White Cliffs Water Treatment Plant Upgrade

Statement of Environmental Effects

Report No DC17091

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Prepared for Central Darling Shire Council

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Cover Image: Google Maps, 2017

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List of Abbreviations

ADWG	*Australian Drinking Water Guidelines 6 2011*
AS	Australian Standard
AWQC	Australian Water Quality Centre
BC Act	*Biodiversity Conservation Act* 2016
CDSC	Central Darling Shire Council
CEMP	Construction Environmental Management Plan
DA	Development Application
DPIE - <agency>	Department of Planning, Industry and Environment
EEC	Endangered Ecological Community
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPBC Act	*Environment Protection and Biodiversity Conservation A*ct 1999
kL	kilolitres
L	litres
LEP	Local Environmental Plan
LGA	Local Government Area
mg	milligrams
ML	megalitres
ML/d	megalitres/day
NTU	Nephelometric Turbidity Unit
OEH	Office of Environment and Heritage (now DPIE- Biodiversity, Conservation and Science)
OEMP	Operation Environmental Management Plan
PAC	Powder Activated Carbon
SEE	Statement of Environmental Effects

SEPP	State Environmental Planning Policy
THMs	trihalomethanes
WHS	Work health and safety
WM Act	*Water Management Act* 2000
WTP	Water Treatment Plant

1. Introduction

This Statement of Environmental Effects (SEE) accompanies a Development Application (DA) lodged on behalf of the Central Darling Shire Council (CDSC). CDSC seeks approval to replace an existing Water Treatment Plant (the proposal) located at Beth Street, White Cliffs (Lot 102 DP 611504).

CDSC has been utilising the existing site as a Water Treatment Plant (WTP) since 1994. The existing WTP treats surface water to a non-potable standard through the processes of coagulation, flocculation, filtration and disinfection. The WTP has a high risk of failure due to the age of the infrastructure and its' construction as a temporary plant only.

The WTP uses batch settling and filtration with Powder Activated Carbon (PAC), Aluminium Chlorohydrate (ACH) and sodium hypochlorite dosing. The plant is operated manually by a single operator. The WTP is classified as non-potable due to the quality of treated water and agricultural grade pipes in the reticulation network/ treated water is reticulated through the town via gravity in agricultural-class polyethylene pipes.

The proposal includes replacement of the existing WTP facility with a new WTP at the existing site, which would treat raw water to a potable standard which meets specific water quality targets; to improve the drinking water quality for the residents of White Cliffs.

The development is described in the following documentation that accompanies the Development Application and this SEE:

Plans

White Cliffs Water Treatment Plant General Arrangement Plans, prepared by Membrane Systems Australia, 2021.

Reports

- White Cliffs Water Supply Scheme Water Treatment Plant, Rising Mains and Weir Geotechnical Investigation (Report Number: 17-GT29A), prepared by Public Works Advisory Ltd dated January 2018 (Appendix B).
- White Cliffs Proposed Water Treatment Plant Due Diligence Assessment, prepared by New South Wales Archaeology dated June 2017 (Appendix C).
- White Cliffs Water Treatment Plant Weir and Pipeline, Flora and Fauna Assessment prepared by Eco Logical Australia dated March 2020 (Appendix D).

This SEE describes the subject site and the surrounding area, together with the relevant planning controls and policies relating to the site and the type of development proposed. It provides an assessment of the proposed development against the heads of consideration as set out in Section 4.15(1) of the *Environmental Planning and Assessment Act* 1979 (EP&A Act).

2. The Site and Surrounding Environment

The site is located on the southern side of Beth Street within White Cliffs, which is identified as Lot 102, DP 611504. Maps showing the general location and an aerial view of the existing WTP site are provided in Figure 2-1, Figure 2-2 and Figure 2-3.

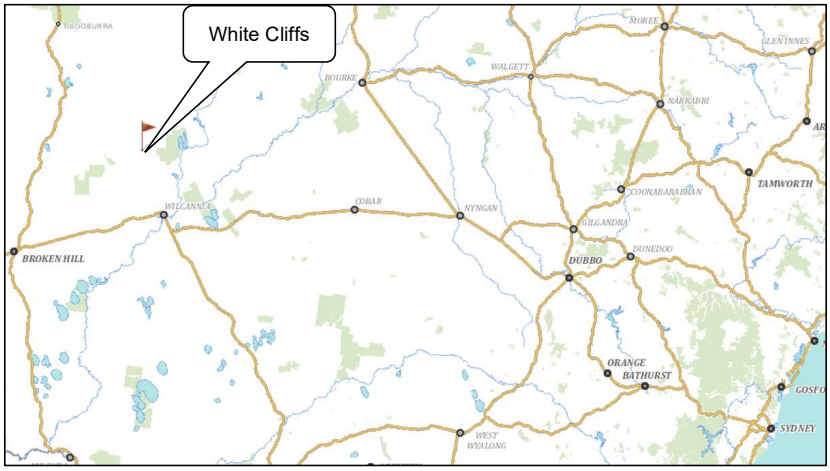


Figure 2-1: Location Map of White Cliffs in relation to NSW

Source: Spatial Information Exchange (SIX), 2017

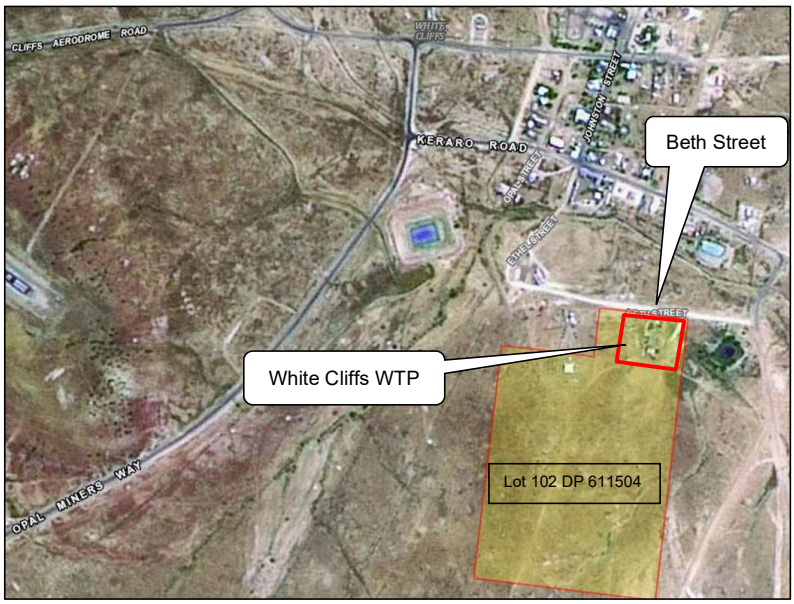


Figure 2-2: Location Map of White Cliffs WTP site & Beth Street

Source: SIX Maps, 2017

Figure 2-3: Aerial Image of White Cliffs Water Treatment Plant

Source: Google Maps, 2017

2.1. Description of the Subject Site

The existing subject site is a 100m x 80m rectangle with a total area of approximately 8,000 m^2 (the site). A chain mesh security fence bounds part of the site (surrounding the existing WTP). The site is generally flat, mostly exposed unsealed ground with gravel and sparse grass cover, shrubs and several existing trees and a small spoil mound located within the site in the vicinity of the existing plant building. The WTP consists of a treatment building and shed (which accommodate chemical systems, process equipment, piping, pumps, values, and monitoring instruments), two water storage tanks and a three small sludge lagoons/ dams. Images of the existing WTP site are provided in Figure 2-4 and Figure 2-5.

The WTP treats surface water to a non-potable standard through the processes of coagulation, flocculation, filtration and disinfection. The WTP has a high risk of failure due to the age of the infrastructure and its initial construction as a temporary plant only.

The section of the lot where the new plant building and sludge lagoons would be constructed is located immediately to the west and north-west of the existing WTP, respectively. This area currently forms part of the Council Depot area and is primarily cleared of any vegetation, with the exception of a small area of regrowth native herbs and shrubs. The area currently is used for stockpiling and storage, and two large water storage tanks are currently located in this section of the site as shown in Figure 2-6.

Figure 2-4 View of the existing WTP building and storage tanks at the site.

Source: PWA, 2016

Figure 2-5 View of the existing WTP site, looking north.

Source: PWA, 2016

Figure 2-6: View looking south-east towards the proposed location of the new WTP and sludge lagoons.

Source: PWA, 2016

2.2. Surrounding Environment

The subject site is located on Beth Street in the township of White Cliffs, NSW. The town is located approximately 255 km north-east of Broken Hill and 93 km north-west of Wilcannia, within the CDSC Local Government Area (LGA).

The WTP site is located at the southern extent of White Cliffs village, surrounded by vacant land. An array of large satellite dishes is located approximately 150m to the west of the site and a small dam located approximately 125m to the east. Residential and commercial properties are located approximately 200m-250m to the north of the site along Keraro Road.

White Cliffs has a permanent population of approximately 100 people.

2.3. Land Ownership

The proposed works are located on Lot 102 DP 611504 which is wholly owned by CDSC. The new plant building and sludge lagoons would be located on the adjoining vacant Council land within the same lot.

3. The Development

3.1. Existing Infrastructure

The existing White Cliffs WTP is owned and operated by CDSC and was constructed in 1994. The existing rudimentary WTP treats surface water to a non-potable standard through the processes of coagulation, flocculation, filtration and disinfection. A condition assessment of CDSC's water and sewer assets carried out by Public Works Advisory in 2016 found that the existing WTP is located within a rundown metal shed and is in very poor condition, with cracked pipework and valves and that some are held together with wire. The WTP has been assessed as having a high risk of failure due to the ageing infrastructure and its construction as a temporary plant only.

Although the existing distribution system is currently deemed non-potable due to agricultural grade pipes in the reticulation system, a previous audit by City Water Technology in 2015 has noted that even with acceptable pipework, the treated water leaving White Cliffs WTP is generally not of suitable quality for consumption.

The existing WTP is past its technological and economic life in terms of performance and structural integrity. It is still manually operated with original plant equipment that has been in operation well beyond its useful life span.

There are work health and safety issues and water supply security issues associated with the current WTP, including issues associated with ongoing significant structural deterioration of WTP elements.

In March 2016, a Plant Audit Scoping Report was undertaken by City Water Technologies. Several deficiencies were identified with the WTP which resulted in a higher than desired level of water supply risk. A range of issues with the existing plant were identified including:

- the water quality level which is classified as non-potable,
- degraded pipework,
- insufficient Powder Activated Carbon dosing contact time for the removal of taste and odours and algal toxins,
- inadequate disinfection chemical storage containers, and
- the requirement to operate the plant manually.

A further Scoping Study was prepared by NSW Public Works in June 2016, to investigate the water treatment options for White Cliffs and evaluate the options. The following water treatment issues in relation to the existing WTP facility were identified in the scoping report:

- White Cliffs water supply is reticulated through the town via gravity in agricultural-class polyethylene pipes and hence is classified as non-potable water.
- The existing WTP has passed its useable life span and has a range of performance and WHS issues.

- The arrangement to channel the raw water to the storages needs to be reviewed and modified to ensure that it complies with all regulatory requirements.

In addition, a condition assessment of CDSC water and sewer assets was carried out by Public Works Advisory in November 2016 (Report Number: WSR – 16083). The report found that that the existing White Cliffs WTP is small and very basic. The plant is located within a rundown metal shed and is in very poor condition, with pipework and valves cracked and some held together with wire.

3.2. Option Evaluation

3.2.1. Do Nothing

The 'Do Nothing' option means that no augmentation to the town's water security would occur in the foreseeable future with the current inadequate non-potable supply left to face potential climate change impacts for the White Cliffs population. Adoption of this option would result in an already insecure water supply becoming more even more insecure.

Although the 'Do Nothing' option offers the advantage of avoiding up front capital contributions, it carries the following disadvantages or areas of concern that Council would need to address:

- Significant "operational costs" in those years of emergency supply and water restrictions;
- Very high-risk profile for Council; and
- An unacceptable option for the community.

3.2.2. Construct a New WTP

Scoping studies undertaken to date have indicated that a new WTP and a new reticulation would have to be constructed to achieve the supply of potable water to the community. It has been identified that a new WTP would provide the following benefits:

- It can be constructed without interrupting the supply with the new plant being commissioned and put into service before the old plant is de-commissioned
- The new plant would be an automated plant requiring minimal operator intervention and also having the option to acknowledge and reset alarms remotely. This is important when the operator at White Cliffs is not available.
- The new plant would be able to treat for algae and organic matter in the raw water
- A new plant would provide a long-term solution and would therefore provide better value for money.
- Where possible some of the existing water treatment plant processes and equipment can be incorporated into a new plant, saving on costs.
- The new plant would produce water of a high quality consistent with the *Australian Drinking Water Guidelines 6 2011* (ADWG) and would overcome the work health and safety concerns associated with the operation of the existing plant.

3.2.3. Preferred Option and Proposal Objective

In light of the above factors and the issues with the existing WTP identified in the scoping studies and asset condition assessment, the 'Do Nothing' and upgrade options are not considered acceptable to address the issues associated with the existing ageing infrastructure, and that a new system needs to be implemented. In addition, the Plant Audit Scoping Report recommended that a new WTP is the best way to ensure the population of White Cliffs receive good quality drinking water that meets Australian Drinking Water Guidelines.

As a result, CDSC has decided to construct a new, upgraded WTP with a capacity of 0.2 ML/day within the existing White Cliffs WTP site. The existing sludge lagoons onsite would also be replaced with two new sludge lagoons for waste collection. The proposed new water treatment process is detailed in Section 3.3.

A main objective of the White Cliffs WTP augmentation is to ensure that the water supplied to the consumers meets or betters the current ADWG.

3.3. Proposed Treatment Process

The new WTP would involve the following general treatment process:

- Raw water supply flow control
- Oxidation with chlorine (gas) dosing for iron and manganese removal
- Pre-soda ash dosing for pH adjustment
- Oxidation contact tank
- Coagulant dosing for coagulation
- Flocculation
- Clarification (lamella clarifier)
- Ultra Fine (UF) Filtration
- Granular Activated Carbon (GAC) Filtration
- Ultraviolet (UV) disinfection
- Disinfection chlorine dosing
- Chlorine contact tank (clear water storage tank)
- Post soda ash dosing for pH adjustment
- Trim chlorine (gas) dosing for disinfection

A process flow diagram is provided in Figure 3-1 and the process is also describe below.

Raw water for the new Membrane Filtration WTP would be obtained from new raw water rising main into the WTP site. Raw water would first be pumped into an oxidation tank where pre-dose chemicals such as chlorine gas and soda ash would be dosed.

The water treatment plant process would consist of aeration, chemical pre-dosing, coagulation, flocculation, and conventional clarification followed by UF membrane and

GAC filtration, UV treatment, chlorination, fluoridation and pH correction, as necessary. Treated water would then be pumped to a clearwater storage tank and town reservoir for use.

Backwash/wash wastewater and clarifier sludge generated in the WTP would be collected for settling in one of the two new sludge lagoons and supernatant would be returned to WTP inlet works.

The proposed water treatment plant would be designed to produce a nett throughput of 0.2 ML per day, exclusive of all losses, plant usage, plant downtime and wastewater generated, and regardless of water quality and temperature. The required annual treated water production would be 33 ML.

Based on the available water quality data the proposed new WTP would be able to treat for the following requirements as shown in Table 3-1 below.

Table 3-1: White Cliffs WTP Water Quality Goals

Parameter	Unit	Requirement	
		95th percentile	Absolute
True Colour	Hazen Units (HU)	≤ 5	≤ 10
Turbidity	Nephelometric Turbidity Unit (NTU)	≤ 0.2	≤ 0.3
pH	-	7.6 ±0.4	7.0 – 8.2
Chlorine	mg/L	0.5	-
Total Iron	mg/L	≤ 0.08	≤ 0.1
Total Manganese	mg/L	≤ 0.02	≤ 0.05
Total Aluminium	mg/L	≤ 0.01	≤ 0.2
Total Alkalinity	mg/L $CaCO_3$	≥ 30	≥ 40
Calcium Carbonate Precipitation Potential (CCPP)	-	-	-5 to 0
Total Dissolved Solids	mg/L	-	< 500
E. Coli or thermotolerant coliforms (CFU/100mL)	-	-	< 1
Pathogens	≥ 3 log inactivation of *Crypto* across the entire process		
Total trihalomethanes	mg/L	≤ 0.15	≤ 0.25
Nitrates	mg/L	-	≤ 10
Hardness	mg/L	-	150
Hydrogen Sulphide	mg/L	≤ 0.02	≤ 0.05
Taste and Odour	-	Acceptable to most people	
Pesticides	-	Comply with ADWG (2011)	

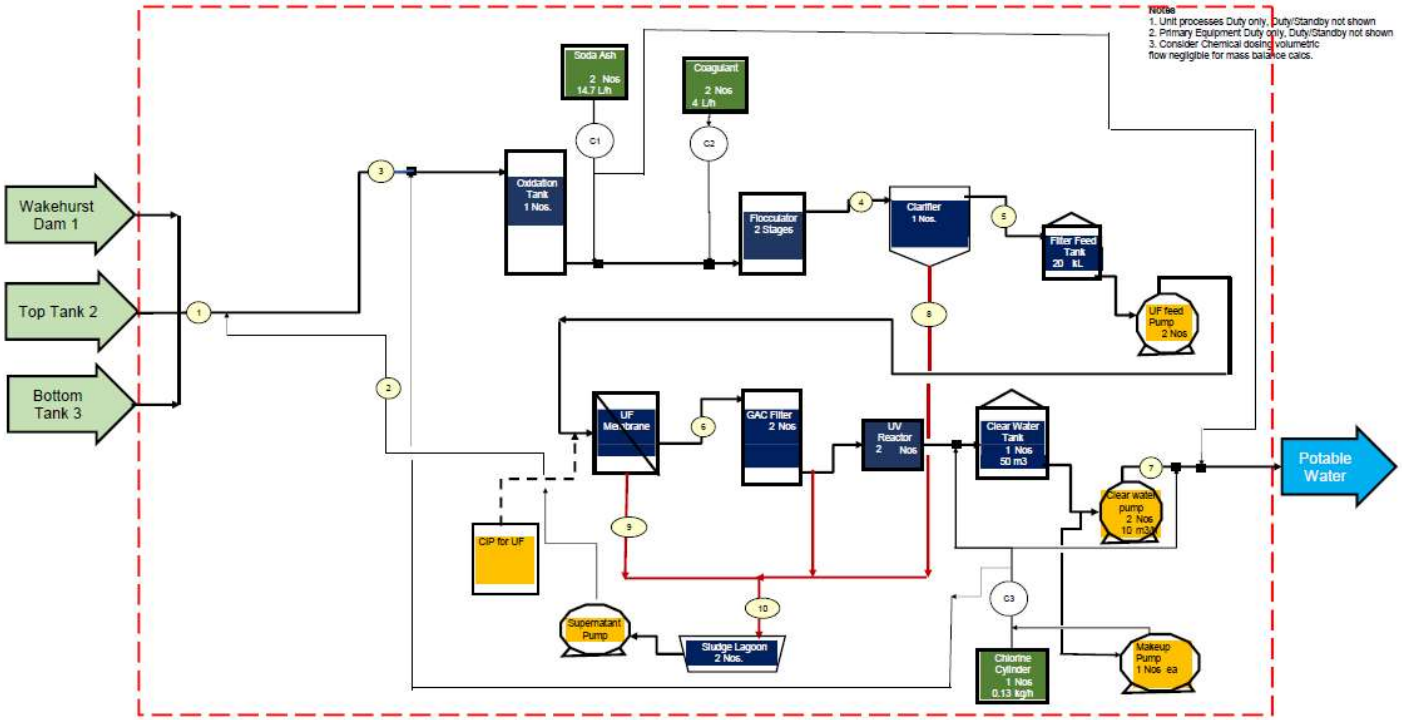


Figure 3-1 White Cliffs WTP process flow diagram

Source: Membrane Systems Australia, 2021

3.4. Description of Works

The proposed WTP facilities would consist of the following:

- Plant building – single storey and approximately 15 m x 10 m in plan accommodating new water treatment equipment
- Two (2) new sedimentation lagoons (sludge lagoons) approximately 20 m x 6 m area (per lagoon) in plan
- A new 50m^3 clearwater tank and two pumps (10 m^3/hour)
- Gates and fencing
- Car park and onsite access road (as required)

The layout plan for the new WTP is shown below.

3.4.1. Plant Building

The WTP building would be a one storey colorbond building (15m (L) x 10m (W) x 2.8m (H)) constructed on a concrete slab. The plant would be suitable for unattended operation, designed for a fail-safe operation, and during power failure would restart automatically on restoration of power.

This building would house the following treatment components:

- Control room (including thermal insulation and air-conditioning and electrical switch boards and control panel for the WTP);
- Membrane filtration (UF and GAC);
- Plant room - including mechanical equipment including air blowers, air compressors, feed pumps; etc.;
- Dosing room;
- Fluoridation system,
- Chlorination system and storage room,
- Laboratory space; and
- Amenities (single shower and accessible toilet, and a wash basin);

3.4.2. Clarification

The clarification process would be carried out by a lamella plate clarifier with a design raw water flow rate of 3.9 L/s or 309 m^3/day. The overall clarifier dimensions would be approximately 1.5 m long x 3.1 m wide x 3 m high.

3.4.3. Sedimentation (Sludge) Lagoons

Two new sludge lagoons for water treatment wastewater collection purposes would be constructed within the existing vacant area of site to the north west of the existing WTP building, as shown in Figure 3-2.

All the wastewater produced in the WTP would be collected within the sludge lagoons except the Clean in Place (CIP) cleaning waste from the UF filtration system which would be discharged to a dedicated underground sump for further treatment.

The sludge lagoons would be designed to operate with one lagoon in operation and the second one drying.

Solids in the Clarifier and UF waste and GAC backwash water would flow to the sludge lagoons via the neutralisation underground pit. During operation, wastewater would be retained in the sludge lagoons to settle particles to the bottom of the lagoon and. the settled solids in the lagoons would be thickened and dewatered over time.

The dried sludge cake in the lagoons would be removed mechanically. Supernatant from the lagoons would be returned to the WTP inlet works.

3.4.4. Tanks and Pumps

An new oxidation tank would be provided to assist with flow control to the flocculator and clarifier. A new 20kL filter feeder tank would be required to receive water from the clarifier and new pump system would be required to transfer water from the filter feeder tank

A reinforced concrete clearwater tank with a minimum capacity of 50m^3 would be provided at the WTP site to balance the flow distribution from the WTP to the town reservoirs. Two new 10 m^3 clearwater pumps would be provided to pump the treated water from the WTP to the town reservoirs and to the reticulation. Clearwater from these pumps would be connected to the existing clearwater rising main by cutting into the pipeline at a suitable location.

New pump would also be required to transfer water from the sludge lagoons back to the WTP inlet works.

3.4.5. Gates and Fencing

A man proof chain link security fence would be provided around the proposed new WTP site.

One (1) 8m double leaf mechanically operated gate may also be provided at the main entrance to the site.

3.4.6. Car Park and Site Access

The contractor would provide an all-weather car park and vehicular access within the WTP site. The car park and access would be designed to accommodate the loadings and access requirements for commercial and passenger vehicles and also to accommodate larger chemical delivery trucks where required.

3.5. Construction Considerations and Methodology

3.5.1. Pre-construction

Prior to commencement of construction works the contractor would prepare a CEMP that identifies known and reasonably likely environmental constraints, including contaminated materials that are present within the site.

3.5.2. Construction Methodology

The contractor would form a new concrete base for the new WTP building. The construction contractor would install the water treatment and chemical dosing components in the new building, connect the instruments to remote water flow and quality monitoring equipment, and the existing site power supply. In addition, two

sedimentation lagoons would be constructed to collect and dry wastewater associated with the water treatment process. The contractor would also erect a security fence around the site perimeter where not currently in place to maintain site security.

The contract would require the contractor to meet all obligations in terms of CDSC construction requirements. The following activities are likely to be undertaken as part of WTP construction works:

- Establish worker compound, storage and set down areas
- Establish environmental and traffic controls
- Construct sedimentation (sludge) lagoons.
- Erect WTP main building and balance tank.
- Stockpile excavated topsoil.
- Erect car park, fencing and signage.
- Backfill, stabilise and restore disturbed areas
- Make good/repair any damage caused to assets during the construction process;
- Removal of storage containers and equipment from site; and
- Clean-up site and remove all materials and equipment from the site and make good. Clean site and any facilities used during the construction process.

Note: The existing WTP decommissioning process is unconfirmed at present.

3.5.3. Construction Equipment

Construction equipment would include the following or similar equipment as required:

- Light commercial and passenger vehicles
- Excavator/backhoe
- Hiab, low loader transporters and delivery/ material transport vehicles (construction and waste materials)
- Concrete agitator trucks and bob cat
- Jackhammers and pneumatic hand tools

3.5.4. Earthworks

Ground disturbance would include excavation for the new sludge lagoons and the concrete slab, footings and connection to electricity, existing water supply reticulation network and communication services for the new WTP. Erosion and sediment controls would be required downslope from excavated areas and stockpiles of spoil left overnight. The Construction Environmental Management Plan (CEMP) would incorporate appropriate erosion and sediment control measures in accordance with Landcom's "Managing Urban Stormwater, Soils & Construction Guidelines (The Blue Book)".

3.5.5. Construction Considerations

To improve the environmental sustainability and management of construction proposals undertaken within NSW, the State Government has introduced policy measures requiring the mandatory preparation of a CEMP by the construction contractor. A CEMP is to be prepared for all proposals that are funded and/or undertaken by or on behalf of government agencies.

To ensure that the construction contractor complies with environmental protection legislation, adopts best practice and satisfies the requirements of ecologically sustainable development, the CEMP should incorporate all the mitigation measures recommended in this SEE, any agreed conditions of Council's development consent and the conditions of any other licences/ approvals required to undertake the works. The CEMP would be reviewed by CDSC prior to commencement of construction.

3.5.6. Hours of Construction

Hours of construction are anticipated to be in line with the standard construction hours provided below. However, construction hours would be in accordance with the hours specified in the development consent.

- Monday to Friday: 7.30am to 6.00pm.
- Saturdays: 8.00am to 1.00pm.
- Sundays and Public Holidays: No work allowed unless permission granted as part of the development consent.

It is anticipated the contractor would complete construction works within about 12 months of commencing.

Commented [KP1]: Is Council likely to take advantage of the extended working hours under the COVID public health order (NSW Government Ministerial Environment Planning and Assessment (COVID-19 Development – Infrastructure Constructions Work Days No.2) Order 2020 (Order) – currently in place until 31 March 2022 ? If so, please advise and I will address it in this section

3.5.7. Operation

Following construction, CDSC would prepare an Operation Environmental Management Plan (OEMP) or incorporate procedures into an existing OEMP to provide adequate protection to workers undertaking future maintenance activities, site visitors and users of the WTP.

Figure 3-2 Proposed new White Cliffs WTP Site Layout
Source: Membrane Systems Australia, 2021

4. Statutory Framework and Development Controls

4.1. Legislation

The following Acts are relevant to the Proposal.

4.1.1. Environmental Planning and Assessment Act 1979

As the proposed works would require development consent, CDSC would be the applicant and the consent authority for the proposal under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Section 4.15 of the EP&A Act requires that the consent authority take into account the likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality.

This SEE has been prepared to meet the requirements of Section 4.15 of the Act, which require a consent authority to take into consideration a number of matters for consideration as of relevance to the development. These matters, and how they have been considered as part of this SEE, are detailed in Table 4-1 below.

As a result of the assessment, it is concluded that development of the site in the manner proposed is considered to be acceptable and is worthy of the support of the Council.

Table 4-1 Section 4.15 Matters for Considerations

Section 4.15 Considerations	Where Addressed in the SEE
(a) the provisions of any of the following that that apply to the land to which the development application relates,	
(i) any environmental planning instrument, and	Refer to Section 4.2
(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and	Refer to Section 4.3
(iii) any development control plan, and	Refer to Section 4.4
(iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and	No applicable current or draft planning agreements
(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph).	Refer to Section 4.1.2

(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	Refer to Section 5 and 7.2
(c) the suitability of the site for the development,	Refer to Section 5.13 and 7.3
(d) any submissions made in accordance with this Act or the regulations,	CDSC to consider
(e) the public interest.	Refer to Section 5.14 and 7.4

4.1.2. Environmental Planning and Assessment Regulation 2000 (NSW)

Section 92 of the *Environmental Planning and Assessment Regulation 2000* prescribes a number of matters that must be taken into consideration by a consent authority in determining a development application, for the purposes of section 4.15 (1) (a) (iv) of the EP&A Act. A review of these matters indicates that none are relevant to the proposed development.

4.1.3. Local Government Act 1993

Section 60 of the *Local Government Act* 1993 states that a Council must seek approval from Department of Planning, Industry and Environment (DPIE) - Water to construct or extend water treatment works.

Accordingly, a section 60 approval is required for the new WTP and associated sludge lagoons.

4.1.4. National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act* 1974 (NPW Act) provides for the statutory protection of Aboriginal cultural heritage places, objects and features. Part 6 of the NPW Act provides specific protection for Aboriginal objects and declared Aboriginal places by establishing offences of harm. It is a defence against prosecution for unintentionally harming Aboriginal Objects if due diligence had been exercised to determine that no Aboriginal object would be harmed, or the harm or desecration was authorised by an Aboriginal heritage impact permit (AHIP).

An Aboriginal Heritage Due Diligence assessment undertaken to accompany the development application considered that further archaeological investigations and/or an Aboriginal Heritage Impact Permit are not required and that the works can proceed with caution (see Section 5.9 and Appendix C).

4.1.5. Protection of the Environment Operations Act 1997

The Environment Protection Authority (EPA) is responsible for the administration of the *Protection of the Environment Operations Act* 1997 (POEO Act). The POEO Act regulates air, noise, land and water pollution in NSW. Activities listed under Schedule 1 of the POEO Act are scheduled activities which require an Environment Protection Licence (EPL).

There are no planned discharges of supernatant or chemical waste from the new WTP. The proposal does not constitute a schedule activity as listed under Schedule 1 of the POEO Act and therefore an EPL is not required. Furthermore, as management measures would be implemented to prevent water pollution, it is considered unlikely that a licence would be required under Section 120 of the POEO Act for the pollution of waters during construction and operation of the WTP.

4.1.6. Water Management Act 2000

The objects of the *Water Management Act* 2000 (WM Act) are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations. It is considered that the proposed augmentation does not require any approvals under the WM Act.

Water sharing plans under the WM Act govern the sharing of water in a particular water source between water users and the environment and rules for the trading of water in a particular water source. Water access licences (WALs) entitle licence holders to specified shares in the available water within a particular water management area or water source (the share component), and to take water at specified times, rates or circumstances from specified areas or locations (the extraction component). WALs may be granted to access the available water governed by a water sharing plan under the WM Act.

An amendment of the existing WAL is not required in accordance with Section 60A of the WM Act, as the proposal would not take water from beyond Council's existing entitlement. Any water taken above the current entitlement would require Council's licence to be modified under Section 89 of the WM Act.

4.1.7. Contaminated Land Management Act 1997 (NSW)

The *Contaminated Land Management Act 1997* establishes a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation. The Act gives the EPA power to:

- declare land to be significantly contaminated land
- order a person to undertake a preliminary investigation of land that the EPA suspects to be contaminated
- order a person to take management action in relation to significantly contaminated land
- approve a voluntary proposal to manage significantly contaminated land
- order that land that has been the subject of a management order or approved voluntary management proposal be subject to an ongoing maintenance order.

The subject site is not a registered contaminated site and no approval under the *Contaminated Land Management Act 1997* is required.

4.1.8. Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) specifies the requirements for biodiversity assessment for applications for development consent under Part 4, environmental assessment of an activity under Part 5, or approval of State significant

infrastructure under Part 5.1, of the EP&A Act. For Part 5 assessment, the proponent of an activity that is likely to significantly affect threatened species would have the option of providing a biodiversity development assessment report or a Species Impact Statement.

A flora and fauna assessment of the proposed works was undertaken by Eco Logical in 2020 (see Section 5.7 and Appendix D). The assessment concluded that the proposal would not have a significant effect on a threatened species, population or ecological communities or their habitat. Therefore the proposed development does not require preparation of a Species Impact Statement or biodiversity development assessment report (BDAR), or approval under the under the BC Act.

4.1.9. Rural Fires Act 1997 (NSW)

The WTP site is located within bushfire prone land (Vegetation Category 3) as identified on the Bushfire Prone Land Map, certified by the NSW Rural Fire Service. However, the proposed development is not a special fire protection purpose and therefore does not require referral to the NSW Rural Fire Service (RFS) for bush fire safety authority under Section 100B of the *Rural Fires Act 1997*.

4.1.10. Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation A*ct 1999 (EPBC Act) provides for Commonwealth involvement in development assessment and approval in circumstances where there exist 'matters of national environmental significance'. Matters of national environmental significance include:

- World heritage properties
- National heritage places
- Wetlands of international importance
- Nationally threatened species and ecological communities
- Migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource, in relation to coal seam gas development and large coal mining development
- The environment, where actions proposed are on, or would affect Commonwealth land and the environment
- The environment, where Commonwealth agencies are proposing to take an action

It is not anticipated that any matters of national environmental significance as listed under the EPBC Act would be significantly impacted by the proposal (see Section 5.7).

4.1.11. Native Title Act 1993

The *Native Title A*ct 1993 (Cwth) sets up processes to determine where native title exists, how future activity impacting upon native title may be undertaken, and to provide compensation where native title is impaired or extinguished. The Act gives Indigenous Australians who hold native title rights and interests—or who have made a native title claim—the right to be consulted and, in some cases, to participate in decisions about activities proposed to be undertaken on the land.

The proposed works are on private land and native title is therefore extinguished.

4.2. Environmental Planning Instruments

4.2.1. Central Darling Local Environmental Plan 2012

The *Central Darling Local Environmental Plan* 2012 (LEP) is the applicable planning instrument for development within White Cliffs.

Zoning and Permissibility

The site is zoned RU5 Village under the LEP, as shown in Figure 4-1.

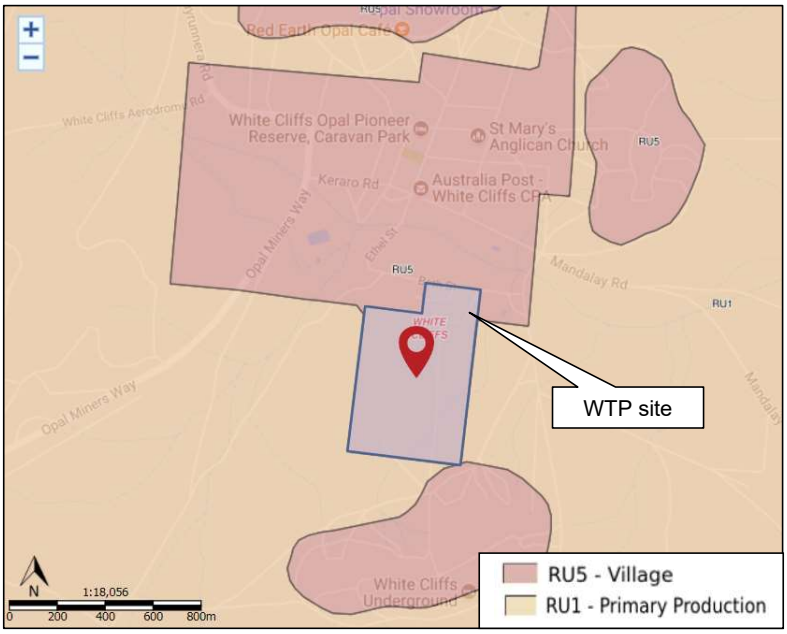


Figure 4-1: Central Darling LEP Zoning map extract

Source: NSW Planning Portal - Dept. of Planning & Environment, 2017

The objectives of the RU5 zone are:

- *To provide for a range of land uses, services and facilities that are associated with a rural village.*

- *To retain and facilitate expansion and redevelopment of the existing central business districts of Menindee and Ivanhoe and to further strengthen the core commercial functions of those areas.*
- *To ensure that development retains and enhances the existing village character.*

The proposal is considered to be not inconsistent with the objectives of the zone, in that the works relate to an existing WTP and the proposal would provide the essential water supply facilities to meet the day-to-day needs of both existing and future population of White Cliffs and the region.

Development for the purposes of a water supply system can be carried out with development consent within the Village zone. A water supply system is defined under the Central Darling LEP 2012 to mean any of the following:

(a) a water reticulation system,

(b) a water storage facility,

(c) a water treatment facility,

(d) a building or place that is a combination of any of the things referred to in paragraphs (a)–(c).

It is considered that the water treatment facility could be defined as a type of water supply system.

Clause 5.12 of the LEP states that it "does not restrict or prohibit, or enable the restriction or prohibition of, the carrying out of any development, by or on behalf of a public authority, that is permitted to be carried out with or without development consent, or that is exempt development, under *State Environmental Planning Policy (Infrastructure) 2007*" (SEPP (Infrastructure) 2007). However, the proposed works are not permitted to be carried out with or without consent pursuant to SEPP (Infrastructure) 2007, as detailed in Section 4.2.2.

Heritage conservation

The proposed location of the new WTP infrastructure would be within the curtilage of one heritage item I38 - Solar Power Station listed under the Central Darling LEP 2012, as shown in Figure 5-1. However, no structures or landscape features associated with the heritage listing are located within the footprint of the existing WTP or proposed location of the new WTP.

Clause 6.1 Earthworks

Excavation is proposed as part of the works to construct the two sludge lagoons and the concrete slab, footings and connection to electricity and communication services for the new WTP, as per Section 6 of the Geotechnical Investigation report accompanying the development application. The report indicates the following:

It is expected that the new WTP building and sludge lagoons would be close to the existing ground surface level; therefore, only minor stripping may be required.

In the area of the proposed WTP building and sludge lagoons would be located, the subsurface profiles comprise dominantly silty sand (SC and SM type) to depths of 1.3m

to 2.4m, followed by dominantly sandy clayey silt to depths of 3.5m to 4.1m and then followed by weathered claystone/ siltstone.

Excavations in the soil deposits to design invert levels should be readily achievable using conventional earth moving equipment such as a backhoe.

The report concluded that construction difficulties associated with permanent groundwater are not envisaged.

The earthworks would not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features on surrounding land.

Clause 6.4 Essential Services

Clause 6.4 of the LEP indicates that development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required:

(a) the supply of water

(b) the supply of electricity,

(c) the disposal and management of sewage,

(d) stormwater drainage or on-site conservation,

(e) suitable vehicular access.

The above essential services are currently available at the existing WTP. During construction, measures would be taken to ensure that construction activities do not impact on existing utilities and services within the site. Essential services and utilities would remain available for the development during operation and would be upgraded for the new WTP, where required.

Clause 6.5 White Cliffs Dugouts

Clause 6.5 of the LEP requires certain development to be located in a dugout, and ensures that all other development does not compromise the structural integrity of a dugout.

The proposed WTP development is not a type of development which is required to be located within a dugout area. It is not located in close proximity to any of the dugout areas and is therefore not anticipated to compromise the structural integrity of any of the White Cliffs dugout areas.

4.2.2. State Environmental Planning Policy (Infrastructure) 2007

Under Clause 125(3A) of *State Environmental Planning Policy (Infrastructure) 2007* SEPP (Infrastructure) 2007, development for the purpose of water treatment facilities may be carried out by or on behalf of a public authority without consent on land in a prescribed zone. In addition, Clause 126A of SEPP (Infrastructure) 2007 allows development for the purpose of water treatment facilities may be carried out by any person with consent on land in a prescribed zone.

However, the subject site is located in a RU5 Village Zone, which is not a prescribed zone pursuant to SEPP (Infrastructure) 2007. Accordingly, this SEPP is not applicable to the development and the *Central Darling Local Environmental Plan* 2012 is the relevant environmental planning instrument for the proposed development.

4.2.3. State Environmental Planning Policy No 33 – Hazardous and Offensive Development

State Environment Planning Policy (SEPP 33) Hazardous and Offensive Development applies to any proposal that falls under the definition of "potentially hazardous (or offensive) industry" and aims to ensure that proposals are adequately assessed in relation to potential off-site risk. This SEPP applies to proposals that are assessed under Part 4 of the EP&A Act and require development consent.

The quantities of chemicals that would be stored are all below the relevant thresholds that would trigger additional requirements under *State Environmental Planning Policy 33 – Hazardous and Offensive Development* (refer to Section 5.10).

4.2.4. State Environmental Planning Policy (Koala Habitat Protection) 2021

State Environmental Planning Policy (Koala Habitat Protection) 2021 aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for koalas to ensure a permanent free-living population over their present range and reverse the current trend of koala population decline. It applies to the local government areas listed in Schedule 1 of the SEPP, which includes the Central Darling local government area.

A Flora and Fauna Assessment has been prepared to accompany the development application (provided in Appendix D), and included consideration of potential Koala habitat. The assessment concluded that no Koala feed trees are present within the Council Depot WTP site and no further action is required with regard to the SEPP.

4.3. Draft Environmental Planning Instruments

There are no draft Environmental Planning Instruments relevant the proposed development.

4.4. Development Control Plans

CDSC currently has no active Development Control Plans (DCP). Therefore, there is no DCP which is relevant or applicable the proposed development.

4.5. Summary of Statutory Approvals

The following table provides a summary of the statutory approvals required for the proposal.

Table 4-2 Summary of Approvals and Requirements

Agency	Requirements	Reference
Central Darling Shire Council	Development consent	Part 4 of *Environmental Planning and Assessment Act* 1979
DPIE – Water	Approval to provide water treatment works	Section 60 of *Local Government Act* 1993

5. Development Assessment

This section identifies and characterises the likely potential impacts associated with the construction and operational phases of the project. Where considered necessary, feasible mitigation measures are identified. Environmental management procedures based on these mitigation measures are outlined in Section 6.

5.1. Assessment Methodology

The key objectives of this assessment are to:

- Identify those facets of the environment likely to be affected by the Proposal during both construction and operation
- Identify the sensitivity of the site
- Identify and characterise the associated impacts
- Identify and evaluate feasible mitigation measures for the identified impacts.

Environmental issues of relevance to the proposal include:

- Location and Land Use
- Noise and Vibration
- Traffic and Access
- Air Quality
- Soils and Water Quality
- Flora and Fauna
- Waste Management
- Heritage
- Chemical Management
- Visual

5.2. Location and Land Use

The existing WTP is located at the southern edge of White Cliffs township. The WTP is generally surrounded by rural open space to the west, south and east with scattered residential buildings and several commercial premises such as a general store/ post office and hotel in the general vicinity to the north of the site. Multiple small mining leases and associated dwellings are also present in specified dugout areas to the north, east and south of the WTP site, located along the outskirts of the township.

The site for the new WTP (within Lot 102 DP 611504) is within the existing WTP property, which is currently owned by CDSC. The existing WTP building and three small ponds are located within the northern part of the lot, within a fenced compound. There is an informal gravel access road leading from Beth Street to the main building and ponds.

Several residential and commercial lots are located to the north of the site along Keraro Road; the closest residence is located approximately 200m from the WTP property boundary. An array of large satellite dishes is present approximately 150m to the west of the site.

Maps showing the general location and an aerial view of the existing WTP site are provided in Figure 2-1, Figure 2-2 and Figure 2-3.

5.2.1. Construction Impacts

The proposed new WTP building and lagoons would be located in the vacant Council compound area to the west of the existing WTP and ponds.

The land has previously been disturbed and the area where the new WTP building and sludge lagoons comprises patchy grass cover and shrubby vegetation; some of which would require clearing for the proposal. Vegetation clearing for the proposed WTP site comprises low quality grassland, shrubs or bare earth. In addition, removal of two planted trees along the boundary of the existing WTP site fence line adjacent to an existing pond may also be required.

Although the construction works may result in some minor disruptions to the community, the works would be short term in nature. It is considered that an overall and long term positive impact to the community through improved water treatment services would outweigh the temporary adverse construction impacts. All construction activities would be carried out with due diligence, duty of care and best management practices. This would be documented in the project specific CEMP.

5.2.2. Operational Impacts

The operation of the new WTP would not significantly affect current land use practices of surrounding land, as an existing WTP is currently operating at the site.

5.2.3. Mitigation

Construction

- Best management construction impacts are to be documented in a project specific CEMP.
- No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on private property surrounding the WTP site without prior approval.
- Appropriate security, supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas not under the ownership of CDSC.
- CDSC would provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.
- Restoration of the areas disturbed during construction would be undertaken so that these areas are returned to their pre-construction condition.

5.3. Noise and Vibration

The area around the WTP is a rural village environment. Several residential and commercial lots are located approximately 250m to the north of the site, with the closest sensitive noise receiver located approximately 200m from the WTP property boundary.

As the noise levels from the proposed WTP are anticipated to be similar to the existing WTP at the site, and there are a limited number of potentially affected sensitive noise receivers, a noise assessment report with background noise monitoring was not prepared to accompany the SEE. However, given the isolated and rural nature of the area, background noise levels at the nearest noise receptor are predicted to be 40 dB(A) (using Figure 2.2 of the Noise Guide for Local Government (DECCW, 2010) as a guide).

5.3.1. Construction Impacts

Commented [KP2]: Is Council likely to take advantage of the extended working hours under the COVID public health order? If so, it can be addressed in this section

For construction works undertaken during standard working hours, construction noise goals in the *Interim Construction Noise Guidelines* (DECC, 2009a) (ICNG) are 10 dB(A) above the Recorded Background Level (RBL) and a maximum of 75 dB(A) with respite periods. Outside standard working hours, the noise management level is 5 dB(A) above the background level. Given an estimated background noise level of 40 dB(A), the construction noise level objective would be 50 dB(A).

Construction works would require the use of hand tools, excavator, bobcat, air compressor, dump truck, a crane, concrete agitator, light commercial vehicles and generator. Noise impacts from the use of this equipment were estimated based on the Interim Construction Noise Guideline and *AS 2436 - 2010 Guide to Noise and Vibration on Construction, Demolition and Maintenance sites*. The sound pressure levels of equipment likely to be used during construction and the likely sound pressure levels at 100m and 200m from the source are shown in Table 5-1. It is anticipated that construction noise at the nearest residential receiver (200m away) would generally be within the recommended maximum daytime goal of 50 dB(A), even allowing for occasions when all pieces of equipment may operating simultaneously. It should also be noted that these calculations assume flat ground surfaces and do not account for propagating effects such as ground conditions, atmospheric absorption or weather.

Notwithstanding this, it is recommended that any appropriate and practical measures be implemented to mitigate noise impacts during construction.

Table 5-1 Estimated Construction Noise Levels

Equipment	A-weighted sound power levels (mid-point dB)	Sound Pressure Level dB at 100m	Sound Pressure Level dB at 200m
Hand tools	102	54	48
Excavator	107	58	52
Bobcat	104	56	50

Equipment	A-weighted sound power levels (mid-point dB)	Sound Pressure Level dB at 100m	Sound Pressure Level dB at 200m
Truck	107	59	53
Crane	104	56	50
Concrete agitator truck	109	61	55
Light commercial vehicle	78	30	24

Construction Vibration

British Standard (BS) 6472 – 2008, Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz) is recognised as the preferred standard for assessing the 'human comfort criteria. There is no Australian Standard that sets criteria for the assessment of building damage caused by vibration. Guidance of limiting vibration values is attained from Reference to *German Standard DIN 4150-3: 1999 Structural Vibration – Part 3: Effects of vibration on structures*. Table 5-2 provides a summary of the relevant criteria.

Table 5-2: Summary of Relevant Vibration Criteria

Human comfort intermittent vibration limits (BS 6472-2008)			
Receiver Type	Time of Day	Preferred Value	Recommended Max
Residential	Day	0.2 $m^{-s1.75}$	0.4 $m^{-s1.75}$
Guideline values for short term vibration on structures (DIN 4150-3: 1999)			
Receiver Type	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz
Buildings used for commercial purposes, industrial buildings, and buildings of similar design.	20mm/s	20 – 40 mm/s	40 – 50 mm/s
Dwellings and buildings of similar design and/or occupancy.	5 mm/s	5 – 15 mm/s	15 – 20 mm/s

The equipment used during construction would produce levels of vibration that are unlikely to exceed the above criteria.

5.3.2. Operational Impacts

The proposed works would generate some operational noise from the WTP site, however as the proposal involves the replacement of the existing WTP infrastructure the noise impacts associated with the new WTP would be similar to those existing and would not be a new noise source in the region. Combined with the distances to the nearest sensitive receivers, the potential operational noise impacts would be very low.

5.3.3. Mitigation

Construction

- Consult with residential premises in the immediate vicinity of the proposed works to determine any community concerns. Provide advice as to where concerns can be directed. If the consultation community concerns are not readily resolved by agreement, Council staff are to be contacted who would endeavour to assist in resolving any outstanding issues of concern.
- Works would be undertaken during normal work hours i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; and no work would be undertaken on Sundays, Public Holidays or outside these work hours without notification to affected community and EPA. Notification would provide the following details:
    - The locations and types of surrounding receivers likely to be affected;
    - The nature of the proposed works;
    - The noise characteristics of any powered equipment likely to be used;
    - Measures to be taken to reduce noise emissions; and
    - Any other information EPA may request.
    - All reasonable practical steps shall be undertaken to reduce noise and vibration from the site.
- Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by CDSC prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration EPA's *Interim Construction Noise Guideline* (in particular Tables 4–10) and A*ssessing Vibration: A Technical Guideline* (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts would include:
    - Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised;
    - Regular maintenance of all plant and machinery used for the project;
    - Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.

Commented [KP3]: Will amend accordingly if work hours to be extended as per COVID public health order

Operation

- Operational noise emissions would be verified to demonstrate selected plant and equipment complies with INP requirements at the nearest sensitive receptor. This would be achieved through post-compliance monitoring to validate the noise emissions and to identify the need for additional mitigation measures.

5.4. Traffic and Access

White Cliffs has a small population and low traffic volumes. The WTP site is accessed via Beth Street, an unsealed local road which is accessed from Ethel Street and Keraro Road. Traffic volumes along this road are expected to be low with vehicles travelling at low to moderate speeds.

5.4.1. Construction Impacts

Construction of the WTP would occur over a 12 month period with some increase in traffic in the local area. There would be minimal impacts to road users along Opal Miners Way and Keraro Road as large vehicles delivering materials to the work site would only occur sporadically and would not cause major impediment to other road users. The construction of the sludge lagoons would result in a very small volume of excess spoil which is likely to be worked around the site. The retention of excess spoil on site would assist in reducing the volume of construction traffic on the local road network.

The increased traffic during construction is not predicted to have a significant impact on local traffic flow or result in significant additional loads upon the existing road network. Whilst construction works may cause some inconvenience to local residents, any impacts would be minor, localised and short-term. The affected community would be notified in advance of the proposed construction work program and advised of any issues such as access to individual properties.

It is anticipated that an all-weather access road would be constructed as an initial task that can then be used by the construction vehicles working on the new WTP building and sludge lagoons construction.

5.4.2. Operational Impacts

The new WTP would require regular access to the site for the Council operator to undertake routine operational and maintenance works and the delivery of chemicals and other materials for the operation of the plant. A new carpark would be provided for operational staff and chemical deliveries would be expected to occur on average once per month. All access and deliveries would be via Beth Street and the access road within the site, via Opal Miners Way. Chemical deliveries would be undertaken in accordance with all Safework NSW guidelines for the transport of dangerous goods (see Section 5.10.3 below).

The WTP carpark and onsite access road would be suitable for all-weather access, and is not anticipated to result in the generation of significant dust impacts from vehicles accessing the site.

The new WTP operation would result in very minor increases in traffic volumes along the Opal Miners Way and local roads including Keraro Road and Beth Street and no adverse impacts due to traffic and access during operation of the plant are expected.

5.4.3. Mitigation

- The contractor would prepare a Traffic Management Plan as part of the CEMP prior to commencement of works. The Traffic Management Plan would include measures to minimise traffic impacts, ensure public safety and would be prepared in accordance with:
  - RMS' Traffic Control at Work Sites Manual, Issued June 2018, and
  - Australian Standard 1742.3 - 2009 Traffic Control for Works on Roads.
- Prior to the commencement of works, existing access tracks that would be used by heavy vehicles would be assessed for adequacy and upgraded where necessary. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.

Construction

- Any disturbance to landowners as a result of vehicle movements and noise would be minimised. The contractor would avoid any inconvenience to residences/ landowners, and all access gates would be in their original condition following completion of the works.
- Any temporary access tracks required for the works would be located so as to minimise disturbance to the existing environment. Following completion of the works the temporary tracks would be removed, topsoil provided and re-grassed. Existing tracks would be restored to their condition prior to works.
- Trucks would not access the sites in weather conditions that would cause damage to properties.
- All traffic would comply with all applicable traffic laws and regulations including speed limits. All construction vehicles would comply with the speed limits set for the roads accessing the site.

5.5. Air Quality

The existing air quality surrounding the site is considered to be relatively good and typical of a rural environment. The nearest residence is located approximately 200m to the north of the WTP site.

The potential for dust generation in White Cliffs is influenced by the generally unsealed nature of roadways and public areas in the township. The majority of roadways in the White Cliffs township comprise unsealed roads and informal access ways, and public areas are generally not landscaped with limited grass and vegetation groundcover.

5.5.1. Construction Impacts

The main impact to air quality during construction is expected to arise from the generation of airborne localised dust associated with earthworks. This is not anticipated to cause notable adverse environmental impacts unless the weather is particularly windy. Dust suppression methods, including the use of water carts, would be applied on windy days to prevent dust being transported off site.

Local air quality may be affected by emissions from construction traffic. However, these emissions would occur only intermittently, and are expected to be minor and temporary. It would be unlikely that they would contribute to a permanent detectable reduction in local air quality.

With implementation of CEMP mitigation measures, potential air quality impacts during construction are considered minor and unlikely to be significant.

5.5.2. Operational Impacts

There would be no long-term reductions in air quality associated with the operation of the WTP, with the new WTP to operate similar to existing and the new sludge lagoons to be placed in the close proximity to the existing ponds. The operation of WTP and associated sludge lagoons are therefore not anticipated to significantly increase windborne dust emissions in the area above normal background levels.

The proposed sludge lagoons are not in close proximity to potentially sensitive residential receivers and therefore the impact on any dust generated from the WTP waste drying in the new lagoons is likely to be low.

5.5.3. Mitigation

Construction

- Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.
- The excessive use of vehicles and powered construction equipment is to be avoided.
- All construction machinery would be turned off when not in use to minimise emissions.
- Construction contractors would monitor dust generation potential.
- Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust).
- Any stockpiled spoil/fill would be protected to minimise dust generation to avoid sediment moving offsite.
- Vehicles transporting any spoil would be covered.
- Exposed surfaces to be progressively revegetated/regrassed as soon as practicable.

5.6. Soils and Water Quality

The White Cliffs 1:250,000 Geological Series Sheet SH 54-12 (First Edition, 1964) indicates that the WTP site is located within Cretaceous sediments of the Rowling Downs Group comprising sandstone, siltstone and claystone, which is porcellanous in part.

Borehole drilling investigation at the WTP site to determine the ground conditions indicate that the site subsurface spoil profile, comprises silty sand with varying concentrations of clay and gravel form 1.3m to 2.5m depth. The upper silty sand horizon is underlain by residual soil comprising sandy clayey silt / clayey silt/ sandy silty clay (CI type and CI/CH type) to depths of 3.5m to 4.1m. The residual soil horizon is underlain by weathered claystone/ siltstone bedrock to the borehole termination depths of 4.3m to 5.0m.

At the time of drilling, groundwater was encountered in boreholes located to the north of the existing WTP at depths of 1.6m, 2.0m and 2.1m, respectively. At the completion of drilling the water in boreholes B1 and B2 had risen to depths of 0.5m and 1.5m, respectively. These boreholes are located in relatively close proximity to the existing storage ponds within the WTP site. It is likely that the groundwater encountered in the boreholes is perched water associated with seepage from the nearby ponds.

Groundwater was not encountered in boreholes in the western section of the site within the depth of investigation (5.0m maximum), at the time of fieldwork. However, the silty sand layer (0.7m to 1.3m depth) present in the borehole located immediately to the west of the existing WTP building was in a very moist to wet state.

It should be noted that groundwater levels and the presence of seepage are subject to prevailing weather conditions at the time of construction and may differ from those presented on the borehole logs.

There are no waterways present within close proximity to the WTP site. The closest hydrological feature to the WTP site is an unnamed and highly ephemeral drainage line located approximately 150 m to the north of the site.

5.6.1. Construction Impacts

The construction of the proposal would result in ground disturbance due to excavation works required for the new sludge lagoons, as well as for the foundations for the new plant building and water tanks. Therefore, there is potential for erosion and movements of excavated materials off-site, as well as sedimentation of waterways and the resulting impacts on water quality. Erosion and sediment controls would be required during construction works and stabilisation works undertaken following the completion of the construction phase. Given the generally flat topography of the area, it is assessed that sediment and erosion controls would be effective in minimising any offsite impacts.

Construction difficulties associated with permanent groundwater are not envisaged. After heavy rainfall events, standing water may impede the movement of light vehicles and plant.

5.6.2. Operational Impacts

The area would be inspected post construction to ensure all areas of disturbance are appropriately stabilised and erosion and sediment loss is not occurring. Provided the site is stabilised no impacts to soils are expected post construction.

The new WTP would not extract water from the approved water source beyond Council's existing entitlement. Any water taken above this entitlement would require Council's licence to be modified.

The operation of the White Cliffs WTP would not result in any discharges of backwash water to the environment. Backwash wastewater from the clarifiers and filters would be directed to the sludge lagoons for settling of solids and supernatant would be returned to the WTP inlet works for treatment. The two sludge lagoons would be impermeable so as to prevent any seepage to groundwater.

The new plant would include appropriate onsite stormwater handling system. Stormwater from the roofs and run-off from paved areas would be diverted to the stormwater system.

No impact to local water quality is expected due to the operation of the new WTP.

5.6.3. Mitigation

Construction

- A detailed Erosion and Sediment Control Plan (ESCP) would be prepared as part of the CEMP. The SWMP would describe the site-specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication *Managing Urban Stormwater: Soils and Construction, 4th edition* ("The Blue Book") and Volume 2a Installation of Services. The SWMP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts:
    - Minimisation of disturbance to soil and water adjacent to, and within, all watercourses in the works area.
    - Identification of site specific sediment and erosion control measures wherever erosion is likely to occur.
    - Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas.
    - Requirements for vegetation clearing to be kept to a minimum.
    - Retention of all surface runoff on-site
    - Where possible, diversion stormwater around the construction site.
    - Location and management of stockpiles, such as locating stockpiles away from any the drainage line near the works areas.
    - All erosion and sediment controls would be regularly inspected, especially when rain is expected and directly after any rain events.
- All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover.
- Any excess spoil would either be spread across the ground in nearby areas in such a manner as to avoid creating an erosion hazard, or removed off site for disposal in accordance with relevant Council and the EPA requirements.
- Adequate procedures would be detailed in the CEMP, including notification requirements to the EPA, for incidents that cause material harm to the environment.

- A site specific spill management plan would be prepared and include the following requirements:
    - Emergency spill kits are to be kept at the site (vehicle kits).
    - Refuelling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan.
    - NSW Department of Planning, Industry and Environment (DPIE) recommends that bio-friendly hydraulic fluids are used in plant and machinery. The decision is ultimately the machine operators, but at minimum a risk assessment needs to be undertaken on why the fluid cannot be used.
    - All plant and equipment shall be inspected daily for leakage of fuel, oil or hydraulic fluids. Machinery found to be leaking shall be immediately repaired or replaced.
    - Vehicle wash downs and/or cement truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken offsite.
- Mitigation measures to manage groundwater (should it be encountered during construction) would be incorporated into the CEMP which is to address the following issues in relation to groundwater:
    - Dewatering techniques during excavation/drilling;
    - Measures to ensure groundwater quality is not impacted during construction;
    - Techniques to settle, treat or filter groundwater encountered during excavation works i.e. diverting groundwater through baffle tanks or filter membranes; and
    - Appropriate treatment and monitoring regimes in the event that groundwater flows come to the surface, including disposal of groundwater in such a way as to prevent adverse impacts (such as erosion and water pollution). Groundwater should not be discharged to a waterway during construction.
- The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act, and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.

5.7. Flora and Fauna

The Council Works Depot compound (Council Depot) which includes the existing WTP site has been extensively cleared and disturbed for the existing infrastructure and other Council uses (eg stockpiling and water storage tanks). A flora and fauna assessment of the site was undertaken by Eco Logical (2020). This assessment is summarised below and provided in Appendix D.

Vegetation Communities

The site is primarily cleared of any vegetation – it appears to be well maintained by slashing and or ground works / disturbances, with the exception of a small area (~50 m^2) of regrowth native herbs and shrubs.

The regrowth is likely similar in composition to Plant Community Type (PTC) 155 - *Bluebush shrubland on stony rises and downs in the arid and semi-arid zones – Disturbed condition*. This PCT forms a very small and disturbed part of the *Acacia loderi* Shrublands Endangered Ecological Community (EEC).

Flora

A database search using the BioNet Atlas of NSW Wildlife was completed on the 24 April 2017 by Eco Logical and found that two (2) threatened flora species that have been recorded within approximately 10 km of the study area which is provided below in Table 5-3.

No threatened flora species were recorded during a survey of the Council Depot site. However, no targeted flora surveys were carried out for the two known threatened species from the region (*Swainsona murrayana* (Slender Darling Pea) and *Swainsona viridis (*Creeping Darling Pea), although during the survey traverses the presence of these species were being monitored.

Both species usually flower in late winter and spring and as such are difficult to detect when not in flower. Limited habitat exists for *Swainsona murrayana* in the subject site and local study area, although there is potential for *Swainsona viridis* to occur within the White Cliffs area due to relatively good quality habitat being present in the locality.

Weeds

The Council Depot area where the new WTP would be located is relatively free of weeds. Weeds in the general White Cliffs area are predominantly located within the small ephemeral watercourses, often in close vicinity to vehicle tracks.

Common and significant weeds present in the White Cliffs area include:

- *Cucumis myriocarpus* subsp. *leptodermis* (Paddy Melon) – environmental weed
- *Lycium ferocissimum* (African Boxthorn) – Weed of National Significance (WoNS) and a priority weed in the Western management region
- *Medicago truncatula* (Barrel Medic) – common weed of the study area
- *Schinus molle* var. *areira* (Pepper Tree) – widespread environmental weed
- *Sisymbrium irio* (London Rocket) – widespread environmental weed
- *Xanthium occidentale* (Noogoora Burr) – widespread environmental weed

Table 5-3 Threatened Flora species

Common Name	Scientific Name	Likelihood of occurrence	BC Act	EPBC Act
Creeping Darling Pea	*Swainsona viridis*	Likely	Endangered	-
Slender Darling Pea	*Swainsona murrayana*	Potential	Vulnerable	Vulnerable

Fauna

A database search using the BioNet Atlas of NSW Wildlife and was completed on the 24 April 2017 and 7 February 2020 by Eco Logical and returned results of six (6) threatened fauna species which have been recorded or potentially occur within approximately 10 km of the study area.

The EPBC Act protected matters search tool (PMST) returned a list of eight (8) threatened species and seven (7) migratory species of which the species or the species habitat are either known, likely or may occur in the search area. The search of a 10 km x 10 km area centred on the White Cliffs township and subject site was undertaken on 24 April 2017 and an updated search of the same area using the PMST was completed on 7 February 2020. One additional flora species (*Atriplex infrequens*) was returned via the updated search.

A list of threaten fauna species considered known, likely or to have potential to occur in the general vicinity of the Council Depot site are provided in Table 5-4.

Fauna habitat is fairly uniform and generally continuous across the depot and surrounding White Cliffs area. Habitat values for fauna within the Council Depot area and the surrounding White Cliffs township is also uniform with stands of woodland in riparian and floodplain areas and either extensive semi-arid shrublands or grasslands beyond the woodland.

The general White Cliffs area is well used by and moderately impacted by native (i.e. *Macropus fuliginosus* (Western Grey Kangaroo), *Macropus rufus* (Red Kangaroo) and *Dromaius novaehollandiae* (Emu)) and some feral fauna species (i.e. *Oryctolagus cuniculus* (European Rabbit) and *Capra hircus* (Feral Goat)), although some fenced paddocks include grazing by *Ovis aries* (Domestic Sheep) which has reduced vegetative cover and subsequently fauna habitat.

No threatened fauna species were recorded during a survey of the Council Depot site (Eco Logical, 2020).

Table 5-4 Threatened Fauna Species

Common Name	Scientific Name	Likelihood of occurrence	BC Act	EPBC Act
Birds				
Australian Bustard	*Ardeotis australis*	Known	Endangered	-
Fork-tailed Swift	*Apus pacificus*	Potential	-	Migratory, Marine
Spotted Harrier	*Circus assimilis*	Potential	Vulnerable	-
Black Falcon	*Falco subniger*	Potential	Vulnerable	-
Black-breasted Buzzard	*Hamirostra melanosternon*	Potential	Vulnerable	-
Major Mitchell's Cockatoo	*Lophochroa leadbeateri*	Potential	Vulnerable	-
Reptiles				
Narrow-banded Snake	*Simoselaps fasciolatus*	Likely	Vulnerable	-
Crowned Gecko	*Lucasium stenodactylum*	Potential	Vulnerable	-
Mammals				
Strip-faced Dunnart	*Sminthopsis macroura*	Potential	Vulnerable	-
Corben's Long-eared Bat	*Nyctophilus corbeni*	Likely (possibly recorded during study)	Vulnerable	Vulnerable
Little Pied Bat	*Chalinolobus picatus*	Known	Vulnerable	-
Yellow-bellied Sheathtail-bat	*Saccolaimus flaviventris*	Likely (recorded during study)	Vulnerable	-
Inland Forest Bat	*Vespadelus baverstocki*	Likely (possibly recorded during study)	Vulnerable	-

5.7.1. Construction Impacts

The proposed works would be contained within the previously disturbed and cleared areas of the existing WTP site and adjoining Council Depot land in the same lot.

During construction at the works site, suitable practices would be implemented to ensure weeds are not transported to the site by construction workers and equipment.

Increased traffic and noise associated with the construction works may temporarily disturb fauna inhabiting the adjacent areas. During the works, any birds resting or foraging in the vicinity of the proposed works would be given audible warning prior to the works being undertaken, to allow for the fauna to relocate to a more distant location.

Noise from the works would also deter any species from foraging on and around the site during the works. It is therefore extremely unlikely that individuals would be harmed during the proposed work. Any fauna that moves out of the area due to the works would be able to relocate back to the site at the completion of the construction period.

No trees are to be removed as part of the works, as such, it is assumed that all hollow-bearing trees can be retained within the surrounding woodland dominated riparian and floodplain zones and continue to provide habitat for both common and threatened local fauna.

Threatened Species

Tests of significance were conducted for species and ecological communities listed under the BC Act that are known or considered 'likely' or to have some 'potential' to occur within the subject site and be impacted by the proposal, as follows.

A test of significance under the BC Act for *Swainsona viridis* (Creeping Darling Pea) was carried out, as the presence of the species on site was not able to be verified. The results of the assessments concluded that the proposal is considered unlikely to have a significant impact on this species.

The Council Depot site does not support high quality habitat resources for any threatened flora and fauna species; however, there is potential that some threatened fauna species may use the subject site on occasions.

No Koala feed trees are present within the Council Depot and therefore no feed trees listed under Schedule 2 of the SEPP(Koala Habitat Protection) 2021 would be impacted during the pipeline installation. Therefore, no further action is required in regard to SEPP(Koala Habitat Protection) 2021.

The flora and fauna assessment concluded that the proposal will contribute to the impacts from clearing of native vegetation in the region, and may have a minor impact on some threatened species. However, after completing assessments of significance (BC Act) and the significant impact criteria (EPBC Act) for the threatened species considered to have potential, are likely or are known to occur in the study area, the proposal is considered unlikely to have a significant impact on the threatened and migratory species and EEC vegetation. A Species Impact Statement or EPBC act referral is not required to be submitted to the NSW Department of Planning, Industry and Environment – Biodiversity Conservation Division (DPIE-BCD) or the Commonwealth Department of Agriculture, Water and the Environment for further assessment and approvals.

On the basis of the previous disturbance of vegetation at the site and the characteristics of the works, no significant impact is likely to any threatened flora or fauna species and there is unlikely to be any long term impacts to the local environment and biodiversity.

5.7.2. Operational Impacts

The operation of the new WTP is not expected to result in any significant impact to flora and fauna, as the works would result in the removal of a negligible amount of habitat.

5.7.3. Mitigation

Construction

- The construction area is to be clearly delineated.
- Temporary construction sites and storage areas would remain in a tidy state and free of debris. Following completion and departure from the construction site areas, as required, disturbed surfaces would be stabilised.
- The contractor(s) would, as required, undertake appropriate vehicle and equipment hygiene to prevent the spread of weeds within and/or between sites.
- The area of disturbance and vegetation removal is to be kept to the minimum required to undertake the works. If greater vegetation clearing is determined to be required to undertake the works, this would need to be subject to further assessment by the contractor in accordance with the EP&A Act.
- Temporary fencing and signage should be utilised to demarcate the area of works.
- Vehicles and machinery would utilise existing tracks and cleared areas where possible to access the site during construction.
- Erosion and sediment controls should be developed and installed prior to the commencement of construction and maintained throughout the construction and subsequent rehabilitation works.
- The works are to be undertaken in accordance with AS 4970-2009 Protection of trees on development sites (Australian Standards 2009).
- Weed management measures are to be included in the CEMP to reduce the chance of spreading existing weeds or introducing new ones; weed management measures should be implemented prior to works commencing and should address:
    - Removal of weeds in the constructible footprint during construction including spraying and physical removal.
    - Suitable methods of disposal for weeds removed physically removed.
    - Vehicle wash-down procedures to minimise the likelihood of spreading weeds
    - Ensure environmental or significant weeds are not disbursed by the construction activities.
- Clearly demarcate areas to be disturbed using hi-vis flagging tape, florescent paint, (or similar) prior to clearing.
- Storage of plant and equipment is to occur in currently cleared areas (e.g. existing vehicular tracks, etc.) and not located in naturally vegetated areas.

5.8. Waste Management and Contamination

Waste such as sludge from the WTP processes is dried in one of the two sludge lagoons at the WTP. Once dried, the sludge is removed for disposal.

5.8.1. Construction Impacts

The construction of the proposal would result in waste in the form of excess spoil, cleared vegetation and general building wastes such as packaging, offcuts, excess materials and workers wastes such as drinks containers, food scraps etc. Portable toilets would be provided for workers at the construction site.

To ensure that environmental harm does not occur as a result of uncontrolled or inappropriate collection, transport and disposal the relevant provisions of the following Acts would be implemented:

- *Waste Avoidance and Resource Recovery Act 2001*
- *Protection of the Environment Operations Act 1997*
- *Protection of the Environment Operations (Waste)Regulation 2014*

The waste management and contamination control procedures and/or measures listed in the CEMP would be implemented for the proposed works.

The process for decommissioning of the existing WTP has not been confirmed. However, waste management and contamination control procedures would be included in the CEMP and be managed by the contractor to avoid soil or water contamination.

5.8.2. Operational Impacts

Waste production and disposal from the new WTP would be comparable to that of the existing WTP. The operation of the new WTP would result in backwash water and dried sludge. Backwash water would be returned to the headworks for treatment and would not be discharged to the environment.

Sludge would be dried in one of the two sludge lagoons at the WTP. Once dried, the sludge would be removed for disposal. Dried sludge would be managed by CDSC and is likely to be transported off site to landfill.

The WTP would be operated to avoid chemical spills and the generation of chemical waste. All chemical storage and dosing systems would be maintained in a bunded storage area. The entire chlorination system would be operated under vacuum conditions from the duty drum up to the injector to minimise the potential for chlorine leakage.

Any chemical waste resulting from the operation of the WTP would be contained in the bund. There would be no separate chemical waste holding tank connected to any chemical bund. No chemical waste would be discharged into the stormwater system, such waste would need to be pumped out from the sump of the chemical bund and taken offsite for appropriate treatment.

Wastewater and sewage generated from the shower, toilet and washbasin would be directed to Council's sewer reticulation system or a septic tank.

5.8.3. Mitigation

Construction

- The contractor undertaking the works would detail waste management procedures in a Waste Management Plan to be incorporated into the CEMP. The contractor is to assume responsibility for the appropriate disposal of any waste generated. Adequate procedures should be established and detailed in the CEMP, including notification requirements to EPA, for incidents that cause material harm to the environment.
- The WMP would also follow the resource management hierarchy principles embodied in the *Waste Avoidance and Resource Recovery Act 2001*. Namely, to:
  - avoid unnecessary resource consumption;
  - recover resources (including reuse, reprocessing, recycling and energy recovery); and
  - dispose (as a last resort).
- No batched concrete mixing plants would be established in the works areas. Any required concrete would be mixed off-site and transported to the construction areas.
- Following completion of the works, excess concrete would be removed off-site for recycling.
- All waste removed from the site would be classified and disposed of appropriately, and all non-recyclable waste would be disposed of at an appropriate licensed waste disposal facility.
- If any contaminated material is encountered during earthworks, work shall cease, the site secured and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.
- Cleared vegetation (devoid of weeds) would be mulched and re-used on site as part of site stabilisation and revegetation. Excess mulch would be removed off site and disposed of in accordance with EPA requirements.
- If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action.

Operation

- Minor spills of chemicals and any minor chemical waste from the wet lab area would be directed to Council's sewer reticulation or a small chemical waste tank, including fluoride wastes.
- No chemical waste would be discharged into the stormwater system.

5.9. Heritage

Historic Heritage

The WTP site surrounds have been historically used for residential, gazing and mining related activities. However, no physical evidence or registered historical heritage items relating the site to local historical heritage is present today at the WTP site.

The proposed location of the new WTP infrastructure would be within the curtilage of one heritage item I38 - Solar Power Station listed under the Central Darling LEP 2012, as shown in Figure 5-1. However, no structures or landscape features associated with the heritage listing are located within the footprint of the existing WTP or proposed location of the new WTP.

No items listed on the Heritage NSW State Heritage Register are located within the WTP site. A search of the State Heritage Inventory and NSW Heritage Council administered heritage databases returned no records for historical heritage sites within the WTP site search area. The search results are provided below in Table 5-5.

Table 5-5 Historic Heritage Desktop Database Search Results

Name of Database Searched	Date of Search	Type of Search	Comment
Heritage NSW State Heritage Inventory Listings	20.09.21	White Cliffs township area	No places listed on the heritage lists are located within the proposal works area.
National and Commonwealth Heritage Listings	16.09.21	NSW	No places listed on either the National or Commonwealth heritage lists are located within the proposal works area.
Local Environment Plan (LEP)	16.09.21	Central Darling LEP 2012	The WTP site is partially located within the curtilage of Heritage Item I38 - Solar Power Station (Part of Lot 102, DP 611504; Lot 101, DP 838308; Lots 1, 2, 4, 6, 9–11, 15 and 20, Section 2, DP 759084)

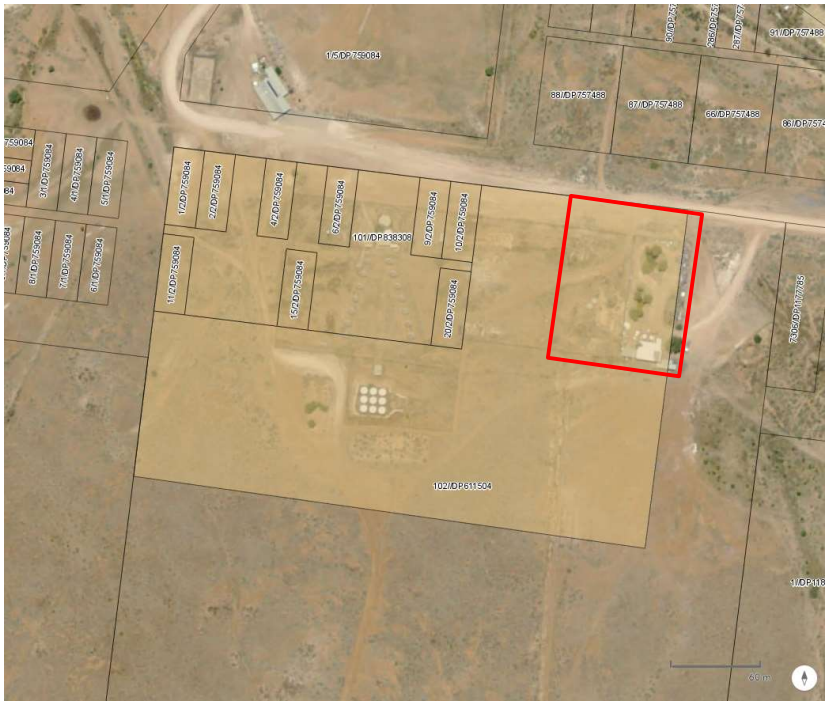


Figure 5-1 Extent of Solar Power Station local heritage item curtilage (Item I38) which includes the current and proposed White Cliffs WTP site (shown in red)

Source: NSW Planning Portal EPI Heritage layer, accessed September 2021

Aboriginal Cultural Heritage

A desktop search was conducted on the following databases in July 2017 and September 2021 targeting the White Cliffs WTP site to identify any potential previously recorded Aboriginal heritage places or objects within the area. The results of this search are summarised in Table 5-6 below. A copy of the AHIMS search carried out for the WTP property in September 2021 is provided in Appendix C.

Table 5-6 Aboriginal Heritage Desktop - Database Search Results

Name of Database Searched	**Date of Search**	Type of Search	Comment
Aboriginal Heritage Information Management System (AHIMS)	20.09.21	WTP site- Lot 102 DP 611504)	No registered AHIMS sites within the proposal works area (or within 50 metres of the proposal site).
National Native Title Claims/Determinations Search	20.09.21	NSW	No Native Title Claims cover the proposal works area. The lot is listed as extinguished area under Native Title Determination NCD2015/001 - Barkandji Traditional Owners #8
Commonwealth Heritage Listings	20.09.21	NSW	No Aboriginal places listed on either the National or Commonwealth heritage lists are located within the works area.
Local Environment Plan	20.09.21	Central Darling LEP 2012	No Aboriginal places noted occur in or near the proposal works site.

The following summary of Aboriginal heritage impacts associated with White Cliffs WTP site has been taken from the *White Cliffs Proposed Water Treatment Plant Due Diligence Assessment* prepared by New South Wales Archaeology to accompany the development application. A copy of the report is provided in Appendix C.

The local area has been utilised by Europeans for grazing, mining and habitation, commencing in the 1860s. The effects of these activities across the area have included the removal of original vegetation and the subsequent erosion of topsoil due to water and wind erosion.

The wider local area is likely to have provided Aboriginal land users with a limited variety of resource zones related to the surrounding plains and the intermittent flow of the riverine systems. Immediately to the northeast of the proposed activity area, at a distance of some 150 metres, is situated an ephemeral drainage line. However, this feature would only have held water briefly after heavy rains, and remained dry most times. It is predicted the focal locale of occupation within the broader landscape would have been at some considerable distance from the proposed activity area, nearer to more permanent water sources, and it would have been in those regions where artefact discard of relatively high densities would have occurred.

The proposal site is predicted to have been very sparsely used for Aboriginal occupation, and accordingly associated artefact distribution is expected to be low.

The works area is on land which is assessed to be of generally very low archaeological sensitivity as a result of:

- the nature of the landform, being a simple slope away from reliable sources of water; and
- the high levels of previous disturbance.

A visual inspection of the proposal works area was conducted in May 2017 as part of the Due Diligence assessment. The area was found to be comprehensively disturbed as the result of previous land surface modifying works, including comprehensive disturbance to large areas as the result of mechanical grading. No Aboriginal objects were recorded during the site inspection and the works area was assessed to be of very low archaeological sensitivity.

5.9.1. Construction Impacts

Historical Heritage

The White Cliffs Solar Power Station heritage listing (Item # I38) includes only part of the WTP lot and no structures or landscape features associated with the Solar Power Station heritage listing are located within or in close proximity to the existing or proposed new WTP site, and therefore the local heritage item would not be impacted by the proposed WTP upgrade works. As such, no historical heritage impacts are predicted associated with the proposed WTP upgrade.

Aboriginal Cultural Heritage

No Aboriginal objects or places were recorded in the vicinity of the WTP site.

The Aboriginal Heritage Due Diligence assessment by New South Wales Archaeology concluded that based on the extent of previous impacts, the activity area is not archaeologically sensitive and no Aboriginal objects are known to be present. Accordingly, further archaeological assessment and an AHIP are not required.

However, if Aboriginal objects are found while undertaking construction works the proponent must stop work and notify Heritage NSW; an AHIP may need to be sought.

Furthermore, if human skeletal remains are found, construction work must stop work immediately, secure the area to prevent unauthorized access and contact the NSW Police and Heritage NSW.

5.9.2. Operational Impacts

No impacts to items of historic heritage are predicted, and no impact to Aboriginal objects or places is expected due to the operation of the new WTP.

5.9.3. Mitigation

Construction

- It would be a requirement that all workers/contractors on the site be informed of their obligations under the *National Parks and Wildlife Act 1974* and *Heritage Act 1977*, namely that it is illegal to disturb, damage or destroy a relic without the prior consent of Heritage NSW.

- If human skeletal remains are found the proponent must stop work immediately, secure the area to prevent unauthorized access and contact the NSW Police and Heritage NSW.
- If Aboriginal objects are found while undertaking the activity the proponent must stop work and notify Heritage NSW and an AHIP may need to be sought.
- Should any Aboriginal Objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal Object the archaeologist would provide further recommendations. These may include notifying Heritage NSW and Aboriginal stakeholders.
- In the event that known or suspected Aboriginal skeletal remains are encountered during the activity, the following procedure would be followed:
    a. all work in the immediate vicinity would cease;
    b. the find would be immediately reported to the work supervisor who would immediately advise the Environment Manager or other nominated senior staff member;
    c. the Environment Manager or other nominated senior staff member would promptly notify the police and the state coroner (as required for all human remains discoveries);
    d. the Environment Manager or other nominated senior staff member would contact the Heritage NSW for advice on identification of the skeletal material as Aboriginal and management of the material; and
    e. if the skeletal material is of Aboriginal ancestral remains, the Local Aboriginal Land Council would be contacted and consultative arrangements would be made to discuss ongoing care of the remains.
- In the event that historical relics or sites are identified also work must stop and be protected until a qualified archaeologist inspects the site and provides management advice in consultation with the Heritage NSW .

5.10. Hazards and Risks

The WTP is identified as bushfire prone land Vegetation Category 3 on the Bushfire Prone Land Map, certified by the NSW Rural Fire Services (refer to Figure 5-2).

A number of chemicals that can be classified as Dangerous Goods under the ADG Code are currently stored on site. The WTP is operated in a manner to avoid chemical spills and the generation of chemical waste. All chemical storage and dosing systems are maintained in accordance with Australian Standards and Safework NSW guidelines, adequately sealed within infrastructure and appropriately bunded.

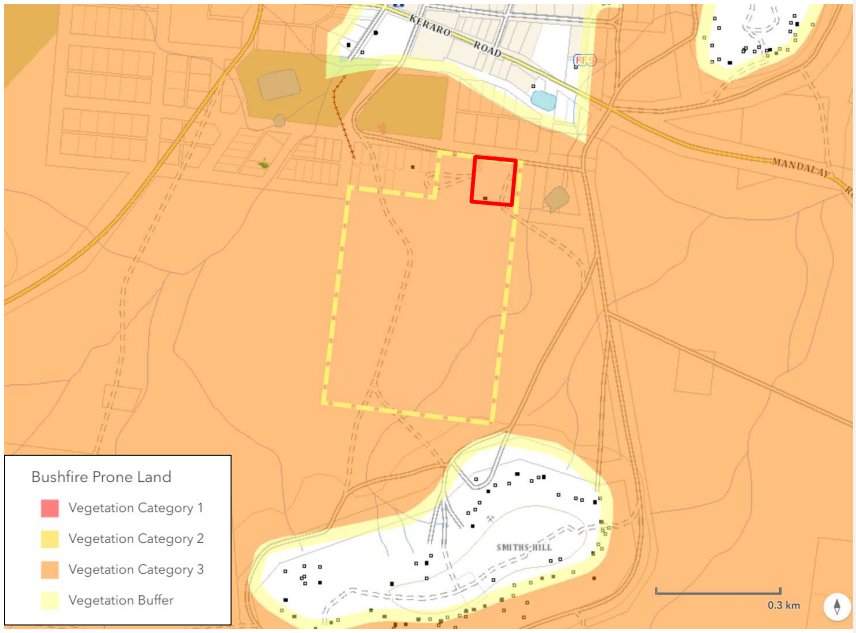


Figure 5-2 Extract of the Bushfire Prone Land Map for the WTP site (location of proposed works outlined in red)

Source: NSW Planning Portal Spatial Viewer, accessed March 2020

5.10.1. Construction Impacts

Minimal vegetation clearing, would be undertaken for the construction of the new WTP which would be constructed in accordance with BCA requirements. As such, the works are not anticipated to pose a significant bushfire risk at the site. However, any risks should be identified by the contractor and incorporated into the CEMP.

Given the scale works of the works proposed, which would be carried out in accordance with design specifications, it is considered that the proposal would not affect the bushfire hazard at the WTP site, assuming the implementation of management measures provided in Section 5.10.3.

5.10.2. Operational Impacts

The WTP would be operated as per the exiting WTP in a manner to avoid chemical spills and the generation of chemical waste. A number of chemicals that can be classified as Dangerous Goods under the ADG Code would continue to be stored on site and include:

- Liquefied Chlorine gas - Class 2.3
- Caustic Soda (sodium hydroxide) - Class 8
- Fluoride (sodium fluoride) - Class 6.1
- Potassium Permanganate - Class 5.1

Class 2.3 substances are classified as toxic gases. These are defined as substances that are known to be so toxic or corrosive to humans as to pose a hazard to health.

Class 8 substances are classified as corrosive substances. These are defined as substances which, by chemical action, would cause severe damage when in contact with living tissue, or, in the case of leakage, would materially damage, or even destroy, other goods or the means of transport.

Class 6.1 goods are classified as toxic. They are substances that are liable either to cause death or serious injury or to harm human health if swallowed or inhaled or by skin contact.

Class 5.1 are classified as oxidising substances. They are substances which, while in themselves are not necessarily combustible, may, generally by yielding oxygen, cause, or contribute to, the combustion of other material.

Dangerous good storage notification to Safework NSW would be undertaken for the above chemicals.

The quantities of chemicals that would be stored are all below the relevant thresholds that would trigger additional requirements under *State Environmental Planning Policy 33 – Hazardous and Offensive Development*.

The risk of chemical spills is considered to be low. All chemicals used in the treatment process would be stored on site within bunded areas. Bunds would be sized to contain 20% in addition to the chemical volumes stored (ie a minimum of 120% of chemicals stored within them).

Public safety hazards are unlikely beyond the boundary of the WTP site. Chemicals stored and used at the WTP are required to be stored in accordance with Australian Standards and Safework NSW guidelines, adequately sealed within infrastructure and appropriately bunded. Chemicals may be required to be disposed of during operation of the WTP. Requirements for the storage, handling and disposal of chemicals during operation would be undertaken in accordance with the relevant Safety Data Sheets and included in the WTPs Operational Management Plan.

For the protection of the public, the entire WTP site including the sludge lagoons would be fenced. The man proof fencing would also consist of one double leaf manual gate at the entrance.

The existing WTP would remain operational until the new plant is commissioned. Therefore, there would be no interruption of the water supply to the community.

5.10.3. Mitigation

Construction

- Construction staff to be made aware of the location of the proposed works in an area identified as bushfire prone land and the potential for bushfire risk.
- No hot works to be undertaken on Total Fire Ban days.
- Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line.

- Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.
- Workers would be trained in the spill management plan and the use of the spill kits.

Operation

- SafeWork NSW would be notified regarding the storage of dangerous goods at the site.
- The transport and handling of all chemicals used in the operation of the White Cliffs WTP would be undertaken in accordance with all relevant SafeWork NSW guidelines including the following:
  - *Code Of Practice: Managing Risks Of Hazardous Chemicals In The Workplace* (SafeWork NSW, August 2019).
  - *Code Of Practice: Labelling Of Workplace Hazardous Chemicals (*SafeWork NSW, August 2019).
- Liquid chemical storage and filling areas would be located in bunded areas designed to accommodate 120% of the total capacity delivered and are to include appropriately designed drainage and safety equipment.
- Storage tanks would be regularly inspected and maintained to ensure their integrity. Plant personnel would be trained for proper and safe operation of these facilities.
- Specific requirements for the management of chemicals associated with the WTP would be detailed in an Operational Environmental Management Plan.
- Safety Data Sheets for chemicals used in the treatment process are to be available on site at all times.
- All hazardous substances are to be listed in a register together with the relevant Safety Data Sheets. Employees are to have access to this register.
- Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.
- Appropriate signage is to be maintained where chemicals are stored.
- The Operational Environmental Management Plan would be periodically reviewed to assess the efficacy of all management procedures. Identified shortcomings would be remedied to ensure these continue to be effective.

5.11. Visual Amenity

The new WTP would be located adjacent to the existing WTP within the same site, which is located in a rural setting on the outskirts of the White Cliffs township. The site is visible to the members of the public from Beth Street on the northern boundary of the site.

The WTP site is characterised by the existing WTP shed, storage tanks and associated infrastructure and three small ponds, with several trees and shrubs scattered

throughout the site. The adjoining land to the WTP infrastructure is generally vacant, with some vehicles stored by Council at the site as an informal storage/depot area.

5.11.1. Construction Impacts

The main visual impacts during the construction period would be from equipment and vehicles used during construction works, stockpiling and site compound. Visual impacts resulting from construction would be short term and would be negligible due to the limited visibility of the site to surrounding residents and the general public.

5.11.2. Operational Impacts

The new WTP would result in the decommissioning of the existing WTP building and the construction of new infrastructure onsite. The new WTP building would be a single storey structure constructed from Colorbond which would be contained within the existing WTP site in the same lot parcel. The two new sludge lagoons would be low rise and only partially visible from outside the site. New fencing would be the same height and of similar material to existing site security fencing.

These new features would be consistent with the existing water treatment use of the site and are predicted to have a minimal additional impact on the visible aesthetics of the area.

5.11.3. Mitigation

- The clearing of vegetation would be kept to the minimum required for the works.
- Construction compounds and areas for the parking of vehicles and storing of equipment would be located in cleared areas wherever possible.

5.12. Social and Economic

Overall, the proposal has long-term social and economic benefits to the broader community of White Cliffs. These include:

- Replacing an existing WTP which has reached the end of its design life functionality;
- Meeting the long term potable water supply needs of the White Cliffs area;
- Providing flexibility in design and layout – allows optimum use of the site, can use the latest technology more effectively and efficiently and can suit the need and requirements more readily;
- Allowing the provision of appropriate water treatment and supply facilities for the delivery of best practice and the best functional relationships;
- Providing opportunities for the local building industry in the provision of WTP facilities (i.e. local trades, local employment, etc); and
- Proving better human capital outcomes (i.e. morale, state of mind, etc) by providing a new, purpose built water treatment facility for the local community.

The project objectives are to provide an environmentally sustainable, high quality designed water treatment plan which would provide a high-quality potable water supply which would meet the ADWG standards.

The proposal would result in short term and medium-term employment opportunities during the construction works, and would maintain employment opportunities for current staff at the WTP. The proposal is unlikely to result in the displacement of employment or create any adverse economic trade impacts upon the locality.

The proposal is not considered to have any adverse social or economic impacts, or result in any cumulative adverse impacts upon the locality.

5.13. Site Suitability

The subject site is identified as being zoned RU5 Village pursuant to the *Central Darling LEP 2012* and water supply systems are permitted with consent in this zone. The proposed development is considered to be consistent with existing land use, being located adjacent to the existing WTP. Overall, the proposed development is considered satisfactory in terms of the likely impacts of the development and, as such, the subject site is considered suitable for the proposed development.

5.14. Public Interest

The proposed development is for the purpose of improving the water treatment facilities at an existing WTP site within the White Cliffs area. The development therefore represents an orderly development of the land. Accordingly, it is considered that the development is in the public interest.

6. Environmental Management

6.1. Construction Environmental Management Plan

Preparation of a Construction Environmental Management Plan (CEMP) is mandatory for all projects undertaken by or on behalf of government agencies or where funding is being provided by the government.

The CEMP would be developed to ensure that appropriate environmental management practices are followed during a project's construction and/or operation. CDSC would review the CEMP for this proposal, which should include the following elements, as described in the Guideline for the Preparation of Environmental Management Plans (DIPNR, 2004):

Table 6-1 Construction Environmental Management Plan Structure

Background	Introduction to the document Description of the proposal and project details The context for the CEMP in regard to the overall project The CEMP objectives The contractor's environmental policy
Environmental Management	Environmental management structure of the organisation and specific team responsibilities with respect to the CEMP and its implementation Approval and licensing requirements relevant to the project Reporting requirements Environmental training Emergency contacts and response
Implementation	A project specific risk assessment A detailed list of environmental management safeguards and controls CEMP sub plans for specific environmental controls A detailed schedule assigning responsibility to each environmental management activity and control
Monitor and Review	Environmental monitoring Environmental auditing Corrective action CEMP review and document control procedures

The CEMP would include a risk assessment which ensures that the safeguards identified in this SEE, as well as any others that are considered relevant, are effectively

translated into actual construction techniques and environmental management activities, controls, and monitoring/verification to prevent or minimise environmental impacts. The CEMP should also identify the requirements for compliance with relevant legislation and any other regulatory requirements to ensure environmental safeguards described throughout this SEE are implemented. The environmental management objectives and supporting actions presented in this section are intended to assist in this process.

The following details the environmental objectives during construction and the proposed mitigation to be included in the CEMP. This list is not definitive, and additional measures detailed as part of the determination of the project and conditions of any other approvals must also be included. Operational safeguards are also included.

6.2. Environmental Management Measures

Implementation of the mitigation measures outlined below would be undertaken during several phases of the project. These phases comprise:

- Detailed design – refinement of the design details
- Pre-construction – prior to the contractor arriving on site to carry out the works
- Construction – during construction phase
- Operation – post construction

6.2.1. Land Use

Objective

- Minimise impacts to surrounding land users during construction and operation

Actions

Action/Phase	Responsibility
Pre-construction	
Best management construction impacts are to be documented in a project specific CEMP.	Contractor
Construction	
No construction activities (e.g. tree clearing, stockpiling etc.) would be undertaken on private property surrounding the WTP site without prior approval.	Contractor
Appropriate security, supervision and access controls would be put in place and properly monitored to ensure no access by unauthorised personnel, either to the work area or via the work area to adjoining areas not under the ownership of CDSC.	Contractor
CDSC would provide a 24-hour telephone number so that any issues relating to the operation of the new infrastructure can be clarified and complaints dealt with by those able to respond.	CDSC

Restoration of the areas disturbed during construction would be undertaken so that these areas are returned to their pre-construction condition.	Contractor

6.2.2. Soils

Objective

- To effectively manage sediment and erosion control during the construction stage of the project.

Actions

Action/Phase	Responsibility
Pre-construction and Construction	
A detailed Erosion and Sediment Control Plan (ESCP) would be prepared as part of the CEMP. The SWMP would describe the site specific measures to be implemented for all works areas, in accordance with the guidelines outlined in the 2004 Landcom publication Managing Urban Stormwater: Soils and Construction, 4th edition ("The Blue Book") and Volume 2a Installation of Services. The SWMP would need to be site specific and would need to address the following issues to prevent erosion, sediment loss and water quality impacts: o Minimisation of disturbance to soil and water adjacent to, and within, all watercourses in the works area. o Identification of site specific sediment and erosion control measures wherever erosion is likely to occur. o Identification of any environmentally sensitive areas on or near construction sites to ensure runoff is diverted away from sensitive areas. o Requirements for vegetation clearing to be kept to a minimum. o Retention of all surface runoff on-site o Where possible, diversion stormwater around the construction site. o Location and management of stockpiles, such as locating stockpiles away from any the drainage line near the works areas. o All erosion and sediment controls would be regularly inspected, especially when rain is expected and directly after any rain events.	Contractor

Action/Phase	Responsibility
Construction	
All areas where ground disturbance has occurred would be stabilised following completion of works to ensure there is no erosion hazard and restored to their pre-construction condition. This would involve, where required, reshaping the ground surface, covering it with topsoil excavated from the site and re-establishing an appropriate vegetation cover.	Contractor
Any excess spoil would either be spread across the ground in nearby areas in such a manner as to avoid creating an erosion hazard, or removed off site for disposal in accordance with relevant Council and EPA requirements.	Contractor

6.2.3. Water Quality

Objective

- Prevention/minimisation of impacts to the waterways and ground water during the construction works.

Actions

Action/Phase	Responsibility
Pre-construction and Construction	
Adequate procedures would be detailed in the CEMP, including notification requirements to the EPA, for incidents that cause material harm to the environment.	CDSC / Contractor
A site specific spill management plan would be prepared and include the following requirements: ○ Emergency spill kits are to be kept at the site (vehicle kits). ○ Refuelling of machinery to be undertaken in a dedicated area within the construction compound appropriately protected as outlined in the spill management plan. ○ NSW Department of Industry (DoI) recommends that bio-friendly hydraulic fluids are used in plant and machinery. The decision is ultimately the machine operators, but at minimum a risk assessment needs to be undertaken on why the fluid cannot be used. ○ All plant and equipment shall be inspected daily for leakage of fuel, oil or hydraulic fluids. Machinery found to be leaking shall be immediately repaired or replaced.	Contractor

Action/Phase	Responsibility
Pre-construction and Construction	
○ Vehicle wash downs and/or cement truck washouts would be undertaken within a designated bunded area of an impervious surface or undertaken offsite.	
Mitigation measures to manage groundwater (should it be encountered during construction) would be incorporated into the CEMP which is to address the following issues in relation to groundwater: ○ Dewatering techniques during excavation/drilling; ○ Measures to ensure groundwater quality is not impacted during construction; ○ Techniques to settle, treat or filter groundwater encountered during excavation works i.e. diverting groundwater through baffle tanks or filter membranes; and ○ Appropriate treatment and monitoring regimes in the event that groundwater flows come to the surface, including disposal of groundwater in such a way as to prevent adverse impacts (such as erosion and water pollution). Groundwater should not be discharged to a waterway during construction.	Contractor
The CEMP would incorporate a pollution incident response management plan that defines appropriate procedures for notification of pollution incidents to the required authorities in accordance with s. 147 to 153 of the POEO Act, and requires response actions to be implemented in order to address any risks such as incidents posed to the environment, property or surrounding communities.	Contractor

6.2.4. Heritage

Objective

- Minimise potential impacts to items and places of Aboriginal cultural heritage due to the works
- Minimise potential impacts to items and places of historic heritage due to the works

Actions

Action/Phase	Responsibility
Construction	
It would be a requirement that all workers/contractors on the site be informed of their obligations under the *National Parks and Wildlife Act*	Contractor

Action/Phase	Responsibility
Construction	
1974 and *NSW Heritage Act 1977*, namely that it is illegal to disturb, damage or destroy a relic without the prior consent of Heritage NSW.	
If human skeletal remains are found the proponent must stop work immediately, secure the area to prevent unauthorized access and contact the NSW Police and Heritage NSW.	Contractor
If Aboriginal objects are found while undertaking the activity the proponent must stop work and notify Heritage NSW, and an AHIP may need to be sought.	Contractor
Should any Aboriginal Objects be encountered during works associated with this proposal, works must cease in the vicinity and the find should not be moved until assessed by a qualified archaeologist. If the find is determined to be an Aboriginal Object the archaeologist would provide further recommendations. These may include notifying the Heritage NSW and Aboriginal stakeholders.	Contractor
In the event that known or suspected Aboriginal skeletal remains are encountered during the activity, the following procedure would be followed: (a) all work in the immediate vicinity would cease; (b) the find would be immediately reported to the work supervisor who would immediately advise the Environment Manager or other nominated senior staff member; (c) the Environment Manager or other nominated senior staff member would promptly notify the police and the state coroner (as required for all human remains discoveries); (d) the Environment Manager or other nominated senior staff member would contact Heritage NSW for advice on identification of the skeletal material as Aboriginal and management of the material; and (e) if the skeletal material is of Aboriginal ancestral remains, the Local Aboriginal Land Council would be contacted and consultative arrangements would be made to discuss ongoing care of the remains.	Contractor
In the event that historical relics or sites are identified also work must stop and be protected until a qualified archaeologist inspects the site and provides management advice in consultation with Heritage NSW.	Contractor

6.2.5. Flora and Fauna

Objective

- Avoidance/minimisation of impacts to flora and fauna

- Minimise clearing of vegetation
- Avoid weed invasion
- Prevention/minimisation of impacts to surrounding waterbodies

Actions

Action/Phase	Responsibility
Construction	
The construction area is to be clearly delineated.	Contractor
Temporary construction sites and storage areas would remain in a tidy state and free of debris. Following completion and departure from the construction site areas, as required, disturbed surfaces would be stabilised.	Contractor
The contractor(s) would, as required, undertake appropriate vehicle and equipment hygiene to prevent the spread of weeds within and/or between sites.	Contractor
The area of disturbance and vegetation removal is to be kept to the minimum required to undertake the works. If greater vegetation clearing is determined to be required to undertake the works, this would need to be subject to further assessment by the contractor in accordance with the EP&A Act.	Contractor
Temporary fencing and signage should be utilised to demarcate the area of works.	Contractor
Vehicles and machinery would utilise existing tracks and cleared areas where possible to access the site during construction.	Contractor
Erosion and sediment controls should be developed and installed prior to the commencement of construction and maintained throughout the construction and subsequent rehabilitation works.	Contractor
The works are to be undertaken in accordance with AS 4970-2009 Protection of trees on development sites (Australian Standards 2009).	Contractor
Weed management measures are to be included in the CEMP to reduce the chance of spreading existing weeds or introducing new ones; weed management measures should be implemented prior to works commencing and should address: o Removal of weeds in the constructible footprint during construction including spraying and physical removal. o Suitable methods of disposal for weeds removed physically removed.	Contractor

Action/Phase	Responsibility
Construction	
○ Vehicle wash-down procedures to minimise the likelihood of spreading weeds ○ Ensure environmental or significant weeds are not disbursed by the construction activities.	
Clearly demarcate areas to be disturbed using hi-vis flagging tape, florescent paint, (or similar) prior to clearing.	Contractor
Storage of plant and equipment is to occur in currently cleared areas (e.g. existing vehicular tracks, etc.) and not located in naturally vegetated areas.	Contractor

6.2.6. Noise and Vibration

Objective

- Compliance with relevant recommendations specified in the Interim Construction Noise Guideline (DECC, 2009).
- Avoidance/minimisation of noise impacts on nearby sensitive noise receivers.

Actions

Action/Phase	Responsibility
Pre-construction and Construction	
Consult with residential premises in the immediate vicinity of the proposed works to determine any community concerns. Provide advice as to where concerns can be directed. If the consultation community concerns are not readily resolved by agreement, Council staff are to be contacted who would endeavour to assist in resolving any outstanding issues of concern	CDSC / Contractor
Construction	
Works would be undertaken during normal work hours i.e. 7am to 6pm Monday to Friday; 8am to 1pm Saturdays; and no work would be undertaken on Sundays, Public Holidays or outside these work hours without notification to affected community and EPA. Notification would provide the following details: ○ The locations and types of surrounding receivers likely to be affected; ○ The nature of the proposed works; ○ The noise characteristics of any powered equipment likely to be used;	Contractor

Commented [KP4]: Will Amend accordingly if work hours to be extended as per COVID public health order

Action/Phase	Responsibility
Pre-construction and Construction	
○ Measures to be taken to reduce noise emissions; and ○ Any other information EPA may request. ○ All reasonable practical steps shall be undertaken to reduce noise and vibration from the site.	
Control measures to minimise noise and vibration impacts on adjoining land would be implemented during construction as part of the contractor's CEMP, which would require review by CDSC prior to commencement of works. The CEMP would address site specific issues, including limited work hours and noise and vibration reduction practices, taking into consideration EPA's Interim Construction Noise Guideline (in particular Tables 4–10) and Assessing Vibration: A Technical Guideline (in particular mitigation measures in Section 3). Mitigation measures to minimise noise and vibration impacts would include: ○ Optimum siting of work areas, vehicle and plant parking areas, materials stockpiles and equipment storage areas in locations where potential acoustic and vibration impacts would be minimised; ○ Regular maintenance of all plant and machinery used for the project; ○ Identify locations where construction noise and vibration is most intrusive and develop strategies to reduce impacts for these areas.	CDSC/ Contractor

6.2.7. Air Quality

Objective

- Avoidance/minimisation of off-site dust nuisance to neighbouring residences and the community.
- Minimisation of air quality impacts resulting from machinery and vehicle emissions.

Actions

Action/Phase	Responsibility
Construction	
Construction vehicles and equipment would be suitably serviced within the six-month period prior to commencement of construction activities and all necessary maintenance undertaken during the construction period to meet EPA air quality requirements.	Contractor

Action/Phase	Responsibility
The excessive use of vehicles and powered construction equipment is to be avoided.	Contractor
All construction machinery would be turned off when not in use to minimise emissions.	Contractor
Construction contractors would monitor dust generation potential.	Contractor
Dust suppression methods including the use of water carts would be applied where required (i.e. on windy days when earthworks and vehicle movements are generating dust).	Contractor
Any stockpiled spoil/fill would be protected to minimise dust generation to avoid sediment moving offsite.	Contractor
Vehicles transporting any spoil would be covered.	Contractor
Exposed surfaces to be progressively revegetated/regrassed as soon as practicable.	Contractor

6.2.8. Traffic and Access

Objective

- Ensure that construction vehicles do not cause excessive inconvenience to road and pedestrian users.
- Ensure the safety of road users and construction personnel for the duration of the works.
- Minimise the pollution impacts resulting from the use of vehicles during construction.

Actions

Action/Phase	Responsibility
Pre-Construction	
The contractor would prepare a Traffic Management Plan as part of the CEMP prior to commencement of works. The Traffic Management Plan would include measures to minimise traffic impacts, ensure public safety and would be prepared in accordance with: ○ RMS; Traffic Control at Work Sites Manual, Issued June 2018, and ○ Australian Standard 1742.3 - 2009 Traffic Control for Works on Roads.	Contractor
Prior to the commencement of works, existing access tracks that would be used by heavy vehicles would be assessed for adequacy	Contractor

Action/Phase	Responsibility
and upgraded where necessary. Appropriate drainage would be provided for any unsealed tracks utilised during the works to ensure that vehicle movements do not cause erosion and sedimentation of nearby waterways.	
Construction	
Any disturbance to landowners as a result of vehicle movements and noise would be minimised. The contractor would avoid any inconvenience to residences/landowners, and all access gates would be in their original condition following completion of the works.	Contractor
Any temporary access tracks required for the works would be located so as to minimise disturbance to the existing environment. Following completion of the works the temporary tracks would be removed, topsoil provided and re-grassed. Existing tracks would be restored to their condition prior to works.	Contractor
Trucks would not access the sites in weather conditions that would cause damage to properties.	Contractor
All traffic would comply with all applicable traffic laws and regulations including speed limits. All construction vehicles would comply with the speed limits set for the roads accessing the site.	Contractor

6.2.9. Waste Management

Objective

- Compliance the provisions of the Protection of the Environment Operations (Waste) Regulation 2014.
- Maximise reuse/recycling of waste material and minimise waste disposed of to landfill.

Actions

Action/Phase	Responsibility
Construction	
The contractor undertaking the works would detail waste management procedures in a Waste Management Plan to be incorporated into the CEMP. The contractor is to assume responsibility for the appropriate disposal of any waste generated. Adequate procedures should be established and detailed in the CEMP, including notification requirements to EPA, for incidents that cause material harm to the environment.	Contractor

Action/Phase	Responsibility
Construction	
The WMP would also follow the resource management hierarchy principles embodied in the Waste Avoidance and Resource Recovery Act 2001. Namely, to: ○ avoid unnecessary resource consumption; ○ recover resources (including reuse, reprocessing, recycling and energy recovery); and ○ dispose (as a last resort).	Contractor
No batched concrete mixing plants would be established in the works areas. Any required concrete would be mixed off-site and transported to the construction areas.	Contractor
Following completion of the works, excess concrete would be removed off-site for recycling.	Contractor
All waste removed from the site would be classified and disposed of appropriately, and all non-recyclable waste would be disposed of at an appropriate licensed waste disposal facility.	Contractor
If any contaminated material is encountered during earthworks, work shall cease, the site secured and a safe work method statement(s) and appropriate practices shall be implemented. Any contaminated material would be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.	Contractor
Cleared vegetation (devoid of weeds) would be mulched and re-used on site as part of site stabilisation and revegetation. Excess mulch would be removed off site and disposed of in accordance with EPA requirements.	Contractor
If practicable, surplus excavated materials/fill would be reused onsite as part of rehabilitation and restoration works. Any surplus spoil disposed of in this manner would be seeded to minimise the likelihood of it being transported offsite through wind or water action	Contractor
Operation	
Minor spills of chemicals and any minor chemical waste from the wet lab area would be directed to Council's sewer reticulation or a small chemical waste tank, including fluoride wastes.	CDSC
No chemical waste would be discharged into the stormwater system.	CDSC

6.2.10. Visual Amenity

Objective

- Protect the visual amenity of the locality for neighbouring land users and the local community.

Action

Action/Phase	Responsibility
Construction	
The clearing of vegetation would be kept to the minimum required for the works.	Contractor
Construction compounds and areas for the parking of vehicles and storing of equipment would be located in cleared areas wherever possible.	Contractor

6.2.11. Utilities and Infrastructure

Objective

- Prevention/minimisation of impacts to utilities and services infrastructure during the construction works.

Actions

Action/Phase	Responsibility
Pre-construction	
Utilities and services which may be impacted by the proposal would be accurately located prior to commencement of works.	Contractor
Pre-construction and Construction	
Utility and service providers would be consulted prior to the commencement of and during construction works in the event that impacts on any utilities and services by the proposal are likely.	Contractor

6.2.12. Hazards and Risks

Objective

- Prevention/minimisation of hazards and risks during the construction and operation of the WTP.

Actions

Action/Phase	Responsibility
Construction	
Construction staff to be made aware of the location of the proposed works in an area identified as bushfire prone land and the potential for bushfire risk.	Contractor
No hot works to be undertaken on Total Fire Ban days.	Contractor
Any chemicals and fuels are to be stored in a bunded area at least 50 metres from any waterway or drainage line.	Contractor
Any hazardous materials stored on site would be stored in the compounds and within impervious and bunded enclosures capable of storing 120% of the volume of material stored there.	Contractor
Workers would be trained in the spill management plan and the use of the spill kits.	Contractor
Operation	
Safework NSW would be notified regarding the storage of dangerous goods at the site.	CDSC
The transport and handling of all chemicals used in the operation of the White Cliffs WTP would be undertaken in accordance with all relevant Safework NSW guidelines including the following: ○ *Code Of Practice: Managing Risks Of Hazardous Chemicals In The Workplace* (SafeWork NSW, August 2019). ○ *Code Of Practice: Labelling Of Workplace Hazardous Chemicals (*SafeWork NSW, August 2019).	CDSC
Liquid chemical storage and filling areas would be located in bunded areas designed to accommodate 120% of the total capacity delivered and are to include appropriately designed drainage and safety equipment.	CDSC
Storage tanks would be regularly inspected and maintained to ensure their integrity. Plant personnel would be trained for proper and safe operation of these facilities.	CDSC
Specific requirements for the management of chemicals associated with the WTP would be detailed in an Operational Environmental Management Plan.	CDSC
Safety Data Sheets for chemicals used in the treatment process are to be available on site at all times.	CDSC

Action/Phase	Responsibility
Construction	
All hazardous substances are to be listed in a register together with the relevant Safety Data Sheets. Employees are to have access to this register.	CDSC
Fuel and lubricants for machinery maintenance are to be stored and managed appropriately.	CDSC
Appropriate signage is to be maintained where chemicals are stored.	CDSC
The Operational Environmental Management Plan would be periodically reviewed to assess the efficacy of all management procedures. Identified shortcomings would be remedied to ensure these continue to be effective.	CDSC

7. Conclusion

7.1. Environmental Planning Instruments – Section 4.15(a)

The provisions of relevant environmental planning instruments relating to the proposed development are provided in this SEE and have been satisfactorily addressed.

7.2. Impacts of the Development – Section 4.15(b)

An assessment of key issues relating to the proposed development is provided in this SEE.

There is the potential for minor and temporary adverse impacts during construction works in relation to noise, air quality, erosion and sediment control and waste. It is anticipated that these can be managed through preparation of a CEMP to minimise impacts to the surrounding environment.

It is considered that the likely impacts of the proposed development have been satisfactorily addressed and that the proposed development has social benefits for the community.

7.3. Suitability of the Site – Section 4.15(c)

The subject site is identified as being zoned RU5 Village pursuant to the Central Darling LEP 2012. Development for the purposes of a water supply system can be carried out with development consent within the Village zone.

The proposed development would not be inconsistent with the existing land use of the subject site, and would be located within a previously cleared and highly disturbed area.

Overall, the proposed development is considered satisfactory in terms of the likely impacts of the development and, as such, the subject site is considered suitable for the proposed development.

7.4. The Public Interest – Section 4.15(e)

The proposed development will have a long-term positive impact in the locality, due to the provision of improved potable water quality and a reliable water supply for residents of White Cliffs. Accordingly, it is considered that the development is in the public interest.

8. References

Eco Logical Australia (2020) *White Cliffs Water Treatment Plant, Weir and Pipeline, Flora and Fauna Assessment*

City Water Technologies (2016) *White Cliffs Water Supply System Scoping Report for Central Darling Shire Council* (Document No. CDS898-02-0)

National Transport Commission (2017) *Australian Code for the Transport of Dangerous Goods by Road & Rail*. Edition 7.5

NSW Public Works (2016) *Ivanhoe, White Cliffs and Wilcannia Water Supply Upgrades – Scoping Study* (Report No: WSR16047)

Public Works Advisory (2016) C*entral Darling Shire Council Condition Assessment of Water & Sewer Assets* (Report Number: WSR – 16083)

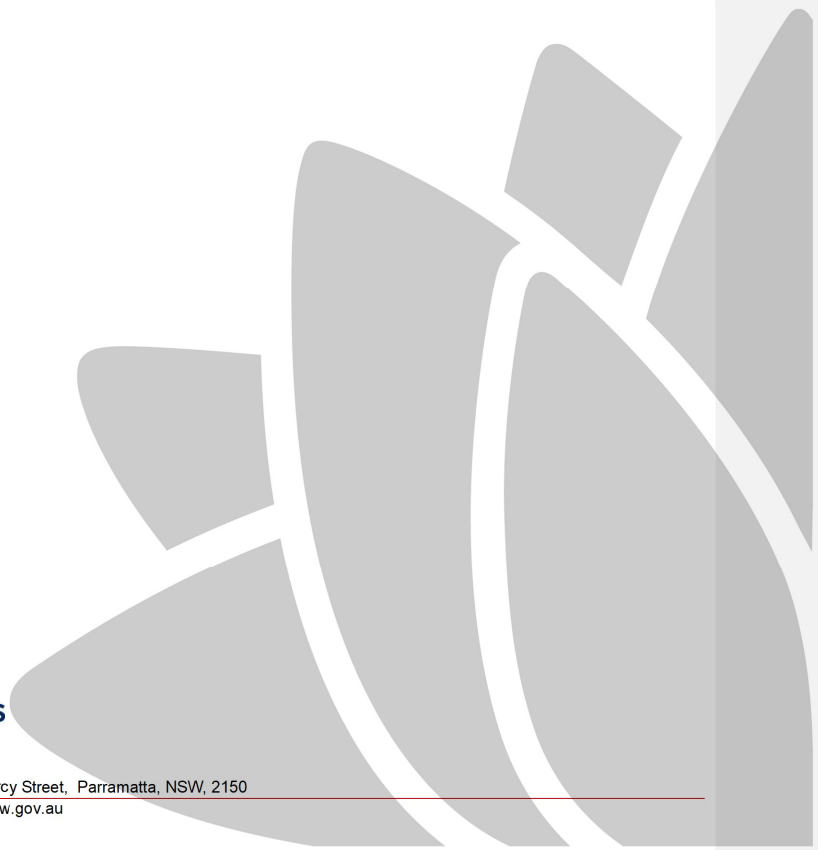
Public works Advisory (2018) *White Cliffs Water Supply Scheme - Water Treatment Plant, Rising Mains and Weir Geotechnical Investigation* (Report Number 17-GT29A)

Appendix A –Designs

Appendix B – Geotechnical Assessment Report

Appendix C – Aboriginal Heritage Due Diligence Assessment

Appendix D – Flora and Fauna Assessment



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