Shire of Dalwallinu

Place of wheat and wattle

Ordinary Council Meeting

Attachments

Tuesday, 25 February 2020 at 3.30pm

ATTACHMENTS		
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Project:

Dalwallinu Sewage Treatment Plant (Dredging/Desludging)

Background:

The Dalwallinu Town Sewage Scheme was designed and constructed by the WA Public Works Department in 1969. The Scheme is gravity fed through a combination of AC and vitreous clay pipes. The Scheme feeds through to the Sewage Treatment Plant (STP) located at the north-western end of town adjacent to, and accessible from, Annetts Street (refer to attached map).

The Scheme and the STP are owned and maintained by the Shire of Dalwallinu.

The STP consists of a primary screening unit (Imhoff tank) and a series of ponds (lagoons). The treated waste water effluent is then piped to a storage dam before being chlorinated and used to irrigate the adjacent sports fields.

The oxidation pond, located to the north-west of the STP premises, was constructed contemporaneously to the Scheme to treat the sewage collected from the residential and commercial areas of the Dalwallinu townsite. Note that the industrial area located to the east of the Great Northern Highway is not serviced by the Scheme.

The dimensions of the oxidation pond at TWL are 76,000mm (L) x 45,000mm (W) x 1,200mm (D). The depth is extrapolated from literary sources that cite that the volume for the pond is 1480m^3. Inflow is 1.6L per second or, 144 kilolitres per day. The inflow can be redirected to the pump-sump for a determined period. The pond is clay-lined with concrete tiles laid along the top edge of the batter.

It is not known when the oxidation pond was last desludged and no attempt has been made to ascertain the current depth of the liquor.

Scope of Works:

1. Effectively desludge the oxidation pond at the Dalwallinu Sewage Treatment Plant without hindering the operations onsite.

Milestones:

- Quotes received after COB Friday 20 December 2019 will not be considered

Note:

- Unfettered access to the site will be provided by the Shire
- The contractor is responsible for all requisite insurances
- Access to electricity (single phase and 3 phase) is available
- The Shire has a number of documents that may be used as a background resource

Contact:

All correspondence will be directed to Jean Knight, Chief Executive Officer, unless otherwise instructed.

Any clarification as to the scope of works will be provided by Doug Burke, Manager of Planning & Development Services.

Email shire@dalwallinu.wa.gov.au

Phone 9661 0500

Post PO Box 141 Dalwallinu WA 6609

apex ENVIROCARE

Proposal No: 2019-12-020

Prepared for: Doug Burke
Project Name: Oxidation Pond Desludging, Dalwallinu STP
Company: Shire of Dalwallinu

Aqua-Barrier Water-Inflated Dams

MUD CAT

GEO PRO GEOTECHNICAL PROFESSIONALS

Doug Burkè
Manager Planning & Development
Shire of Dalwallinu
58 Johnston Street
Dalwallinu
WA 6609

P: 0429 593 882
E: mpds@dalwallinu.wa.gov.au

Date: 20th December 2019

Dear Doug,

Further to our recent correspondence we are pleased to submit a sediment removal proposal for your Oxidation Pond.

RE: Oxidation Pond Desludging, Dalwallinu STP

About Apex Envirocare

Apex Envirocare is a wholly owned Western Australian company specialising in innovative environmental solutions for a variety of industrial, mining, and municipal problems. Our solutions offer cost-effective and environmentally sensitive alternatives to more expensive and traditional systems.

With over 20 years of local and international experience and a wealth of worldwide contacts, we have access to the latest innovative products and services from around the globe.

Apex Envirocare offers a range of premium services for sediment removal and solids dewatering including the GeoPro™ Micro-dredger, EDT Mudcat 40E, EDT Mudcat 115D remote controlled dredges and our GeoPro™ Desludging Tubes and Bags.

We are the exclusive distributor in Australia for EDT Dredges (USA made) and related equipment.

Our Aqua Barrier temporary cofferdams have been sold and leased throughout the country for over 15 years and we have supplied all the leading contractors in Australia. We also supplied large flood projects in Asia.

Health & Safety:

Apex Envirocare is committed to the health, safety and welfare of all stakeholders and will demonstrate leadership in achieving the highest attainable standards in occupational safety and health.

The values which support the commitment are:

- All injuries are preventable
- Management encourages involvement and ownership by leading by example
- Adopting safe work practices is a condition of employment
- Employee involvement and consultation is essential
- All levels of management are accountable for managing safety and health issues
- All hazards and risks can be identified, assessed and controlled
- Training employees to work safely is essential

Managers, supervisors and employees at all levels of the project actively demonstrate their commitment to these values through participation in meetings, incident reviews, reporting of incidents and events, behavioural observation processes, inductions and training programs.

Sediment Removal and Dewatering Methodology:

We propose to utilise our highly effective and efficient GeoPro™ Microdredge to mobilise and pump the sludge from the Oxidation Pond into our GeoPro™ Desludging Tubes. The Microdredge has a submersible, shrouded cutterhead and pump that is capable of planing through the STP Pond Sludge with minimal disturbance. The GeoPro™ Desludging Tubes are made of a high strength porous fabric which allows water to be released while retaining the solids inside.

The Microdredge will arrive at site on its own purpose-built tilting trailer towed by a 4x4 Utility Vehicle. The tilting trailer allows the Microdredge to be launched directly into the pond without the need for the trailer itself to enter the water, and as such does not require any special ramps or the like to be constructed. This method of launch is low impact, leaving no damage to the surrounding area. If necessary, a crane may be used to remove the Microdredge from its trailer and place it into the water. I think given the current situation at your Dalwallinu pond then a crane will be needed, as sludge may be too deep to allow the dredge to be trailer launched.

Our 20' lockable sea container will arrive at site via a standard tilt tray truck. The truck will place the sea container in the desired location within the laydown area without the need for a crane or other machinery. This container will arrive full of all the required pipe work, travel system, polymer, tubes and any other equipment required to carry out the project. It also doubles as a lockable storage area for the duration of the works. A second container may be needed as well for polymer mixing and dosing.

Sediment Removal and Dewatering Methodology: (cont.)

Set-up of the Microdredge travel system will involve the installation of four anchor points, two on each side of the pond. Each anchor point consists of four narrow stakes approximately 500mm long, and one steel plate approximately 500mm x 500mm. These will be positioned so not interfere with or damage any infrastructure.

A wire rope cable (Banjo Line) will be connected between the two anchor points located on the same side of the pond. The same will be done on the opposite side of the pond. A third wire rope cable (Traverse Cable) will then be strung across the pond and secured at each end to the Banjo Lines. No machinery is required to carry out the setup of the Travel System.

The Microdredge can then be connected to the Traverse Cable and move itself backwards and forwards along the cables' length. With each pass forward the Microdredge will make a cut into the sediment approximately 1.7m wide. The depth of cut on each pass will depend on the sediment density in that location and the speed of the dredge. Several passes may be required to complete the cut. The dredge operator will monitor and check the depths to ensure as much sediment is removed as possible. Once the cut is complete the Traverse Cable can then be moved along the Banjo Lines, and the process will start again on a new cut. In some circumstances the Microdredge will be turned around and operate in the opposite direction along the Traverse Cable. This method ensures that the Microdredge is able to cover as much of the waterway as possible. The waterway will be dredged in sections and if necessary, the travel system will be moved once a section has been completed.

Floating pipework will be connected to the dredge discharge and will carry the dredged sediment slurry to the bank of the waterway near the laydown area. The floating pipework consists of a combination of six-inch floating sections of rigid pipe with sections of flexible pipes in between. This allows the pipe work to "concertina" when required and not inhibit the movement of the Microdredge.

The bunded tube laydown area and return chute back into the pond will be lined with a quality (min 180um) black sheeted plastic. The plastic sheets will have generous overlaps and be laid out in a way that minimizes any seepage. Sandbags will be used to hold the edges of the plastic sheeting down while we place a small sand layer on the plastic around the outer edges of the bund. The GeoPro™ Desludging Tubes will then be laid out in position and secured if required. The manageable sized tubes are laid out by experienced personnel. (NB the tube laydown area dimensions and specifications are quite strict and need to be discussed and agreed with us prior to earthworks commencing).

Once the Desludging Tubes are in place, the pipe work will be continued into the laydown area where it will be manifolded into multiple tubes. This will ensure each tube will be able to have its slurry supply turned on or off as required, allowing us to re-pump a tube several times over the course of the project to maximise its capacity and solids content without having to alter or open any pipework. All pipes come in 4m to 6m lengths, each fitted with their own coupling, making them very manageable by hand. This means we do not need machinery to place the pipe work around site.

Sediment Removal and Dewatering Methodology: (cont.)

To ensure speedy dewatering and good quality filtrate release from the GeoPro™ Desludging Tubes an appropriate organic polymer will be dosed into the dredge spoil pipeline prior to it entering the tubes. The polymer will be diluted and blended by a makedown system and then be injected into the dredge spoil line. This is mixed with the dredged sludge and will flocculate the fine solids creating water/solids separation before

it enters the tubes. This ensures good solids retention in the tubes, while allowing the clear filtrate water to quickly drain from the tubes and flow back into the pond via a lined return drainage channel. Samples of the dredged slurry will be taken from the dredge spoil line before and after the polymer makedown system injection point. This will allow the technician to adjust the amount of polymer being injected to maximise its efficacy and ensure that the tubes are filled with as many solids as possible.

Should it not be possible to create a drainage channel to return the filtrate to a pond then alternatively a sump will need to be constructed. A pump with floats will then pump the water from the sump back into the Oxidation pond.

Once dredging is completed the site will be cleaned and all equipment will be demobilised, dismantled and packed in the reverse of how it was setup. The GeoPro™ Desludging Tubes and contents will be left to dry and will be disposed of by the client, along with the laydown area and plastic sheeting under the tubes.

We will comply with all requisite health, safety and induction requirements and work with all relevant staff in a communicative, cooperative and safe manner at all times.

Please have a look at our media videos at www.apexenvirocare.com.au showing the methodology in more detail.

Client Requirement/Data:

Apex Envirocare is required to supply a small dredging system, associated dewatering equipment and labour to facilitate removal of sediment from the Oxidation pond below.

Oxidation Pond dimensions are 76m x 46m x 1.2m deep. Inflow is 144m^3 per day.

Estimates based on Client info:

We assume the pond has 1 in 2 side slopes and consider the depth to be 1.2m as stated above. This gives an effective flat central area of 71.2m by 41.2m where dredging is possible.

As no survey has been undertaken we have assumed the sludge is on average 50cm deep and has an average solids concentration of 5% in-situ. This gives an assumed sludge volume of 71.2m x 41.2m x 0.5m (deep), which is 1,467m3, which @ 5% solids in-situ or 73.4 dry tonnes. Based on Water Corporation expectations of a mimimun removal rate of 80%, this projects a removal of 58.7 dry tonnes.

Based on this assumed sludge volume, we would need 3 no GeoPro™ Desludging Tubes; 20m layflat length x 6.45m layflat width.

The bunded laydown area for the GeoPro™ Desludging Tubes would need internal dimensions of minimum 25m long x 24m wide bunded to 40cm high. It needs to be compacted and have grades to suit the tube stability and control of the filtrate. These specification details will be supplied on award.

The laydown location should preferably allow for the tube filtrate to be gravity drained back to the oxidation pond or alternatively to lagoon 2. If it is not possible to return the tube filtrate by gravity then a sump will need to be constructed and a pump with floats installed in order to pump the filtrate back to the oxidation pond.

Schedule of Rates:

All prices quoted are excluding GST

Item	Equipment description	Quantity	Rate	Total
1	Sediment removal dewatering, and all related equipment, labour, accommodation and site running costs detailed in the methodology	58.7	$1,100.00 per dry tonne	$64,570.00
2	Mobilisation and Demobilisation	2	$8,500.00	$17,000.00
3	Install Plastic and Sandbags to tube laydown area	1	$2,500.00	$2,500.00
4	6" Return Pump, Fuel, floats and pipework to drain sump (if required)	Provisional	$350.00 per day	
5	4" Ancillary Pump including Pipework and Fuel (if required)	Provisional	$145.00 per day	
6	Crane hire to launch and retrieve dredge	Provisional	$2,600.00 Per move	

** As per estimated size stated in previous section.

Special Conditions:

- The client will provide earthworks to our specification to be used for a tube laydown area as mentioned above. The size of which is based on the client data and estimates/assumptions stated. AEC will provide and install large plastic (180 micron) sheets and secure with sandbags to the laydown area. If a sump is needed additional plastic will be required.
- We assume any obstructions around the pond will be removed temporarily for the duration of the dredging. Also, any obstructions in the pond such as aerators will similarly be removed for the duration of the contract.
- The client will allow access for 1 no. 20ft containers to site and provide a convenient accessible flat area to store it close to the pond which can be accessed by a tilt tray truck.
- AEC will use our anchor plates or straps to provide anchorage for our dredge travel system. AEC will manage the tube laydown area and the return of the filtrate for the duration of the dredging.
- The client will identify all services around any area where any anchor plates may penetrate the ground or where requested by AEC.
- The targeted minimum removal would be 80% of the sludge in central area of the pond in accordance with similar expectations from Water Corporation.
- The client will assist in maintaining the water level in the to allow the dredge to operate and AEC will provide a 4 inch pump if required to pump from an adjacent pond. AEC will require a suitable supply of potable water for our polymer makedown system.
- AEC will ensure that the dredging actively stays clear of the clay liner by using custom made wheels on the cutterhead.

Special Conditions (cont):

- The client is responsible for the removal and disposal of the tubes and their contents after they have dried along with the disposal of the laydown area and earthworks.
- AEC will leave the site tidy and free from any debris it has generated.
- AEC will supply a mobile crane to help launch/retrieve the dredge if it is not possible to launch the dredge by trailer. This assumes there is access for the crane to get to the Oxidation pond area where there is sufficient freeboard to launch it. The dredge needs 40cm of freeboard.
- Hours on site are 7am to 5pm or as otherwise agreed. Weekend work to be discussed.
- We would recommend a site visit prior to starting work to review the site and sample the sludge.
- No further charge will be made if extra GeoPro desludging tubes or polymer are required, the extra tonnage charged will cover their cost. The client will be responsible for modification of the earthworks if extra tubes are needed.
- AEC to assume there is a toilet onsite.
- In the event of any enforced client delays, a standby rate of $3,600.00 per day will be charged.

Payment Schedule

Mobilisation	Will be invoiced upon completion of site set up
Tonnage	80% of estimated tonnage removed will be invoiced at the agreed rate upon demobilisation
Demobilisation	Will be invoiced upon leaving site
Balance/Additional	Will be determined after measurements are taken once the tubes have dried and will be invoiced at the agreed rate. The tube measurements and sludge sampling to establish density shall follow standard Water Corporation procedures or as otherwise agreed.
Terms	30 days from invoice date
Validity	60 days
Prices	All prices quoted are exclusive of GST

apex ENVIROCARE

GeoPro
Microdredging

Apex Envirocare provides a professional and effective solution to dewatering high water content sludges and slurries. The GeoPro Microdredger, in combination with our GeoPro Desludging Tubes, removes accumulated sediment from water bodies such as municipal ponds, detention basins and artificial wetlands. Removal of the sediments in this very controlled manner increases capacity and returns the water body to its original function. Apex Envirocare are experienced in removing not only general sediments, but also contaminated sediments including potentially acid sulphate soils. Our methods cause little disturbance to the surrounding area and have been approved by regulatory bodies as being environmentally sensitive to both flora and fauna.

GEO PRO | GEOTECHNICAL PROFESSIONALS

The removed slurry is pumped into woven GeoPro Desludging Tubes where it is combined with a chemist specified polymer which is not detrimental to the environment. The solids are then retained in the tubes while the water filters though the material and is returned to the water body. The solids in the tube dry over time and reduce dramatically in volume so reducing the cost of disposal.

We conduct regular on-site testing of the filtrate from the GeoPro Tubes.
Strong odours are contained in the GeoPro Tubes so allowing us to work very close to neighbouring houses in residential areas.

Epsom Environmental Services

EFFECTIVE ENVIRONMENTAL SOLUTIONS

QUOTATION

Shire of Dalwallinu

Desludging & Airdrying at Dalwallinu Sewage Treatment Plant

Quote # 2519

Phone: 03 5448 8170 | **Email:** info@epsomenviro.com.au

Address: PO Box 676 Epsom, Vic | **Website:** www.epsomenviro.com.au

INTRODUCTION TO EPSOM ENVIRONMENTAL SERVICES

Epsom Environmental Services (EES) are a Central Victorian company that specialise in sludge and biosolids management. We formed in 2008 as the director of Epsom Sand and Soil identified the growing need for specialists in the wastewater industry. We began transporting biosolids and performing lagoon desludging with excavators. From day one we strived to provide a high quality service.

As the demand grew, we developed our methodology and began purchasing and making specialist equipment to provide high quality and cost effective services, including:

- ✓ **sludge surveys**
- ✓ **desludging and sediment removal**
- ✓ **sludge and sediment dewatering**
- ✓ **transport of sludge, contaminated and prescribed waste**
- ✓ **biosolids land application**
- ✓ **Environmental Improvement Plans**

ECAAS AS/NZS 4801 CERTIFIED SAFETY MANAGEMENT

ECAAS ISO 14001 CERTIFIED ENVIRONMENTAL MANAGEMENT

ECAAS ISO 9001 CERTIFIED QUALITY MANAGEMENT

Our Mission

We are committed to becoming the recognised industry leader in waste and water by use of our specialised equipment, experienced employees and a dedication to customer satisfaction. We will continually seek and implement the most up-to-date technology and equipment to ensure:

- ✓ cost efficiency
- ✓ safety
- ✓ environmental protection

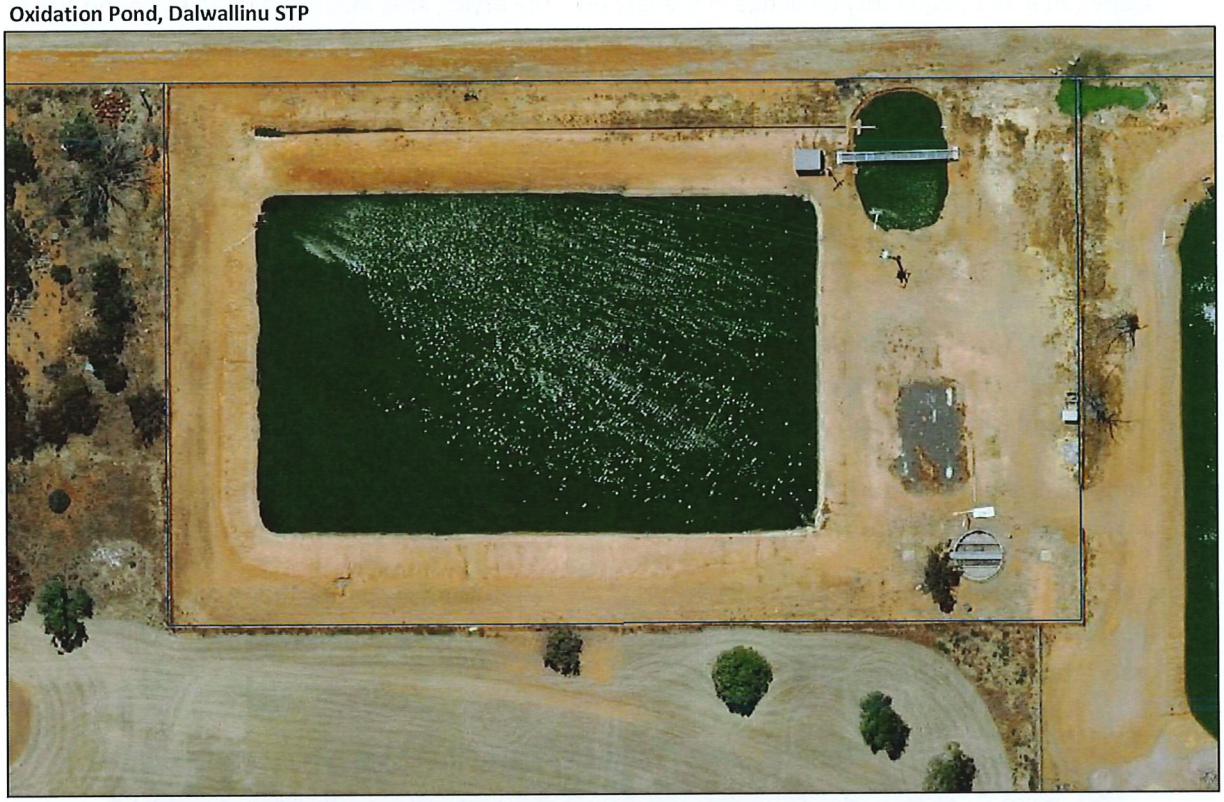
Our Vision

To bring quality and innovation to our customers in the waste and water industry whilst maintaining our safety and environment values.

PROPOSED SERVICES

Scope of Works

Oxidation Pond, Dalwallinu STP



Epsom Environmental Services (EES) propose to desludge the Oxidation Pond with a dredge. This will allow the lagoon to remain online for all stages of the desludging.

Our dredge can recover and transferring all types of sludges and unconsolidated silts and sediments. Navigation is via a four-corner winch system that provides accurate positioning within the lagoon. It has been manufactured with performance and safety in mind.

MAKE/MODEL	Sludgemaster 9000
UMPING CAPACITY	120 m^3 per hour
WEIGHT	5.5 tonne
WIDTH OF AUGER	2.4 metres

The dredge would pump sludge to a drying area. EES have provided a price to construct a basic drying area with earthen material sourced from site. It can be constructed at any location onsite directed by Council.

Depending on the quantity of sludge in the lagoon – the drying area may need to be twice the size of the lagoon being dredged. This would allow enough room for sludge to be spread out and placed in windrows.

All supernatant from the dredging process would be pumped back into the Oxidation Pond.

Biosolids Air Drying

Air drying is the continual turning of sludge to dry, with the intention of reducing the water content. Typically, greater than 65% dry solids is achieved. By nature, it needs to be conducted over the summer months and avoided in high rainfall areas.

Sludge will be dried by turning with earth moving equipment such as an excavator or front-end loader. As an additional service, we can provide a windrow turner to break up clods and aerate the sludge.

Our operators are highly experienced - ensuring sludge is turned at specific times, with correct windrow height/width, etc. This helps to achieve heat and kill bacterial such as E. Coli. Thus, reducing risk associated with land application or reuse.

Airdrying in situ

EXPERIENCE

Example of Recent Similar Work

Client	Nature of Work	Contract Value	Contract Period	Details
GWMWater	Lagoon desludging and air drying	$46,907	Dec 2018 – Jan 2019	Desludging and air drying at Sea Lake and Whycheproof WWTPs
Mount Barker District Council	Lagoon desludging and air drying	$141,274	Dec 2018 – Apr 2019	Desludging and air drying of Eastern Storage Lagoon at Mount Barker WWTP
Dept of Justice	Lagoon desludging and air drying	$127,365	Nov 2018 – Dec 2019	Desludging and air drying of lagoons at Barwon Prison
Western Water	Lagoon desludging	$50,000	Oct 2016 (~2 weeks)	Desludging drying ponds at the Merrimu WTP and relined with sand

Case Study

Client: SA Water, SA

Project: Desludging and dewatering Murray Bridge Wastewater Treatment Plant

EES have worked with SA Water on numerous occasions, including a current project at three SA Water sites – Port Augusta East, Port Pirie and Angaston WWTPs.

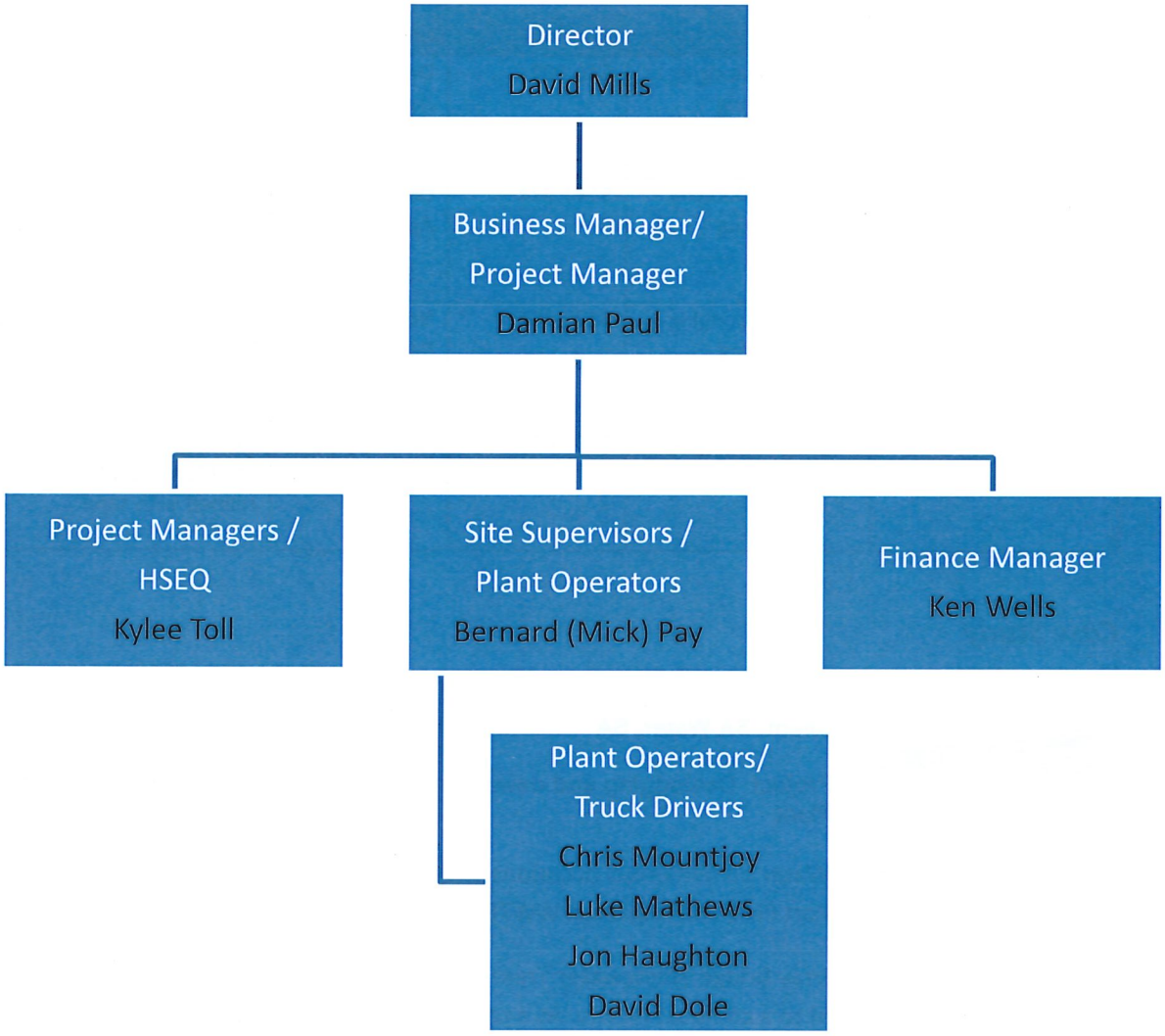
In 2015, we desludged Murray Bridge Wastewater Treatment Plant lagoons by dredge, then centrifuge dewatered and transported to a compost facility. As a testament to our work the Project Superintendent provided the following feedback:

> *"SA Water were pleased with the standard of all management plans provided and the level of communication maintained throughout the work. The Epsom personnel fit in well on site, and worked well with SA Water Wastewater Operations and Workshops staff to ensure that any disruptions to plant operations, and other works being undertaken on site were minimal to non-existent."*

> *"As the final survey testament, Epsom were very effective in removing as much sludge as possible from the lagoons, in the time prescribed in the contract. SA Water greatly appreciate Epsom's efforts with regard to ensuring the work area was well kept...All in all, a job well done!"*

ORGANISATION STRUCTURE

EES offers a flexible, efficient focused team. Our organisational structure is as follows:



DESLUDGING COSTS

ITEM	UNIT PRICE	QTY	PRICE
Mobilisation and Set Up	$24,990	1	$24,990
Construction of Drying Area	$10,200	1	$10,200
Dredging to drying bed (per m^3) - includes pumping of supernatant back to Oxidation Pond and all associated pipework	$7.50	5,000	$37,500
Air Drying and Stockpiling of Sludge	$38,900	1	$37,900
Demobilisation and Site Clean Up	$24,990		$24,990
		TOTAL (excl. GST)	**135,580**

Please note:

- Prices provided exclude GST.
- Quote valid for 3 months after issue.
- Sludge quantities are **estimates** only based on lagoon size.
- Prices provided without site inspection.
- The estimated duration of project is 6 weeks during Summer months.
- Due to the nature of airdrying - adverse weather conditions can have an effect on progress. EES will do what is in our control to ensure sludge is dried within the specified timeframe. However, should adverse weather conditions persist throughout Summer - EES may have to postpone the project. This would be our least preferred option and would be negotiated with Council. In this unlikely circumstance there would be additional costs.
- Prices do not include disposal costs.
- EES would be happy for Council to source a local earth moving contractor to build drying beds under our direction.

Dredging Solutions Pty Ltd
ABN: 29 147 173 224
Phone: (02) 9634 1712
4/9 Packard Avenue, Castle Hill NSW 2154
PO Box 6020, Baulkham Hills BC NSW 2153
www.dredgingsolutions.com.au

20 December 2019

Our Ref: DSTN-1142

Jean Knight
Chief Executive Officer
Shire of Dalwallinu
shire@dalwallinu.wa.gov.au

Dear Jean,

RE: Dalwallinu Sewage Treatment Plant - Oxidation Pond Desludging

Dredging Solutions Pty Ltd (DS) is pleased to provide the Shire of Dalwallinu (SoD) with our quotation for the dredging & dewatering of the oxidation pond at the Dalwallinu Sewage Treatment Plant (STP). As covered in initial discussions with Doug Burke, the pricing provided in this offer is predicated on DS securing a body of work for WA Water Corporation that is due to occur in early to mid-2020. This has enabled us to keep the mobilisation and demobilisation costs for this quotation to a minimum.

DS has a strong history of successfully completing dredging and dewatering projects across a broad range of Australian locations. Recent projects completed in Western Australia include dredging and dewatering at Bunbury, Kojonup and Esperance WWTPs in 2019, as well as Geraldton and Northam WWTPs in 2018.

This proposal outlines DS undertaking dredging and dewatering of approximately 2,736m^3 of in-situ sludge at an average of 6% total solids using two (2) ET36-25 Envitube® dewatering containers.

We thank you for the opportunity to provide a quotation for this project and look forward to similar opportunities in the future. Should you have any questions, or require additional information please contact me on (02) 9634 1712.

Kind Regards,

Todd Kelly
Business Manager

DREDGING SOLUTIONS

for dredging challenges

QUOTATION

Shire of Dalwallinu

Sewage Treatment Plant - Oxidation Pond Desludging

20 December 2019

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Client:

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Prepared by:

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1 Background Information

Dredging Solutions Pty Ltd (DS) is an Australian owned company specialising in the provision of turnkey desludging and dewatering services. We have over 35 years of experience in successfully completing projects for a range of clients within the municipal, industrial, marine and mining sectors throughout Australia. These projects have resulted in a vast range of site experience adhering to stringent work health and safety, environmental and quality requirements. We understand the importance of individual client needs and requirements and pride ourselves on clear, open communication through all stage of the project.

2 Scope of Work

This proposal for the Shire of Dalwallinu (SoD) covers the effective desludging and dewatering of material from the Oxidation Pond at the Dalwallinu Sewage Treatment Plant (STP) without hindering the operations onsite.

The dimensions of the Oxidation Pond are 75m (L) x 46m (W) x 1.2m (D). DS has based this quotation on an estimated sludge depth of 0.8m at 6% solids w/w.

3 Methodology

3.1 Dredging & Dewatering

3.1.1 Overview

DS proposes to remove approximately 2,736m^3 of in-situ sludge at 6% total solids from the Oxidation Pond using our DINO 6 dredge and to dewater the sludge using two (2) ET36-25 Envitubes®.

3.1.2 Mobilisation

DS will transport and install/launch the following plant and equipment to the site:

- DINO 6 auger suction dredge
- On-water pipework and floats
- On-shore discharge pipework and manifolds
- CRS Envitube® geotextile dewatering containers
- Polymer dosing unit, sample points and mixing zones

A 20T franna crane will be used to unload and establish plant and equipment on site during mobilisation. Currently, the estimated time for mobilisation is four (4) days.

3.1.3 Preparation of Envitube® Laydown Area

SoD have confirmed that the Envitube® laydown area is to be established on the 5th hole of the Dalwallinu Golf Course. The civil preparation of the dewatering area is to be undertaken by Dredging Solutions utilising a 15T excavator with a blade.

SoD will manage communication with the golf club and will undertake the placement of temporary fencing around site with appropriate signage. Dredging Solutions will require regular access from the STP to the laydown area, which will require SoD to remove a panel of high wire fencing.

Specifications for the dewatering area include:

- Area to measure 39m x 27m (dimensions inside bund walls);
- Level area to be surrounded by a 500mm high earthen bund wall;
- Area covered with 1.5mm thick HDPE liner for protection against filtrate ingress;
- Submersible pump to return filtrate from Envitubes® into Oxidation Pond.

The cost associated with the creation of the laydown area has been included in mobilisation.

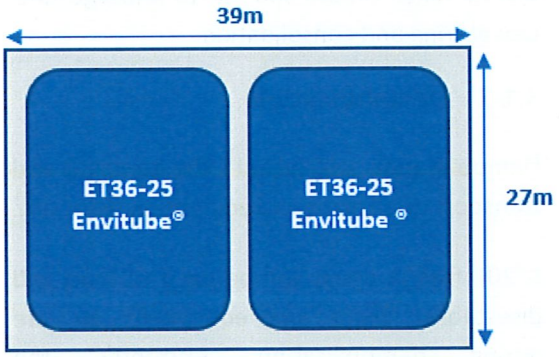


Figure 1. *Envitube laydown area dimensions*

3.1.4 Dredging

DS proposes to utilise our DINO 6 auger suction dredge (Figure 2) to remove the sediment from the Oxidation Pond. This manned dredge runs forward and backward along a traverse wire by way of a variable speed winch. A second winch on the DINO 6 enables the auger head to be raised and lowered to the sludge blanket level where sludge is removed using a variable speed pump. This setup enables the operator to remove sludge from a predetermined area. Once all sludge within a section has been removed the dredge is then moved across to the adjacent section. This systematic method of removing the in-situ sludge ensures maximum sludge recovery.

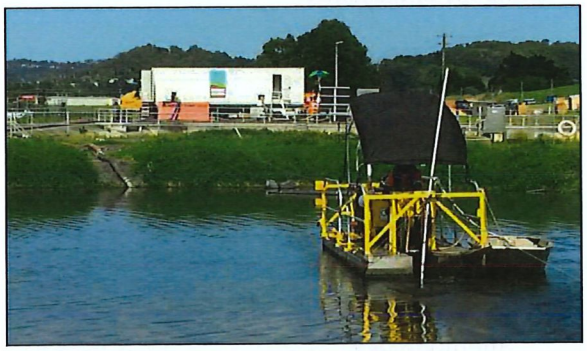


Figure 2. *DINO 6 auger suction dredge*

The discharge line and float setup (Figure 3) connected to the DINO 6 enables dredging operations to continue uninterrupted.

3.1.5 Flow and Solid Content Measurement

The dredged sludge flow rate will be measured by a flowmeter installed between the dredging equipment and the polymer dosing unit. Measurements will be recorded on the daily dredge logbook by DS onsite personnel twice per day and a totalised daily flow rate will also be recorded. Two sludge samples will be taken in the morning, composited and solids content (%) analysed onsite. The process will be repeated in the afternoon. The solids content measurements will be recorded within the daily dredge logbook.

Figure 3. *Six-inch on water pipework and floats*

3.1.6 Dewatering via Envitube® Geotextile Dewatering Containers

Due to the relatively high organic content within the sludge, DS proposes to dewater the sludge using Envitube® geotextile dewatering containers (Figure 4). Unlike centrifuge dewatering, Envitube® dewatering does not restrict the dredge rate and therefore enables the project to be completed within a shorter timeframe, reducing costs. DS proposes to pump the sludge into the Envitubes® at approximately 125m^3 per hour.

Figure 1. *Dredged sludge being dewatered via Envitube® geotextile dewatering containers.*

The sludge will be pumped at approximately 2% solids w/w to the Envitubes®. Prior to entry into the Envitubes®, the dredged sludge will be conditioned with a mid-high strength cationic polymer by the polymer dosing unit. The polymer assists in the flocculation and settling of agglomerated solids within the Envitubes®. The resulting clear filtrate percolates through the pores in the woven geotextile material (Figure 5) is captured in the impermeably lined area and returned to the works.

The polymer dosing system will require 6,000 – 7,000L/hr of potable or good quality recycled water for the dilution of neat polymer.

Figure 2. *Clear filtrate flowing through the geotextile fabric*

Once the solids content within the Envitubes® reaches approximately 10% solids w/w, they will be taken offline and left to undergo final dewatering and consolidation.

3.1.7 Demobilisation

Demobilisation will include the removal and transport of all plant and equipment from site.

A 20T franna crane will be used to load and disestablish plant and equipment on site during demobilisation. Currently, the estimated time for demobilisation is one (1) day.

4 Safety, Environment and Quality

DS and our employees are committed to providing a service that is of high quality and meets the specifications required by our clients. All work conducted by DS is performed under our Work Health and Safety, Environment and Quality management systems which are certified to AS4801, ISO14001 and ISO9001. Our management systems have been developed to ensure our projects run efficiently and smoothly and to minimise risk to a manageable size for our company and clients.

5 Inclusions

The following items have been included for dredging and dewatering:

- Standard DS pre-commencement safety documentation (incl. WHS Management Plan and SWMS).
- Labour for activities described in the above methodology.
- Transport of all plant, equipment and personnel to and from site.

- Plant, equipment, consumables and services required to complete the following activities include:

Dredging:

- DINO 6 auger suction dredge
- Pipework and floats
- Required Personal Protective Equipment (PPE)
- All fuel required

Envitube® Dewatering:

- CRS Envitubes® (2xET36-25 containers)
- Polymer dosing unit, sample points and mix zones
- Mid-high strength cationic polymer
- 1.5mm HDPE Liner
- Submersible pump (to remain on site once DS demobilises)

6 Customer Supply

Our quotation is based on SoD undertaking the following:

- Supply of 6,000-7,000L/hr of potable or good quality recycled water for dilution of neat polymer
- Supply of three phase power for running the polymer dosing system and submersible pump
- Temporary fencing and signage for the laydown area to be constructed on the golf course
- Providing access from the STP to the golf course via removal of a panel of the high wire fencing
- Advising if there is a potential crib room/donga available via the Shire. It is not imperative, so we have not included this in the cost of the exercise in order to keep costs moderate where possible.

7 Exclusions

This quotation does not include:

- Removal of dewatered material from Envitubes® at the conclusion of dewatering process
- Making good the site after dredging and dewatering work has concluded
- Obtaining any permits and approvals
- Payment of any applicable statutory fees and charges
- Any allowance (and extra would be charged if expenses are incurred) for:
  - Customer specific medical clearances
  - Induction time exceeding 3 hours
  - Retention costs
  - Security costs
  - Site allowances (above our standard rates)
  - Site security
  - Downtime due to inclement weather
  - Downtime due to 3rd party or other parties which may directly interfere slow or stop works onsite.

8 Project Timeframe

DS have developed this proposal as a supplementary activity for a body of work we are currently tendering for WA Water Corporation. This has allowed us to keep our mobilisation and demobilisation costs to a minimum, but also means that this proposal is contingent on securing the work for WA Water Corporation.

An indicative project timeframe has been provided below, this quotation is based on working Monday to Saturday, 7am to 5pm.

Projected Timeframe	
Task	**Duration**
Mobilisation	4 days
Dredging and Dewatering	8 days
Demobilisation	1 day
TOTAL	**13 days**

9 Pricing Schedule

#	Description	Est. Qty	Unit	Rate	Total Cost (Ex. GST)
1	Mobilisation	1	Lump Sum	$23,640	$23,640
2	Dredging & Dewatering	8	Per Day	$6,375*	$51,000
3	Consumables	1	Lump Sum	$47,743	$47,743
4	Demobilisation	1	Lump Sum	$6,377	$6,377
				TOTAL	**$128,760**

* A stand down fee of 75% of daily rate will be charged for any hold ups or delays outside of Dredging Solutions control

10 Payment terms

- Invoicing for this project will be based on the lump sum and daily rates provided in the pricing schedules.
- A first invoice for mobilisation and consumables will be submitted upon receipt of the PO and payable prior to mobilisation. Subsequent invoicing will be submitted for the relevant percentage of works for each item when completed or at the end of each calendar month.
- Invoicing will be submitted for the relevant percentage of works for each item completed at the end of each calendar month.
- All invoicing disputes must be lodged within 10 days of the date of issue of the invoice.
- Payment of Monthly Progress Claims will be due within 30 days of date of invoice.

11 Quotation Validity

- Quotations are valid for 30 days from the date of proposal.
- Dredging Solutions reserve the right to withdraw this offer at any time.

WHEATBELT STEEL
BENCHMARKING QUALITY

A 98 Byfield Street, Northam WA 6401
P 1800 800 909
F 1800 800 910
www.wheatbeltsteel.com.au

14 February 2020.

Shire of Dalwallinu,
Planning Department,
PO Box 141,
DALWALLINU WA 6609

shire@dalwallinu.wa.gov.au

Dear Shire of Dalwallinu,

PLANNING APPLICATION – Job 2743 Coerco – Andrew Jackson – 44 Deacon St, DALWALLINU WA

Please find attached documents to submit for a Planning application for the above property.

The structural steel shed will be a workshop and will be 60m long x 24m wide x 8.9 high.
The shed will be used for manufacturing steel and plastic products. Steel welding, plastic welding and moulding and assembly.
Maximum number of people in the shed at any time will be 6.

Storm water will be piped to the north end of the building and deposited into the natural drain that goes on to Deacon Street as it currently does.

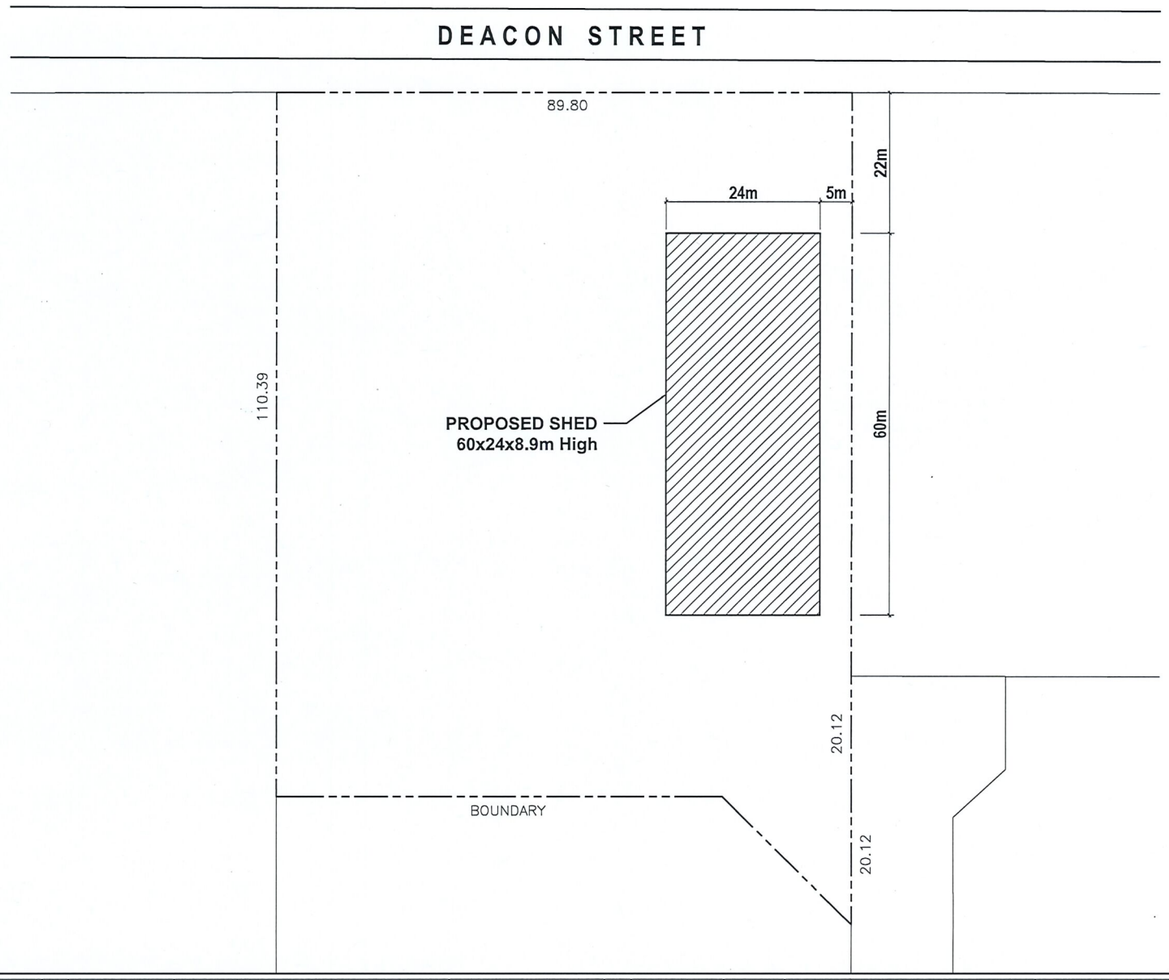
Kind regards,

Bev Gannon
Contract Administrator

WBS WHEATBELT STEEL BENCHMARKING QUALITY

Ahrens

WBS WHEATBELT STEEL BENCHMARKING QUALITY



SITE PLAN
SCALE 1:650

98 Byfield St
Northam WA 6401
Phone:1800 800 909
Fax: 1800 800 910
sales@wbsgroup.com.au
www.wbsgroup.com.au
WBS GROUP
BENCH MARKING QUALITY
WHEATBELT STEEL | COMMERCIAL | homes

JOB DETAILS

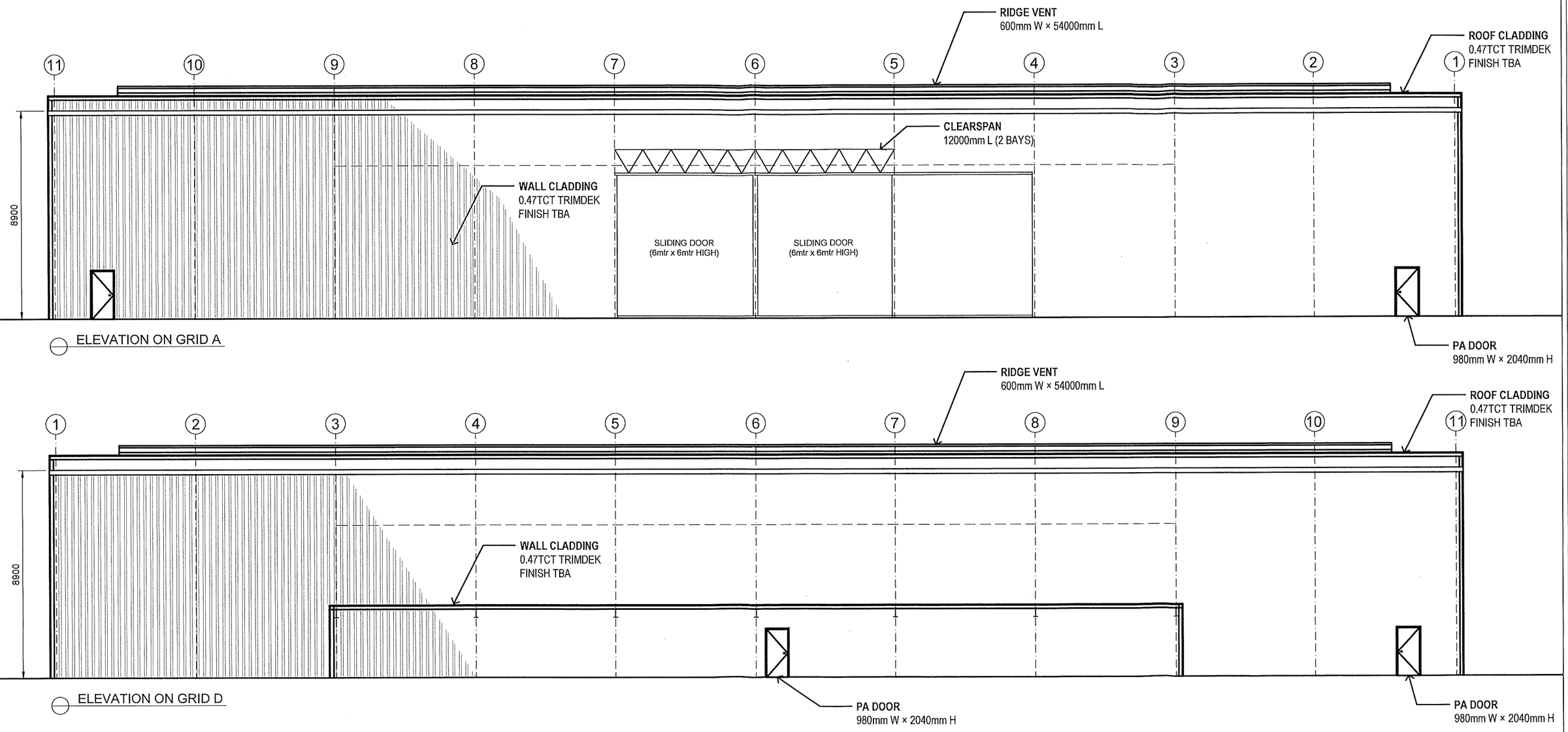
PROJECT No.	2743	DRAWING No.	
CLIENT	COERCO PTY. LTD. (Andrew Jackson) LOT 581 HUGGETT DRIVE, DALWALLINU WA 6609	SP - 01	
DRAWING	PROPOSED SITE PLAN		
DATE	14/02/2020	SCALE : AS NOTED	

REVISIONS

REV No.	BY	DESCRIPTION	DATE
01	RPR	ISSUED FOR APPROVAL	14/02/2020
00	RPR	ISSUED FOR APPROVAL	11/02/2020

PRE CONSTRUCTION PROOFING

	INITIALS	DATE
APRVD.		
CHKD.		



ELEVATION ON GRID A

ELEVATION ON GRID D

WBS GROUP
BENCH MARKING QUALITY
WHEATBELT STEEL | COMMERCIAL | homes
98 Byfield St
Northam WA 6401
Phone:1800 800 909
Fax: 1800 800 910
sales@wbsgroup.com.au
www.wbsgroup.com.au

JOB DETAILS

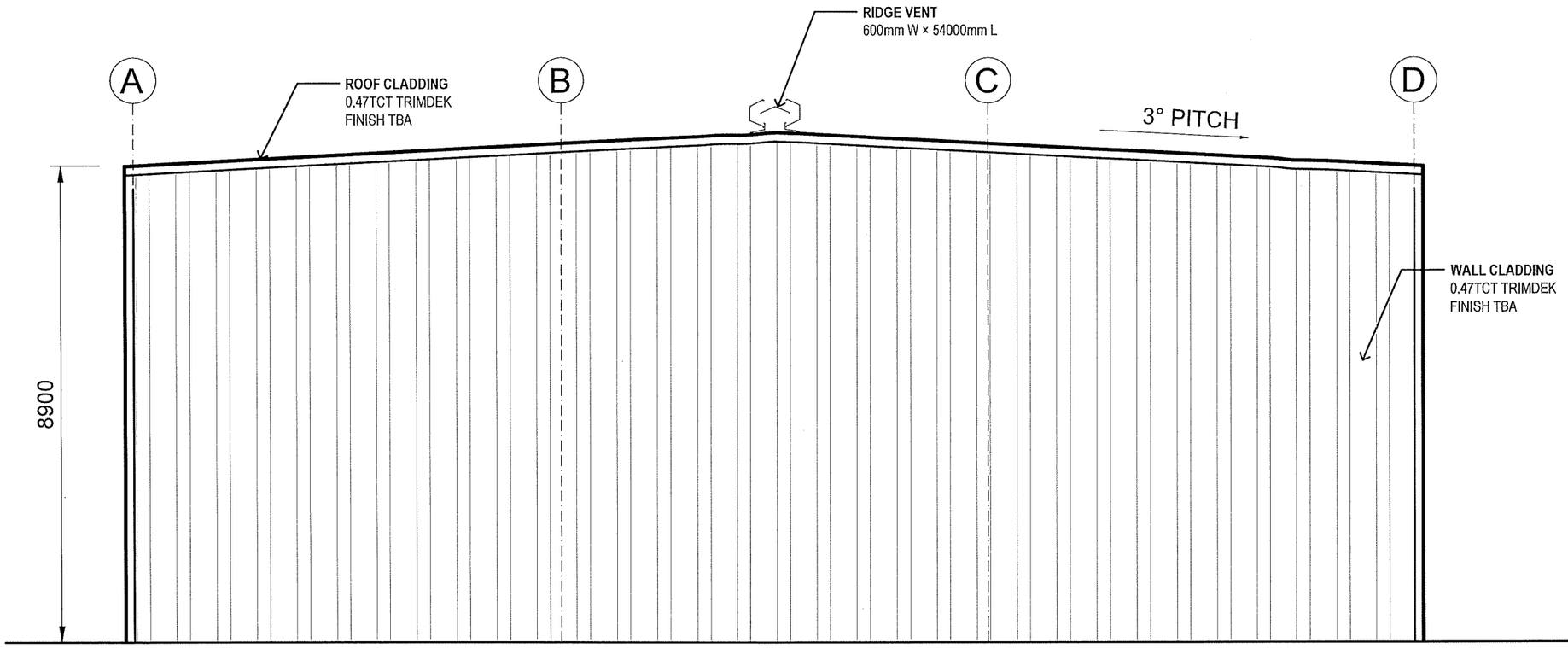
PROJECT No.	0000	DRAWING No.	
CLIENT	:	0000-04	
DRAWING	ELEVATIONS SHEET 3		
DATE	08/01/2020	SCALE 1:100 32	

REVISIONS

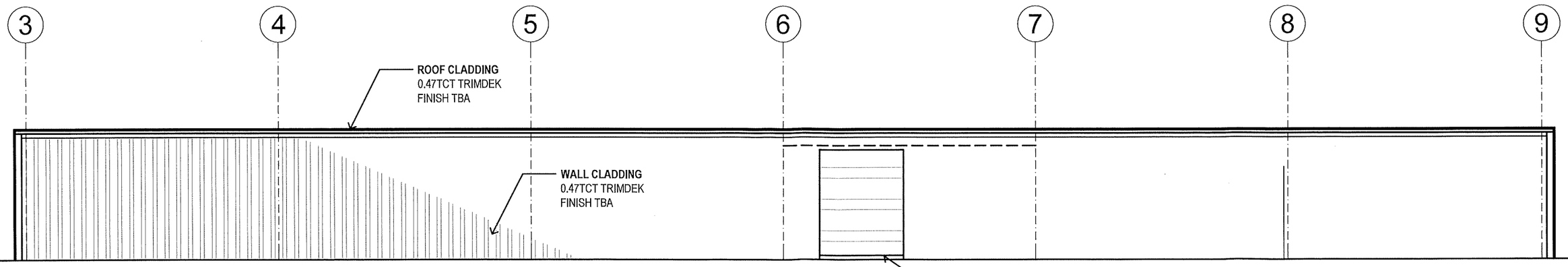
REV No.	BY	DESCRIPTION	DATE
00	RG	SKETCH	08/01/2020

PRE CONSTRUCTION PROOFING

	INITIALS	DATE
APRVD.		
CHKD.		



ELEVATION ON GRID 1
(MIRRORED ON GRID 11)



ELEVATION ON GRID E

WBS GROUP
BENCH MARKING QUALITY
WHEATBELT STEEL | COMMERCIAL | homes
98 Byfield St
Northam WA 6401
Phone:1800 800 909
Fax: 1800 800 910
sales@wbsgroup.com.au
www.wbsgroup.com.au

JOB DETAILS			
PROJECT No.	0000	DRAWING No.	
CLIENT	:	0000-02	
DRAWING	ELEVATIONS SHEET 1		
DATE	08/01/2020	SCALE 1:100 33	

REVISIONS				
00	RG	SKETCH	08/01/2020	
REV No.	BY	DESCRIPTION	DATE	

PRE CONSTRUCTION PROOFING		INITIALS	DATE
	APRVD.		
	CHKD.		

Document Requirements

The following documents are required to be submitted with the application to support the proposed development. Applications without the necessary (where relevant) documents will not be accepted.

(a) a site plan or plans to a scale of not greater than 1:500* showing —

(i) the location of the site including street names, lot numbers, north point and the dimensions of the site;

11 Hazlett Street, Kalannie

(ii) the existing and proposed ground levels over the whole of the land the subject of the application and the location, height and type of all existing structures, and structures and vegetation proposed to be removed;

Not applicable

(iii) the existing and proposed use of the site, including proposed hours of operation, and buildings and structures to be erected on the site;

Not Applicable

(iv) the existing and proposed means of access for pedestrians and vehicles to and from the site;

Formal road access

(v) the location, number, dimensions and layout of all car parking spaces intended to be provided;

Household driveway with enough space for two cars plus verge in front of house

(vi) the location and dimensions of any area proposed to be provided for the loading and unloading of vehicles carrying goods or commodities to and from the site and the means of access to and from those areas;

Not applicable

(vii) the location, dimensions and design of any open storage or trade display area and particulars of the manner in which it is proposed to develop the same; and

Not Applicable

(viii) the nature and extent of any open space and landscaping proposed for the site;

Not Applicable

(b) floor-plans, elevations and sections of any building proposed to be erected or altered and of any building it is intended to retain.

Not applicable

(c) Certificate of Title - must be provided. 'Deposited Plan' or Diagram to be submitted if easements are listed on the C/T

Not applicable

(d) detailed rational supporting the application.

I want to start an acrylic nail business

* *Plans with clearly cited dimensions will be acceptable. Plans submitted are to be A4 or A3 size unless accompanied by a digital copy (pdf format).*