Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6498/2021/1
Works approval holder	Water Corporation
Registered business address	John Tonkin Water Centre 629 Newcastle Street LEEDERVILLE WA 6009
DWER file number	DER2021/000010
Duration	28/05/2021 to 27/05/2026
Date of issue	22 August 2022
Premises details	Coral Bay Wastewater Treatment Plant Lyndon Location 169, Maud's Landing CORAL BAY WA 6701 Legal description - Lot 318 on Plan 40837 (as depicted in Schedule 1)

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed design capacity**
Category 54: Sewage facility: premises (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	720 m^3 per day

This works approval is granted to the works approval holder, subject to the attached conditions, on 22 August 2022, by:

Marko Pasalich
Digitally signed by Marko Pasalich
Date: 2022.08.22 12:03:35 +08'00'

Marko Pasalich
A/MANAGER
WASTE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Instrument history

Date	Reference number	Summary of changes
16/06/2003	W3790/2003/1	Works Approval issued
24/05/2004	L7927/2003/1	Licence issued
06/05/2005	L7927/2003/2	Licence renewal
20/05/2010	L7927/2003/3	Licence renewal
14/05/2015	L7927/2003/4	Licence renewal
28/05/2021	W6498/2021/1	Works Approval for construction of evaporation pond, desludging hardstand and spillway
22/08/2022	W6498/2021/1	Amendment to Works Approval for construction of a pressure main discharge tower

Interpretation

In this works approval:

(a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a condition, each row in a table constitutes a separate condition;

(d) any reference to an Australian or other standard, guideline, or code of practice in this works approval:

  (i) if dated, refers to that particular version; and

  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Critical containment infrastructure

1. The works approval holder must:

(a) construct the critical containment infrastructure;

(b) in accordance with the corresponding design and construction requirements; and

(c) at the corresponding infrastructure location; and

as set out in Table 1.

Table 1: Critical containment infrastructure design and construction requirements

Critical containment infrastructure	Design and construction / installation requirements	Infrastructure location
Evaporation Pond No. 2	Constructed in accordance with the design drawing provided in Schedule 2, Figure 4: Coral Bay Wastewater Treatment Plant Evaporation Pond No. 1 Extension Layout - plan GE88-02-05. Lined with a bituminous based waterproof geomembrane to achieve a permeability of less than $1x10^{-9}$ m/s as per the requirements set out in Schedule 3: Minimum specification for bituminous geomembrane installation	Northeast of Evaporation pond No. 2, as depicted in Figure 1 and Figure 3

Infrastructure and equipment

2. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction / installation requirements; and

(c) at the corresponding infrastructure location as set out in Table 2.

Table 2: Infrastructure and equipment design and construction / installation

Infrastructure and equipment	Design and construction / installation requirements	Infrastructure location
Spillway	Constructed in accordance with the design drawing provided in Schedule 2, Figure 5: Coral Bay Wastewater Treatment Plant evaporation pond and infiltration pond refurbishment - spillway details - plan GE88-3-8 Installed no more than 100 mm below the top of the embankment	Northeastern embankment of Evaporation Pond No. 1 (to the north of Evaporation pond No. 2), as depicted in Figure 1 and Figure 3
Desludging hardstand (geobag laydown area)	Constructed in accordance with the design drawing provided in Schedule 2, Figure 3: Coral Bay Wastewater Treatment Plant site - plan GE88-02-01 Designed to: • achieve a longitudinal gradient of 1:200; and • accommodate the temporary installation of a removable high-density polyethylene liner and sand-bag perimeter to direct any filtrate back into the primary (facultative and maturation) pond.	Adjacent to the Facultative and Maturation Ponds, as depicted in Figure 1 and Figure 3
Sewage discharge tower	Constructed in accordance with the following design drawing provided in Schedule 2: • Figure 6: Coral Bay Wastewater Treatment Plant pipework details – plan GE88-03-04; • Figure 7: Coral Bay Wastewater Treatment Plant discharge tower installation – plan GE87-2-13; and • Figure 8: Coral Bay Wastewater Treatment Plant discharge tower installation – plan GE87-2-14. Pipework to be constructed of 250 mm diameter polyethylene.	Adjacent to the Facultative Pond, as depicted in Figure 6.

Compliance reporting – critical containment infrastructure

3. The works approval holder must within 30 calendar days of the critical containment infrastructure identified by condition 1 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 1; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

4. The Critical Containment Infrastructure Report required by condition 3, must include as a minimum the following:

(a) certification by a suitably qualified geotechnical, environmental or civil engineer that each item of critical containment infrastructure or component thereof, as specified in condition 1, has been built and installed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 1;

(c) photographic evidence of the installation of the infrastructure; and

(d) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

5. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 2 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 2; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

6. The Environmental Compliance Report required by condition 5, must include as a minimum the following:

(a) certification by a qualified geotechnical, environmental or civil engineer that the items of infrastructure or component(s) thereof, as specified in condition 2, have been constructed in accordance with the relevant requirements specified in condition 2;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 2; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Emissions

7. The works approval holder shall ensure that any dust emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort, or amenity of any person who is not on the premises.

8. The works approval holder must ensure that excavation activities at the premises only occur between the hours of 07:00 to 19:00, and on the days of Monday through to Saturday.

Time limited operations phase

Time limited operations requirements

9. The works approval holder may only commence Time Limited Operation of Evaporation Pond No. 2:

(a) where the CEO has notified the works approval holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 3 and 4 meets the requirements of that condition; or

(b) where at least 45 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 3 and 4 has been submitted to the CEO.

10. The works approval holder may conduct Time Limited Operation of Evaporation Pond No. 2:

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 9; or

(b) until such time, not exceeding the period outlined in condition 10 (a), as approval under licence for the infrastructure and equipment listed in Table 3 is granted in accordance with Part V of the Environmental Protection Act 1986.

11. During Time Limited Operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 3 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 3.

Table 3: Infrastructure and equipment requirements during Time Limited Operations

Site infrastructure and equipment	Operational requirements	Infrastructure location
Evaporation Pond No. 2	Lined with a bituminous based waterproof geomembrane to achieve a permeability of less than $1x10^{-9}$ m/s	As shown in Schedule 1, Figure 1: Map of the boundary of the prescribed premises and premises layout.

Records and reporting (general)

12. The works approval holder must record the following information in relation to complaints received by the works approval holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

13. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with conditions 1 and 2;

(b) any maintenance of infrastructure that is performed in the course of complying with conditions 1 and 2;

(c) complaints received under condition 12.

14. The books specified under condition 13 must:

(a) be legible;

(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 4 have the meanings defined.

Table 4: Definitions

Term	Definition
ASTM D3776	means Standard Test Methods for Mass Per Unit Area (Weight) of Fabric
ASTM D4073	means Standard Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes
ASTM D4833	means Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
ASTM D5199	means Standard Test Method for Measuring the Nominal Thickness of Geosynthetics
ASTM D7275	means Standard Test Method for Tensile Properties of Bituminous Geomembranes (BGMs)
ASTM E96	means Standard Test Methods for Water Vapor Transmission of Materials
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).

Term	Definition
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

Figure 1: Map of the boundary of the prescribed premise and premises layout

Figure 2: Monitoring bore locations

Schedule 2: Design drawings

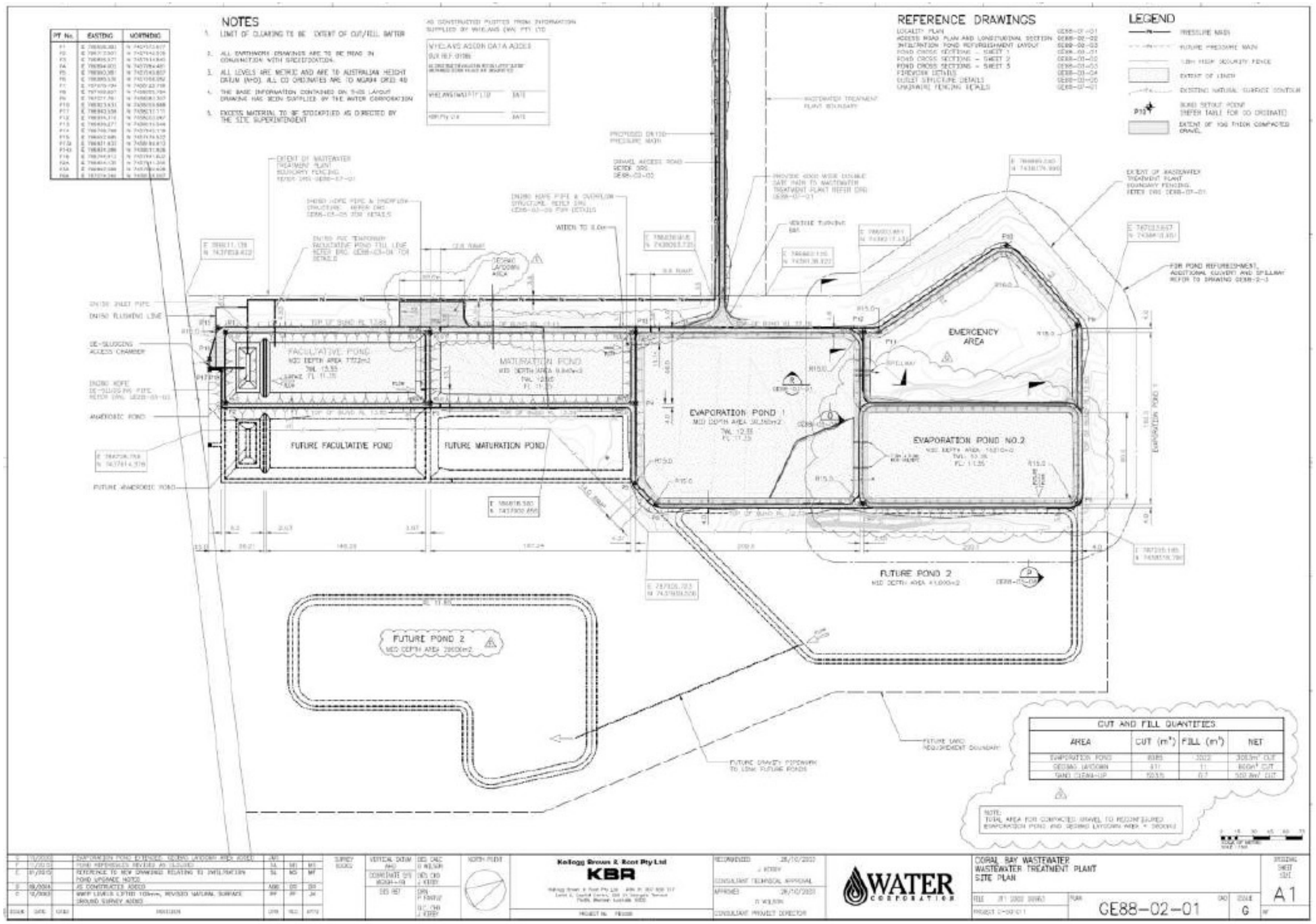

Figure 3: Coral Bay Wastewater Treatment Plant site – plan GE88-02-01

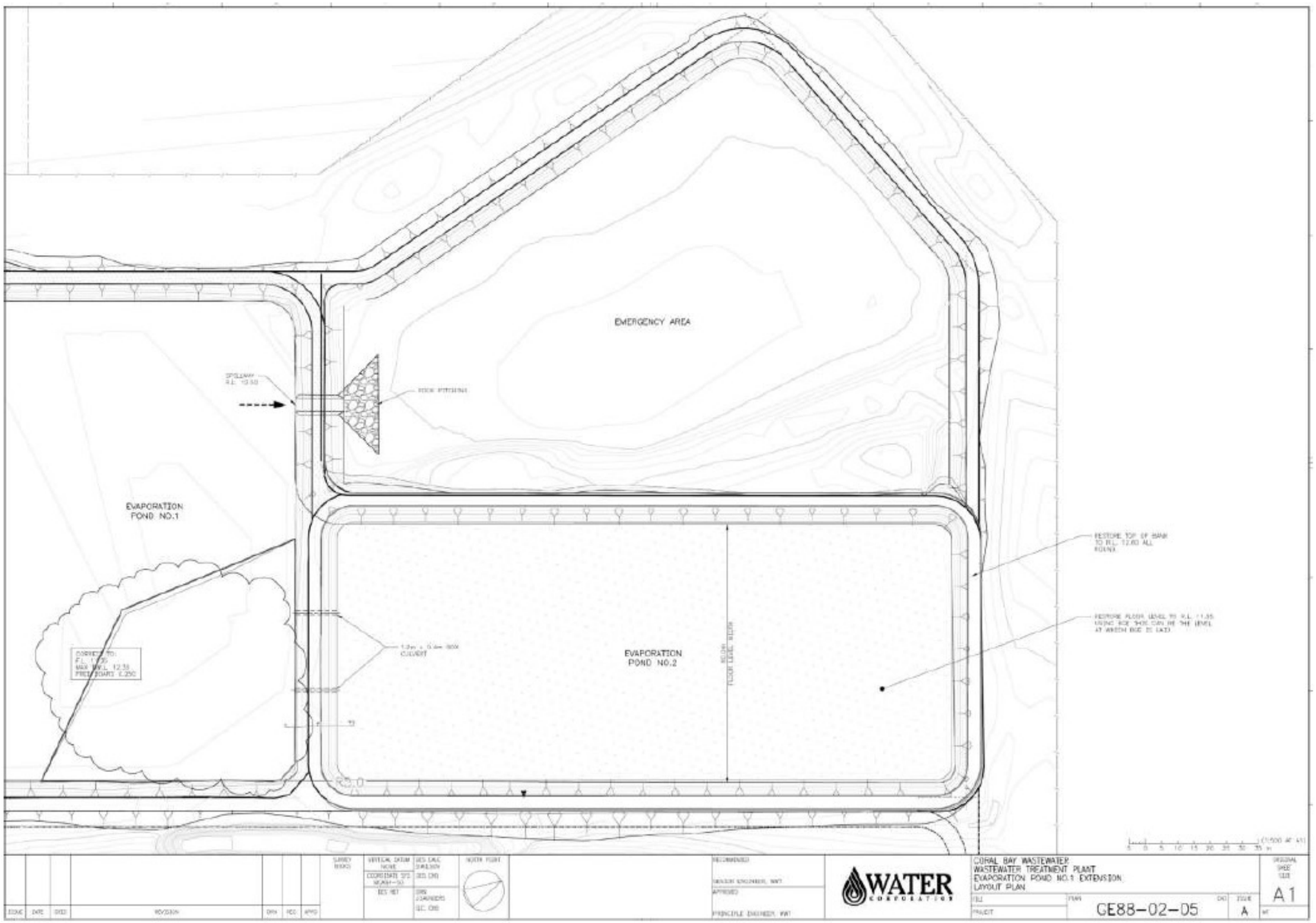

Figure 4: Coral Bay Wastewater Treatment Plant Evaporation Pond No. 1 Extension Layout – plan GE88-02-05

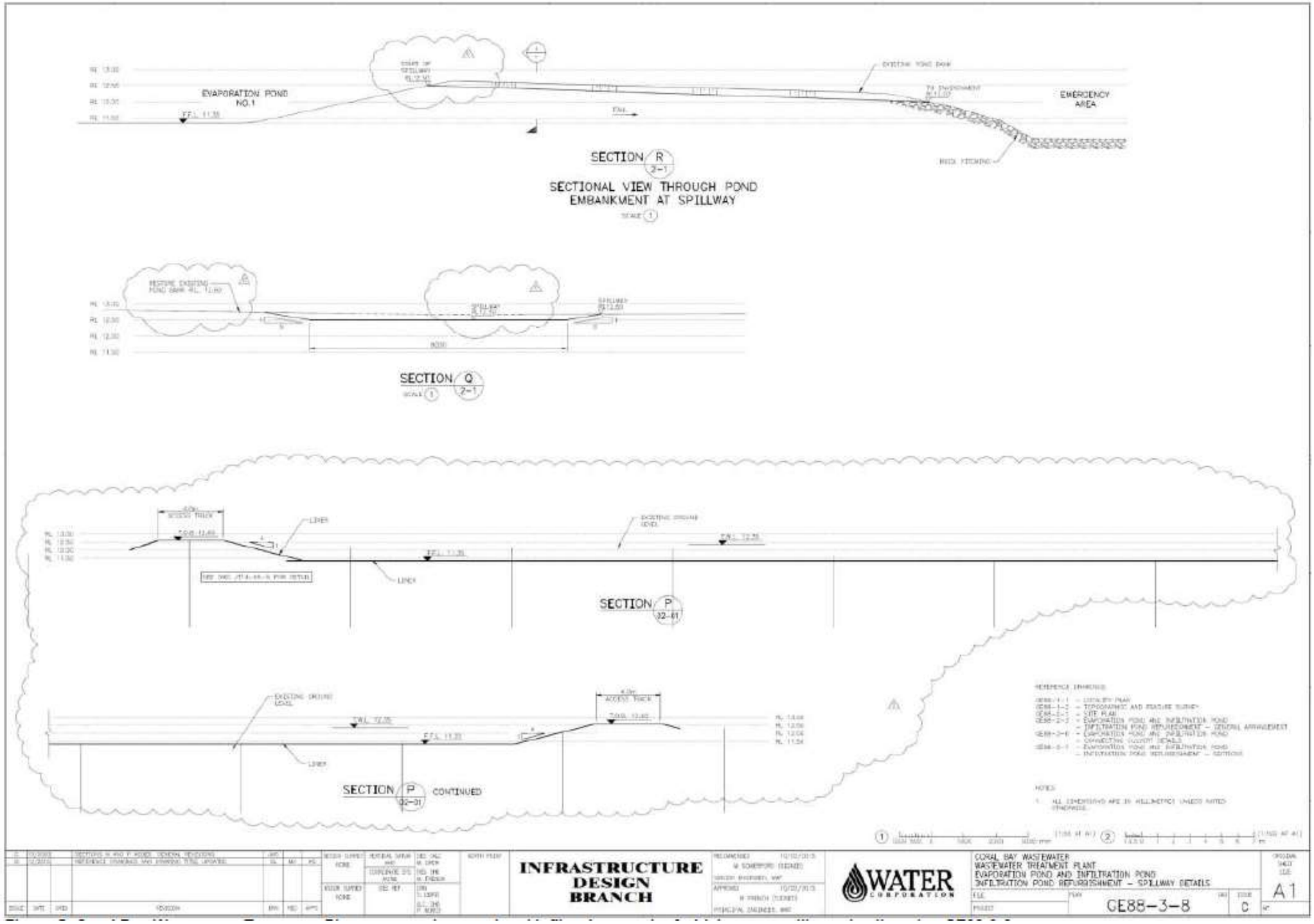

Figure 5: Coral Bay Wastewater Treatment Plant evaporation pond and infiltration pond refurbishment – spillway details – plan GE88-3-8

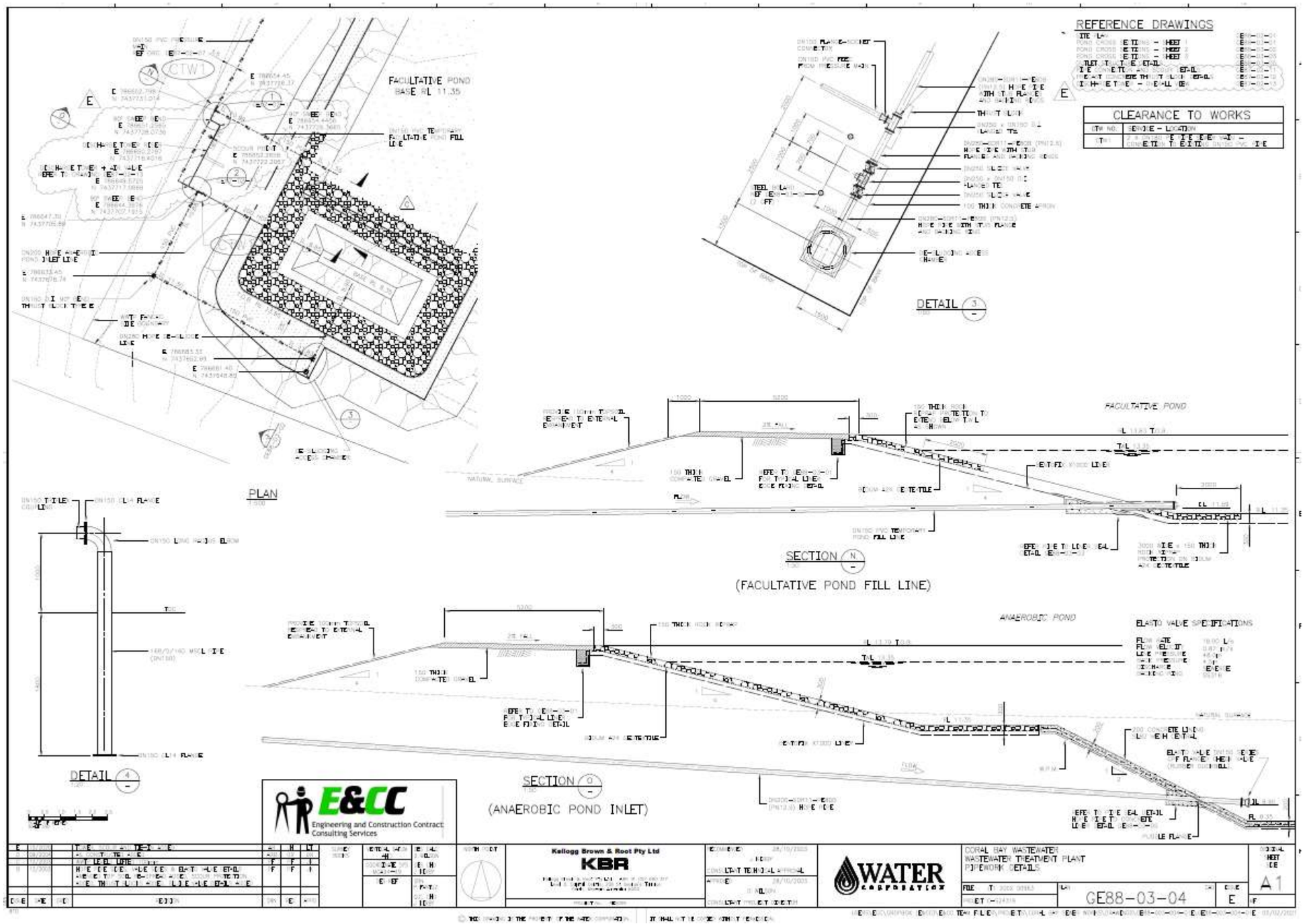

Figure 6: Coral Bay Wastewater Treatment Plant pipework details – plan GE88-03-04

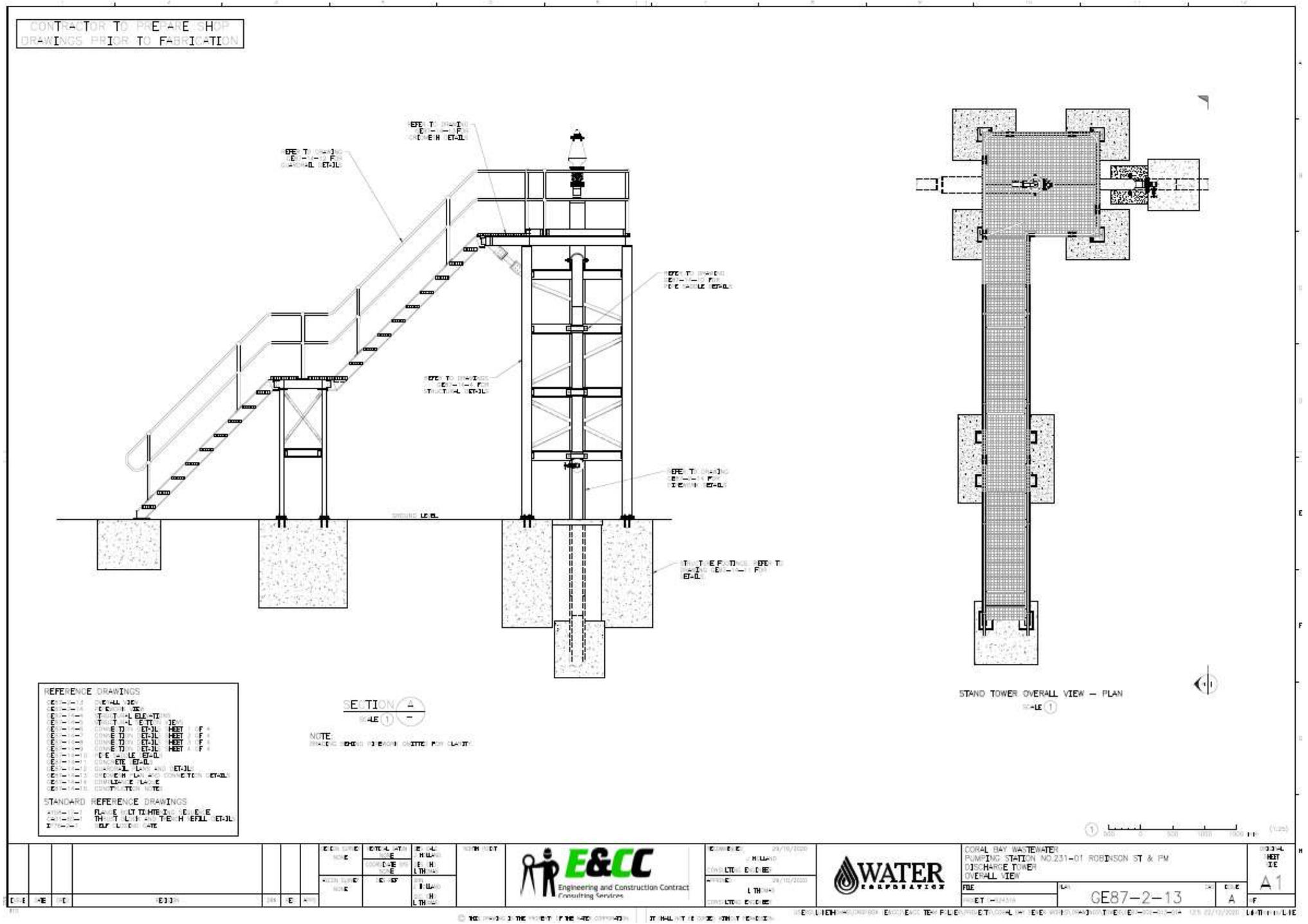

Figure 7: Coral Bay Wastewater Treatment Plant discharge tower installation – plan GE87-2-13

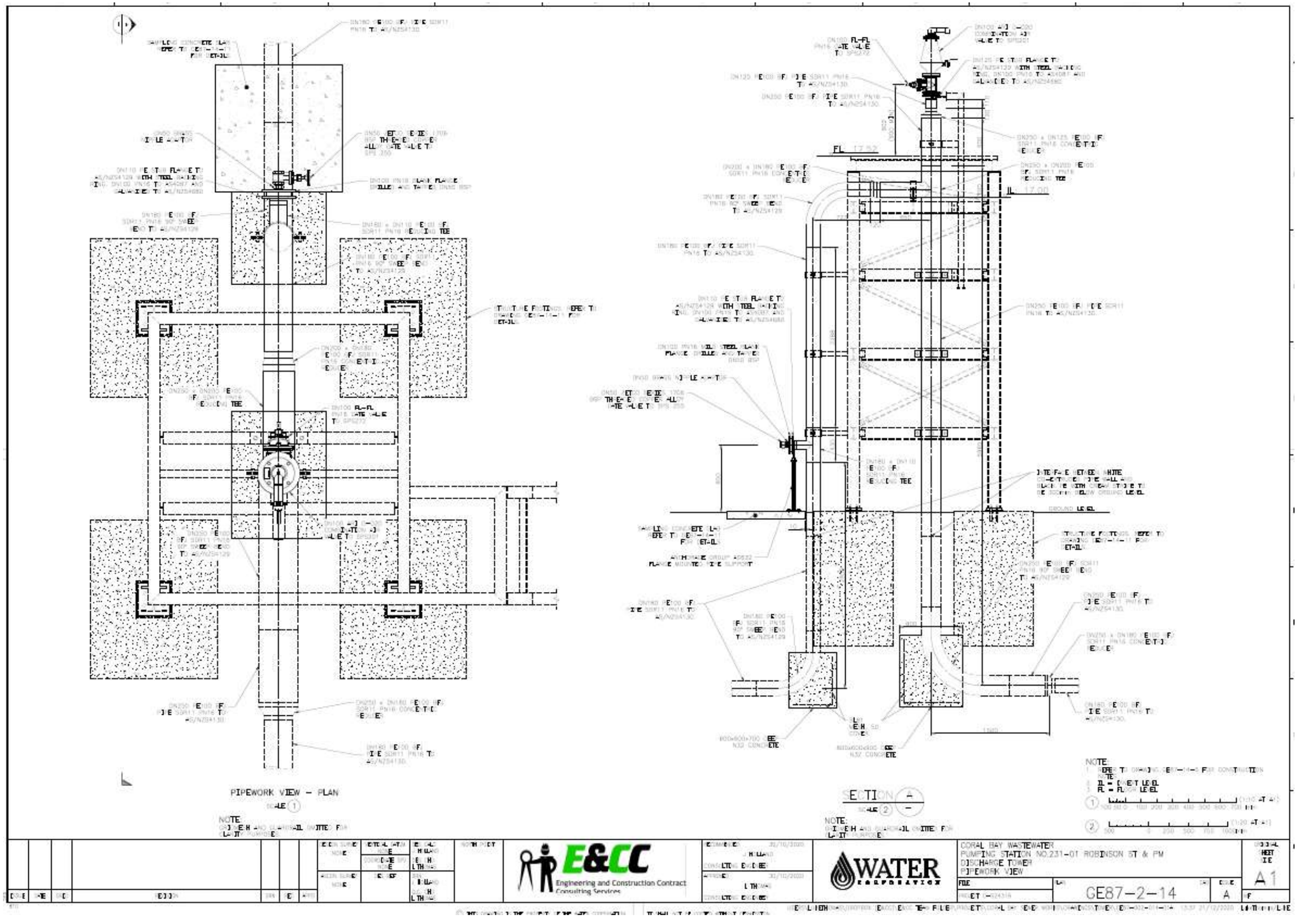

Figure 8: Coral Bay Wastewater Treatment Plant discharge tower installation – plan GE87-2-14

Schedule 3: Minimum specification for bituminous geomembrane installation

The construction works and requirements described in the following table are required to be completed on the occasion that bituminous geomembrane liner material is used for the Evaporation Pond construction in accordance with Condition 1.

Table 5: Geomembrane installation requirements

	Infrastructure or Equipment	Requirements (design and construction)
1	Site preparation	• Excavation of all unsuitable materials to a minimum depth of -300 mm from final surface level (FSL) to form a suitable subgrade, and replace with engineered fill material, moisture condition and compact to Standard Maximum Dry Density (SMDD) of 95% and Optimum Moisture Content (OMC) of -2% to +2% in 250 mm layers to FSL; • If suitable material (meeting requirements for engineered fill material) exists in the cell footprint, the material shall be excavated to -250 mm of FSL, ripped and treated as per engineered fill material for moisture conditions and compaction requirements; • Cut internal batters to be 3:1 (H:V); and • Proof roll entire footprint including cell floor and embankments.
2	Bituminous Geomembrane liner	• To extend over the entire pond base and up the side embankments; • To be 4 mm thick, overlaying the subbase; • Shall be free of holes, blisters, blemishes, striations, bubble, roughness, contaminants and permanently attached raw materials; and • Internal ballast shall be installed, if required prior to filling, at the toe of the internal embankment and across the centre of each pond floor.
3	Anchor trenches	• To be backfilled with engineered fill while liner materials are in the relaxed state, in full contact with subgrade and without wrinkles or folds.

<table>
<tr>
<td>4</td>
<td>Quality Assurance and Quality Control</td>
<td>Construction and installation performance shall be measured by the following specifications:

Construction requirements (as specified by Condition 1 and this table);
General requirements (as specified by the application);
Manufacturer requirements (as specified by the supplier of the Bituminous Geomembrane);
Conformance testing – to show materials meet the following minimum requirements;

<table>
<tr><th colspan="2">Property</th><th>Units</th><th>Value</th><th>Test</th><th>Testing Frequency</th></tr>
<tr><td colspan="2">Thickness (average)</td><td>mm</td><td>≥4.0</td><td rowspan="2">ASTM D5199</td><td rowspan="3">One for every two rolls</td></tr>
<tr><td colspan="2">Thickness (minimum)</td><td>mm</td><td>3.6</td></tr>
<tr><td colspan="2">Surface mass (minimum)</td><td>kg/m^2</td><td>4.3</td><td>ASTM D3776</td></tr>
<tr><td rowspan="2">Resistance to tearing (minimum)</td><td>Longitudinal</td><td rowspan="2">N</td><td>619</td><td rowspan="2">ASTM D4073</td><td rowspan="2">One per month</td></tr>
<tr><td>Cross directional</td><td>525</td></tr>
<tr><td rowspan="2">Tensile properties: max. tensile strength (minimum)</td><td>Longitudinal</td><td rowspan="2">kN/m</td><td>20.3</td><td rowspan="4">ASTM D7275</td><td rowspan="4">One per batch</td></tr>
<tr><td>Cross directional</td><td>15</td></tr>
<tr><td rowspan="2">Tensile properties: elongation (minimum)</td><td>Longitudinal</td><td rowspan="2">%</td><td>45</td></tr>
<tr><td>Cross directional</td><td>45</td></tr>
<tr><td colspan="2">Static puncture (minimum)</td><td rowspan="2">N</td><td>477</td><td rowspan="2">ASTM D4833</td></tr>
<tr><td colspan="2">Static puncture (average)</td><td>530</td></tr>
<tr><td colspan="2">Water permeability (liquid tightness) (minimum)</td><td rowspan="2">m/s</td><td>6.10^{-14}</td><td rowspan="2">ASTM E96</td><td rowspan="2">Every five years</td></tr>
<tr><td colspan="2">Water permeability (liquid tightness) (average)</td><td>6.10^{-13}</td></tr>
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	Infrastructure or Equipment	Requirements (design and construction)
		• Quality Control Procedures; • Reports and Certificates – including: ➢ Manufacturer and supplier certifications • Reporting requirements; • Testing requirements; • Construction Quality Assurance (CQA) procedures; • Inspection and Monitoring requirements; • Hold point requirements; • Liner Inspection and Monitoring requirements; and • Performance Indicators.