

9 GEOLOGY, MINERAL RESOURCES, OVERBURDEN AND SOILS

9.1 INTRODUCTION

As there has been a realignment of the proposed southern CSM pipeline corridor, this chapter covers the geology and soils and land capability of the revised northern portion of the proposed pipeline. This chapter also responds to comments made in various EIS submissions.

9.2 METHODOLOGY OF ASSESSMENT

9.2.3 SOILS

The soils of the revised northern pipeline portion were assessed using the same methodology as discussed in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.2.3.

9.2.4 LAND SUITABILITY ASSESSMENT

The land suitability of the revised northern pipeline portion was assessed using the same methodology as discussed in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.2.4.

9.3 EXISTING ENVIRONMENT

9.3.1 TOPOGRAPHY AND GEOMORPHOLOGY

Topography

The revised northern pipeline portion traverses the low undulating hills north of the Great Dividing Range, as defined in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.1. The revised pipeline portion varies in elevation between 260 m and 330 m.

9.3.2 GEOLOGY

Regional geology

The revised northern pipeline portion traverses Middle to Upper Jurassic age Injune Creek Group (Jsi) and Quaternary age alluvium (Qa) as defined in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.2.

With the realignment, the proposed northern pipeline corridor no longer traverses the Middle to Upper Jurassic age Gubberamunda Sandstone (Jsg) geological unit.

9.3.3 GEOMORPHOLOGY

The geomorphology of the revised northern pipeline portion is the same as was discussed in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.3.

9.3.4 MINERAL RESOURCES

A new search of the Department of Employment, Economic Development and Innovation's Interactive Resource and Tenure online maps (http://www.dme.qld.gov.au/mines/tenure_maps.cfm accessed on 13 May 2009) was conducted for the proposed pipeline corridor, including the revised northern pipeline portion, as shown in Figure 9-3-SV2.3. These searches identified the following changes to petroleum leases (PL), exploration permits for coal (EPC) and mining leases since release of the EIS:

- PL171 (granted) held by Roma Petroleum NL is no longer impacted by the alignment
- EPC1134 (granted), held by Surat Coal Pty Limited, has been updated from application to granted status

- ECP1251 (application), held by Metrocoal Limited is no longer impacted by the alignment
- EPC1278 (application), held by Surat Coal Pty Ltd is no longer impacted by the alignment.
- MLA50247 (application) (Woori South Mining Lease), has been lodged by Surat Coal Pty Ltd
- MLA50248 (application) (Woori North Mining Lease), has been lodged by Surat Coal Pty Ltd.

9.3.6 SOILS

Land resource areas

The revised northern pipeline portion traverses poplar box flat plains and brigalow uplands land resource areas (LRA) as defined in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.6. The land resource areas of the revised pipeline portion are shown in Figure 9-4-SV2.3.

Soil types and descriptions

Soil types and descriptions for the proposed northern pipeline including the revised pipeline portion are the same as described in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.6.

9.3.7 LAND SUITABILITY AND AGRICULTURAL LANDS

Land suitability

The revised northern pipeline portion traverses class 2 land for beef cattle grazing and class 3 land for dryland cropping, as defined in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.7. Distribution of land suitability classes are shown in Figures 9-5-SV2.3 and 9-6-SV2.3. While land suitability classes are not expected to be effected, it should be noted that the revised northern pipeline portion is predominantly within road reserves.

Good quality agricultural land

The revised northern pipeline portion traverses class A and B agricultural land under the Taroom Planning Scheme, as defined in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.3.7.

9.3.8 SOIL CONSERVATION PLANS

The majority of the revised northern pipeline portion traverses road reserves, and as such no additional soil conservation plans will be impacted.

9.4 DESCRIPTION OF PROPOSED DEVELOPMENT

The description of the development as provided in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.4 is still relevant for the proposed pipeline, including the revised northern pipeline portion.

9.5 POTENTIAL IMPACTS

9.5.1 TOPOGRAPHY AND GEOMORPHOLOGY

The potential impacts on topography and geomorphology are the same as provided in EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.5.1.

9.5.3 SOILS

The potential impacts on soils are the same as provided in EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.5.3.

Erosion

The EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.6.3 stated that exposed soils will be revegetated as soon as practical after pipeline associated works have been completed. Further to this, topsoiling will commence within one month of the completion of each section of pipe construction and revegetation will commence within two months of the completion of each section of pipe construction, as far as practicable.

Prompt re-topsoiling and revegetation maximises the retention of the seed bank and soil microstructure in the stripped topsoil, reducing the maintenance requirements for successful revegetation.

9.5.5 POST-CONSTRUCTION LAND SUITABILITY AND AGRICULTURAL LANDS

The potential impacts on land suitability and agricultural lands are the same as provided in EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.5.5. However, the majority of the revised northern pipeline portion is located within road reserve, with minimal impact on agricultural properties in that area.

9.6 MITIGATION MEASURES

The proposed mitigation measures for the revised northern pipeline portion are the same as provided in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.6.

9.6.3 SOILS

Soil conservation plans

Mitigation measures related to erosion and sediment control for the southern CSM water supply pipeline was discussed in the EIS Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.6.3.

The following additional erosion and sediment control related mitigation measures will also be applied:

- a review of aerial photography identified that the majority of cleared, agricultural land along the route potentially contains agricultural runoff control works in the vicinity of the pipeline route. Where practicable, the pipeline route will be located away from the outlet end of any runoff control works or from constructed waterways related to agricultural soil conservation measures
- the final land surface will be designed to prevent the concentration of overland flow that may result in erosion either within the corridor or on adjacent land
- where the pipeline is not parallel to existing runoff control works, or where there is a potential to concentrate overland flow, the final landform design will be constructed to ensure natural flow of runoff is not impeded or concentrated as far as practicable
- 'Whoa boys', swale or similar measures will be constructed along the pipeline route to avoid concentration of runoff.

9.7 RESIDUAL IMPACTS

The residual impacts in relation to the revised northern pipeline portion are the same as provided in the EIS, Volume 2, Chapter 9 Geology, Mineral Resources, Overburden and Soils, section 9.7.

9.8 REFERENCES

Department of Employment, Economic Development and Innovation [website], Interactive Resource and Tenure online maps, Queensland Government. Available at http://www.dme.qld.gov.au/mines/tenure_maps.cfm