



Environmental Protection Authority

**EPA REFERRAL
FORM
PROPONENT**

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, please check that you have:

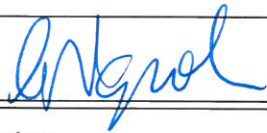

	Yes	No
Completed all the questions in Part A (essential).	✓	
Completed all applicable questions in Part B.	✓	
Included Attachment 1 – location maps.	✓	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).	✓	
Included Attachment 3 – confidential information (if applicable).		✓
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✓	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment?	
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> Not sure	
If yes, what level of assessment? N/A – Derived Proposal	
<input type="checkbox"/> Assessment on Proponent Information	<input type="checkbox"/> Public Environmental Review

PROPONENT DECLARATION (to be completed by the proponent)

I, Charles Napoli, declare that I am authorised on behalf of Gold Fusion Pty Ltd (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature: 	Name: Charles Napoli
Position: Director	Company: Gold Fusion Pty Ltd
Date: 17/12/14	

PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of Part A must be completed for this document to be treated as a referral)

1 PROPONENT AND PROPOSAL INFORMATION**1.1 Proponent**

Name	Gold Fusion Pty Ltd
Joint Venture parties (if applicable)	Not applicable.
Australian Company Number (if applicable)	ABN 59 145 126 030
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	236 Adelaide Terrace Perth WA 6000
Key proponent contact for the proposal: <ul style="list-style-type: none"> • name • address • phone • email 	Charles Napoli Gold Fusion Pty Ltd C/- Mr Jason Hick Emerge Associates Suite 4, 26 Railway Parade (08) 9380 4988 Jason.Hick@emergeassociates.com.au
Consultant for the proposal (if applicable): <ul style="list-style-type: none"> • name • address • phone • email 	Mr Jason Hick Emerge Associates Suite 4, 26 Railway Parade (08) 9380 4988 Jason.Hick@emergeassociates.com.au

1.2 Proposal

Title	Whitby pressure main
Description	<p>Overview</p> <p>Gold Fusion Pty Ltd (herein referred to as 'the proponent') proposes to construct a pressure main to enable the provision of wastewater services for urban development within the Whitby Local Structure Plan (LSP) area. The Whitby LSP area is owned by the proponent (also referred to as 'the proponent's landholdings'). The pressure main is located within Route 4 of the <i>Southern Sources Integration Assets (SSIA) Pipeline Corridor</i> strategic proposal (herein referred to as 'the SSIA strategic proposal').</p> <p>The Proposal</p> <p>The pressure main is located within a portion of Route 4 of the SSIA strategic proposal and is herein referred to as 'the proposal'. Route 4 is described as 'North-South alignment beginning at the intersection of Soldiers and Mundijong Roads in Mundijong and running within the road reserve along Soldiers and Patterson Roads to Abernethy Road, then adjacent to railway reserve and along South West Highway to Mitchell Street, Wungong'.</p> <p>The location of the proposal is provided in Figure 2 of the</p>

	<p>supporting document (see <i>Referral Document Whitby Pressure Main</i> (Emerge Associates 2014)).</p> <p>The pressure main is approximately 3.9 kilometres in length and is located within the western portion of Soldiers Road reserve, Mundijong. The construction of the pressure main will include the following:</p> <ul style="list-style-type: none"> • Trenching is proposed for the majority of the proposed pressure main alignment and is shown in Figure 3a to Figure 3j. A maximum three metre-wide area of disturbance is likely to be associated with the trenching process, with construction to be managed within areas already cleared of remnant vegetation, or the bituminised portion of Soldiers Road. • Where intact remnant vegetation is present, the proponent proposes to utilise construction techniques that will avoid clearing (i.e. trenchless technology). Horizontal directional drilling and/or micro-tunnelling will be utilised in a number of locations, namely: <ul style="list-style-type: none"> ○ Where the pressure main crosses from the proponent landholdings to the western portion of Soldiers Road, through the vegetated portion Bush Forever Site 350 in order to avoid clearing of Threatened Ecological Communities (TECs) identified within the Bush Forever Sites. ○ Approximately one kilometre of the pressure main alignment along the western portion of Soldiers Road, to minimise clearing of remnant native trees. While the remnant native trees are not considered to be intact remnant vegetation (or form part of a TEC), this is an impact that has been seen as desirable to avoid. • Thrust and receiver pits associated with the horizontal directional drilling and/or micro-tunnelling process. The pits will vary in size, with the intention to manage these within areas already cleared of remnant vegetation, or the bituminised portion of Soldiers Road • The majority of the footprint associated with the construction of the pressure main (associated with machinery operation, spoil material etc.) will be contained within: <ul style="list-style-type: none"> ○ Areas that are presently cleared of vegetation. ○ The portion of Soldiers Road that will be closed during the construction of the pressure main. <p>The proponent will be responsible for the construction of the pressure main on behalf of the Water Corporation, with the Water Corporation responsible for the ongoing operation and maintenance of the infrastructure following construction and commissioning.</p>
Extent (area) of proposed ground disturbance.	The extent of ground disturbance will be a temporary impact on approximately 1.2 hectares (assuming a three metre wide construction width). No vegetation in 'Degraded' or better condition will be disturbed by the proposal, with a maximum of 15 scattered remnant trees likely to be cleared.
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	March 2015 to September 2015
Details of any staging of the proposal.	The construction of the proposal will not be staged. It will be constructed as part of the first stage of subdivision within the Whitby LSP area.
Is the proposal a strategic proposal?	No (this is a likely derived proposal).
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the	Yes, the proponent is requesting the proposal be declared a derived proposal. As indicated above, the pressure main is located within Route 4 of the SSIA strategic proposal (Water Corporation 2009).

<p>referred proposal was identified:</p> <ul style="list-style-type: none"> • title of the strategic assessment; and • Ministerial Statement number. 	<p>The SSIA strategic proposal was progressed to assist Water Corporation in the identification of corridors of land throughout the southern metropolitan suburbs of the Perth Metropolitan Region for future installation of water and/or wastewater pipelines and associated infrastructure. It was strategically assessed by the Environmental Protection Authority (EPA) with the resultant Ministerial Statement 845 being released by the Minister for the Environment.</p> <p>The key infrastructure of the SSIA strategic proposal considered by the EPA and Minister for the Environment includes:</p> <ul style="list-style-type: none"> • Tamworth Hill Reservoir duplication and upgrade of chlorination and pumping facilities. • Pipeline corridors up to 100 metres wide, within which the area of disturbance was to be limited to between 15 to 60 metres, for potable water and/or wastewater pipelines. • Associated regulation valves. • Intermediate booster pump station. <p>The proponent considers that the proposal has appropriately addressed the environmental factors identified as relevant for the SSIA strategic proposal, and does not impact any environmental factors that were not previously considered. The proposal outlined within the Section 38 Referral and supporting document (Emerge Associates 2014) will provide ultimate flexibility for Water Corporation to continue to construct water supply and wastewater infrastructure in accordance with the SSIA strategic proposal. This is outlined further within the attached supporting document (Emerge Associates 2014).</p> <p>Title of strategic assessment: <i>Southern Sources Integration Assets (SSIA) Pipeline Corridor</i></p> <p>Ministerial Statement number: 845</p>
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	None are applicable.
Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	<p>The pressure main is proposed to be located in land not owned by the proponent. This includes:</p> <ul style="list-style-type: none"> • Soldiers Road reserve, which is Crown land vested with the Shire of Serpentine-Jarrahdale. <p>Authority to access the land is currently being sort from the authorities outlined above in accordance with the Water Corporation Prerequisites to Works process pursuant to the <i>Water Services Act 2012</i>.</p>
What is the current land use on the property, and the extent (area in hectares) of the property?	Soldiers Road reserve is largely composed of a bituminised road and cleared road reserve/formation and is used as part of the local road network within the Shire of Serpentine-Jarrahdale. The eastern portion of the road reserve contains areas of intact remnant vegetation, while the western portion of the road reserve supports areas of scattered <i>Corymbia calophylla</i> overstorey as well as residential verges.

1.3 Location

Name of the Shire in which the proposal is located.	Shire of Serpentine-Jarrahdale
<p>For urban areas:</p> <ul style="list-style-type: none"> • street address; • lot number; 	<p>See Figure 2 of the supporting document (Emerge Associates 2014) attached. The address of the proposal is as follows:</p> <ul style="list-style-type: none"> • Address: Soldiers Road, Mundijong • Nearest road intersection: Norman Road and Soldiers

<ul style="list-style-type: none"> • suburb; and • nearest road intersection. 	Road, Mundijong
For remote localities: <ul style="list-style-type: none"> • nearest town; and • distance and direction from that town to the proposal site. 	Not applicable.
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: <ul style="list-style-type: none"> • GIS: polygons representing all activities and named; • CAD: simple closed polygons representing all activities and named; • datum: GDA94; • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD. 	Enclosed?: Yes The spatial data is in the following format: <ul style="list-style-type: none"> • GIS: Polygons • Datum: GDA94 • Projection: MGA 50 • Format: Arcview shapefile

1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No.
If yes, is confidential information attached as a separate document in hard copy?	Not applicable.

1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.	No rezoning of the proposal area is required to support the implementation of the proposal. Under the MRS, the proposal area is reserved for 'Railway' and 'Parks and Recreation', with portions also zoned 'Urban' and 'Rural'. Under the Shire of Serpentine-Jarrahdale TPS No. 2 the proposal area is reserved for 'Local Road' and 'Parks and Recreation'. The majority of the proposal area is also designated as an 'Area of Natural Beauty' under the Shire of Serpentine-Jarrahdale TPS No. 2.		
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.	Yes. The Water Corporation's 'Prerequisites to Work' process, pursuant to the <i>Water Services Act 2012</i> , is the primary process utilised to facilitate approvals for the proposal.		
Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

As part of implementing the proposal, the proponent will be constructing a wastewater pump station and 5.6 kilometre long pressure main to service the Whitby LSP area. The wastewater infrastructure to be constructed includes:

- Type 10 wastewater pump station
- Rising pressure main.

The wastewater pump station and approximately 1.6 kilometres of the pressure main are located within the proponent's landholdings (Whitby LSP area). The remainder of the pressure main is located within Route 4 of the SSIA strategic proposal and is the subject of this referral. While Route 4 of the SSIA strategic proposal is located immediately west of the proponent's landholdings (see **Figure 2** of the supporting document (Emerge Associates 2014)), the proponent has specifically sought to locate a portion of the pressure main with the proponent's landholdings in order to minimise the clearing of remnant scattered trees (approximately 160 individual trees), which would have occurred if the pressure main had remained within the spatial footprint of Route 4 of the SSIA strategic proposal.

To provide an overall general context for the wastewater infrastructure and how this infrastructure relates the proposal (the portion of the pressure main proposed within Route 4 of the SSIA strategic proposal), within this *Section 38 Referral* document and the supporting document *Referral Document Whitby Pressure Main* (Emerge Associates 2014), the proponent has included information regarding the portion of the wastewater infrastructure that is located within the proponent's landholdings. The proponent is not referring the portion of the wastewater infrastructure within the proponent landholdings to the Environmental Protection Authority (EPA). This information has been provided for information purposes only and given the environmental characteristics of this area the proponent does not believe that the portion of the wastewater infrastructure within the proponent landholdings needs to be referred to the EPA as it does not have the potential to have a significant impact on the environment.

To assist in understanding the environmental impacts associated with the proposal, the information in Part B of this referral (and the supporting document (Emerge Associates 2014)) has been presented based on the following:

- *Within proposal area* – This includes approximately 3.9 kilometres of the pressure main.
- *Within proponent landholdings* – This includes the wastewater pump station and approximately 1.6 kilometres of the pressure main.

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

- 2.1 flora and vegetation;
- 2.2 fauna;
- 2.3 rivers, creeks, wetlands and estuaries;
- 2.4 significant areas and/ or land features;
- 2.5 coastal zone areas;
- 2.6 marine areas and biota;
- 2.7 water supply and drainage catchments;
- 2.8 pollution;
- 2.9 greenhouse gas emissions;
- 2.10 contamination; and
- 2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

- (a) the source of the information; and
- (b) the currency of the information.

2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick) ☒ Yes

If yes, complete the rest of this section.

☐ No

If no, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

Based on a detailed review of the location and construction of the proposed wastewater pump station and pressure main, as well as a review of aerial photography, a detailed feature survey (including the survey pick up of individual tree locations) and site visit, the proposal has been refined and there will be no clearing of intact remnant vegetation, or clearing of vegetation identified as 'Degraded' or better condition (as outlined within the SSIA strategic proposal). Within the SSIA strategic proposal and Ministerial Statement 845, significant vegetation was described as vegetation in 'Degraded' or better condition.

The proponent has designed the proposal to minimise the extent of vegetation likely to be cleared. In particular, this has included:

- Minimising the disturbance footprint to approximately three metres wide, with the required works to be managed within areas already cleared of remnant vegetation, or within the bituminised portion of Soldiers Road. The SSIA strategic proposal indicated that disturbance to a 15 metre to 60 metre wide corridor would be required as part of the implementation of the SSIA.
- Where areas of intact remnant vegetation are present (i.e. where the pressure main crosses the vegetated portion of Bush Forever Site 354 and Bush Forever Site 350), micro-tunnelling or horizontal directional drilling will be utilised in order to avoid disturbing vegetation.
- Approximately one kilometre of the pressure main alignment within Route 4 (along the western portion of Soldiers Road) will be horizontal directional drilled to minimise clearing of remnant *Corymbia calophylla* trees.

As indicated within Part A of the Section 38 Referral, the proponent has specifically located a portion of the wastewater infrastructure within the proponent's landholdings in order to minimise the clearing of remnant native trees in the adjacent area of Route 4 of the SSIA strategic proposal.

A maximum of 25 remnant trees, described as scattered paddock trees over pasture, grasses and weeds (Maunsell AECOM 2006; Cardno 2010), will be cleared as part of implementing the wastewater infrastructure. The scattered remnant trees likely to be cleared have been outlined in **Table 1** below.

Table 1: Summary of vegetation clearing associated with the proposal

Location of proposed clearing	Likely clearing	Detail for areas where vegetation is proposed to be cleared
Within proposal area	15 scattered paddock trees, namely <i>Corymbia calophylla</i> .	<ul style="list-style-type: none"> •Maunsell AECOM (2006) described this portion of the proposal area as generally 'Clear', with some portions identified as 'degraded remnants consisting of only trees or large shrubs over pasture, weeds or horticultural grasses'. In these areas, <i>Corymbia calophylla</i> is identified as the dominant tree species. •The vegetation condition for the majority of this portion of the proposal area is described as 'Completely Degraded', with small areas identified as 'Degraded to Completely Degraded' condition.
Within proponent landholdings	10 scattered paddock trees, including <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Xanthorrhoea preissii</i> .	<ul style="list-style-type: none"> •Cardno (2010) described this portion of the pressure main as 'Parkland Cleared' and consisted of scattered paddock trees over pasture grasses and weeds. •The vegetation is identified as in 'Completely Degraded' condition.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

☐ Yes

☒ No

If yes, on what date and to which office was the application submitted of the DEC?

Within proposal area

Assuming the proposal is a derived proposal under the *Environmental Protection Act 1986* (EP Act), and will be implemented in accordance with Ministerial Statement 845, it will be exempt from requiring separate approval to clear vegetation.

Within proponent landholdings

The wastewater pump station and pressure main within the proponent landholdings will be implemented in accordance with the subdivision approval for the first stage of the Whitby LSP area. Based on this, no clearing permit in accordance with Part V of the EP Act or the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* will be required.

Historically, urban development of the Whitby LSP area has been considered as part of the scheme amendment process and local structure planning process. The trees proposed to be cleared as part of constructing the wastewater infrastructure would be cleared as part of the future subdivision of the proponent landholdings to support urban development.

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

☒ Yes

☐ No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Within proposal area

Route 4 of the SSIA strategic proposal was historically surveyed by Maunsell AECOM (2006). A level 2 flora and vegetation survey, in accordance *EPA Guidance Statement 51 Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004), was completed and included:

- A detailed survey of the entire corridor by an experienced botanist.
- Detailed recordings at several locations, which were selected based on local variation in vegetation structure and floristic composition.
- Collection and identification of plant specimens.
- Determination of vegetation condition based on combination of methods developed by Keighery (1994) and the Braun-Blanquet Scale (Mueller Dombois and Ellenberg, 1974).
- Determination of plant communities, based on Gibson et al (1994) and assignment of Floristic Community Type (FCT) where applicable.

Within proponent landholdings

The wastewater pump station and the portion of the pressure main located south of Norman Road, has been surveyed as part of the *Whitby LSP Flora and Vegetation Survey* (Cardno 2010). This involved a level 2 flora and vegetation survey in accordance *EPA Guidance Statement 51 Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA 2004). The flora and vegetation survey included:

- A search of Department of Parks and Wildlife (DPAW) (formerly Department of Environment and Conservation (DEC)) databases for Threatened flora and Priority Flora (PF).
- A search of DPAW (formerly DEC) databases for Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs).

- Detailed survey of the vegetation at eight locations, selected to adequately sample each plant community observed, as part of both the autumn and spring visits.
- Collection and identification of plant specimens.
- Determination of plant communities, based on Gibson *et al* (1994) and assignment of FCT where applicable.
- Determination of vegetation condition based on Keighery (1994).

The outcomes of the flora and vegetation surveys have informed the consideration of environmental impacts detailed within this Section 38 Referral.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

☒ Yes

☐ No

If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

Within proposal area

The proposal within Route 4 forms part of the search of databases undertaken by Cardno (2010).

Within proponent landholdings

A search of the DPaW (formerly DEC) databases for Threatened flora, PF, TECs and PECs was undertaken as part of the flora and vegetation survey completed by Cardno (2010). This included a search area with a radius of five kilometre radius of the Whitby LSP area and included the proposal area.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

☐ Yes

☒ No

If **yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

A number of Threatened flora, PF and TECs were identified within the vicinity of the proposal. These have been summarised in **Table 2** and **Table 3** below.

Table 2: DRF and PF identified nearby to the proposal

Species	Conservation status		Likely impact	Location	Survey
	State	Federal			
<i>Drakaea elastica</i>	Threatened	Endangered	No impact is likely as the species is not located within the proposal area.	Eastern portion of Bush Forever Site 354 near South Western Highway	Cardno 2010
<i>Verticordia plumosa</i> var. <i>ananeotes</i>	Threatened	N/A	No impact is likely as the species is not located within the proposal area.	Bush Forever Site 350 within the railway reserve	Cardno 2010
<i>Schoenus pennisetis</i>	Priority 1	N/A	No impact is likely as the species is not located within the proposal area.	Bush Forever Site 350 within the railway reserve	Cardno 2010
<i>Synaphea</i> sp. <i>Pinjarra Plain</i>	Priority 1	N/A	No impact is likely as the species is not located within the proposal area.	Bush Forever Site 350 within the railway reserve	Cardno 2010
<i>Banksia kippistiana</i> var. <i>paenepeccata</i>	Priority 3	N/A	No impact is likely as the species is not located within the proposal area.	Eastern portion of Bush Forever Site 354 near South Western Highway	Cardno 2010
<i>Meeboldina decipiens</i> subsp. <i>decipiens</i>	Priority 3	N/A	No impact is likely as the species is not located within the proposal area.	Bush Forever Site 350 within the railway reserve	Cardno 2010

Table 3: *TECs and PECs identified within or nearby to the proposed area*

TEC/ PEC	Description	Conservation status		Location	Likely impact
		State	Federal		
FCT3a	<i>Corymbia calophylla</i> – <i>Kingia australis</i> woodlands on heavy soils of the Swan Coastal Plain	Critically Endangered	Endangered	Bush Forever Site 350, east of Soldiers Road and Bush Forever Site 354.	No impact is likely. Proposal will be horizontally directionally drilled under intact remnant vegetation within Bush Forever Site 350 and 354.
FCT 3b	<i>Corymbia calophylla</i> - <i>Eucalyptus marginata</i> woodlands on sandy clay soils of the southern Swan Coastal Plain	Vulnerable	Not applicable	Northern portion of Bush Forever Site 354.	No impact is likely. Proposal will be horizontally directionally drilled under intact remnant vegetation within Bush Forever Site 354.
FCT3c	<i>Corymbia calophylla</i> - <i>Xanthorrhoea preissii</i> woodlands and shrublands, Swan Coastal Plain	Critically Endangered	Endangered	Bush Forever Site 350, east of Soldiers Road and Bush Forever Site 354.	No impact is likely. Proposal will be horizontally directionally drilled under intact remnant vegetation within Bush Forever Site 350 and 354.
FCT 20b	<i>Banksia attenuata</i> and/or <i>Eucalyptus marginata</i> woodlands on the eastern side of the Swan Coastal Plain	Endangered	Not applicable	Bush Forever Site 350, east of Soldiers Road.	No impact is likely as the TEC is not located within the proposal area.
FCT 8	Herb rich shrublands in clay pans.	Vulnerable	Critically Endangered	Bush Forever Site 350, east of Soldiers Road.	No impact is likely as the TEC is not located within the proposal area.

Within proposal area

No Threatened flora, PF, TECs or PECs will be impacted by the proposal. Where the proposal traverses the proponent landholdings to the western portion of Soldiers Road, a TEC (FCT 3a) occurs within Bush Forever Site 350. The proposal will involve micro-tunnelling or horizontally directionally drilling this portion of the proposal area in order to avoid clearing areas of intact remnant vegetation, or vegetation in 'Degraded' or better condition.

The location of the proposed horizontal directional drilling is shown in **Figure 3c** of the supporting document (Emerge Associates 2014).

Within proponent landholdings

No Threatened flora, PF, TECs or PECs will be impacted by the construction of the wastewater infrastructure. A portion of the pressure main is located within the northern portion of Bush Forever Site 354, where areas of planted non-native species (along the western boundary of the proponent landholdings) and a TEC (likely to be FCT 3b) have been identified. In order to avoid clearing of intact remnant vegetation and/or vegetation in 'Degraded' or better condition, the pressure main will be horizontally directionally drilled under these areas. The works area associated with the thrust and receiver pits associated with the horizontal directional drilling will be managed within areas already cleared and maintained as a firebreak (in accordance with Shire of Serpentine-Jarrahdale Firebreak Notice).

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

✓ Yes

☐ No

If yes, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

Within proposal area

The proposal is located wholly within Bush Forever Site 350. Bush Forever Site 350 encompasses Soldiers Road reserve, the railway reserve and Robertson Road reserve. Soldiers Road reserve is largely composed of bituminised road pavement and/or cleared road reserve/road formation.

Areas of remnant vegetation (mapped as TECs) are located within the eastern portion of Soldiers Road reserve adjacent to the railway reserve (see **Figure 3a** to **Figure 3j** of the supporting document (Emerge Associates 2014)), while the western portion of Soldiers Road is described as 'Clear' (and includes residential verges) with some portions identified as 'degraded remnants consisting of only trees or large shrubs over pasture, weeds or horticultural grasses'. In these areas, *Corymbia calophylla* is identified as the dominant tree species. An example of the western portion of Soldiers Road is shown in **Plate 1**.

The proposal is located primarily within the western portion of Soldiers Road reserve. The implementation of the proposal is unlikely to impact Bush Forever Site 350 as:

- No intact remnant vegetation or vegetation in 'Degraded' or better condition will be cleared.
- A maximum of 15 *Corymbia calophylla* will be cleared. These are described as scattered trees over pasture, grasses and weeds.
- The proposal will be horizontally directionally drilled under areas of intact remnant vegetation to avoid clearing.
- The thrust and receiver pits located along the pressure main alignment will be located in the bituminised portion of Soldiers Road and/or areas cleared of remnant vegetation.
- Where the proposal connects with the existing Water Corporation wastewater infrastructure, this area is largely composed of bituminised road pavement and/or cleared road reserve/road formation. This is shown in **Plate 2** and **Figure 3j** of the supporting documentation (Emerge Associates 2014).



Plate 1: Looking north along Soldiers Road, south of Karbro Road



Plate 2: Looking south along Soldiers Road near wastewater connection point.

Within proponent landholdings

Wastewater pump station

The wastewater pump station is not located within a Bush Forever Site.

Pressure main

A portion of the pressure main is located within Bush Forever Site 354. Bush Forever Site 354 encompasses the northern portion of the proponent's landholdings and as part of development, will be ceded to the Crown and vested with the relevant management authority.

Portions of Bush Forever Site 354 contain no intact remnant vegetation as a result of historic clearing to support agricultural-related land uses, or were historically cleared to provide property firebreaks, as required by the Shire of Serpentine-Jarrahdale Firebreak Notice. An example of these cleared areas has been provided in **Plate 3** and **Plate 4** below.

The implementation of the pressure main is unlikely to impact Bush Forever Site 354 as:

- No intact remnant vegetation or vegetation in 'Degraded' or better condition will be cleared.
- The pressure main will be horizontally directionally drilled under areas of intact remnant vegetation to avoid clearing.
- The thrust and receiver pit (approximately five metres by three metres in size) required for the micro-tunnelling under Bush Forever Site 350 (and the associated rail line) will be located within an area already cleared of remnant vegetation and is currently maintained as a firebreak. This is shown within **Plate 4** below and **Figure 3c**.



Plate 3: Area within northern portion of Bush Forever Site 354 historically cleared to support agriculture (located south of intact remnant vegetation).



Plate 4: Cleared area within northern portion of Bush Forever Site 354 looking east, associated with property firebreak. Proposed location of thrust and receiver pit for horizontal directional drilling.

Adjacent to proposal

In addition, the proposal is located adjacent to the following Bush Forever Sites:

- Bush Forever Site 352. The central portion of the proposed pressure main is located adjacent to the easternmost extent of Bush Forever Site 352.
- Bush Forever Site 321. The northern portion of the proposed pressure main is located adjacent to easternmost portion of Bush Forever 321.

The construction of the proposal will not impact on Bush Forever Site 321 or Bush Forever Site 352 as construction works will be contained within the Soldiers Road reserve.

2.1.8 What is the condition of the vegetation at the site?

Within proposal area

The majority of the proposal is located in areas described as 'Completely Degraded' condition. A number of small portions of the proposal are located in areas described as 'Degraded to Completely Degraded'. Where the proposal intersects Bush Forever Site 350 the vegetation condition is described as 'Very Good' (Maunsell AECOM 2006, Cardno 2010). The proposal will be micro-tunnelled under the portions of Bush Forever Site 350 that contain intact remnant vegetation in 'Degraded' or better condition. Micro-tunnelling will be used for this portion of the proposal in order to meet the requirements of the Public Transport Authority (and the requirements necessary to install the pressure main under the rail line).

The vegetation condition associated with the proposal has been shown in **Figure 4a** to **Figure 4j** of the supporting document (Emerge Associates 2014).

Within proponent landholdings*Wastewater pump station*

The vegetation condition associated with the proposed wastewater pump station site has been described as 'Completely Degraded' (Cardno 2010) and is shown in **Figure 4a** of the supporting document (Emerge Associates 2014).

Pressure main

The majority of the pressure main within the proponent landholdings has been identified in areas described as 'Completely Degraded' condition. Where the pressure main intersects Bush Forever Site 354, the vegetation condition is described as 'Degraded' and 'Very Good'.

As outlined in **Section 2.1.7** above, no vegetation in 'Degraded' or better condition will be cleared as a result of implementing the pressure main. The pressure main will be horizontally directionally drilled under areas of intact remnant vegetation in 'Degraded' or better condition. The thrust and receiver pit (approximately five metres by three metres in size) proposed to be located within Bush Forever Site 354 will be located within an area already cleared of remnant vegetation that is currently maintained as a firebreak. This area is in 'Completely Degraded' condition and was confirmed in a recent site visit by Emerge Associates (2014).

2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick) ☒ Yes **If yes, complete the rest of this section.**
 ☐ No **If no, go to the next section.**

2.2.2 Describe the nature and extent of the expected impact.

The proposal is not expected to significantly impact on any fauna or fauna habitat. The conservation significant fauna identified as potentially occurring within the vicinity of the proposal area have been outlined in **Table 4** and includes consideration of potential impacts on fauna and fauna habitat associated with the proposal.

Table 4: Conservation significant fauna identified within the vicinity of the proposal area

Species		Conservation code		Likelihood of impact from proposal.
Common name	Scientific name	Federal	State	
Birds				
Carnaby's Black Cockatoo	<i>Calyptrorhynchus latirostris</i>	Endangered	Schedule 1	<i>Within proposal area</i> Unlikely. While <i>Corymbia calophylla</i> are considered to be foraging and potential breeding habitat for Carnaby's black cockatoo, the clearing of 15 scattered individual trees is unlikely to significantly impact the species. Within 10 kilometres of the proposal, there is approximately 16 930 hectares of foraging and potential breeding habitat. Most significantly to the east of the proposal are large contiguous areas of potential foraging habitat associated with areas reserved for "State Forest" under the MRS.
				<i>Within proponent landholdings</i> Unlikely. While <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> are considered to be foraging and potential breeding habitat for Carnaby's black cockatoo, the clearing of 10 scattered individual trees is unlikely to significantly impact the species. Within 10 kilometres of the pressure main, there is approximately 16 930 hectares of foraging and potential breeding habitat. Most significantly to the east of the pressure main are large contiguous areas of potential foraging habitat associated with areas reserved for "State Forest" under the MRS. The proponent has separately referred the proposed urban development of the Whitby LSP area to the federal Minister for the Environment, pursuant to the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act). The referred proposal considered the clearing of scattered paddock trees within the proponent's landholdings (including those outlined above), as well as the retention of vegetation within Bush Forever Site 354. The proposal was deemed not to be a controlled action.
Australian bittern	<i>Botaurus poiciloptilus</i>	Endangered	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main.
Australian Painted Snipe	<i>Rostratula australis</i>	Endangered	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main.
Forest Red-tailed Black Cockatoo	<i>Calyptrorhynchus banksii naso</i>	Vulnerable	Schedule 1	<i>Within proposal area</i> Unlikely. While <i>Corymbia calophylla</i> are considered to be foraging and potential breeding habitat for Forest red-tailed black cockatoo, the clearing of 15 scattered individual trees is unlikely to significantly impact the species. Within 10 kilometres of the proposal, there is approximately 16 930 hectares of foraging and potential breeding habitat. Most significantly to the east of the proposal are large contiguous areas of potential foraging habitat associated with areas reserved for "State Forest" under the MRS.
				<i>Within proponent landholdings</i> Unlikely. While <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> are considered to be foraging and potential breeding habitat for Forest red-tailed black cockatoo the clearing of 10 scattered individual trees is unlikely to significantly impact the species.

Species		Conservation code		Likelihood of impact from proposal.
Common name	Scientific name	Federal	State	
				<p>Within 10 kilometres of the pressure main, there is approximately 16 930 hectares of foraging and potential breeding habitat. Most significantly to the east of the pressure main are large contiguous areas of potential foraging habitat associated with areas reserved for "State Forest" under the MRS.</p> <p>The proponent has separately referred the proposed urban development of the Whitby LSP area to the federal Minister for the Environment, pursuant to the EPBC Act. The referred proposal considered the clearing of scattered paddock trees within the proponent's landholdings (including those outlined above), as well as the retention of vegetation within Bush Forever Site 354. The proposal was deemed not to be a controlled action.</p>
Baudin's Black Cockatoo	<i>Calyptrorhynchus baudinii</i>	Vulnerable	Schedule 1	<p><i>Within proposal area</i> Unlikely. While <i>Corymbia calophylla</i> are considered to be foraging and potential breeding habitat for Baudin's black cockatoo, the clearing of 15 scattered individual trees is unlikely to significantly impact the species.</p> <p>Within 10 kilometres of the proposal, there is approximately 16 930 hectares of foraging and potential breeding habitat. Most significantly to the east of the proposal are large contiguous areas of potential foraging habitat associated with areas reserved for "State Forest" under the MRS.</p> <p><i>Within proponent landholdings</i> Unlikely. While <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> are considered to be foraging and potential breeding habitat for Baudin's black cockatoo the clearing of 10 scattered individual trees is unlikely to significantly impact the species.</p> <p>Within 10 kilometres of the pressure main, there is approximately 16 930 hectares of foraging and potential breeding habitat. Most significantly to the east of the pressure main are large contiguous areas of potential foraging habitat associated with areas reserved for "State Forest" under the MRS.</p> <p>The proponent has separately referred the proposed urban development of the Whitby LSP area to the federal Minister for the Environment, pursuant to the EPBC Act. The referred proposal considered the clearing of scattered paddock trees within the proponent's landholdings (including those outlined above), as well as the retention of vegetation within Bush Forever Site 354. The proposal was deemed not to be a controlled action.</p>
Malleefowl	<i>Leipoa ocellata</i>	Vulnerable	Schedule 1	<p><i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.</p> <p><i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main.</p>
Great Egret	<i>Ardea alba</i>	Migratory	Schedule 4	<p><i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.</p> <p><i>Within proponent landholdings</i> Unlikely. May visit some creeks, dams and wetter paddocks but would not breed within the pressure main.</p>
Cattle Egret	<i>Ardea ibis</i>	Migratory	Schedule 4	<p><i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.</p> <p><i>Within proponent landholdings</i> Unlikely. May visit some creeks, dams and wetter paddocks but would not breed within the pressure main.</p>
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	Migratory	Schedule 3	<p><i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.</p>

Species		Conservation code		Likelihood of impact from proposal.
Common name	Scientific name	Federal	State	
				<i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main.
Rainbow Bee-eater	<i>Merops ornatus</i>	Migratory	Schedule 1	<i>Within proposal area</i> Unlikely. If present, species will continue to utilise the proposal area following construction.
				<i>Within proponent landholdings</i> Unlikely. If present, species will continue to utilise the pressure main area following construction.
Insects/Invertebrates				
Trapdoor Spider	<i>Arbanitis inornatus</i>	Not listed	Priority 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Pressure main largely located within areas cleared of remnant vegetation. No clearing of intact remnant vegetation proposed as part of the pressure main.
Graceful Sun-Moth	<i>Synemon gratiosa</i>	Not listed	Priority 4	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Pressure main largely located within areas cleared of remnant vegetation. No clearing of intact remnant vegetation proposed as part of the pressure main.
Mammals				
Woylie	<i>Bettongia lpenicillata ogilbyi</i>	Endangered	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main area.
Chuditch	<i>Dasyurus geoffroii</i>	Vulnerable	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Pressure main largely located within areas cleared of remnant vegetation. No clearing of intact remnant vegetation proposed as part of the pressure main.
Southern Brush-tailed Phascogale	<i>Phascogale tapoatafa</i>	Not listed	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Pressure main largely located within areas cleared of remnant vegetation. No clearing of intact remnant vegetation proposed as part of the pressure main.
Western Ringtail Possum	<i>Pseudocheirus occidentalis</i>	Vulnerable	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main area.
Quokka	<i>Setonix brachyurus</i>	Vulnerable	Schedule 1	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Suitable habitat does not occur within the pressure main area.
Western False Pipstrelle	<i>Falsistrellus mackenziei</i>	Vulnerable	Priority 4	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Pressure main largely located within areas cleared of remnant vegetation. No clearing of intact

Species		Conservation code		Likelihood of impact from proposal.
Common name	Scientific name	Federal	State	
				remnant vegetation proposed as part of the pressure main area.
Southern Brown Bandicoot (Quenda)	<i>Isoodon obesulus fusciventer</i>	Not listed	Priority 5	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. No clearing of intact remnant vegetation proposed as part of the pressure main.
Reptiles and rodents				
Southern Carpet python	<i>Morelia spilota imbricata</i>	Not listed	Schedule 4	<i>Within proposal area</i> Unlikely. Suitable habitat does not occur within the proposal area.
				<i>Within proponent landholdings</i> Unlikely. Pressure main largely located within areas cleared of remnant vegetation. No clearing of intact remnant vegetation proposed as part of the pressure main area.

Overall, the construction of the proposal will be managed in accordance with Ministerial Statement 845 and the *Construction Environmental Management System* (CEMS) (Water Corporation 2008) which was prepared by Water Corporation for the SSIA project. The implementation of the CEMS as part of any derived proposal is a condition of Ministerial Statement 845.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

☒ Yes

☐ No

If yes, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Within proposal area

As part of the SSIA strategic proposal, the following fauna survey was undertaken:

- *Southern Source Integration Assets Spring Flora and Fauna Survey Report Southern Source Integration Assets Pipeline Corridor* (Maunsell AECOM 2006)

Within proponent landholdings

A number of fauna surveys have been undertaken for the proponent landholdings and include:

- *Fauna Assessment (Level 1): Lots 22-27, 29 & 45 South Western Highway and Lots 302 & 399 Reilly Road, Whitby, Western Australia* (Harewood 2010a)
- *Targeted Chuditch Survey: Lots 22-27, 29 & 45 South Western Highway and Lots 302 & 399 Reilly Road, Whitby, Western Australia* (Harewood 2010b)
- *Black Cockatoo Habitat Survey: Lots 22-27, 29 & 45 South Western Highway and Lots 302 & 399 Reilly Road, Whitby, Western Australia* (Harewood 2010c)
- *Graceful Sun-Moth Habitat Survey: Lots 22-27, 29 & 45 South Western Highway and Lots 302 & 399 Reilly Road, Whitby* (Harewood 2010d).

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

✓ Yes ☐ No (please tick)

Within proposal area

A search of the federal Department of Environment Protected Matters database and the DPaW (formerly DEC) databases for protected fauna was undertaken as part of the fauna surveys completed by Maunsell AECOM (2006).

Within proponent landholdings

A search of the federal Department of Environment Protected Matters database and the DPaW (formerly DEC) databases for protected fauna was undertaken as part of the fauna surveys completed by Harewood (2010).

Overall

In addition, Emerge Associates (2014) completed an updated search for protected fauna within the proposal area and included a search of the federal Department of Environment Protected Matters database and the DPaW Nature Map database.

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

✓ Yes ☐ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

Within proposal area

Carnaby's black cockatoo and the Forest red-tailed black cockatoo were observed foraging on the *Corymbia calophylla* located along Soldiers Road.

As a note, the Southern Brown Bandicoot (Quenda) was observed within areas of intact remnant vegetation in the eastern portion of Soldiers Road and the railway reserve (Maunsell AECOM 2006). This species is not expected to occur within the proposal area as there is no understorey under the scattered remnant trees located within the road reserve, or where intact remnant vegetation is present the proposal will be micro-tunnelled or horizontally directionally drilled.

Within proponent landholdings

The three black cockatoo species (Carnaby's black cockatoo, Baudin's black cockatoo, and Forest red-tailed black cockatoo) have been observed foraging within the scattered trees located with the proponent's landholdings.

2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick) ✓ Yes **If yes**, complete the rest of this section.
☐ No **If no**, go to the next section.

Wetlands

The proposed pressure main will occur within 200 metres of a number of wetlands identified within the *Geomorphic Wetland of the Swan Coastal Plain* dataset. The wetlands and the likely impact as a result of the proposal have been outlined within **Table 5** below.

Table 5: Summary of geomorphic wetlands identified within 200 metres of the proposed pressure main, based on *Geomorphic Wetland of the Swan Coastal Plain* dataset

UFI	Type	Management Category	Within proposal area	Within proponent landholdings	Likelihood of impact
7835	Sumpland	Conservation	No	No	No impact likely. This wetland is not intersected by the proposal.
8008	Palusplain	Conservation	No	No	No impact likely. This wetland is associated with Bush Forever Site 321 and is not intersected by the proposal.
13009	Palusplain	Resource Enhancement	No	No	No impact likely. This wetland is associated with Bush Forever Site 321 and is not intersected by the proposal.
13010	Palusplain	Conservation	Yes	No	No impact likely. The proposal occurs within the portion of mapped Conservation Category Wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
14496	Palusplain	Conservation	No	No	No impact likely. This wetland is associated with Bush Forever Site 321 and is not intersected by the proposal.
14498	Palusplain	Conservation	No	No	No impact likely. This wetland is associated with Bush Forever Site 321 and is not intersected by the proposal.
14499	Palusplain	Resource Enhancement	Yes	No	No impact likely. The proposal occurs within the portion of the mapped Resource Enhancement Wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
14503	Palusplain	Conservation	No	No	No impact likely. This wetland is associated with Bush Forever Site 321 and is not intersected by the proposal.
14505	Palusplain	Conservation	No	No	No impact likely. This wetland is located within the eastern portion of Bush Forever Site 350 and is not intersected by the proposal.
14506	Palusplain	Conservation	No	No	No impact likely. This wetland is located within the eastern portion of Bush Forever Site 350 and is not intersected by the proposal.
14539	Palusplain	Conservation	No	No	No impact likely. This wetland is located within the eastern portion of Bush Forever Site 350 and is not intersected by the proposal.
14542	Palusplain	Resource Enhancement	No	No	No impact likely. This wetland is associated with Cardup Brook. The pressure main will be constructed within the bridge that currently traverses Cardup Brook.
14543	Palusplain	Multiple Use	Yes	No	The proposal occurs within the portion of the mapped wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
15015	Palusplain	Multiple Use	Yes	No	The proposal occurs within the portion of the mapped wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
15184	Palusplain	Conservation	No	No	No impact likely. This wetland is associated with Bush Forever Site 321 and is not intersected by the proposal.
15185	Palusplain	Multiple Use	No	No	No impact likely. This wetland is found within 200 metres of the pressure main and associated with Bush Forever Site 350.
15382	Palusplain	Multiple Use	Yes	No	The proposal occurs within the portion of the mapped wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
15383	Palusplain	Multiple Use	Yes	No	The proposal occurs within the portion of the mapped wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
15384	Creek	Resource Enhancement	No	No	No impact likely. This wetland is associated with the western extent of Cardup Brook and is not intersected by the proposal.

UFI	Type	Management Category	Within proposal area	Within proponent landholdings	Likelihood of impact
15446	Palusplain	Conservation	No	No	A portion of the wetland is associated with Bush Forever Site 350. No impact likely.
15447	Palusplain	Multiple Use	No	No	No impact likely. This wetland is not intersected by the proposal.
15461	Palusplain	Multiple Use	Yes	No	The proposal occurs within the portion of the mapped wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.
15462	Palusplain	Conservation	Yes	No	No impact likely. No clearing of vegetation to occur as this portion of pressure main alignment is to be horizontally directionally drilled.
15463	Palusplain	Conservation	Yes	No	No impact likely. No clearing of vegetation to occur as this portion of pressure main alignment is to be horizontally directionally drilled.
15785	Palusplain	Multiple Use	No	Yes	The proposal occurs within the portion of the mapped wetland that has been historically modified and now is cleared of remnant vegetation. This wetland is located within the proponents' landholdings and historically this portion of the proponent's landholdings was operated as a Blue Gum plantation. These areas do not support wetland attributes or values.
15797	Palusplain	Multiple Use	Yes	No	The proposal occurs within the portion of the mapped wetland that has been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road. These areas do not support wetland attributes or values.

Waterways

Within proposal area

The portion of the proposal within Route 4 is located within 200 metres of a number of waterways, which include:

- Unnamed waterway, immediately south of Norman Road. As above, the pressure main will be horizontally directional drilled under the waterway. No clearing of intact remnant vegetation is proposed as part of the construction of the pressure main.
- Cardup Brook. The pressure main will be constructed within the road pavement of the bridge that currently crosses Cardup Brook. No clearing of vegetation or interference with the waterway is proposed as part of the construction of the pressure main.

Within proponent landholdings

The portion of the pressure main within the proponent's landholdings is located within 200 metres of a number of waterway, these include:

- Manjedal Brook. Manjedal Brook is located approximately 240 metres south-west of the proposed pump station and 150 metres south-west of the pressure main. No impact is likely as a result of the construction of the wastewater infrastructure. Dewatering of the wastewater pump station area will be required as part of construction, however this will be managed in accordance with the CEMS (Water Corporation 2008) and pursuant to the *Rights in Water and Irrigation Act 1914* (RIWA Act), and is likely include a dewatering licence.
- Unnamed waterway, immediately south of Norman Road. The pressure main will be horizontally directional drilled under the waterway. No clearing of intact remnant vegetation is proposed as part of the construction of the pressure main.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

☒ Yes

☐ No

If yes, please describe the extent of the expected impact.

Within proposal area

The clearing of vegetation within 200 metres of the wetlands and waterways identified in **Section 2.3.1** above will be limited to 15 scattered paddock trees over pasture grasses and weeds.

No vegetation in 'Degraded' or better condition will be cleared as a result of implementing the proposal. No areas of riparian vegetation will be impacted and the proposal will be horizontally directionally drilled under areas of intact remnant vegetation in 'Degraded' or better condition. The thrust and receiver pits will be located within the bituminised portion and/or cleared road reserve/road formation of Soldiers Road and/or areas already cleared of remnant vegetation.

Within proponent landholdings

The clearing of vegetation within 200 metres of the wetlands and waterways identified in **Section 2.3.1** above will be limited to 10 scattered paddock trees over pasture grasses and weeds.

No vegetation in 'Degraded' or better condition will be cleared as a result of implementing the wastewater pump station and pressure main. No areas of riparian vegetation will be impacted and the pressure main will be horizontally directionally drilled under areas of intact remnant vegetation in 'Degraded' or better condition. Thrust and receiver pits (associated with the horizontal directional drilling) will be located within an area already cleared of remnant vegetation that is currently maintained as a firebreak.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

☒ Yes

☐ No

If yes, please describe the extent of the expected impact.

Within proposal area

As indicated in **Table 5**, a number of mapped wetlands are intersected by the proposal and where trenching is used to construct the proposal, this area will be excavated and then backfilled as part of the construction process. The proposal occurs within portions of mapped wetlands that have been modified and now comprise of road pavement and/or cleared road reserve/road formation associated with Soldiers Road, or portions that have been cleared of remnant vegetation. Overall the proposal does not intersect areas that support important wetland attributes or values, and the proposal is unlikely to permanently impact hydrological functions of these wetland areas.

No filling or excavation of a waterway is proposed as part of implementing the proposal.

Within proponent landholdings

A Multiple Use Wetland will be excavated as part of constructing the wastewater pump station. Dewatering during construction of the wastewater pump station will be required; however this will be managed in accordance with the CEMS (Water Corporation 2008) and a dewatering licence issued pursuant to the RIWA Act. Overall the proposal will not result in the excavation of areas that support important wetland attributes or values, and the construction of the wastewater pump station main is unlikely to permanently impact hydrological functions of this wetland area.

No filling or excavation of a waterway is proposed as part of implementing the wastewater pump station and pressure main.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

☐ Yes

☒ No

If yes, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

☐ Yes

✓ No

If yes, please describe the extent of the expected impact.Within proposal area

It is possible that temporary dewatering of the proposal area may be required for the portions of the proposal that are trenched. Generally the depth of the pressure main will be between 1.1 metres and 2.8 metres below the natural ground surface and is not expected to be installed below the permanent groundwater levels within the area. Therefore, any dewatering will be localised to the specific portion of the trench open for construction works and will be associated with the seasonal peak of groundwater. Construction is proposed to commence in March, when groundwater levels are lowest. The volume of groundwater required to be removed is therefore expected to be low and will be managed by open suction (or similar).

No impact is likely to occur as a result of the temporary dewatering, which will be short-term and localised. Dewatering will be managed in accordance with a dewatering licence issued pursuant to the RIWA Act and the CEMS (Water Corporation 2008). This is outlined further in **Section 2.7.5** and within the attached document.

Within proponent landholdings

Temporary dewatering of the area associated with the wastewater pump station will be required as part of construction. A Multiple Use Wetland (UFI 15785) is located within the vicinity of the wastewater pump station. This portion of the proponent landholding is cleared of remnant vegetation and historically was operated as a Blue Gum plantation.

No impact is likely to occur as a result of the temporary dewatering. Dewatering will be managed in accordance a dewatering licence issued pursuant to the RIWA Act and the CEMS (Water Corporation 2008). This is outlined further in **Section 2.7.5** and within the supporting document (Emerge Associates 2014).

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	✓ Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	<input type="checkbox"/> Yes	✓ No	<input type="checkbox"/> Unsure
Perth's Bush Forever site	✓ Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	<input type="checkbox"/> Yes	✓ No	<input type="checkbox"/> Unsure
The management area as defined in s4(1) of the <i>Swan River Trust Act 1988</i>	<input type="checkbox"/> Yes	✓ No	<input type="checkbox"/> Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	<input type="checkbox"/> Yes	✓ No	<input type="checkbox"/> Unsure

While the proposal is situated within the boundaries of Bush Forever Site 354 and Bush Forever Site 350 and within mapped Conservation Category Wetlands located within the proposal area, no significant impacts are expected. The proposal will not result in the clearing of intact remnant vegetation, or areas of vegetation in 'Degraded' or better condition. Where intact remnant vegetation is located, the proposal will be micro-tunnelled or horizontally directionally drilled.

2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

☐ Yes ☒ No **If yes, please provide details.**

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

☒ Yes ☐ No **If yes, please provide details.**

A search of DPaW's Native Vegetation Mapping database indicated that the proposal is identified within an Environmentally Sensitive Area (ESA). This is outlined further below.

Within proposal area

The presence of the ESAs are likely to correspond to a number of TECs and/or Threatened flora species all within Bush Forever Site 350 and Bush Forever Site 354, located within the proposal area and Bush Forever Site 321 and Bush Forever Site 352, located adjacent to the proposal area. The Bush Forever Sites have been documented to contain TECs, Threatened flora and/or Conservation Category Wetlands. Within Route 4:

- No Threatened flora or PF will be impacted as part of the construction of the proposal.
- No TECs or PECs will be impacted as part of the construction of the proposal. The proposal will be horizontally directionally drilled under areas of Route 4 that contain TECs (where the proposal crosses the vegetated portion of Bush Forever Site 350).
- The mapped Conservation Category Wetland areas intersected by the proposal have been historically modified and now comprises road pavement and/or cleared road reserve/road formation associated with Soldiers Road and does not support wetland attributes or values. The Conservation Category Wetland is unlikely to be impacted by the construction and operation of the proposal.
- No areas of riparian vegetation will be impacted.
- No areas of vegetation in 'Degraded' or better condition will be cleared as part of implementing the proposal.

The clearing of vegetation will be limited to approximately 15 scattered remnant trees over pasture, grasses and weeds within the western portion of Soldiers Road reserve.

Within proponent landholdings

The presence of ESA's within the proponent landholdings are likely to correspond to a number of TECs and/or Threatened flora species, all within Bush Forever Site 350 and Bush Forever Site 354. The Bush Forever Sites have been documented to contain TECs, Threatened flora and/or Conservation Category Wetlands. Within the proponent landholdings:

- No Threatened flora or PF will be impacted as part of the construction of the pressure main and wastewater pump station.
- No TECs or PECs will be impacted as part of the construction of the pressure main and wastewater pump station. The pressure main will be horizontally directionally drilled under areas of the proponent's landholdings that contain TECs (where the proposal crosses the vegetated portion of Bush Forever Site 354).
- No areas of riparian vegetation will be impacted.
- No areas of vegetation in 'Degraded' or better condition will be cleared as part of implementing the pressure main and wastewater pump station.

The clearing of vegetation will be limited to approximately 10 scattered paddock trees over pasture grasses and weeds immediately within the western boundary of the proponent's landholdings.

Overall

The proposal is unlikely to impact on vegetation values associated with TECs, Threatened flora, Conservation Category Wetlands or Bush Forever Sites. As part of the design of the proposal, the proponent has undertaken the following:

- Minimise the disturbance footprint (approximately three metres wide), with the required works to be contained within areas already cleared of remnant vegetation, or within the bituminised portion of Soldiers Road.
- Where areas of intact remnant vegetation occur (i.e. where the pressure main crosses the vegetated portion of Bush Forever Site 350), micro-tunnelling or horizontal directional drilling will be utilised to avoid clearing intact remnant vegetation (i.e. areas of TECs identified within Bush Forever Site 350 and Bush Forever Site 354).
- Approximately one kilometre of the pressure main alignment along the western portion of Soldiers Road will be horizontal directional drilling to minimise clearing of individual remnant *Corymbia calophylla* trees.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

☐ Yes ✓ No **If yes**, please provide details.

No significant natural land features will be impacted by the construction of the proposal.

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick) ☐ Yes **If yes**, complete the rest of this section.
 ✓ No **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

Not applicable.

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cusped headland, coastal dunes or karst?

☐ Yes ✓ No **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

☐ Yes ✓ No **If yes**, please describe the extent of the expected impact.

2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

☐ Yes ✓ No **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

☐ Yes ✓ No **If yes**, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

☐ Yes ✓ No **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

✓ Yes ☐ No **If yes**, please describe what category of area.

Within proposal area

Groundwater

The proposal is located within a proclaimed groundwater area, the Serpentine Groundwater Area and the Byford 3 Groundwater Sub-Area.

Surface water

The proposal is not located within a proclaimed surface water area, or a surface water protection area.

Within proponent landholdings

Groundwater

The pressure main and wastewater pump station is located within a proclaimed groundwater area, the Serpentine Groundwater Area and the Byford 3 Groundwater Sub-Area.

Surface water

The pressure main and wastewater pump station is not located within a proclaimed surface water area, or a surface water protection area.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ✓ No **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

☐ Yes

☒ No

If yes, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

☒ Yes

☐ No

(please tick)

2.7.5 Will the proposal require drainage of the land?

☒ Yes

☐ No

If yes, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

Within proposal area

It is possible that temporary dewatering of the proposal area may be required for the portions of the proposal that are trenched. Generally the depth of the pressure main will be between 1.1 metres and 2.8 metres below the natural ground surface, and the pressure main is not expected to be installed below the permanent groundwater levels within the broader area. Accordingly:

- Dewatering will be localised to the specific portion of the trench that is open for construction works.
- If dewatering is required, it will be for a short duration and localised. Construction is proposed to commence in March, when groundwater levels are lowest. Therefore the volume of groundwater required to be removed is expected to be low (and would be associated with the seasonal groundwater peak level) and can be managed by open suction (or similar).
- Any dewatering associated with the pressure main can be easily managed in accordance with Department of Water guidance and the RIWI Act.
- No impact is likely to occur as a result of the temporary dewatering.

Dewatering will be managed in accordance with a dewatering licence issued pursuant to the RIWI Act and provisions outlined within the CEMS (Water Corporation 2008).

Within proponent landholdings

As outlined within **Section 2.3.5**, temporary dewatering is likely to be required during the construction of the wastewater pump station. Groundwater is located approximately 1.4 metres below the natural ground surface. The wastewater pump station will be constructed to a depth of approximately 7.5 metres below the natural ground surface to accommodate the required infrastructure, including overflow tanks and process control equipment.

No impact is likely to occur as a result of the temporary dewatering. Dewatering will be managed in accordance with a dewatering licence issued pursuant to the RIWI Act. The management of dewatering will include:

- The rate of dewatering will be limited to the minimum rate required for the infrastructure to be installed.
- The volume of dewatering effluent will be monitored and recorded daily.
- Dewatering effluent will be infiltrated within the proponent landholdings and where required the area will be bunded (with an earthen bund).
- The pH and acidity of the dewatering effluent will be monitored and recorded daily. The pH and acidity will be managed in accordance with Department of Water guidance and the RIWI Act. If pH or acidity exceeds the recommended limits, the effluent will be treated.

This is outlined further in the CEMS (Water Corporation 2008) and the supporting document (Emerge Associates 2014).

Overall

No impact is likely to occur as a result of the temporary dewatering of the wastewater pump station site, and where required, along the pressure main. Dewatering will be managed in accordance with a dewatering licence issued pursuant to the RIWI Act and the CEMS (Water Corporation 2008). This is outlined further within the supporting document (Emerge Associates 2014).

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick)

☒ Yes

If yes, complete the rest of this section.

☐ No

If no, go to the next section.

Within proposal area

Water will be required as part of the construction of the pressure main, and will be largely associated with dust suppression and construction. In addition, water will be required to pressure test the pressure main once construction is completed.

No water will be required for the ongoing operation of the pressure main.

Within proponent landholdings

Water will be required as part of the construction of the wastewater pump station and pressure main, and will be largely associated with dust suppression and construction.

No water will be required for the ongoing operation of the wastewater pump station and pressure main.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

Overall

The proponent has been granted a groundwater licence, pursuant to the RIWI Act, to abstract 120,000 kilolitres of groundwater for earthworks and construction purposes and for the irrigation of public open space within the Whitby LSP area. The water required during the construction of the proposal, for dust suppression and construction as well as for the pressure testing of the pressure main, will be managed in accordance with the granted licence.

No water will be required for the ongoing operation of the wastewater pump station and pressure main.

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

Overall

The proponent will source the water required for construction of the proposal from groundwater (via a bore and turkey's nest). The proponent has been granted a groundwater licence pursuant to the RIWI Act to abstract groundwater for the development of the Whitby LSP area. The groundwater is licenced for earthworks and construction purposes, as well as for the irrigation of public open space.

As indicated in **Section 2.7.7**, the use of groundwater by the proponent will be managed in accordance with the groundwater licence conditions.

2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick)

☐ Yes

If yes, complete the rest of this section.

☒ No

If no, go to the next section.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

☐ Yes

☒ No

If yes, please describe what category of prescribed premise.

2.8.3 Will the proposal result in gaseous emissions to air?

☐ Yes

☒ No

If yes, please briefly describe.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

☐ Yes

☒ No

If yes, please briefly describe.

Not applicable.

2.8.5 Will the proposal result in liquid effluent discharge?

☐ Yes

☒ No

If yes, please briefly describe the nature, concentrations and receiving environment.

Within proposal area

No liquid effluent will be discharged as result of the proposal.

Within proponent landholdings

It is unlikely that the wastewater pump station and pressure main will result in liquid effluent discharge.

It is possible as part of the operation of the wastewater pump station that where there is a system breakdown or similar, the wastewater may fill the overflow tanks and be released to the land surface. The wastewater pump station is located within an area of public open space, is located an appropriate distance from groundwater and has been located outside the 1 in 100 year floodway of Manjedal Brook, located to the south of the proposal area. Any unintended discharge can be managed within the area of public open space and can be removed where required.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

☐ Yes ☒ No **If yes**, please describe.

Overall

There will be no discharges to watercourses that are located within the vicinity of the proposal.

2.8.7 Will the proposal produce or result in solid wastes?

☐ Yes ☒ No **If yes**, please briefly describe the nature, concentrations and disposal location/ method.

2.8.8 Will the proposal result in significant off-site noise emissions?

☐ Yes ☒ No **If yes**, please briefly describe.

Overall

There is the potential for noise to be generated as part of the construction of the proposal, however the noise impacts are temporary in nature and are not expected to be any greater than noise impacts generally associated with typical construction activities.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

☐ Yes ☒ No **If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Please attach the analysis.

Overall

The construction works associated with the proposal will be managed in accordance with *Division 2* of the *Environmental Protection (Noise) Regulations 1997*, with works to occur between 0700 and 1900 hours and to be managed in accordance with *Australian Standard (AS) 2436-2010 Guide to noise and vibration control on construction, maintenance and demolition sites*. The construction work will be managed in accordance with the CEMS (Water Corporation 2008).

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other “sensitive premises” such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

☐ Yes ☒ No **If yes**, please describe and provide the distance to residences and other “sensitive premises”.

Within proposal area

The proposal is unlikely to generate air quality impacts, dust, odour or other pollutants that may affect the amenity of residents and other sensitive premises.

Within proponent landholdings

The pressure main and wastewater pump station is unlikely to generate air quality impacts, dust, odour or other pollutants that may affect the amenity of residents and other sensitive premises during construction.

Following commissioning of the wastewater pump station, it is unlikely that odour will affect the amenity of residents. The wastewater pump station is located within a portion of the proponent’s landholdings that is

proposed to be dedicated as future public open space. A minimum 30 metre separation distance is provided between the wastewater pump station and the nearest future resident, which is in accordance with recommended generic separation distance outlined within *Guidance for the Assessment of Environmental Factors No. 3 Separation Distances between Industrial and Sensitive Land Uses* (EPA 2005).

2.8.11 If the proposal has a residential component or involves “sensitive premises”, is it located near a land use that may discharge a pollutant?

☐ Yes ☒ No ☐ Not Applicable

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

☐ Yes ☒ No **If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

Not applicable.

2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

☐ Yes ☒ No ☐ Unsure **If yes**, please describe.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

☒ Yes ☐ No **If yes**, please describe.

Within proposal area

Water Corporation (2009), as part of the SSIA strategic proposal reviewed the potential for contamination to occur within the proposed pipeline corridors. While a potentially contaminated site was identified as occurring within the vicinity of Route 4, this site is located approximately 2.8 kilometres north of the proposal area and will not be impacted by the proposal.

Within proponent landholdings

The proponent has undertaken a preliminary site investigation within the proponent landholdings to support the local structure planning process for the Whitby LSP area (Cardno 2010). The pressure main and wastewater pump station is unlikely to disturb areas of potential contamination.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

☐ Yes ☒ No **If yes**, please describe.

2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

☒ Yes ☐ No ☐ Unsure **If yes, please describe.**

An online search for relevant aboriginal heritage information was undertaken using the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Inquiry System (DAA 2014). This system incorporates both the heritage site register and the heritage survey database. The Aboriginal Heritage Site Register is maintained pursuant to *Section 38* of the *Aboriginal Heritage Act 1972* (AHA) and contains information on over 22,000 listed Aboriginal sites throughout Western Australia.

Within proposal area

No Aboriginal heritage sites were identified within the proposal area. However, the proposed alignment will traverse Cardup Brook which is identified as an 'Other Heritage Place' and its status is Stored Data/Not a Site. Where the status is Stored Data/Not a Site, this means that the place has been assessed as not meeting *Section 5* of the *Aboriginal Heritage Act 1972*.

The pressure main will be constructed within the road pavement of the bridge that currently crosses Cardup Brook. No clearing of vegetation or interference with the waterway is proposed as part of the construction of the pressure main.

Within proponent landholdings

No Aboriginal heritage sites were identified within the proposal area.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

☒ Yes ☐ No **If yes, please describe.**

Overall

The proposal is located within the Shire of Serpentine-Jarrahdale, where both the local government and local community have a heightened awareness of the environmental values within the broader area, including the vegetation values identified within Bush Forever Site 350 and Bush Forever Site 354. The Shire of Serpentine-Jarrahdale have also recognised Soldiers Road as an 'Area of Natural Beauty' under the Shire of Serpentine-Jarrahdale TPS No.2

In consideration of the extent of community awareness and the identified environmental values, the proponent has made every effort to ensure that impacts associated with the proposal are minimised and that no areas of intact remnant vegetation or vegetation in 'Degraded' or better condition are cleared as a result of the proposal. In addition, where scattered remnant trees have been identified (in 'Completely Degraded' or 'Degraded to Completely Degraded' condition) the proponent has designed the proposal to minimise the number of scattered individual remnant trees likely to be cleared. This has included:

- Minimising the disturbance footprint to approximately three metres wide, with the required works to be managed within areas already cleared of remnant vegetation, or within the bituminised portion of Soldiers Road. This is significantly less than the area identified within the SSIA strategic proposal, which indicated that disturbance to a 15 metre to 60 metre wide corridor would be required as part of the implementation of the SSIA.
- Horizontally directional drilling approximately one kilometre of the pressure main along the western portion of Soldiers Road.

The proponent has liaised with the Shire of Serpentine-Jarrahdale, and this is outlined further within **Section 3.2** of the Section 38 Referral.

The construction of the proposal will be managed in accordance with Ministerial Statement 845 and the CEMS (Water Corporation 2008) which was prepared by Water Corporation for the SSIA project. The implementation of the CEMS is a condition of Ministerial Statement 845.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

☐ Yes

☒ No

If yes, please describe.

The construction of the proposal will not result in or require substantial transport of goods.

However, it is likely that during construction of the proposal, residents within the broader Mundijong area may be affected by the partial closure of Soldiers Road that is required for the construction of the pressure main. A portion of Soldiers Road will be utilised as part of the construction footprint, in order to minimise clearing of scattered *Corymbia calophylla* located along the western portion of Soldiers Road reserve. The proponent has liaised with local residents likely to be directly affected by the construction of the proposal. Any potential impacts will be short term and directly related to the construction of the proposal.

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

- | | | |
|--|-------|-----------------------------|
| 1. The precautionary principle. | ✓ Yes | <input type="checkbox"/> No |
| 2. The principle of intergenerational equity. | ✓ Yes | <input type="checkbox"/> No |
| 3. The principle of the conservation of biological diversity and ecological integrity. | ✓ Yes | <input type="checkbox"/> No |
| 4. Principles relating to improved valuation, pricing and incentive mechanisms. | ✓ Yes | <input type="checkbox"/> No |
| 5. The principle of waste minimisation. | ✓ Yes | <input type="checkbox"/> No |

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

✓ Yes ☐ No

The proposal has been considered in the context of comparing the environmental impact of the proposal to the environmental impact associated with the SSIA strategic proposal, detailed within Ministerial Statement 845. The proponent has minimised the footprint of the proposal, with the construction works to be largely managed within areas already cleared of remnant vegetation, or within the bituminised portion of Soldiers Road. The construction methodology has been modified to include trenchless technology (namely micro-tunnelling or horizontal direction drilling) which will be utilised where the proposal traverses areas of intact remnant vegetation (i.e. Bush Forever Site 350 and Bush Forever Site 354) and to avoid clearing large numbers of scattered paddock trees located within Soldiers Road reserve.

Importantly, while a portion of the pressure main is not located within the specific spatial footprint of Route 4 of the SSIA strategic proposal, this alternate alignment is located immediately adjacent to Route 4 within private landholdings that have been historically cleared to support agricultural-based land uses. The proponent specifically located a portion of the pressure main within the proponent's landholdings in order to minimise the clearing of remnant scattered trees (approximately 160 individual trees), which would have been the outcome if the pressure main had remained within the spatial footprint of Route 4, shown within the SSIA strategic proposal.

Overall:

- No Threatened flora or PF will be impacted as part of the construction of the proposal.
- No TECs or PECs will be impacted as part of the construction of the proposal.
- The mapped Conservation Category Wetlands intersected by the proposal have been historically modified and is now comprised of road pavement and/or cleared road reserve/road formation associated with Soldiers Road and does not support wetland attributes or values. The Conservation Category Wetland is unlikely to be impacted by the construction and operation of the proposal.
- No areas of riparian vegetation will be impacted as part of construction of the proposal.
- No areas of vegetation in 'Degraded' or better condition will be cleared and/or impacted as part of implementing the proposal.
- Construction work will be managed in accordance with the CEMS as provided by Water Corporation (2008).

The proponent has provided an outline of the likely impacts from the proposal compared to the impacts deemed as acceptable by the Minister for the Environment in Ministerial Statement 845 within the supporting document (Emerge Associates 2014). The impacts as a result of the proposal are in accordance with those deemed acceptable by the Minister for the Environment, and are considerably less than that outlined, with a maximum of 25 scattered remnant trees (10 within the proponent landholdings and 15 within Route 4) likely to be cleared and no clearing of vegetation in 'Degraded' or better condition. On this basis, environmental offsets are not required.

3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

☒ Yes

☐ No

If yes, please list those consulted and attach comments or summarise response on a separate sheet.

The proposal is being undertaken by the proponent on behalf of the Water Corporation. As part of the detailed engineering design process to support subdivision within the Whitby LSP area, the Water Corporation indicated that the Whitby LSP area will be serviced by the future Mundijong A Pump Station, and this would be provided when sufficient sewer capacity was achieved (*Wastewater Scheme Planning Series: Byford – SD86 Conceptual Planning Long Term Scheme – Sheet 7 of 10*). In the interim, Water Corporation advised that the first 800 lots within the Whitby LSP area would need to be accommodated within the current wastewater infrastructure in the broader Byford area. This requires the construction of the proposal to connect future residents with the existing wastewater infrastructure located 5.6 kilometres to the north of the Whitby LSP area, located within Soldiers Road reserve.

The proponent is undertaking the works in accordance with the requirements of the Water Corporation, in accordance with the *Water Services Act 2012* and outlined within the External Approvals Manual (Water Corporation 2013).

In addition to approvals, the Water Corporation 'Prerequisites to Works' process requires the proponent to consult with the owner and occupier of any land affected by the proposed works as well as a range of stakeholders, including state and local government, agencies and other organisations. As part of the proposal, the proponent has provided a copy of the 'Prerequisites to Works' and/or met with the following stakeholders:

- Western Australian Planning Commission.
- Department of Fire and Emergency Services.
- Office of the Environmental Protection Authority
- Public Transport Authority.
- Main Roads Western Australia.
- Western Power.
- ATCO Gas.
- Local government, which for the proposal is the Shire of Serpentine-Jarrahdale. The Shire of Serpentine-Jarrahdale have provided indicated support for the proposal through written correspondence (subject to a number of conditions) and have been supportive of the proponents efforts to minimise the clearing of remnant vegetation and scattered remnant trees located along Soldiers Road. A copy of the letter correspondence has been provided in **Attachment 1** of the Section 38 Referral.
- Land owners potentially impacted by the proposal.

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ATTACHMENT 1

Letter correspondence from the Shire of Serpentine-Jarrahdale

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All enquiries to Engineering Services on 95261111
Our ref: SJ954:GA:co
Electronic Ref: OC14/20257
Your ref: Temporary Wastewater Pump Station



Shire of
Serpentine
Jarrahdale

Sustainable. Connected. Thriving!

1 December 2014



RECEIVED
02/12/14...

JDSi Engineering
PO Box 8523
Perth BC WA 6849

Dear Sir / Madam,

Proposed works for Soldiers Road, Cardup for the Temporary Wastewater Type 10 Pump Station and Pressure Main for the Whitby Development (WAPC 149237).

In response to the meeting held on the 20 November 2014 advising of Water Corporation's intended works in the Serpentine Jarrahdale Shire, Shire Officers and JDSi representatives discussed the upcoming works. The following are conditions that will need to be met when undergoing works on council land,

- A Traffic Management Plan will need to be submitted for review and approval to the Shire's Engineering Department prior to the commencement of works.
- All affected residents, land owners and schools will need to be notified of the upcoming works and expected delays prior to the commencement of the project.
- Due to the nature of the works a Maintenance bond will need to be submitted prior to works and will be released after works if completed to shire's satisfaction
- In the Whitby Development in the allocated section for the proposed Water Corporation Pump Station, recycled Black Bollards are the recommended method of fencing in Public Open Spaces.
- Due to the large scope of works Soldiers Road has been recognised as a high and medium conservation value road reserve. There are some areas of vegetation that are in good to excellent condition and some areas that vegetation is actively competing with weeds and other threatening processes such as ground disturbance. Measures must be taken to ensure protection of all indigenous vegetation on site. The design for the proposed works show potential damage to tree's and tree roots, it was agreed at the above mentioned meeting that if any tree's and tree roots are damaged or to be removed that with consultation of an Arboriculturalist and Shire Officers that replacement tree's will be planted at an agreed location.
- The scope of works has also identified that underground boring will be undertaken. The area should be reinstated to Shire of Serpentine Jarrahdale standards with proper compaction of road pavement layers. Underground boring is the preferred method to

prevent any damage occurring to protected flora in the area. A receipt of a Consultant Engineering Certification that the works have been completed in accordance with the approved drawings and specifications.

- Prior to the completion of works, any damaged sections of footpath/ kerbing must be removed and reinstated in accordance with Serpentine Jarrahdale Shire specifications. Attached for your convenience are the Shire's footpath and kerbing specifications.
- It shall be deemed to design on construction the responsibility of the developer / utility provider to repair any defects resulting from faulty workmanship / defective materials on all roads and associated works for a period of 12 months from the date of practical completion.

Any damage caused within the road reserve during the works must be rectified by Water Corporation to the satisfaction of the Shire.

Please ensure that the abovementioned potential impacts are taken into consideration during any works and that contractors adhere to all of the above standards found on www.sjshire.wa.gov.au during reinstatement.

If you have any further queries, don't hesitate to contact Engineering Services on 9526 1111.

Yours faithfully

A handwritten signature in blue ink, appearing to be 'GA' followed by a stylized flourish.

Gordon Allan
Director Engineering