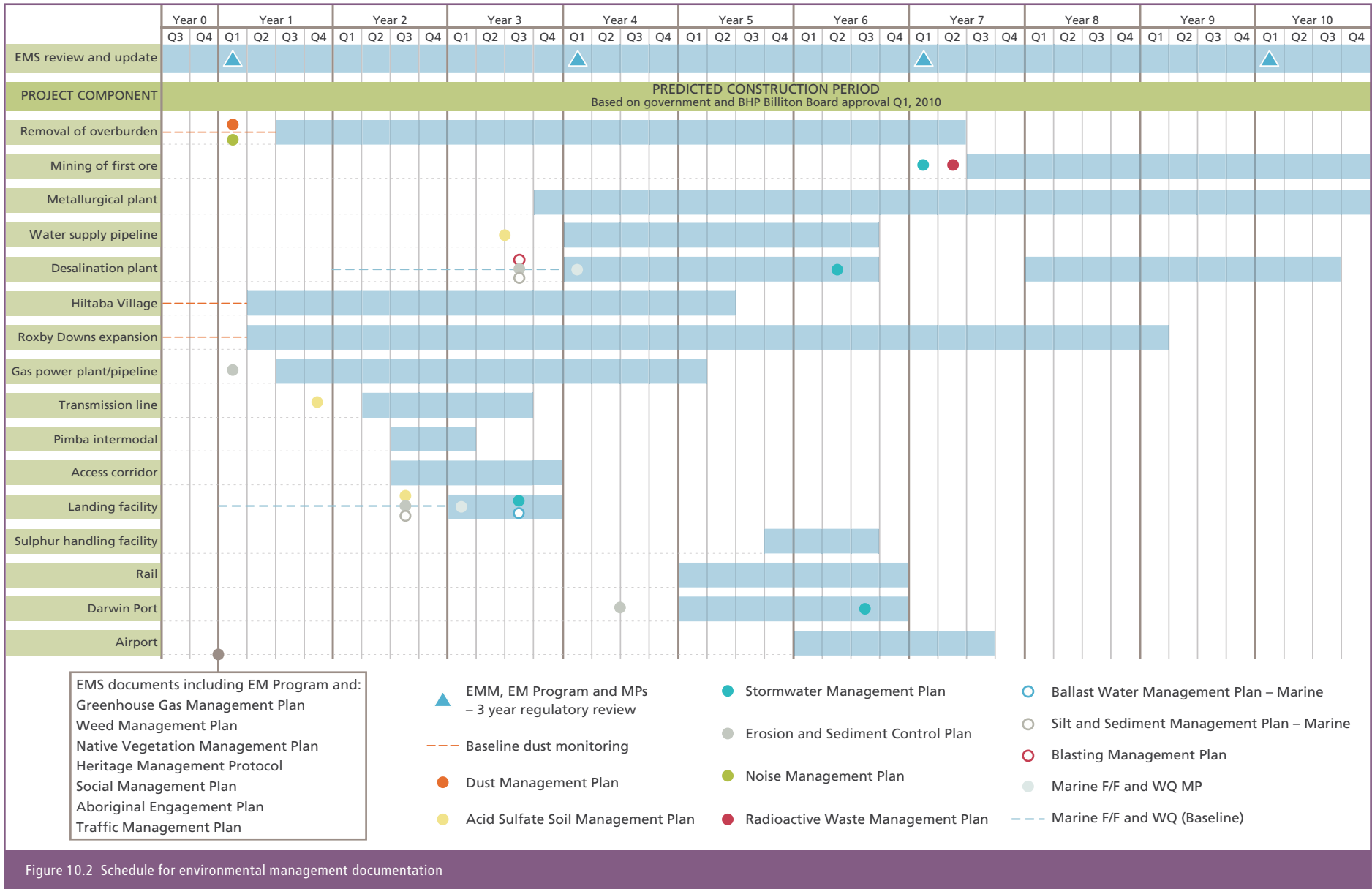




Figure 10.3 Geological units known to contain fossils along the gas pipeline corridor options

10.4 SOIL CONTAMINATION

Issue:

Concern was raised that mining and processing activities associated with the proposed expansion could result in localised impacts on the soil in the vicinity of Olympic Dam.

Submission: 62

Response:

As described in Section 10.5.4 of the Draft EIS, the potential for mining and processing activities to contribute to soil contamination in the Special Mining Lease (SML) was assessed and categorised as low. In the area outside the SML the potential was categorised as negligible. While elevated concentrations of metals and other potential contaminants (including radionuclides) present in stormwater run-off from on-site facilities such as the metallurgical plant, hardstand areas and the rock storage facility (RSF) may lead to localised soil contamination, stormwater would be controlled in defined management areas and there would be no discharge of stormwater from the SML (refer Section 11.5.1 of the Draft EIS and Section 11.1 of the Supplementary EIS for details). Post-closure, Section 23.8.3 of the Draft EIS noted that potentially contaminated soils in the SML would be assessed and remediated as specified in the amended site contamination provisions (2007) of the *Environmental Protection Act 1993*, the National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC 1999), and/or other relevant legislation at that time that addressed contamination.

Accidental spills of fuel and other hazardous materials have the potential to result in soil contamination. As discussed in Section 22.6.8 of the Draft EIS, transport, handling and storage of fuel and other hazardous materials in the SML would be in accordance with the relevant state and Australian statutory requirements. As a minimum, the South Australian Environment Protection Authority standards would be used (EPA Guideline 080/07) (EPA 2007), which require bund sizes and volumes to be 120% of the net capacity of the largest tank and 133% for flammable material. The objective, as with the current operation, is to prevent spills from occurring and, if they do occur, to contain the spillage. Current spill management and reporting procedures would continue to be implemented and updated as required for the expanded operation.