

PLAN 4

PLANNING APPLICATION PLN-19-0150

2080 BISHOPSBOURNE ROAD, LONGFORD AND ACCESS OVER CT: 85856/2

ATTACHMENTS

- A Application & plans
- B Correspondence with TasWater
- C Correspondence with the Environment Protection Authority

# PLANNING APPLICATION Proposal

**Description of proposal:** Upgrade the existing Longford sewage treatment plant to achieve licence effluent emission limits and reduce the potential for odour emissions.

Refer attached supporting information and Environmental Supplement for more detail.

*(attach additional sheets if necessary)*

If applying for a subdivision which creates a new road, please supply three proposed names for the road, in order of preference:

1.  ..... 2.  ..... 3.  .....

**Site address:** 2080 Bishopsbourne Road, Longford

**CT no:** 132546/1, 132545/1, 132421/1, 156499/1

**Estimated cost of project** \$22,600,000 *(include cost of landscaping, car parks etc for commercial/industrial uses)*

**Are there any existing buildings on this property?** Yes / ~~No~~  
If yes – main building is used as Sewage Treatment Plant

**If variation to Planning Scheme provisions requested, justification to be provided:**

For assessment against Planning Scheme provisions and performance criteria please refer to attached supporting information.

*(attach additional sheets if necessary)*

**Is any signage required?** No change to permanent signage proposed, temporary construction signage will be provided *(if yes, provide details)*



# Longford STP Upgrade

Planning Application Supporting Information and  
Environmental Supplement

DATE: 26 July 2019



**Document approval and issue notice**

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Approved: (for acceptance)	Rennie Brown	Date: 26/07/2019

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## 1 Executive summary

TasWater proposes to upgrade the existing sewage treatment plant (STP) located off Bishopsbourne Road, Longford that is licensed to operate under EPN 7407/2 (Licence). The STP site is zoned utilities and the STP is a utilities use that is a permitted use pursuant to *the Northern Midlands Interim Planning Scheme 2013* (NMIPS). The upgrade of the STP:

- will not require any amendments to the NMIPS
- will not change the use of the STP or the STP site
- will meet the Acceptable solution criteria of the Utilities zone being under 10m in height and more than 3 m from any external boundary, apart from the odour control unit and lightning protection rods
- is located entirely within the existing STP site, and
- will continue to treat largely domestic sewage from the Longford township as well as trade waste from JB Swift abattoir, per current operations.

The technical outcomes of the upgrade will:

- improve the level of treatment so that effluent produced and discharged to Back Creek achieves licence requirements
- reduce the potential for emission of odours from the site by providing dedicated odour capture and treatment, and
- provide improved sludge waste management (stabilisation, dewatering and storage).

The upgrade **does not** seek to:

- relocate the existing outfall or
- increase the licensed flow of 2.7ML/day average dry weather flow through the site, or
- to change the effluent concentration limits stipulated in the licence.

Specifically, the upgrade will be on the same land as the existing STP and is ancillary to the **operation** of the existing STP (the existing level 2 activity) in that it will not:

- constitute a level 2 activity pursuant to the Environmental Management and Pollution Control Act 1994 (EMPCA), or
- intensify the existing use of the STP site, or
- Otherwise cause or be likely to cause serious or material environmental harm.

Accordingly, the development is not required to be referred to the Environmental Protection Authority (EPA) pursuant to section 25 of the EMPCA.

The reasons that the upgrade is ancillary to the existing level 2 activity are that:

- The upgrade is to physically construct the infrastructure improvements to the STP, so that the technical outcomes of the upgrade can be realised. The upgrade does not involve the operation of a new STP or otherwise include operation of the existing STP. Therefore it cannot constitute conduct of the wastewater treatment works within schedule 2 of EMPCA
- The purpose of the upgrade is solely to address existing non-compliance with the Licence, noted in the technical outcomes above



- The licensed flow of 2.7ML/day is not being increased
- The effluent concentration limits in the Licence are not being changed
- The days and hours of operation of the STP will not change
- The scale of the upgrade is minor when compared to the operation of the existing STP in that less land will be occupied by the upgraded STP due to lagoons 3-6 not being required
- The upgrade will improve the environmental outcomes.

## 2 Proposal

### 2.1 Purpose of Upgrade

TasWater proposes to upgrade the Longford Sewage Treatment Plant (STP), located off Bishopsbourne Road Longford.

The upgrade will:

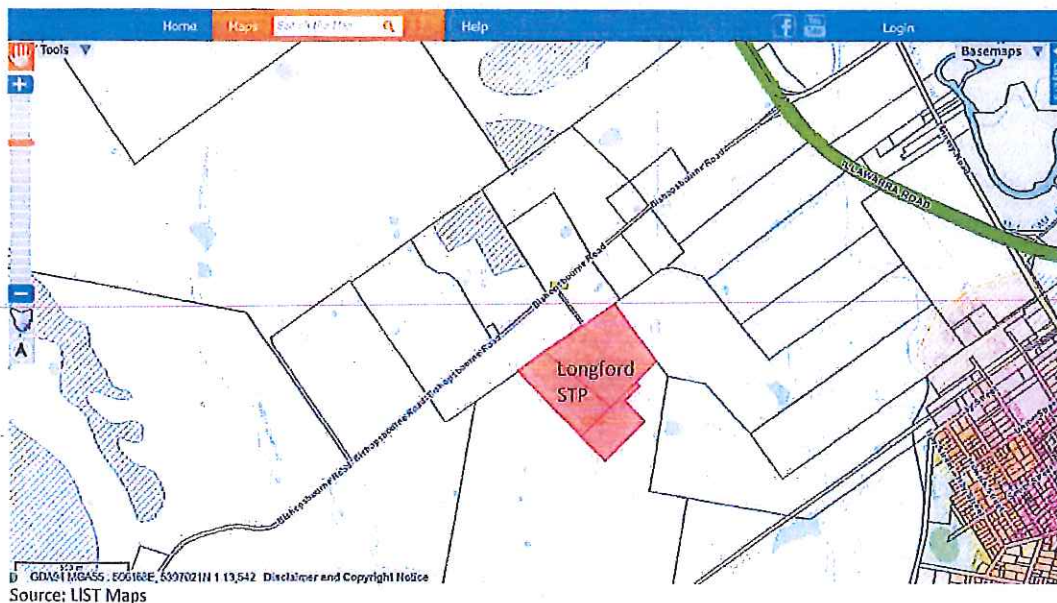
- Improve the level of treatment so that effluent produced and discharged to Back Creek achieves current licence (EPN 7407/2) requirements
- reduce the potential for emission of odours from the site by providing dedicated odour capture and treatment
- provide improved sludge waste management (stabilisation, dewatering and storage)

The upgrade does not seek to relocate the existing outfall, change current emission limits or increase the licensed flow (2.7ML/day average dry weather flow) through the site.

### 2.2 Location and Title details

The project is located on the existing Longford Sewage Treatment Plant (STP) site, west of the Longford township. (Refer Figure 1.) Access is via an unnamed subdivision road off Bishopsbourne Road, Longford. The site is owned by TasWater.

**Figure 1 - Longford STP Location**



The site consists of 4 titles as listed in Table 1 and shown on Figure 2. Details of the unnamed subdivision road are included for completeness.

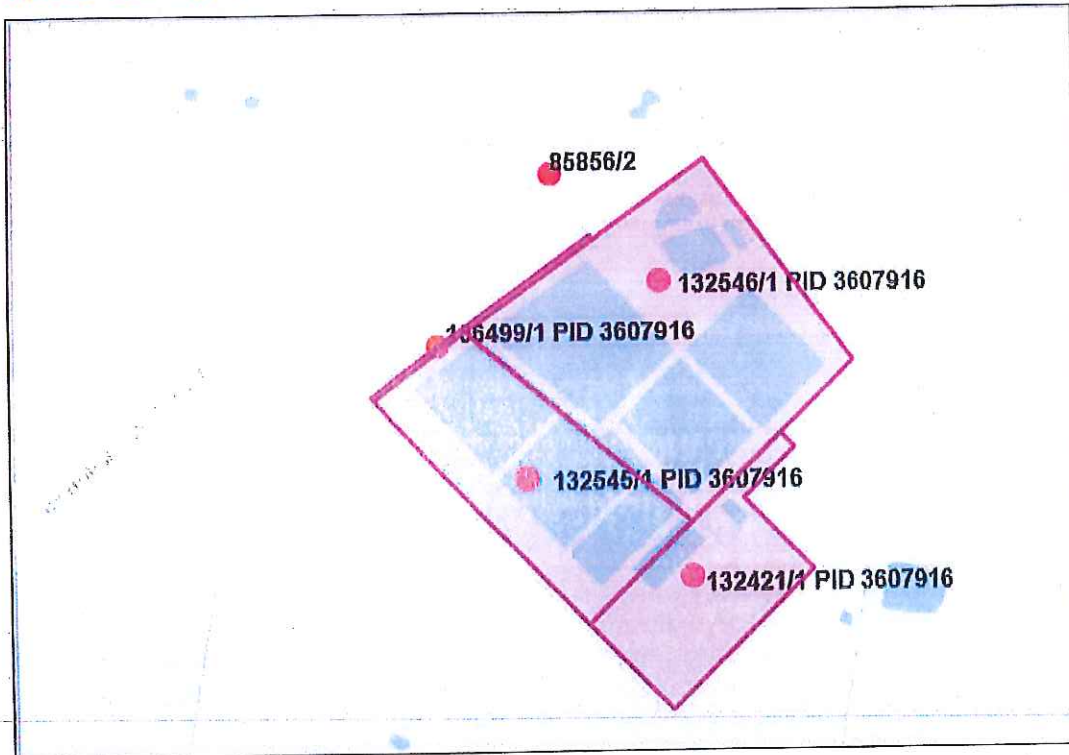
**Table 1 - Sewerage Treatment Plant Title details**

Title / Folio	PID	Ownership
132545/1	3607916	TasWater
132546/1	3607916	TasWater
132421/1	3607916	TasWater
156499/1	3607916	TasWater
85856/2	N/A	Refer note (1) below

Notes:

- (1) Subdivision road currently owned by Northern Midlands Council, in process of being transferred to TasWater.

**Figure 2 – Sewerage Treatment Plant Land Titles**



Source: LIST Maps

There is an existing 5m right of way over 132546/1 in favour of 132506/1 which will not be impacted by the proposed works. Copies of title plans and right of way are provided in Appendix 3.

### 2.3 Regulatory Context and Planning Scheme

Longford STP operates under the following regulatory permits and requirements:

- EPN no. 7407/2 issued on 10 June 2009 under section 44 of the Environmental Management and Pollution Control Act 1994.
- Licence to Operate 3573 issued 3 November 1998
- Northern Midlands Council DA 12/98 issued 29 March 1998



The EPN stipulates operational limits including flowrates, discharge effluent quality, noise and odour impacts for the treatment plant. Submission of an effluent compliance plan (ECP) to achieve these limits was a condition of the EPN, as was carrying out the approved plan. The works proposed are consistent with the ECP (and its updates) and are required to enable the ECP commitments to be achieved.

The proposed upgrade to the Longford STP will not cause an increase in treatment volumes, or change in discharge location. The upgrade is expected to achieve improvements in both discharge effluent quality and odour management to enable compliance with the EPN. Work undertaken by consultants for TasWater and reviewed by EPA indicates that the improvements in effluent quality will minimise the risk of material environmental harm. Specifically, the environmental risk assessment suggests that while the STP will not achieve the EPA Water Quality Objectives in Back Creek, it is unlikely to have an impact on Protected Environmental Values. It should further be noted that modelling by the environmental consultant indicated that even with zero discharge to Back Creek, water quality objectives in Back Creek would not be achieved at all times. TasWater is willing to commit to monitoring of the Back Creek for a period of 12 months following commissioning of the upgraded STP to verify that there is no material environmental impact as proposed in the letter from the Director EPA of 5 June 2017.

The site is zoned Utilities per the Northern Midlands Interim Planning Scheme 2013 (updated April 2019). Sewage treatment plants are a Permitted use in this zoning. This application seeks to upgrade an existing Permitted use.

The land surrounding the Longford STP is zoned Rural Resource by the Northern Midlands Interim Planning Scheme. The nearest residence is located approximately 160m from the northern side of the site. The Planning Scheme requires a 300m buffer attenuation distance for existing sensitive use from mechanical treatment facilities, which is the assumed classification for the proposed upgrade. This is based on the licensed flow rate of 2,700kL per day.

A comparison of the proposal against Northern Midlands Planning Scheme requirements is provided in Section 5.

### 3 Longford STP – current situation

#### 3.1 Process

Longford STP treats approximately 2.2ML/day (ADF) or 2.05ML/day (ADWF)<sup>1</sup> of sewage (including industrial waste) per day. The influent is delivered through two pressure mains, one serving the general township and the other serving JBS Abattoir. JBS typically contributes approximately 50 to 60% of the hydraulic load and 80 to 90% of the organic load.

An aerial view of the Longford STP (taken 2013) site is provided in Figure 3, with a schematic view of the current treatment process shown in Figure 4.

Influent from JBS discharges into a covered anaerobic lagoon (CAL) which, in turn, discharges to an aerated lagoon for treatment with the largely domestic sewage from the Longford township. From there, effluent passes through a further five facultative and maturation lagoons to assist reduction in BOD and ammonia plus passive ultraviolet light (UV) disinfection prior to discharge to Back Creek. Solids are decanted from the aerated lagoon to a sludge pond for passive stabilisation prior to

<sup>1</sup> Analysis of 2014-2017 flows

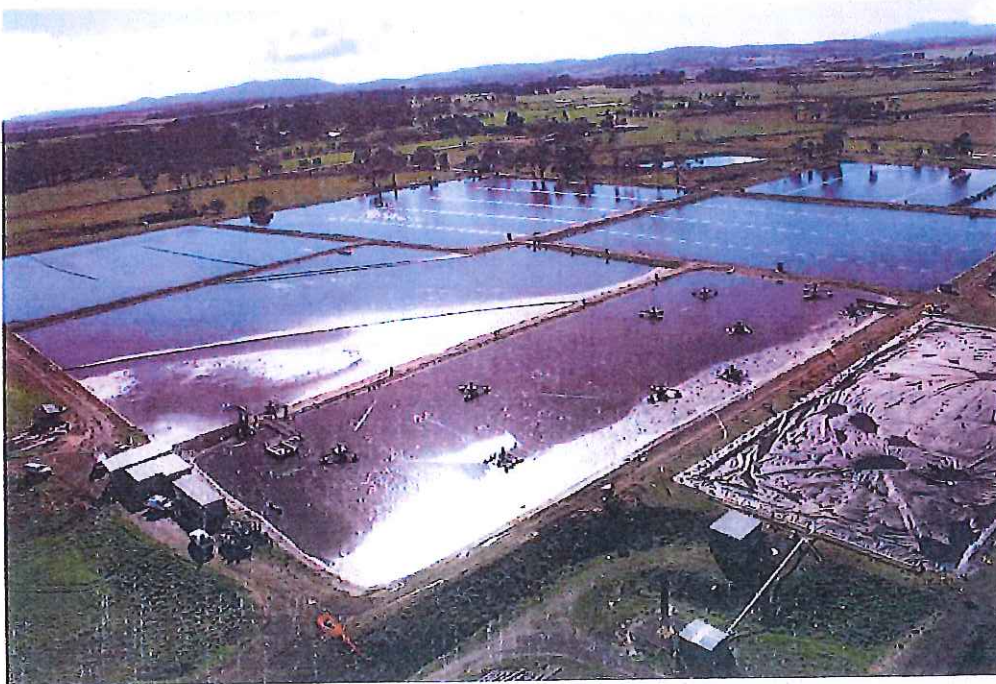


periodic removal and spreading on farmland. There are no facilities on site for mechanical sludge dewatering.

Treated effluent is discharged through a gravity pipeline to Back Creek. Back Creek is a modified waterway which transfers water as part of the Cressy-Longford Irrigation Scheme. Back Creek flows are heavily influenced by irrigation discharges from Poatina.

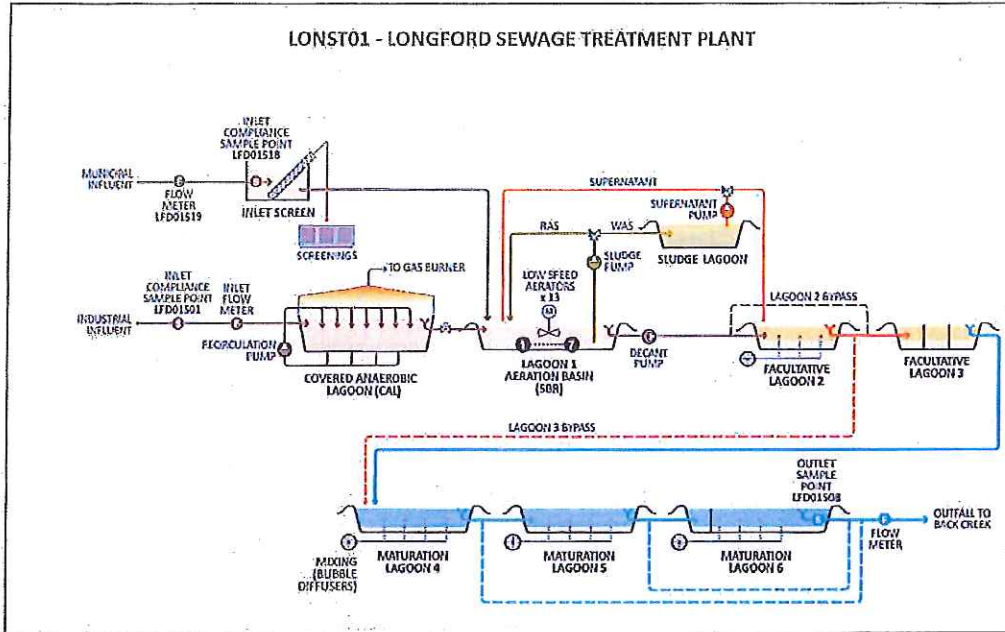
During conditions of low flows in Back Creek water is pumped from the South Esk River to Back Creek upstream of the STP discharge in order to increase effluent dilution and minimise impacts of discharge.

*Figure 3 - Aerial View of Longford STP*



The original facultative/aerobic lagoons and outfall of the Longford STP were constructed in the 1960s, with upgrades in 1968, 1974, 1993 and 1998, primarily in response to increased discharges from the abattoir and some domestic growth. The covered anaerobic lagoon (CAL) was constructed in 1998 to reduce organic loads on the downstream facultative/aerobic lagoons from the abattoir. Recent failures of joints in the cover confirm that the CAL is nearing the end of its operational life. A pump was installed in 2009 to pump water from the South Esk River to Back Creek, upstream of the STP discharge to dilute the effluent and mitigate potential impacts. Since 2009, minor works have occurred on site to maximise the performance capability of the treatment process.

Figure 4 - Longford STP existing treatment process



### 3.2 Influent

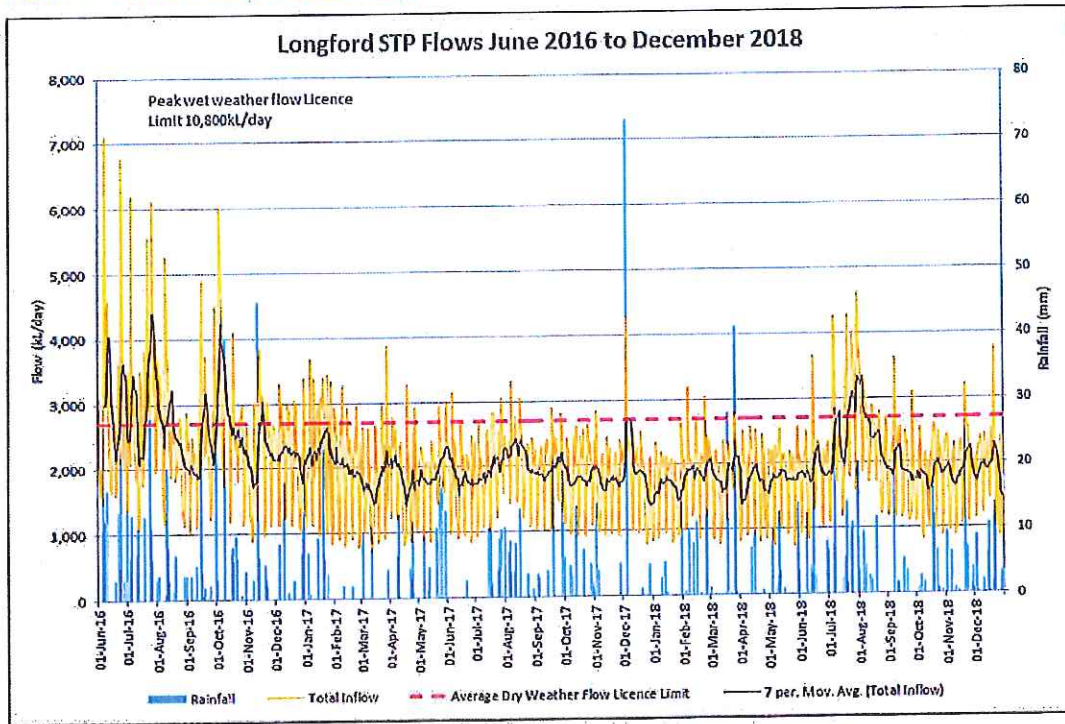
In 2017 and 2018 Longford STP treated an average daily inflow of 1.9ML/day. This has decreased from previous years, partly due to reduced inflow from the abattoir and partly due to reductions in wet weather inflow from the domestic catchments. This is well below the current licence limit of 2.7ML/day of average dry weather flow.

Peak daily inflow to Longford STP in 2016-17 was 7.1ML/day in June 2016 and is influenced by increases to town flows from rainfall more than abattoir flows. In the past, peak flows have also coincided with flood events in parts of the town, however steps have been taken to reduce the transfer of flood waters to the STP. In 2017 and 2018, the peak daily inflow was 4.6ML/day. Both recent peak flows and the June 2016 peak flow are well below the licenced peak wet weather flow of 10,800kl/day.

A comparison of rainfall and inflow is shown in Figure 5.



Figure 5 - Average daily flows vs rainfall



3.3 Effluent Quality

Due to the strength of the influent, total influent loads are greater than the plant is designed to treat. In addition trade waste loads can vary significantly in response to production changes. The STP is not able to respond to high loads, nor is the plant designed to achieve nutrient (nitrogen and phosphorus) removal.

Data from 2014 to 2018 shows that overall effluent quality performance for Longford STP is frequently non-compliant for most parameters (per the EPN), apart from oil and grease and thermotolerant coliforms. The number of compliant monthly samples for each parameter from 2014 to 2018 is shown in Table 2. Effluent discharge quality has improved in 2018-2019 as a result of trade waste load reductions and optimisation of the STP performance, however pH and phosphorus remain typically non-compliant and ammonia exceeds the 90 percentile limit in the EPN.

There are no current recycled water customers served by the Longford STP. However, as there are downstream extractions from both Back Creek and the South Esk River, indirect reuse occurs.



**Table 2 - Number of Compliant samples in year**

Year	BOD	Ammonia	Total Nitrogen	Total Phosphorus	Oil & Grease	Thermotolerant Coliforms	pH
Maximum Limit	40mg/L	10mg/L	20mg/L	5mg/L	20mg/L	2,000 cfu/100ml	Min 6.5 Max 8.5
2017-18	7	7	7	2	12	11	2
2016-17	10	7	7	0	12	10	9
2015-16	8	4	6	0	12	12	8
2014-15	5	4	4	0	12	12	9
90%ile limit	30mg/L	5mg/L	15mg/L	3mg/L	15mg/L	1,000 cfu/100ml	
2017-18	7	6	5	0	12	11	N/A
2016-17	9	4	5	0	12	10	N/A
2015-16	6	1	2	0	12	12	N/A
2014-15	3	1	2	0	12	12	N/A
50%ile limit	20mg/L	2mg/L	10mg/L	1mg/L	10mg/L	200 cfu/100ml	
2017-18	5	6	5	0	12	8	N/A
2016-17	6	2	4	0	12	6	N/A
2015-16	3	1	0	0	12	5	N/A
2014-15	2	1	0	0	12	7	N/A

**Notes:**

- Annual monthly compliance samples (12)
- Green shading – Compliant for that metric as the number of compliant samples is above the minimum number required for parameter percentile compliance
- Non-compliant pH samples were all above 8.5
- Maximum limit compliant if all samples below limit
- 90%ile limit compliant if 90% of samples (11) below limit
- 50%ile limit compliant if half the samples (6) are below limit.

Table 3 provides a comparison of the volume of nitrogen and phosphorus discharged in the effluent with the licence load limit. This indicates that improvements to nutrient removal are required if licence limits are to be met.

**Table 3 - Annual nutrient loads**

Year	Total Nitrogen	Total Phosphorus
Licence Limit	12,812 kg/year	2,168 kg/year
2017-18	22,582	6,141
2016-17	19,553	8,722
2015-16	19,026	12,496
2014-15	22,357	9,547

### 3.4 Odour Emissions

The STP has been the subject of odour complaints over the years. While some of these are the result of upsets in the operation of the STP or potentially result from other sources within the town, odour modelling completed in 2016 confirmed that the 99.5 percentile 1 hour odour performance goal of 2OU could be exceeded at a number of dwellings during normal operation.

The large surface areas of the existing STP lagoons and sludge bund makes reduction in odours difficult as emissions cannot be effectively contained and treated. In addition disturbance and moving of sludge for drying or transport results in emission of odours while those operations are carried out. Gases generated within the CAL are flared to the atmosphere by the gas burner to prevent odorous emissions from that source. Recent deterioration of welds in the cover did result in the temporary emission of odours.

### 3.5 Biosolids Stabilisation and Removal

Sludge stabilisation occurs in the following locations on site:

- CAL
- Lagoon 1 (aerated lagoon)
- Lagoons 2 to 6
- Sludge bund

Partial stabilisation of solids from the abattoir occurs in the CAL. Solids are retained in the CAL over a long period to enable stabilisation. TW does not regularly remove these solids due to the potential for significant odour emissions during the process.

Partial stabilisation of solids from the town influent and CAL effluent also takes place in lagoon 1. The aerators in this lagoon are operated so that there is both a period of aerobic and anaerobic digestion. Effluent from Lagoon 1 is decanted to Lagoon 2, while sludge is pumped to the sludge bund on the north-eastern side of the site. Within the bund solids and liquid separate, with the solids settling out and liquid pumped back to the inlet works or Lagoon 1 for re-treatment.

Settled solids in the sludge bund are removed from the bund and allowed to dry in a large open air drying area on the southern side of the site before being loaded into trucks for removal off-site.

Lagoons 2 to 6 also contain some sludge which has passed into these lagoons with the liquid stream and settled out over time. Sludge is removed from these lagoons as required by isolating the lagoon from the treatment process and removing the contents for spreading on paddocks or drying in the sludge drying area.

## 4 Project Upgrade

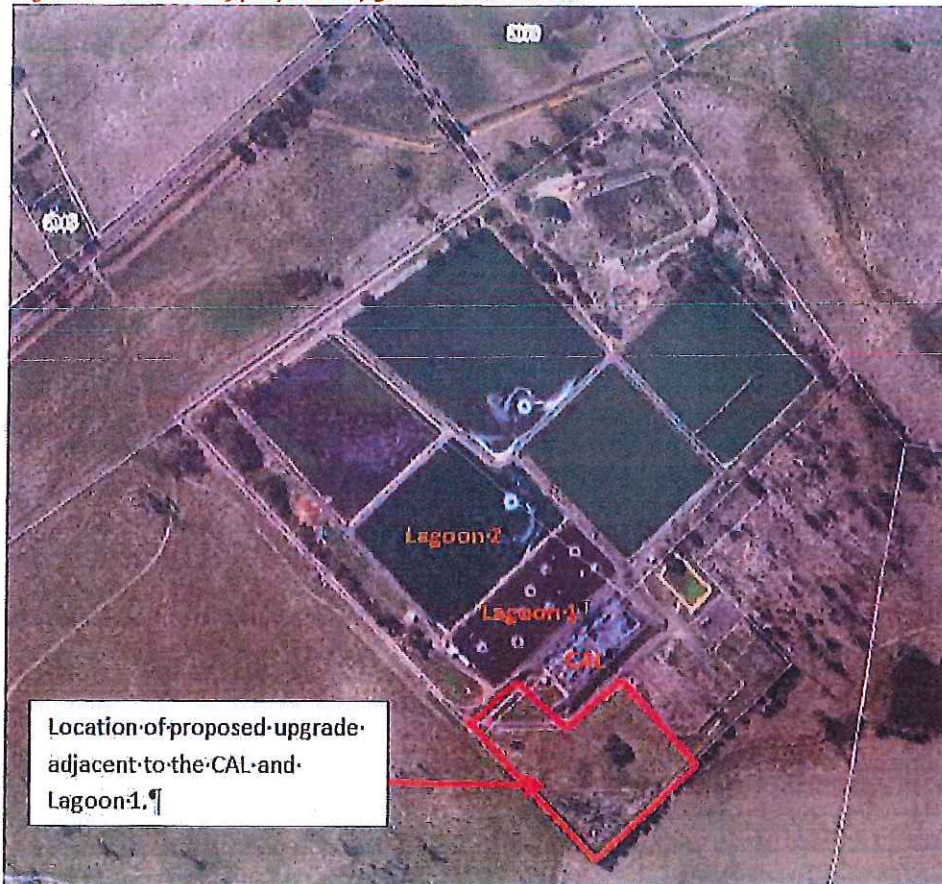
### 4.1 Proposed Scope of Works

A concept design of the proposed upgrade works has been completed, however detailed design (including choice of some proprietary items) has yet to be finalised which may result in minor changes to individual unit sizes, specific location on site and general appearance. It will not change the location or overall scale of the majority of the works. Neither will it change project requirements in terms of required effluent quality, odour or noise emissions targets.

The upgrade will be located within the existing STP Site, with work concentrated on the southwestern side of the site, as indicated in Figure 6. No work is proposed outside of the STP land.



**Figure 6 - Location of proposed upgrade works on site**



Basemap: LIST Maps

The proposed Longford STP upgrade will have the capacity to treat the current EPN flow limit of 2.7ML/day ADWF, providing treatment for the next 20 to 30 years. 2017 and 2018 data indicates that the current average daily inflow is about 1.9ML/day, with average dry weather flows being lower and a recorded PWWF of 4.6ML/day. Assessment of flows completed as part of preliminary work indicates that the design (2045) flows are likely to remain within the current licence limit, based on current ADWF, a population increase of 1%pa in Longford and advice from JBS that abattoir has operated at peak capacity in the past and significantly higher production volumes are unlikely as they would require significant changes to the facility. In addition, the abattoir has adopted measures to reduce their water usage, which in turn reduces the volume of effluent needing to be discharged to the STP.

The proposed upgrade involves the following:

- new pretreatment (DAF and screening)
- new biological treatment units
- new anaerobic digester
- new gas flare

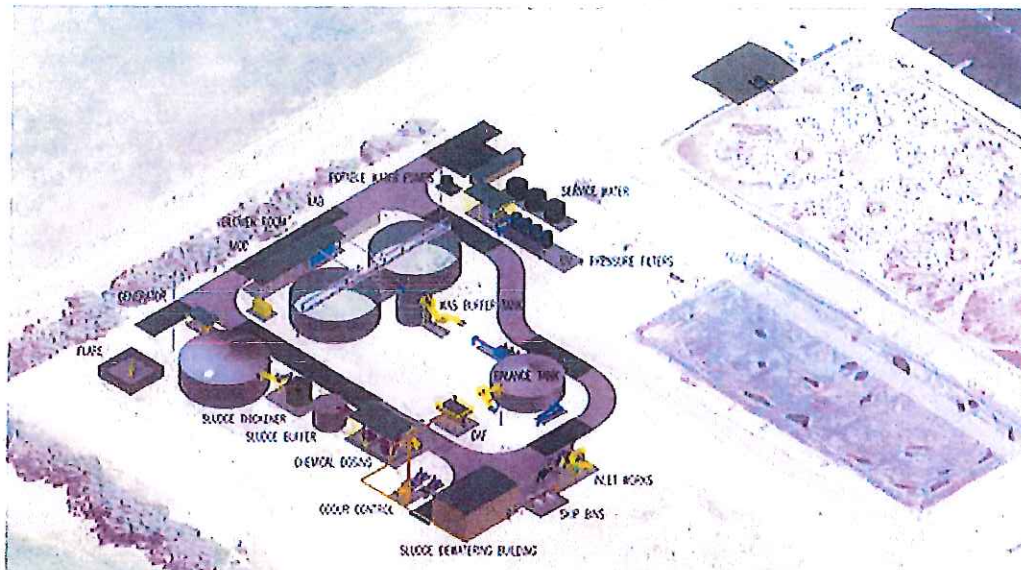


- chemical storage area
- filtration and disinfection
- extension of internal access to upgrade area
- buildings – amenities, laboratory, dewatering, blower and compressor, MCC electrical and PLC rooms, chemical dosing facility, disinfection shed
- treated effluent and treated water storage tanks
- balancing tanks
- associated pipework
- lightning protection
- odour collection and treatment system

The proposed treatment process will include the following components:

- New screening & grit removal of domestic influent
- Dissolved Air Flotation to pre-treat abattoir influent
- Influent flow balancing of domestic and trade waste streams
- Nereda Granular Activated Sludge Sequenced Batch Reactors
- Filtration and UV Disinfection
- Chemical dosing for
  - Polyelectrolyte to aid sludge dewatering
  - pH correction
  - Phosphorus removal
  - Additional disinfection of effluent to be re-used on-site
- Sludge stabilisation in enclosed anaerobic digester with gas flare
- Biosolids dewatering and short term site storage in enclosed containers
- On-site reuse
- Refurbishment of Lagoon 1 to balance flows to the tertiary filters and UV disinfection prior to discharge through existing outfall
- Retention of Lagoon 2 as emergency storage
- Odour management system

Figure 7 - 3D Model view of proposed upgrade



## 4.2 Process Diagram

A process flow diagram which shows the interaction of proposed upgrade components is provided by Drawing TWP-18-034-003 (Appendix 1). A description of various processes and aspects are provided in the following sections, while Table 4 summarises dimensions and finishes of proposed key structures.

### 4.2.1 Initial Treatment Processes

The initial treatment processes will consist of

- New inlet works including covered screens and grit trap for town influent
- New dissolved air flotation (DAF) process to pretreat abattoir influent
- New Balance tank to balance ratio of domestic and abattoir influent to the bioreactors

The inlet works, screenings and grit bins will be covered and connected to the odour extraction system. The bins will be removed weekly (currently fortnightly) as they are likely to be more efficient at removing inorganic solids than the current screens. The screenings will be washed and compressed to ensure that organic matter is not lost from the treatment process. The inlet works will be elevated, maximising the use of gravity to pass influent to the next stage of the treatment process. Drawing TWP-18-034-223 (Appendix 1) provides an indicative arrangement of the various components which comprise the inlet works.

Any solids removed through the DAF unit (including grease and suspended solids) will be treated in the anaerobic digester. The DAF unit will be a proprietary brand and the final brand has not been confirmed yet, however drawing DAF-Typical-120L provides details of an indicative unit.

The balance tank, where domestic and abattoir influent will be mixed, will be covered. This will enable odours to be captured and connected to the treatment system. Drawing TWP-18-034-222 (Appendix 1) provides more detail.



#### 4.2.2 Liquid treatment process

It is proposed to construct 2 Nereda biological reactors to provide treatment of influent. The NEREDA process is an aerobic granular sludge technology and was developed by Royal Haskoning DHV (RHDHV), who has trademarked the process. The reactors will be of concrete circular construction. Drawings TWP-18-034-230 and 231 (Appendix 1) provide further details, including access arrangements and external pipework. The tanks will operated in parallel, allowing for continuous operation and the ability to temporarily take a tank off-line for maintenance.

The Nereda process is an advanced biological (activated sludge) wastewater treatment process that treats water using aerobic granular biomass. In this process the purifying bacteria concentrate naturally in compact granules, with excellent settling properties. Unlike a conventional SBR the Nereda process allows for simultaneous biological processes to occur with no separate decant cycle. During feeding, when anaerobic conditions are produced at the bottom of the reactor, the surface of the reactor is filled with treated effluent from the previous cycle, ensuring odour emissions are very low.

Air will be provided to the bioreactors for mixing and process requirements by fine bubble diffusers distributed across the floor of the tanks. In addition to being an efficient source of oxygen, the location of the diffusers means that aerosol generation will be minimised (compared to the surface aeration as per current practice in Lagoon 1).

The advantages of this technology include a smaller footprint compared to conventional processes, no requirement for separate clarifiers, relatively low energy consumption, good biological nitrogen and phosphorus removal compared to typical secondary treatment processes. It is also relatively simple from an operating perspective and is robust in terms of treating variations in influent strength, as is characteristic of the Longford influent. In Australia the process has been used at Kingaroy WWTP. This plant was commissioned in 2016 and has achieved excellent effluent results to date. A pilot plant has also been constructed at Quakers Hill in NSW, while overseas plants have successfully treated abattoir and other industrial waste.

#### 4.2.3 Disinfection and Discharge

Treated effluent from the bioreactors will flow to Lagoon 1, which will allow flows to the tertiary filters and UV system to be controlled. The filters and UV system are being designed so that the capacity of the existing outfall pipe is not exceeded. This is approximately 6.3ML/day.

Lagoon 1 will be refurbished (including removal of the existing aerators) to become a flow balancing lagoon for treated effluent. This will allow a steady flow of effluent to be pumped to the final filters and UV system, maximising their efficiency. As the effluent in the lagoon will be fully treated apart from final fine solids removal and disinfection, the risk of odours from this source is low. Details of the pump and pipework are yet to be finalised, but is expected to be similar to that pictured below and shown on Drawing TWP-18-034-253 (Appendix 1).

The extent of refurbishment required will depend on the results of an inspection of the lagoon and liner once empty. The detailed design process will also determine if providing a smaller holding and transfer area within the lagoon is necessary for better operability. As Lagoon 1 is registered as a dam by DPIPW, refurbishment will require a permit from DPIPW under the dams Act and Regulations. This permit will be obtained by TasWater prior to any works on Lagoon 1.



*Figure 8 - Typical Lagoon return pumps*



#### 4.2.4 Solids Handling

The biosolids treatment system is designed to achieve stabilisation grade B as per the Tasmanian Biosolids Reuse Guidelines. Sludge from the Nereda bioreactors will discharge to the waste activated sludge (WAS) buffer tank. It will then be thickened prior to entering the DAF where it will improve flocculation and solids removal from the abattoir influent. Combined sludge from the DAF process will feed the anaerobic digester. The digester will be a concrete tank with a double membrane gas dome roof to maximise volatile solids reduction and retain odours. The digester will both stabilise the waste sludge and reduce the volume of sludge. Digested biosolids will then be sent to a screw press via a conveyer for dewatering and transport off site in enclosed containers. Drawings TWP-18-034-222, 224, 238, 250 and 251 (Appendix 1) provide indicative details of these structures.

Gas produced in the digester will be used to heat the digester contents. Any excess gas will be flared safely by a gas burner, typical to similar installations. A pressure relief valve will be provided in case of failure of both systems. The gas burner and collection system will be designed and constructed to comply with the applicable standards and regulatory requirements. The site plan shows the proposed location of the gas burner and flare.

#### 4.2.5 Emergency Storage

Lagoon 2 is being retained for use as:

- Additional storage of secondary treated effluent for prolonged wet weather events
- Storage of primary treated effluent should the bioreactors need to be bypassed or no power available to the site.

The second scenario is likely to be very rare and the result of either major works on the bioreactors, failure of process units or total power failure on site with the backup generator not working.

Depending on the volume of effluent diverted to Lagoon 2 it will either be returned to Lagoon 1 for tertiary treatment through the Filters and UV system or transferred back to the head of the works for full treatment. If neither of these 2 options is feasible, the stored effluent will be discharged



directly to the plant outfall. This is likely to be a rare event given that the combined storage volume from lagoons 1 and 2 is around 35ML and the disinfection system will be capable of treating maximum flows received over the past 2 years.

It is intended to retain approximately 0.5m (approximately 5ML) of water in Lagoon 2 to protect the clay lining. This will have the added benefit that any discharge will be diluted. Lagoon 2 will also provide some additional treatment through natural aeration and biodegradation due to its inherent nature as a facultative lagoon.

It should be noted that use of Lagoon 2 to store primary treated effluent is likely to be a rare event. It is being retained and incorporated into the design of the upgrade to avoid discharge of minimally treated sewage to the environment in the event of major and unexpected failures.

**4.2.6 Odour Management**

As part of the upgrade works, a dedicated odour control system will be installed to treat odours from key point sources. The odour control scrubber will be proprietary system and will be chosen as part of the detailed design process. The two systems currently under consideration both use a bio trickling filter with additional activated carbon polishing for secondary treatment of odour with treated air vented through a 15m high stack. In one system the two stages of treatment are essentially combined in a single unit, while the other system has more distinct separation of the processes. Both options allow the carbon polishing to operate independently of the biotrickling filter, providing odour control while the biological culture propagates in the filter. Indicative views of the two systems under consideration are provided below. The supplier is the same for either option.

*Figure 9 - Typical combined odour control system*

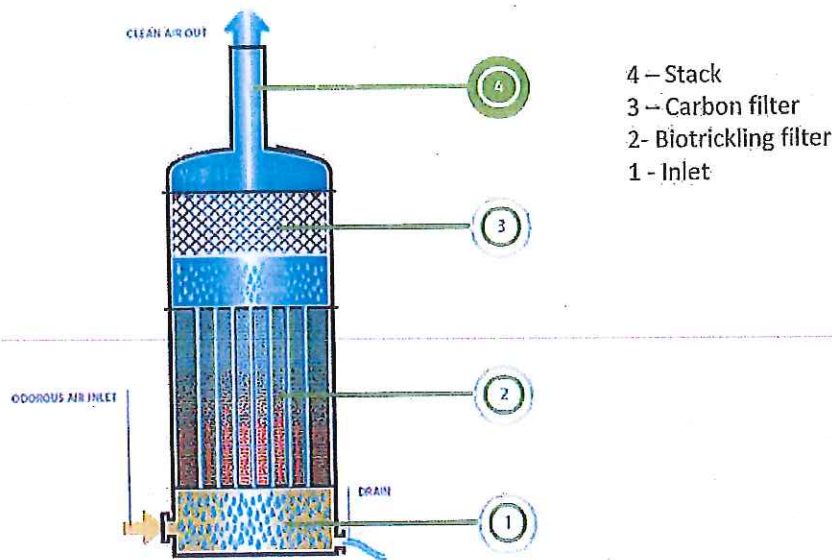
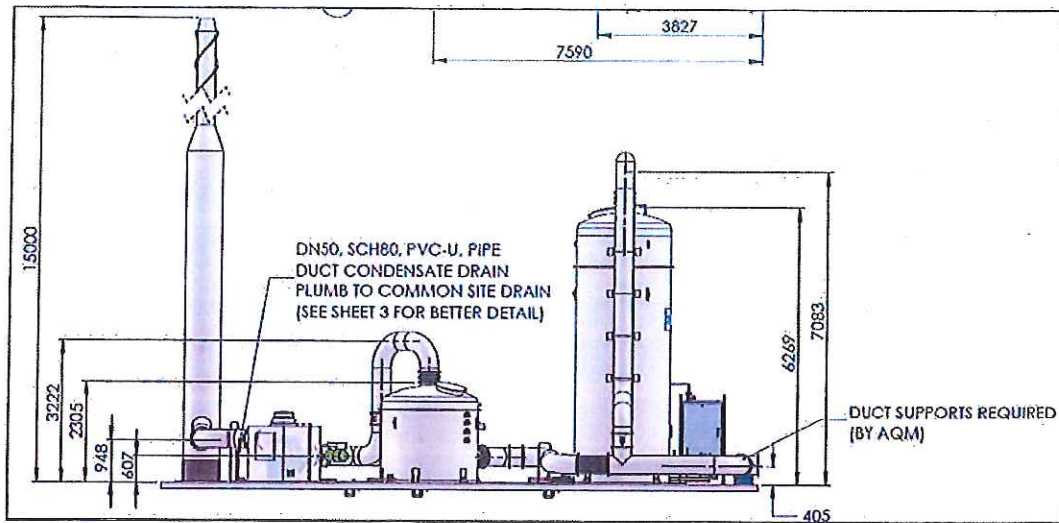


Figure 10 - Typical Split odour control system



The footprint of the system will depend on the solution adopted. Drawing GA\_P18302 Rev E (Appendix 1) provides Typical Manufacturers Arrangement for a split system. The filter system(s) for either solution will be under 10m high, however the vent stack will need to be 15m above ground level with a final diameter of about 400mm for both options. If the combined system is chosen, the vent stack may be combined with the treating filters or be a separate structure similar to the Split system. Both solutions would be located in the same area of the site.

The bio trickling filter media has a design life of over 20 years and reliably and cost effectively removes hydrogen sulphide as well as many other types of reduced Sulphur compounds and volatile organic compounds (VOCs). Online H<sub>2</sub>S monitoring will be provided on both the inlet and outlet of the biofilter to confirm performance is maintained.

Key aspects of the proposed upgrade considered in the odour model with respect to odour mitigation include:

- The inlet works and DAF will be enclosed with odour extraction to the odour system;
- Covered bins for grit and screenings will be provided with odour extraction to the control system;
- The Flow Balance Tank will be covered and ventilated to the control system;
- The proposed bioreactors will be similar to the current aeration process so will produce similar odour emissions per unit area, but the much more compact arrangement and sub-surface aeration will significantly reduce the total emissions. More efficient mixing in the more compact area will also minimise potentially anaerobic dead-spots and associated odour emissions;
- Sludge will be treated in an anaerobic digester which is fully covered and biogas will be safely flared;
- Digested sludge dewatering will occur in an enclosed dewatering unit with odour extraction to the odour system;
- Sludge transfer conveyors and storage bins will all be enclosed and ventilated to the odour system;



- Any effluent storage in lagoons during normal operations and major wet weather events will be secondary treated effluent with low nutrients and solids and is likely to have low emissions.
- Buildings will not have air extraction to the odour control system as all process units will have individual extraction systems.

The odour control system is being designed to ensure that the 99.5percentile, 1 hour average at the nearest sensitive receptor (closest house) is less than 2 odour units (OU).

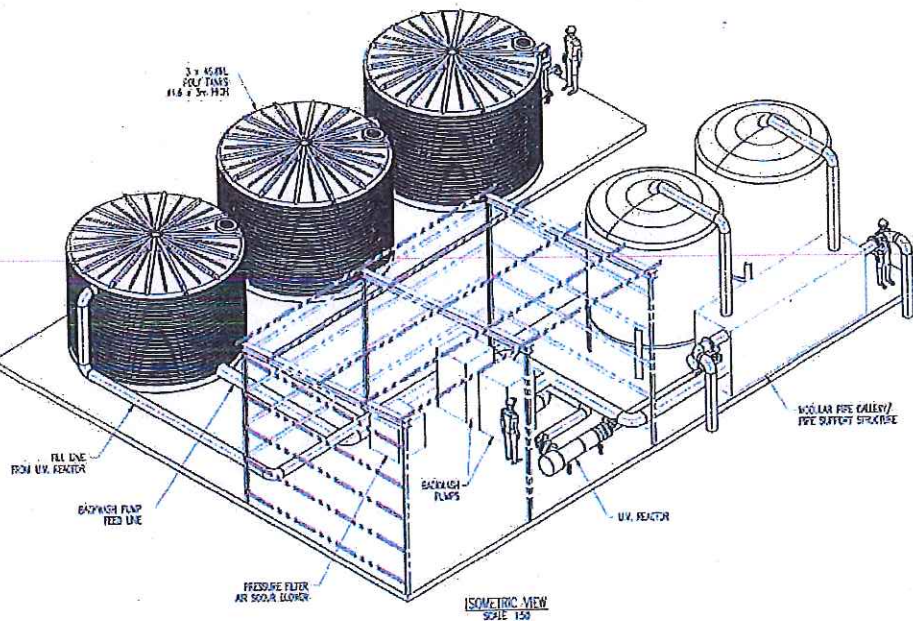
In addition to emissions from the biofilter the main sources of site diffuse emissions will be the bioreactors and WAS tank. An odour model was generated during the ECI and tender process to assist in indicative sizing of the odour control system. (Refer Appendix 4 for summary and contours.) The odour model will be updated during detailed design to confirm that odour control measures are adequate to ensure that no dwellings are within the 99.5percentile 20OU contour. After the plant is operational odour measurements will be taken at the new process units to confirm the assumptions in the odour model and that additional measures are not required.

#### 4.2.7 Potable and Service Water

In order to minimise the need for potable water, tertiary effluent will be used as service water wherever possible. This will require installation of storage tanks and a small packaged pump station. Sodium hypochlorite will be added to the disinfected water in the storage tanks to ensure a chlorine residual is achieved in water reused on-site for added protection of staff.

Potable water will be delivered to site by tankers when required, similar to the current process. Potable water will only be used when treated effluent is not suitable. It will be used for safety showers and domestic use in the Operator and Amenities building. A package booster pump and molded storage tank will be provided for this purpose. Drawing TWP-18-034-252 provides an overview of the storage tanks and pumps adjacent to the UV disinfection system.

**Figure 11 - General arrangement of treated effluent and service water storage tanks**



#### 4.2.8 Power and Generator

Power will be supplied to the upgraded works via the existing TasNetworks substation. A new motorload control centre will be provided to avoid disruption to the existing operations. A back up diesel generator will also be provided on site. This will be connected to the main switchboard via an automatic transfer switch which will operate when a power outage is detected. The generator will ensure that the existing plant remains operational during commissioning and startup of the upgraded works, thereby minimising any impacts to treatment during this period.

#### 4.2.9 Site Lighting

Lights will be provided for illumination of activities and security in accordance with Australian standards. Building emergency lighting (including Exit lighting) will be provided per Building Code requirements. It is not intended that external flood lights are activated after dark unless someone is on site or a security system has been breached. A final design for the lighting system will be completed during detailed design. Lights will be fixed to structures wherever possible. Any stand-alone light poles will be less than 15 m in height.

#### 4.2.10 Lightning Protection

Lightning Protection requirements will be reviewed after a lightning protection risk assessment of the site is completed during detailed design. The 3 lightning protection rods included in this application are expected to have a height of 20m. The site drawings show lightning rods as separate structures, however they may be attached to other structures if appropriate. If so, the overall height including the supporting structure will still be a maximum total height of 20m. Should the location or height of any lightning protection rods change during detailed design, Council will be provided with amended details. The lightning rods will be about 300mm in diameter.

#### 4.2.11 Control room, laboratory / amenities

The existing demountable building on site near lagoon 6 will be relocated to the southern area of the site for use as a dedicated laboratory. A similar building will be brought to site for use as a computer control room and staff amenities. Effluent from either building will be pumped to the inlet works and treated through the process.

*Figure 12 - Existing control building on site*





#### 4.2.12 Foul water pump station

Foul water from dewatering filtrate, DAF bottom auger discharge and washdowns from hardstands in the dewatering area and screenings area will be collected in the foul water pump station and returned to the inlet works. Sewage from the amenities and control buildings will be collected in a dedicated small sewer pump station and pumped to the inlet works.

The foul water pump station will be a simple in-ground collection tank with external pumps. (refer Drawing TWP-18-034-255).

#### 4.2.13 Chemical Systems

The following chemicals will be used to assist in the treatment process.

- Aluminium sulphate
- Magnesium hydroxide
- Polymer
- Sodium Hypochlorite (site reuse water only)

Dosing of chemicals will occur at the DAF, bioreactors, digester, biosolids dewatering and site service water system. Bulk chemicals will be stored in a central location and piped to the required process unit. Smaller quantities will be stored appropriately closer to the dosing point. The bulk chemical storage and dosing facility will be of open carport style construction, similar to that constructed at Kingaroy STP (see Figure 13). It will include above ground bunds to contain any potential tank leaks/failures and a new in-ground chemical waste tank to collect any potential spillage. Storages will provide for a minimum of 30 days storage at median usage rates. The final quantity to be stored for each chemical will be determined during detailed design and following review of supplier requirements. Approximate volumes of chemicals to be stored on site are:

- |                       |        |
|-----------------------|--------|
| • Aluminum sulphate   | 1,500L |
| • Magnesium hydroxide | 3,000L |
| • Polymer             | 240kg  |
| • Sodium hypochlorite | 200L   |

Drawings TWP-18-034-240 and 241 provide further details of the proposed main storage area at Longford.

**Figure 13 - Chemical storage and dosing facility at Kingaroy**



#### 4.2.14 Noise control

EPN 7407/2 stipulates noise limits for the site. These will be achieved by the upgrade. A noise model will be developed during detailed design to allow confirmation of compliance with EPA requirements. Acoustic mitigation will be provided where necessary to meet these requirements. Key elements of noise mitigation include:

- Installation of bioreactor blowers inside a building
- New flare will be selected to meet EPA noise requirements, including a sound hood
- Standby generator will be housed in an acoustic insulated container
- Selection of drives for equipment will include consideration of low noise emissions
- Acoustic enclosures will be provided where necessary to meet site noise limits

Operational noise monitoring will occur during the process proving period to verify emissions against the design model.

#### 4.3 Site Access

Access to site is via an unnamed subdivision road off Bishopsbourne Road, which in turn is off the Illawarra Road. This will not change either during or after construction. Bishopsbourne Road is sealed, the unnamed subdivision road and existing internal roadways are of unsealed crushed rock construction. No work is proposed on Bishopsbourne Road or the subdivision road providing access to the site. These roads are considered adequate for the anticipated use, however as a precautionary measure pre and post construction dilapidation surveys will be undertaken on the site access road off Bishopsbourne Road and internal roads and any construction related impacts rectified.

It is anticipated that minor widening will occur within the STP site in 3 locations to accommodate the turning circle of construction delivery vehicles and the construction of 2 passing bays. (Refer drawing TWP-18-034-149).

Pavements around the new structures will be sealed with concrete provided at manoeuvring areas. (Drawing TWP-18-034-145, Appendix 1). The remainder of the existing internal roads will remain unsealed. Any new pavements will be designed for free drainage to adjacent surface drains, swales and grassed areas. This is considered suitable for the expected low traffic use.

#### 4.4 Landscaping

The existing site landscaping consists primarily of grassed areas with trees planted on the western and southern boundaries. It is intended to maintain this pattern of landscaping with disturbed areas seeded with grass or retained as gravel. No trees are intended to be removed as part of the proposed upgrade.

Structures associated with the new works are located in the lower south-western area of the site and will have limited visibility from Bishopsbourne Road. The areas to be disturbed have previously been disturbed, most recently as a result of preliminary works for a proposed anaerobic digester and fertiliser batching plant by International Marketing Partnerships, which did not proceed.

It is not anticipated that additional plantings will be required as a result of the proposed work.

Elevations across the site are provided in drawings TWP-18-034-001 and TWP-18-034-143 and 144 (Appendix 1).



#### 4.5 Site Drainage

The existing site drainage is relatively informal with runoff passing overland or through earthen swales or drains to existing watercourses external to the site. It is intended that this style of drainage be retained. Refer drawing TWP-18-034-145 Appendix 1 for general details of existing and proposed drainage.

Swale drains will ensure that stormwater will be diverted from new process units. Areas of the upgrade that may be subject to spillage (eg chemical and biosolids areas) will be constructed to ensure spillages are collected and pumped back to the works.

As the process units are predominately elevated, there is little opportunity for stormwater to enter the treatment train. Level sensors and other controls will prevent process tank overflows occurring.

This will minimise runoff from the site and maximise infiltration. In addition, areas that may be impacted by sewage or partially treated effluent will be drained back into the treatment process.

#### 4.6 Construction and commissioning

Construction, commissioning and process stabilisation is anticipated to be completed within 24 months. Work on site is anticipated to start in late 2019, dependent on progress of detailed design and subject to approval requirements.

Normal hours of work will be 7-00am to 6-00pm Monday to Saturday, however work may occur outside of these hours, depending on the needs of the site and the stage construction and commissioning are at. In any case, activities which generate noise will be restricted to permissible hours as described in the Environmental Management and Pollution Control (Noise) Regulations 2016.

Work on site will predominately occur in the south western portion of the site. Vehicles entering and leaving site will be subject to the requirements of a Project Traffic Management Plan and during construction the unsealed subdivision road will be monitored and dust suppression employed if required.

A construction and environmental management plan will be developed by the Contractor prior to commencement of construction.

Construction of the upgrade works is not anticipated to impact on the operation of the existing STP until cut-over of the influent streams commences. This will be a staged process to minimise process impacts. A detailed cut-over plan will be developed prior to this stage. It is anticipated that the process will be similar to the steps described below.

- Abattoir feed to DAF, DAF sludge to CAL, effluent to bioreactor, then Lagoon 1
- Town feed to inlet works and bioreactor, effluent to Lagoon 1 or 2
- When biomass load and treatment quality achieved in bioreactor, re-route effluent to Lagoon 2
- Refurbish Lagoon 1
- Commission tertiary filtration and disinfection system
- Refurbish connecting pipework between Lagoons 1 and 2
- Commission digester and dewatering system

The existing CAL will be maintained until biogas production stops and stabilisation of contents is complete. On completion of the upgrade the CAL and lagoons 3 to 6 will be bypassed and made safe as they will not be required for the treatment processes.

Temporary site sheds will be located on site during construction for use by construction personnel and storage of parts and equipment. These will be removed from site on completion of the Contract.



**4.7 Summary of key structures**

The table below summarises dimensions and materials of proposed key structures on site.

**Table 4 - Key Structures - dimensions and materials**

Key Component / Structures	Description	Height	Width / Diameter	External Walls		Drawing Reference
				Material	Colour	
Inlet works	Screening Package Plant	5m	6m	SS/Galvanized Steel	Silver	TWP-18-034-223
DAF system	DAF Package Plant (to be confirmed during detail design)	4.5 m	2.5 m X 6.4 m	SS/Galvanized Steel	Silver	DAF-Typical-120L
Balance Tank	Concrete Tank	4.5m	16m diameter	Concrete	Plain concrete	TWP-18-034-222
Bioreactors	Bioreactors	6.5m	20m diameter	Concrete	Plain concrete	TWP-18-034-230 TWP-18-034-231
Tertiary filtration	Filters Package Plant	4 m	2.2 m diameter	Fibreglass	Blue / brown (TBC)	TWP-18-034-252
UV Disinfection	UV reactors	To be confirmed during detailed design		Stainless Steel	Silver	TWP-18-034-252
WAS storage / buffer tank	Concrete tanks	7m	7.5m diameter	Concrete	Plain concrete	TWP-18-034-238
Anaerobic digestion	Cast in situ or post tensioned concrete tanks	10m to apex of roof	20m diameter	Concrete	Plain concrete	TWP-18-034-224
Sludge Thickener	Customised equipment	6.5m	7m	Coated Mild Steel	Brown	TWP-18-034-224

Key Component / Structures	Description	Height	Width / Diameter	External Walls		Drawing Reference
				Material	Colour	
Biosolids loading/storage	2 enclosed removable bins on a concrete slab	N/A	10.15 by 8.3 concrete slab	Concrete	grey	TWP-18-034-250
Service Water	Tanks	4m	4.5m	HDPE	Black	TWP-18-034-252
Potable Water	Tanks	3m	3m	HDPE	Black	TWP-18-034-252
Odour Control Unit	Odour control unit and blower. Refer text for more detail.	15m to top of stack, 7m to top of biofilter	6m (biofilter)	Fiberglass	olive green (TBC)	GA_P18302 E
<b>Buildings:</b>						
Staff Amenities	Similar to existing staff amenities demountable building	2.6m	12.0x3.6m	Colourbond	Roof Green Beige Walls	TWP-18-034-001
Laboratory	Relocate existing demountable staff laboratory / amenities building	Existing	Existing	Colourbond	Roof Green Beige Walls	Existing – photo in Section 4.2.11
Sludge dewatering	Enclosed building Concrete slab Roller door and pass door	4m	15.7x10m	Walls and roof - colourbond steel Floor - concrete slab	Roof Green Beige Walls	TWP-18-034-250 TWP-18-034-251
Blower and compressor building	Shown adjacent to MCC room	4m	9 x 6 m	Walls Concrete tilt panels or concrete blockwork, Roof – colourbond	Roof Green Beige Walls	TWP-18-034-230 TWP-18-034-231



Key Component / Structures	Description	Height	Width / Diameter	External Walls		Drawing Reference
				Material	Colour	
MCC Building / Electrical and PLC rooms	Enclosed Building Concrete slab Access 1 double door and 2 single doors.	Nom 4m height	Nominal 1.5m by 6m	Walls concrete tilt panels or concrete blockwork Roof colourbond steel Floor concrete slab	Roof green Concrete walls	TWP-18-034-230
Chemical dosing facilities	Carport style building. Including above ground bunds to contain any tank failures and in-ground chemical waste tank to collect truck spillage	3.5m	12.5x7.0m	Building - steel frame with colourbond roof Concrete floor	Green roof Lilac tanks for treated effluent	TWP-18-034-240 TWP-18-034-241
Disinfection building	Carport style building.	3.0	10x6.0m	Building - steel frame with colourbond roof Concrete floor	Green roof	TWP-18-034-252

#### 4.8 Existing STP structures

The table below provides an indication of the impact of proposed upgrade on existing structures on site.

**Table 5 - Existing STP Structures**

Existing STP structure / unit	Proposed Fate
Inlet screens	Removed after new screens are operational
CAL	To be isolated and made safe after upgrade is operational. This will involve taking the CAL off-line and allowing the contents to fully digest and stabilise prior to their removal. It may take some years for the contents to fully decompose. Not part of this application
Existing Gas burner	To be isolated and made safe once CAL is no longer producing methane. Not part of this application
Lagoon 1	This will be converted to a flow balancing lagoon as part of the upgrade works once the new bioreactors are operational. The contents will be processed through the new bioreactors.
Lagoon 2	This will be converted to a flow balancing lagoon for storage during extreme events and emergencies once the remainder of the upgrade is operational.
Lagoons 3, 4, 5 and 6	These lagoons will be made safe as they will no longer be required for treatment of sewage. Not part of this application
Sludge bund	This will be isolated on completion of the upgrade as it will no longer be required for stabilisation of sludge. Not part of this application
Existing staff demountable amenities and office / laboratory	To be relocated to the area of the new works as part of the upgrade.
Internal Access road	Minor widening and passing bays to accommodate construction vehicles, otherwise no change
Old brick office and adjoining demountable and disused dog pound	No changes
Motor Load Centre	This will be retained with internal isolation as appropriate in accordance with electrical requirements and regulations. Not part of this application
Site Fencing	No change. Additional internal fencing of new works will occur to restrict access to works area.



## 5 Impact Assessment

### 5.1 Planning Scheme Zoning

The site is zoned Utilities by the Northern Midlands Interim Planning Scheme 2013.

The purpose of the zone as stated in Clause 28.1 of the Interim Planning Scheme is:

- To provide land for major utilities installations and corridors
- To provide for other compatible uses where they do not adversely impact on the utility.

The proposed works are an upgrade of the existing major utility and meets the purpose of this zoning, as well as being a Permitted use under Clause 28.2 of the Northern Midlands Interim Planning Scheme.

As the purpose of the proposed the upgrade is to ensure the current STP license conditions are achieved it will comply with the objective of Clause 28.3 of the NMC Interim Planning Scheme "to ensure that uses do not compromise the capacity of utility services."

Table 6 provides a comparison of the proposed upgrade against the Use and Development Standards outlined in Clause 28.3 and 28.4 of the Northern Midlands Interim Planning Scheme.

**Table 6 - Comparison of proposal against Use and Development Standards**

Standard	Acceptable solution	Proposed Upgrade
<b>28.3.1 Use Standards – Capacity of existing utilities</b>		
Permitted Use	A1 If for permitted or no permit required uses	Compliant – the proposed use is a permitted use under the Use Table 28.2
<b>28.4.1 Development Standards - Building Design and Siting</b>		
Building Height	A1 Height must not exceed: a) 10m; or b) 15 m for ancillary antenna and masts for communication devices.	All structures will be 10m or less apart from the odour control unit which will have a 15m high vent stack and the 3 lightning rods which will be a maximum of 20m tall.  Refer to Section 5.2 for further discussion
Building Setback	A2 Buildings must be set back from all boundaries a minimum distance of 3m.	Compliant – buildings will be set back a minimum of 3m from site boundaries
<b>28.4.2 Subdivision</b>		
	A1 Subdivision must be for a utility use.  A2 The lot must have a minimum frontage of 3.6m.	Not applicable as no subdivision proposed.

### 5.2 Visual Impacts

As the odour control unit and lightning protection rods will exceed the "Acceptable solution" height limits of 10 and 15m, the objective and performance criteria of Clause 28.4 of the NMC Interim Planning Scheme need to be considered.

The stated Objective of Clause 28.4.1 of the NMC Interim Planning Scheme is:

*To ensure that the siting and design of development:*

- a) considers the impacts to adjoining lots; and*
- b) furthers the local area objectives and desired future character statements for the area, if any.*

Drawings TWP-18-034-146 to 148 provide an indication of the height of new structures in relation to existing structures on site.

The impact of structures to properties on the northern and eastern side of the site is reduced due to the existing lagoons being approximately 3 to 4 meters above the area where the structures will be constructed. In addition the bioreactors will be bedded approximately 1m below existing ground level. The existing trees along the western and southern boundaries which were planted in 1998/1999 provide some screening of the lower structures, although taller structures will be visible.

All structures are situated away from property boundaries so are not likely to cause overshadowing issues with the adjacent pasture land. The odour control unit will be approximately 40m from the nearest boundary. The 3 tallest structures on site are the lightning rods. While visible, their impact will be limited due to their small diameter.

In summary, the upgrade:

- will provide a significant community benefit
- will not overshadow adjoining rural land
- has sited structures to minimise visual impacts from the Longford township and Bishopsbourne road and to take advantage of existing screen plantings
- has proposed construction and finish of buildings similar to rural sheds and outbuildings, with other structures to be concrete or metal finish

### 5.3 Odour Assessment

The odour control measures will ensure that the nearest sensitive receptor is outside of the 99.5 percentile 2 odour unit (OU) contour. This will be an improvement to the current situation and reduces the potential for nuisance odours at neighbouring houses.

The preliminary odour model will be updated during detailed design to ensure that odour emissions from the upgraded STP meet the design requirements.

Odour emissions from key point sources will be captured and treated through the odour control unit (scrubber). This means that even if unexpected process issues occur in these areas, emissions will still receive treatment through the odour control unit.

The odour control unit itself, treats odours through both a media biofilter and carbon filter. The H2S monitors on the inlet and outlet of the odour control unit will enable performance to be monitored and assist with advance planning of major maintenance.

The digester will not be a source of odour as excess gas will be flared.

### 5.4 NMC Planning Scheme Codes

Table 7 summarises the proposed upgrade against each of the NMC Planning Scheme Specific Codes.



Table 7 - Applicability of NMC Planning Scheme Specific Codes

Code	Description	Applicability	Commentary and Commitments
E1	Bushfire Prone Areas	Refer notes	<p>Prior to 3 June 2019, the site was not within 100m of such land (per LIST map) and therefore exempt under clause E1.2.1.</p> <p>However the land is within the Bushfire-Prone areas overlay proposed by the Tasmanian Fire Service and added to the Planning Scheme on the 3 June 2019.</p> <p>As the development does not meet the criteria for a hazardous use, the requirements of Code E1 do not apply at the Planning Stage. Refer to Section 5.4.1 for further discussion.</p> <p>A bushfire assessment and mitigation plan will be completed to address requirements of the Building Regulations.</p>
E2	Potentially Contaminated Land	N/A	<p>Exempt under Clause E2.4.1 with regards to Planning Approval.</p> <p>Potential contamination will be assessed in conjunction with building works.</p>
E3	Landslip Code	N/A	<p>No part of the site is identified as a potential landslip hazard area, nor identified as a potential landslip area (per LIST map), therefore the Code is not applicable.</p>
E4	Road and Railway Assets Code	<p>Clause E4.2.1</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>	<p>Clause E.4.2.1</p> <p>New access not required</p> <p>Future pattern of use may change slightly with regards to removal of biosolids and screenings but the overall use will not be intensified.</p> <p>Not within 50m of an existing Category 1 or 2 road or railway or future road or railway</p> <p>Refer to Section 5.4.3 (Traffic Management) of this document for further discussion.</p> <p>Copy of Construction Traffic Management plan will be provided to Council prior to commencement of construction</p>
E5	Flood Prone Area	N/A	<p>No part of the site is mapped as flood risk and the site is approximately 380m</p>

Code	Description	Applicability	Commentary and Commitments
			from 1 in 100 flood boundary (per LIST map). Therefore, the Code is not applicable.
E6	Car Parking and Sustainable Transport	Minor – Clause E6.2.1 states that this code applies to all use and development of land	There are ample hardstand areas on site for parking of vehicles accessing the site. Please refer to Section 5.4.3 for further details.
E7	Scenic Management Code	N/A	The Code does not apply as the site is not within 100m of a scenic management tourist road corridor or local scenic management areas (per LIST map).
E8	Biodiversity Code	N/A	The Code does not apply as the site is not within an area identified as priority habitat on the planning scheme maps and removal of native vegetation is not proposed. Refer Section 5.4.5
E9	Water Quality Code	Minor under Clause E9.2.1	As proposed works are not within 50m of an external watercourse the development is exempt from the requirements of Code E9.  Refer sections 5.4.5 and 4.5 for further discussion and treatment of stormwater
E10	Recreation and Open Space	N/A	This Code does not apply to use or development in the Utilities zone.
E11	Environmental Impacts Attenuation	N/A	The proposed upgrade does not involve a sensitive use. The proposed use is listed in Table E11.2, therefore the Code is applicable. However, the development forms an upgrade of an existing Level 2 activity that has been assessed by the EPA, therefore the development is exempt under Clause E11.4.1.  It should also be noted that the existing STP creates an attenuation zone, which will not be increased by this proposal.  One of the objectives of this upgrade is to reduce the potential for nuisance odours outside of the site by collecting and treating odours. This is further discussed in Sections 4.2.6 and 5.3.  Potential odour sources will be contained and treated by a dedicated odour control unit.  The odour model will be revised during detailed design to ensure that the final design achieves less than 20U (99.5percentile) at the nearest sensitive receptor



Code	Description	Applicability	Commentary and Commitments
			Odour monitoring will occur after upgrade is fully commissioned to calibrate and verify the predictive model.
E12	Airports Management Code	N/A	The Code does not apply as the site is not within Australian noise exposure forecast contours or prescribed air space.
E13	Local Heritage Code	N/A	The Code does not apply as the site is not: Within a Heritage Precinct (per LIST) A local heritage place (per LIST) A place of identified archaeological significance (per web enquiry).
E14	Not used in Scheme	N/A	N/A
E15	Signs Code	N/A	Change to permanent signage not proposed.

#### 5.4.1 Bushfire Prone Areas

The site is within the Bushfire-Prone Areas overlay proposed by the Tasmanian Fire Service and inserted in the NMC Planning Scheme on the 3 June 2019.

NMC Code E1.0 Bushfire-Prone Areas Code states that this code applies to:

- subdivision of land that is located within, or partially within, a bushfire-prone area; and
- a use, on land that is located within, or partially within, a bushfire-prone area, that is a vulnerable use or hazardous use.

Under the Code, a hazardous use is defined as:

*hazardous use means a use where:*

- (a) the amount of hazardous chemicals used, handled, generated or stored on a site exceeds the manifest quantity as specified in the Work Health and Safety Regulations 2012; or
- (b) explosives are stored on a site and where classified as an explosives location or large explosives location as specified in the Explosives Act 2012.

Jonathon Jones (Senior Inspector, Worksafe Tasmania) has confirmed the following with our consultant;

- Magnesium hydroxide, Aluminium sulphate and Polymer are not considered hazardous chemicals under Schedule 11 of the Work Health and Safety Regulations 2012;
- Sodium hypochlorite is considered a hazardous chemical under the regulations. The manifest quantity for sodium hypochlorite solution is 2,500 L or 2,500 kg;
- The gas flares do not make the site an explosives locations under the Explosives Act 2012.

As the sodium hypochlorite will be stored in a 200L tank, it does not exceed the manifest quantity and the site is not defined as a hazardous use under the Bushfire-Prone Areas Code of the Northern

Midlands Interim Planning Scheme 2013. Therefore no bushfire requirements apply at the planning stage.

The development will require assessment at the building stage against the Director’s Determination – Requirements for Building in Bushfire-Prone Areas for any Class 1, 2, 3, 8 or 9 buildings proposed. It is likely that the laboratory and amenities buildings will fall under Class 8 but will need to be confirmed by a building expert such as a building surveyor. In that case a Bushfire Report will be prepared by an accredited person and approved by the Tasmania Fire Service. This report will address the Bushfire-Prone Areas Code and provide an emergency management strategy for the development. An emergency action plan will be prepared during detailed design in order to meet the *Building Regulations 2016*.

**5.4.2 Potentially Contaminated Land**

Clause E2.4.1 indicates that the proposed upgrade is exempt from the requirements of the NMC Potentially Contaminated Land Code. As an operational sewage treatment plant there is potential for excavations to uncover the remains of any material stored or buried on site in the past. Testing of areas intended to be excavated will be completed by suitably qualified personnel prior to excavation to determine if any contaminated soil will be disturbed. If excavation of contaminated soil is required it will be disposed of at an appropriate landfill facility.

**5.4.3 Road and Rail Assets**

The most demand on the site in terms of parking and traffic movements will occur during the construction period, as once operational it is intended that the site be intermittently manned and operational traffic movements will be similar to current movements. Therefore the project will not result in an intensification of use of an existing asset.

A comparison of current and future operational traffic movements is provided in Table 8. The main change is that removal of screenings and biosolids will occur on a regular basis, rather than the current intensive periods of activity over a few weeks.

**Table 8 - Comparison of current and future traffic movements**

Activity	Current Operation	Future Operation
Normal Operations	Daily including weekends Normally light vehicle 2 trips per day weekdays, 1 trip per day on weekends	Daily including weekends Light vehicle Similar to current operation
Visitors and other TasWater staff	Occasional	Occasional
Grit and Screenings removal (truck)	Approximately fortnightly	Weekly
Sludge / biosolids removal	Intensive for short periods – multiple truck and machinery movements over 2 to 4 week periods once or twice a year	Weekly removal of covered biosolids bins using a truck
Maintenance	Intensive for short periods – cranes, trucks, other vehicles	Similar to current operation



Internal site roads and access have been designed to cater for parking, loading and unloading of vehicles including chemical delivery and biosolids removal trucks. Parking for operators will be provided adjacent to the new control room and amenities building. In addition, the area between new structures is predominately hardstand and this combined with new and existing pavements means that there will be ample room on site for parking of vehicles.

Normal construction works will occur between 7.00am to 5.00pm Monday to Friday. Occasional deliveries or work may occur outside these hours.

The Contractor will provide a traffic management plan prior to commencing construction works on site. Should any signage warning of turning traffic be required on Bishopsbourne Road this will be provided to Councils' Works and Infrastructure Department.

NMC Planning Scheme Code E4, Road and Railway Assets Code does not apply to this development for the reasons outlined in Table 9.

**Table 9 - Comparison of Upgrade and NMC Code E4**

	Code applies if Development:	Proposed Upgrade	Applicability
a	Requires a new access, junction or level crossing	No change to existing site access	Not Applicable
b	Intensifies the use of an existing access, junction or level crossing	Proposed upgrade does not provide a net intensification of use of the existing access.	Not applicable
c	Involves a sensitive use, a building, works or subdivision on or within 50m of a railway or land shown in this planning scheme as: A future road or railway A category 1 or 2 road where such road is subject to a speed limit of more than 60 kilometres per hour	The site is not on or within 50m of a railway or land shown in the NMC planning scheme as a future road or railway.  The nearest road is Bishopsbourne Road which is not a category 1 or 2 road.	Not Applicable

#### 5.4.4 Car Parking and Sustainable Transport

While NMC Code E6, Car Parking and Sustainable Transport Code, applies to all development, it has limited impact on this upgrade for the reasons described below.

Access to the site is restricted to persons who have been inducted or are accompanied by TasWater personnel.

Parking for operators and occasional visitors will be provided near the control building. (refer 3D Model layout plan and drawing TWP-18-034-001) Parking for larger vehicles (eg chemical delivery vehicle or biosolids removal trucks) will be designed as part of the loading/unloading facilities.

In addition to designated normal parking there is ample provision on site for parking of any additional vehicles which may occasionally access the site.

Tables 10 and 11 provide a comparison of the proposed upgrade against sections 6.6 and 6.7 of the NMC Car Parking and Sustainable Transport Code.

**Table 10 - Comparison of Upgrade against NMC Use Standard E6.6**

Clause and Objective	Acceptable Solution	Comment
<p>E6.6.1 - Car Parking Numbers</p> <p>To ensure that an appropriate level of car parking is provided to service use.</p>	<p>The number of car parking spaces must not be less than the requirements of Table E6.1; or</p> <p>A parking precinct plan contained in Table E6.6</p>	<p>Table E 6.1 – no minimum requirement applies</p> <p>Table E6.6 – no Parking Precinct Plans are used in the NMC Planning Scheme</p> <p>Ample space is provided on site for parking.</p> <p>Therefore the Proposal complies with A1.</p>
<p>E6.6.2 - Bicycle Parking Numbers</p> <p>To encourage cycling as a mode of transport within areas subject to urban speed zones by ensuring safe, secure and convenient parking for bicycles</p>	<p>A1.1 Permanently accessible bicycle parking or storage spaces must be provided either on the site or within 50m of the site in accordance with the requirements of Table E6.1; or</p> <p>A1.2 The number of spaces must be in accordance with a parking precinct plan contained in Table E6.6: Precinct Parking Plans</p>	<p>This requirement does not apply as the area is not subject to urban speed zones, however ample space exists on site should any employee access the site by bicycle.</p> <p>Table E 6.1 – no minimum requirement applies.</p> <p>Table E6.6 – no Parking Precinct Plans are used in the NMC Planning Scheme</p> <p>Therefore the Proposal complies with A1.1 and A1.2.</p>
<p>E6.6.3 - Taxi Drop-off and Pickup</p> <p>To ensure that taxis can adequately access developments</p>	<p>A1 One dedicated taxi drop-off and pickup space must be provided for every 50 car spaces required by Table E6.1 or part thereof (except for dwellings in the General Residential Zone).</p>	<p>Table E6.1 has no requirement specified. Therefore no taxi space is required and the Proposal complies with A1. For safety reasons access to site is controlled. Any taxi that is required to access the site will be accompanied by TW staff and use normal parking areas.</p>
<p>E6.6.4 - Motorbike Parking Provisions</p> <p>To ensure that motorbikes are adequately provided for in parking considerations</p>	<p>One motorbike parking space must be provided for each 20 car spaces required by Table E6.1 or part thereof</p>	<p>Table E6.1 has no requirement; therefore no motorcycle parking spaces are required and the proposal meets A1. However ample space exists on site should any employee access the site by motorcycle instead of another vehicle.</p>

**Table 11 - Comparison of Upgrade against NMC Development Standard E6.7**

NMC Code and Standard	Objective	Comment and Commitments
E6.7.1 - Construction of Car Parking Spaces and Access Strips	To ensure that car parking spaces and access strips are constructed to an appropriate standard	<p>Public access to the site is not available.</p> <p>The dedicated parking area near the control building will be sealed and graded appropriately, as are the vehicular access areas adjacent to the new structures.</p> <p>Surfaces of existing internal and external</p>

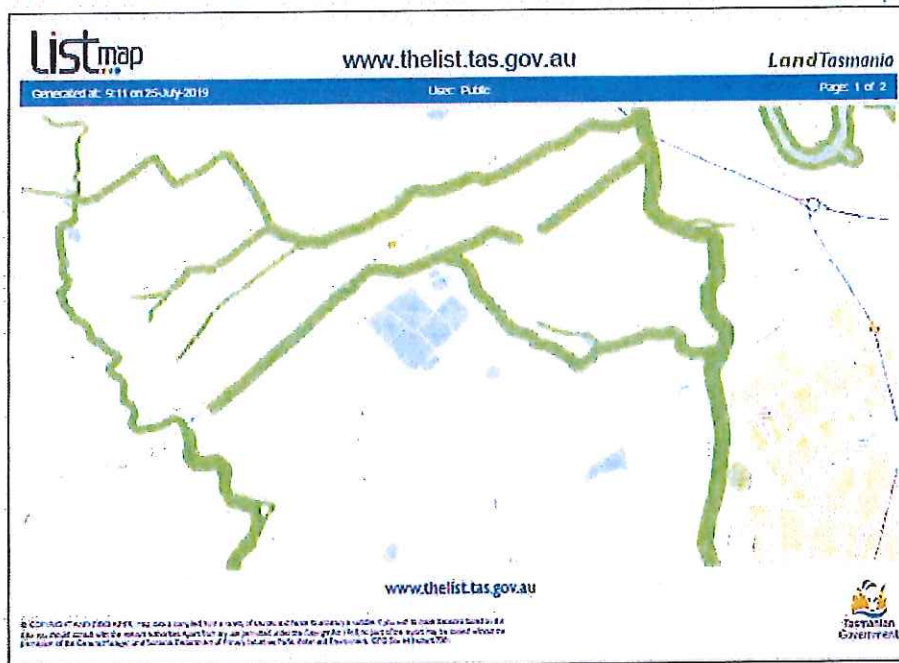


NMC Code and Standard	Objective	Comment and Commitments
		access routes will not be altered. Information regarding car parking areas will be provided to persons entering the site as part of the required site induction.
E6.7.2 - Design and Layout of Car Parking	To ensure that car parking and manoeuvring space are designed and laid out to an appropriate standard	Parking and turning areas are located well away from Bishop'sbourne road and will suit the requirements of the site. All vehicles will enter and leave the site in a forward direction
E6.7.3 – Car Parking Access, Safety and Security	To ensure adequate access, safety and security for car parking and for deliveries	Operational access requirements will be similar to current needs which are adequately addressed at present. Note access to the site is restricted to approved persons.
E6.7.4 - Parking for Persons with a Disability	To ensure adequate parking for persons with a disability	The parking area adjacent to the amenities is relatively flat and will provide accessible spaces for use by all visitors. Therefore separate spaces will not be provided.
E6.7.5	Standard not used.	N/A
E6.7.6 - Loading and Unloading of Vehicles, Drop-off and Pickup	To ensure adequate access for people and goods delivery and collection and to prevent loss of amenity and adverse impacts on traffic flows	The proposed use is Utilities, therefore Clause E6.6.6 is not applicable. All vehicles will enter and leave site in a forward direction per current arrangement and should not impact on external traffic flows.

#### 5.4.5 Water Quality Code

While the LISTmap Waterway and Coastal Protection Area Guidance overlay shows a water course to the north-east of the site, the proposed works are well away from that area and the requirements of the Water Quality Code do not apply.

Figure 14 - Waterway and Coastal Protection Area Guidance Map



Drawing TWP-18-034-145 shows proposed drainage associated with the proposed works. Pipes will be provided under roads and hard surfaces and drain to open swales which will drain to existing swales and stilling areas prior to exiting the site. This is essentially a continuation of the existing pattern of stormwater management on site.

No changes are proposed to the existing effluent outfall pipe to Back Creek. Improved effluent quality should reduce impacts on Back Creek water quality from the current discharge. This will be confirmed by post commissioning monitoring of Back Creek and reported to the EPA.

The contractor will be required to manage construction activities to prevent erosion or off-site transportation of sediments during construction.

#### 5.4.6 Flora / Fauna Biodiversity

While the site is not within an area identified as priority habitat on the Planning Scheme overlays and removal of vegetation is not proposed, TasWater engaged a consultant to complete a survey of the site. The full report is contained in Appendix 5. The consultant concluded that:

*"No threatened flora species listed on the Tasmanian Threatened Species Protection Act 1995 or Commonwealth Environment Protection and Biodiversity Conservation Act 1999 growing in a natural situation occur in the Survey Area."*

While the survey did indicate that while the site provided habitat suitable for threatened species, it concluded that:

*"The use by the Survey Area by any threatened species would likely be opportunistic rather than as ongoing use for foraging and breeding."*

Should a threatened species be identified during construction works Council will be notified and impacts controlled.



**5.4.7 Environmental Impacts and Attenuation**

The proposed development is for a Mechanical treatment plant as listed in Table E11.2 of the Environmental Impacts and Attenuation Code. The development also involves the retention of an existing aerobic pond (Lagoon 2) for emergency use.

**Table 12 - Comparison of Upgrade against NMC Use Standard E11.6.1**

NMC Code and Standard	Objective	Comment and Commitments
E11.6.1 Attenuation Distances	To ensure that potentially incompatible use or development is separated by a distance sufficient to ameliorate any adverse effects	<p>No sensitive use is proposed, therefore A1 is not applicable.</p> <p>To meet the requirements of A2 the proposed development must be setback from an existing sensitive use by a minimum attenuation distance of 300 m for the mechanical plant and 700 m for any retained aerobic ponds. The mechanical plant is located over 500 m from known sensitive use. The aerobic pond (lagoon 2) is located approximately 385 m from the nearest sensitive use to the north. Therefore, the proposal does not meet the acceptable solution and the performance criteria must be addressed. Lagoon 2 is part of an existing approved Level 2 activity. The proposed repurposing of the pond for emergency use only will result in a reduced potential to create environmental harm as it will not be in constant use.</p> <p>A site-specific Odour Modelling Assessment was carried out in 2008 and reviewed by a qualified environmental scientist for the purposes of this application. The review addresses the performance criteria (refer to Appendix 4).</p> <p>Odour collection and control will be implemented to ensure that the final design achieves less than 2OU (99.5 percentile) at the nearest sensitive receptor.</p> <p>The proposed plant upgrades are likely to reduce odour emissions overall from the current situation. The proposal is considered acceptable upon consideration of the performance criteria.</p>

There are no development standards under this Code.

**5.5 Aboriginal Heritage**

Enquiries via Dial Before You Dig and [aboriginal@heritage.tas.gov.au](mailto:aboriginal@heritage.tas.gov.au) did not identify any registered Aboriginal relics or apparent risk of impacting Aboriginal relics. Should potential relics be discovered during construction, the requirements of Aboriginal Heritage Tasmania *Unanticipated Discovery Plan* will be followed.



## 6 Commitments

	Commitment
1	Dams Permit Approval will be obtained from DIPWIE for refurbishment and conversion of Lagoon 1 prior to work on that structure commencing
2	Building and Plumbing approvals will be obtained as required by applicable regulations
3	The Odour model will be revised during detailed design to ensure final design achieves less than 2OU (99.5percentile) at the nearest sensitive receptor
4	Odour monitoring will occur after upgrade is fully commissioned to calibrate and verify predictive model
5	Should location or height of lightning rods change during detailed design, amended plans will be provided to Council
6	Bunding of chemical storage area will be provided to ensure any chemical spills are contained
7	Chemical delivery area will be designed to ensure any chemical spills are contained
8	Dust suppression of gravel roads will be provided if needed during construction
9	A noise model will be developed during detailed design to allow confirmation of compliance with EPA requirements
10	Noise measurements will occur during the process proving period to verify emissions against the design model and to confirm noise levels below EPN limits
11	A construction and environmental management plan addressing construction activities will be developed by the contractor prior to construction commencing
12	Construction activities generating noise will not occur during prohibited hours as listed in Schedule 1 of the Environmental Management and Pollution Control (Noise) Regulations 2016
13	All new structures are below 10m in height, with exception of the Odour control unit stack and lightning rods
14	All new structures will be a minimum of 3m from site boundaries
15	Details of gas burner and flare will be provided to Council prior to installation on site
16	A bushfire assessment and mitigation plan will be completed prior to construction
17	Potential site contamination of areas to be disturbed will be assessed in conjunction with building works
18	A Construction Traffic Management Plan will be provided to Council prior to construction
19	Should any traffic signage be required on Bishopsbourne Road during construction, a traffic management plan will be provided to NMC Works and Infrastructure Department
20	Removal of existing amenity planting not proposed
21	If any Aboriginal relics are discovered during construction, the requirements of <i>Aboriginal Tasmania Unanticipated Discovery Plan</i> will be followed
22	TasWater will continue to monitor Back Creek for a period of 12 months following commissioning of the upgraded STP and report findings to the EPA.

## 7 Appendices:

### 7.1 Appendix 1: Drawings

Drawing Number	Title
TWP-18-034-001	Site Arrangement
TWP-18-034-003	Process Flow Diagram
TWP-18-034-143	WWTP Views and Sections
TWP-18-034-144	WWTP Views and Sections
TWP-18-034-145	WWTP Access road detail
TWP-18-034-146	WWTP Site section A
TWP-18-034-147	WWTP Site section B
TWP-18-034-148	WWTP Site section C
TWP-18-034-149	WWTP Access road
TWP-18-034-222	Balance Tank Arrangement
TWP-18-034-223	Inlet works Arrangement
TWP-18-034-224	Sludge thickener
TWP-18-034-230	Bioreactor and Blower building Arrangement
TWP-18-034-231	Bioreactor and Blower building Section Views
TWP-18-034-238	WAS buffer tank Arrangement
TWP-18-034-240	Chemical Dosing Building General Arrangement
TWP-18-034-241	Chemical Dosing Building Plan View and Sections
TWP-18-034-250	Sludge dewatering building and dosing building Plan View and isometric views
TWP-18-034-251	Sludge dewatering building and dosing building Section Views
TWP-18-034-252	Pressure Filter, UV & Service Water pump station Arrangement
TWP-18-034-253	Filter feed pump Station Arrangement
TWP-18-034-255	Foul Water Pump Station Arrangement
DAF – Typical-120L	Suppliers Typical DAF – to be confirmed during detailed design
GA_P18302	Suppliers typical Odour control system and stack









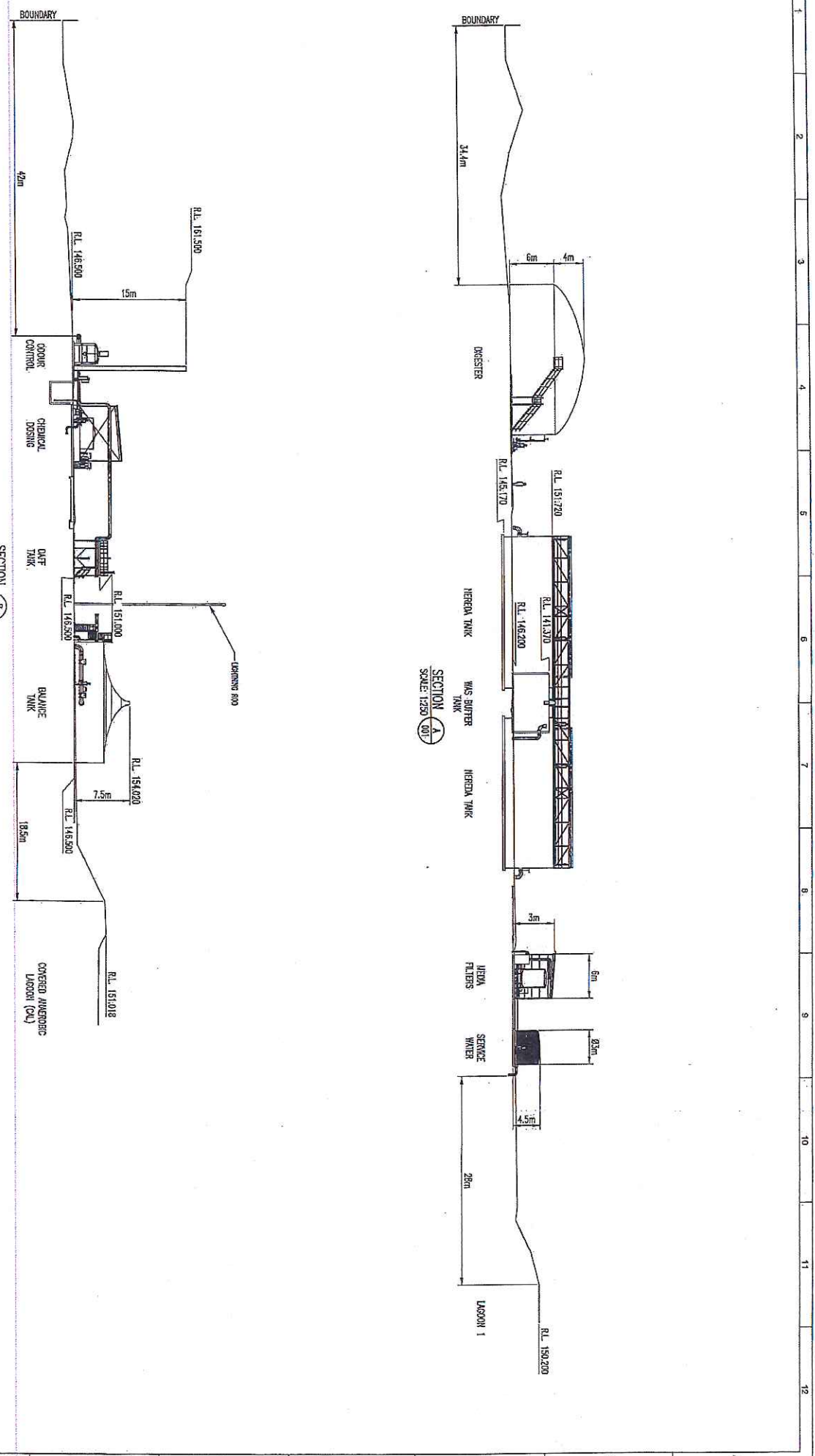








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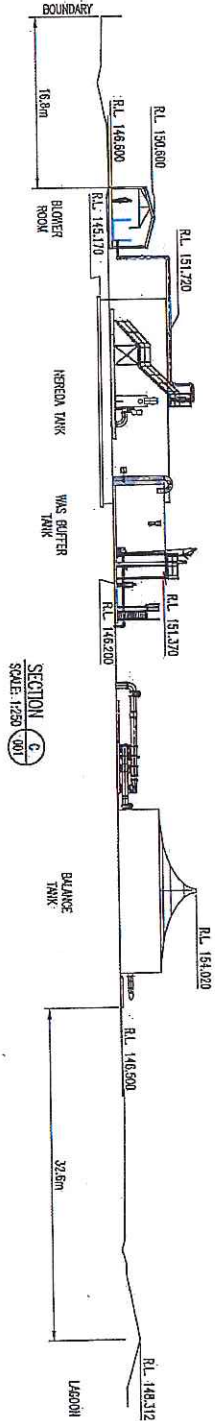
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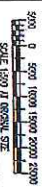
**LONSTON - LONGFORD STP**  
 SEWAGE TREATMENT PLANT UPGRADE  
 WWTP VIEWS AND SECTIONS

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LONSTON1-LONGFORD STP  
 SEWAGE TREATMENT PLANT UPGRADE  
 WWTP VIEWS AND SECTIONS  
 DRAWING NO: 1812A-044-01  
 SHEET NO: 1 OF 1

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LONGITUDINAL SECTION SECTION A  
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Project No.	
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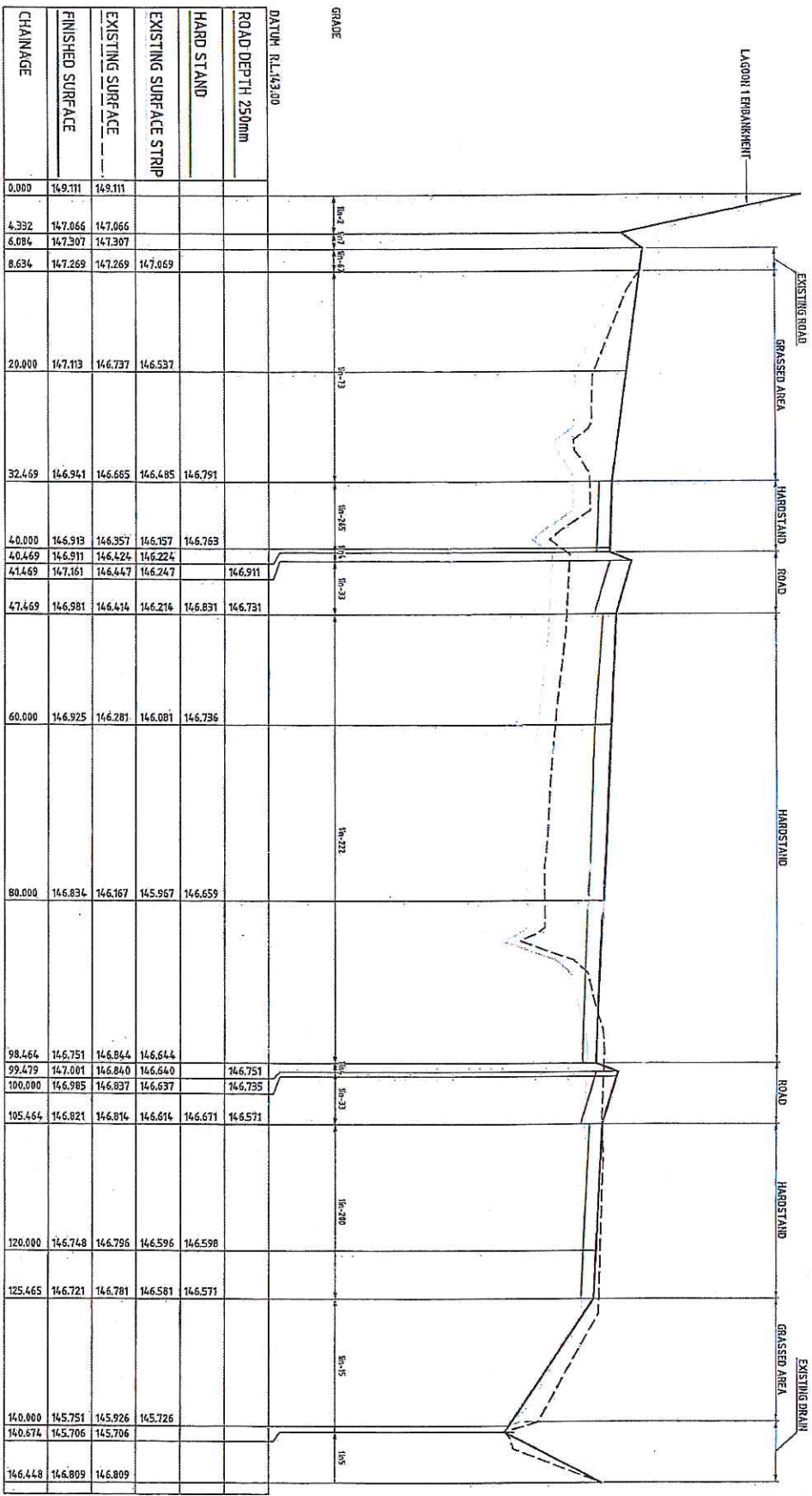
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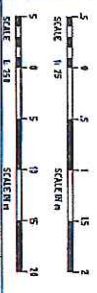


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CHAINAGE	EXISTING SURFACE		EXISTING SURFACE STRIP	HARD STAND	ROAD DEPTH 250mm	DATUM R.L. 143.00
	Top	Bottom				
0.000	149.111	149.111				
4.332	147.066	147.066				
6.084	147.307	147.307				
8.634	147.269	147.269	147.069			
20.000	147.113	146.737	146.537			
32.459	146.941	146.665	146.485	146.791		
40.000	146.913	146.357	146.157	146.763		
40.449	146.911	146.424	146.224	146.911		
41.469	147.161	146.447	146.247	146.731		
47.469	146.981	146.414	146.214	146.831		
60.000	146.925	146.281	146.081	146.736		
80.000	146.834	146.167	145.957	146.659		
98.464	146.751	146.864	146.644	146.751		
99.479	147.001	146.840	146.640	146.735		
100.000	146.985	146.837	146.637	146.571		
105.464	146.821	146.814	146.614	146.671		
120.000	146.748	146.796	146.596	146.598		
125.465	146.721	146.791	146.581	146.571		
140.000	145.751	145.926	145.726			
140.674	145.706	145.706				
146.448	146.809	146.809				

LONGITUDINAL SECTION SECTION B  
 HORIZONTAL SCALE 1:250  
 VERTICAL SCALE 1:25



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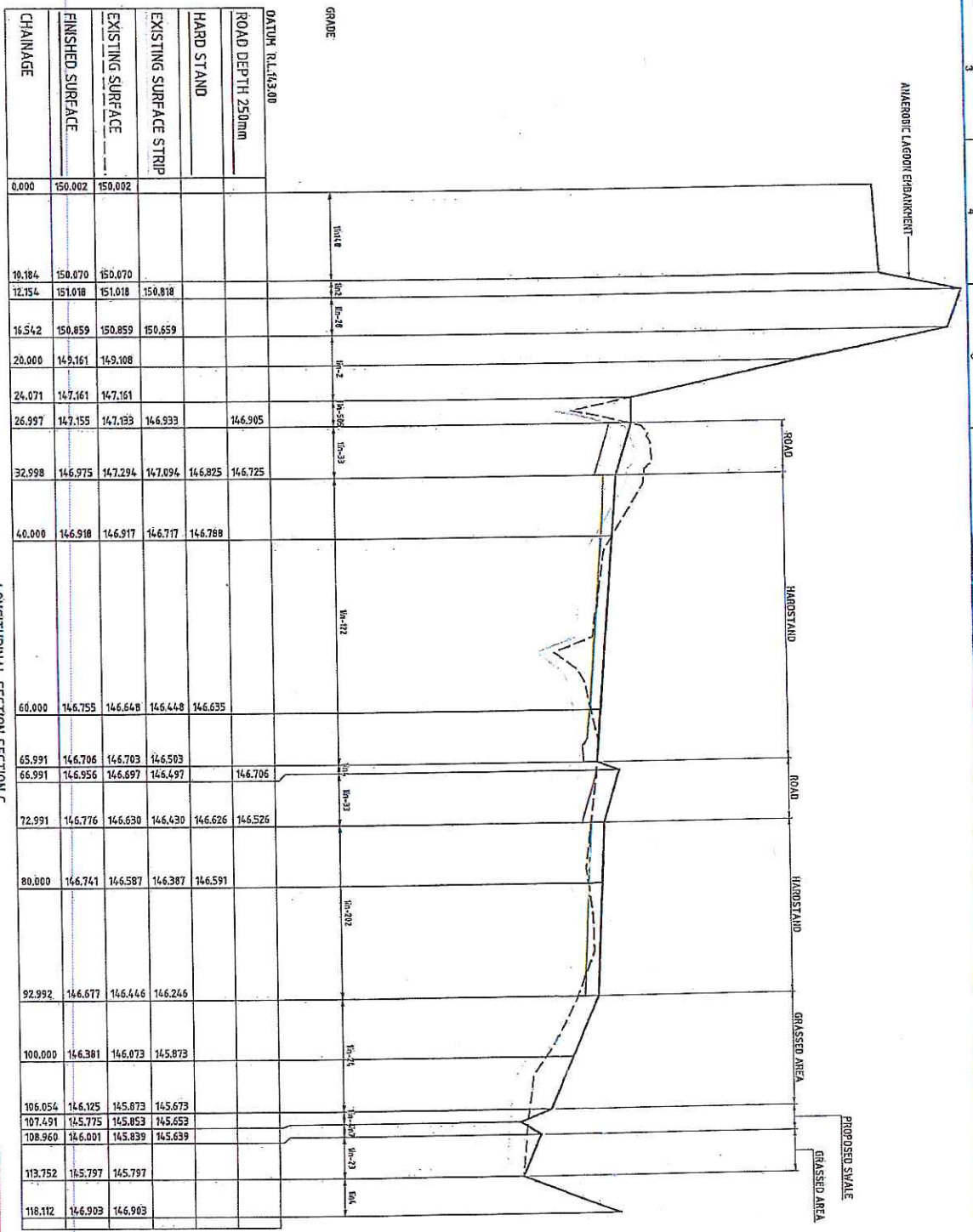
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 SEWAGE TREATMENT PLANT UPGRADE  
 WWP SITE SECTION B

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LONGITUDINAL SECTION C  
HORIZONTAL SCALE 1:250  
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SEWAGE TREATMENT PLANT UPGRADE  
WWTP SITE SECTION

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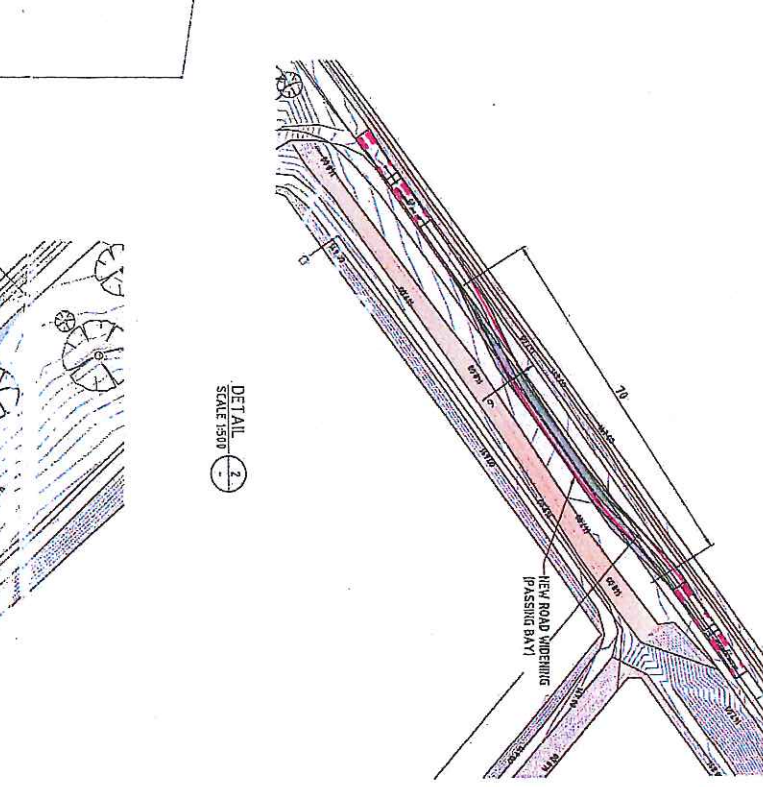
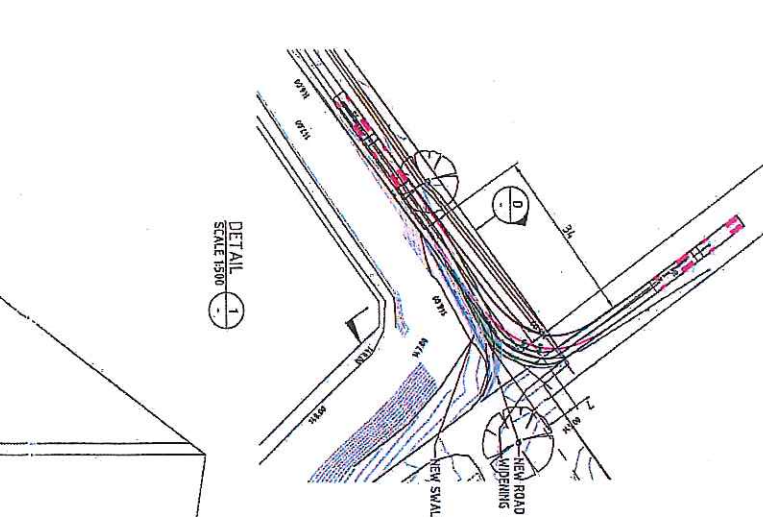
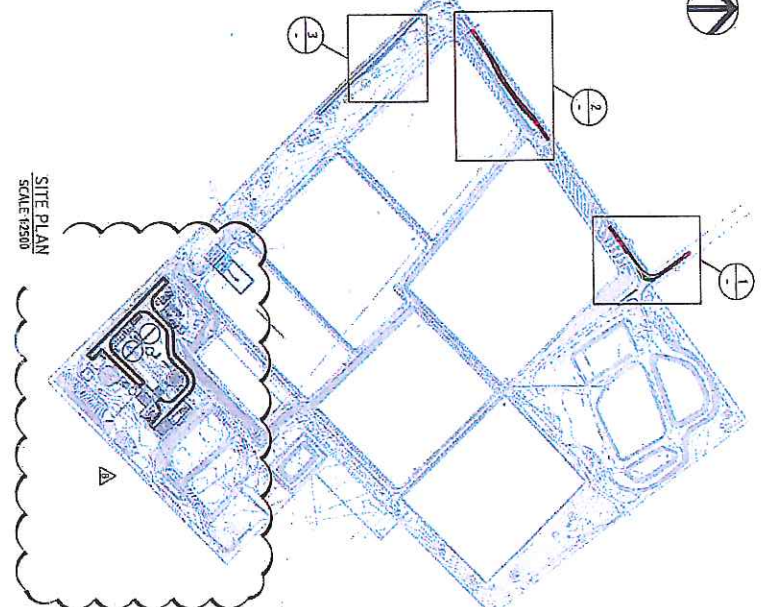
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**EARTHWORKS VOLUMES:**

1. EXISTING ROAD TO BE RESURFACED PLAN AREA = 2353m<sup>2</sup>
2. EXISTING ROAD TO BE RESURFACED 100mm THICK
3. PASSING BAYS PLAN AREA 250m<sup>2</sup> x 32mm
4. VOLUMES OF FILL FOR PASSING BAYS 250mm THICK
5. APPROXIMATE VOLUMES FOR EXISTING ROAD WIDENING

CUT 45.0m<sup>3</sup>  
ROAD FILL 250mm THICK 20.0m<sup>3</sup>

**LEGEND:**

PROPOSED ROAD ALIGNMENT

CHAINAGE	EXISTING SURFACE	FINISHED SURFACE	GRADE DATUM R.L. 142.00
0.000	145.173	145.173	
1.175	145.136	145.136	
1.888	144.920	144.920	
2.617	145.145	145.145	
4.464	145.240	145.240	
8.603	145.134	145.055	
9.702	144.976	145.211	
11.831	145.247	145.247	
20.000	147.861	147.861	
20.447	147.976	147.976	
26.772	147.791	147.791	

**LONGITUDINAL SECTION SECTION D**

HORIZONTAL SCALE 1:100  
VERTICAL SCALE 1:20

**CONTRACTOR**  
THE COMPANY HAS TO BE RESPONSIBLE HEREIN TO THE EXTENT OF THE CONTRACT DOCUMENTS AND SHALL BE RESPONSIBLE TO THE CONTRACTOR FOR THE DESIGN AND CONSTRUCTION OF THE ROAD WORKS SHOWN ON THE DRAWING SUBJECT TO THE APPROVAL OF THE ENGINEER.

**NOT AUTHORIZED FOR USE**

Rev.	Date	Approved
1	05-06-18	

**KEA**  
KORIAN ENGINEERING & ARCHITECTURE  
INCORPORATED  
11111111111111111111  
11111111111111111111  
11111111111111111111  
11111111111111111111  
11111111111111111111

**AQUATIC MAXCON PVT. LTD.**  
WATER TREATMENT TECHNOLOGY AND EQUIPMENT  
11111111111111111111  
11111111111111111111  
11111111111111111111  
11111111111111111111  
11111111111111111111

Scale	AS SHOWN
DATE	DATE
BY	BY
CHECKED	CHECKED
APPROVED	APPROVED

REVISIONS	NO.	DATE	DESCRIPTION
	1	18/12/2018	049

**FOR INFORMATION**

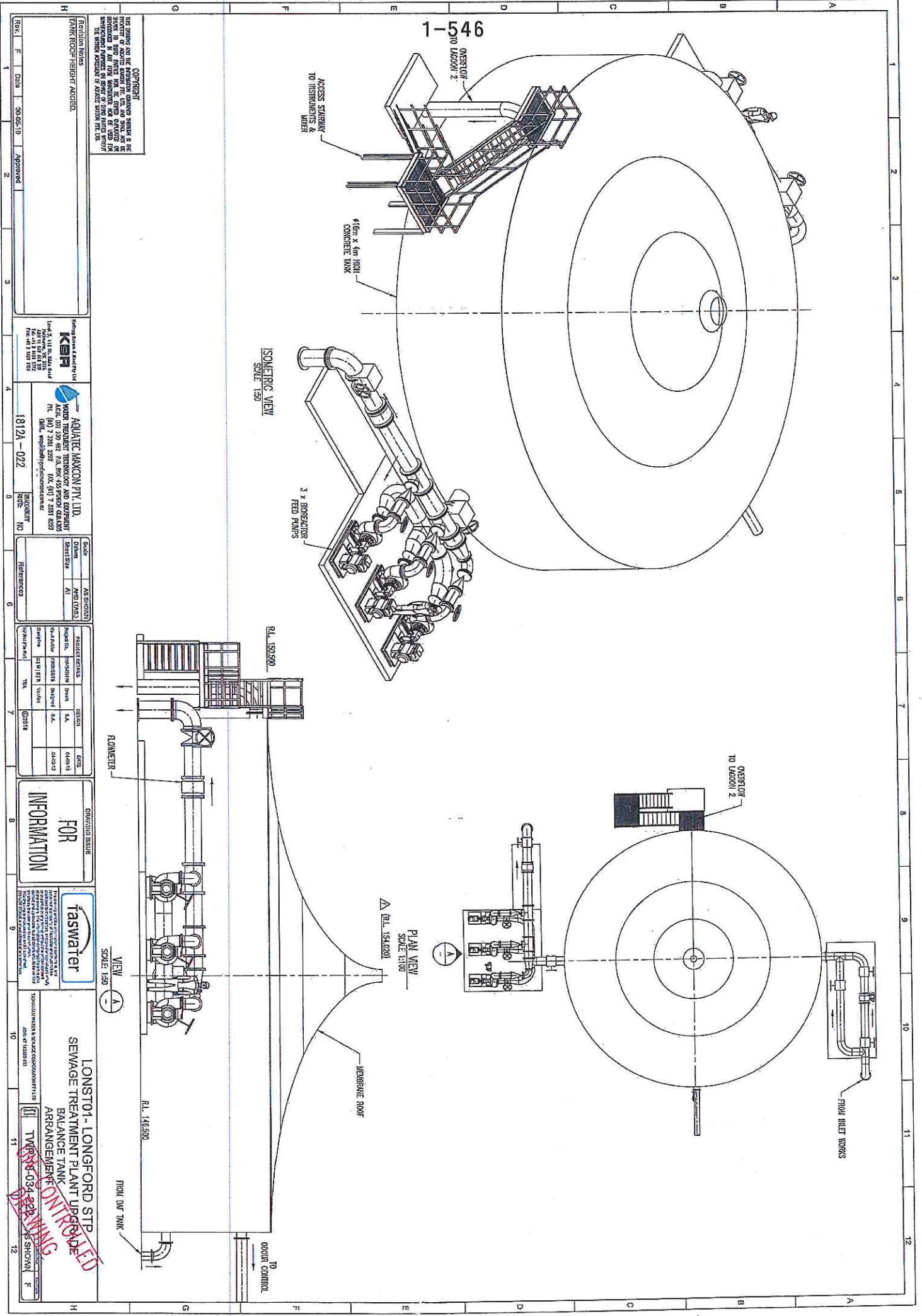
**taswater**  
11111111111111111111  
11111111111111111111  
11111111111111111111  
11111111111111111111  
11111111111111111111

**LONGSTO1 - LONGFORD STP  
SEWAGE TREATMENT PLANT UPGRADE  
SEWAGE TREATMENT PLANT UPGRADE  
WWTP ACCESS ROAD**

**CHECK PRINT - INCOMPLETE REVISION**  
PLOT DATE: Jun 05, 2019 - 11:02am

**11111111111111111111**





1-546

ACCESS STAIRWAY TO INSTRUMENTS & WATER

415cm x 4m HIGH CONCRETE TANK

ISOMETRIC VIEW  
SCALE 1:50

3 x BLOWER/ACTUATOR FEED PUMPS

R.L. 150.590

FLOWMETER

△ (R.L. 154.020)

PLAN VIEW  
SCALE 1:100

MEMBRANE ROOF

R.L. 148.500

FROM INFLET WORKS

VIEW (A)

SCALE 1:50

**CONTRACT**  
THIS DRAWING AND THE INFORMATION CONTAINED HEREIN IS THE PROPERTY OF AQUARIUM & MARINE SUPPLY LTD. AND SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF AQUARIUM & MARINE SUPPLY LTD.

**REVISION NOTES**  
TANK ROOF HEIGHT ADDED.

**APPROVED**  
DATE: 30-05-18

**DESIGNED BY**  
DATE: 30-05-18

**CHECKED BY**  
DATE: 30-05-18

**SCALE**  
AS SHOWN

**PROJECT DETAILS**  
PROJECT: MEMBRANE TANK  
DATE: 30-05-18

**FOR INFORMATION**

**faswater**

**LONGSTON - LONGFORD STP  
SEWAGE TREATMENT PLANT UPGRADE  
BALANCE TANK  
ARRANGEMENT**

**TYPE: 034-228**

**CONTROLLED**

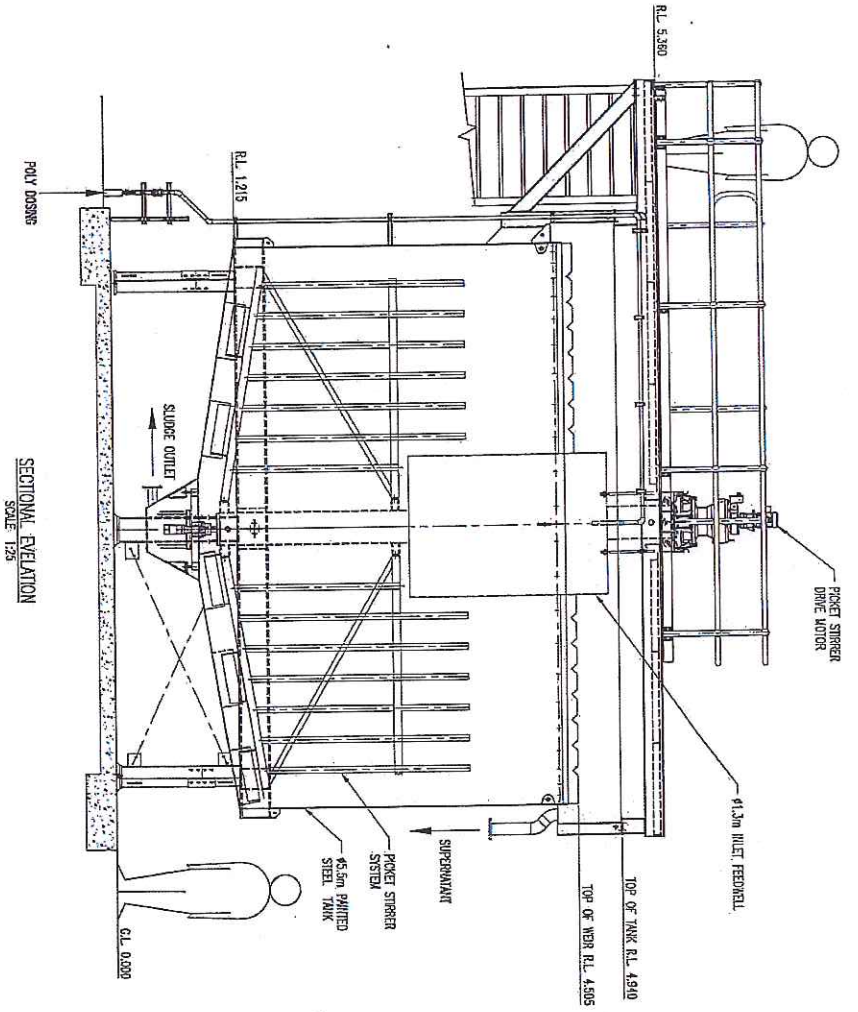
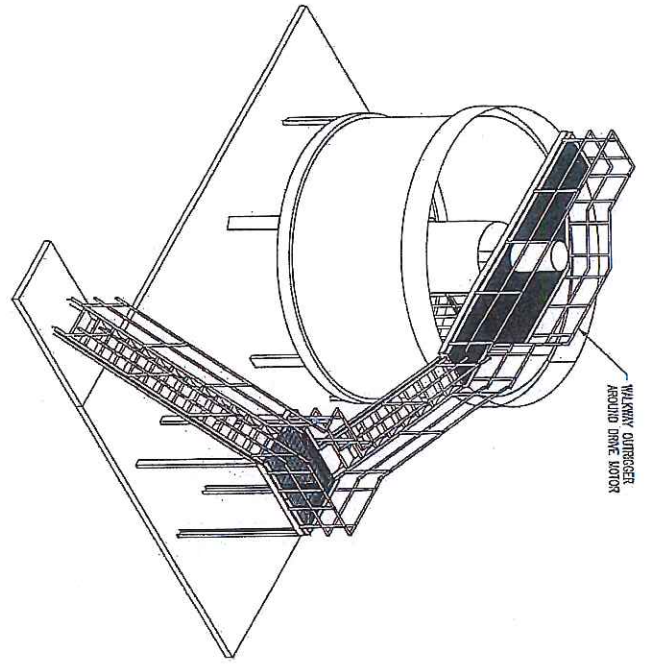
**DATE: 30-05-18**

**SCALE: 1:50**





1-548



**CONTRACT**  
 THE CLIENT IS TO BE RESPONSIBLE FOR THE SUPPLY OF ALL MATERIALS AND SERVICES NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY OF ALL MATERIALS AND SERVICES SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY OF ALL MATERIALS AND SERVICES SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

**FOR INFORMATION**

Rev.	A	Date	8-21-18	Approval

--	--	--	--	--

**KBR**  
 KBR CONSTRUCTION SERVICES  
 1401 S. 44th St., Suite 100  
 Lincoln, NE 68504  
 Tel: (402) 441-1111  
 Fax: (402) 441-1111

**AQUATEC MAXCON PVT. LTD.**  
 WATER RESISTANT RESINCOAT AND RESISTANT  
 1812A - 024  
 PROJECT NO. 1812A-024

Scale	AS SHOWN

REVISIONS	DATE	BY	DESCRIPTION

**FOR INFORMATION**

**Taswater**

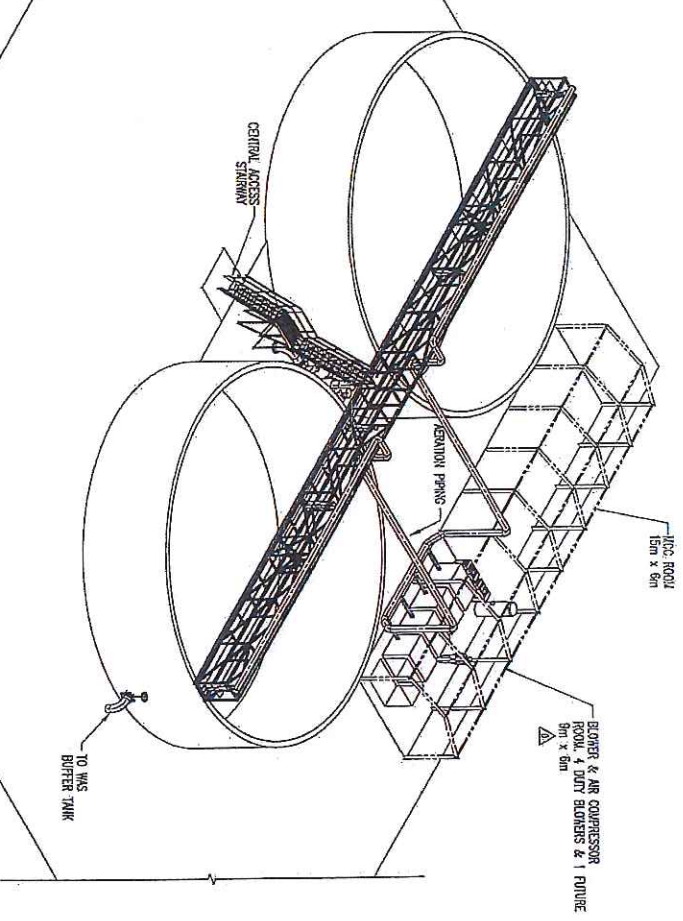
**LONST01 - LONGFORD STP**  
 SEWAGE TREATMENT PLANT UP-GRADE  
 SLUDGE THICKENER  
 ARRANGEMENT  
 TYPED AND CHECKED BY: [Signature]  
 DATE: 03-24-2018  
 DRAWN BY: [Signature]  
 DATE: 03-24-2018

**UNCONTROLLED**

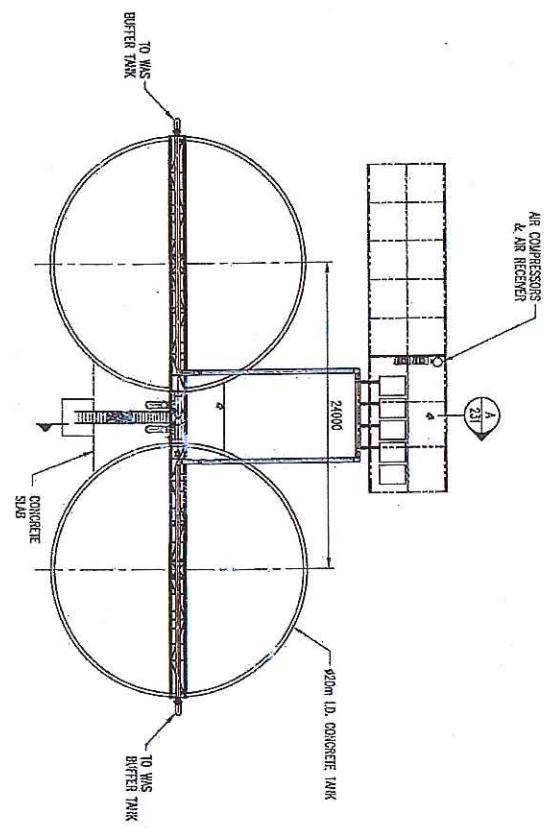


1-549

BIOREACTOR & BLOWER ROOM ARRANGEMENT  
SCALE: NIS



BIOREACTOR & BLOWER ROOM ARRANGEMENT  
SCALE: 1:200



NEREDA (COMMERCIAL IN CONFIDENCE)

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**REVISION NOTES**  
BLOWER ROOM SIZE UPON IED

REV.	DATE	BY	APPROVED
2	30/05/18	Approved	

Architect: **KEP**  
KOH EWE PARTNERSHIP  
100, ROBINSON ROAD, #11-01, SINGAPORE 111888  
TEL: 65 6334 8888  
WWW.KEPARCHITECTS.COM

Client: **AQUATEC MAXCON PTE. LTD.**  
100, ROBINSON ROAD, #11-01, SINGAPORE 111888  
TEL: 65 6334 8888  
WWW.KEPARCHITECTS.COM

INSURANCE NO.

STATE	AS 3100 (M)
Structural	AI

PROJECT CODES	REGION	DATE
Project	Region	2018
Phase	SA	2018

**FOR INFORMATION**

**Taswater**

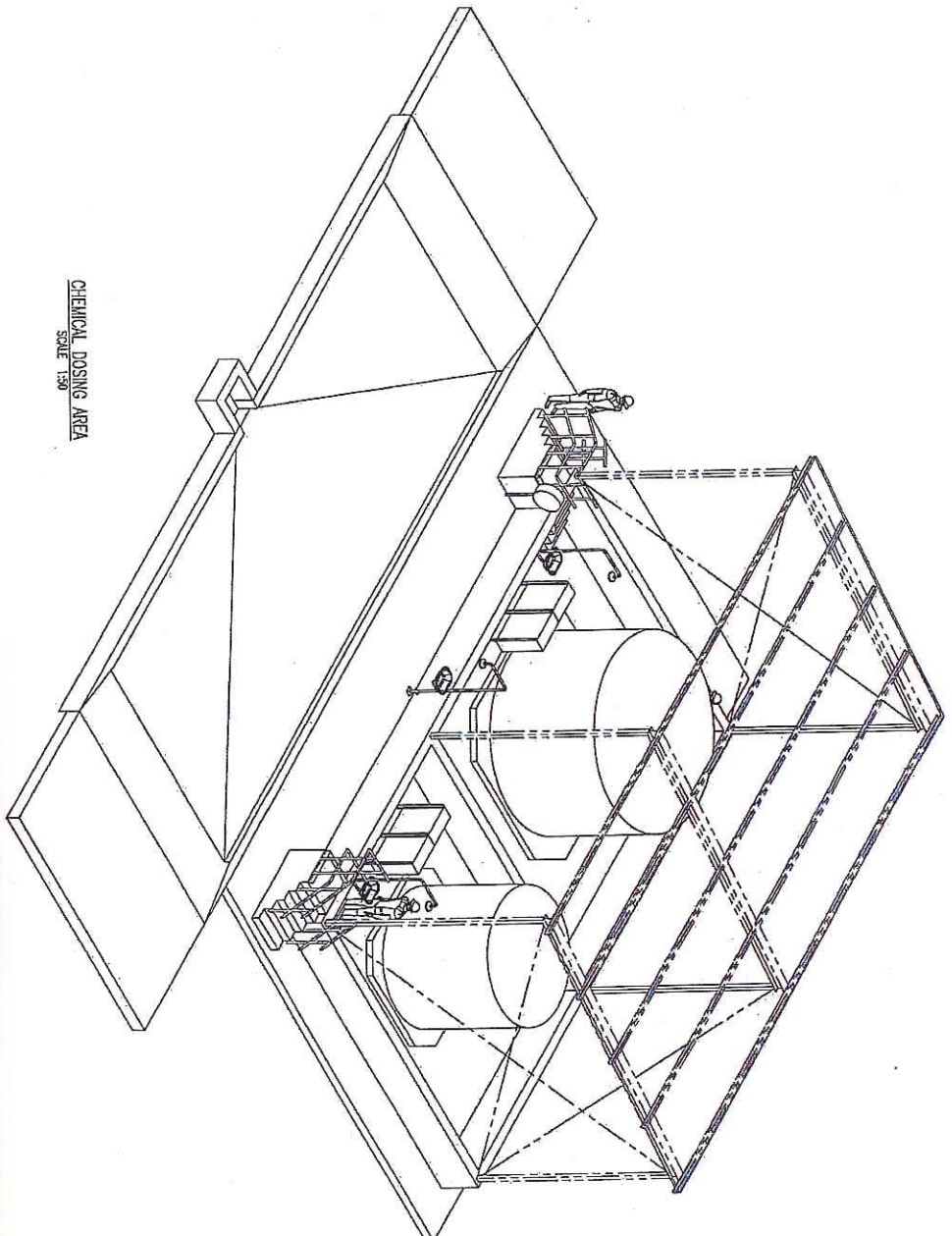
LONST01 - LONGFORD STP  
SEWAGE TREATMENT PLANT UPGRADE  
BIOREACTOR & BLOWER BUILDINGS  
ARRANGEMENT ON IED  
DATE: 2018-05-24  
DESIGNED BY: [Signature]  
CHECKED BY: [Signature]

D









1-552

**CHEMICAL DOSING AREA**  
SCALE 1:50

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WITHOUT PERMISSION IN WRITING FROM THE  
AUTHORITY OF THE STATE OF TEXAS.

**FOR INFORMATION**

DATE	2008-10	APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

**FOR INFORMATION**

DATE		APPROVED	
NO.			

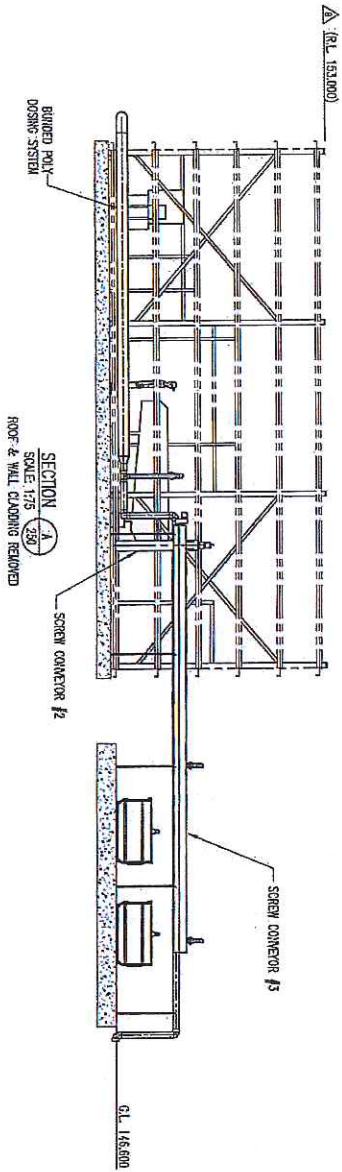








1-555



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**REVISION NOTES**  
 BUILDING HEIGHT ADDED.

Rev.	Date	30-05-19	Approved
1			

**PROJ. NO. 1812A-051**  
**K&M**  
 10/11/19  
 10/11/19  
 10/11/19

**AQUATEC MAXCON PTY LTD.**  
 1812A-051  
 1812A-051

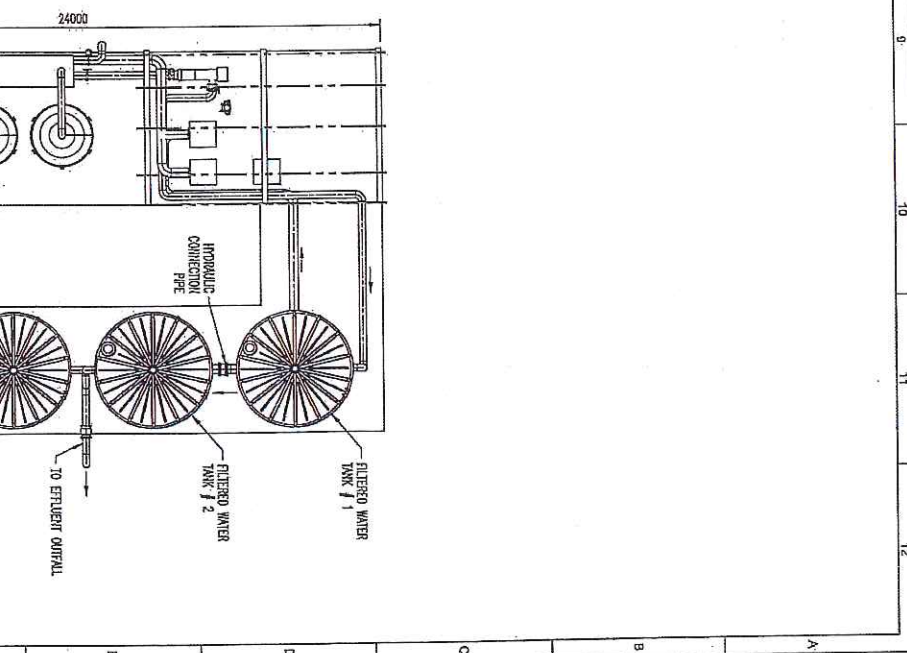
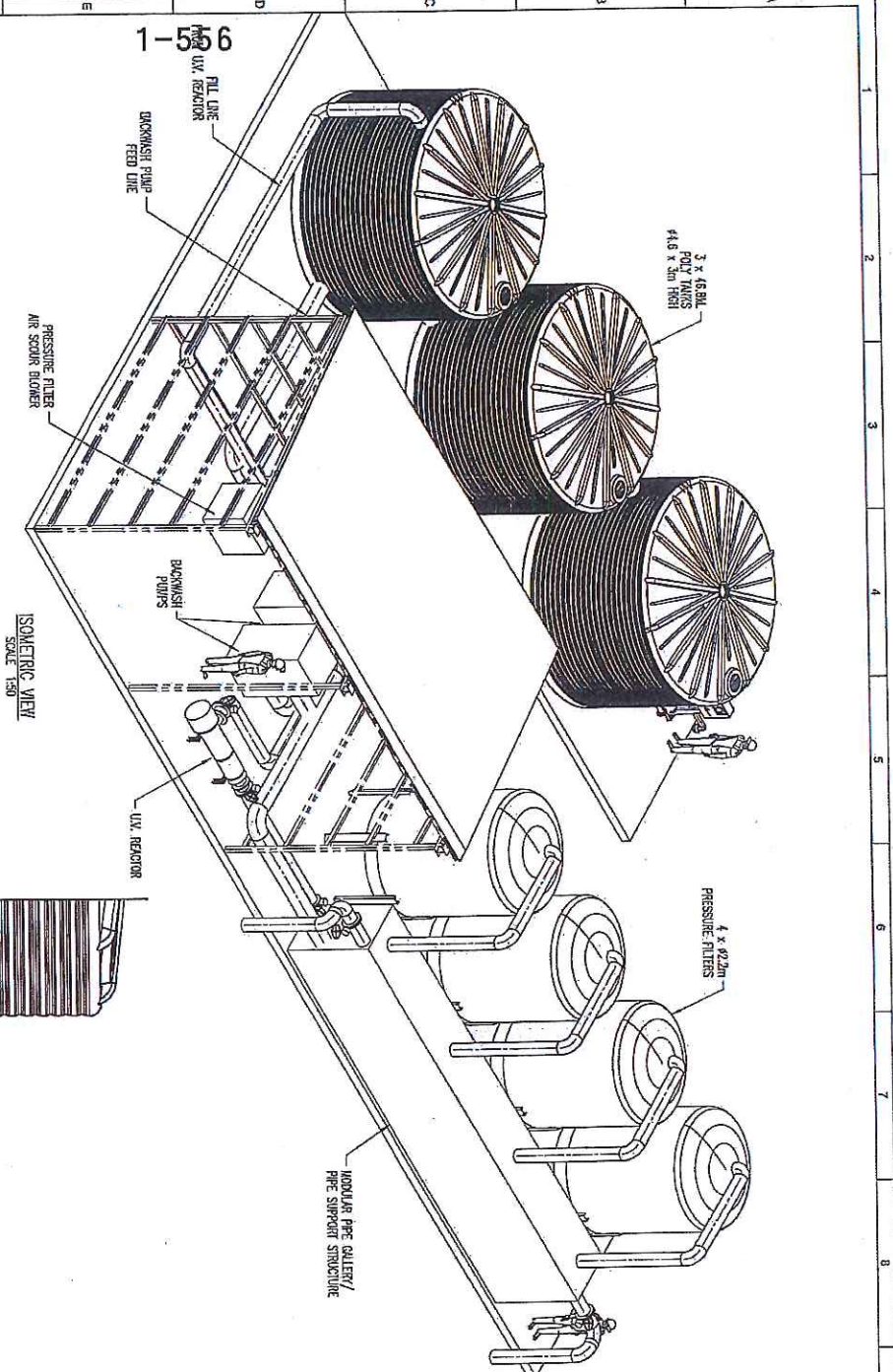
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Sheet Size	A1
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Author	Checked	Drawn	Date

**FOR DRAWING ISSUE INFORMATION**



**LONSTO1 - LONGFORD STP**  
**SEWAGE TREATMENT PLANT UPGRADE**  
**SLUDGE DEWATERING BUILDING DOSSING BUILDING**  
**SECTION VIEWS AS SHOWN**



**1-556**

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**FOR INFORMATION**

Rev	Date	By	Approved
1	05-11-18		

**KBR**  
 KBR Engineering & Construction  
 10000 West 16th Avenue, Suite 100  
 Denver, CO 80242  
 Tel: (303) 751-1000  
 Fax: (303) 751-1001

**AQUATEC WATCON PLY LTD.**  
 WATER TREATMENT TECHNOLOGY AND CONSULTANTS  
 1812A - 052  
 Tel: (61) 7 301 2297 Fax: (61) 7 301 0230  
 Email: aquatec@aquatec.com.au

Scale	AS SHOWN
Overall	AS SHOWN
Detail	AS SHOWN

Project	Phase	Rev	Date
1812A-052	Design	1	05/11/18

**FOR INFORMATION**

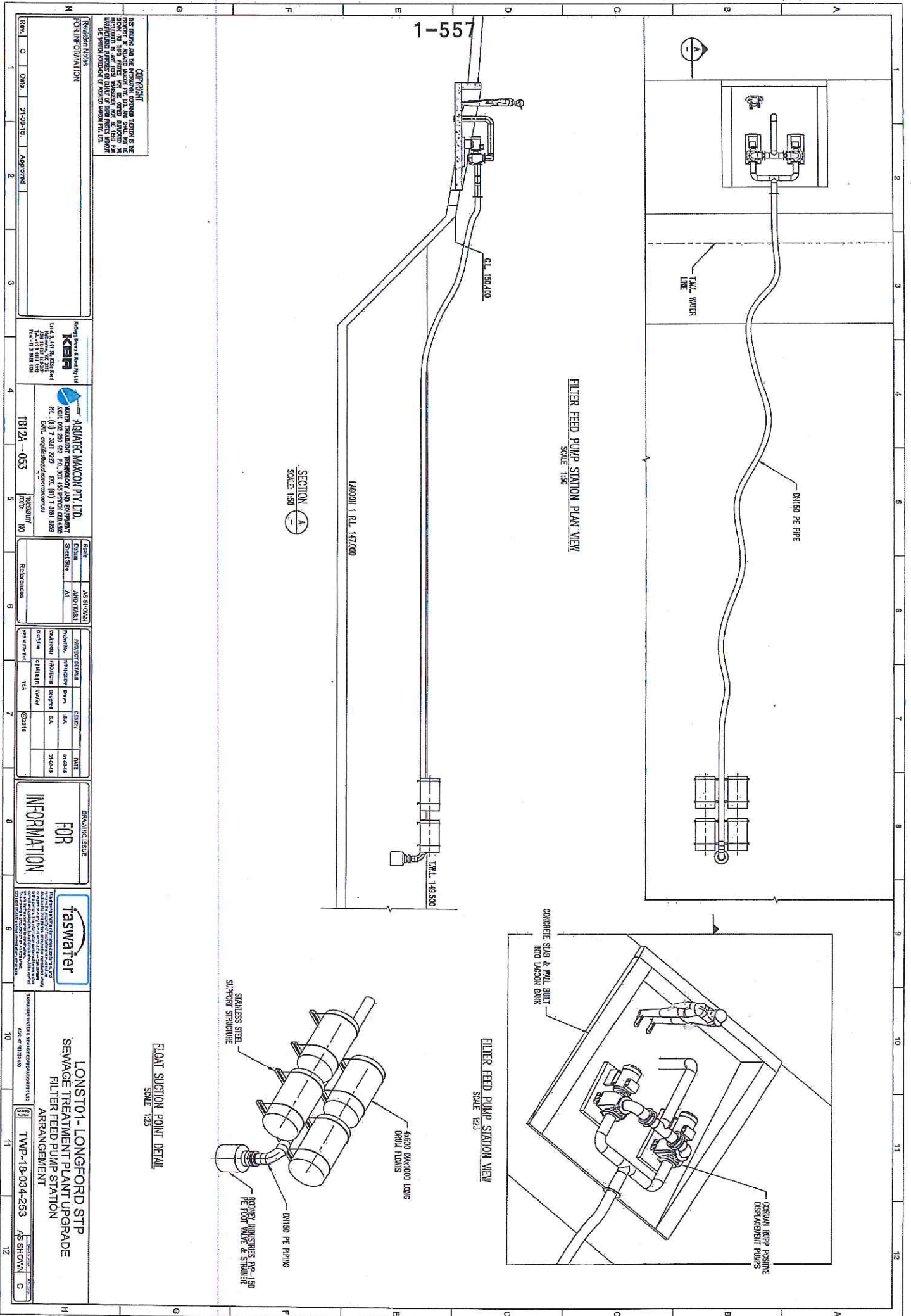
**Taswater**  
 Taswater  
 10000 West 16th Avenue, Suite 100  
 Denver, CO 80242  
 Tel: (303) 751-1000  
 Fax: (303) 751-1001

**LONST01 - LONGFORD STP**  
 SEWAGE TREATMENT PLANT UPGRADE  
 PRESSURE FILTER, ULX & RO  
 SERVICE WATER PUMP STATION (MANAGEMENT)

PLAN VIEW  
 SCALE 1:50

TYRNS-034-232-11-18 AS SHOWN





FILTER FEED PUMP STATION PLAN VIEW  
SCALE 1:50

FILTER FEED PUMP STATION VIEW  
SCALE 1:25

FLOAT SUCTION POINT DETAIL  
SCALE 1:25

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**PROVIDER NOTES**

REV.	DATE	BY	APPROVED
1	31-08-18		
2			
3			

**KBR**  
 KBR CONSULTANTS PTY LTD  
 114 S. LINDA ST. SUITE 401  
 SYDNEY NSW 1570  
 TEL: (61) 2 955 5555  
 FAX: (61) 2 955 5555  
 WWW.KBR.COM

**AQUALIC MACKON PTY LTD**  
 WATER TREATMENT SPECIALISTS  
 1812A - 053  
 1812A - 053  
 1812A - 053

REVISIONS	DATE	BY	REASON
AS SHOWN			

DATE	BY	REVISION
31-08-18		

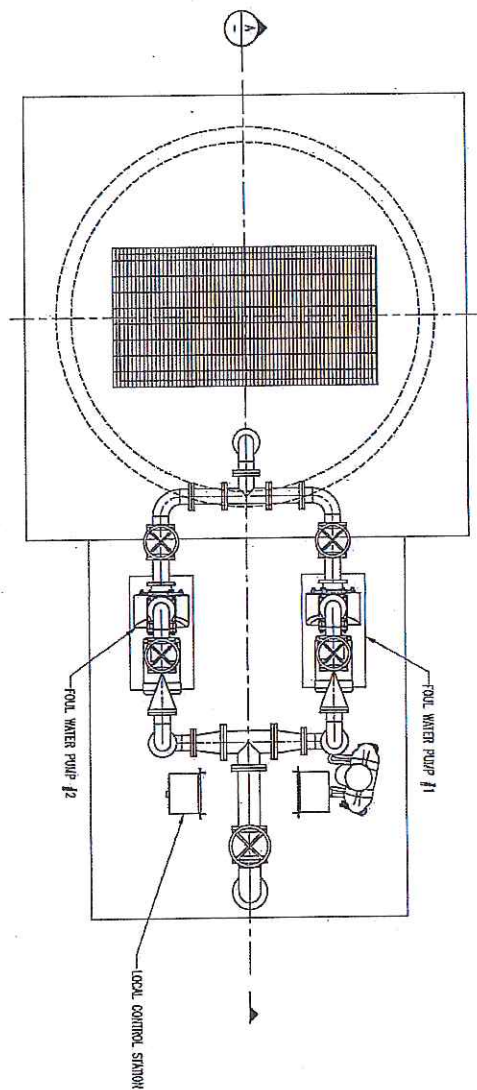
**FOR INFORMATION**

**tascowater**

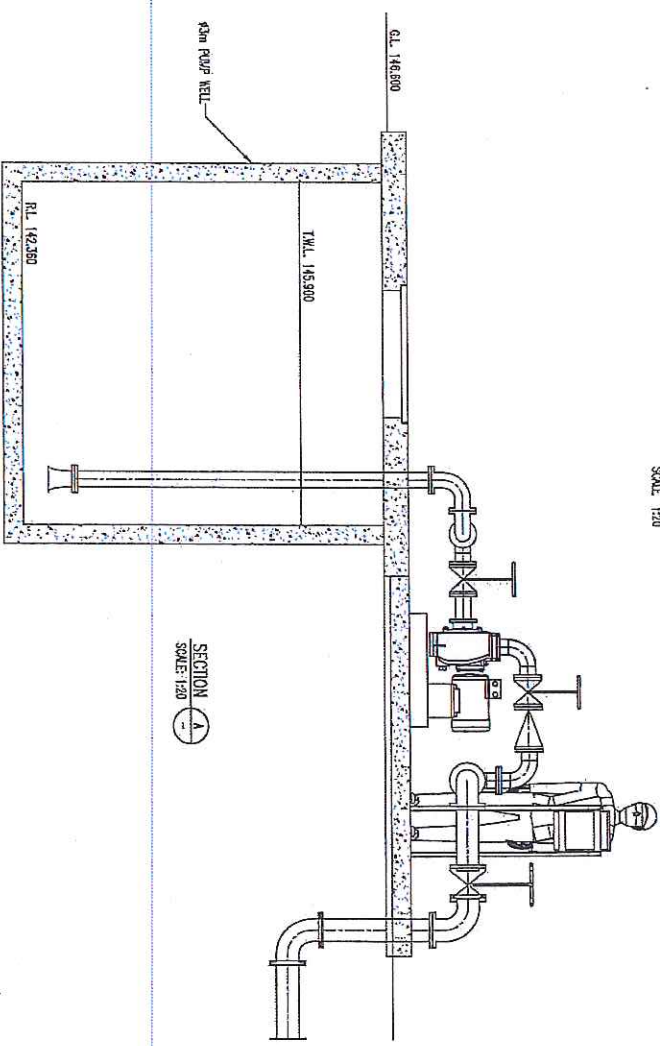
**LONSTO1 - LONGFORD STP**  
 SEWAGE TREATMENT PLANT UPGRADE  
 FILTER FEED PUMP STATION  
 ARRANGEMENT  
 TWP-18-034-253 AS SHOWN C

1-558

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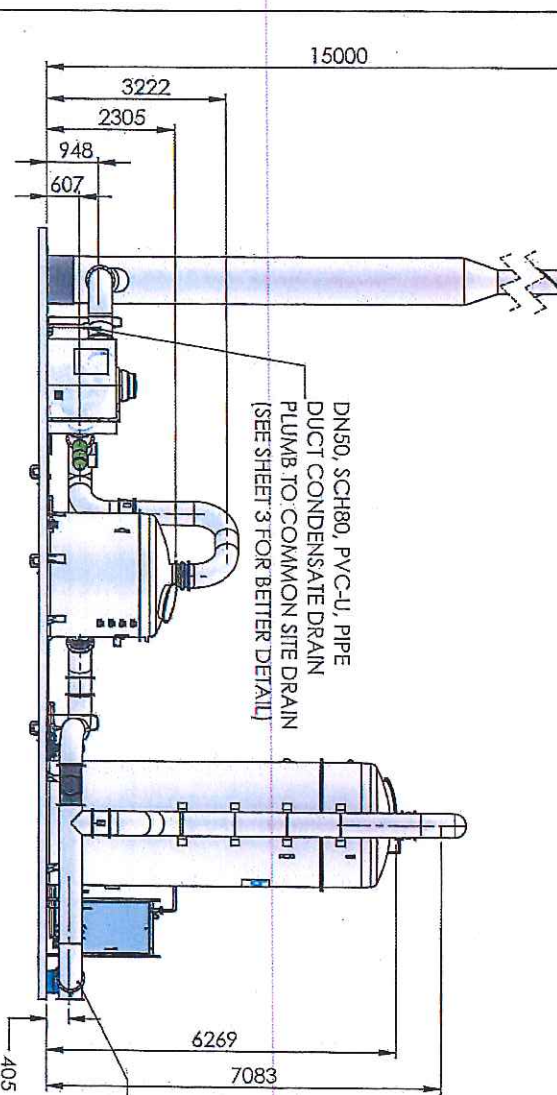
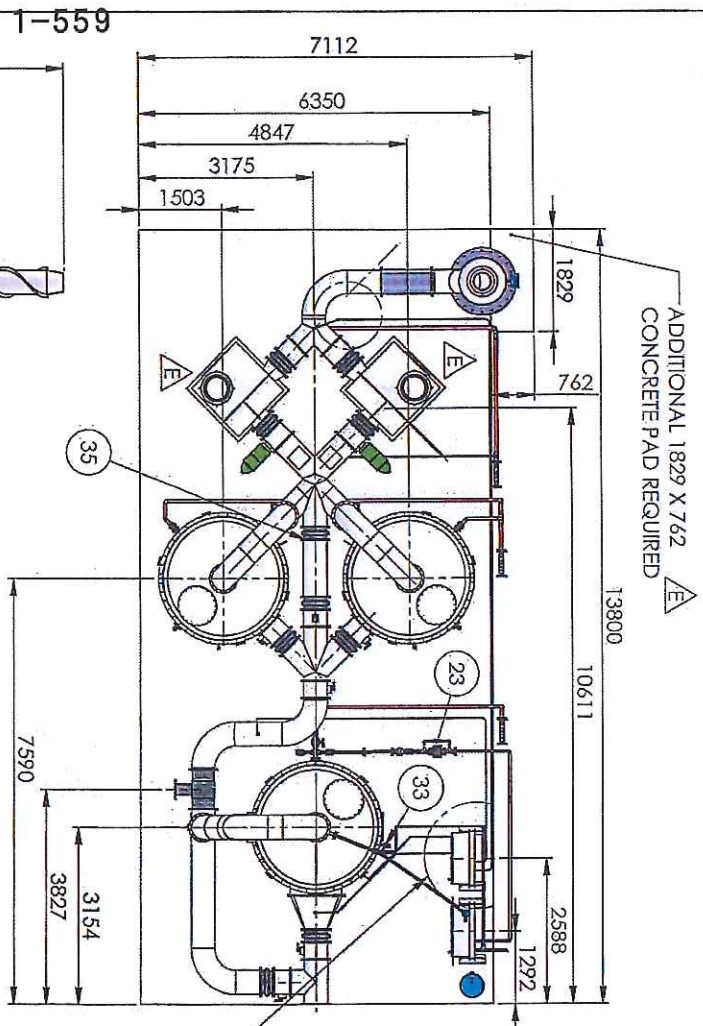
PLAN VIEW  
SCALE 1/20



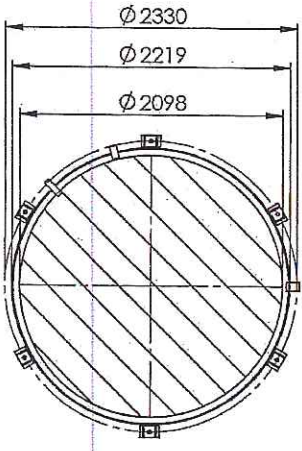
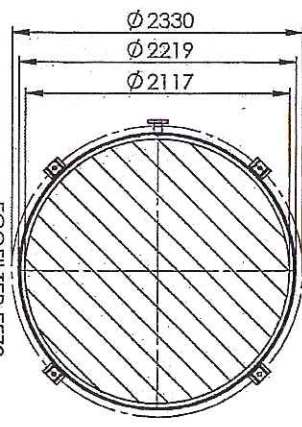
SECTION A-A  
SCALE 1/20

<b>REVISION HISTORY</b> REV. C DATE 28-03-18 Approved 2		<b>CLIENT INFORMATION</b> LUM & LEE CONSULTANTS 100 WOODLAND DRIVE #10-113 100 WOODLAND DRIVE TEL: 416-303-1100		<b>ENGINEER INFORMATION</b> AQUATEC MAXCON PVT. LTD. WATER TREATMENT TECHNOLOGY AND EQUIPMENT TEL: (517) 7-2311-2399 FAX: (517) 7-2311-2339 WWW.AQUATEC.COM		<b>SCALE</b> DRAWN: [ ] CHECKED: [ ] APPROVED: [ ]		<b>PROJECT DETAILS</b> PROJECT NO: 18192A-055 SHEET NO: 10		<b>DATE</b> 28-03-18	
<b>FOR INFORMATION</b>		<b>taswater</b>		<b>PROJECT INFORMATION</b> PROJECT NO: 18192A-055 SHEET NO: 10		<b>CLIENT INFORMATION</b> LUM & LEE CONSULTANTS 100 WOODLAND DRIVE #10-113 100 WOODLAND DRIVE TEL: 416-303-1100		<b>ENGINEER INFORMATION</b> AQUATEC MAXCON PVT. LTD. WATER TREATMENT TECHNOLOGY AND EQUIPMENT TEL: (517) 7-2311-2399 FAX: (517) 7-2311-2339 WWW.AQUATEC.COM		<b>PROJECT INFORMATION</b> PROJECT NO: 18192A-055 SHEET NO: 10	
<b>FOR INFORMATION</b>		<b>taswater</b>		<b>PROJECT INFORMATION</b> PROJECT NO: 18192A-055 SHEET NO: 10		<b>CLIENT INFORMATION</b> LUM & LEE CONSULTANTS 100 WOODLAND DRIVE #10-113 100 WOODLAND DRIVE TEL: 416-303-1100		<b>ENGINEER INFORMATION</b> AQUATEC MAXCON PVT. LTD. WATER TREATMENT TECHNOLOGY AND EQUIPMENT TEL: (517) 7-2311-2399 FAX: (517) 7-2311-2339 WWW.AQUATEC.COM		<b>PROJECT INFORMATION</b> PROJECT NO: 18192A-055 SHEET NO: 10	

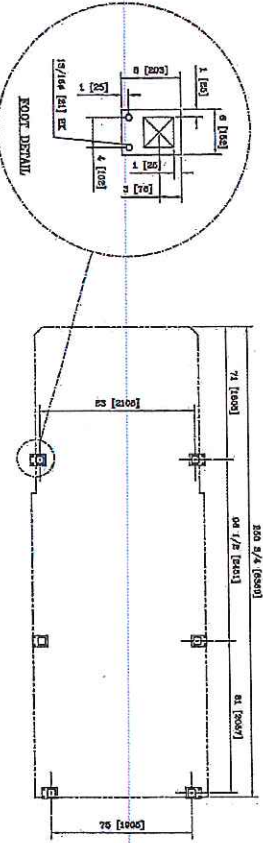
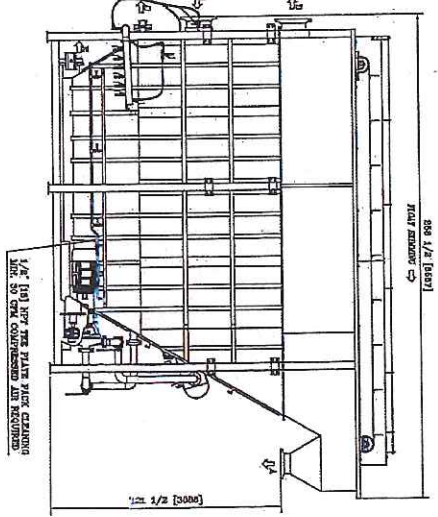
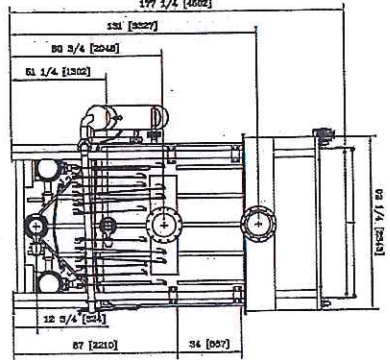
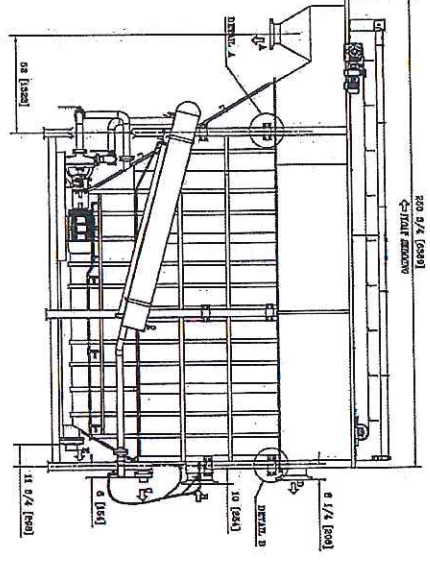
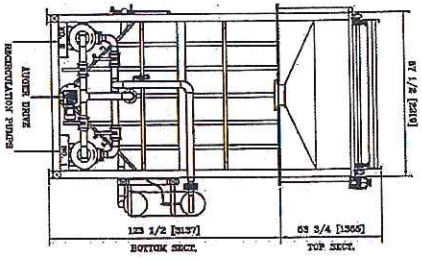
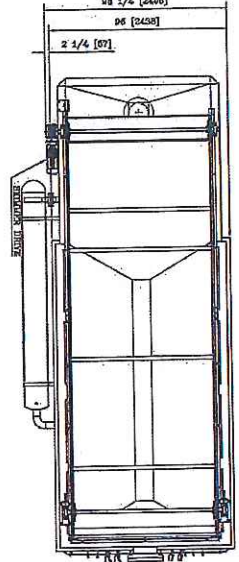
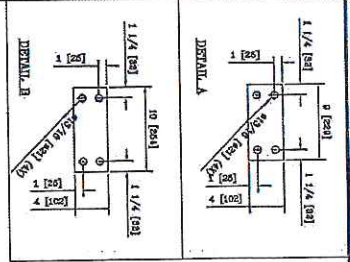




- NOTES:**
- FOUNDATION MUST BE FABRICATED UNIFORM IN TEXTURE AND APPEARANCE AND MEET A SURFACE PLANE TOLERANCE OF 3MM IN 3M
  - SYSTEM PLACEMENT AND CONCRETE DIMENSION ARE ILLUSTRATION ONLY
  - REACTOR TO BE SET ON MINIMUM TWO (2X) LAYERS OF TYPE II (NO. 30) ASTM D226 Felt Paper (PROVIDED BY OTHERS)
  - ECOCARB EB7S
    - VESSEL DIMENSIONS =  $\phi 2134 \times 2292$  M
    - LOAD DISTRIBUTION = 3.24 M<sup>2</sup>
    - SHIPPING WEIGHT = 810 KG
    - OPERATING WEIGHT = 3000 KG
  - ECOFILTER EF73
    - VESSEL DIMENSIONS =  $\phi 2219 \times 5920$  M
    - LOAD DISTRIBUTION = 3.58 M<sup>2</sup>
    - SHIPPING WEIGHT = 1633 KG
    - OPERATING WEIGHT = 6214 KG



SIZE	DWG. NO.	REV
B	1XEF73+2XEB7S-GA_P18302	E
SCALE: 1:90		SHEET 3 OF 6



Confidential

No.	Revisions	Date

CLIENT'S NAME  
CLIENT'S LOCATION / PROJECT NAME  
GENERAL

Typical-120L  
Drawing No.  
REV: 7/26

PCL 120 - LEFT HAND  
2PK32-92RV K18 SF-DURCO MARK 3 ANSI PUMP  
12" DIA X 116" TUBE

ALL DIMENSIONS IN INCHES [MM]

NO.	DESCRIPTION	DATE	BY	CHKD	APP'D
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Tank Weight: 6100 Lbs (2815 Kg)  
Empty Tank: 11100 Lbs (5035 Kg)  
Full Tank: 78000 Lbs (35365 Kg)  
Full: 76900 Lbs (34885 Kg)

EXCESS WEIGHTS, UNLESS SPECIFICALLY INDICATED, SHALL BE FULLY 1/4" TIGHT TO THE



7.2 Appendix 2: EPN







## ENVIRONMENT PROTECTION NOTICE No. 7407/2

Issued under section 44 of the *Environmental Management and Pollution Control Act 1994*

Issued to: **NORTHERN MIDLANDS COUNCIL,  
13 SMITH ST  
LONGFORD TAS 7301**

Environmentally Relevant Activity: **The operation of a wastewater treatment plant (ACTIVITY TYPE: Waste Treatment Sewage Treatment Works)  
LONGFORD WASTEWATER TREATMENT PLANT, BISHOPBOURNE ROAD, LONGFORD TAS 7301**

I, Warren Jones, Director, Environment Protection Authority, being satisfied in accordance with section of 44 (1)(d) of the *Environmental Management and Pollution Control Act 1994* (the EMPCA) and in relation to the above-mentioned environmentally relevant activity that it is desirable to vary the conditions of permits (see table below) hereby issue this environment protection notice to the above-mentioned person as the person responsible for the activity.

Permit No.	Date Granted	Granted By
Licence to Operate 3573	3 November 1988	Director of Environmental Control
DA 12/98	29 March 1998	Northern Midlands Council

### PARTICULARS

The particulars of the grounds upon which this notice is issued are that it is desirable to vary the conditions of permits:

1. Because the permit conditions need to be varied to reflect current or updated terminology and/or to clarify the meaning of the conditions.
2. Because the permit conditions need to be varied to reflect current regulatory practice.
3. Because the permit conditions need to be varied to ensure there are adequate safeguards against environmental harm or nuisance being caused by the activity.
4. Because the permit conditions need to be varied to reflect continuous improvement consistent with the objectives of EMPCA.

The further particulars of the grounds upon which this Notice is issued are listed in Schedule 4 of this Notice.

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date of Issue:

19 JUN 2009

**DEFINITIONS**

Unless the contrary appears, words and expressions used in this Notice have the meaning given to them in Schedule 1 of this Notice and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Notice, the EMPCA prevails to the extent of the inconsistency.

**REQUIREMENTS**

In accordance with s.44(3) of the EMPCA, the person responsible for the activity is required to comply with the conditions contained in Schedule 2 of this Notice. These conditions prevail over the terms of the permit to the extent of any inconsistency.

**INFORMATION**

Attention is drawn to Schedule 3, which contains important additional information.

**PENALTIES**

If a person bound by an environment protection notice contravenes a requirement of the notice, that person is guilty of an offence and is liable on summary conviction to a penalty not exceeding 1000 penalty units in the case of a body corporate or 500 penalty units in any other case (at the time of issuance of this Notice one penalty unit is equal to \$120.00).

**NOTICE TAKES EFFECT**

This notice takes effect on the date on which is it served to you.

**APPEAL RIGHTS**

You may appeal to the Appeal Tribunal against this notice, or against any requirement contained in the notice, within 14 days from the date on which the notice is served, by writing to:

The Chairperson  
Resource Management and Planning Appeal Tribunal  
GPO Box 2036  
Hobart TAS 7001

Signed:

  
\_\_\_\_\_  
DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date:

10<sup>th</sup> June 2009

  
\_\_\_\_\_

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Date of issue:



Table Of Contents

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**Schedule 1: Definitions**

**Accepted Modern Technology** or AMT means technology which has consistently demonstrated achievement of the desired effluent pollutant limits in economically viable situations, takes account of engineering and scientific developments in economically viable operations and pursues opportunities for waste minimisation.

**Activity** means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

**Approved Management Method For Biosolids Reuse** means the document of this title first gazetted by the Director in June 2006 as amended by the Director from time to time.

**Australian Standard** or AS means an Australian Standard published by Standards Australia International Ltd. Any reference to an Australian Standard is a reference to the most recent edition of that Standard, unless otherwise stated.

**Authorized Officer** means an authorized officer under section 20 of EMPCA

**Best Practice Environmental Management** or 'BPEM' has the meaning described in Section 4 of EMPCA

**Biosolids** means sewage sludge that has been stabilised for beneficial reuse.

**cells/mL** means the number of cells per 1mL of the specified species of organism.

**composite** means, with the exception of sludge monitoring, a sample collected as a flow-proportional composite sample collected over the period of 24 hours.

**Controlled Waste** has the meaning described in Section 3(1) of EMPCA.

**Director** means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf

**DRP** means a Decommissioning and Rehabilitation Plan

**Effluent** means wastewater discharged from The Land.

**EMP** means the Environment Management Plan to be prepared in accordance with these conditions.

**EMPCA** means the *Environmental Management and Pollution Control Act 1994*

**Environmental Harm and Material Environmental Harm and Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA

**Environmental Nuisance and Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA

**Environmentally Hazardous Material** means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils and chemicals.

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**grid reference** means grid locations specified in accordance with Geocentric Datum of Australia 1994 (GDA94), unless otherwise specified.

**Incident** has the meaning described in Section 32 of the EMPCA.

**Mass Load** means the mass of a pollutant discharged over a given period of time calculated in accordance with the method outlined in the Annual Environmental Review Template attached to these conditions.

**Minimum Construction Requirements for Water Bores in Australia** means the document published under this title by the Agricultural and Resource Management Council of Australia and New Zealand in 1997, or any subsequent updates of this document.

**Noise Sensitive Premises** means residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

**Person Responsible** is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate

**Planning Authority** means the Council(s) for the municipal area(s) in which The Land is situated

**Reporting Period** means the financial year ending on 30 June of each calendar year.

**Sewage Sludge** means concentrated solids separated from wastewater during the wastewater treatment process.

**spwqm** means the State policy on Water Quality Management 1997 as may be amended from time to time.

**Stormwater** means water arising from rainfall, which has not subsequently been used in carrying out the activity.

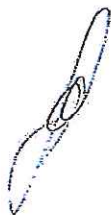
**Tasmanian Biosolids Reuse Guidelines** means the document of this title published by the Department of Primary Industries, Water and Environment in August 1999, and includes any subsequent versions of this document.

**The Land** means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by Property ID 1935684

**Wastewater** means spent or used water (whether from industrial or domestic sources) containing a pollutant.

**WWTP** means the wastewater treatment plant located on The Land.

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**Schedule 2: Conditions****Maximum Quantities****Q1 Regulatory limits**

1 The activity must not exceed the following limits:

- 1.1 2,700 kilolitres/day of design capacity (average dry weather flow). (Annual permit and inspection fees are derived from this figure.)
- 1.2 10,800 kilolitres/day of maximum throughput (peak wet weather flow) of wastewater.

**General****G1 Compliance with EMP and BPEM**

The Land must be developed and used, and the activity on The Land must be carried out and monitored, in accordance with the environmental management measures set down in the Environmental Management Plan ('EMP'), and in accordance with best practice environmental management, unless otherwise specified in these conditions or contrary to EMPCA.

**G2 Access to and awareness of conditions and associated documents**

A copy of these conditions and any associated documents referred to in these conditions must always be held in a location that is known and accessible to the person responsible for the activity. The person responsible for the activity must take all reasonable steps to ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

**G3 Incident response**

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

**G4 No changes without approval**

- 1 The following changes, if they may cause or increase the emission of a pollutant that is not authorised by these conditions or otherwise result in material environmental harm, must only take place in relation to the activity if a new permit has been issued by the relevant planning authority (where the authority determines that a permit is required) or, if no such permit is required, the prior written approval of the Director.
  - 1.1 a change to a process used in the course of carrying out the activity; or
  - 1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
  - 1.3 a change in the nature of materials used in the course of carrying out the activity.

**G5 Change of responsibility**

- 1 If the person who is or was responsible for the activity will cease or ceases to be responsible for the activity, then, as soon as reasonably practicable, but no later than 30 days after that cessation, that person must:
  - 1.1 notify the Director in writing of that fact;
  - 1.2 provide the Director with full particulars in writing of any person succeeding him or her as the person responsible; and

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- 1.3 notify any such person of the requirements of any relevant permit, environment protection notice or other environmental management obligations.

**G6 Change of ownership**

If the person responsible for the activity is not the owner of The Land upon which the activity is carried out and the owner of The Land changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change, the person responsible must notify the Director in writing of the change of ownership.

**G7 Complaints register**

- 1 A public complaints register must be maintained and made available for inspection by an Authorized Officer upon request. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
  - 1.1 the time at which the complaint was received;
  - 1.2 contact details for the complainant;
  - 1.3 the subject-matter of the complaint;
  - 1.4 any investigations undertaken with regard to the complaint; and
  - 1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.
- 2 Complaint records must be maintained for a period of at least 3 years.

**G8 Influent Load Management**

The person responsible must regularly review the load of pollutants being accepted into the WWTP and take all reasonable measures, including the negotiation of trade waste agreements and decisions to regarding the acceptance of new connections to the WWTP, to ensure that the average load of pollutants being accepted into the WWTP does not exceed its design treatment capacity.

**G9 Annual Environmental Review Template**

Unless otherwise approved by the Director, a publicly available Annual Environmental Review must be submitted each year within 3 months of the end of the Reporting Period. The Annual Environmental Review must be prepared to the satisfaction of the Director, using the Annual Environmental Review Template which is available on request from this office.

**G10 Environmental Management Plan and review thereof**

- 1 Unless otherwise specified by the Director, an Environmental Management Plan - Operations ('EMP Operations') for the activity must be submitted to the Director for approval within 3 years of the date on which these conditions take effect and every 5 years thereafter.
- 2 The EMP Operations must include a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the EMP Operations.
- 3 The EMP Operations must detail the potential environmental impacts arising from the ongoing operation of the activity over the next 5 years, including a strategic consideration of potential changes to the activity during that period and consideration of opportunities to implement continuous improvement.



- 4 The EMP Operations must separately identify specific commitments, with actions and timeframes, to mitigate or prevent the identified potential environmental impacts. In preparing the EMP Operations the person responsible must take into account the contents of any previous annual environmental reviews including complaints, incidents and monitoring data.
- 5 If the Director issues guidelines for preparation of the EMP Operations, the EMP Operations must address the matters listed in those guidelines.

**G11 Availability of the EMP**  
The EMP must be made publicly available.

**Atmospheric**

- A1 Odorous gases**  
Odorous gases arising from the activity must be managed so that they do not cause environmental nuisance beyond the boundary of The Land.

**Decommissioning And Rehabilitation**

- DC1 Notification of cessation**  
Within 14 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing. The notice must specify the date upon which the activity is expected to cease or has ceased.
- DC2 DRP requirements**  
Unless otherwise approved in writing by the Director, a draft Decommissioning and Rehabilitation Plan (DRP) for the activity must be submitted for approval to the Director within 30 days of the Director being notified of the likely cessation of operations. The DRP must be prepared in accordance with guidelines provided by the Director.
- DC3 Rehabilitation following cessation**
- 1 Unless otherwise approved in writing by the Director, The Land must be rehabilitated upon permanent cessation of the activity. Without limitation rehabilitation works must include:
    - 1.1 stabilisation of all land surfaces that may be subject to erosion;
    - 1.2 removal or mitigation of all environmental hazards, including land contamination, that has the potential to cause environmental harm; and
    - 1.3 decommissioning of any equipment that has not been sold.
  - 2 Where a Decommissioning and Rehabilitation Plan (DRP) has been approved by the Director, rehabilitation must be carried out in accordance with that plan.

**Effluent**

- EF1 Effluent discharge locations**
- 1 Treated effluent from the activity must only be discharged at the following discharge points:
    - 1.1 Discharge to water: discharge to Back Creek at grid reference E508838 N5396420 as shown on the plan at Attachment 1.
- EF2 Water quality at discharge to receiving waters**
- 1 Effluent discharged to water must not cause:

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- 1.1 odours which would adversely affect the use of the surrounding environment including a river bank;
- 1.2 any objectionable discolouration or visible oil, grease, foam, scum or litter;
- 1.3 a barrier to the migration of fish or other aquatic organisms;
- 1.4 mortality of fish or other aquatic vertebrates; and
- 1.5 fish or other aquatic organisms used for human consumption to become unacceptable for such use as determined by relevant Tasmanian health standards.

**EF3 Discharge Management**

- 1 Daily testing of the effluent discharging from the activity is required to determine the concentration of ammonia nitrogen until such time as the Director is satisfied that effluent quality consistently complies with the limits set in these conditions.
- 2 When the maximum limit imposed by these conditions is exceeded, daily sampling of Back Creek downstream of the discharge point at E508944 N5396633 must be conducted to determine free ammonia concentrations. Discharge from the activity must cease immediately when free ammonia concentrations in excess of 0.035mg/L are detected in Back Creek.

**EF4 Effluent quality limits for discharge to water**

- 1 The pH of effluent discharged to water must be between 6.5 and 8.5.
- 2 The concentrations in effluent of substances or measures listed in Column 1 of the Table of Effluent Quality Limits below must not exceed the limits specified in Columns 3, 4 and 5 at the point at which effluent is discharged to water when measured in the units specified in Column 2. For the purpose of this condition 'median' means the value at which the relevant parameter is exceeded by no more than 50 percent of all sample results over a 12 month period, '90th percentile' means the value at which the relevant parameter is exceeded by no more than 10 percent of all sample results over a 12 month period.
- 3 **Table of Effluent Quality Limits**

Column 1	Column 2	Column 3	Column 4	Column 5
Substance or measure	Unit of measurement	Median limit	90th Percentile limit	Maximum limit
Biochemical Oxygen Demand	mg/L	20	30	40
Ammonia Nitrogen	mg/	2	5	10
Total Nitrogen	mg/L	10	15	20
Total Phosphorus	mg/L	1	3	5
Oil and Grease	mg/L	10	15	20
Thermotolerant Coliforms	cfu/100mL	200	1,000	2,000

**EF5 Mass load limits**

- 1 The mass load of nitrogen and phosphorus discharged to water from the activity must not exceed the following limits:
  - 1.1 12,812 Kg per annum of total nitrogen; and

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1.2 2,168 Kg per annum of total phosphorus.

**EF6 Effluent Compliance Plan**

- 1 Unless otherwise specified, a compliance plan must be submitted to the Director for approval within 9 months of the date of these conditions taking effect to bring the WWTP into compliance with all the limits imposed by these conditions. This plan must include strategies to:
  - 1.1 improve effluent quality and achieve compliance with ammonia nitrogen limits; and
  - 1.2 reduce the quantity of total phosphorus discharging from the activity to the South Esk catchment and achieve the mass load limits specified in these conditions. This may be achieved either by the adoption of an approved effluent reuse scheme or by achieving the effluent limits imposed by these conditions.
  - 1.3 Improve discharge management to achieve compliance with the SPWQM and protect water quality objectives downstream. This should consider alternate discharge point options, seasonal discharge management and/or the establishment of a mixing zone, where necessary.
- 2 This plan must be carried out in accordance with the specifications and timeframes set out in the approved plan.

**EF7 Blue-green algae notification**

Unless otherwise specified by the Director, if blue-green algae are present at a concentration of 11,500 cells/mL or toxin levels are measured at a concentration of 2.3 µg/L or greater in the effluent at the discharge point, the Director must be notified within 24 hours of the monitoring results being received.

**EF8 Stormwater**

- 1 Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
- 2 Notwithstanding the above, all stormwater that is discharged from The Land must be visibly free of oil, grease and unnatural discolouration and must not be visibly more turbid than the receiving waters.
- 3 All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include provision of strategically located sediment fences, and appropriately sized and maintained sediment settling ponds.
- 4 Stormwater discharged in accordance with this condition must not be directed to sewer without the approval of the operator of the sewerage system.

**Hazardous Substances**

**H1 Storage and handling of hazardous materials**

Unless otherwise approved in writing by the Director, each environmentally hazardous material held on The Land, including chemicals, fuels and oils, must, as far as practical and to the satisfaction of the Director, be located within impervious bunded areas or spill trays which are designed to contain at least 110% of the volume of the largest container.

**H2 Spill kits**

Spill kits appropriate for the types and volumes of materials handled on The Land, and which may include relocatable (temporary) bunds, must be kept in appropriate locations to assist with the containment of spilt environmentally hazardous materials.

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**Monitoring****M1 Dealing with samples obtained for monitoring**

- 1 Unless otherwise specified by these conditions, any sample or measurement required to be obtained under these conditions must be subject to the following:
  - 1.1 samples must be tested in a laboratory accredited by the National Association of Testing Authorities (NATA), or a laboratory approved in writing by the Director, for the specified test;
  - 1.2 measurements must be made and samples must be collected and analysed in accordance with relevant Australian Standards, NATA approved methods, the *American Public Health Association Standard Methods for the Analysis of Water and Waste Water*, *Noise Measurement Procedures Manual* or other standard(s) approved by the Director;
  - 1.3 details relating to the collection and analysis of the sample must be retained for at least three years after the date of measurement and must be made available on request to an Authorized Officer; and
  - 1.4 the sample must be taken and transported by a person with appropriate training and experience.

**M2 Monitoring requirements**

- 1 Unless otherwise specified in writing by the Director, monitoring must be undertaken in accordance with the Table of Monitoring Requirements at Attachment 2, as follows:
  - 1.1 the items listed in Column 1 must be sampled or tested at the locations listed in Column 2 for the parameters listed in Column 3 at the frequencies listed in Column 5 using the techniques listed in Column 6; and
  - 1.2 resultant monitoring data must be reported to the Director in accordance with the requirements set out in Column 7 and in the units listed in Column 4.

**M3 Covered Anaerobic Lagoon influent sampling requirements**

- 1 The influent to the Covered Anaerobic Lagoon must be sampled daily and analysed for the parameters in accordance with the Table of Monitoring Requirements at Attachment 2. Analysis must be completed by suitably trained personnel and in accordance with appropriate procedures and quality control measures.
- 2 Unless otherwise specified in writing by the Director, a sample of Covered Anaerobic Lagoon influent must be analysed at a NATA accredited laboratory for the parameters listed in the Table of Monitoring Requirements:
  - 2.1 every sixth day; and
  - 2.2 on occasions that the daily analysis of chemical oxygen demand yields a result in excess of 25,000 mg/L.
- 3 All samples of Covered Anaerobic Lagoon influent, collected in accordance with the requirements of these conditions, must be collected from the flow-proportional composite sampler and be representative of influent received over the previous 24 hour period.

**M4 Flow monitoring equipment**

- 1 Flow monitoring equipment must be calibrated in accordance with the manufacturer's specifications or at least once every 12 months, whichever is the more frequent.
- 2 Calibration details must be recorded and records kept for a minimum of 3 years.

**M5 Monitoring reporting and record keeping**

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- 1 Unless otherwise specified by the Director, a Monthly Monitoring Report, in an electronic format approved by the Director, must be submitted to the Director within 21 days of completion of laboratory analyses of samples collected for the previous monthly period. As a minimum, the Monthly Monitoring Report must include the following information:
  - 1.1 the laboratories at which sample analyses were carried out;
  - 1.2 contact details for a person responsible for managing monitoring programs;
  - 1.3 the estimated or measured average daily flow to the wastewater treatment plant for the previous monthly period; and
  - 1.4 for each sampling location or site test location;
    - 1.4.1 a location name which allows the location to be clearly identifiable;
    - 1.4.2 the date and time at which each sample was taken or site test conducted;
    - 1.4.3 the indicators for which analyses or tests were carried out and the units in which the results are reported; and
    - 1.4.4 the results for all sample analyses and site tests.
- 2 A record of all monitoring reports submitted to the Director must be maintained and copies of all laboratory analysis reports kept for a minimum period of three years and referenced to the relevant Monthly Monitoring Reports.

**M6 Signage of monitoring points**

With the exception of open water sampling, all monitoring points must be clearly marked to indicate the location and name of the monitoring point.

**Noise Control****N1 Noise emission limits**

- 1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:
  - 1.1 50 dB(A) between 0800 hours and 1800 hours (Day time); and
  - 1.2 45 dB(A) between 1800 hours and 2200 hours (Evening time); and
  - 1.3 40 dB(A) between 2200 hours and 0800 hours (Night time).
- 2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).
- 3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified by the Director.
- 4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the *Tasmanian Noise Measurement Procedures Manual*.
- 5 All methods of measurement must be in accordance with the *Tasmanian Noise Measurement Procedures Manual*, issued by the Director.

**Operations****OP1 Operational Procedures Manual**

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- 1 An Operational Procedures Manual must be developed within 12 months of the date on which these conditions take effect. The manual is to provide detailed information relating to the activity and must detail operational procedures as required to ensure compliance with these conditions. The person responsible must take all reasonable and practicable measures to ensure that personnel, including contractors, carry out their duties in accordance with the manual.
- 2 A copy of the Operational Procedures Manual must be provided to an Authorized Officer upon request.

**OP2 Plant and equipment**

Unless otherwise approved by the Director, all plant and equipment used in carrying out the activity must be maintained and operated in accordance with the manufacturer's specifications.

**OP3 Contingency Management Plan**

- 1 Unless otherwise approved in writing by the Director, a Contingency Management Plan must be prepared within 6 months of the date on which these conditions take effect. The plan must detail all reasonable and practicable measures to prevent and mitigate environmental harm if an unplanned event occurs. Without limitation, unplanned events that must be addressed by the plan include:
  - 1.1 incidents, accidents, power failures and malfunctions with the potential to cause release of effluent that does not comply with these conditions;
  - 1.2 development of blue green algae (cyanobacteria) concentrations within the WWTP that have the potential to cause environmental harm if released to the environment;
  - 1.3 free ammonia concentrations in receiving waters exceeding 0.035 mg/L; and
  - 1.4 natural events such as fire or flooding.
- 2 The Plan must include communication procedures for ensuring that downstream water users, the general public and relevant government agencies are informed of any unplanned event to the extent necessary to allow them to take precautions against adverse impacts upon human health and livestock health. Such procedures must include contact details for all downstream water users that may be impacted under a worst case scenario (i.e. low dilution of effluent to receiving waters) and must be kept up to date by the person responsible.
- 3 The person responsible must ensure all WWTP personnel are aware of their responsibilities in relation to unplanned events and have access at all times to the information and procedures necessary to carry out those responsibilities.
- 4 A copy of the Contingency Management Plan must be provided to an Authorized Officer upon request.
- 5 The Contingency Management Plan must be implemented as soon as reasonably practicable and to the satisfaction of the Director if an unplanned event causes or may cause serious environmental harm or material environmental harm.

**OP4 Staff training**

- 1 The person responsible for the activity must ensure all WWTP personnel are trained such that they are:
  - 1.1 competent in the implementation of the procedures documented in the Operational Procedures Manual and the Contingency Management Plan that are relevant to their work; and

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- 1.2 competent in the operation or maintenance of plant or equipment in accordance with the manufacturer's specifications, if required to operate or maintain plant or equipment.

**OP5 Lagoon maintenance**

- 1 Floating matter including grass, weeds and rubbish must not be allowed to accumulate on the surface of any treatment or storage lagoons.
- 2 All treatment lagoon or storage lagoon embankments must be kept in good repair and free of woody vegetation and rubbish.

**OP6 Site security**

The WWTP must be fenced to prevent entry by unauthorised persons and these fences must be adequately maintained for this purpose.

**OP7 Groundwater Protection**

- 1 Within 12 months from the date on which these conditions take effect, the responsible person must submit a groundwater monitoring plan for the approval of the Director. The plan must recommend at least 3 groundwater monitoring bores, appropriately sited to detect potential groundwater contamination caused by the activity, to be established.
- 2 The groundwater monitoring plan must be implemented within 6 months from the date of its approval by the Director.
- 3 All groundwater bores must be established by a suitably qualified person in accordance with the *Minimum Construction Requirements for Water Bores in Australia* and designed to monitor groundwater elevation and quality. The Director must be provided with a map showing the locations of all established groundwater monitoring bores within 1 month from their establishment.

**Waste Management**

**WM1 Controlled waste transport**

Transport of controlled wastes to and from The Land must be undertaken only by persons authorised to do so under EMPCA or subordinate legislation.

**WM2 Sewage sludge management**

- 1 Unless otherwise approved by the Director, sewage sludge produced by the activity must be managed as follows:
  - 1.1 sewage sludge must not be allowed to accumulate within treatment lagoons, vessels or storage ponds to a level that is reasonably likely to compromise the efficacy of the treatment process;
  - 1.2 sludge removed from treatment or storage lagoons must be removed from The Land or stored so as to prevent pollution of surface water and groundwater;
  - 1.3 all reasonable and practicable efforts must be employed to ensure that sludge management activities do not cause environmental nuisance; and
  - 1.4 sewage sludge produced by the activity for reuse must be managed in accordance with the *Approved Management Method for Biosolids Reuse*.

**WM3 Sewage Sludge Management Plan**

- 1 A Sewage Sludge Management Plan must be submitted to the Director for approval within 12 months of the date on which these conditions take effect or prior to any removal, dewatering or drying of sewage sludge, whichever occurs first.
- 2 Sewage sludge must be managed in accordance with the Sewage Sludge Management Plan approved by the Director.

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## Schedule 3: Information

Legal Obligations**LO1 Notification of incidents under s.32 of EMPCA**

- 1 A person responsible for an activity that is not a level 2 activity or a level 3 activity must notify the relevant Council, as soon as reasonably practicable but not later than 24 hours, after becoming aware of the release of a pollutant occurring as the result of any incident in relation to that activity, including an emergency, accident or malfunction, if this release causes or may cause an environmental nuisance.
- 2 A person responsible for an activity that is a level 2 activity or a level 3 activity must notify the Director, as soon as reasonably practicable but not later than 24 hours, after becoming aware of the release of a pollutant occurring as a result of any incident in relation to that activity, including an emergency, accident or malfunction, if this release causes or may cause an environmental nuisance.
- 3 A person responsible for an environmentally relevant activity must notify the Director, as soon as reasonably practicable but not later than 24 hours, after becoming aware of the release of a pollutant occurring as a result of any incident in relation to that activity, including an emergency, accident or malfunction, if this release causes or may cause serious or material environmental harm.
- 4 The Director can be notified by telephoning 1800 005 171 (a 24-hour emergency telephone number).
- 5 Any notification referred to in subsection (1), (2) or (3) must include details of the incident, its nature, the circumstances in which it occurred and any action that has been taken to deal with it.
- 6 This notification can be faxed to the Director on 62 333 800, or delivered by hand.
- 7 Any notification given by a person in compliance with this section is not admissible in evidence against the person in proceedings for an offence or for the imposition of a penalty (other than proceedings in respect of the making of a false or misleading statement).
- 8 For the purposes of subsections (1), (2) and (3):
  - 8.1 a person is not required to notify the Council or the Director of such an incident if the person has reasonable grounds for believing that the incident has already come to the notice of the Council or Director or any officer engaged in the administration or enforcement of this Act; but
  - 8.2 a person is required to notify the Council or the Director of such an incident despite the fact that to do so might incriminate the person or make the person liable to a penalty.
- 9 Any notification given by a person in compliance with this section is not admissible in evidence against the person in proceedings for an offence or for the imposition of a penalty (other than proceedings in respect of the making of a false or misleading statement).

**LO2 EMPCA**

The activity must be conducted in accordance with the requirements of the Environmental Management and Pollution Control Act 1994 and Regulations thereunder, and in accordance with the principles of Best Practice Environmental Management. The requirements of this permit must not be construed as an exemption from any of those requirements or principles.

**LO3 Storage and handling of Dangerous Goods**

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- 1 The storage, handling and transport of dangerous goods must comply, as a minimum standard, with the requirements contained in the relevant State Acts and Regulations, and any subsequent amendments, including:
  - 1.1 *Dangerous Goods Act 1998*;
  - 1.2 *Dangerous Goods Regulations 1998*;
  - 1.3 *Dangerous Goods (Road and Rail Transport) Regulations 1998*;
  - 1.4 *Workplace Health and Safety Act 1995*; and
  - 1.5 *Workplace Health and Safety Regulations 1998*

### Other Information

#### OOI Key Dates Referred to in Schedule 2 of these Conditions

1

Date	Condition	Requirement
31 December 2009	OP3	Contingency Management Plan
31 March 2010	EF6	Effluent Compliance Plan to be submitted
30 September, annually	G8-10	Annual Environmental Review to be submitted
30 June 2010	OP1	Operations Manual to be produced
30 June 2010	OP7	Groundwater Monitoring Plan to be submitted
31 December 2010	OP7	Groundwater Monitoring Plan to be implemented
30 June 2012, and every 5 years hence	G11	Environment Management Plan - Operations Review to be submitted

### Policy Requirements

#### PR1 Policy Objectives

1. Wastewater Treatment Plants (WWTP) in Tasmania must comply with the requirements for best practice environmental management (BPEM) and move toward implementing accepted modern technology (AMT) under the Environmental Management and Pollution Control Act 1994 (EMPCA) and the State Policy on Water Quality Management 1997 (SPWQM). The management of pollutant discharge from point sources is governed by the principles defined in clause 16.2 of SPWQM, namely:
  - 1.1 pollutant discharges must not prejudice water quality objectives (WQO) defined for the receiving waters; and
  - 1.2 pollutant discharges must be reduced to the maximum extent by Best Practice Environmental Management (BPEM) in accordance with the hierarchy of waste management.

#### PR2 Policy Framework

- 1 The policy framework and guidelines relevant to implementation of policy are as follows:

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- 1.1 Emission Limit Guidelines for Sewage Treatment Plants That Discharge Pollutants In To Fresh And Marine Waters, June 2001;
- 1.2 Accepted Modern Technology Policy Framework for Wastewater Treatment Systems and New Permit Requirements, June 2001;
- 1.3 Tasmanian Biosolids Reuse Guidelines; August 1999; and
- 1.4 Environmental Guidelines for the Use of Recycled Water in Tasmania, December 2002.

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### SCHEDULE 4: GROUNDS MATRIX

Condition in Schedule 2	Condition in Licence to Operate 3573	Condition in permit 6090	Grounds
Q1	Maximum Quantities	Q1	Details maximum permissible flow to the activity and adds an allowance for increased flows during times of high rainfall.
G1	G1	G1, G4	Equivalent requirement to ensure compliance with EMPCA and best practice environmental management.
G2	Nil	G5	Equivalent condition to ensure any person responsible for the activity is aware of the requirements of these conditions.
G3	G3	G3	Equivalent requirement for the responsible person to take action if an incident may have an adverse affect on the environment. Reporting requirements are now enclosed in Schedule 3.
G4	G2	G2	Equivalent condition requiring prior approval from the Director prior to any changes to the activity, are made.
G5	Nil	Nil	New requirement requiring notification if there is a change to the responsible person.
G6	Nil	Nil	New requirement requiring notification if there is a change of ownership.
G7	Nil	A1, N2	Equivalent condition requiring a complaints register to be maintained and detailing the actions taken to investigate and resolve the complaint.
G8	Nil	Nil	Introduces a requirement for the monitoring and management of influent loading to the activity to ensure compliance with effluent limits imposed by these conditions.
G9	Nil	Nil	Introduces requirements for the submission on an Annual Environmental Review to give an assessment of the recent performance of the WWTP.
G10	Nil	G9	Equivalent condition for the development of management plans to ensure the activity is conducted in compliance with EMPCA.
G11	Nil	G9	This condition adds requirement for any Environmental Management Plan to be made publicly available.
A1	Nil	Nil	New requirement to ensure the activity is conducted in compliance with EMPCA with respect to odour management.

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DC1	Nil	Nil	New requirement to ensure the Director is notified prior to cessation of the activity so that compliance with the other relevant conditions of this notice can be reviewed.
DC2	Nil	Nil	New requirement to ensure an appropriate decommissioning and rehabilitation plan is developed to mitigate the potential for environmental harm to be caused following cessation of the activity.
DC3	Nil	Nil	New requirement to ensure the land is rehabilitated in accordance with best practice environmental requirements under EMPCA.
EF1	Nil	G17, D1	Equivalent condition defining the allocated discharge location.
EF2	Nil	E3	Equivalent condition to ensure effluent discharges occurs in compliance with section 20.4 of the SPWQM.
EF3	Nil	E5	Reworded condition to ensure adequate environmental flow in Back Creek. This adds a requirement to test daily the ammonia nitrogen concentration of the effluent and ensure free ammonia levels are managed in Back Creek to minimise risk of environmental harm.
EF4	W1	E2	Equivalent condition setting emission limits requirements in accordance with Division 2B SPWQM.
EF5	Nil	Nil	New requirement imposing mass load limits on the quantities of nutrients which may be discharged from the activity to ensure conformance with the objectives of the SPWQM.
EF6	Nil	Nil	New requirement for a plan to improve compliance with effluent discharge limits imposed by these conditions.
EF7	Nil	Nil	New requirement to ensure discharges are being managed in accordance with EMPCA and the SPWQM with respect to blue-green algae
EF8	Nil	G16	Equivalent condition requiring the management of stormwater on site to prevent contamination.
H1-2	Nil	G14	Varied to ensure appropriate storage of hazardous materials and use of spill kits in the event of spillage to mitigate against environmental harm, consistent with EMPCA.
M1	W2	M1	Equivalent condition to ensure samples required by this EPN are collected and analysed in accordance with relevant accepted standards.
M2 + Attachment 2	W3	M2-M5	Varied condition to ensure monitoring requirements reflect the requirements of the

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			SPWQM.
M3	Nil	Nil	New condition requiring sampling to monitor the loadings received into the Covered Anaerobic Lagoon.
M4	Nil	Nil	New requirement for maintenance of flow monitoring equipment ensuring accuracy of flow measurements.
M5	W3	M1	Monitoring reporting requirements are varied by this condition to ensure reporting to current standards.
M6	Nil	Nil	New requirement to ensure monitoring occurs consistently at identified locations so that results can be appropriately interpreted.
N1	Nil	N1	Varied condition to ensure noise emissions from the activity do not cause environmental nuisance, consistent with EMPCA.
OP1	Nil	G15	Reworded condition requiring operational procedures to be documented and that all personnel operating the activity are familiar with these procedures to ensure the activity is managed in a manner that does not cause environmental harm, consistent with EMPCA.
OP2	Nil	Nil	New requirement to ensure plant and equipment are properly maintained to mitigate the potential for an incident to occur that may cause environmental harm, consistent with EMPCA.
OP3	Nil	G15	Varied condition to ensure contingency measures are in place to mitigate the potential for an incident to occur that may cause environmental harm, consistent with EMPCA.
OP4	Nil	G13	Varied requirement to ensure all personnel are appropriately trained so that the potential for incidents to occur is mitigated and incidents that do occur are managed in manner that mitigates the potential for environmental harm to be caused, consistent with EMPCA.
OP5	Nil	Nil	New requirement to ensure proper maintenance of wastewater treatment lagoons to ensure optimum performance and thereby mitigate the potential for the activity to cause environmental harm, consistent with EMPCA.
OP6	Nil	Nil	New requirement to ensure the site is secure thus discourage unauthorised personnel interfering with the activity and potentially causing environmental harm, consistent with EMPCA.
OP7	Nil	Nil	New requirement to install groundwater monitoring bores to ensure groundwater can be monitored for any potential contamination caused

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			by the activity, consistent with section 24 SPWQM.
WM1	S1	S1	Revised condition to ensure all Controlled Waste is managed in accordance with EMPCA.
WM2-3	S1	S2-3	Revised condition specific to the management of sewage sludge levels in the activity and a requirement to produce a sludge management plan prior to the removal of sludge to mitigate the potential for environmental harm, consistent with EMPCA.
Nil	G2	G8	Condition removed requiring notification of any proposals of significant changes to the effluent loading to the activity.
Nil	Nil	G6-7	Conditions removed placing requirements on the responsible person during prior construction works and commissioning undertaken to upgrade the activity.
Nil	Nil	E1	Condition removed which referred to old emission limits set prior to the commissioning of the upgraded plant.
Nil	Nil	E6	Condition removed which set requirements for any proposals relating to the reuse of effluent produced by the activity.
Nil	G4	Nil	Condition removed which required a report summarising effects of modifications carried out in 1988.

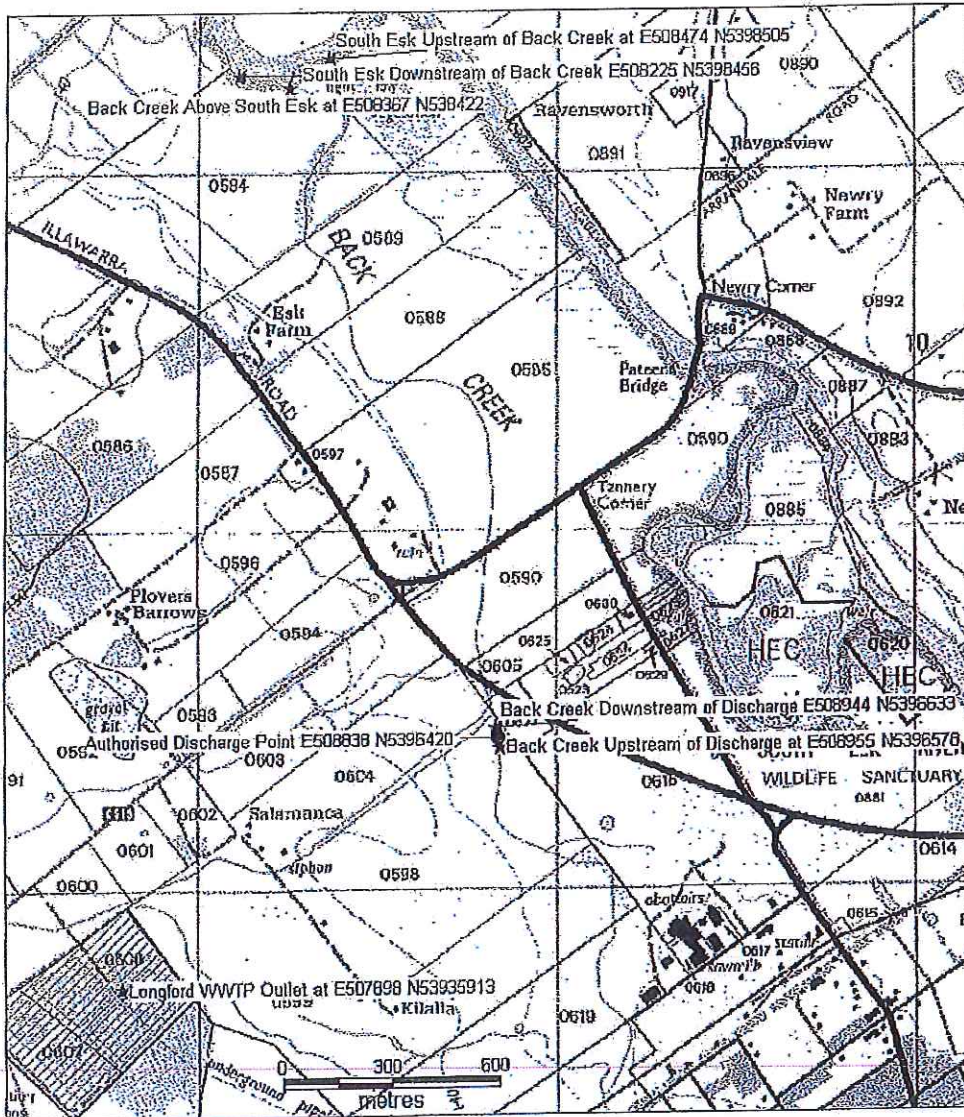
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ATTACHMENT 1:

MONITORING LOCATIONS



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ATTACHMENT 2: TABLE OF MONITORING REQUIREMENTS

Column 1: Item	Column 2: Locations	Column 3: Parameter	Column 4: Unit of Measure	Column 5: Sampling or Testing Frequency	Column 6: Sampling or Testing Technique	Column 7: Reporting requirements
Influent wastewater flow to the activity	WWTP Inlets	Flow	KL/day	Continuous measurement	In-line magnetic flow meter.	Results to be included: (a) Flow to be included in the Monthly Monitoring Report as average daily flow; (b) Daily influent measurements and loads in the Monthly Monitoring Report; and (c) In the Annual Environmental Review as monthly flows and loads for each calendar month, based on average daily flows for that month.
		pH	°C			
		Temperature	ds/m			
		Conductivity	mg/L			
		Chemical Oxygen Demand	mg/L			
		Biochemical Oxygen Demand	mg/L			
		Chemical Oxygen Demand	mg/L			
		Total Nitrogen	mg/L			
		Total Phosphorus	mg/L			
		Oil and Grease	mg/L			
Treated effluent	WWTP outlet (as shown on Attachment 1)	Flow	KL/day	Continuous measurement	Flow meter	Results to be included: (a) In mass load calculations within the Annual Environmental Reports; mass load calculations to be based on total daily flow on the day of sampling; (b) In the Annual Environmental Review as monthly flows for each calendar month, based on daily flows for that month.
		Flow	KL/day			
WWTP outlet (as shown on Attachment 1)	WWTP outlet (as shown on Attachment 1)	pH	°C	Daily, until consistently compliant. Analysis to be completed by appropriately trained personnel. Monthly for Monthly Monitoring Report	Field Test	(a) In the Monthly Monitoring Report (b) A summary of results including graphical presentation to be provided in the Annual Environmental Review.
		Temperature	ds/m			
		Conductivity	mg/L			
		Dissolved Oxygen	mg/L			
		Ammonia-Nitrogen	mg/L			
		Suspended Solids	mg/L			
		Biochemical Oxygen Demand	mg/L			
		Nitrate-Nitrogen	mg/L			
		Nitrite-Nitrogen	mg/L			
		Total Nitrogen	mg/L			
		Total Phosphorus	mg/L			
		Dissolved Reactive Phosphorus	mg/L			
		Oil and Grease	cfu/100mL			
		Thermotolerant Coliforms	cfu/100mL			
		Enterococci	cells/mL			
		Blue-green algae	mg/L			
		Arsenic	mg/L			
		Barium	mg/L			
		Cadmium	mg/L			
		Chromium (total)	mg/L			
Chromium VI	mg/L					
Cobalt	mg/L					
Copper	mg/L					
Lead	mg/L					
Manganese	mg/L					

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Ambient water quality	1. Back Creek up stream of the authorised effluent discharge point to water at coordinates E508955 N5396578 (as shown on the plan at Attachment 1) 2. Back Creek downstream of the authorised effluent discharge point at coordinates E508944 N5396533 (as shown on the plan at Attachment 1) 3. Back Creek above South Esk at coordinates E508367 N5398422 (as shown on the plan at Attachment 1) 4. South Esk above Back Creek at coordinates E508474 N5398505 (as shown on the plan at Attachment 1) 5. South Esk below Back Creek at coordinates E508225 N5398456 (as shown on the plan at Attachment 1)	At locations on the land to be approved by the Director in accordance with these conditions	Groundwater		Grab sample	Annually	Results to be included in the Annual environmental review									
			Mercury mg/L	Nickel mg/L				Selenium mg/L	Silver mg/L	Zinc mg/L	pH	Conductivity ds/m	Biochemical Oxygen Demand mg/L	Total Dissolved Solids mg/L	Ammonia-Nitrogen mg/L	Nitrate-Nitrogen mg/L
					Monthly	Field test	1. Results to be reported in the Monthly Monitoring Report 2. A summary of results including graphical presentation to be provided in the Annual Environmental Review.									
					Daily, when maximum discharge limit exceeded. Monthly for Monthly monitoring Report	Grab sample										
					Monthly											

For the purposes of the Table of Monitoring Requirements the following definitions apply

**Continuous measurement** means automatic ongoing measurement at all times.

**In-line** means measurement taken from instrumentation installed within the conduit of flow

**on-line** means measurements or analyses are carried out automatically and the results electronically recorded for remote viewing and analysis

**field test** means either *in situ* testing or analysis of samples immediately with appropriate instrumentation

**grab sample** means a discrete sample collected in a manner that ensures it is a representative sample

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7.3 Appendix 3: Title Plans and Easements