PROJECT APPLICATION AND PRELIMINARY ENVIRONMENTAL ASSESSMENT

Proposal: **Stage 1 Remediation of Contaminated Groundwater including an Air Sparge with Soil Vapour Extraction and Treatment System**

Site: **Martin Street, Coramba**

Proponent: **Coffs Harbour City Council acting on behalf of the Coramba community**

June 2007

PART 3A Environmental Planning & Assessment (EP&A) Act 1979

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1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

This document, prepared by Coffs Harbour City Council, is submitted to the Minister for Planning and the Director-General of Planning to:

- Seek confirmation that the proposal for Stage 1 Remedial Works at Martin Street, Coramba, is a 'project' to which Part 3A of the Environmental Planning and Assessment (EP&A) Act 1979 applies;
- Apply under section 75E of the EP&A Act, for approval of the Minister to carry out the project;
- Provide a preliminary assessment of the project; and
- Request the Director General's Environmental Assessment Requirements for the groundwater remediation project proposed in Martin Street, Coramba adjacent to the Orara River.

1.2 BACKGROUND

Coffs Harbour City Council (CHCC) has been working with the NSW Department of Environment & Climate Change (DECC) (formerly the Department of Environment & Conservation (DEC)) and other government agencies and community representatives to progress the remediation of hydrocarbon contaminated groundwater affecting an area of Coramba. In 2002 a seepage of hydrocarbon contaminated groundwater was identified entering a backwater adjacent to the Orara River, upstream of the off-take for the Coramba township's reticulated water supply (this off-take has since been removed). The source of the hydrocarbon contamination is an unleaded petrol leak from a former underground storage tank at the existing service station at 33-35 Gale Street.

The DECC made a determination under Section 21 of the Contaminated Land Management (CLM) Act 1997 over 5 Martin Street, Coramba, as a "Remediation Site" in July 2003. Following this determination, the DECC assisted the landowners of 5 Martin St to apply to the NSW Environmental Trust for grant funding under the "innocent owners scheme" to fund remedial works.

Following on from earlier work by other consultants, a Pre-Remediation Environmental Assessment was conducted in 2006 by WSP Pty Ltd, "in order to determine the source of contamination, assess the local hydrogeology and contamination migration pathways and to identify the plume of contaminated groundwater" (WSP October 2006). The findings of that assessment provided sufficient information for the preparation of the Remedial Action Plan (RAP) (also prepared by WSP Pty Ltd) (WSP September 2006). These reports were the subject of a "Site Audit Report" (November 2006) by an accredited site auditor with HLA-Envirosciences Pty Ltd. (Copies of the WSP and HLA reports are

available on request) (Note these reports were not commissioned by Council, rather they were funded via the NSW Environmental Trust under the "Contaminated Land Management Program" grant to the owners of 5 Martin Street, under regulation by the DECC).

Several soil and groundwater remedial technologies were proposed in the RAP, however, a staged approach to remediation has been recommended by the Interagency Community Working Party and adopted by CHCC following consultation with DECC and community representatives. This Project Application will describe only the Stage 1 Remedial Works, designed to remove the "Significant Risk of Harm".

In essence Stage 1 includes the installation of an "air sparge system with soil vapour extraction (SVE) and treatment of the collected contaminated soil vapour" as envisioned in the RAP. The location of the sparge system will be within the alluvial sediments adjacent to the Orara River at the end of Martin Street. The system is intended to intercept contaminated groundwater before it can enter the river, and in doing so should assist in the reduction of hydrocarbon vapour release to the atmosphere.

The RAP provides some detail of the proposed remedial works including the air sparge and soil vapour extraction and treatment system which is proposed in Stage 1. (Additional remedial technology options recommended in the RAP may be the subject of additional applications to the Department, dependant on a number of factors, however these are outside the scope of this Project Application). (Appendix B attached, includes a description of "air sparging" taken from the WSP RAP (Sept 2006)).

Following a request from the Coramba Fuel Contamination Interagency Community Working Party, Coffs Harbour City Council (CHCC), at its meeting on 5 April 2007, agreed to act as applicant, on behalf of the Coramba community, for NSW Environmental Trust grant funding for Stage 1 remediation works (and associated environmental monitoring of groundwater and air quality and other costs). Council lodged a grant application on 2 May 2007 with the Trust.

Further CHCC agreed that subject to NSW Environmental Trust grant funding being made available, the General Manager be delegated authority to enter into a Voluntary Remediation Agreement (under the CLM Act) for the Stage 1 remedial works (which the Trust agrees to fund) with the NSW Department of Environment & Conservation, and to facilitate these remedial works. The grant funding application and VRA are being progressed in parallel in order to attempt to expedite the approval process and ensure Stage 1 remedial works can commence as soon as practicable.

2.0 LOCALITY CONTEXT

Coramba township is located 12 kilometers north-west of the CBD of Coffs Harbour on the Mid North Coast of New South Wales.

The Orara River flows from the southeast of the township towards the northwest around the northern side of the historic township. Coramba consists of approximately 240 dwellings and several shops along its main street (Gale Street). The township is not serviced by reticulated sewerage and residences rely on on-site sewage management systems (largely septic systems or pump-out service).

3.0 SITE CONTEXT

The property descriptions of the intended location of the air sparge system includes: Lot 121 DP 876790 (5 Martin Street), Lot 122 DP 876790 (Council owned reserve end Martin Street), Crown Land forming the Orara River reserve and adjoining roadway.

The site of the proposed works consists of the grassed lower terrace of 5 Martin Street, a roadway and open space associated with the Orara River reserve. The surface of the site is largely gravel/bitumen roadway and parking area adjoining mown grassland. Adjoining the site to the northwest is riverside vegetation, consisting mostly of camphor laurel and other weeds with some scattered native species.

“Vegetation in the surrounds is relatively disturbed, and comprises re-growth riparian forest highly impacted with exotic species such as camphor laurel, lantana, privet and paspalum. Little residual vegetation remains.

The built environment is typical of a regional country town, and comprises a population of about 800. A primary school is located approximately 500 m to the south west (upgradient). Gale Street is the main road along which traffic travels through Coramba in a north-west, south-east direction. Shops, including a post office, bakery, hotel, veterinary, and a credit union, are concentrated on the south side of Gale Street primarily in a 60 m to 70 m strip between Thrower Avenue (which heads to the south) and Martin Street (which heads to the north).

The service station is located on the corner of Gale Street and Thrower Avenue. 5 Martin Street is located where Martin Street reaches the Orara River. A gravel carpark/turning circle is located at the end of Martin Street adjacent to the river, as is a foot bridge which crosses the river and provides pedestrian access to the northern part of Coramba.” (WSP October 2006).

Additional background/site context information is contained with the WSP Environmental P/L 2006 reports (copies of which are available on request).

4.0 PROJECT DESCRIPTION

A "Voluntary Remediation Agreement" will be entered into between CHCC (acting on behalf of the community) and the DECC (Environment Protection Authority) with respect to the remedial works necessary to remove the "Significant Risk of Harm" associated with the contamination in the affected area.

Stage 1 of the works will consist of installing and operating a technically advanced and efficient air sparge and soil vapour extraction and treatment system adjacent to the Orara River at Martin Street, Coramba. These works will be in compliance with the CLM Act. Appendix B further describes "air sparging".

Description of Proposed Project

Project	Stage 1 Groundwater Remediation Works – Air Sparge System with Soil Vapour Extraction and Treatment, Martin Street, Coramba
Objectives	▪ To create a barrier to the lateral migration of petroleum hydrocarbons to the Orara River. ▪ To protect air quality in the area. ▪ To reduce environmental and human health risks associated with the contaminated groundwater.
Major Elements	Air Sparge and Soil Vapour Extraction and Treatment System installed in the lower alluvial terrace, adjacent to the Orara River. System to include approx. nine vertical sparge points (injection wells) for air injection into the saturated zone of the alluvium, a continuous 70-80m horizontal vapour extraction system in the vadose/unsaturated zone above the sparge points to capture and extract contaminated soil vapour, air injection and extraction infrastructure (blowers/compressors), activated carbon treatment system for extracted air.
Environmental Assessment Issues	Water, soil, noise, air, biodiversity, traffic/access, waste, services, hazards, health, consultation.
Ancillary Works	Electricity and other necessary infrastructure, monitoring, extraction of groundwater during construction.
Outline of Construction Methods	Stage 1 works: ▪ Excavation of trench for vapour extraction system, installation of sparge points, set-up of air delivery, extraction & treatment infrastructure (for initial pilot trial-scale works). ▪ Monitoring and evaluation of trial-scale

	performance/effectiveness. ▪ Expansion of trial to full scale works in similar manner or readjustment/refinement of system design to facilitate improved performance.
Outline of Operations	Generally self-operating air compressor/blower on timer with passive air treatment system. Approximately monthly inspections for monitoring, maintenance and repairs (initially more frequently may be required).
Location	Lower alluvial terrace, end Martin Street area, Coramba (Note: the exact location of elements of the proposed infrastructure are somewhat flexible at present and will be the subject of more detailed design as the process progresses, drawing on specialist advice and consultation outcomes).
Timeframe	Construction (including initial pilot-scale trial) and system optimisation works – 3-6 months. Operation ongoing for 2-5 years including regular servicing and monitoring.
Costs	The expected project capital value of Stage 1 works is $350,000.

(The property descriptions of the likely location of the air sparge system includes: Lot 121 DP 876790 (5 Martin Street), Lot 122 DP 876790 (Council owned reserve end Martin St), Crown Land forming the Orara River reserve and adjoining roadway). Refer Figures 1 - 4 below for site context detail.

Figure 1: Locality Plan, Coramba *(from WSP P/L September 2006)*

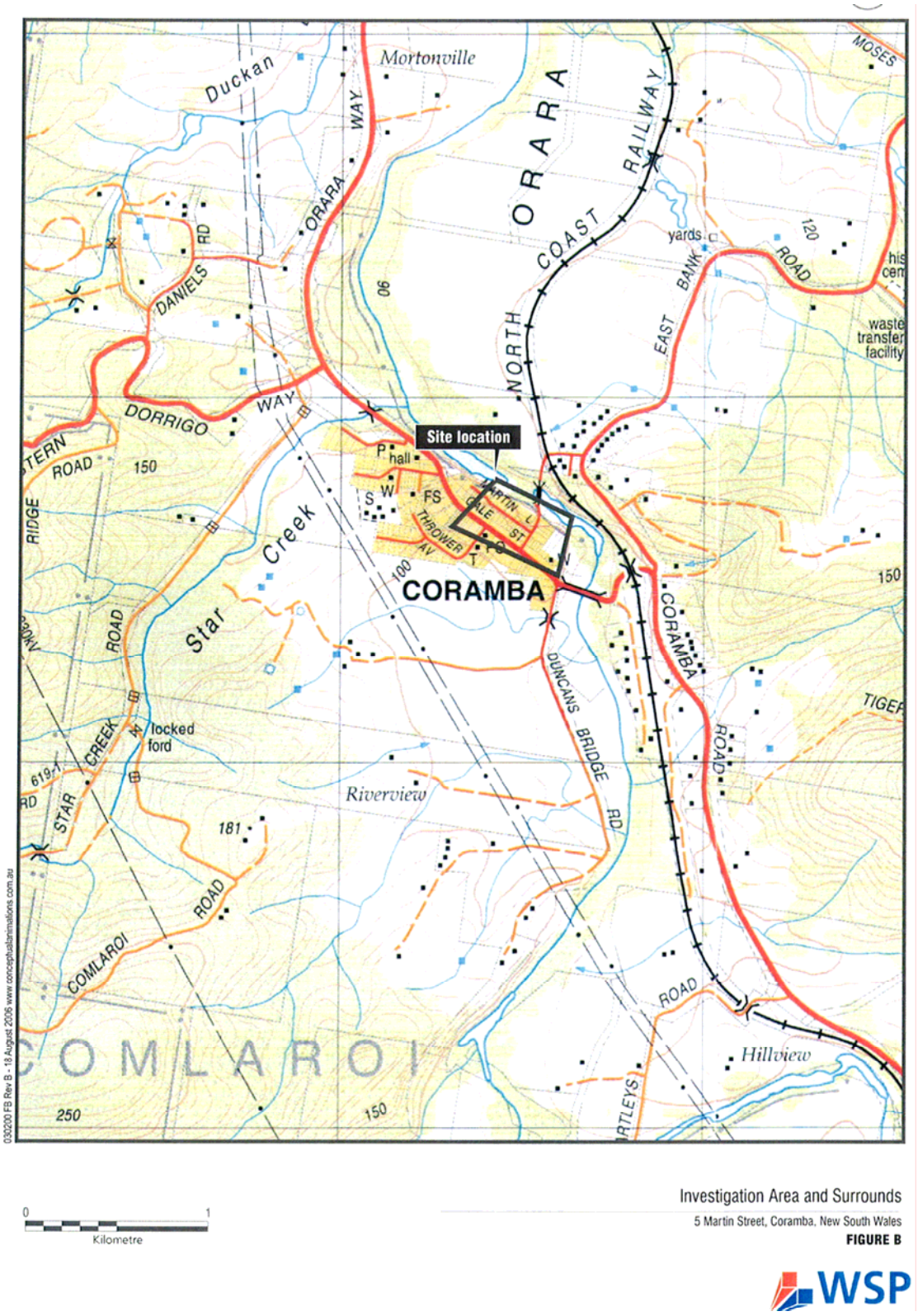


Figure 2: Aerial Photograph showing the site and its surrounds

Figure 3: Concept Plan illustrating the proposed location of Stage 1 Remediation Works (refer "Air Sparging Curtain and Soil Vapour Extraction Trench") *(from WSP P/L September 2006)*

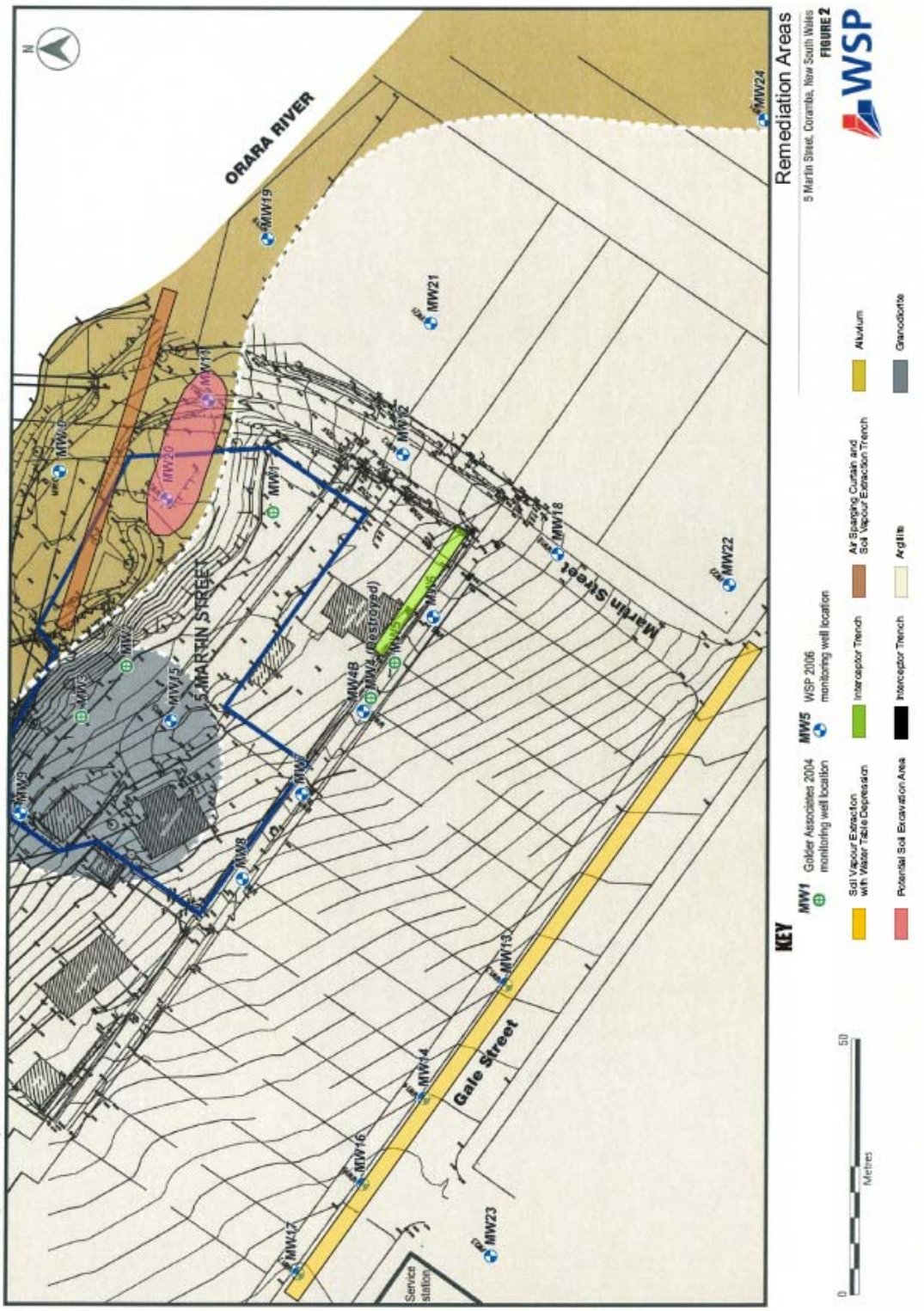
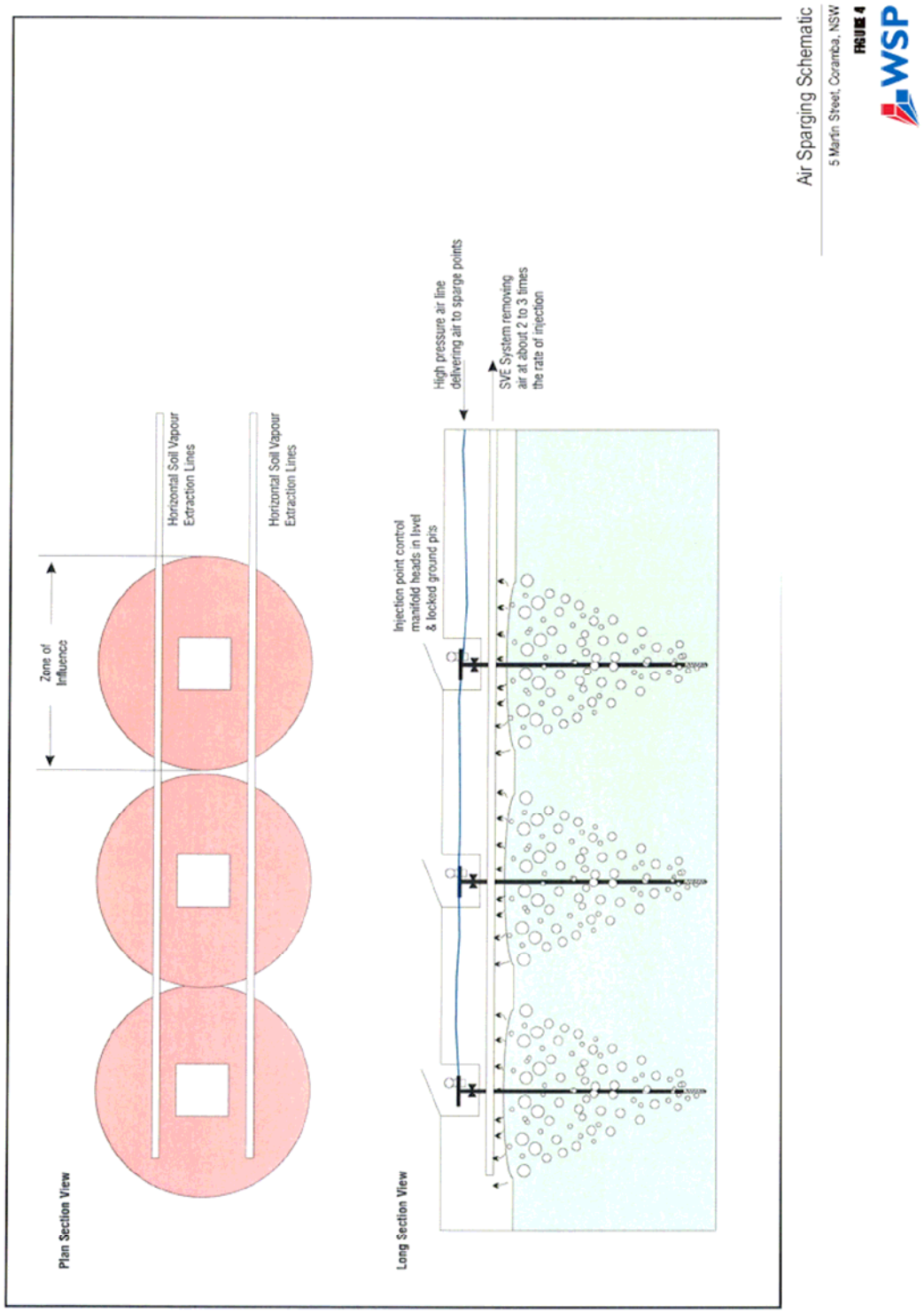


Figure 4: Concept of the Air Sparge and Soil Vapour Extraction infrastructure *(from WSP P/L September 2006) Refer Appendix B for additional description.*



5.0 STATUTORY PLANNING CONTEXT

5.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979

Section 75B of the Act defines projects that are subject to Part 3A of the Act which require the consent of the Minister. This development is called up under SEPP - Major Projects under Schedule 1, Group 9 Clause 28 (b) (as amended).

5.2 STATE ENVIRONMENTAL PLANNING POLICIES

- State Environmental Planning Policy (Major Projects) 2005

This SEPP describes the following development as a "Major Project": Under Schedule 1, Group 9 Clause 28 (b): (as per Amendment No 4, 18 April 2007):

"28 Remediation of contaminated land

(1) Development for the purpose of remediation of land that is category 1 remediation work on a remediation site.

(2) In this clause, category 1 remediation, remediation and remediation site have the same meanings as in State Environmental Planning Policy No 55-Remeditaion of Land."

The proposed project comprises remediation of land declared a "remediation site" under the CLM Act being Lot 121 DP 876790 (5 Martin Street).
The air sparge is to be constructed on Lot 121, Lot 122 DP 876790 (Council owned reserve end Martin St) and the Crown Reserve (forming the Orara River reserve and adjoining roadway). Both Lot 122 and the Crown Reserve are zoned "7A Environmental Protection: Habitat & Catchment" in LEP 2000. The entire site of the proposed works is also a known floodway.

Hence is considered that the Major Projects SEPP applies.

Refer Figures 1 - 4 below for site context detail, and Figure 5 for LEP zonings.

A copy of the declaration over Lot 121 DP 876790 is appended to this report (Appendix A).

- State Environmental Planning Policy 55 - Remediation of Land (SEPP 55)

The land is partially the subject of a declaration of "remediation site" under the CLM Act. The remediation is considered to be Category 1 as it is within land affected by flooding, and also zoned environmental protection in LEP 2000 (see below). The proposal accords with the provisions of SEPP 55.

5.3 REGIONAL ENVIRONMENTAL PLAN

The relevant regional policy is the North Coast Regional Environmental Plan 1988 (REP). The relevant provisions of this Plan include: Part 2 Division 2 "Catchment Management", Part 3 Division 1 "Natural Environment", and Part 4 Division 3 "Environmental Hazards".

5.4 LOCAL ENVIRONMENTAL PLAN

Coffs Harbour City Local Environmental Plan 2000 (LEP 2000) is the current relevant LEP. There are several LEP provisions applicable to the proposal.

The current zones under Coffs Harbour City Local Environmental Plan 2000 are:

- Zone No. 2 (a) – Low Density Residential
- Zone No. 7(a) – Environmental Protection (Habitat and Catchment)

A zoning map is attached as *Figure 5*.

The proposed works would be identified as "environmental protection works" under both zones and as such are exempt from development consent under Clause 9 of this LEP.

Clause 12 (Koala Habitat) of the LEP is relevant in that the land is partly mapped as tertiary koala habitat. Therefore the provisions of the city wide Koala Plan of Management (KPoM) is a relevant consideration. Given that no native vegetation is proposed to be disturbed, and the limited nature of the proposed works, there is likely to be no impact on flora & fauna. However this consideration will be the subject of further assessment as part of the Environmental Assessment.

Clause 13 (Landform Modification) of the LEP is relevant in that the works may modify local ground levels and involve excavation and associated earthworks. However the thresholds for triggering development consent with regard to cut/fill are unlikely to be exceeded.

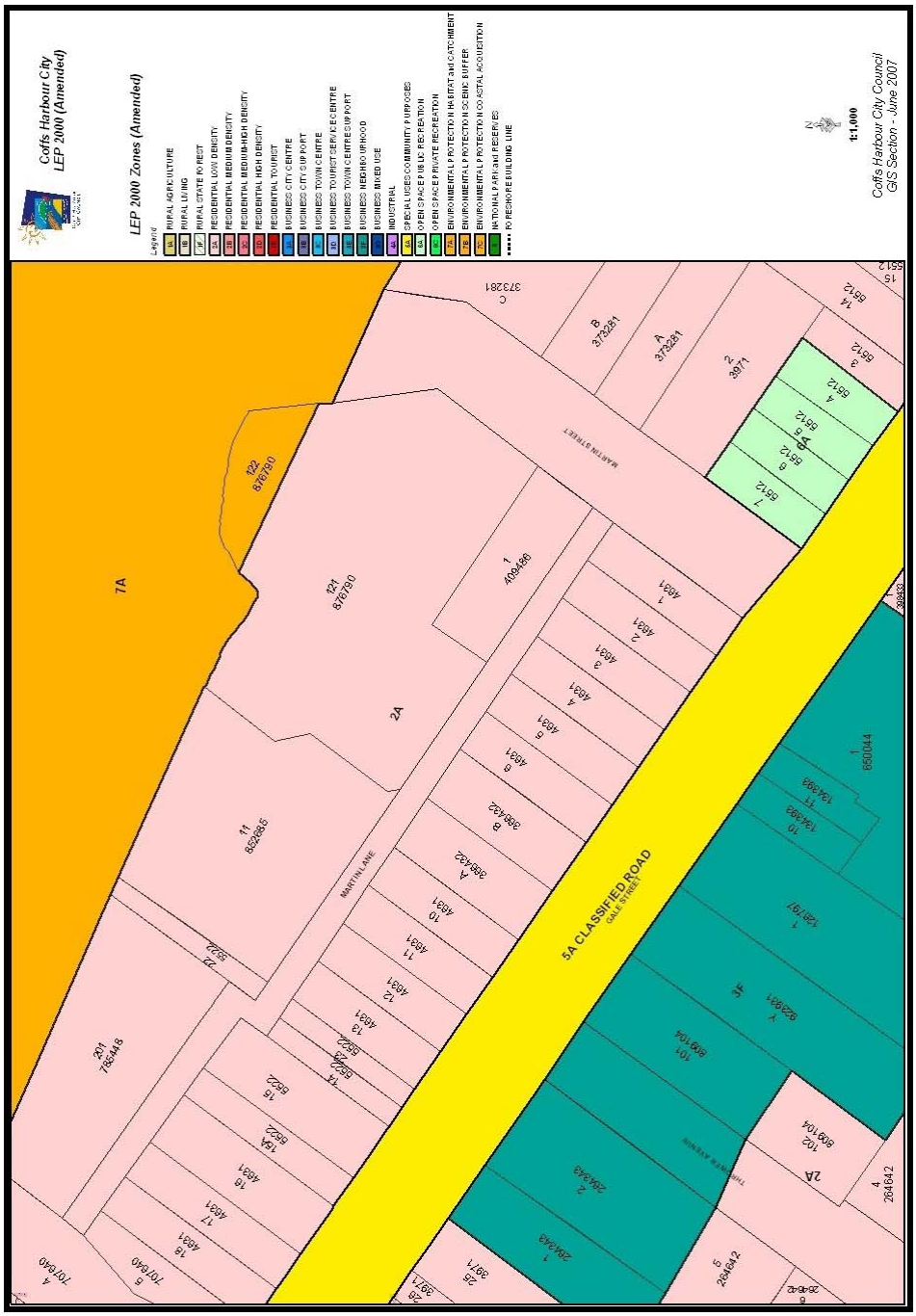
Clause 21 (Heritage) of the LEP may be relevant because the works are proposed on land which adjoins a heritage conservation area (noted as the "Coramba Heritage Conservation Area" in Schedule 6, Diagram 2 of LEP). However, given that the nature and extent of the proposed works are relatively minor and that the location of the works is isolated, the impact on the Heritage value of the area is considered low.

Clause 23 (Environmental Hazards) Section 9 "Flood Prone Land" is a relevant consideration as the site of the proposed works is upon flood prone land.

5.5 DEVELOPMENT CONTROL PLANS

There are a number of Development Control Plans (DCP's) that apply to the land, however, these are not considered relevant to the proposal. These DCP's include: Low Density Housing, Coramba-Karangi-Upper Orara, Notification.

Figure 5: Local Environmental Plan 2000 – Zoning Map, Coramba



6.0 OTHER APPROVALS NECESSARY

An “Environment Protection Licence” for the works from DECC is not required (i.e. the proposal does not trip thresholds in Schedule 1 Protection of the Environment Operations Act (POEO Act)). Other provisions of the POEO Act are relevant and will be considered as part of the detailed environmental assessment process.

Provided the Department of Planning considers the proposal to be a project to which Part 3A EP&A Act applies, then a “3a Permit” under the Rivers and Foreshores Improvement Act would not be required, as the consent issues would be covered under the Major Projects SEPP 2005. Regardless, the Department of Natural Resources (DNR) will nonetheless be consulted as part of the detailed environmental assessment process for their feedback and requirements.

WorkCover NSW requirements will be addressed through the preparation of a Health and Safety Plan (or equivalent).

Groundwater bores and extraction of groundwater will be licensed by DNR under Water Act 1912.

Grant funding for proposed works from NSW Environmental Trust is a pre-requisite to moving forward with the proposal. A funding application was lodged with the NSW Environmental Trust by Council on 2 May 2007. At the time of writing the outcome of this application is not known by Council.

A “Voluntary Remediation Agreement” under the CLM Act is likely to be entered into between CHCC and DECC subject to receiving grant funding from the NSW Environmental Trust for all works included in the Stage 1 remediation. The VRA would only include the works funded under the grant, i.e. be limited to Stage 1.

Details of the VRA will be included with the further Project Application and Detailed Environmental Assessment (if available at the time of lodgment). Any VRA would generally accord with the DECC’s Information Package for Submitting Voluntary Investigation and Remediation Proposals under the CLM Act 1997.

7.0 PRELIMINARY ENVIRONMENTAL ASSESSMENT

Preliminary investigations have been completed in order to determine the significant environmental considerations for the project. From this preliminary assessment a proposed scope of work for the Detailed Environmental Assessment has been developed (refer section 8.0 below).

The preliminary investigation has considered the following issues:

- hydrology and water management
- soil management
- noise
- air quality
- biodiversity
- traffic and access
- waste management
- engineering, services and infrastructure considerations
- health
- heritage
- consultation
- landform modification

7.1 HYDROLOGY AND WATER MANAGEMENT

The management of water at the site has been noted as a key issue due to the location of the site adjacent to the Orara River and the local stormwater drainage paths. The location of the proposed remediation infrastructure is below the 1% flood level.

Local stormwater flows from Gale and Martin Streets have been generating minor erosion of the road pavement at the end of Martin Street in the vicinity of the proposed works, suggesting that temporary stormwater diversion and flow calming may be required during construction and until the site is rehabilitated.

The following will require further investigation and will be appropriately addressed in the Detailed Environmental Assessment:

- the site is subject to flooding;
- the hydrology of the site requires special consideration given the interface between the river, groundwater and alluvial sediments;

- stormwater drainage and possible diversion of local stormwater flows from Martin Street area;
- water quality protection/control including sediment and erosion control;
- downstream drinking water supplies / water users;
- groundwater extraction and disposal where necessary; and
- mitigation and monitoring measures.

7.2 SOIL MANAGEMENT

The management of soil at the site is noted as a key issue due to the location of the site adjacent to the Orara River and statutory obligations in managing contaminated soil/waste.

The following will require further investigation and will be appropriately addressed in the Detailed Environmental Assessment:

- erosion and sediment control;
- spoil and stockpiles;
- contamination status;
- disposal and transport;
- buffers to the Orara River;
- site re-instatement/rehabilitation; and
- mitigation and monitoring measures.

7.3 NOISE

The location of the proposed works is generally in a quiet residential area adjoining the Orara River.

Potential exists for noise impacts on residents close to the site. Identified key noise sources during the construction phase include the movement and operation of construction equipment including small earthmoving/mobile plant and trucks.

The duration of proposed construction works has not been established at this stage. The uninterrupted construction time is likely to be approximately 3 weeks. However, the works will initially consist of a pilot trial installation followed by evaluation of the system performance, with subsequent additional full scale installation or alternative design trials. It is estimated that construction works may take place intermittently over a period of up to 3 months.

During the operational phase noise sources would be limited to above ground infrastructure including the proposed air compressor/blower used to deliver air into the sparge points and also to extract the collected soil vapour for treatment via a passive activated carbon system. This equipment will require an electricity source and needs to be located in a position that provides protection from possible flooding. A detailed assessment of this proposed equipment will be provided in the Detailed Environmental Assessment.

The following will require further investigation and be appropriately addressed in the Detailed Environmental Assessment:

- construction equipment/plant;
- traffic/transport of equipment and materials;
- hours of operation (construction hours);
- design and location of operational infrastructure;
- hours of operation (operational phase); and
- mitigation and monitoring measures.

7.4 AIR QUALITY

The control of potential air quality impacts (dust, odour and vapour) will be an important aspect to consider in the Detailed Environmental Assessment, due to the contaminated status of the soil and groundwater in the affected area, OH&S requirements and the proximity of sensitive receptors.

An assessment of air quality was conducted for the DECC in September 2006 by consultants “WorkPlace Environment Consultants Pty Ltd”. This assessment indicated that concentrations of airborne benzene measured inside houses and outdoors were below the “monitoring investigation level” issued by the National Environmental Protection (Air Toxics) Measure (NEPM). A copy of this report is available on request. Additional air monitoring will be conducted to further assess this issue.

Hydrocarbon odours have previously been reported at the site and will be a key concern during construction activities, as well as treatment and release of collected soil vapour once operational.

The control of dust generation will also be an important aspect to further consider in the Detailed Environmental Assessment to ensure that there is no impact to local amenity, and to avoid possible health concerns in the local community.

The following will require further investigation and be appropriately addressed in the Detailed Environmental Assessment:

- dust, odour and vapour control (especially concentrations of benzene in the local atmosphere); and
- mitigation and monitoring measures.

7.5 BIODIVERSITY

The Orara River is an important inland river system that flows generally northwards to join the Clarence River system. Considerations of potential impacts on the ecological values of the Orara River system will be closely linked to soil and water management issues identified above, given the proximity of the works to the river.

A preliminary biodiversity assessment was conducted over two site visits by Council's Biodiversity Unit ecologists in April 2007. Methods used included: simple flora survey (lists of limited plant community), referenced habitat resources, mapping of project zone, riverine buffer zones and likely exclusion zones of high ecological significance.

The **Koala Plan of Management** is a relevant consideration, as the land is partly mapped as "tertiary koala habitat". Council's broad scale vegetation mapping indicates the occurrence of "RV2 – Orara/ Bucca Riparian Vegetation" in the study site. Although this vegetation as well as the landscape is highly modified and consists extensively of invasive weed species such as *Cinnamomum camphora, Senna pendula* and *Ligustrum sinense etc* it nevertheless retains a high ecological value. This stand of Orara/ Bucca Riparian Vegetation consists of a narrow band along the site, extending along the Orara River, eventually intergrading with stands of *Casuarina cunninghamiana* to the east on the lower extent of bank. The Orara/Bucca Riparian Vegetation type is described as River-flat Eucalypt Forest on Coastal Floodplain on the North Coast of NSW; listed as an Endangered Ecological Community under the Threatened Species Conservation Act 1995.

The individuals of *Cinnamomum camphora* proposed for removal in both the immediate project and rehabilitation zone do not constitute critical habitat as defined by the *Threatened Species Conservation Act 1995* nor are they listed as primary resources for threatened species identified within the area.
Under the Coffs Harbour Koala Plan of Management (Tertiary Koala Habitat), habitat resources and additional landscape values must also be considered such as "...barriers to koala movement" and "...provisions of movement corridors". Therefore further assessment under Section 5a of the Environmental Protection & Assessment Act 1995 is required, to determine if the project, due to its longevity could result in a significant impact on the koala and other threatened species ability to utilise the area now and into the future.

Schedule 3 of the TSC Act provides a list of the "key threatening processes". The NSW Scientific Committee has recently listed the "clearing of native

vegetation" as a "key threatening process" pursuant to Schedule 3 of the TSC Act. The final determination in the preliminary assessment identified a range of threats to this community type, and in particular, land clearing with fragmentation, degradation, landfilling, pollution, weed invasion, frequent fires and rubbish dumping also a consideration. It is noted that no stands of vegetation will be fragmented or isolated during this process of construction and rehabilitation.

The regular monitoring of environmental factors and **management of invasive weeds** is necessary throughout the projects expected operation to limit impacts on remnant vegetation. In the context to the extent of adjacent vegetation and proposed management practices, it may be assumed that effects from the other threatening processes will be avoided or minimized. On preliminary assessment, limited resource values occur on the immediate project site and threats to the integrity of the riparian vegetation would be greatly reduced with removal of on-site weeds. This would signify an environmental outcome if protection of remnant vegetation, then rehabilitation after project completion is clearly outlined.

The removal and **restoration works** for the immediate project and supplementary rehabilitation areas need to be managed appropriately. The concerns held include modification of current light/shade parameters within the riparian zone. These parameters have the ability to:

- be detrimental in the restoration of the area to River-flat Eucalypt Forest on Coastal Floodplain with the potential to increase weed infestations further and expose remnant indigenous vegetation to environmental extremes:
- affect aquatic environments including; in-stream temperature, mobility of sediments, algal development, variations in vegetative breakdown, if *in situ* death of camphors is considered. All would result in localised variation of in-stream dissolved oxygen content and leaf litter quality.

Therefore as part of the assessment of factors, a strategy for the scheduled removal of *Cinnamomum camphora* and associated weed base needs to be founded on proven rehabilitation standards.

The proposed project site and rehabilitation area represents less than 10% of the existing narrow vegetative band within the Coramba Township area, with vegetation in adjacent areas not to be impacted or disturbed.

In conclusion, the environmental aspects of the project need to be thoroughly considered, outlined and managed appropriately. On this basis, further appraisal is required as part of the Detailed Environmental Assessment.

If excavation, construction of trenches, installation of vapour extraction unit and remediation works is carried out carefully, it is unlikely there will be detrimental change to the floristics and structure of the adjacent vegetation, as a direct result of the project.

7.6 TRAFFIC AND ACCESS

The end of Martin Street comprises a gravel turning bay/(cul de sac) for local traffic mainly comprising visitors to a small and informal riverside picnic and passive recreational area. The gravel surface is in poor condition.

Coffs Harbour City Council has been keen to undertake beautification and landscaping works in this area, but have delayed this work due to the necessary remediation requirements.

There is a locally important pedestrian access footbridge located to the immediate northeast of the proposed work site, linking a small residential area on the northern side of the river (around 25 residences), with Martin Street and onto Coramba's main street – Gale Street (distance of ~250m verses the alternative pedestrian route distance ~1km).

For the Detailed Environmental Assessment traffic and access management will be an important component, with consideration to be given to access for residents, exclusion zones during construction (possible temporary fencing), transport of equipment and materials to and from the site, parking and emergency exits to be considered.

7.7 WASTE MANAGEMENT

Potentially contaminated soil/spoil from construction activities may require disposal off-site. Waste management shall be in compliance with relevant NSW EPA Guidelines and other statutory requirements.

The remedial air treatment system proposes to utilise activated carbon in the treatment of collected soil vapour. This material will require appropriate management & disposal. The likely final quantities of activated carbon will be determined during initial trial and operation phases.

7.8 ENGINEERING/SERVICES

The presence and proximity of underground services including water pipes and communications cabling is a minor issue to consider as part of the environmental assessment, and more importantly during detailed design of the proposal. These issues will also be addressed by the contractors prior to commencing excavation work. Consultation will be a relevant aspect to the further investigation of this issue.

7.9 HEALTH

Occupational Health & Safety will be addressed as appropriate, to WorkCover NSW requirements.

7.10 HERITAGE

Clause 21 (Heritage) of the LEP has been considered in the preliminary assessment. The proposed remediation works are on land which adjoins the heritage conservation area (noted as the "Coramba Heritage Conservation Area" in Schedule 6, Diagram 2 of LEP). However, given that the nature and extent of the proposed works are relatively minor and that the location of the works is isolated, the impact on the Heritage value of the area is considered low, and no further assessment of heritage impacts is proposed.

7.11 CONSULTATION

Consultation with the community and stakeholders to date has been through the Coramba Fuel Contamination Interagency Community Working Party (the Working Party). The Working Party was formed following public meetings to discuss the findings of the WSP Pty Ltd "Remediation Works, Component 1, Environmental Assessment" and "Remedial Action Plan" reports.

The preparation of the Detailed Environmental Assessment will require further consultation with the following statutory authorities:

- NSW Department of Planning;
- Coffs Harbour City Council;
- NSW Department of Natural Resources;
- NSW Department of Environment & Conservation;
- NSW Department of Primary Resources (NSW Fisheries);
- Northern Rivers Catchment Management Authority
- Service providers: Coffs Harbour Water, Country Energy, Telstra etc.

The Working Party proposes to undertake further public meeting consultation with the community at various stages in the process. This will ensure timely community input into the approval, construction and monitoring of the remediation works. Various consultation approaches require further consideration.

7.12 LANDFORM MODIFICATION

The construction works will involve excavation and associated earthworks and may result in minor modification of local ground levels. However the works will consist of localised trenches and sparge wells which will be backfilled and the excavation spoils removed from site. Thus the thresholds for triggering development consent with regard to cut/fill are unlikely to be exceeded, and no further consideration of this issue is considered warranted.

8.0 PROPOSED SCOPE FOR ENVIRONMENTAL ASSESSMENT OF KEY ISSUES

The Preliminary Environmental Assessment has determined that the Detailed Environmental Assessment for the project would focus on the key issues that have not been satisfactorily addressed to date, including:

- hydrology and water management
- soil management
- noise management
- air quality (dust, odour, vapour) management
- biodiversity
- traffic and access
- waste management
- engineering, services and infrastructure considerations
- health
- consultation

The Director General's requirements would be integrated into this scope for the Detailed Environmental Assessment.

The proposed scope of works for the Detailed Environmental Assessment is:

8.1 HYDROLOGY AND WATER MANAGEMENT

- Undertake detailed review of site hydrology and the surrounding catchment.
- Review potential impacts from Stage 1 construction works and operational requirements.
- Incorporate the DNRs' requirements for rehabilitation of the construction area into the design process.
- Identify options for the temporary diversion of surface water drainage away from the construction area.
- Assess the proposal's potential impact in terms of local water quality.
- Assess any requirement to collect and dispose groundwater.
- Identify and integrate mitigation measures into the overall design and construction approach.

8.2 SOIL MANAGEMENT

- Review potential impacts from Stage 1 construction works.
- Develop a detailed erosion and sediment control plan for the proposed construction works.

- Review rehabilitation requirements.
- Identify and integrate mitigation measures into the overall design and construction approach.

8.3 NOISE

- Undertake field and design based identification of potential noise generating aspects of the construction and operational phases of the project. Consider existing sources of noise and determine the extent and influence of the Stage 1 construction and operations.
- Assess potential mitigation measures for construction works noise.
- Assess alternative sites for the location of long term operational equipment and mitigation measures to minimise long term noise impacts.

8.4 AIR QUALITY MANAGEMENT

- Identify and assess the relevant air quality issues (odour, dust, vapour) and potential sources and impacts.
- Develop mitigation measures, if required, to minimise impacts on residents.

8.5 BIODIVERSITY

- Assess the project under relevant legislative requirements including the:
  - NSW Threatened Species Conservation Act 1995 (TSC Act)
  - Threatened Species Legislation Amendment Act 2004
  - Environmental Planning & Assessment Act 1979 (EP&A Act)
- Develop if required a Detailed Vegetation Management Plan as per Coffs Harbour City Councils Policy on VMP development. The VMP to include a:
  - protection strategy for the Orara River bank, and remnant vegetation on the immediate impact site.
  - erosion control mechanisms and ongoing management strategy over the projects operation.
  - rehabilitation program for the immediate project site, and any required buffer zone – details to include species selection, schedule for removal of canopy, weed removal and planting techniques.
  - bank stabilisation techniques may be required and should be included if as part of contingency planning.

8.6 TRAFFIC AND ACCESS

- Identify and assess relevant traffic and access issues for the construction phase including exclusion zones during construction, transport of equipment and materials, parking, emergency exits and pedestrian access.
- Identify and integrate mitigation/management measures into the overall design and construction approach.

8.7 WASTE MANAGEMENT

- Identify and assess relevant waste management issues for the construction and operational phases including disposal of contaminated soil, waste activated carbon and any other relevant materials.
- Identify and integrate waste minimisation, management and mitigation measures into the overall design and construction/operation approach, to accord with regulatory requirements.

8.8 ENGINEERING/SERVICES AND INFRASTRUCTURE

- Locate existing infrastructure and services in the vicinity of proposed construction activities. Identify and assess (with appropriate consultation) relevant issues pertaining to the existing infrastructure and services and the suitability of any required services/utilities for operational activities.

8.9 HEALTH

- Undertake field and design based identification of potential health issues of the construction and operational phases of the project, including occupational health and safety.
- Identify and integrate health and safety requirements and mitigation measures into the overall design and construction/operation approach.

8.10 CONSULTATION

- Discuss environmental assessment matters with the “Coramba Interagency Community Working Party” and integrate the requirements of the Working Party.
- Undertake further consultation with land owners and relevant statutory authorities and integrate their requirements.
- Potential options for community consultation included in the following list will be further assessed:
  - Hold an advertised local meeting to advise the community of the project.
  - Identify a mechanism for reporting and raising concerns.
  - Distribute a letter/newsletter to identified stakeholders/residents.
  - Advertise within local media to advise the community of the public exhibition of the environmental assessment.
  - Publicly exhibit the environmental assessment in line with statutory requirements.
  - Assess possible mitigation measures to address community concerns.
  - Consider community concerns and issues in the Detailed Environmental Assessment studies.
  - Develop a Statement of Commitments on the basis of outcomes of the Detailed Environmental Assessment.

9.0 CONCLUSION

The proposed "Stage 1 Groundwater Remediation Works – Air Sparge System with Soil Vapour Extraction and Treatment, Martin Street, Coramba" described in this report is considered necessary to protect human health and environmental values of the locality.

Coffs Harbour City Council seeks confirmation that the proposal for Stage 1 Remedial Works at Martin Street, Coramba, is a 'project' to which Part 3A of the Environmental Planning and Assessment (EP&A) Act 1979 applies.

Council applies under section 75E of the EP&A Act, for approval of the Minister to carry out the project.

Council provides a preliminary assessment of the project.

Council requests the Director General's Environmental Assessment Requirements for this groundwater remediation project.

Council will prepare a Detailed Environmental Assessment that will incorporate the requirements included in this preliminary assessment plus any additional requirements stipulated by the Director General of NSW Department of Planning.

10.0 REFERENCES

Coffs Harbour City Council (2000) Local Environmental Plan 2000.

Environment Protection Authority: (now known as Department of Environment & Climate Change)
Contaminated Sites Guidelines: Various as follows:
(December 1994) Guidelines for Assessing Service Station Sites
(September 1995) Sampling Design Guidelines
(November 1997) Guidelines for Consultants Reporting on Contaminated Sites
(April 2006) Guidelines for the NSW Site Auditor Scheme (2nd Edition)
(March 2007) Guidelines for the Assessment and Management of Groundwater Contamination

HLA – Envirosciences Pty Ltd (November 2006) Site Audit Report: 5 Martin Street, Coramba, NSW.

National Environment Protection Council (NEPC) (1999a) National Environmental Protection (Assessment of Site Contamination) Measure, Schedule B(7A) Guideline on Health-Based Investigation Levels.

WorkPlace Environmental Consultants Pty Ltd (September 2006) Airborne Benzene Monitoring, Coramba. (Report to Dept. of Environment & Conservation)

WSP Environmental Pty Ltd (October 2006) Remediation Works, Component 1, Environmental Assessment, 5 Martin Street, Coramba NSW.

WSP Environmental Pty Ltd (September 2006) Draft Revision 2 Remedial Action Plan: 5 Martin Street, Coramba, NSW.

11.0 APPENDICES

Appendix A:

Copy of the Department of Environment & Conservation declaration as "remediation site" under the Contaminated Land Management Act 1997 over Lot 121 DP 876790, 5 Martin Street, Coramba (July 2003).

This Is A Reprint Of A Scanned Image

Your Reference : Attention: Mr Paul Shepherd
Our Reference : HO6178/02/HOF33871
Contact : Andrew Helms (02) 9995 5612

C.H.C.C.
INDEX
INT REF No.
06 AUG 2003
OFFICER I.D.
DTWK$ No.
BOX No.

NSW EPA
Contaminated Sites

Mr Mark Ferguson
General Manager
Coffs Harbour City Council
Locked Bag 155
COFFS HARBOUR NSW 2450

Dear Mr Ferguson

5 Martin Street, Coramba:
Declaration of Remediation Site: s.21 of the Contaminated Land Management Act 1997

The Environment Protection Authority has declared the following land, being contaminated with benzene in groundwater, as a remediation site under section 21 of the *Contaminated Land Management Act 1997*:

- 5 Martin Street, Coramba, NSW, comprising Lot 121 of Deposited Plan 876790.

Please note that section 59 of the Act requires the Environment Protection Authority to forward a copy of such a declaration to the local authority for the area in which the land the subject of the declaration is situated.

Council's attention is drawn to the requirements of section 59(2) of the Act, that is, for the purposes of section 149 of the *Environmental Planning and Assessment Act 1979*, the fact that land is the subject of a declaration is a matter prescribed to be specified in a certificate issued under that section in relation to the land.

In regard to Council's enquiry as to whether there are any appropriate means through which Council could recoup funds spent by Council on pollution control measures (Council letter dated 8 May, 2003), please be advised that the EPA is currently reviewing the different funding arrangements that may be available through the Environmental Trust and will advise Council of the results of this review as soon as possible.

Should you have any questions regarding this matter please contact Andrew Helms, the EPA's Project Officer for this site, on (02) 9995 5612.

Yours sincerely

Carolyn 31/7/03

SCANNED

CAROLYN STRANGE
Director Contaminated Sites

Attachment: Copy of Declaration of Remediation Site

Environment Protection Authority
PO Box A290 Sydney South NSW 1232 Australia Telephone 61 2 9995 5000 Facsimile 61 2 9995 5999
59-61 Goulburn Street Sydney NSW 2000

Environment Protection Authority

Declaration of remediation site

Section 21 of the Contaminated Land Management Act 1997

Declaration Number 21039

The EPA declares the following land to be a remediation site under the *Contaminated Land Management Act 1997* ("the Act"):

1. Land to which this declaration applies ("the site"):

Lot 121 in Deposited Plan 876790, which includes part of the southern bank of the Orara River, Coramba, NSW, in the local government area of Coffs Harbour.

2. Nature of the substance causing the contamination:

Benzene.

3. Nature of harm that the substance may cause:

The EPA has considered the matters in section 9 of the Act and found that:

- Benzene has been identified in fuel seeps into a backwater channel of the Orara River located at the rear of the site, and, in the Coramba drinking water supply which is extracted from the Orara River downstream of the site;
- Benzene is a human carcinogen;
- Benzene has the potential to bioaccumulate;
- Benzene has been detected in the Orara River at concentrations exceeding the ANZECC (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* criteria for the protection of human health (recreational use) and aquatic ecosystems;
- Benzene has been detected in the Coramba drinking water supply at concentrations exceeding the *Australian Drinking Water Guidelines* criteria; and
- Benzene may continue to discharge into the Orara River if left unchecked.

The EPA has found that the site is contaminated with benzene in such a way as to present a significant risk of harm to human health and the environment. In particular:

- The presence of benzene in the Orara River has impaired the use of the river as a resource and required upgrade of the drinking water treatment plant;
- The contamination may impact aquatic ecosystems of the Orara River; and
- There are human exposure pathways to the contamination.

4. Further action under the Act

The making of this declaration does not prevent the carrying out of a voluntary remediation of the site and any person may submit a voluntary remediation proposal for the site to the EPA. If the proposal satisfies the requirements of section 26 of the Act, the EPA may agree not to issue a remediation order to the person or persons bringing the proposal.

5. Submissions invited

The EPA advises that the public may make written submissions to the EPA on:

- Whether the EPA should issue a remediation order in relation to the site or
- Any other matter concerning the site.

Submissions should be made in writing to:

Director Contaminated Sites
Environment Protection Authority
PO Box A290
SYDNEY SOUTH NSW 1232

or faxed to: 02 9995 5930

by not later than **22 August 2003.**

CAROLYN STRANGE
Director Contaminated Sites
Environment Protection Authority
(by Delegation)

Date: 31/7/03

NOTE:

Remediation order may follow
If remediation of the site or part of the site is required, the EPA may issue a remediation order under s.23 of the Act.

Variation/Revocation
This declaration remains in force until it is otherwise varied or revoked. A declaration may only be revoked when the EPA does not have reasonable grounds to believe that land is contaminated in such as way as to present a significant risk of harm (s.44 of the Act).

Information recorded by the EPA
S.58 of the Contaminated Land Management Act 1997 requires the EPA to maintain a public record. A copy of this remediation declaration will be included in the public record.

Information recorded by councils
S.59 of the Act requires the EPA to give a copy of this declaration to the relevant local council. The council is then required to note on its planning certificate issued pursuant to s.149 (2) of the Environmental Planning and Assessment Act that the land is currently an area covered by a declaration issued under the Act. The EPA is required to notify council as soon as practicable when the declaration is no longer in force and the notation on the s.149 (2) certificate is removed.

Appendix B:
Description of “Air Sparging” as the proposed groundwater remedial technology.
Extract from: *WSP Environmental Pty Ltd (September 2006) Remedial Action Plan – 5 Martin Street, Coramba.*

“7.4 Description of Groundwater Remedial Technologies

…

7.4.2 Air Sparging

Air sparging is an accepted in situ treatment technology that uses injected air to remove volatile or biodegradable contaminants from the saturated zone. The primary application of air sparging entails the injection of air directly into the saturated subsurface to remove volatile contaminants such as petrol from the dissolved phase to the vapour phase through air stripping. Intricate design and pilot testing is required before proceeding to complete remediation, where the technology has the ability to clean up sites a fraction of the cost and time for conventional "pump and treat" or in situ bioremediation techniques.

The stripped compounds are then biodegraded and/or removed via soil vapour extraction (SVE) in the vadose zone. For semivolatile contaminants, such as diesel and jet fuels, air stripping is not the removal mechanism. Rather, the primary removal mechanism is stimulated microbial activity caused by the introduction of dissolved oxygen, which increases the biodegradation rate of the contaminant in the saturated zone. The major components of a typical air sparging system, shown in Figure 4, Appendix A include an air sparge/injection well, a compressor or blower to supply air, monitoring points and wells, and an SVE system. Note that the SVE system would include activated carbon filtration through dual drums in series. A monitoring point between the two drums would be tested regularly and when breakthrough occurs (contaminants are detected) the carbon would be replaced.

The focus of air sparging is to treat groundwater and relies on the fact that air is a much more aggressive and successful medium to treat volatile organics than by moving water.

The major advantage is the clean up time and the fact that groundwater does not need to be pumped. Safety issues are paramount and air sparging should never be considered by inexperienced practitioners.

At this site the main objective of the sparging system is to create a barrier to the lateral migration of petroleum hydrocarbons to the River. Whilst it will clean up groundwater within 20m laterally of the sparge system, it is not specifically a clean up strategy.

A matter to be considered in sparging and SVE is the “channelling” of vapour pathways through the soil. WSP considers that channelling is likely to occur in any unconsolidated soil amenable to SVE. Problems occur when channelling develops and only limited parts of the site are subsequently affected by the treatment method. This is proposed to be addressed by operation of any SVE system in cycles of 2 hours on and 1 hour off. The “off” time will allow the soils to relax and when the system recommences operation, the channelling will develop in different locations, thereby treating all parts of the soil over time. In addition, we will install the sparge wells below the water table in order to minimise the effects of channelling.

Given that the system is designed as a barrier to contaminant migration, the “off” time of the cycle should not allow transfer of contaminant past the barrier. Given that the seepage velocity in the alluvium is estimated to be around 0.05 m/day (See Section 3.3) it considered unlikely that significant migration of contaminants will occur during any one hour period and that the proposed operational cycle is appropriate.

It is also anticipated that the system will be designed with an “overdesign” factor of two. Consequently, pumps, blowers and treatment systems will be sized to cope with up to twice the anticipated volumes of soil and vapour to allow for variation in the conditions encountered during actual operation.”

Extract from: *WSP Environmental Pty Ltd (September 2006) Remedial Action Plan – 5 Martin Street, Coramba*.