

Geraldton to North-Eastern Goldfields Infrastructure Corridor

Gas Pipeline Sale Steering Committee

**Advice to the Minister for the Environment from the Environmental Protection
Authority (EPA) under Section 16(e) of the *Environmental Protection Act 1986***

**(This is not an assessment of the Environmental Protection Authority under Part IV of
the *Environmental Protection Act 1986*)**

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Summary and recommendations

This report provides the Environmental Protection Authority's (EPA's) advice to the Minister for the Environment on the strategic assessment of the Western Australian Government's concept to establish the Geraldton to North-eastern Goldfields Infrastructure corridor between Compressor Station 7 (CS7) on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Goldfields Highway north of Leonora.

The Gas Pipeline Sale Steering Committee (GPSSC) on behalf of the Western Australian Government requested early advice from the Environmental Protection Authority (EPA) on any constraints, from an environmental impact perspective, that have been identified with the establishment of the Geraldton to North-eastern Goldfields Infrastructure Corridor. The EPA's report also highlights areas where further work would be required by proponents prior to assessment of future infrastructure developments within the proposed corridor under Section 38 of the *Environmental Protection Act, 1986*.

Relevant environmental factors

It is the EPA's opinion that the following are the environmental factors that would need to be addressed in detail in any assessment of an individual proposal:

- (a) Terrestrial flora;
- (b) Specially Protected (Threatened) Fauna;
- (c) Rehabilitation;
- (d) Liquid and solid waste disposal;
- (e) Dust;
- (f) Noise and vibration;
- (g) Surface water and groundwater quality;
- (h) Rivers and ephemeral streams;
- (i) Risk and hazards; and
- (j) Culture and heritage.

Conclusion

The EPA has strategically assessed the concept to establish the Geraldton to North-eastern Goldfields Infrastructure Corridor between Compressor Station 7 (CS7) on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Goldfields Highway north of Leonora.

The EPA notes that, on the basis of the information currently available, there are no constraints that would preclude the use of the proposed corridor for the construction of future infrastructure.

The EPA also notes the commitments that will need to be made and implemented by future proponent(s) intending to construct infrastructure within the proposed corridor.

The EPA has concluded that all factors identified can be managed in an environmentally acceptable manner, and that it is unlikely that the EPA's environmental objectives would be compromised, subject to future proponent(s) agreeing to adopt the recommended commitments detailed in this report, and implementing them in a satisfactory manner.

Any specific proposal for the development of infrastructure within the proposed corridor will require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the concept on which advice is being provided is the establishment of the Geraldton to North-eastern Goldfields Infrastructure Corridor between Compressor Station 7 (CS7) on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Goldfields Highway north of Leonora.
2. That the Minister considers the EPA's strategic advice provided under Section 16(e) of the *Environmental Protection Act, 1986* on the relevant environmental factors as detailed in Section 3 of this report.
3. That the Minister notes that the EPA has concluded that no constraints that would preclude the use of the proposed corridor for the construction of future infrastructure have been identified on the basis of the information currently available.
4. That the Minister notes that the EPA has concluded that the intent of the commitments that will need to be adopted and implemented by future proponent(s) intending to construct new infrastructure within the proposed corridor is appropriate.
5. That the Minister notes that future proposals for the development of new infrastructure within the proposed corridor would require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

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1. Introduction and background

The Gas Pipeline Sale Steering Committee (GPSSC) on behalf of the Western Australian Government, requested the Environmental Protection Authority (EPA) to undertake a strategic assessment of the concept to establish the Geraldton to North-eastern Goldfields Infrastructure Corridor between Compressor Station 7 (CS7) on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Goldfields Highway north of Leonora.

As the concept to establish the corridor did not constitute a “proposal”, it could not be subject to environmental impact assessment under Section 38 of the *Environmental Protection Act, 1986* and associated Conditions imposed by the Minister for the Environment. The EPA has assessed the proposed Geraldton to North-eastern Goldfields Corridor and provides advice on the concept to the Minister for the Environment under Section 16(e) of the *Environmental Protection Act, 1986*. The advice is provided to guide the establishment of the corridor, through the identification of potential ‘fatal flaws’ early in the planning of the concept and to provide guidance to future infrastructure developers on the type and extent of further work that will be required for environmental approval in order to address environmental issues of concern to the EPA.

The GPSSC prepared a Strategic Environmental Review (SER) document which was made available for a four week public review period commencing on 30 September 2002 and closing on 28 October 2002.

In preparing this report, the EPA has considered the relevant environmental factors associated with the concept, issues raised in public submissions during the public review period, specialist advice from the Department of Environmental Protection (DEP) and other government agencies, the proponent’s response to submissions and the EPA’s own research and expertise.

Further details of the concept are presented in Section 2 of this report while Section 3 discusses environmental factors relevant to the proposal. Commitments requiring management measures to be implemented by future proponent(s) are commented on in Section 4. The EPA provides general advice on other issues associated with the concept in Section 5. Section 6 outlines the EPA’s conclusions on the strategic assessment. The EPA’s Recommendations regarding the concept are included in Section 7.

A list of people and organisations that made submissions is included in Appendix 1 and References are listed in Appendix 2. A preliminary list of commitments that require management measures to be implemented by future proponent(s) is included in Appendix 3. Appendix 4 contains a summary of submissions and the proponent’s response to submissions and is included as a matter of information only. It does not form part of the EPA’s report and recommendations. The EPA has considered issues raised in public submissions and the response from the GPSSC to those issues when identifying relevant environmental factors.

2. The concept

The Gas Pipeline Sale Steering Committee (GPSSC) on behalf of the Western Australian Government, proposes to establish an infrastructure corridor from the Dampier to Bunbury Natural Gas Pipeline (DBNGP) near Geraldton to the north-eastern Goldfields. The SER indicated that the proposed corridor will extend from Compressor Station 7 (CS7) on the DBNGP to the Goldfields Highway north of Leonora, a total distance of about 640km.

The SER also indicated that the following infrastructure will be accommodated within the corridor:

- one or two natural gas pipelines;
- up to three electricity transmission lines;
- a water pipeline;
- fibre optic cables;
- a road;
- a railway line; and
- an access track.

A more detailed description of the concept can be found in the SER document (Bowman Bishaw Gorham, 2002), which should be read in conjunction with this report.

The location of the infrastructure corridor that was originally proposed in the SER document is shown on Figure 1. Conceptual cross sections of the corridor at various locations along its length are provided on Figure 2.

Following the public release of the SER document the GPSSC modified the corridor route at a number of locations in order to avoid environmentally and socio-economically sensitive areas. The adjustments that were made to the originally proposed corridor route were the result of on-going consultation between the Gas Pipeline Working Group (GPWG), on behalf of the GPSSC, and landholders and other stakeholders. A significant proportion of the consultation that was undertaken was in response to the public submissions received, and the modifications to the corridor route were made to address the issues raised in the submissions. The 15 locations where the corridor route has been modified are illustrated in Appendix 4. A list outlining the reasons why the corridor route was modified at each location is also included in Appendix 4.

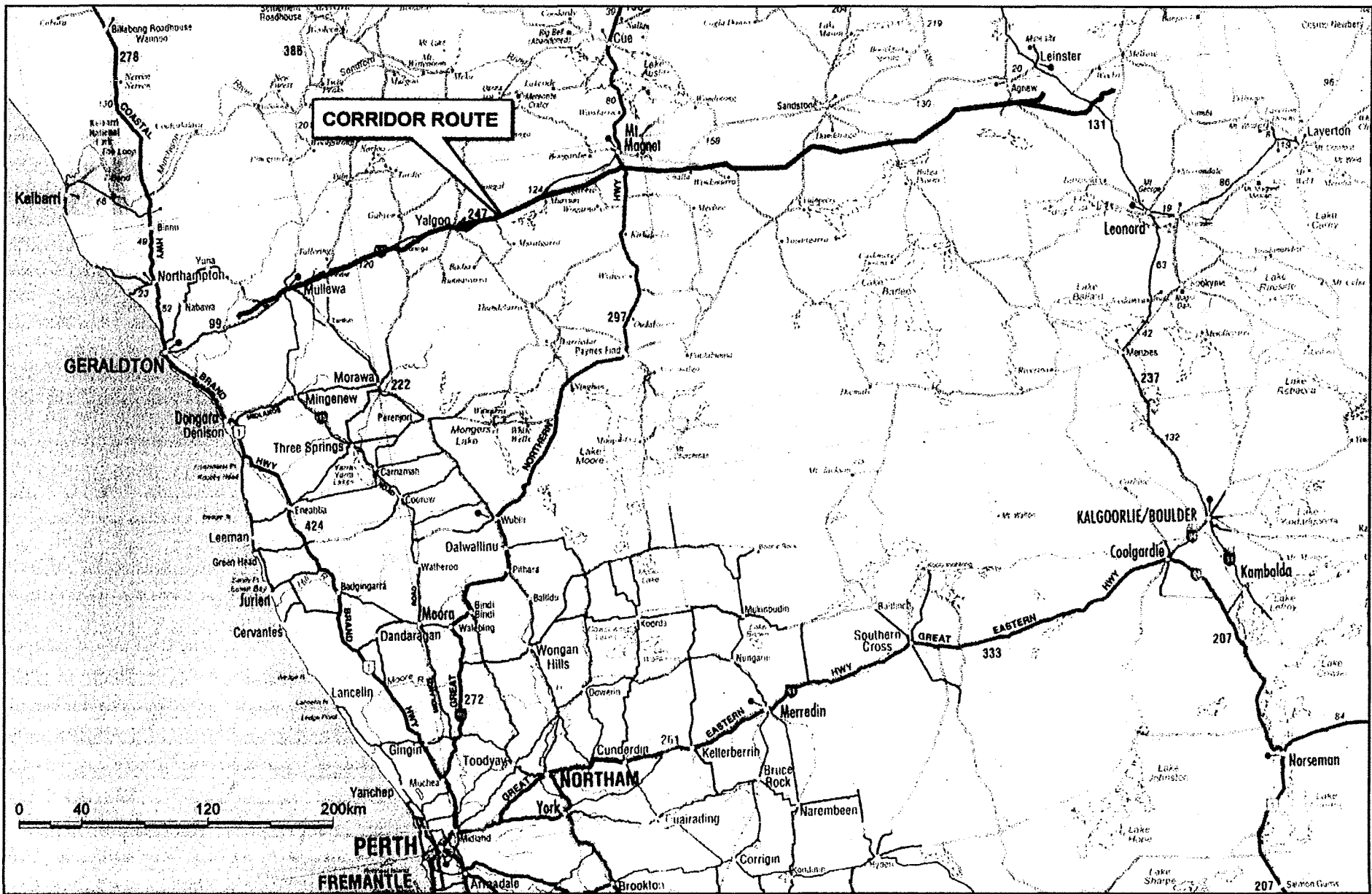


Figure 1. Corridor location (Source: Figure 1 from Bowman Bishaw Gorham, 2002)

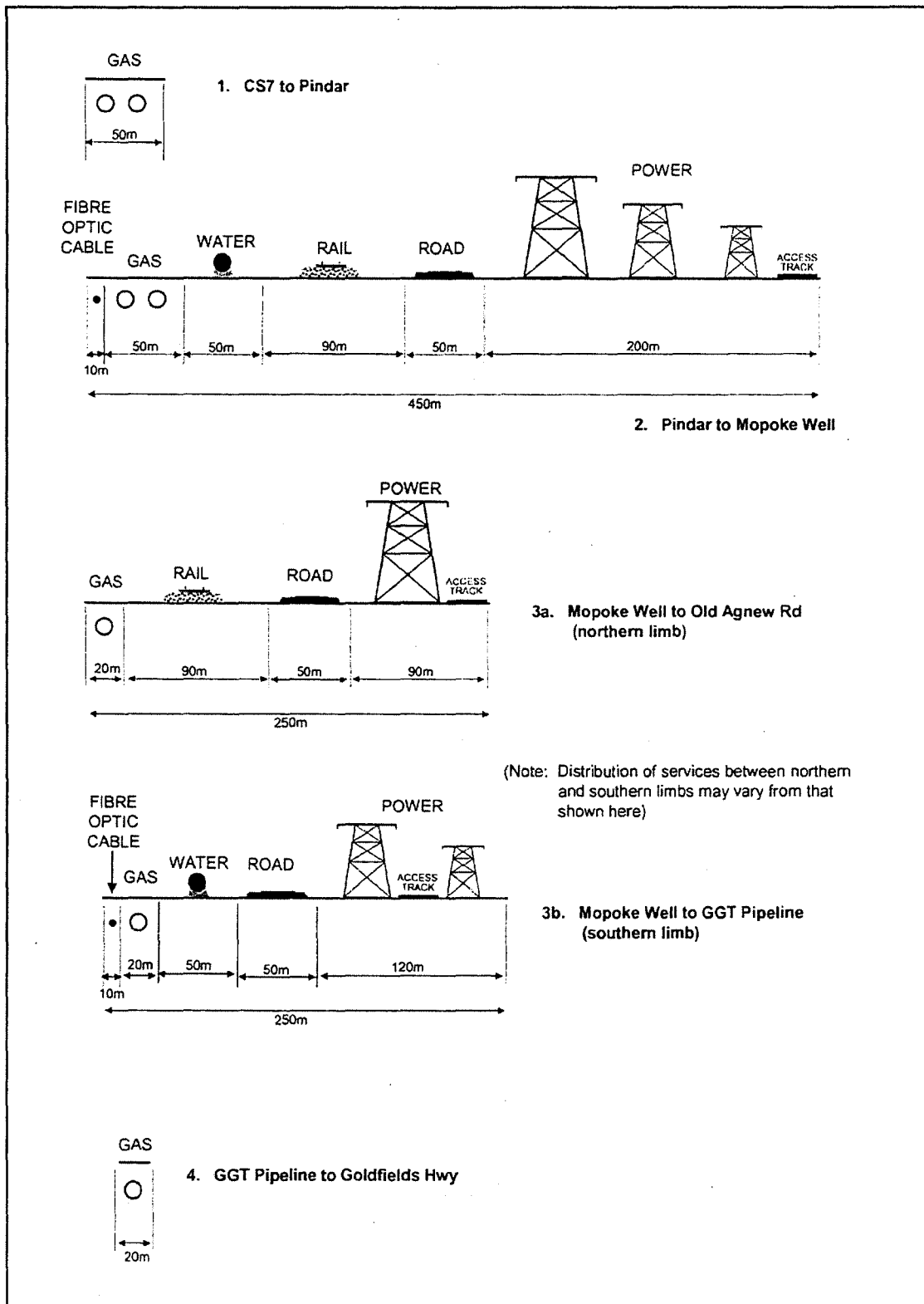


Figure 2. Conceptual cross sections of the fully developed corridor (Source: Figure 4 from Bowman Bishaw Gorham, 2002)

3. Relevant environmental factors

Appendix A of the SER contains a copy of the EPA's guidelines for the assessment and identifies the issues to be addressed during the assessment.

Having considered appropriate references, public and government submissions and the proponent's response to submissions, in the EPA's opinion, the following are the environmental factors relevant to the concept:

- (a) Terrestrial flora;
- (b) Specially Protected (Threatened) Fauna;
- (c) Rehabilitation;
- (d) Liquid and solid waste disposal;
- (e) Dust;
- (f) Noise and vibration;
- (g) Surface water and groundwater quality;
- (h) Rivers and ephemeral streams;
- (i) Risk and hazards; and
- (j) Culture and heritage.

Details on the relevant environmental factors are contained in Sections 3.1 - 3.10. The description of each factor shows why it is important and how the establishment of the proposed corridor, and the development of future infrastructure within it, may impact upon the environment.

The above relevant factors were identified from the EPA's consideration and review of all environmental factors generated from the SER document and the submissions received, in conjunction with the proposal characteristics.

Objectives for each factor have been included to assist in providing guidance to any potential developers. Objectives for any or all factors may change for any subsequent proposal based on this strategic assessment and any subsequent information that becomes available.

Submissions on the SER are summarised before the EPA assessment for each relevant factor.

3.1 Terrestrial flora

3.1.1 Declared Rare and Priority Flora and vegetation communities

Description

Construction activities associated with the establishment of the proposed infrastructure corridor have the potential to directly impact upon Declared Rare and Priority Flora, and vegetation communities.

Declared Rare and Priority Flora and vegetation communities may also be potentially impacted upon by the introduction and spread of weeds and from bushfires arising from metal cutting, welding and grinding activities, and the operation of equipment or vehicles in high fire risk areas or during high fire risk conditions.

Submissions

Submissions received in relation to this factor expressed the following concerns:

- the management of impacts on the DRF and Priority flora and other native vegetation has not been adequately addressed in the SER. *Eucalyptus beardiana* will be removed during construction of the pipeline. The recommendations of the flora survey report to reroute the pipeline to ensure protection of this species are supported;
- construction staff operating in the area will need to be informed of the locations of DRF and Priority Flora, and a Vegetation, DRF and Priority Flora Management Plan should be prepared prior to construction and be used during the life of the infrastructure corridor. The Plan should ensure that impacts on this flora and other vegetation are managed to ensure its protection;
- a botanist should inspect the site with construction staff to determine the methods that can minimise disturbance to native vegetation and to inform them of known and potential locations of additional plants or populations of DRF and Priority Flora;
- all employees and contractors must undergo induction training as to the value of vegetation to ensure that the impacts of construction are minimised;
- inadequate consideration has been given to pasture resource values and potential impacts on pasture bottomland run-on habitats of seven land systems, particularly the Merbla land systems located on Wondinong, Challa and Windamurra Station;
- the saltbush-bluebush and scrub mosaic of the bottomland systems have the highest carrying capacity for stock, the longest lasting productivity and are life support systems for native fauna and stock in the dry seasons;
- it is important that disturbance to remnant vegetation along the proposed corridor route is minimised or avoided where possible; and

- The Department of Conservation and Land Management (CALM) indicated that the preferred option for the corridor route fails to address concerns previously raised by CALM over the Worley report (Worley, 2001), and appears to have the potential to duplicate the disturbance to road infrastructure with subsequent increase in biodiversity impacts.

EPA advice

The EPA's environmental objectives for this factor are to:

- protect Declared Rare and Priority Flora, consistent with the provisions of the *Wildlife Conservation Act, 1950*; and
- maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.

The EPA notes from the SER that future proponent(s) will be required to make the following commitments:

- Restricted working widths will be maintained through areas of native vegetation within the agricultural zone to limit impacts on vegetation.
- Accurately calculate the area of vegetation to be cleared along the proposed route and any associated storage areas.
- Determine the need for additional flora and vegetation surveys.
- Develop a Bushfire Management Plan.
- Detailed management strategies for vegetation protection will be developed prior to construction.

The EPA notes from the SER that the corridor alignment that has been selected avoids native vegetation within the agricultural zone wherever possible. The EPA notes that the corridor has been placed adjacent to existing infrastructure (such as roads or the Mid West Pipeline) wherever practicable in the uncleared pastoral zone in order to minimise the additional impacts of new infrastructure.

The EPA also notes from the SER that if the total amount of native vegetation to be cleared exceeds one hectare, the proponent will be required to lodge a Notice of Intention to Clear Land (NOIC) with the Department of Agriculture at least 90 days prior to the commencement of construction activities.

If additional flora and vegetation surveys need to be undertaken by future proponent(s), the EPA expects that they would be conducted in accordance with the advice provided in draft EPA Guidance Statement No. 51 titled, "Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia" (EPA, 2003a).

The EPA notes from the SER that the Bushfire Management Plan that future proponent(s) will be required to commit to develop prior to construction will include details of bushfire prevention measures, equipment required, emergency contacts and training procedures. The EPA understands that the Bushfire Management Plan(s) will be developed in consultation with CALM (now known as the DCLM), the Bushfires

Board and the Shires of Mullewa, Yalgoo, Mount Magnet, Sandstone and Leonora (as appropriate).

The EPA notes from the SER that prior to construction, future proponent(s) will be required to commit to develop the detailed management strategies for vegetation protection that are listed on pages 59 and 60 of the SER. The EPA considers that these management strategies are satisfactory.

The EPA also notes from the SER that the strategies referred to above will be included in an Environmental Management Plan (EMP) that future proponent(s) will be required to commit to prepare.

The EPA notes from the proponent's response to submissions that:

- should any individuals of *Eucalyptus beardiana* require removal, the pipeline proponent will be required to collect seeds from *E. beardiana* trees within and immediately adjacent to the corridor for propagation and replanting in nearby areas;
- the management of all vegetation, including DRF and Priority species, will be addressed in the detailed EMP that will be prepared by each proponent prior to construction;
- each proponent will be required to prepare an EMP prior to the commencement of construction. The EMP will require DEP approval and will be made publicly available, and proponents will be expected to engage specialist advisers as necessary to produce a comprehensive EMP;
- the EMPs prepared by proponents will include a requirement for all contractors and employees to undergo environmental induction training prior to commencing work on site. The DEP will enforce this requirement in its approval of the management plans;
- all landholders were consulted in regard to the placement of the route through their properties, given that they were in the best position to advise on pasture values and other related issues;
- Windimurra is the only station on which the corridor crosses the Merbla system. The corridor route through both Challa and Windimurra Stations is constrained by mining issues and the chosen route through these areas was selected following negotiations with the mining tenement holders and the pastoral lease holders;
- Aboriginal heritage issues constrained the identification of a corridor route, and this necessitated that high ground be avoided to minimise impacts on breakaways areas that were of significance. Areas of saltbush-bluebush and scrub mosaics traversed by the corridor are a minor part of the route, and discussions will continue with landowners to determine the potential for minor deviations to avoid these areas wherever possible;
- detailed procedures for minimisation of vegetation impacts during the siting, construction and operation of infrastructure will be included in the EMPs that will be prepared by each infrastructure proponent; and
- a number of constraints were identified with the Sandstone route which saw it excluded from consideration as a preferred route in both the Worley report

(Worley, 2001) and the SER. These included the presence of large areas of Aboriginal significance and a number of important mining tenements around Sandstone, making the identification of a route difficult. significant cost penalties for infrastructure construction and operation would be incurred given that the Sandstone route is also approximately 110km longer than the preferred route;

The EPA considers that the proponent's response adequately addresses the concerns that were raised in the submissions that were received.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.1.2 Nature reserves

Description

Several existing and proposed conservation reserves are located in proximity to the proposed infrastructure corridor, as shown on Figure 2a and Figure 2b in the SER.

The corridor traverses about 10km of the northern boundary of proposed East Pindar and Barnong Nature Reserve where it abuts the Geraldton-Mount Magnet Road. An area of approximately 410ha of the reserve is affected by the corridor.

Submissions

A submission from CALM indicated that the preferred corridor route passes through two pastoral leases located within the Shire of Sandstone, and that both leases, or at least portions of them, are currently being evaluated as potential additions to the conservation estate.

EPA advice

The EPA's environmental objective for this factor is to protect the environmental values of nature reserves.

The EPA understands that the DEP asked the proponent to liaise with CALM and clarify whether CALM had any concerns with the corridor traversing the proposed East Pindar and Barnong Nature Reserve. The EPA notes that CALM subsequently indicated to the proponent that they have no objections to the corridor traversing the proposed East Pindar and Barnong Nature Reserve subject to the following conditions:

- the corridor abuts/adjoins the Geraldton-Mount Magnet Road where it traverses the proposed nature reserve; and
- an MOU is established which is consistent with the MOU applying to the Dampier to Muchea portion of the Dampier to Bunbury Natural Gas Pipeline (DBNGP), and includes offsets to the value of \$4,500.

The EPA also understands that CALM and the Department of Land Administration (DOLA) have confirmed with the proponent that the proposed East Pindar and

Barnong Nature Reserve will be designated as a C class nature reserve and will be managed by CALM.

The EPA notes from the proponent's response to the submission received from CALM that both the Perth and regional CALM offices were requested to provide information on CALM estate areas or other features that might be affected by the corridor. The EPA notes that the responses received from CALM did not indicate that the two pastoral leases located within the Shire of Sandstone were being considered as potential future nature reserves. The proponent's response indicated that they would consider these areas during further planning and refinement of the corridor in the event that CALM provides further information regarding the location of these particular reserves. The EPA considers that the proponent's response is adequate.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.1.3 Weeds

Description

Construction activities within the proposed corridor have the potential to spread weeds along the corridor and into areas that were previously weed free.

Submissions

One public submission indicated that bottomlands have a high susceptibility to weed invasion.

EPA advice

The EPA's environmental objective for this factor is to minimise the potential for the spread of weeds.

The EPA notes from the SER that future proponent(s) will be required to make the following commitments:

- A weed survey will be conducted prior to construction.
- Weed infested areas will be marked and delineated on construction plans and appropriate vehicle clean-down areas located in the field.
- Develop a Weed Control Program prior to construction to prevent weed species being introduced or spread.

The EPA understands from the SER that the Weed Control Program, which will form part of the EMP, will be developed in consultation with the Department of Agriculture Western Australia and CALM, and will include the measures listed on pages 61 and 62 of the SER. The EPA considers that these measures are satisfactory.

The EPA considers that the implementation of the Weed Control Program would adequately address the concern that was expressed in the public submission.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.2 Specially Protected (Threatened) Fauna

Description

Construction activities associated with the establishment of the proposed infrastructure corridor have the potential to impact upon Specially Protected (Threatened) Fauna. There is also the potential for stygofauna to be affected by construction activities.

Submissions

No submissions were received in relation to this factor.

EPA advice

The EPA's environmental objective for this factor is to protect Specially Protected (Threatened) Fauna, consistent with the provisions of the *Wildlife Conservation Act, 1950*.

The EPA notes from the SER that future proponent(s) will be required to make a commitment to develop a Fauna Management Plan prior to construction detailing management strategies to minimise and manage the short-term and long-term impacts on fauna.

The EPA understands from the SER that matters addressed by the Fauna Management Plan, which will form part of the EMP, may include those listed on pages 65 and 66 in the SER.

The EPA expects that fauna surveys undertaken by future proponent(s) would be conducted in accordance with the advice provided in draft EPA Guidance Statement No. 56 titled, "Terrestrial fauna surveys for environmental impact assessment in Western Australia" (EPA, 2003b).

The EPA considers that the proposed management measures that will be used to prevent or minimise impacts on stygofauna, as described on page 67 of the SER, are satisfactory. The EPA notes that these measures will be detailed in the Fauna Management Plan.

The EPA expects future proponent(s) to adopt the advice provided in draft EPA Guidance Statement No. 54 titled, "Sampling of subterranean fauna in groundwater and caves" (EPA, 2003c).

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.3 Rehabilitation

Description

Significant areas of land will be affected by construction activities associated with the establishment of the proposed infrastructure corridor, and these will need to be properly rehabilitated.

Submissions

One submission indicated that as much cleared land as possible should be rehabilitated following construction using native species that grew in the affected areas prior to construction or prior to clearing for agriculture having taken place. This submission also indicated that where the infrastructure corridor crosses farmland, the affected area should be revegetated with native vegetation to ensure the creation of corridors for wildlife, and to increase the area of native vegetation.

Another submission indicated that the rehabilitation methods for mitigating water starvation and the death of vegetation on the downslope side of the proposed corridor are not adequately dealt with in the SER.

Submissions received from Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited expressed concern about the need for the "Whose Advice" section of Commitment 8 to indicate that Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture should be consulted where the proposed corridor parallels the Mid West Pipeline or is near the Goldfields Gas Transmission Pipeline in order to ensure that landform management is compatible with that already established on the Goldfields Gas Transmission Pipeline easement or the Mid West Pipeline Right of Way.

EPA advice

The EPA's environmental objective for this factor is to ensure that areas affected by the proposed development are satisfactorily rehabilitated.

The EPA notes from the SER that future proponent(s) will be required to make the following commitments:

- Develop a Rehabilitation Plan prior to construction to guide the reinstatement and regeneration of construction areas.
- Develop and implement measures to prevent erosion during and following construction to maintain the operating integrity of the infrastructure and the overall stability of the surrounding landscape.
- Develop specific management measures prior to construction to maintain the quantity and quality of topsoil and subsoil structure.

The EPA understands from the SER that the Rehabilitation Plan, which will form part of the EMP, will detail specific measures, as listed on pages 77 and 78 of the SER, to

be implemented to assist in the successful reinstatement and regeneration of construction areas. The EPA considers that these measures are satisfactory.

In relation to topsoil management, the EPA considers that topsoil should be stripped in more than one pass. The ideal stripping depth for the first pass is approximately 5cm given that the majority of native plant seed is found within this layer. The depth of the first pass should be limited to a maximum of about 10cm. The next pass should then remove the underlying soil to a depth of about 20cm. The soil removed in each pass should be stored separately. The soil from the second pass should be replaced first as close to its original depth as possible followed by the soil from the first pass. Utilising the above procedure will ensure that any native plant seed collected is not replaced at a depth which may compromise its ability to reach the surface if and when it germinates.

In regard to the concerns expressed in the public submissions about rehabilitation, the EPA notes from the proponent's response to submissions that whenever the proposed corridor crosses cleared agricultural land, the affected landholders will be consulted to ensure that disturbed areas are suitably rehabilitated, generally by returning them to their previous use where possible. The proponent's response also indicated that rehabilitation will be undertaken with native species in uncleared areas, including rangelands grazing areas. The EPA also notes from the proponent's response that it is not possible to establish specific rehabilitation methods until the detailed design of the infrastructure has been completed and the specific impacts of construction have been identified. The EPA understands that future infrastructure proponents will be required to commit to the preparation of an Environmental Management Plan (EMP) which will detail specific rehabilitation and drainage management methods to be employed during construction. Furthermore, the EPA notes that Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture will be consulted by future proponent(s) and their comments will be taken into account in relation to landform management. The EPA considers that the proponent's response adequately addresses the concerns expressed in the relevant public submissions.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.4 Liquid and solid waste disposal

Description

Construction activities associated with the establishment of infrastructure within the proposed corridor have the potential to generate liquid and solid wastes.

Submissions

No submissions were received in relation to this factor.

EPA advice

The EPA's environmental objective for this factor is to ensure that the disposal of liquid and solid waste is consistent with local Shire requirements.

The EPA notes from the SER that future proponent(s) will be required to make a commitment to develop a Waste Management Plan prior to construction, which will form part of the EMP, and will include the identification of likely wastes arising from construction activities and the development of appropriate handling and disposal methods.

The EPA expects future proponent(s) to adopt waste management practices in accordance with the advice provided in draft EPA Guidance Statement No. 55 titled, "Implementing best practice in proposals submitted to the environmental impact assessment process" (EPA, 2003d).

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.5 Dust

Description

Construction activities associated with the establishment of infrastructure within the proposed corridor have the potential to generate dust.

Submissions

No submissions were received in relation to this factor.

EPA advice

The EPA's environmental objective for this factor is to protect surrounding land users such that dust emissions will not adversely impact upon their welfare and amenity or cause health problems by meeting the Guidelines for the Prevention of Dust and Smoke Pollution from Land Development Sites in WA.

The EPA notes from the SER that future proponent(s) will be required to make a commitment to develop a Dust Management Plan prior to construction, which will form part of the EMP, and will include identification of potential dust sources from construction and the development of specific management strategies to minimise dust emissions from the spread.

The EPA understands from the SER that the Dust Management Plan will be prepared in accordance with the requirements of the:

- DEP Guidelines for the Prevention of Dust and Smoke Pollution from Land Development Sites;
- EPA Interim Policy No. 18 - Air Quality Impacts from Development Sites; and
- APIA Code of Environmental Practice [for gas pipeline(s)].

The EPA draws to the proponent's attention that EPA Interim Policy (i.e. Guidance Statement) No. 18 - Air Quality Impacts from Development Sites has been superseded by the final version of EPA Guidance Statement No. 18 - Prevention of air quality

impacts from land development sites (EPA, 2000a). Accordingly, the EPA would expect future infrastructure proponent(s) to prepare their Dust Management Plan in accordance with the advice provided in EPA Guidance Statement No. 18.

The EPA notes the various measures listed on page 83 of the SER that will be used to minimise dust generation during and after construction within the proposed corridor, and considers that they are satisfactory.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.6 Noise and vibration

Description

Construction activities associated with the establishment of infrastructure within the proposed corridor, together with operation of infrastructure such as the road and railway have the potential to generate noise and vibration.

Submissions

Submissions received from Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited) indicated that the wording in the "Action" column of Commitment 15 should be amended to indicate that they should be consulted if blasting activities are to occur within 500m of the Goldfields Gas Transmission Pipeline or the Mid West Pipeline respectively.

EPA advice

The EPA's environmental objective for this factor is to ensure that noise and vibration levels meet statutory requirements and acceptable standards.

Noise from construction activities

Noise emanating from construction activities associated with infrastructure development within the proposed corridor will need to comply with the requirements of the *Environmental Protection (Noise) Regulations, 1997*.

The EPA notes from the SER that future proponent(s) will be required to make a commitment to identify expected noise levels from construction activities and associated plant and equipment, prior to construction.

The EPA understands from the SER that the EMP that will be prepared by future proponent(s) will indicate the steps to be taken to control noise emissions from construction activities and plant.

The EPA notes the various measures listed on pages 85 and 86 of the SER that will be used by future proponents to control noise from construction activities, and considers that they are satisfactory.

Operational phase noise

The EPA notes that noise emanating from road and rail traffic is not covered by the *Environmental Protection (Noise) Regulations, 1997*. However, the EPA understands that given the predominantly rural location of the proposed infrastructure corridor and the limited number of residences located in proximity to it, road and rail proponent(s) will be required to comply with requirements of draft EPA Guidance Statement No. 14 (Version 3) titled, "Road and Rail Transportation Noise" (EPA, 2000b), which outlines noise criteria for new road and rail infrastructure.

The EPA notes from the SER that future road and rail proponent(s) will be required to make a commitment to identify expected noise levels for anticipated road traffic and train movements.

The EPA also notes from the SER that the EMP that road and rail proponent(s) will be required prepare will also include a requirement for them to model predicted noise levels from road and rail traffic in the vicinity of residences. The EPA understands from the SER that the EMP will also detail measures to control noise emissions from road and rail operations.

Vibration

The EPA notes that at this point in time there is no applicable legislation within Western Australia which specifically details maximum allowable vibration levels to be imposed on activities which generate vibration.

The EPA notes from the SER that future proponent(s) will be required to make a commitment to identify potential vibration sources along the corridor and determine the proximity of vibration sources to sensitive premises, and develop measures to attenuate vibration impacts as applicable, prior to construction. The EPA also notes from the SER that in addition to the above commitment, road and rail proponents will also be required to make a specific commitment to include vibration caused by traffic flow and train operations.

The EPA understands from the SER that the above commitments will form part of the EMP that future proponent(s) will be required to commit to prepare.

The EPA notes the various management measures and procedures listed on pages 90 and 91 of the SER that will be used by future proponents to control vibration from construction and operational activities, and considers that they are satisfactory.

In regard to the concerns about vibration that were expressed in the submissions from Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture, the EPA notes from the proponent's response to submissions that the list of future proponent commitments has been amended with the addition of two new commitments (i.e. Commitments 25 and 26) which require individual proponents to consult the Goldfields Gas Transmission Pipeline and/or Mid West Pipeline operators prior to the commencement of any construction activities in order to ensure that there are no impacts on the Goldfields Gas Transmission Pipeline and/or Mid West Pipeline. The EPA considers that the proponent's response adequately addresses the

concerns expressed by Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.7 Surface water and groundwater quality

Description

Construction activities associated with the establishment of infrastructure within the proposed corridor have the potential to impact upon the quality of surface water and groundwater.

Submissions

One submission indicated that a critical requirement in the mulga washplains is the maintenance of uninterrupted sheetwash flow in order to prevent the death of woodland trees from water starvation on the downslope side of any embankment. Concern was also expressed about the major disturbance and construction that will be required to establish causeways above flood levels in bottomlands, and the fact that this will affect both local drainage and maintenance management costs. This submission also expressed concern about the very high susceptibility of the Sherwood, Gumbreak, Hootanui, Challenge, and Nerramyne land systems to sheet and gully erosion.

EPA advice

The EPA's environmental objectives for this factor is to maintain the quality of surface water and groundwater so that existing and potential uses, including ecosystem maintenance, are protected, and to maintain the quantity and distribution of groundwater so that existing and potential uses are protected.

Surface water

The EPA notes from the SER that that future proponent(s) will be required to make the following commitments:

- Prior to construction, develop specific measures to minimise sediment release to watercourses.
- Prior to construction, develop specific measures to minimise surface water contamination from fuel and oil spills during construction.
- Prior to construction, develop specific measures to minimise the risk of contamination to watercourses from fuel, oil or hazardous substance spills during the operation of the road and railway.

The EPA also notes from the SER that the EMP that future proponent(s) will prepare prior to construction will include the various measures listed on page 80 of the SER to minimise sediment release to watercourses, and the risk of contamination to watercourses from fuel and oil spills during construction, and from fuel, oil or

hazardous substance spills during the operation of the road and railway. The EPA considers that these measures are satisfactory.

In regard to the concerns expressed in the public submission, the EPA notes from the proponent's response that the potential impacts associated with the interruption of sheetwash flow are recognised, and that the proponent is committed to maintaining and restoring overland flow patterns to the greatest extent practicable, as detailed in Section 5.5 of the SER and Commitment 6. The proponent's response also indicated that it would be preferable for any construction within seasonally waterlogged areas to occur during dry periods in order to minimise disturbance and compaction of the areas. The proponent's response also pointed out that pipelines and power lines can be constructed within seasonally waterlogged areas with minimum disturbance. The EPA understands that the need for causeways to be established will be identified by detailed engineering works carried out prior to construction of the road and railway. The proponent indicated that should causeways be required they will be engineered to minimise disruption to local drainage. In relation to concerns about sheet and gully erosion within the Sherwood, Gumbreak, Hootanui, Challenge, and Nerramyne land systems, the proponent indicated that it will continue discussions with landowners to determine the potential for minor deviations to avoid any areas of high erosion risk where possible. The EPA considers that the proponent's response adequately addresses the concerns expressed in the public submission that was received.

Groundwater

The EPA notes from the SER that future proponent(s) will be required to make the following commitments:

- Develop a Dewatering Management Plan to ensure that activities associated with dewatering do not impact on existing and future beneficial uses of aquifers.
- Agree on the timing, location and source of water for hydrostatic testing with relevant statutory authorities prior to testing.
- Gain approval from the DEP for use of chemicals in hydrostatic test waters.

The EPA understands from the SER that the Dewatering Management Plan, which will form part of the EMP, will be prepared in accordance with Water & Rivers Commission guidelines prior to construction.

The EPA notes the various measures described on pages 73 and 74 of the SER that will be used by future proponents to manage the potential impacts associated with dewatering operations, and the case of gas pipeline construction, the disposal of hydrostatic test water, and considers that they are satisfactory.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.8 Rivers and ephemeral streams

Description

No permanent or semi-permanent rivers or streams are traversed by the proposed infrastructure corridor. Only small ephemeral drainage lines that flow infrequently and briefly after rainfall events are traversed by the proposed infrastructure corridor.

Submissions

No submissions were received in relation to this factor.

EPA advice

The EPA's environmental objective for this factor is to maintain the integrity, functions and environmental values of rivers and ephemeral streams, and to ensure that alterations to surface drainage do not adversely impact indigenous vegetation.

The EPA notes from the SER that future proponent(s) will be required to make the following commitments:

- Prior to construction, carry out surveys of hydrology and vegetation within and downstream of the infrastructure alignment.
- Provide details of construction methods and environmental management procedures for each watercourse and drainage crossing.
- Detail measures to be implemented to minimise damage and weakening of watercourse banks; to prevent physical degradation of watercourse and drainage systems; and to minimise shadowing effects.

The EPA understands from the SER that the above commitments will form part of the EMP that future proponent(s) will be required to commit to prepare.

The EPA notes the various procedures and measures described on pages 70 and 71 of the SER that will be used by future proponent(s) to manage the potential impacts on ephemeral drainage lines, and considers that they are satisfactory.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.9 Risk and hazards

Description

Risk from high pressure natural gas pipelines

The operation of high pressure natural gas pipelines within the proposed infrastructure corridor, or changes in the land use of the areas immediately adjacent to the corridor after gas pipelines have been constructed within it, may result in risk levels exceeding the EPA's criteria for individual risk of fatality.

Transport of dangerous goods by road and rail

The transport of dangerous goods by road and rail within the proposed infrastructure corridor may result in a loss of containment incident occurring due to accidental spillage, equipment failure, human error, collision, or derailment. There is the potential for the health and safety of people located in the general vicinity of a loss of containment incident to be adversely affected by it.

Electromagnetic fields from high voltage electricity transmission lines

Operating electricity transmission lines generate electromagnetic fields (EMFs). The strength of the field that is created depends upon the amount of electrical current flowing through the transmission lines. The potential impacts on human health from EMFs emanating from electricity transmission lines is a cause of concern to the general public.

Submissions

Submissions received from Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited) expressed concern about:

- the proposed infrastructure corridor crossing the Goldfields Gas Transmission Pipeline easement and the Mid West Pipeline easement and the impact this would have on safety and integrity of the respective pipelines;
- the hazards caused to pipelines by AC electrified railways and low frequency and fault current induction from adjacent electricity transmission lines which has the potential to damage pipeline cathodic protection equipment;
- the hazards associated with blasting activities in proximity to gas pipelines;
- the need for close consultation and co-operation with Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture in relation to the general awareness, assessment, and management of risk;
- the need for all risk assessments referred to in Commitment 16 in the SER to include Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture where the proposed corridor closely parallels the Mid West Pipeline or is near the Goldfields Gas Transmission Pipeline; and
- the need for the objective of Commitment 18 in the SER and AC electrified railways to consider the effect of induced currents on existing pipelines, and that Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture be consulted on this issue where the proposed corridor parallels the Mid West Pipeline or is near the Goldfields Gas Transmission Pipeline.

Another submission expressed concern about the need for pipeline burial depth to be 2m in agricultural areas.

EPA advice

The EPA's environmental objectives for this factor is to ensure that:

- risk is managed to meet the EPA's criteria for individual fatality risk off-site and the requirements of the Department of Industry and Resources in relation to public safety;
- risk to the public resulting from the carriage of dangerous goods on the road and railway meets the EPA's criteria for individual fatality risk offsite and complies with relevant Australian Standards for the handling and carriage of dangerous goods; and
- electromagnetic fields (EMF) emanating from the high voltage electricity transmission lines comply with relevant standards for the prevention of human health effects.

Risk from high pressure natural gas pipelines

The EPA notes from the SER that that future proponent(s) will be required to make the following commitments:

- During the initial design phase complete a HAZOP (Hazardous Operations) study in accordance with Department of Industry and Resources (DoIR) requirements.
- Following completion of the initial design phase, identify proximity of the pipeline(s), proposed Maximum Allowable Operating Pressure (MAOP) and safety features to be incorporated to minimise risk to sensitive premises.
- Complete Risk Assessment prior to construction in accordance with AS 2885.1-1997 (Standards Australia, 1997) to ensure that risk levels meet DoIR and EPA criteria.
- Review qualitative analyses within the Strategic Environmental Review and undertake a full risk assessment for the pipeline(s) in accordance with AS 2885.1-1997 prior to construction.
- Review the risk assessment every five years while the pipeline(s) is(are) operational and when changes occur in or to the pipeline(s), or to the adjacent land use.

The EPA also notes from the SER that measures to minimise risk from natural gas pipelines will be detailed in the EMP that future proponent(s) will be required to commit to prepare.

The EPA considers that any risk assessment undertaken by future gas pipeline proponents would need to demonstrate that risk levels would meet the EPA's relevant criteria and be consistent with the findings and recommendations of the report titled, "Safely Meeting Current and Future Gas Transmission Needs" prepared by Worley Pty Ltd for the DoIR (Worley Pty Ltd, 2002), and the proposed amendments to AS 2885.1-1997 that are currently being co-ordinated by the Australian Standards Committee ME 38/1.

In relation to the concerns expressed in the submissions received from Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture, the EPA notes from the proponent's response to submissions that it is not possible to avoid crossing the Goldfields Gas Transmission (GGT) Pipeline as this pipeline runs in a north-south direction and the end point of the proposed infrastructure corridor lies to the east of the GGT Pipeline. The EPA also notes from the proponent's response that the first crossing of the Mid West Pipeline (MWP) was made on the advice of the DEP to avoid significant vegetation in the vicinity of Mullewa. The EPA understands from the proponent's response that the second crossing of the MWP was necessary in order to place the corridor on to the southern side of the existing pipeline, and to avoid the township of Pindar as well as further areas of significant vegetation to the north. The proponent's response indicated that there will only be a gas pipeline within the corridor at these crossing points and therefore the impact of this pipeline crossing the MWP will be minimal. The EPA understands from the proponent's response that the option of deviating the corridor to the south of Mullewa was considered and subsequently rejected due to the presence of town infrastructure and dense vegetation extending to over 10km south of Mullewa.

The EPA notes from the proponent's response to submissions that the potential effect on gas pipelines from electromagnetic fields (EMF) is acknowledged by the proponent. The proponent's response indicated that this issue will be addressed during the detailed design phase of the project, and that appropriate measures will be implemented to ensure that the pipelines are protected. The EPA understands from the proponent's response that the corridor width has been chosen so that sufficient separation can be maintained between electricity transmission lines and gas pipelines within or outside the corridor. The proponent's response also indicated that risks to the integrity of the gas pipeline from EMF will be minimised via the appropriate location of infrastructure within the corridor. The EPA also notes from the proponent's response that any issues regarding AC electrified railway development will be addressed during the detailed design of the project, if and when such a railway is proposed.

The EPA understands from the proponent's response to submissions that the risk to gas pipelines from blasting activities will be fully addressed in the risk assessments that will be undertaken by future gas pipeline proponent(s), and through the use current industry standards and practices.

The EPA notes from the proponent's response that future proponents will be required to make two new commitments (see Commitments 25 and 26 in Appendix 3) which effectively address the concerns that were expressed by Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture regarding to the need for future proponents to consult and co-operate with both parties in relation to the general awareness, assessment, and management of risk. These additional commitments have been added to the original list of commitments that was included in the SER.

The EPA notes that Commitment 25 will require future proponents to consult with all stakeholders during the planning and design, approval, construction, and operation stages of their projects, in order to ensure that stakeholders are made aware of proposals and are able to provide input at these stages to ensure compliance with appropriate regulations. The EPA also notes that Commitment 26 will require future

proponents to undertake a detailed risk analysis during the planning of blasting, in consultation with all affected stakeholders, and that ensure that best practice guidelines are followed for all methods they apply.

The EPA notes from the proponent's response to submissions that proponents of electricity transmission lines within the corridor will be required to consider induced current effects not only on the MWP and the GGT Pipeline, but also on any proposed gas pipeline within the infrastructure corridor. The EPA understands from the proponent's response that the width of the corridor will enable power lines to be located far enough from gas pipelines so that any expected impacts from induction are avoided.

The EPA notes from the proponent's response to submissions that the maximum construction depth for pipelines is 2m below ground level, although the actual construction depth will be dictated by ground conditions and design standards. The EPA understands from the proponent's response that the second point makes it impossible to stipulate a uniform depth of cover along the entire pipeline route.

The EPA considers that the above responses provided by the proponent adequately address the concerns that were expressed in the relevant public submissions that were received.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

Transport of dangerous goods by road and rail

The EPA notes from the SER that future proponent(s) will be required to make the following commitments:

- Carry out a quantitative risk assessment to determine the risks associated with the transport of hazardous goods by road and rail as required.
- Identify mitigation and management measures as part of the risk assessment process.
- Prepare a Transport Management Plan for hazardous goods transport operations.

The EPA also notes from the SER that the quantitative risk assessments that may be undertaken by future road and railway proponent(s) will take into account population densities, the types and volumes of goods to be transported, the number of vehicles and trips involved, and the frequency of train movements. The EPA notes from the SER that specific mitigation and management measures will be identified as part of the risk assessment process and will be included in the EMP or the Road Transport Management Plan (RoadTMP), or the Rail Management Plan (RailTMP) that will be prepared by the respective future road and railway proponent(s), as appropriate.

The EPA notes from the SER that the RoadTMP and RailTMP will include:

- vehicle and road/rail container design specifications in accordance with relevant Australian standards;
- procedures for loading, unloading, product transfer and vehicle movements;

- training;
- maintenance and inspection; and
- emergency response procedures.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

Electromagnetic fields from high voltage electricity transmission lines

The EPA notes from the SER that future power line proponent(s) will be required to make the following commitments:

- Apply 'prudent avoidance' and follow the Electricity Supply Association of Australia (ESAA) recommendations and the Western Power policy (or equivalent) on restricting land uses in close proximity to the transmission lines.
- Building and long-term occupation within the easement will be prohibited.

The EPA notes the management measures described on page 103 of the SER that will be used by future proponent(s) to manage the potential impacts on human health from EMFs emanating from electricity transmission lines, and considers that they are satisfactory.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

3.10 Culture and heritage

Description

Construction activities associated with the establishment of infrastructure within the proposed corridor have the potential to disturb or destroy both known and unknown Aboriginal cultural sites, and European heritage sites.

Submissions

One submission indicated that it was doubtful that any Aboriginal or European cultural sites exist west of Mullewa along the proposed corridor route given that it is a dry area. This submission also indicated that it was doubtful whether the Wadjari have any connection with the area of the proposed corridor, and suggested that bone fragments reported in Tenindewa Creek are probably from cattle, sheep, or other native animals etc rather than Aboriginal remains.

EPA advice

Aboriginal culture and heritage

The EPA's environmental objective for this factor is to ensure that the concept complies with the requirements of the *Aboriginal Heritage Act, 1972 - 1984*, and that changes to the biological and physical environment resulting from the proposed

development do not adversely affect cultural associations of the areas along and adjacent to the corridor.

The EPA notes from the SER that the Gas Pipeline Working Group (GPWG) on behalf of the Gas Pipeline Sale Steering Committee (GPSSC) has made a commitment to apply for clearance under Section 18 of the *Aboriginal Heritage Act, 1972* to remove known sites located within the proposed corridor, prior to construction.

The EPA also notes from the SER that future proponent(s) will be required to make the following commitments:

- Prior to construction, proponents will develop strategies to ensure that any new sites located during construction are protected until assessed.
- During construction, proponents will ensure that an Aboriginal heritage monitor is present during all ground disturbing construction activities.

The EPA notes the various procedures and measures described on page 105 of the SER that will be used by future proponent(s) to manage the potential impacts on Aboriginal cultural sites, and considers that they are satisfactory. The EPA understands from the SER that the EMP will include details of the strategies for handling new sites located during construction work, training of personnel in relation to their responsibilities under the *Aboriginal Heritage Act, 1972*, and suitable Aboriginal heritage monitors from representative groups.

The EPA also notes from the proponent's response to submissions that the presence of Aborigines in the area west of Mullewa along the proposed corridor route is indicated by various extracts from early ships' diaries etc, and from recent research obtained from Native Title claimant groups. The proponent's response indicated that the availability of water would not have restricted the movements of Aborigines in the area, and pointed out that water could be sourced from rock holes which are plentiful in the area. The proponent's response also indicated that the Wadjari have a valid Native Title claim over the area and therefore have a prima facie connection to the country. The EPA understands from the proponent's response that the WA Museum identified the bone fragments found in Tenindewa Creek as mammalian and possibly of human origin, and that the matter has been left open and subject to further investigation at the discretion of the DIA. The EPA considers that the proponent's response adequately addresses the concerns expressed in the public submission.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

European heritage

The EPA's environmental objective for this factor is to ensure that changes to the biological and physical environment resulting from the proposed development do not adversely affect European heritage values of the areas along and adjacent to the corridor.

The EPA notes from the SER that future proponent(s) will be required to make a commitment to undertake appropriate management to protect European heritage sites that are identified within or in proximity to the corridor.

The EPA notes the various procedures and measures described on page 106 of the SER that will be used by future proponent(s) to manage the potential impacts on European heritage sites, and considers that they are satisfactory. The EPA understands from the SER that the EMP will identify European heritage sites and include appropriate management measures.

In view of the above, the EPA considers that the proposal can be managed to meet the EPA's environmental objective for this factor.

4. Commitments

Section 16(e) of the *Environmental Protection Act, 1986* requires the EPA to advise the Minister for the Environment and Heritage on the environmental protection aspects of any proposal or scheme, and on the evaluation of information relating thereto. Section 16(e) does not allow for the setting of environmental conditions or for legally binding commitments.

Nevertheless, the GPSSC has provided a preliminary list of commitments that future proponent(s) will be required to adopt and implement at the appropriate time in order to ameliorate the environmental impacts of an infrastructure development proposal (Appendix 3). The intent of these commitments is considered by the EPA to be appropriate for a future infrastructure development proposal within the corridor, although the implementation of the commitments may need to be varied to apply to specific proposals. It is expected that when such a proposal is referred to the EPA, the referral will be consistent with the commitments listed in Appendix 3 and contain all the information required in these commitments. If the referral documentation contains sufficient and satisfactory information, the process of environmental impact assessment would be considerably expedited.

5. Other Advice

Referral of future infrastructure development proposals

It should be noted by prospective proponent(s) that any proposal for the construction of new infrastructure within the proposed corridor will need to be referred to the EPA under Section 38 of the *Environmental Protection Act, 1986*. The timelines associated with a possible formal assessment should be taken into account in infrastructure development planning.

Planning

State government planning agencies and local government authorities should develop and implement appropriate development control measures that will prevent non-compatible land uses from establishing directly adjacent to the proposed corridor in

the future. This will reduce and/or eliminate the potential for uncoordinated development directly adjacent to the corridor from compromising the ability of future infrastructure development to meet relevant EPA environmental criteria.

6. Conclusions

The EPA has strategically assessed the concept to establish the Geraldton to North-eastern Goldfields Infrastructure Corridor between Compressor Station 7 (CS7) on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Goldfields Highway north of Leonora.

The EPA notes that, on the basis of the information currently available, there are no constraints that would preclude the use of the proposed corridor for the construction of future infrastructure.

The EPA also notes the commitments that will need to be made and implemented by future proponent(s) intending to construct infrastructure within the proposed corridor.

The EPA has concluded that all factors identified can be managed in an environmentally acceptable manner, and that it is unlikely that the EPA's environmental objectives would be compromised, subject to future proponent(s) agreeing to adopt the recommended commitments detailed in this report, and implementing them in a satisfactory manner.

Any specific proposal for the development of infrastructure within the proposed corridor will require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

7. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the concept on which advice is being provided is the establishment of the Geraldton to North-eastern Goldfields Infrastructure Corridor between Compressor Station 7 (CS7) on the Dampier to Bunbury Natural Gas Pipeline (DBNGP) and the Goldfields Highway north of Leonora.
2. That the Minister considers the EPA's strategic advice provided under Section 16(e) of the *Environmental Protection Act, 1986* on the relevant environmental factors as detailed in Section 3 of this report.
3. That the Minister notes that the EPA has concluded that no constraints that would preclude the use of the proposed corridor for the construction of future infrastructure have been identified on the basis of the information currently available.
4. That the Minister notes that the EPA has concluded that the intent of the commitments that will need to be adopted and implemented by future

proponent(s) intending to construct new infrastructure within the proposed corridor is appropriate.

5. That the Minister notes that future proposals for the development of new infrastructure within the proposed corridor would require referral to the EPA under Section 38 of the *Environmental Protection Act, 1986*.

Appendix 1

List of submitters

Organisations:

1. Department of Conservation and Land Management
2. Goldfields Gas Transmission Pty Ltd
3. Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited)
4. Wildflower Society of WA

Individuals:

1. Laurie and Catherine Jensen
2. D J Brenkley
3. Dr K.L. Tinley

Appendix 2

References

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Environmental Protection Authority (2003a). Terrestrial flora and vegetation surveys for environmental impact assessment in Western Australia. Guidance Statement No. 51. Draft. February 2003.

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Standards Australia (1997). Australian Standard AS 2885.1 - 1997. Pipelines - Gas and Liquid. Part 1: Design and Construction.

Worley (2001). East West General Infrastructure Corridor Route Selection Study. Report prepared on behalf of the former Department of Resources and Development.

Worley Pty Ltd (2002). Safely Meeting Current and Future Gas Transmission Needs. Report prepared for the former Department of Mineral and Petroleum Resources. April 2002.

Appendix 3

**Preliminary list of commitments on management measures to be implemented by
future proponent(s)**

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
1. Future proponent(s) will prepare an Environmental Management Plan (EMP).	To prepare a detailed EMP which adequately describes the various measures that will be implemented in order to ameliorate the environmental impacts associated with infrastructure construction activities, in a consolidated format.	<p>Prepare a detailed EMP which adequately describes the various measures that will be implemented in order to ameliorate the environmental impacts associated with infrastructure construction and operation.</p> <p>The EMP will consolidate all of the various individual management plans, protocols, procedures and activities (such as surveys, etc) relating to the individual commitments listed in this document, as appropriate. The EMP will be made publicly available and will be prepared well ahead of construction.</p>	DEP.	EMP prepared by the proponent(s) and approved by the DEP.
2. Future proponent(s) will implement appropriate actions to minimise construction impacts on vegetation communities and flora.	<p>Protect Declared Rare and Priority Flora, consistent with the provisions of the <i>Wildlife Conservation Act, 1950</i>.</p> <p>Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities.</p>	<ol style="list-style-type: none"> 1. Restricted working widths will be maintained through areas of native vegetation within the agricultural zone to limit impacts on vegetation. 2. Accurately calculate the area of vegetation to be cleared along the proposed route and any associated storage areas. 3. Determine the need for additional flora and vegetation surveys. 4. Develop a Bushfire Management Plan. 5. Detailed management strategies for vegetation protection will be developed prior to construction. 	<ol style="list-style-type: none"> 1. DEP. 2. Department of Agriculture Western Australia. 3. EPA. 4. CALM / Bushfire Board / Shires of Mullewa, Yalgoo, Mt Magnet, Sandstone & Leonora. 5. DEP. 	<ol style="list-style-type: none"> 1. Working widths to be implemented in sensitive areas specified in the EMP. 2. Lodgement of a Notice of Intention to Clear Land if total amount of native vegetation in agricultural areas to be cleared exceeds 1ha. 3. Record of consultation with EPA and additional flora reports. 4. Preparation of Bushfire Management Plan (in EMP). 5. Management strategies detailed in EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
3. Future proponent(s) will develop and implement management measures to minimise the spread of weeds along the working width and within any areas used for borrow pits, etc.	Avoid or minimise the potential for the spread of weeds.	<ol style="list-style-type: none"> 1. A weed survey will be conducted prior to construction. 2. Weed infested areas will be marked and delineated on construction plans and appropriate vehicle clean-down areas located in the field. 3. Develop a Weed Control Program prior to construction to prevent weed species being introduced or spread. 	<ol style="list-style-type: none"> 1. Department of Agriculture Western Australia. 2. Department of Agriculture Western Australia. 3. Department of Agriculture Western Australia / CALM. 	<ol style="list-style-type: none"> 1. Results of weed surveys reported to Department of Agriculture Western Australia. 2. Maps showing areas of infestation and clean-down areas submitted to Department of Agriculture Western Australia and infested areas flagged with yellow tape in the field. 3. Preparation of a Weed Control Programme as part of the EMP.
4. Future proponent(s) will develop and implement management measures to minimise the spread of dieback along the working width.	Avoid or minimise the potential for the spread of dieback.	<ol style="list-style-type: none"> 1. Undertake a review of dieback prior to construction. Surveys will be undertaken in appropriate seasonal conditions to ensure that the identification of infected areas is maximised. 2. If identified the boundaries of dieback-infected and uninfected areas will be mapped and accurately delineated in the field. 3. Develop and implement appropriate hygiene measures to minimise the potential for the spread of disease. 4. Develop a site-specific Dieback Control Program. 5. Design, construct and drain access roads in consultation with CALM. 	<ol style="list-style-type: none"> 1. CALM / DEP. 2. CALM. 3&4. CALM / DEP. 5. CALM. 	<ol style="list-style-type: none"> 1. Results of dieback surveys reported to CALM. 2. Maps showing areas of infestation submitted to CALM and flagging of areas with yellow tape in the field. 3&4. Preparation of a site-specific Dieback Control Programme as part of the EMP. 5. Records of consultation with CALM.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
<p>5. Future proponent(s) will develop and implement management measures to minimise construction and operation impacts on fauna (including stygofauna).</p>	<p>Maintain the abundance, diversity and geographical distribution of fauna. Protect Specially Protected (Threatened) Fauna and their habitats, consistent with the provisions of the <i>Wildlife Conservation Act, 1950</i> and the <i>Environment Protection and Biodiversity Conservation Act, 1999</i>.</p> <p>Avoid or minimise the potential impact of feral animals on the environment.</p>	<p>Develop a Fauna Management Plan prior to construction detailing management strategies to minimise and manage short-term and long-term impacts on fauna.</p>	<p>Department of Agriculture Western Australia / CALM.</p>	<p>Preparation of a Fauna Management Plan as part of the EMP.</p>
<p>6. Future proponent(s) will develop and implement management measures to minimise the impacts of construction activities and operation of facilities on watercourses, drainage systems and wetlands, and ensure the long-term stability of the systems.</p>	<p>Maintain the integrity, functions and environmental values of rivers and ephemeral streams.</p> <p>Ensure that alterations to surface water drainage systems do not adversely impact indigenous vegetation.</p> <p>Protect and retain the integrity, functions and environmental values of wetlands not covered by EPPs.</p>	<ol style="list-style-type: none"> 1. Prior to construction, carry out surveys of hydrology and vegetation within and downstream of the infrastructure alignment. 2. Provide details of construction methods and environmental management procedures for each watercourse and drainage crossing. 3. Detail measures to be implemented to minimise damage and weakening of watercourse banks, to prevent physical degradation of watercourse and drainage systems, and to minimise shadowing effects. 	<p>1, 2 & 3. DEP.</p>	<p>1, 2 & 3: Details provided in the EMP.</p>

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
7. Future proponent(s) will develop and implement management measures to minimise impacts on groundwater aquifers.	Maintain the quantity and distribution of groundwater so that existing and potential uses are protected.	<ol style="list-style-type: none"> 1. Develop a Dewatering Management Plan to ensure that activities associated with dewatering do not impact on existing and future beneficial uses of aquifers. 2. Agree on the timing, location, and source of water for hydrostatic testing with relevant statutory authorities prior to testing. 3. Gain approval from the DEP for use of chemicals in hydrostatic test waters. 	<ol style="list-style-type: none"> 1&2. DEP / Water & Rivers Commission. 3. DEP. 	<ol style="list-style-type: none"> 1. Dewatering Management Plan prepared in accordance with Water & Rivers Commission Guidelines as part of the EMP. 2. Provision to the DEP of hydrotest water quality monitoring during abstraction and prior to discharge. 3. Outline approvals in the EMP.
8. Future proponent(s) will develop and implement management measures to minimise impacts and ensure the stability of the landscape following construction and to prevent erosion.	Establish stable, sustainable landform consistent with surroundings in order to control erosion.	Develop and implement measures to prevent erosion during and following construction to maintain the operating integrity of the infrastructure and the overall stability of the surrounding landscape.	DEP.	Measures to minimise erosion both during and after construction detailed in the EMP.
9. Future proponent(s) will develop and implement site-specific management measures to prevent short-term and long-term depletion of topsoil and to maintain subsoil structure.	Ensure that the construction of the infrastructure does not impact in short or long term depletion of quantity or quality of topsoil and to maintain subsoil structure so that vegetation growth or productivity of the soil is not adversely impacted.	Develop specific management measures prior to construction to maintain the quantity and quality of topsoil and subsoil structure.	DEP / Department of Agriculture Western Australia.	Measures to maintain topsoil quantity and quality and to prevent the loss of subsoil structure detailed in the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
10. Future proponent(s) will develop and implement measures to ensure that construction areas within the corridor as well as borrow pits, temporary access roads and storage areas are successfully rehabilitated.	Ensure that the areas affected by the proposed development are satisfactorily rehabilitated.	Develop a Rehabilitation Plan prior to construction to guide the reinstatement and regeneration of construction areas.	DEP / CALM / Department of Agriculture Western Australia.	Rehabilitation Plan prepared as part of the EMP.
11. Future proponent(s) will develop and implement management measures to prevent contamination of surface and groundwater during construction.	<p>Maintain the quality of surface water and groundwater so that existing and potential uses, including ecosystem maintenance, are protected.</p> <p>Maintain the quality and quantity of water resources so that existing use for public drinking water is not impacted upon.</p>	<ol style="list-style-type: none"> 1. Prior to construction, develop specific measures to minimise sediment release to watercourses. 2. Prior to construction, develop specific measures to minimise surface water contamination from fuel and oil spills during construction. 3. Prior to construction, develop specific measures to minimise the risk of contamination to watercourses from fuel, oil or hazardous substance spills during the operation of the road and railway. 	<ol style="list-style-type: none"> 1. DEP / Water & Rivers Commission. 2. DEP / Department of Industry and Resources. 3. DEP / Department of Industry and Resources. 	<ol style="list-style-type: none"> 1. Measures to minimise sediment release to watercourses detailed within the EMP. 2. Specific measures relating to the use and storage of fuels and oils within the construction area detailed within the EMP. Spill Management and Contingency Plan developed as part of the EMP. 3. Specific measures relating to reduction of downstream pollution from road and railway runoff detailed in the EMP. Spill Management and Contingency Plan specific to road and rail operations developed as part of the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
12. Future proponent(s) will develop and implement management measures to address the disposal of liquid and solid wastes from the construction area.	Ensure disposal of liquid and solid waste is consistent with the local Shire requirements. To prevent pollution of soil, water and vegetation from liquid and solid wastes.	Develop a Waste Management Plan prior to construction which includes identification of likely wastes arising from construction activities and the development of appropriate handling and disposal methods.	DEP / Shires of Mullewa, Yalgoo, Mt Magnet, Sandstone & Leonora.	Waste Management Plan addressing all regulatory and Shire requirements prepared for inclusion within the EMP.
13. Future proponent(s) will develop and implement measures to prevent excessive dust lift off from the working width and associated stored material.	Protect surrounding land users and ecosystems such that dust emissions will not adversely impact upon their welfare and amenity or cause health problems by meeting the Guidelines for the Prevention of Dust and Smoke Pollution from Land Development Sites in WA.	Develop a Dust Management Plan prior to construction, which includes identification of potential dust sources from construction and the development of specific management strategies to minimise dust emissions from the spread.	DEP.	Dust Management Plan prepared as part of the overall EMP.
14. Future proponent(s) will develop and implement measures to identify and attenuate noise emissions during construction and operation.	Ensure that noise levels meet statutory requirements and acceptable standards.	Prior to construction, identify expected noise levels from construction activities and also from associated plant and equipment. Road and rail proponent(s) will also identify expected noise levels for anticipated road traffic and train movements.	DEP.	Expected noise levels from construction and operation activities and measures required to control noise emissions detailed in the EMP. Construction activities comply with the <i>Environmental Protection (Noise) Regulations, 1997</i> .
15. Future proponent(s) will identify activities associated with high vibration levels and develop measures to attenuate vibration impacts as applicable.	Ensure that the vibration levels meet statutory requirements (including Department of Industry and Resources requirements) and acceptable standards.	Prior to construction, identify potential vibration sources along the corridor and determine the proximity of vibration sources to sensitive premises. Develop measures to attenuate vibration impacts as applicable. Road and rail proponents will include vibration caused by traffic flow and train operations.	DEP / Department of Industry and Resources.	Potential vibration sources to sensitive premises and applicable attenuation measures identified in the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
16. Future proponent(s) will design proposed natural gas pipeline(s) to minimise risk to workers and the general public.	Ensure that risk is managed to meet the EPA's criteria for individual fatality risk offsite and Department of Industry and Resources requirements in relation to worker and public safety near natural gas pipelines.	<ol style="list-style-type: none"> 1. During the initial design phase complete a HAZOP study in accordance with Department of Industry and Resources requirements. 2. Following completion of the initial design phase, identify proximity of the pipeline(s), proposed MAOP and safety features to be incorporated to minimise risk to sensitive premises. 3. Complete Risk Assessment prior to construction in accordance with AS2885.1:1997 to ensure that risk levels meet Department of Industry and Resources and EPA criteria. 	<ol style="list-style-type: none"> 1. Department of Industry and Resources. 2. Department of Industry and Resources. 3. Department of Industry and Resources. 	Risks posed by future proposed pipeline(s) will be assessed and submitted to Department of Industry and Resources for consideration. Measures to minimise risk detailed in the EMP.
17. Future proponent(s) will manage the transport of hazardous goods by road or rail to minimise risk to workers and the general public.	Ensure that risk to the public resulting from the carriage of dangerous goods on the road and railway meets the EPA's criteria for individual fatality risk offsite and complies with relevant Australian Standards for the handling and carriage of dangerous goods.	<p>Carry out a quantitative risk assessment to determine the risks associated with the transport of hazardous goods by road and rail as required.</p> <p>Identify mitigation and management measures as part of the risk assessment process.</p> <p>Prepare a Transport Management Plan for hazardous goods transport operations.</p>	Department of Industry and Resources.	<p>Risk assessment summary, mitigation and management measures included in the EMP.</p> <p>Transport Management Plan addressing design specifications, operational procedures, training, maintenance and inspection, and emergency response procedures.</p>
18. Future proponent(s) will apply 'prudent avoidance' in the design and construction of the transmission lines with regard to electromagnetic fields (EMF).	Ensure that electromagnetic fields (EMF) emanating from the power lines comply with relevant standards for the prevention of human health effects.	<p>Apply 'prudent avoidance' and follow the Electricity Supply Association of Australia (ESAA) recommendations and the Western Power policy (or equivalent) on restricting land uses in close proximity to the transmission lines.</p> <p>Building and long-term occupation within the easement will be prohibited.</p>	ESAA.	Management strategies used to apply prudent avoidance will be detailed in the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
19. Future proponent(s) will assess and reduce risks to the gas pipeline(s) through the development and implementation of management measures to ensure that risk is ALARP.	Reduce threats to the gas pipeline(s) and the risk of loss of integrity of the pipeline(s) to a level of accepted risk that is ALARP.	Review qualitative analyses within the Strategic Environmental Review and undertake a full risk assessment for the pipeline(s) in accordance with AS2885.1:1997 prior to construction. Review the risk assessment every five years while the pipeline(s) is(are) operational and when changes occur in or to the pipeline(s), or to the adjacent land use.	Department of Industry and Resources.	The design process will include steps for the assessment of risk associated with the pipeline(s) and the identification of appropriate risk management measures. Risk assessment to be outlined in the EMP.
20. Future proponent(s) will not disturb any Aboriginal Heritage site without the agreement of relevant Aboriginal communities and the approval of the Minister for Indigenous Affairs.	Ensure that the strategic plan complies with the requirements of the <i>Aboriginal Heritage Act, 1972</i> . Ensure that changes to the biological and physical environment resulting from the proposed development are minimised and do not adversely affect cultural associations of the areas along and adjacent to the infrastructure corridor.	1. Prior to construction, the Gas Pipeline Working Group (GPWG) on behalf of the Gas Pipeline Sale Steering Committee (GPSSC) will apply for clearance under Section 18 of the <i>Aboriginal Heritage Act, 1972</i> to remove known sites located within the proposed working width. 2. Prior to construction, proponents will develop strategies to ensure that any new sites located during construction are protected until assessed. 3. During construction, proponents will ensure that an Aboriginal Heritage Monitor is present during all ground disturbing construction activities.	1, 2 & 3: Department of Indigenous Affairs (DIA).	1. Clearance for disturbance of sites provided under Section 18. 2. Strategies for the location and handling of new sites located during construction works, including training of personnel with regard to their responsibilities under the <i>Aboriginal Heritage Act, 1972</i> , detailed in the EMP. 3. Suitable monitors from representative groups detailed in the EMP.
21. Future proponent(s) will ensure that existing European Heritage sites along the route are not impacted by construction activities.	Ensure that changes to the biological and physical environment resulting from the proposed development do not adversely affect European heritage values of the areas along and adjacent to the infrastructure corridor.	If sites of European Heritage are identified within or close to the corridor appropriate management will be undertaken to protect such sites.	DEP / Shires.	Identify European Heritage sites and management in the EMP.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
22. Future proponent(s) will implement appropriate consultation and management measures to minimise impacts on visual amenity.	The visual amenity of the area adjacent to the proposed infrastructure corridor should not be unduly affected.	<ol style="list-style-type: none"> Proponents of above-ground infrastructure will consult with the local community in order to minimise concerns about impacts on visual amenity. Short-term impacts as a result of construction will be managed through the successful reinstatement and rehabilitation of the infrastructure route. 	<ol style="list-style-type: none"> DEP / Shires. DEP / CALM / Department of Agriculture Western Australia. 	<ol style="list-style-type: none"> Outline consultation process, outcomes and any management measures identified during consultation in the EMP. Rehabilitation Plan prepared as part of the EMP.
23. Department of Industry and Resources will continue consultations with stakeholders and individuals as appropriate.	To ensure the general public and affected landowners are briefed of activities and potential impacts on their day to day lives, including landowner restrictions or conflicts.	<ol style="list-style-type: none"> Department of Industry and Resources will continue consultation with all interested stakeholders and individuals until rights are acquired for the land within an approved corridor. Department of Industry and Resources will continue consultation with landowners throughout the environmental approvals process. 	Department for Planning and Infrastructure / Shires.	1 & 2. All interested parties are kept well informed of the project.
24. Future proponent(s) will liaise with landowners and stakeholders as appropriate.	To ensure the general public and affected landowners are briefed of activities and potential impacts on their day to day lives, including landowner restrictions or conflicts.	Future proponent(s) will liaise with landowners and stakeholders in relation to issues such as proposed construction activities and timing, property access requirements, the proposed alignment, stock control, gates and fences, crop protection and access to water.	Department for Planning and Infrastructure / Shires.	Liaison with landowners and stakeholders occurs prior to and during construction activities. Consultation is documented and summarised in the EMP.
25. Future proponent(s) will consult with operators of other infrastructure in the area adjacent to the infrastructure corridor during design and construction.	To ensure that impact on other infrastructure is at an acceptable level.	<p>Proponents will consult with all stakeholders during the planning & design, approval, construction and operation stages, to ensure that they are informed of proposals and able to input at these stages to ensure compliance with appropriate regulations.</p> <p>Consultation will include where appropriate but not be limited to:</p> <ul style="list-style-type: none"> - Mid West Pipeline Joint Venture - Goldfields Gas Transmission Pty Ltd - Main Roads Western Australia - Western Power - Rail Operators - Pastoralists/Landholders 	Department for Planning and Infrastructure / all affected stakeholders.	Impact on other infrastructure meets Australian Standards and all applicable regulations.

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
<p>26. Future proponent(s) will employ controlled blasting or other better suited control methods during the construction of all infrastructure, in particular where the corridor is adjacent to existing infrastructure (buildings, other pipelines, roads).</p>	<p>To ensure that impact on other infrastructure is at an acceptable level.</p>	<p>Proponents will undertake a detailed risk analysis during the planning of blasting, in consultation with all affected stakeholders.</p> <p>Consultation will include, where appropriate, but not be limited to:</p> <ul style="list-style-type: none"> - Mid West Pipeline Joint Venture - Goldfields Gas Transmission Pty Ltd - Main Roads Western Australia - Western Power - Rail Operators - Pastoralists/Landholders <p>Proponents will ensure that best practice guidelines are followed for all methods they apply.</p>	<p>Department of Industry and Resources / all affected stakeholders.</p>	<p>Impact on other infrastructure meets Australian Standards and all applicable regulations.</p>

Appendix 4

Summary of submissions and the proponent's response to submissions

(See attached CD)



Department of
Industry and Resources

Western Australia

GPWG
GAS PIPELINE WORKING GROUP

Proponents response to submissions to the
Geraldton to North-Eastern Goldfields
Infrastructure Corridor

Your Ref: 439/01 Vol 4
Our Ref: R0114/01V4
Enquiries: Sabine Hopf
Email: sabine.hopf@doir.wa.gov.au

Level 10, Mineral House
100 Plain Street East Perth
Western Australia 6004

Postal Address
Department of
Industry and Resources
PO Box 7606, Cloisters Square,
Perth, Western Australia 6850

Telephone: (08) 9222 3832
Fax: (08) 9222 3320

ABN 69 410 335 356

The Chairman

ENVIRONMENTAL PROTECTION AUTHORITY
PO Box K822
PERTH WA 6842

Attention: John Güld

REVISED VERSION OF PROPONENT'S RESPONSE TO SUBMISSIONS FOR THE GERALDTON TO NORTH-EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR STRATEGIC ENVIRONMENTAL REVIEW

I refer to the letter dated 11th February 2003 from the Gas Pipeline Working Group (GPWG) that was sent to you in regard to the proponent's response to submissions, and the email message of 12th May 2003 from Mr Phil Bayley of Bowman Bishaw Gorham, which dealt with the provision of an amended version of the proponent's response to submissions. The GPWG, on behalf of the proponent, the Gas Pipeline Sale Steering Committee (GPSSC), wishes to provide you with a new, revised version of the proponent's response to submissions, which features additional amendments that address the concerns that you identified recently.

In addition to the hard copy of the new, revised version of the proponent's response to submissions that has been provided, digital copies will also be placed on compact disc (CD). The Environmental Protection Authority (EPA) will be provided with 150 copies of the CD and an equivalent quantity of self adhesive CD pockets, so that the CD's can be attached to the inside of the back cover of the EPA bulletins.

You should also note that the eight A3 sized maps that were provided with the original version of the proponent's response to submissions have been replaced by twenty new A4 sized maps that have been configured to facilitate black and white printing. The total number of maps has increased from eight to twenty due to the larger scale used in the new maps, and the addition of four new maps that show enlargements of the areas in Locations 1 to 4 (i.e. the circled areas) on the original version of Map 1.

The following table provides details about the twenty new maps and how they relate to the eight original maps.

File Name	New Map Name	Original Map Name
1_1_8.pdf	Map 1.1 of 8	Original Map 1 of 8
1_2_8.pdf	Map 1.2 of 8	Original Map 1 of 8
2_1_8.pdf	Map 2.1 of 8	Original Map 2 of 8
2_2_8.pdf	Map 2.2 of 8	Original Map 2 of 8
3_1_8.pdf	Map 3.1 of 8	Original Map 3 of 8
3_2_8.pdf	Map 3.2 of 8	Original Map 3 of 8
4_1_8.pdf	Map 4.1 of 8	Original Map 4 of 8
4_2_8.pdf	Map 4.2 of 8	Original Map 4 of 8
5_1_8.pdf	Map 5.1 of 8	Original Map 5 of 8
5_2_8.pdf	Map 5.2 of 8	Original Map 5 of 8
6_1_8.pdf	Map 6.1 of 8	Original Map 6 of 8
6_2_8.pdf	Map 6.2 of 8	Original Map 6 of 8
7_1_8.pdf	Map 7.1 of 8	Original Map 7 of 8
7_2_8.pdf	Map 7.2 of 8	Original Map 7 of 8
8_1_8.pdf	Map 8.1 of 8	Original Map 8 of 8
8_2_8.pdf	Map 8.2 of 8	Original Map 8 of 8
1A_8.pdf	Map 1A of 8	Original Map 1 of 8, circle 1
2A_8.pdf	Map 2A of 8	Original Map 1 of 8, circle 2
3A_8.pdf	Map 3A of 8	Original Map 1 of 8, circle 3
4A_8.pdf	Map 4A of 8	Original Map 1 of 8, circle 4

I hope this is satisfactory to you.

Yours sincerely



Nigel Goodall
HEAD OF PROJECT
GAS PIPELINE WORKING GROUP

11 August 2003

Your Ref: 439/01 Vol 4
Our Ref: R0114/01v4
Enquiries: Sabine Hopf
Email: sabine.hopf@doir.wa.gov.au

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ABN 69 410 335 356

The Chairman
ENVIRONMENTAL PROTECTION AUTHORITY
PO Box K822
PERTH WA 6842

Attention: John Güld

GERALDTON TO NORTH-EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR - RESPONSE TO PUBLIC SUBMISSIONS

Dear John

Enclosed is the response on the public submissions to the Strategic Environmental Review (SER) for the Geraldton to North-Eastern Goldfields Infrastructure Corridor.

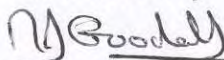
Could you have a look at them and contact me if you wish to discuss any of the issues further?

Since we went out with the SER, we have had further consultation with all stakeholders and a number of issues have been raised, most of which were also communicated to you through the public submissions to the SER. In order to establish a corridor that avoids all contentious environmental issues, and that is satisfactory to all parties concerned, we have made minor adjustments to the alignment following extensive discussions with all stakeholders.

For the sake of good order, I have enclosed with this letter a summary of the locations where changes were made, and a list of reasons for the changes at each location. Also enclosed are eight maps that mark the locations where the alignment was modified.

Should you have any queries please contact me.

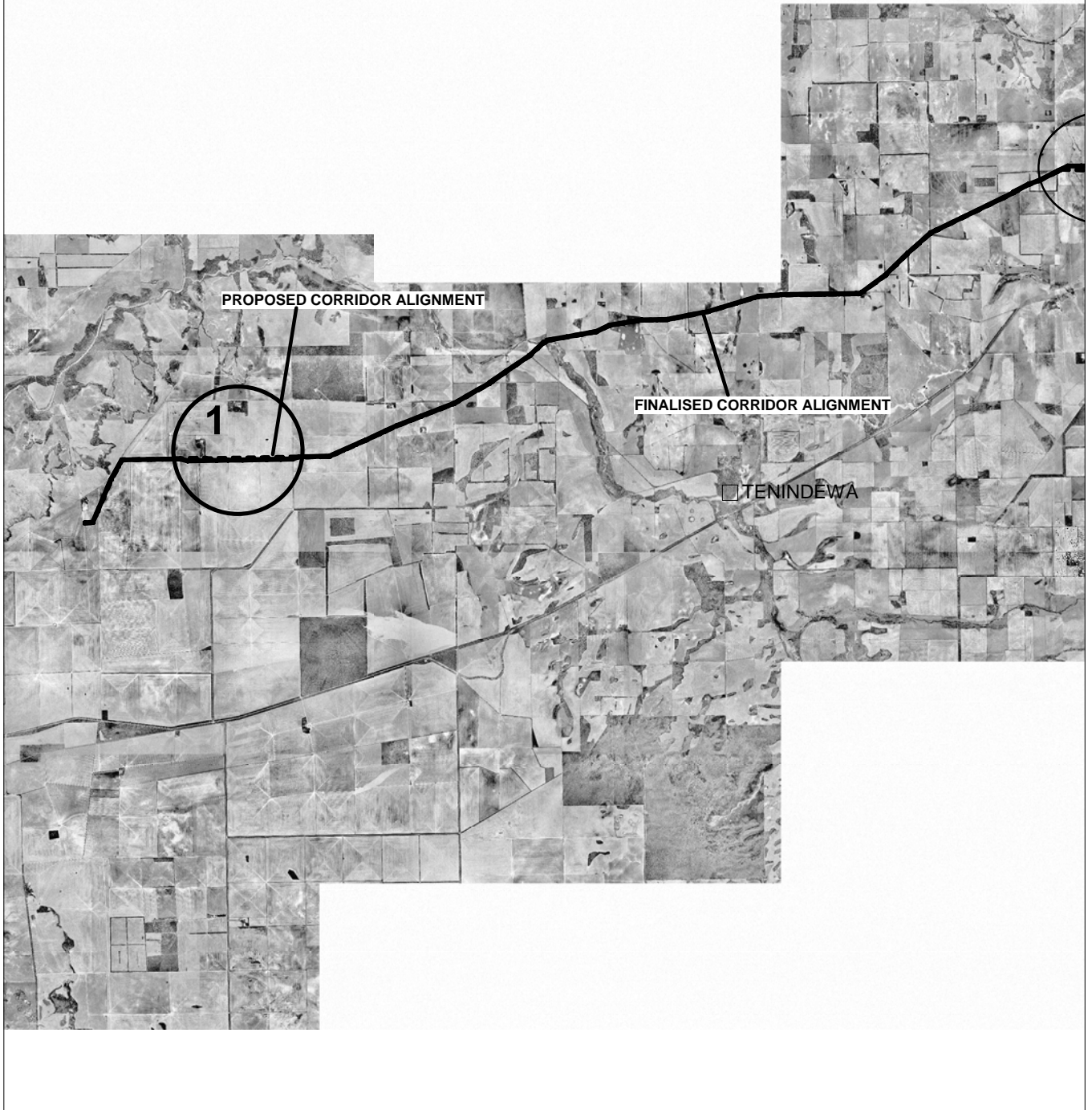
Yours sincerely



Nigel Goodall
HEAD OF PROJECT, GPWG
(saho0406.doc)

11 February 2003

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



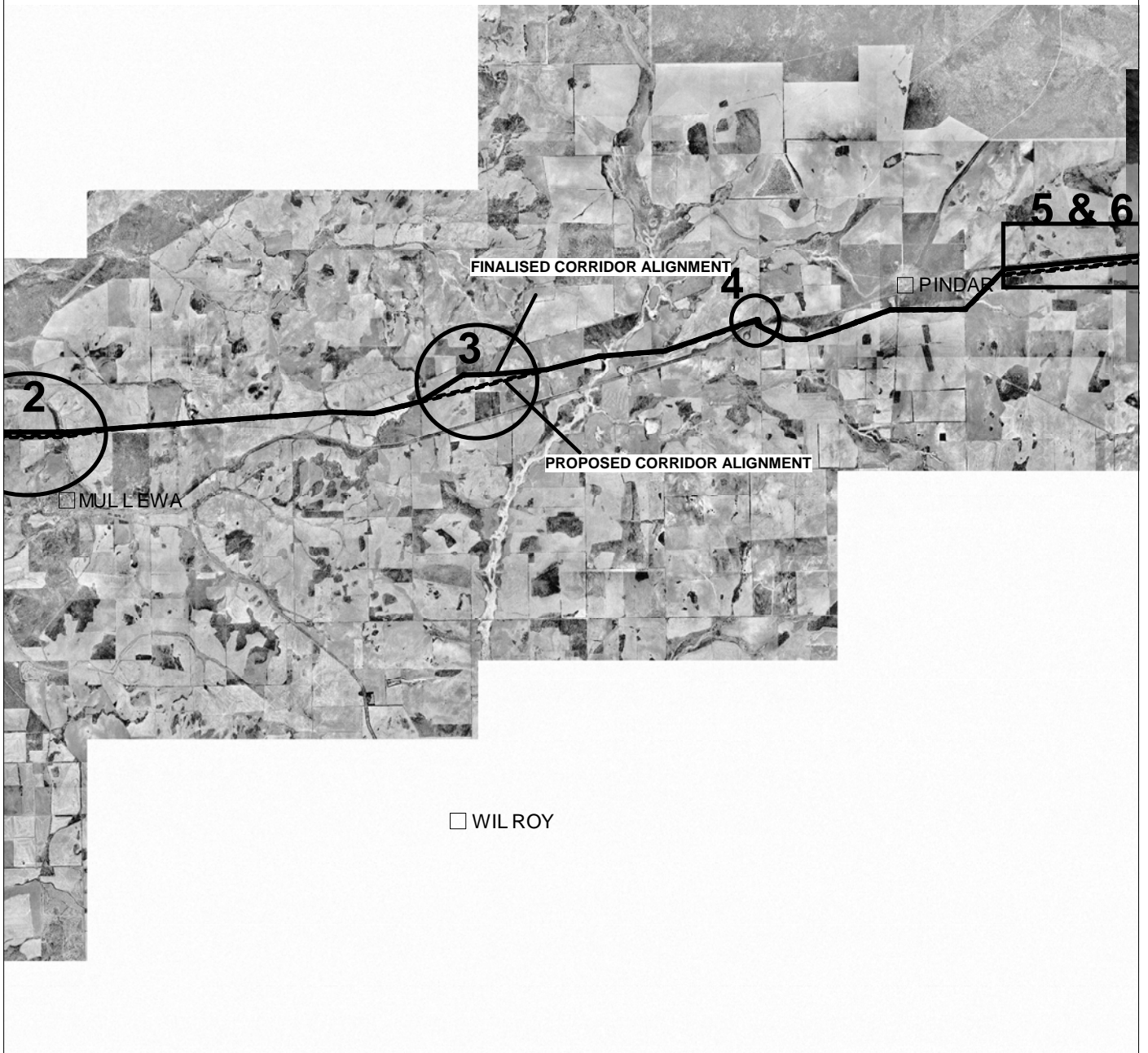
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MAP 1.1 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR,
GAS PIPELINE WORKING GROUP, JULY 2003



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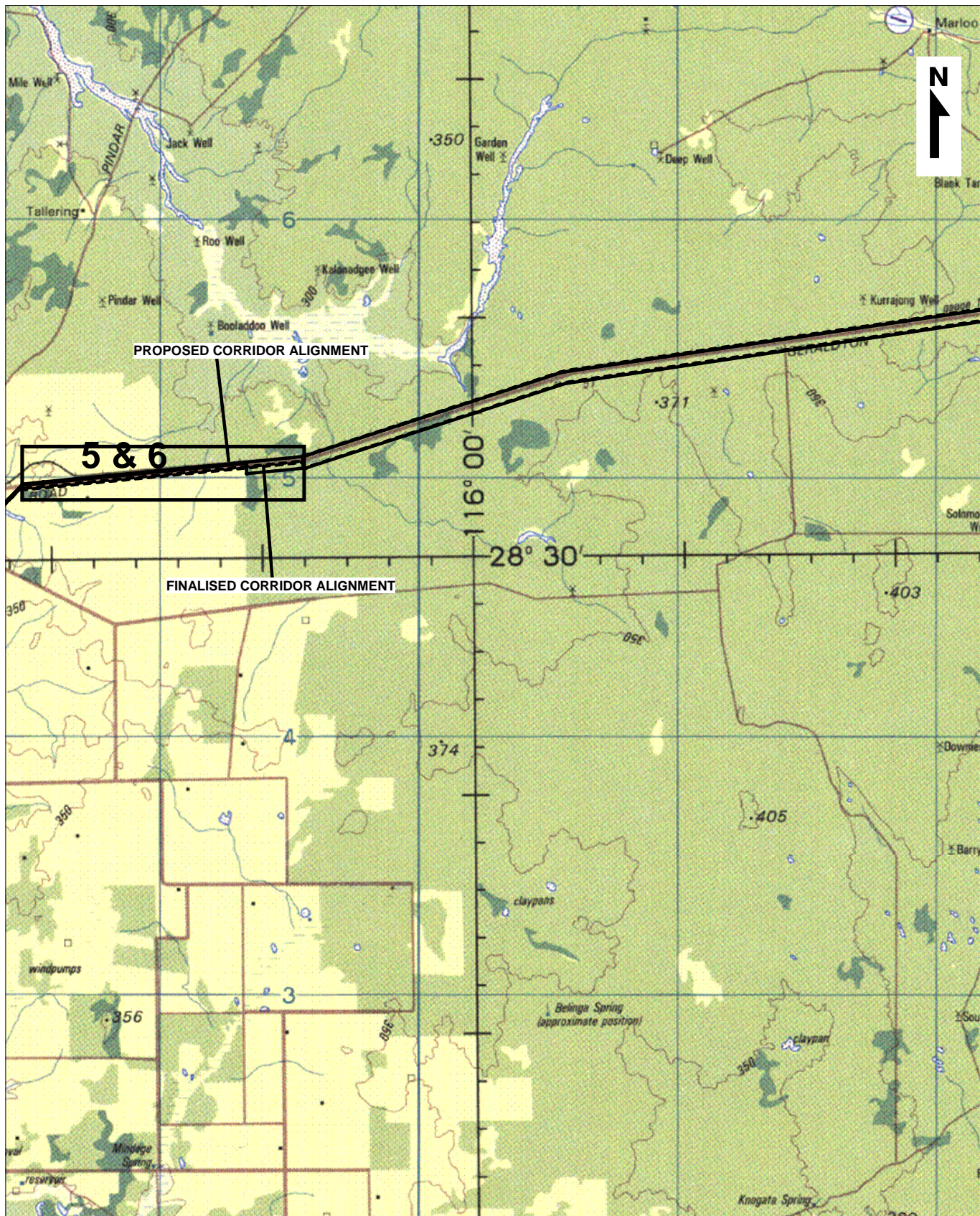
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Western Australia



MAP 1.2 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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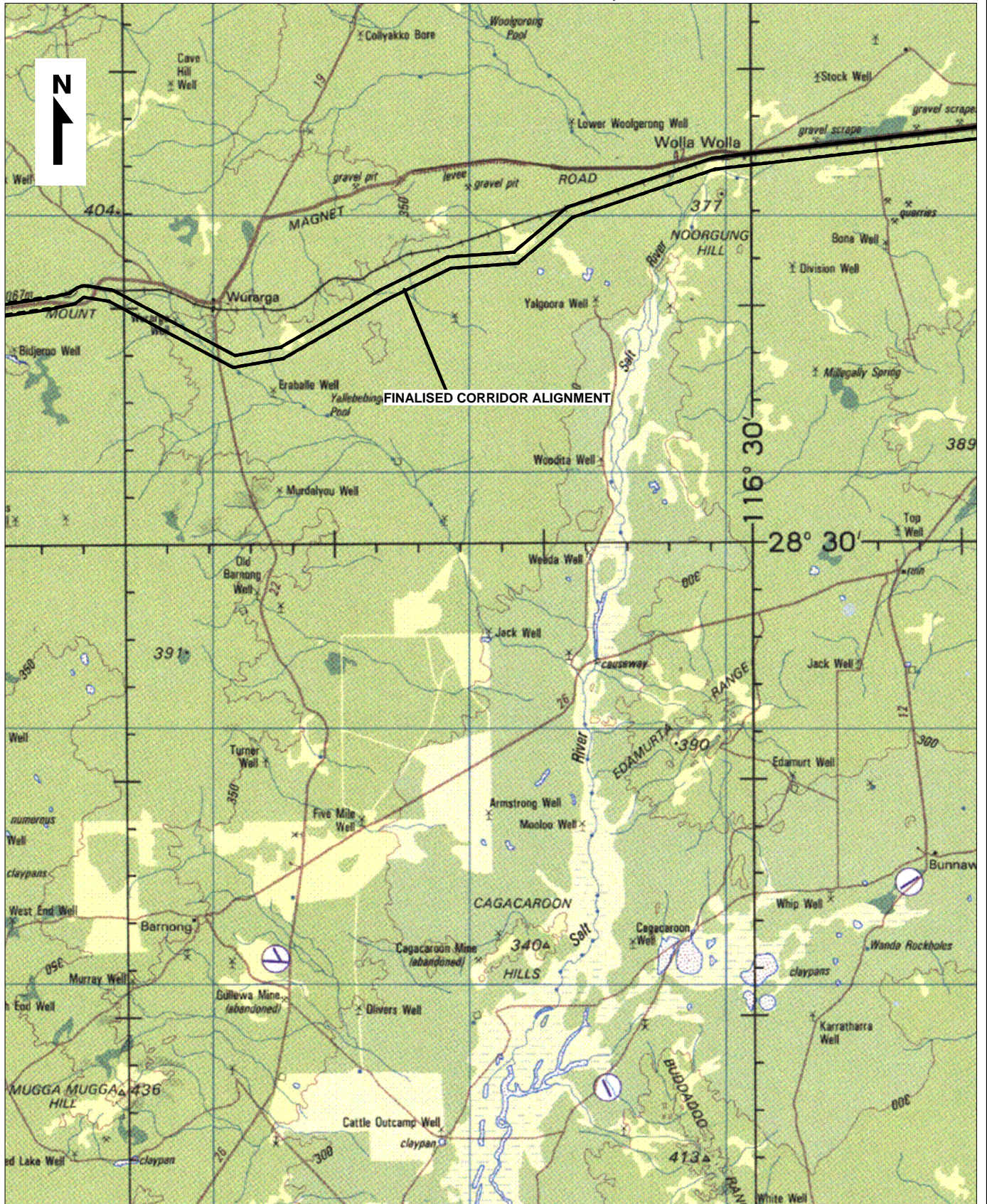
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MAP 2.1 OF 8

**GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR,
GAS PIPELINE WORKING GROUP, JULY 2003**



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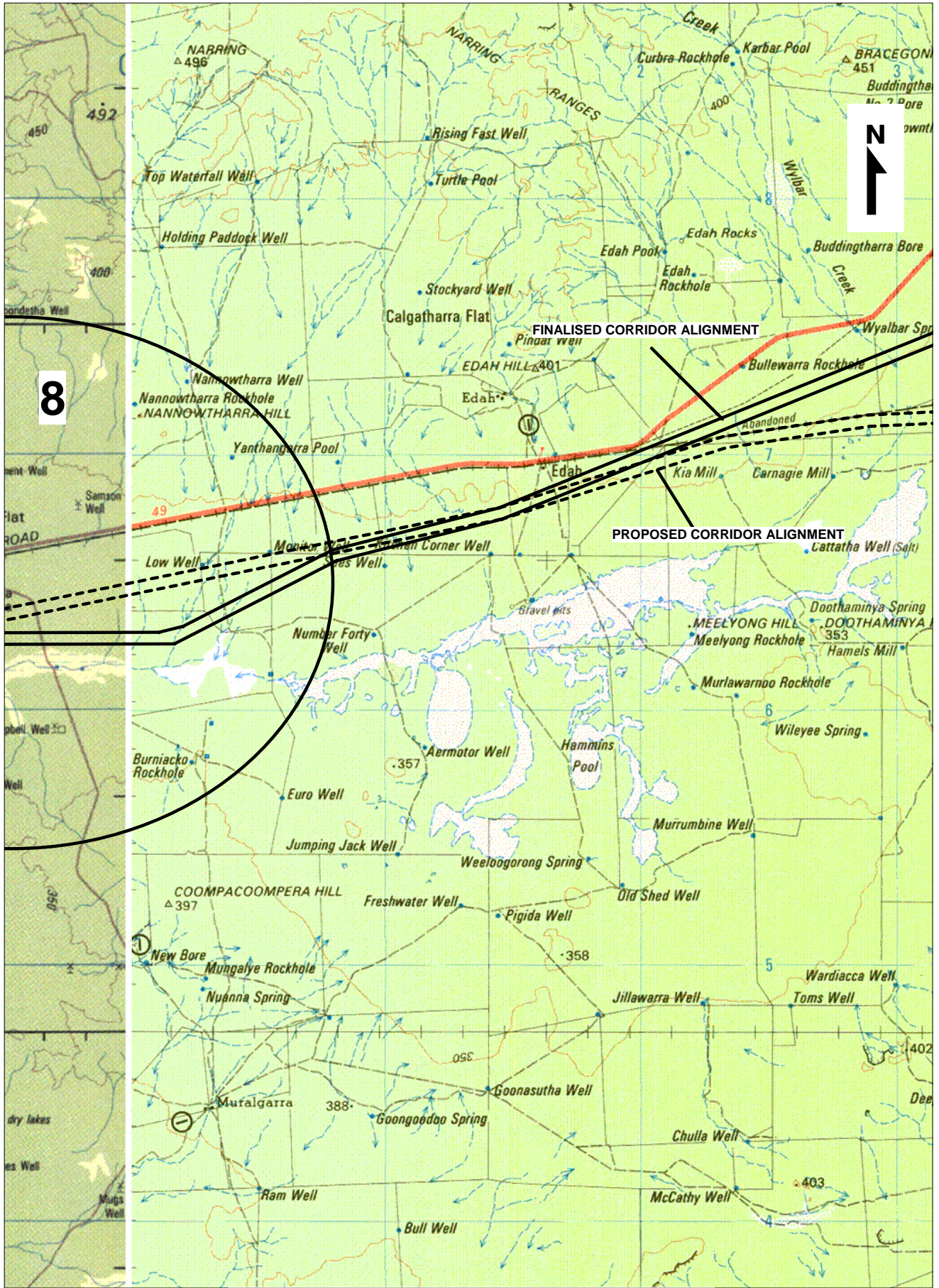


MAP 2.2 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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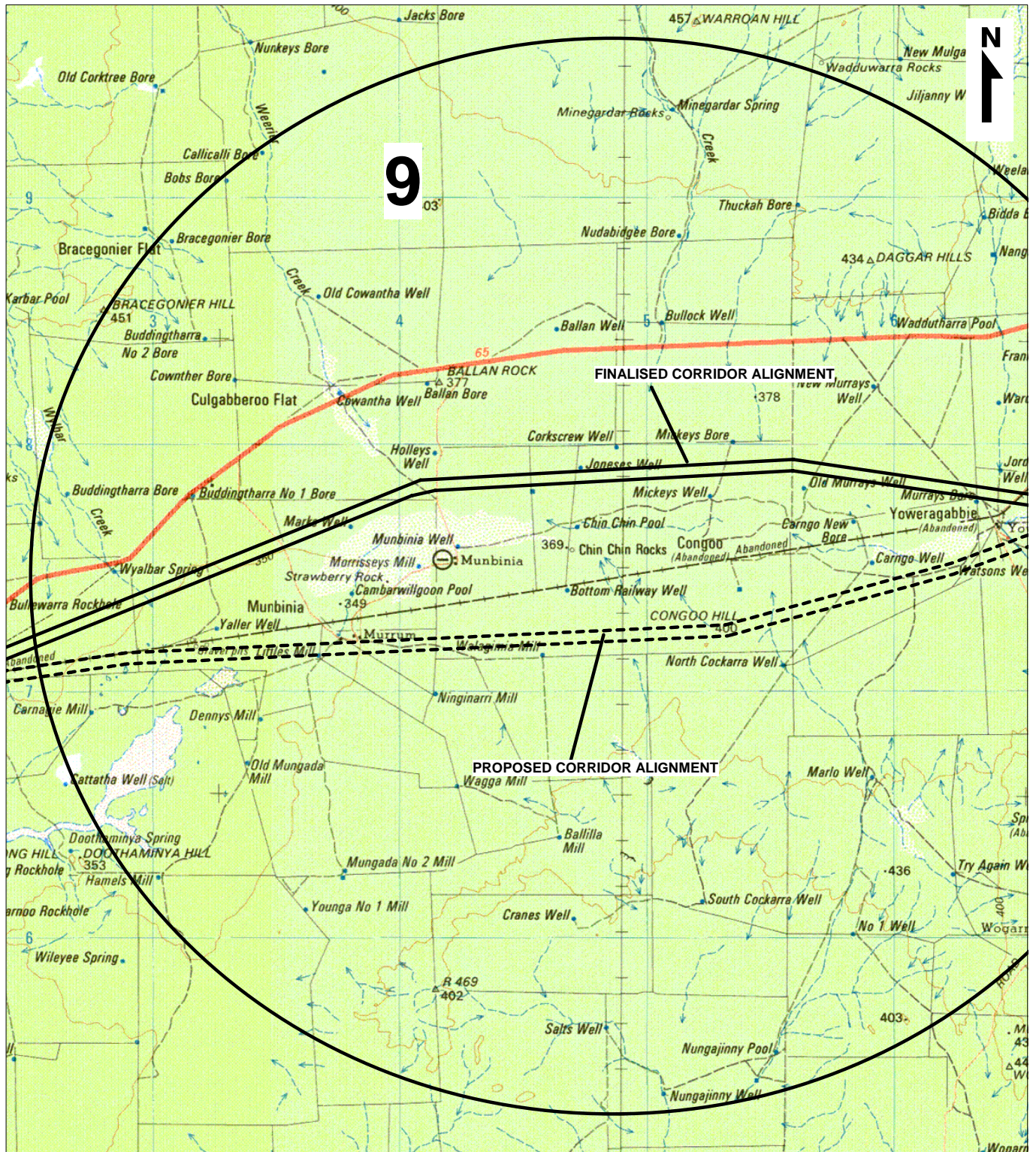
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MAP 3.2 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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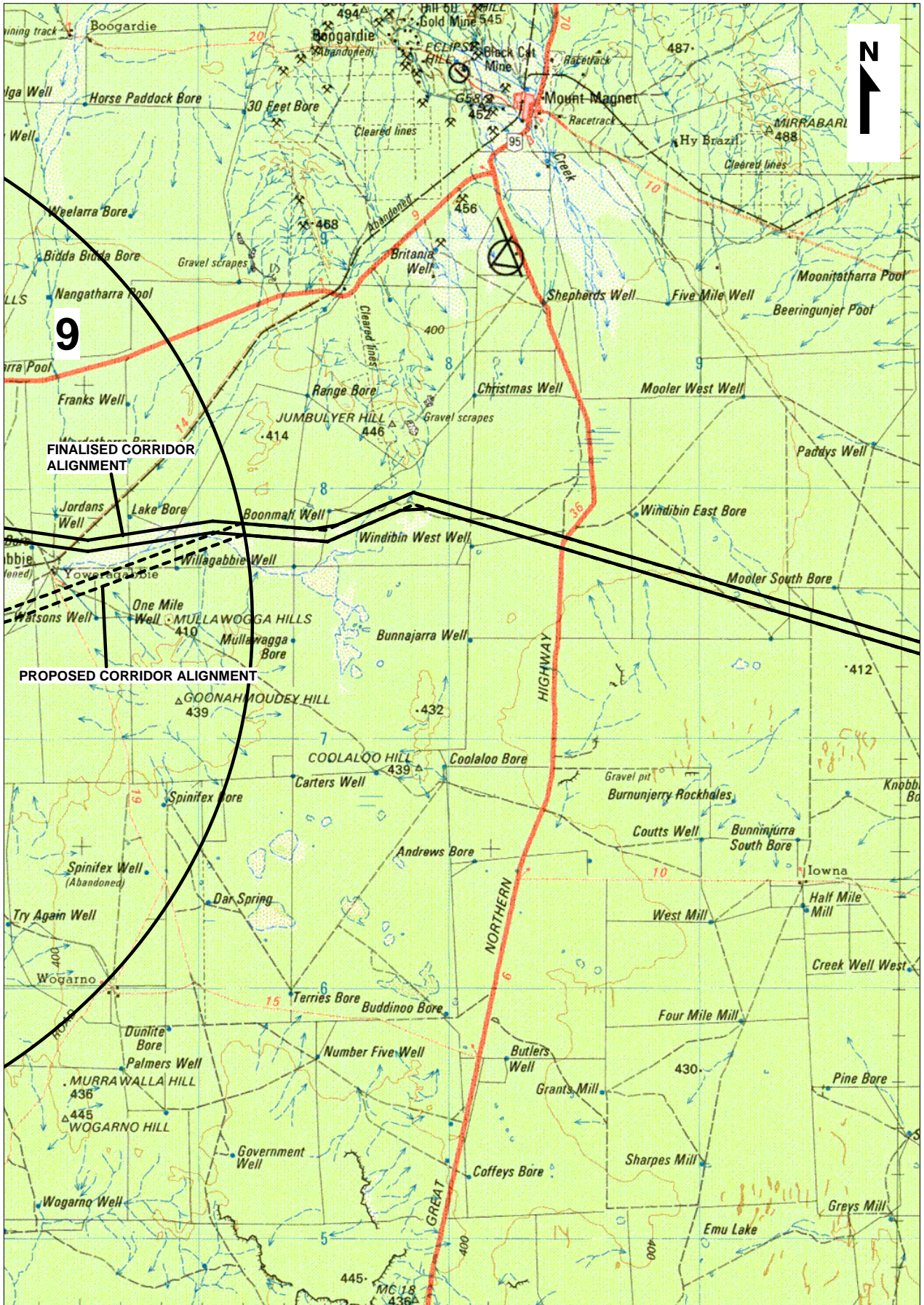
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Western Australia



MAP 4.1 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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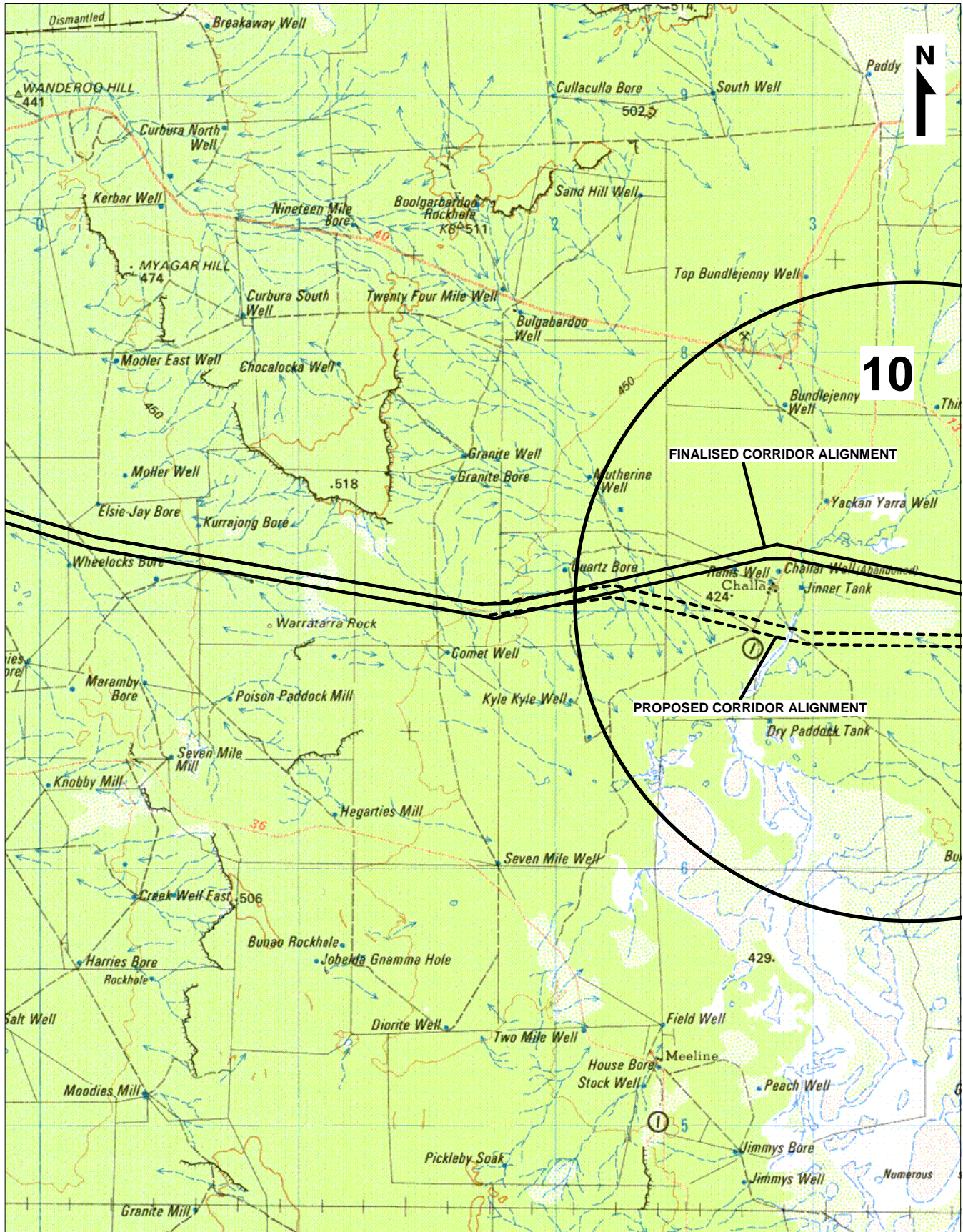
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MAP 4.2 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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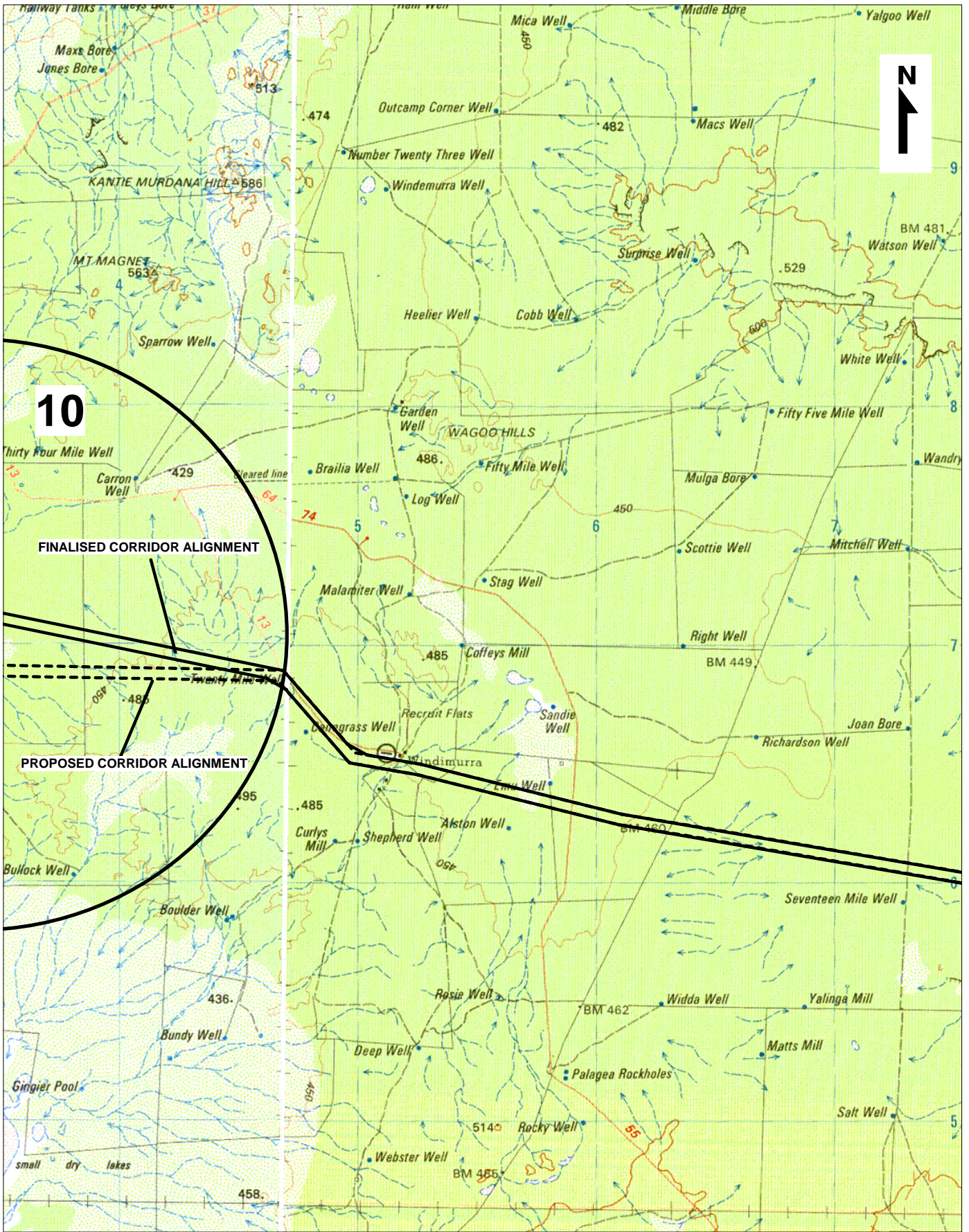
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MAP 5.1 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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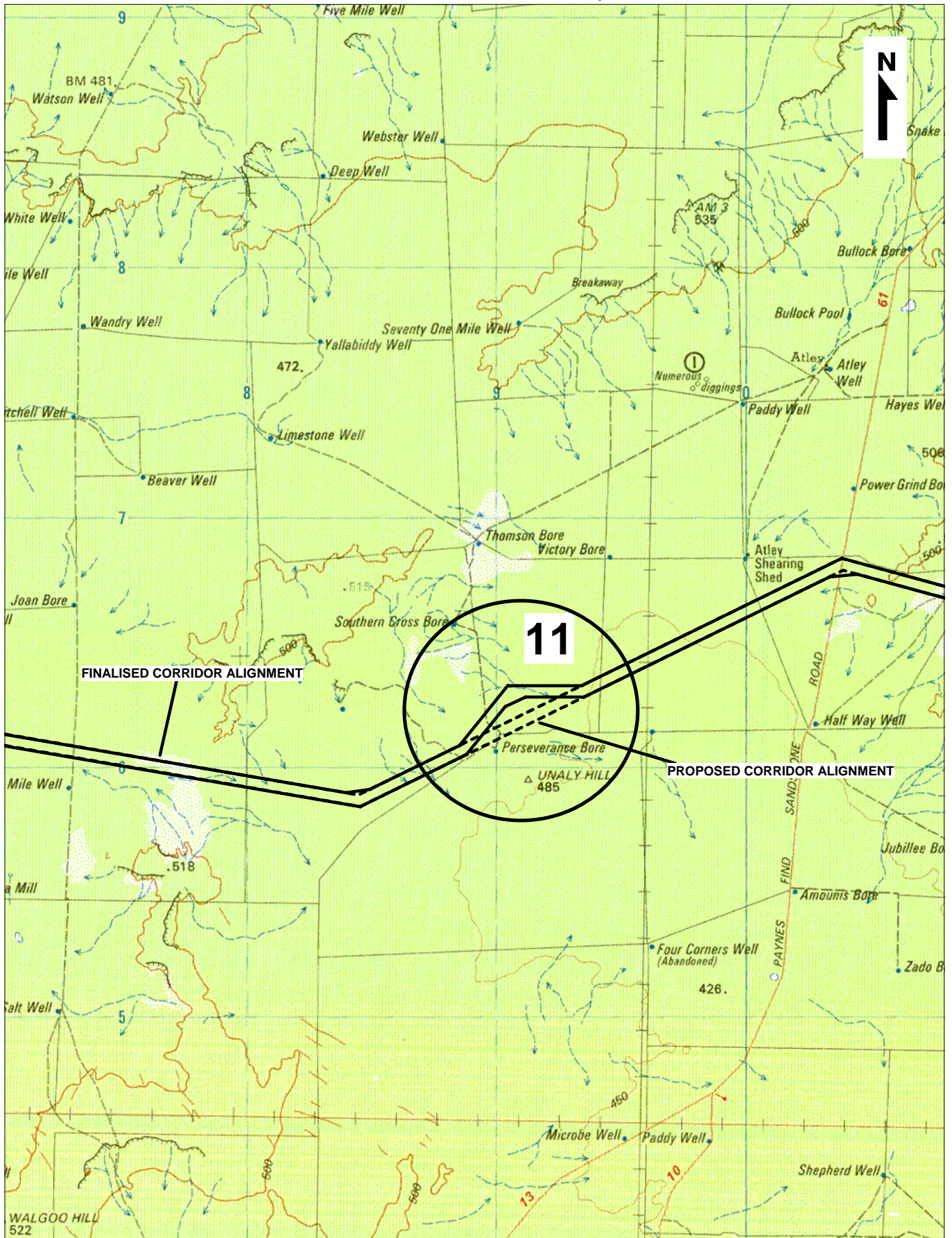
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MAP 5.2 OF 8

**GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR,
GAS PIPELINE WORKING GROUP, JULY 2003**



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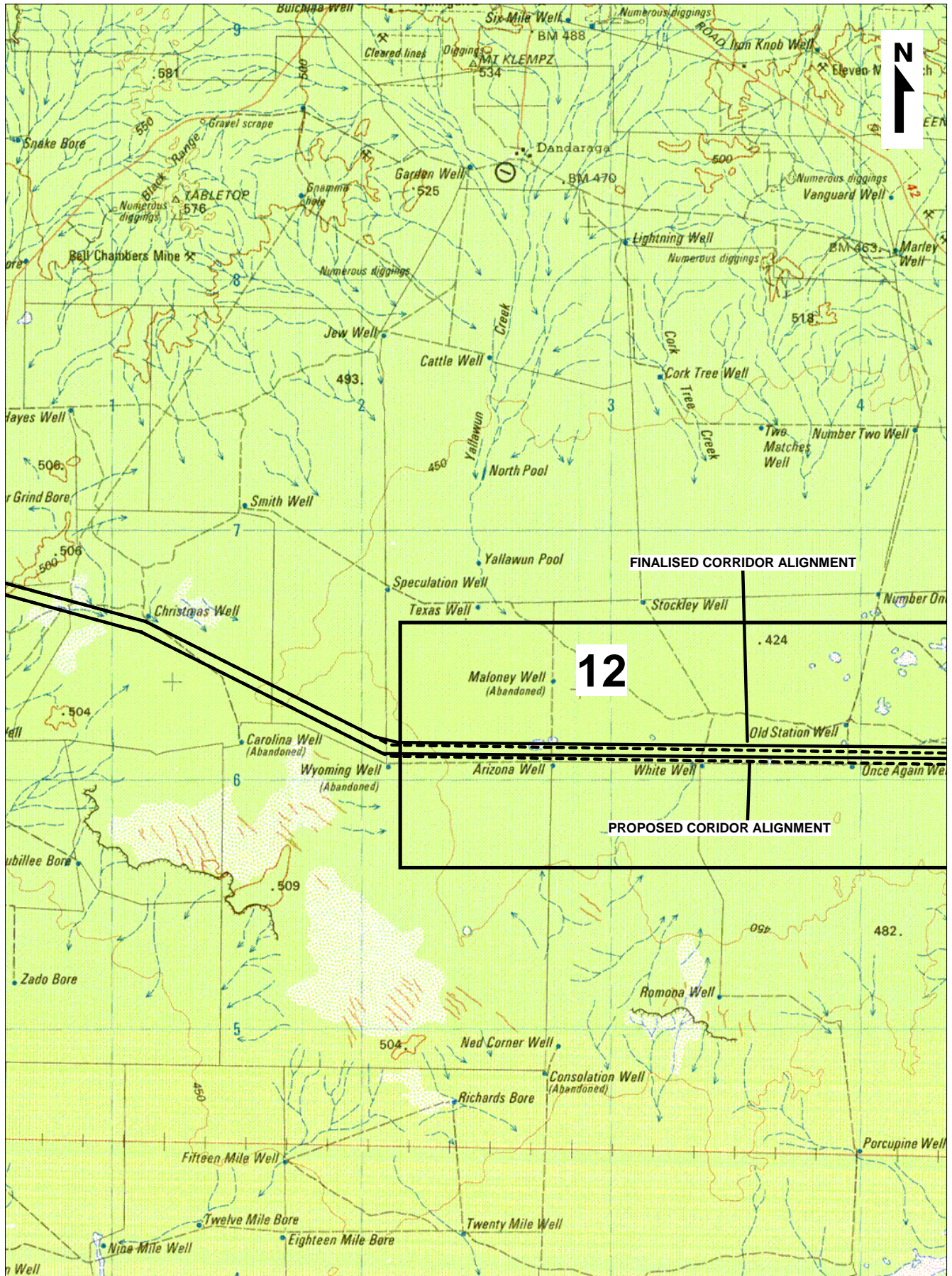
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MAP 6.1 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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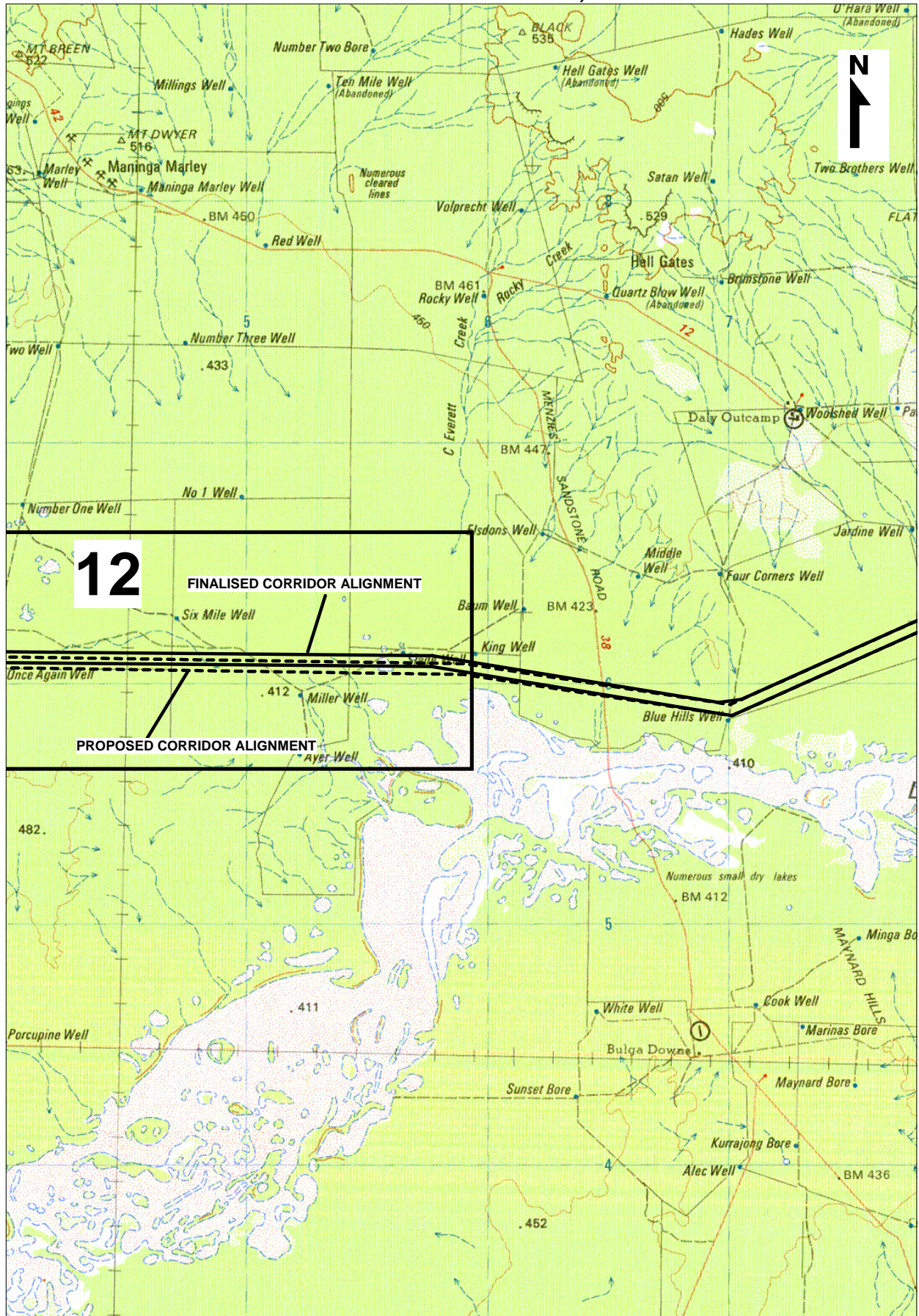
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MAP 6.2OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



12

FINALISED CORRIDOR ALIGNMENT

PROPOSED CORRIDOR ALIGNMENT



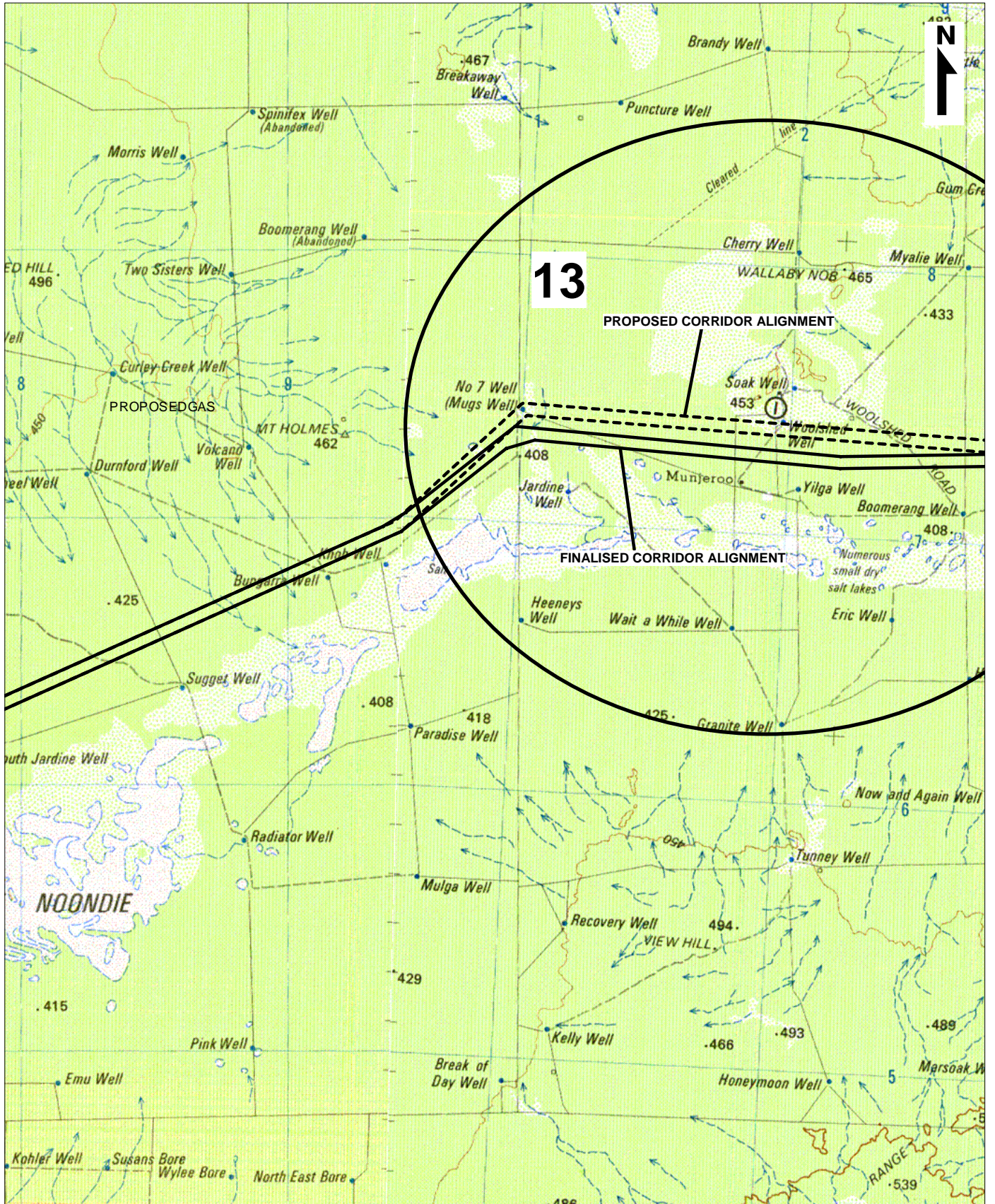
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MAP 7.1 of 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



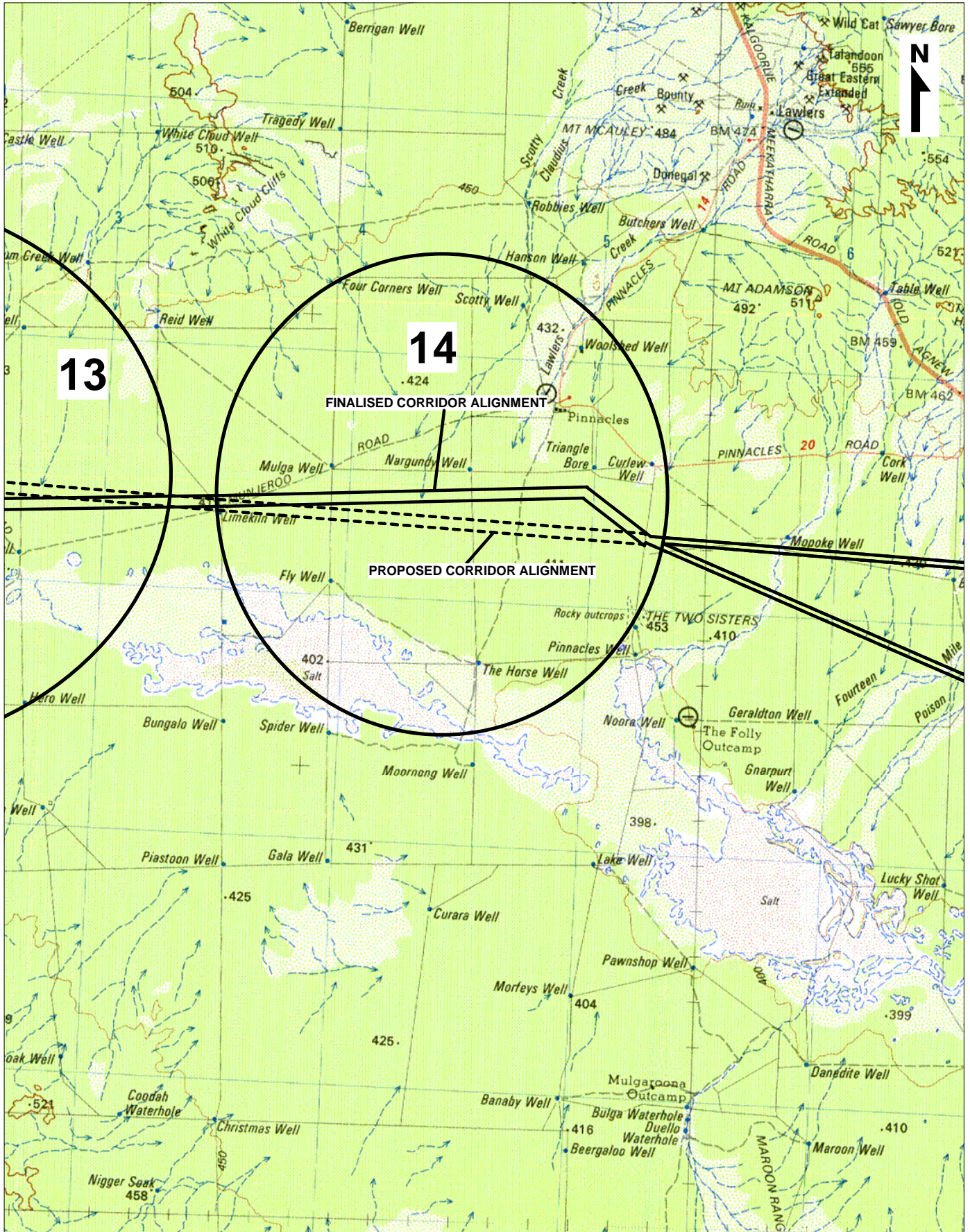
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MAP 7.2 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



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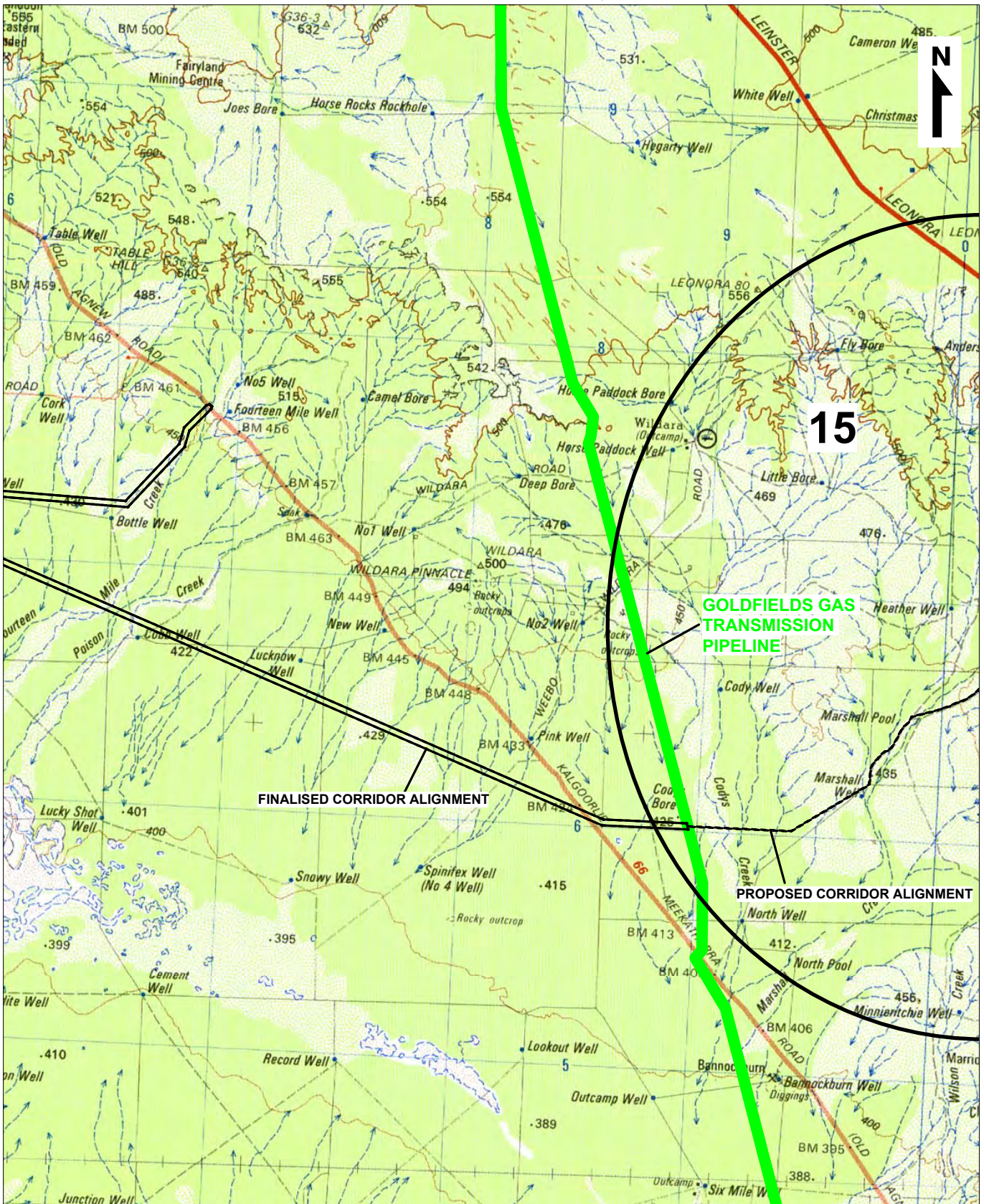
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MAP 8.1 OF 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR, GAS PIPELINE WORKING GROUP, JULY 2003



15

**GOLDFIELDS GAS
TRANSMISSION
PIPELINE**

FINALISED CORRIDOR ALIGNMENT

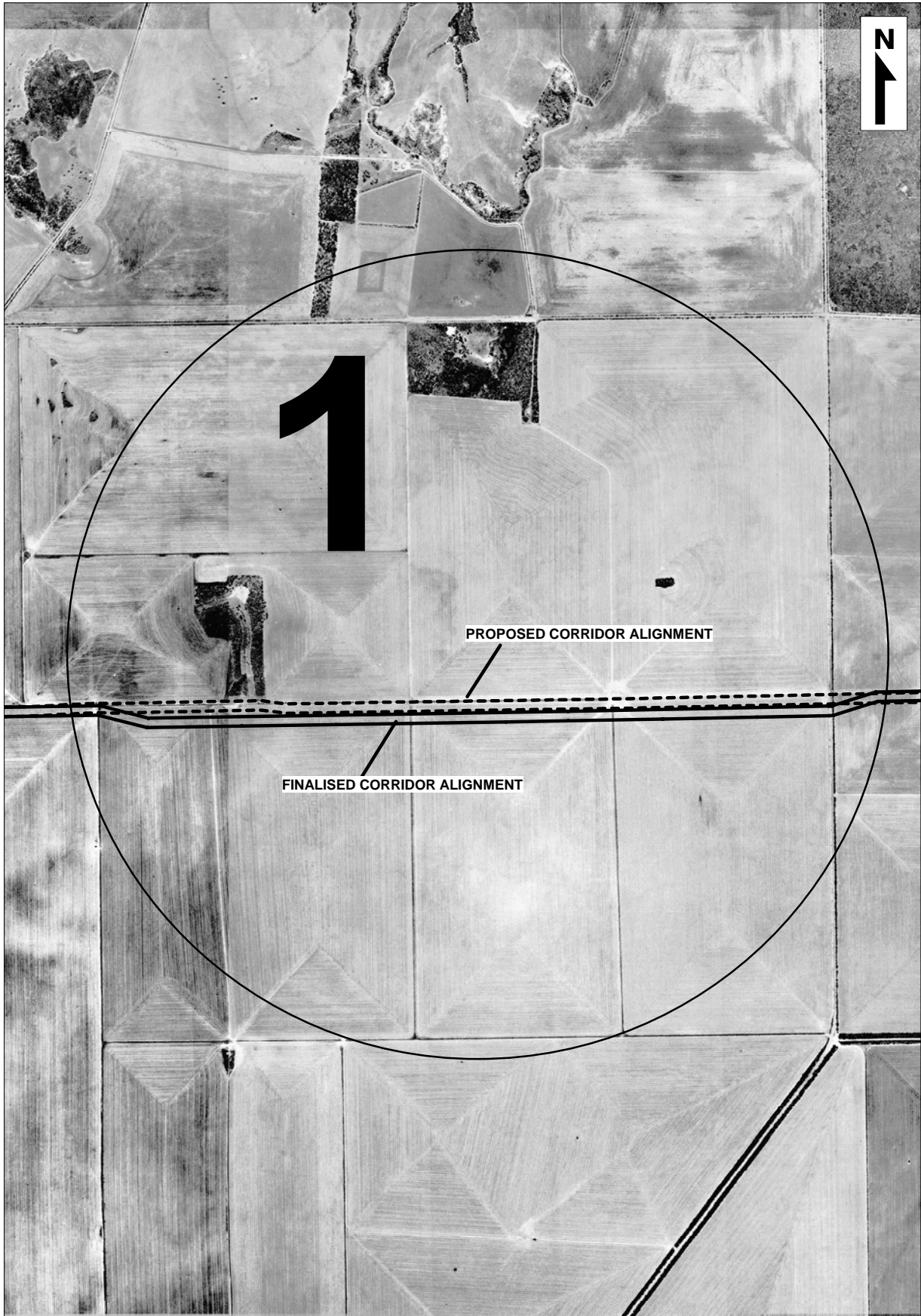
PROPOSED CORRIDOR ALIGNMENT

0 5 Km



MAP 8.2 OF 8

**GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR
GAS PIPELINE WORKING GROUP, JULY 2003**



0 1 Km

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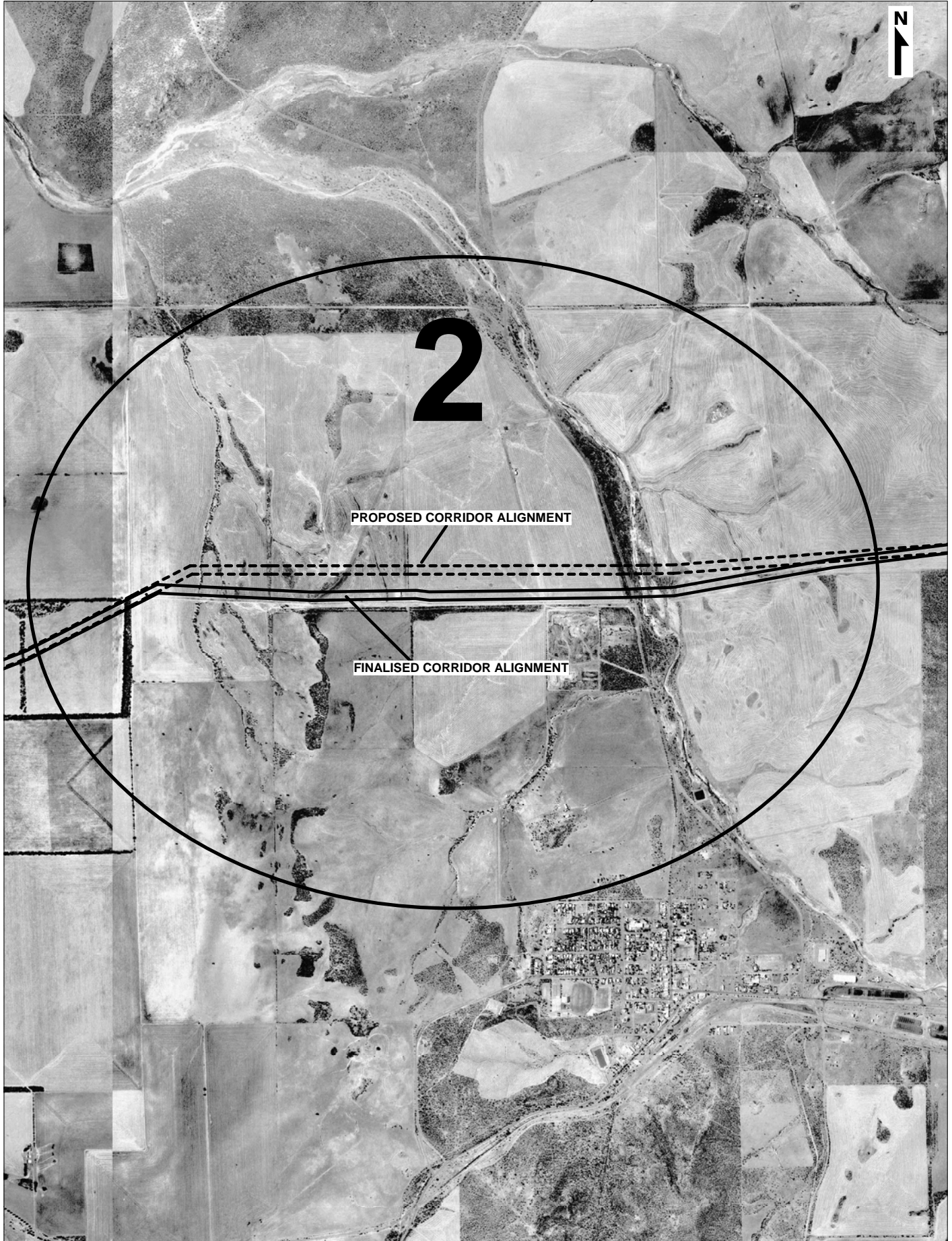
Department of
Industry and Resources

Geological Survey of
Western Australia



MAP 1A of 8

GERALDTON TO NORTH EASTERN GOLFIELDS INFRASTRUCTURE CORRIDOR,
GAS PIPE LINE WORKING GROUP, JULY 2003



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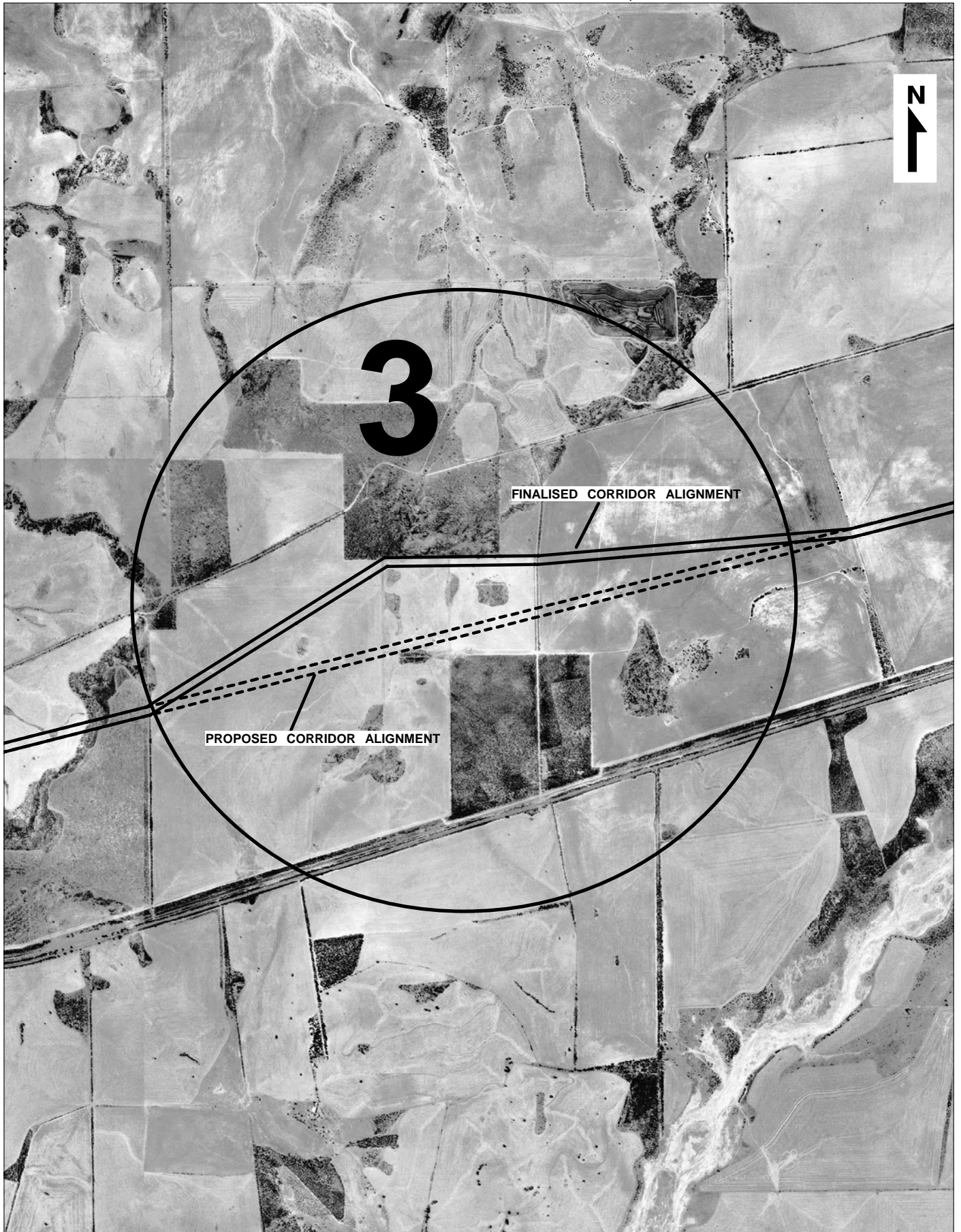
Department of
Industry and Resources

Geological Survey of
Western Australia



MAP 2A of 8

GERALDTON TO NORTH EASTERN GOLDFIELDS INFRASTRUCTURE CORRIDOR,
GAS PIPELINE WORKING GROUP, JULY 2003



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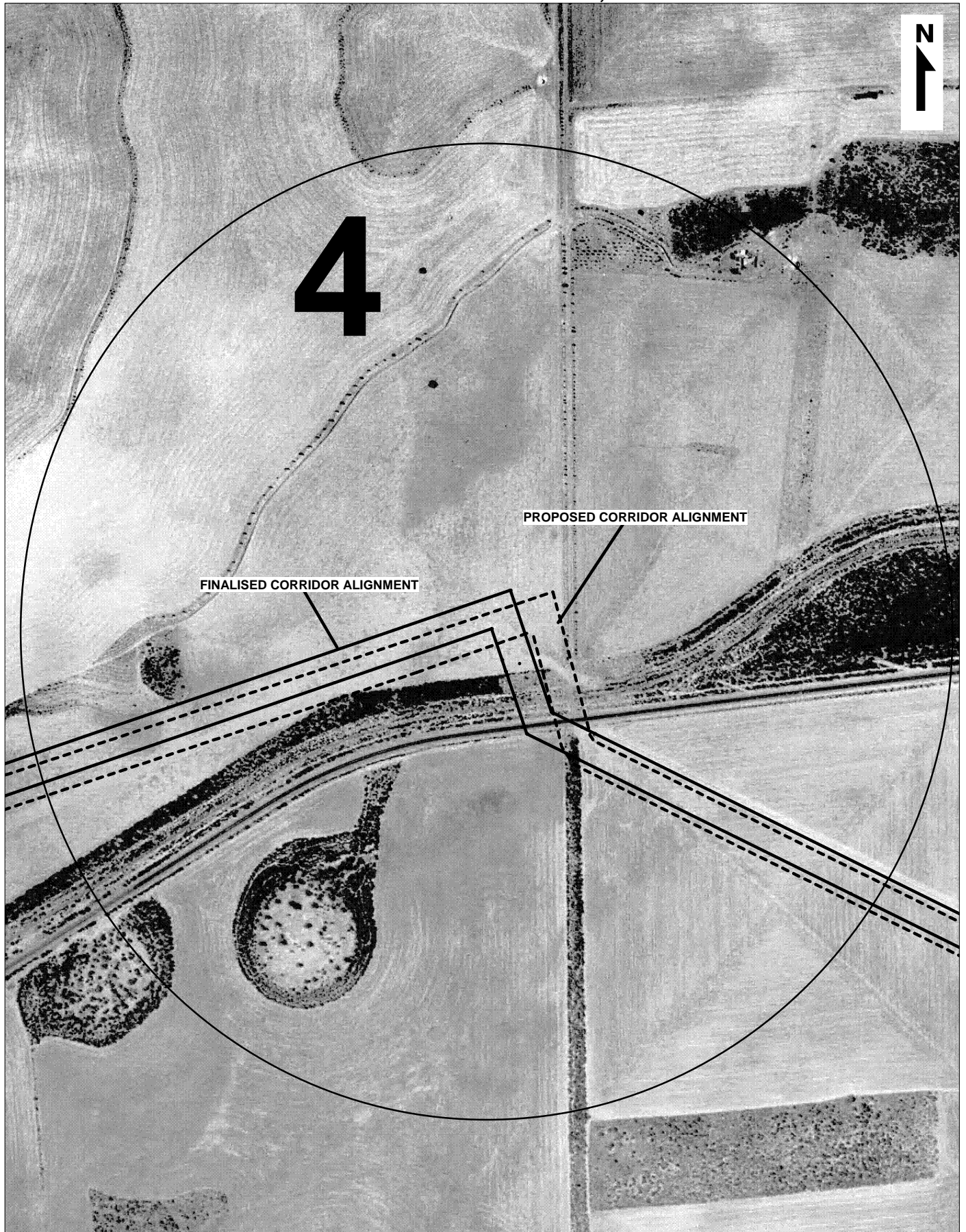
Department of
Industry and Resources

Geological Survey of
Western Australia



MAP 3A OF 8

GERALDTON TO NORTH EASTERN GOLFIELDS INFRASTRUCTURE CORRIDOR,
GAS PIPELINE WORKING GROUP, JULY 2003



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Department of
Industry and Resources

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Western Australia



MAP 4 A OF 8

**GERALDTON TO NORTH-EASTERN GOLDFIELDS
INFRASTRUCTURE CORRIDOR
RESPONSE TO SUBMISSIONS**

INTRODUCTION

The Gas Pipeline Working Group (GPWG), under direction from the Gas Pipeline Sale Steering Committee (GPSSC) and supported by the Department of Industry and Resources (DoIR), published the Strategic Environmental Review (SER) of the proposed Geraldton to North-Eastern Goldfields Infrastructure Corridor for four weeks' public review and comment in September 2002. The DEP received a total of seven submissions; including one from the Department of Conservation and Land Management (CALM), two others from Goldfields Gas Transmission Pty Ltd and the Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited), and four from private individuals and/or landholders.

Whilst the GPSSC remains the proponent for the infrastructure corridor, the GPWG has prepared this Summary of Submissions and the Proponent's Response to Submissions on behalf of the GPSSC. The DEP supplied copies of the submissions (minus names and addresses of those from private individuals) to the GPWG for summarisation and response. Given the small number of submissions, no attempt was made to reorganise or categorise the issues raised. Instead, each submission is dealt with separately [except those from the Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited) and Goldfields Gas Transmission Pty Ltd], with the issues raised being responded to in the order in which they appeared in each submission. In some cases, several paragraphs in a particular submission may be condensed and responded to as a single issue. This has been done to streamline the response without changing the thrust or tone of the submission.

As a result of issues raised in the submissions, the Table of Commitments from the SER has been expanded to ensure that future proponents consult with the owners and operators of the Mid West Pipeline (MWP), the Goldfields Gas Transmission (GGT) Pipeline and other infrastructure. The additional commitments are attached at the end of this document.

RESPONSES TO INDIVIDUAL SUBMISSIONS

Submissions from Western Power Corporation and Goldfields Gas Transmission Pty Ltd

The submissions from the Mid West Pipelines Joint Venture (Western Power Corporation and APT Pipelines (WA) Pty Limited) and Goldfields Gas Transmission Pty Ltd had much in common, having evidently been prepared, in part at least, from a common base. The issues they raised are therefore dealt with together in this response.

1. *Table 1.1 of the SER states that ...Goldfields Gas Transmission Pty Ltd (GGT) was consulted regarding the issue of route selection. To date, GGT have not been consulted in any way regarding the proposed Infrastructure Corridor, and therefore Table 1.1 of the SER is misleading and inaccurate. It should also be noted that the GGT operator, Agility Management Pty Ltd, was not consulted.*

Response: Previous project reports have been provided to stakeholders, including CMS and AGL, and this is what is referred to in the SER. Further consultation with the operator, Agility Management Pty Ltd, as well as the owners GGT and Western Power Corporation, has occurred since the response to the SER and is continuing.

2. *Figure 2h of the SER shows that the proposed route for the Infrastructure Corridor crosses the GGT Pipeline easement. GGT would prefer that the Infrastructure Corridor did not cross the pipeline easement and that an Access Agreement be reached between the GGT and the State Government for access to the GGT Pipeline easement. This Access Agreement would ensure that the safety and integrity of the GGT Pipeline was maintained in accordance with PL24 and the Agreement Act.*

Response: It is not possible to avoid crossing the GGT pipeline as this pipeline runs in a north-south direction and the end point of the east-west infrastructure corridor lies to the east of the GGT pipeline. The SER commitments have been expanded to include a requirement for proponents to continue consultation with GGT to ensure that all necessary agreements for access to the GGT corridor will be established (see Attachment 1).

3. *Should the infrastructure corridor be located in the vicinity of the GGT Pipeline easement it is essential that GGT be consulted regarding proposed activities within the infrastructure corridor.*

Response: GGT's concerns are noted. The SER commitments have been expanded to require that individual proponents consult with GGT and other owners/operators of nearby infrastructure (see Attachment 1).

4. *Reference should be made to the hazards caused to gas pipelines by low frequency and fault current induction from adjacent power lines, which has the potential to damage gas pipeline cathodic protection equipment.*

Response: The potential effect on gas pipelines from electromagnetic fields (EMF) is acknowledged. This issue will be addressed during the detailed design phase of the project and the necessary steps will be taken to ensure that the pipeline is protected. The corridor width has been chosen so that sufficient separation can be maintained between power lines and gas pipelines within or outside the corridor. The location of infrastructure within the corridor will be such that risks to the integrity of the gas pipeline from EMF will be minimal.

5. *Appendix B in AS2885.1 1997 provides additional information on hazards to pipelines from EMF, and contains a reference to AC electrified railways posing potential hazards to buried gas pipelines.*

Response: As with power lines, any issues regarding railway development will be addressed during detailed design of the project, if and when a railway is proposed.

6. *The requirements of the Goldfields Gas Pipeline Agreement Act 1994 should be taken into consideration during assessment of the infrastructure corridor (Section 1.6.1 of the SER).*

Response: The omission of this Act is acknowledged and it is agreed that the requirements of this Act require consideration during the assessment process.

7. *Latest issues of AS2885 are as follows: Part 1 - Design and Construction AS2885.1-1997; Part 2 – Welding AS2885.2-1997; Part 3 – Operations and Maintenance AS2885.3-2001.*

Response: This comment is noted.

8. *AS2885 does not reference AS2187.2 1993. More relevant information on the hazards to adjacent gas pipelines is available in the “Goldfields Gas Pipeline Project Blast Study” by CMPS&F, December 1994 [Explosives Use Near the Mid West Pipelines]. This document also references reports widely accepted by the pipeline industry as being the most applicable to pipeline response to buried explosive detonations.*

Response: The discussion of blasting hazards in Section 6.1.4 of the SER was based on direct reference to Australian Standard AS2885.1-1997 Part 1 - Design and Construction, which in turn refers to AS2187.2. Section 6.13.1 (p.69) of AS2885.1 states: “...Blasting shall be carried out in a safe manner and in accordance with AS2187.2 and regulatory requirements”.

AS2885.1 is considered a more valid reference in the current case than the CMPS&F report referred to by the GGT submission. The CMPS&F report relates to gas pipelines near mine sites and deals only with vibration from explosive charges of 500kg or greater, which is greatly in excess of the small charges (probably a few kilograms or less) required to break rocks in a trench a metre wide.

Section 6.1.4 of the SER states that proponents will be required to conduct a full risk assessment for the pipeline(s) in accordance with AS2885 prior to construction. The risk to the pipeline(s) from blasting activities would be fully addressed at that time using current industry standards and practices. A commitment that controlled blasting will be required when installing infrastructure in the corridor has been added to the SER commitments, while another new commitment will ensure that future proponents consult with GGT and the Mid West Pipeline JV (see Attachment 1).

9. *In Section 2.1 of the SER, the reference to the “Goldfields Transmission Pipeline” is incorrect. It should read “Goldfields Gas Transmission Pipeline”.*

Response: Noted.

10. *In Table 7.1 of the SER, “Whose Advice” under point 8 (Erosion) should include the GGT and the MWP pipeline operators where the corridor is near the GGT Pipeline or the MWP to ensure landform management is compatible with that already established on the GGT Pipeline easement or the MWP Right of Way.*

Response: Only regulatory or policy-making authorities are nominated as providing advice on the project, in accordance with Department of Environmental Protection (DEP) requirements. The GGT and MWP operators will, however, be consulted and their comments will be taken into account.

11. The Mid West Pipeline (MWP) Operating Authority has specific obligations under its pipeline licence and insurance policies to be proactive in ensuring that the level of risk to the integrity of the MWP from third party activities in the corridor is managed. We would therefore like to see the SER give more emphasis to the obligation of proponents to closely consult and co-operate with the MWP operator in the management of risk to the MWP.

Response: These comments are noted. The SER commitments have been expanded (see Attachment 1) to require individual infrastructure proponents to consult with the MWP operator and other stakeholders during the detailed design, construction and operation phases.

12. Table 1.1 of the SER indicates that Western Power was consulted regarding route selection, however this consultation did not extend to the MWP Joint Venture or the MWP Operator, Agility Management Pty Ltd.

Response: Consultation has been expanded to include representatives nominated by MWP.

13. In Section 2.1 of the SER, the reference to the “Midwest (AGL) Pipeline” is incorrect. It should read “Mid West Pipeline (owned by Western Power Corporation and APT Pipelines (WA) Pty Limited).

Response: This comment is noted.

14. In Table 7.1 of the SER, the “Action” under Item 15 (Vibration) must include the GGT or MWP Operators if blasting activities are to occur within 500m of the GGT Pipeline or the MWP.

Response: The SER commitments have been expanded (see Attachment 1) to require individual proponents to consult the MWP and/or GGT operator prior to the

commencement of any construction activities to ensure that there are no impacts on the MWP or the GGT pipeline.

15. With reference to Table 7.1 of the SER, all risk assessments under Item 16 should include the GGT or MWP Operator where the corridor closely parallels the MWP or is near the GGT easement.

Response: Agreed. See response to Issue 14.

16. In Table 7.1 of the SER, the “Objective” of Item 18 must also consider the effect of induced currents on existing pipelines. The GGT and MWP Operators should be consulted on this issue where the corridor parallels the MWP or is near the GGT Pipeline.

The GPWG will require proponents of power transmission lines within the corridor to consider induced current effects not only on the MWP and GGT pipeline, but also on the proposed gas pipeline within the infrastructure corridor. It should be noted that the corridor width is sufficient to enable power lines to be positioned far enough from gas pipelines to avoid any expected impacts due to induction.

See response to Question 24 regarding consultation.

17. The GGT and MWP owners and operators should be specifically mentioned as a part in the consultation process (Table 7.1, Items 22 & 23 – Consultation with Stakeholders).

Response: All owners and operators of existing infrastructure that could be affected by the corridor will be included in the ongoing consultation process. The SER Commitments have been expanded to specifically include the MWP and GGT owners and operators in ongoing consultations (see Attachment 1).

18. Figure 2a of the SER shows two corridor crossings of the MWP easement. These crossings are of considerable concern to MWP and we would prefer that they be avoided. What are the reasons for the crossings and under what legislation will they be undertaken? There will be critical legal, commercial, compensation, safety and environmental management aspects to be negotiated with the DMPR [now

Department of Industry and Resources, DoIR], MWPJV, landowners and other stakeholders before the crossings can be finalised.

Response: The first crossing of the MWP was made on the advice of the DEP to avoid significant vegetation in the vicinity of Mullewa. The second crossing of the MWP was required to place the corridor back to the south of the existing pipeline and to avoid the township of Pindar and further areas of significant vegetation to the north. It should be noted that at these crossing points there will only be a gas pipeline within the corridor so the impact of its crossing of the MWP will be minimal. The option of deviating the corridor to the south of Mullewa was considered but rejected due to the presence of town infrastructure and dense vegetation extending to over 10km south of Mullewa.

The legal, commercial and management issues relating to corridor crossings and other matters will be addressed in consultation with the other parties at an appropriate time and in the appropriate forum. The current environmental assessment process, of which the SER is a part, is not intended to resolve these matters, but to gain in-principle endorsement of the **environmental** acceptability of the route.

Submission from CALM

19. CALM previously provided comments on the Route Selection Report undertaken by Worley in February 2001 for the East West General Infrastructure Corridor. In this report, a route that followed the Sandstone Road was previously identified. This route, which was preferred by CALM as it satisfied a number of objectives in relation to impacts to the environment and benefits to the community, has not been considered at all in the SER. Instead, the SER focuses in considerable detail on the preferred Worley route and appears to summarily dismiss the Sandstone Road option.

The preferred option for the corridor route clearly fails to address concerns previously raised by CALM over the Worley report, and appears to have the potential to duplicate the disturbance to road infrastructure with subsequent increase in biodiversity impacts. Furthermore, the social opportunities of adapting the Sandstone Road alignment for towns such as Sandstone do not appear to have been addressed in the SER.

Response: The Geraldton to North-Eastern Goldfields Infrastructure Corridor was initiated in response to conclusions drawn from several mineral province studies that were carried out jointly by the Federal and State governments, in conjunction with industry, between 1996 and 2001. Those studies identified major areas of prospectivity, including the Laverton area and the country between Leinster and Mount Keith.

The studies further concluded that the Laverton area could be best serviced by north-south infrastructure linking the area to Kalgoorlie and Esperance, while the Leinster - Mount Keith area would be more economically serviced by an east-west corridor to Geraldton.

The engineering feasibility study carried out by Worley identified the optimum route to the Leinster area in terms of distance, engineering and cost. Subsequently, as a result of additional studies to gain the necessary statutory clearances, and consultation with all stakeholders, the route has been substantially refined.

The Sandstone route has a number of disadvantages, which saw it excluded from consideration as a preferred route in both the Worley report and the SER. These include the presence of large areas of Aboriginal significance and a number of mining tenements with significant resource potential around Sandstone, making the identification of a route difficult. The Sandstone route is also approximately 110km longer than the preferred route, which represents significant cost penalties for infrastructure construction and operation.

20. The preferred route passes through Windimurra pastoral lease and the south west quarter of Dandaraga pastoral lease, and both leases or at least parts thereof are presently being evaluated as possible additions to the conservation estate.

Both the Perth and regional CALM offices were consulted during the preparation of the SER, including specific requests for information on CALM estate areas or other features that might be affected by the corridor. None of the responses received from CALM mentioned either of these properties as potential future nature reserves. However, should CALM wish to provide additional information regarding the location of these proposed reserves the GPWG will be happy to consider these areas during further planning and refinement of the corridor.

Individual Submission 1

21. *Pasture resource values have not been considered in determining the least damaging route for the corridor, despite the inclusion of relevant “soil-landscape” maps derived from the Rangeland Surveys.*

Response: All landholders were consulted on placement of the route through their properties, as they were considered to be in the best position to advise on pasture values and other related issues.

22. *Approximately 133km (21%) of the proposed alignment will cross the best pasture bottomland run-on habitats. Seven landsystems (Gransal, Ero, Merbla, Steer, Wilson, Mileura and Carnegie) will be impacted, with the most affected stations being Carlaminda (13km), Bunnawarra (15km), Murrum (12km), Yoweragabbie (13km), Challa (13km), Windimurra (9km) and Dandaraga (7km).*

a. *Of the seven landsystems, the Merbla is unique in the entire Gascoyne – Murchison Strategy (GMS) Region to three adjoining stations east of Mt Magnet (Wondinong, Challa and Windimurra). The longest section of this unit impacted by the proposal is on Windimurra Station (7km).*

Response: Windimurra is in fact the only station on which the corridor crosses the Merbla system. The corridor route through both Challa and Windimurra Stations is constrained by mining issues and the route through these areas has been identified through negotiations with the mining tenement holders and the pastoral leaseholders.

b. *The saltbush-bluebush and scrub mosaic of the bottomland systems have the highest carrying capacity for stock, the longest lasting productivity and are life support habitats for native fauna and stock in the dry seasons.*

Response: Identification of a corridor route was heavily constrained by Aboriginal heritage issues, which dictated that high ground be avoided to minimise impacts on breakaways areas that were of significance. The areas of saltbush – bluebush and scrub mosaics crossed by the corridor are a minor part of the route. The GPWG will continue discussions with landowners to determine the potential for minor deviations to avoid these areas wherever possible.

c. Bottomlands become seasonally waterlogged or flooded in wet weather, and most of the route can experience both winter and summer rainfall events. This will create a major impediment to vehicle access, implying that major disturbance and construction will be required to establish causeways above flood levels. This will affect both local drainage and maintenance management costs.

Response: Any construction within seasonally waterlogged areas would occur preferentially during dry periods to minimise disturbance and compaction of the areas. Both pipelines and power lines can be constructed within seasonally waterlogged areas with minimum disturbance of the area. Detailed engineering works carried out prior to construction of the road and railway will identify the need for the establishment of causeways. Should causeways be required they will be engineered to minimise disruption to local drainage, as described in Section 5.5 of the SER.

d. Bottomlands have a high susceptibility to weed invasion.

Response: The potential for weed infestation is recognised. Section 5.2.2 of the SER covers the preparation of a Weed Control Programme by each proponent prior to the commencement of construction as part of the Environmental Management Programme. This Weed Control Programme will be prepared in consultation with AgWA and CALM to ensure that the potential for weed infestation is minimised.

23. Land systems with high to very high susceptibility to sheet and gully erosion on the proposed corridor route are Sherwood, Gumbreak, Hootanui, Challenge and Nerramyne.

Response: The proposed corridor crosses 9.5km of the Sherwood system, 1km of the Gumbreak, 8.7km of the Hootanui, 29km of the Challenge and 4km of the Nerramyne. Although the choice of route was strongly constrained through much of this area by Aboriginal heritage considerations, the GPWG will continue discussions with landowners to determine the potential for minor deviations to avoid any areas of high erosion risk where possible.

24. From the aspects of drainage integrity, vegetation and pasture viability, and hence maintenance of ecological and economic health the best landsystems to support roads and other infrastructure corridors are first the sandplains and second the mulga washplains. However, the critical requirement in the mulga washplains is the

maintenance of uninterrupted sheetwash flow, otherwise death of woodland trees results from water starvation on the downslope side of any embankment.

Response: Potential impacts associated with the interruption of sheetwash flow are recognised. The GPWG is committed to maintaining and restoring overland flow patterns to the greatest extent practicable, as described in Section 5.5 and Commitment 6 of the SER.

25. The rehabilitation methods described, without diagrams, for obviating water starvation and death of vegetation on the downslope side of the proposed corridor are inadequately dealt with in the SER.

Response: Specific rehabilitation methods cannot be established until detailed design of the infrastructure is completed and the specific impacts of construction have been identified. The SER commits to the preparation of an Environmental Management Plan (EMP) by each individual infrastructure proponent, in which each proponent will detail specific rehabilitation and drainage management methods to be employed during construction.

26. The Social Impacts and Management section of the SER, and specifically the proposed hazards listed on page 96 of the document, indicates that the proposed corridor is planned to carry up to eight services. This corridor appears to be in too close proximity to station homestead areas and their associated airstrips on Murrum, Yoweragabbie, Challa and Windimurra stations.

Response: Existing landholders were consulted as to the location of the infrastructure corridor. Where necessary, minor deviations have been incorporated in the alignment to meet landholders requirements and to meet regulations in regard to airstrips.

27. In view of the EPA's recently published Position Statement No. 5 on Environmental Protection and Sustainability of the Rangelands in W.A. there is a real danger of repeating the "Pilbara Absurdity" i.e. where different companies have their own railway and road corridors criss-crossing each other, fragmenting the landscape. In the Mid West Region, main road routes and the Midwest (AGL) pipeline routes already exist. If this proposal is to proceed, stations will be impacted with two or more corridors instead of sharing one to confine impacts to practically

manageable proportions in space, time and savings – logistically, economically and ecologically.

Response: The proposed infrastructure corridor closely parallels the Mid West Pipeline for much of its length and is directly adjacent to the MWP where possible. This could not be achieved in all areas due to constraints from land ownership, Aboriginal heritage, vegetation and other factors.

It should be noted that while the individual infrastructure components within the proposed corridor may be privately owned, the Western Australian Government will own the corridor. It is intended that the establishment of a State-owned corridor will enable infrastructure to be consolidated within one area, hence preventing a repeat of the situation in the Pilbara Region.

The identification of a proposed route for any infrastructure is dictated by the desired area to be serviced by the corridor. The current proposal follows the existing AGL pipeline and the Mount Magnet Road, therefore impacts to stations west of this point are largely concentrated around existing infrastructure. The proposed corridor cannot follow the existing roads all the way to the goldfields, as the desired end point is further to the south. Furthermore, if the road was followed for the entire length of the corridor, it would add considerable distance (approximately 110km) to the length of the corridor. The identified corridor is considered to be the best option when all aspects, including logistics, economics, Aboriginal heritage and the environment, are taken into account.

28. Did the proponents consult with the Pastoral Lands Board, the Gascoyne-Murchison Strategy Region Office and the affected landowners?

Response: All affected landholders (owners and lessees), local authorities and relevant government departments including MPR (now DoIR), CALM, DOLA and the Geraldton-Mid West Development Authority, were consulted during the route selection process. Meetings have subsequently been held with the Pastoral Lands Board.

29. Did the proponents and their consultants have access to the EPA's Position Paper No. 5 during the compilation of the report?

Response: The GPWG and its consultants did have access to Position Paper No. 5 during preparation of the report. The Position Paper largely deals with the application of the concept of ecological sustainability to pastoral activities. While the Position Paper is not directly referenced in the SER, its principles, where relevant, have been taken into account in the identification of the infrastructure corridor.

Individual Submission 2

30. It is important that disturbance to remnant vegetation along the proposed pipeline route is minimised or avoided where possible.

Response: Section 5.2.1 of the SER details the methods employed during the selection of the infrastructure corridor to minimise or avoid vegetation disturbance. The Environmental Management Plans to be prepared by each infrastructure proponent will contain detailed procedures for minimisation of vegetation impacts during the siting, construction and operation of infrastructure.

31. The development of the infrastructure corridor should involve siting the roads to run under powerlines and one road should be used to access all of the infrastructure.

Response: It is not possible to site roads directly beneath powerlines due to the presence of the supporting pylons. Such a location could also pose a safety risk if high vehicles using the road breached the minimum safe clearance beneath the conductors.

The infrastructure corridor provides for the construction of one road and one access track for the power lines. Where practicable (depending upon the staging of construction and the distance of the powerlines from the road), the road will be used as the primary access to the powerlines.

32. *The management of impacts on the DRF and Priority flora and other native vegetation has not been adequately addressed in the SER. We are concerned that DRF, Eucalyptus beardiana, will be removed during construction of the pipeline and support the recommendations of the flora survey report to reroute the pipeline to ensure protection of this species.*

Response: The *Eucalyptus beardiana* populations north-west of Mullewa occur as scattered individuals and groups along two north-south fencelines. Detailed surveys by Mattiske Consulting botanists found a total of 26 *E. beardiana* trees in the area up to 100m south of the existing Mid West Pipeline (within and adjacent to the proposed 50m corridor) and eight individuals to the north. Given this sparse and scattered distribution it is considered that a 10m restricted working width can be defined that impacts no or at worst a few individual trees.

In the event that any individuals of this species require removal, GPWG will require the pipeline proponent to collect seeds from *E. beardiana* trees within and immediately adjacent to the corridor for propagation and replanting in nearby areas.

33. *Construction staff operating in the area will need to be informed of the locations of DRF and Priority Flora. A Vegetation, DRF and Priority Flora Management Plan should be prepared prior to construction and be used during the life of the infrastructure corridor. The Plan should ensure that impacts on this flora and other vegetation are managed to ensure its protection.*

Response: The management of all vegetation, including DRF and Priority species, will be addressed in the detailed Environmental Management Plan that each proponent is required to prepare prior to construction (Section 5.2 of the SER).

34. *A botanist should inspect the site with construction staff to determine the methods that can minimise disturbance to native vegetation and to inform them of known and potential locations of additional plants or populations of DRF and Priority Flora.*

Response: As specified in Table 7.1 of the SER (Item 1), each proponent will be required to prepare a detailed EMP prior to the commencement of construction. The EMP will be subject to DEP approval and public scrutiny, and it is therefore expected

that the proponents will engage whatever specialist advisers are necessary to produce a comprehensive EMP.

35. All employees and contractors must undergo induction training as to the value of vegetation to ensure that the impacts of construction are minimised.

Response: It is anticipated that the EMPs prepared by proponents will include a requirement for all contractors and employees to undergo environmental induction training prior to commencing work on site. This requirement is enforceable by the DEP in its approval of the management plans.

36. As much cleared area as possible should be rehabilitated following construction. Rehabilitation should be undertaken using native species that grew at these locations prior to construction or clearing for agriculture took place. Where the infrastructure crosses farmland, the corridor should be revegetated with native vegetation to ensure the creation of corridors for wildlife and to increase the area of native vegetation.

Response: Rehabilitation methods to ensure successful regeneration of native species have been described in Sections 2.2.3 and Section 5.9 of the SER. Where the corridor crosses cleared agricultural land, the landholders will be consulted to ensure that disturbed areas are rehabilitated in accordance with their requirements – generally by returning them to their previous use, where possible. In uncleared areas (including rangelands grazing areas), rehabilitation will be undertaken with native species.

Individual Submission 3

37. The alignment shown in the SER differs from the agreed alignment through our property. The published alignment has potential environmental consequences to our property in terms of impacts on land systems, grazing areas, topsoil degradation and water shadow starvation. The alignment also encroaches on pastoral infrastructure.

Response: This submission concerns a pastoral station, where the alignment was changed slightly in consultation with the landholders after the finalisation of the SER. The GPWG will maintain the new alignment agreed with the landholders in this area.

Individual Submission 4

38. The infrastructure corridor should follow the existing service corridor along the Geraldton – Mullewa road to Mullewa and then follow the preferred route.

Response: There are in fact at least three service corridors west of Mullewa: the road/rail, the power line and the existing gas pipeline (MWP). The proposed corridor starts at the same point as the MWP and, as in the case of the MWP, is intended to contain only one gas pipeline in this section. In order to keep similar infrastructure together, the corridor alignment was chosen to follow the MWP in this section. The support of the proposed route east of Mullewa is noted.

39. Beyond Pindar, would there be any need for a power grid if you also have a gas pipeline? Construction of turbine generators may be a better option.

Response: The establishment of the infrastructure corridor is a strategic concept to ensure that services can be supplied to the North Eastern Goldfields, as they are required. The actual construction of services within the corridor will be driven by industry requirements. It is entirely possible that power may be required inland before gas is available, making the construction of gas turbine generators unfeasible.

40. Pipeline depth should be 2m in agricultural areas.

Response: Pipelines are constructed at a maximum depth of 2m below ground level. However, the actual construction depth will be dictated by ground conditions and design standards. It is therefore impossible to dictate a uniform depth of cover along the entire pipeline route.

41. It is extremely doubtful that any Aboriginal Heritage and Cultural sites exist west of Mullewa along the proposed route or the alternative suggested above. This is a very dry area and Aborigines would not have gone very far from a water source...Rivers and watercourses where there was palatable [sic] water would have been the corridors by which Aborigines travelled.

Response: The presence of Aborigines in this area is indicated by various extracts from early ships' diaries, among others. Recent research obtained from Native Title claimant groups also shows that Aborigines were present.

Aborigines were in no way restricted in their movements by the availability of fresh watercourses, as has been demonstrated in many parts of Australia where there are no rivers or watercourses at all. Water sources are quite plentiful in rock holes in the area in question, as they are in most parts of Australia.

42. It is very doubtful if the Wadjari have any connection with the area of the proposed Service Corridor.

Response: The Wadjari have a valid Native Title claim over the area and so have a prima facie connection to the country.

43. I have never heard of Tenindewa Creek – could this be Kockatea Gully?

Response: Tenindewa Creek flows through Kockatea Gully and is marked thus on maps.

44. The “possible” bone fragments reported in Tenindewa Creek may well be sheep, pig, cattle, horse, kangaroo, emu or other native animals. They are unlikely to be of Aboriginal origin as this is the area where the original land owner [sic] established a homestead and farm buildings, which would have included livestock handling facilities.

Response: Bone fragments were identified in Tenindewa Creek. The fragments were identified by the WA Museum as mammalian with a slight chance of them being of human origin. The matter has been left open and subject to further investigation at the discretion of the Department of Indigenous Affairs.

Attachment 1: Additions to SER Commitments Table

Commitment (Who/What)	Objective (Why)	Action (How/Where/When)	Whose Advice	Measurement/Compliance Criteria
25. Future proponent(s) will consult with operators of other infrastructure in the area adjacent to the infrastructure corridor during design and construction	To ensure that impact on other infrastructure is at an acceptable level.	<p>Proponents will consult with all stakeholders during the planning & design, approval, construction and operation stages, to ensure that they are informed of proposals and able to input at these stages to ensure compliance with appropriate regulations.</p> <p>Consultation will include where appropriate but not be limited to:</p> <ul style="list-style-type: none"> - Mid West Pipeline Joint Venture - Goldfields Gas Transmission Pty Ltd - Main Roads WA - Western Power - Rail Operators - Pastoralists/Landholders 	DEP	Impact on other infrastructure meets Australian Standards and all applicable regulations.
26. Future proponent(s) will employ controlled blasting or other better suited control methods during the construction of all infrastructure, in particular where the corridor is adjacent to existing infrastructure (buildings, other pipelines, roads)	To ensure that impact on other infrastructure is at an acceptable level.	<p>Proponents will undertake a detailed risk analysis during the planning of blasting, in consultation with all affected stakeholders.</p> <p>Consultation will include, where appropriate, but not be limited to:</p> <ul style="list-style-type: none"> - Mid West Pipeline Joint Venture - Goldfields Gas Transmission Pty Ltd - Main Roads WA - Western Power - Rail Operators - Pastoralists/Landholders <p>Proponents will ensure that best practice guidelines are followed for all methods they apply.</p>	DEP	Impact on other infrastructure meets Australian Standards and all applicable regulations.

Summary of adjustments to the Geraldton to North-Eastern Goldfields Infrastructure Corridor

After ongoing consultation with the landholders, and other stakeholders the GPWG has refined the corridor alignment, so that it avoids environmentally and socio-economically sensitive areas. A large proportion of the consultation has been in response to the public submissions on the SER, and modifications to the corridor have been made to address the issues that were raised in the submissions.

The summary below provides the reasons for deviating from the preferred alignment that was displayed in the SER document. The location numbers refer to the numbers on the accompanying maps 1 to 8. On the all maps, the current preferred alignment is shown in red, and the alignment displayed in the SER is shown in blue.

Location 1

Corridor moved to the south to avoid gravel pit and row of mature trees.

Location 2

Corridor moved to the north to avoid fences, hangar and airstrip.

Location 3

Corridor moved to the north to avoid house.

Location 4

Alignment moved to adjust the angle at which the proposed corridor crosses the Mid West Pipeline.

Location 5

Corridor moved north to abut existing infrastructure (Geraldton to Mount Magnet road) → minimises the impact on landholders.

Location 6

Start of the 450 m wide corridor moved to the western boundary of the proposed CALM reserve.

Location 7

Mineral resource over previous alignment, new alignment negotiated in talks with MPR (now DoIR) and affected mineral tenement holders. Change necessary to obtain section 16(3) statutory clearance under the *Mining Act 1978*.

Location 8

Wagga Wagga deviation to the south to avoid holding yards and airstrip.

Location 9

Deviation between Edah and Yoweragabbie to avoid homesteads and environmentally sensitive pastoral land.

Location 10

At Challa the corridor was moved to the north to avoid an airstrip. Challa Station runs a mustering business and the pastoralist was concerned that the power lines in the corridor would interfere with his planes.

Location 11

Deviation at Unaly Hill to avoid mineral resource, new alignment negotiated in talks with MPR and the affected mineral tenement holder. Change necessary to obtain section 16(3) statutory clearance under the *Mining Act 1978*.

Location 12

Alignment moved to the north to avoid numerous wells on Dandaraga Pastoral Station.

Location 13

Corridor moved to the south to avoid airstrip at Pinnacles woolshed.

Location 14

Corridor moved to the north to avoid laterite resource, new alignment negotiated in talks with MPR and the affected mineral tenement holder. Change necessary to obtain section 16(3) statutory clearance under the *Mining Act 1978*.

Location 15

The decision to terminate the proposed infrastructure corridor at the eastern boundary of the GGT easement was made because there is an existing Miscellaneous Licence that was established by Anaconda for the establishment of infrastructure. This avoided the concerns of several mining companies that the corridor interfered with proposed infrastructure services and mineral resources.