Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6644/2022/1
Works approval holder	Shire of East Pilbara
Registered business address	1 Kalgan Drive NEWMAN WA 6753
DWER file number	DER2018/001042-6~97
Duration	15/08/2022 to 14/08/2025
Date of issue	15/08/2022
Premises details	Newman Wastewater Treatment Plant Great Northern Highway Legal description Crown Reserve 45776 Windell Location 144 Lot 144 on Plan 192902 NEWMAN WA 6873

Prescribed premises category description (Schedule 1, ***Environmental Protection Regulations 1987***)	**Assessed production / design capacity**
Category 54: Sewage facility: Premises on which sewage is treated or from which treated sewage is discharged onto land or into waters.	2000m^3 per day

This works approval is granted to the works approval holder, subject to the attached conditions, on 15 August 2022, by:

Melissa Chamberlain

Digitally signed by Melissa Chamberlain
Date: 2022.08.15 16:29:07 +08'00'

Melissa Chamberlain
A/MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
21/07/2021	L6870/1993/12	Licence re-issue and expiry extended by five years
26/04/2016	L6870/1993/12	Amendment to licence REFIRE – Extend expiry date from 29 July 2016 to 29 July 2023. No update to licence format occurred
08/09/2016	L6870/1993/12	Amendment Notice 1 – Addition of a second clarifier to the licence
02/09/2020	L6870/1993/12	Licence amendment to include historical discharge of treated effluent to neighbouring BHP owned wetland area. The amendment also includes the addition of a groundwater monitoring condition. Amendment was granted in the form of a revised licence, including consolidation of Amendment Notice 1 issues on 08 September 2016.
15/08/2022	W6644/2022/1	Works approval for upgrade works to reline the emergency discharge pond, install silt curtain system and associated infrastructure

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

Infrastructure and equipment

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

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
HDPE liner installed as part of conversion of existing 'emergency storage ponds' to 'temporary sedimentation pond'	Install HDPE liner on the base and all internal embankments of the ESP, including around the existing inlet, new inlet and new outlet. High Density Polyethylene liner to be installed in accordance with Schedule 3 Table ; Liner shall be 2mm double-sided textured HDPE liner meeting all the minimum standards outlined in Schedule 3. Must achieve permeability of $1x10^{-9}$m/s or less	Indicated by "Emergency Storage Ponds" on Figure 1

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: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Existing ESP	Partial excavation/cut of existing ESP to remove scouring and any vegetation within reconstruction of existing embankments to achieve the existing grade Varied excavation depths of 2-3m between the tee and the ESP inlet, which will be at low level in the pond embankment so that the pipe is free-draining by gravity.	Indicated by "Emergency Storage Pond" on Figure 1
2.	Pipework	Installation of DN380 PE Pipework from existing DN375 DICL clarifier bypass pipe to the new DN380	As indicated by

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		PE inlet at IL 539 of the ESP. Installation of DN375 PE pipework connecting the ESP to the Treated Wastewater Pond (TWWP). The outlet of the EPS is the be a 90 degree elbow facing upwards with flange to be level with the water surface at TW:L539. The inlet to the TWWP is to be straight DB375 PE pipe at approx.. IL538.5. Install DN300 PVC to PE Socket fitting onto existing DN300 PVC inlet pipework to ensure pipework extruding from the HDPE liner is UV resistant.	Figure 2
3.	Knife gate valves	Must be installed with a cast, in-situ concrete supporting block, including bond breaking membrane, in accordance with Water Corporation standard drawing BD62-2-1. The valves must be installed with trafficable access covers, valve spindle extension and SN8 PVC pipe to encase spindle.	As indicated by Figure 2
4.	Silt curtain system	The curtain should be at least 50m long and 2.5m deep (TWL541.5 – RL539.0), and with sufficient ballast to prevent sideways movement or lifting at floor level.	Indicated by "Emergency Storage Pond" on Figure 1

Emissions controls

3. The works approval holder must manage dust generation from construction activities at the premises by wetting down unsealed roads and exposed areas with a water truck

4. The works approval holder must ensure that:

(a) All reasonable and practicable measures are taken to ensure that no windblown waste escapes from the premises; and

(b) Any windblown waste is collected on at least a weekly basis and returned to the premises or otherwise appropriately contained.

5. The works approval holder must:

(a) take all reasonable and practicable measures to prevent stormwater run-off becoming contaminated by the activities and operations undertaken at the premises; and

(b) ensure that contaminated stormwater does not leave the premises.

Compliance reporting – critical containment infrastructure

6. 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 a Critical Containment Infrastructure Report on that compliance.

7. The Critical Containment Infrastructure Report required by condition 6, 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;

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

(e) a Quality Assurance Certificate and accompanying report from a suitably qualified geotechnical, environmental or civil engineer certifying that the critical containment infrastructure meets the requirements of Schedule 3.

Compliance reporting – infrastructure and equipment

8. 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.

9. The Environmental Compliance Report required by condition 8, 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.

Environmental commissioning phase

Environmental commissioning requirements and emission controls

10. The works approval holder may only commence environmental commissioning of an item of infrastructure identified in conditions 1 and 2 once the Critical Containment Infrastructure Report and Environmental Compliance Report has been submitted for that item of infrastructure in accordance with conditions 6 and 8 of this works approval.

11. Any environmental commissioning activities undertaken for an item of infrastructure specified in Table 3 may only be carried out:

(a) In accordance with the corresponding commissioning requirements; and

(b) For the corresponding authorised commissioning duration.

Table 3: Environmental commissioning requirements

	Infrastructure	Commissioning requirements	Authorised commissioning

			duration
1.	HDPE Liner	Seam weld testing - Onsite destructive and Non-destructive testing - Third-party destructive seam testing at a NATA lab Testing including: - Water permeability ($1x10^{-9}$ m/s) - Vacuum box test (no defects) - Air-lance (no defects) - Visual assessment (no defects) - Seams tensile shear strength (ASTM D6392)	60 days
2.	Pipework	Commissioning must ensure no leaks or defects in the new and updated pipework.	

Monitoring during environmental commissioning

12. The works approval holder must monitor emissions during environmental commissioning in accordance with Table 4.

Table 4: Emissions and discharge monitoring during environmental commissioning

Discharge point	Monitoring location	Parameter	Frequency	Averaging period	Unit	Sampling Method
Irrigation; BHP Wetland Area	Prior to irrigation pond, and prior to discharge to wetland.	pH	Weekly	Monthly	pH units	Spot sample
		Total suspended solids			mg/L	
		Total dissolved solids			mg/L	
		5-day biochemical oxygen demand			mg/L	
		Total Nitrogen			mg/L	
		Total Phosphorus			mg/L	
		E.coli			Cfu/ 100ml	

13. The works approval holder must record the results of all monitoring activity required by condition 12 The works approval holder must submit to the CEO an Environmental Commissioning Report within 30 calendar days of the completion date of environmental commissioning for each infrastructure specified in Table 1 and 2.

14. The works approval holder must ensure the Environmental Commissioning report required by condition 13 of this works approval includes the following:

    (a) A summary of the environmental commissioning activities undertaken, including timeframes and amount of wastewater processed;

    (b) The point source emissions monitoring results recorded in accordance with condition 13;

    (c) a review of the works approval holders performance and compliance against the conditions of this works approval; and

    (d) where they have not been met, measures proposed to meet the manufacturer's design specifications and the conditions of this works approval, together with timeframes for implementing the proposed measures.

Time limited operations phase

15. The works approval holder may only commence Time Limited Operation of the HDPE liner:

    (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 6 and 7 meets the requirements of that condition; or

    (b) Where at least 15 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 6 and 7 has been submitted to the CEO.

16. The works approval holder must only commence Time Limited Operations for an item of infrastructure identified in condition 2 where the Environmental Compliance Report as required by condition 8 has been submitted by the works approval holder for that item of infrastructure

17. The works approval holder may conduct Time Limited Operation of the infrastructure listed in conditions 1 or 2:

    (a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 15 and 16; or

    (b) until such time, not exceeding the period outlined in condition 17 (a), as approval under licence for the infrastructure and equipment listed in Table 1 is granted in accordance with Part V of the *Environmental Protection Act 1986*.

18. During Time Limited Operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 5 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 5.

Table 5: Infrastructure and equipment requirements during Time Limited Operations

Site infrastructure and equipment	Operational requirement	Infrastructure location
HDPE Liner	Constructed and installed to achieve a permeability of less than $1x10^{-9}$ m/s	Indicated by "Emergency Storage Pond" on Schedule 1, Figure 1

Records and reporting (general)

19. 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.

20. 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 condition 1 and 2;

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

(c) monitoring programmes undertaken in accordance with condition 9; and

(d) complaints received under condition 19.

21. The books specified under condition 20 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 6 have the meanings defined.

Table 6: Definitions

Term	Definition
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 commissioning	means the sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors.
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).
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.
waste	has the same meaning given to that term under the EP Act.

Term	Definition
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).

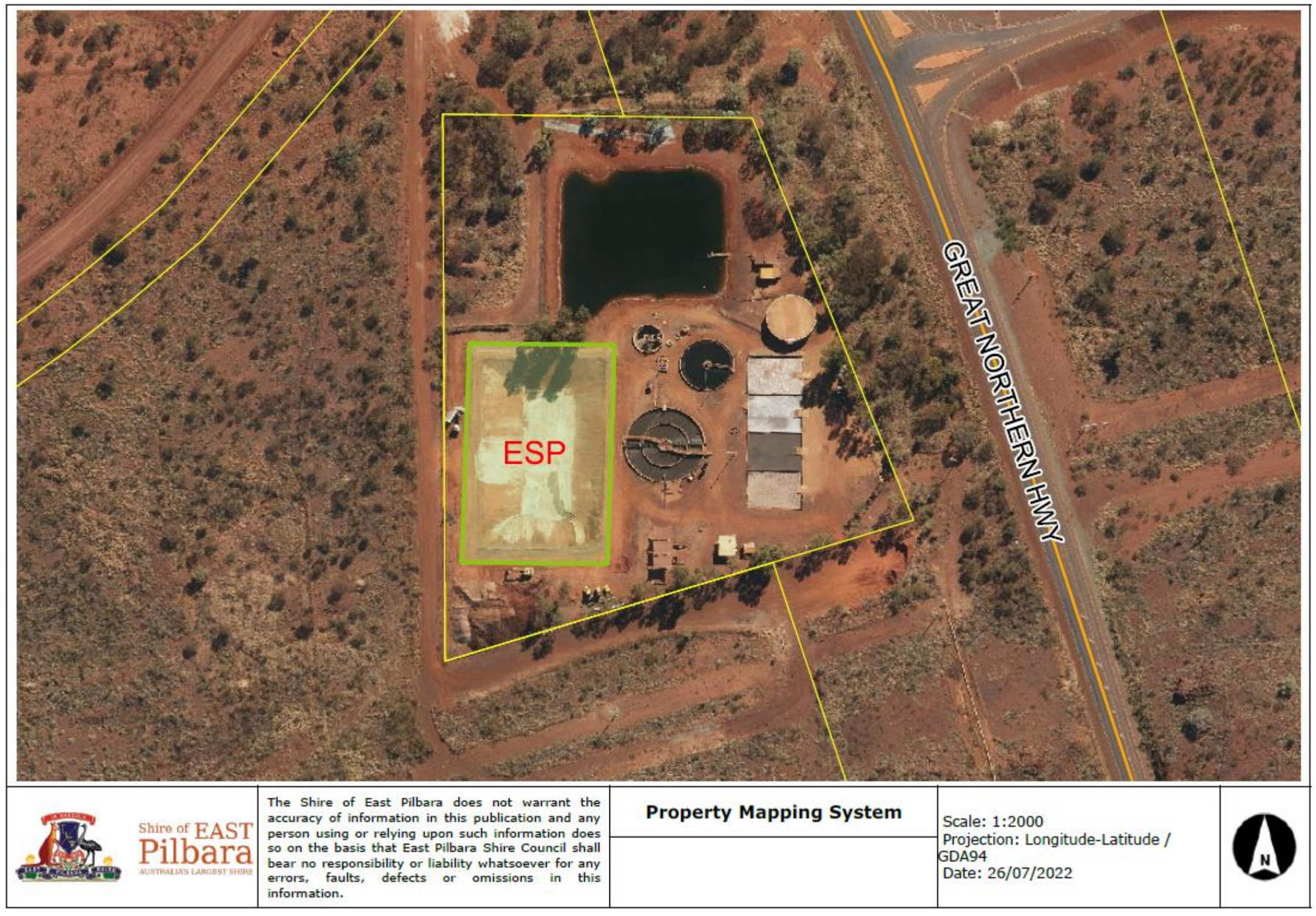

Figure 1: Map of the boundary of the prescribed premises

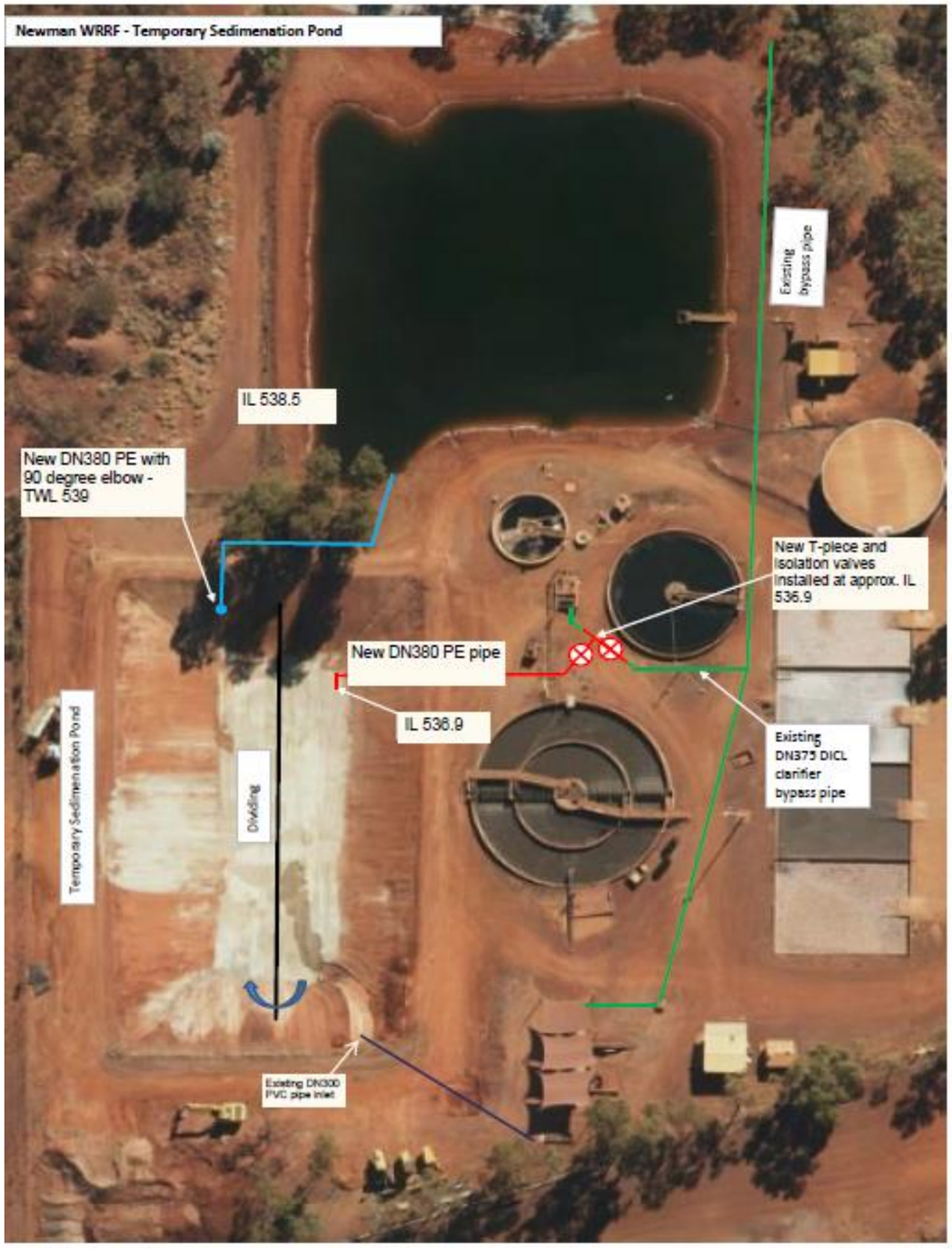

Figure 2: Map of pipework

Schedule 2: Construction diagrams

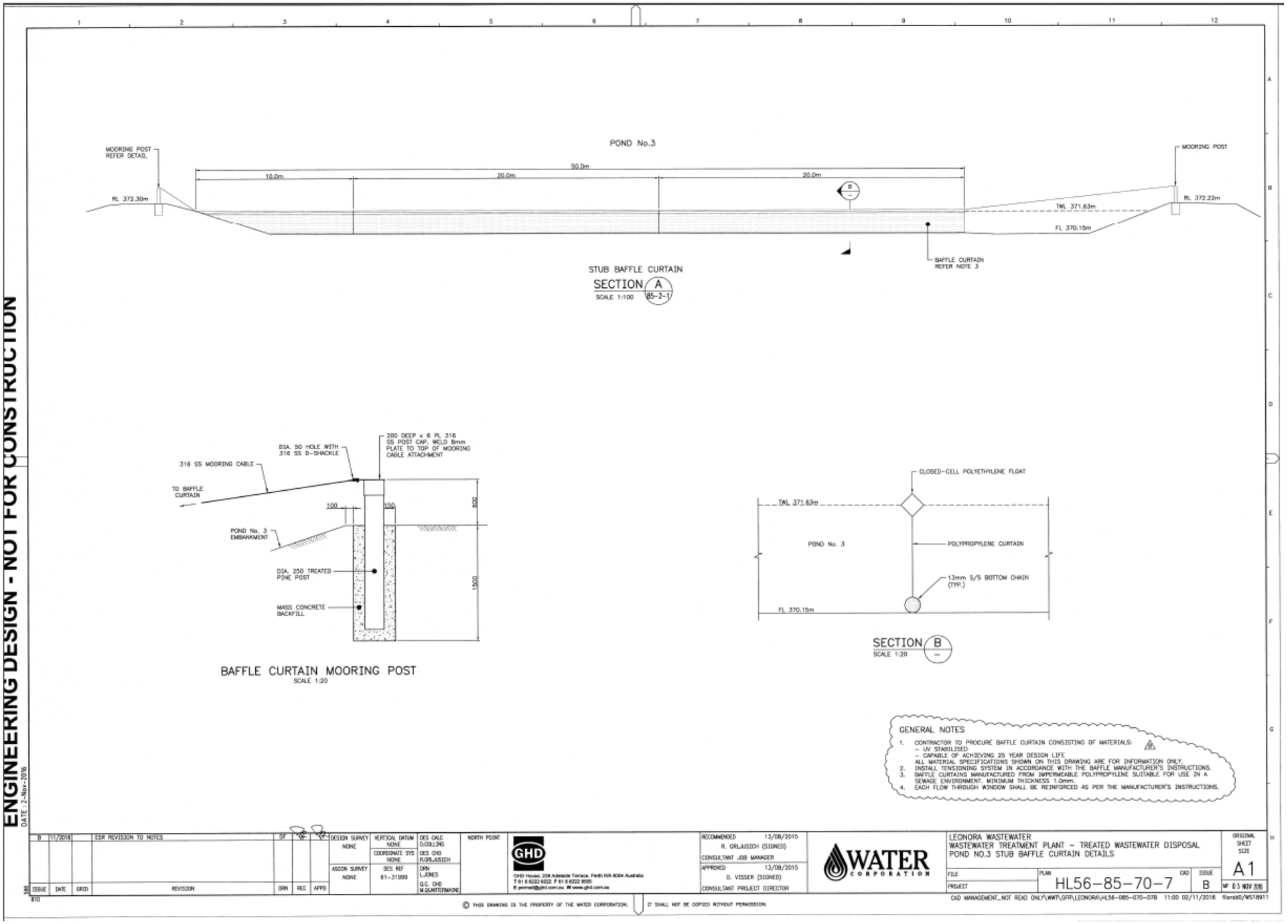

Figure 3: Pond

Schedule 3: Minimum specifications for High Density Polyethylene liner installation

The construction works and requirements described in the following table are required to be completed on the occasion that High Density Polyethylene liner material is used for the pond construction in accordance with Condition 1.

Table 7: High Density Polyethylene line installation requirements

Infrastructure or Equipment	Requirements (design and construction)
High Density Polyethulene liner	• Installed according to WQPN 26 *Liners for containing pollutants using synthetic liners* • To extend over the entire pond base and up the side embankments; • The liner must be a 2 mm double-sided textured HDPE liner that meets all the minimum characteristics defined in Table 2(b) of the GR1-GM13 Standards; • Must be uniform and free of pin holes, blisters, blemishes, strations, bubbles, roughness, contaminants and permanently attached roaw materials; • Completely sealed and waterproof along all joins and seams; and • Leak detection survey to be carried out following installation. • Rolls are to be lifted using a spreader bar, lifting sling or carpet pole. HDPE rolls are not to be lifted using the forks on a forklift. • An experienced and competent HDPE liner worker shall be responsible for the installation and testing of the HDPE liner as per this specification and the manufactures guidelines. • The Contractor shall excavate anchor trenches for the HDPE liner at the top of the embankments in accordance with drawings 1030-03-05-DWG-010 to 012 (Figures 4 – 6 below). Excavated trench material can be stockpiled adjacent to the trench for re-compaction. • The top of embankment anchor trench shall be 500 mm depth and width along the full length of the embankment. • The Contractor shall install the liner in vertical lengths down the embankment to the manufacturers' specifications. • The following shall be achieved in the installation and handling of the liner material: a) A layer of the liner must be anchored (according to manufacturers' guidelines) to cover the entire floor (except in the infiltration pond) and all sloping sides of the ponds; b) All welded joints and seals shall be watertight; c) Liner shall be free of blisters and contaminants;

	d) The liner shall be in intimate contact with the prepared subgrade; e) Liner shall be laid according to the manufacturer's specifications; f) The liner surface shall be inspected during unrolling and installation to ensure no tears, punctures, abrasions, indentations, cracks, or other faults are present in the material; g) Any defects identified are to be marked with coloured marker, recorded and repaired; h) The liner panels shall be installed in such a way that continuous panels are used on the 1:3 grade slopes; i) The placement shall be according to the pre-planned layout designed to minimise the amount of panel welding required; j) No material offcuts, sandbags, waste packaging or other foreign objects are to be left between the subgrade and HDPE geomembrane; k) Each panel shall be welded immediately after placement; l) The adjacent panels will have an overlap of minimum 75 mm for fusion welding and minimum 100 mm for extrusion welding; m) The connecting seam between the liners on the slopes and the base shall be located at a minimum distance of 1.5 m from the slope toe on the flat area; n) Sand bags shall be placed on free ends and on the seams at the end of each day to prevent wind uplift; o) Expansion and contraction of HDPE liner during placement and seaming shall be taken into consideration; p) Care shall be taken during installation of the HDPE to limit buckling, wrinkling or tensioning prior to filling of the Ponds; q) HDPE liner installed on the slopes shall be fixed in anchor trenches and anchorage shall be carried out when the geomembranes are cool; r) The anchor trench shall be backfilled as soon as is practicable; and s) HDPE liner shall not be installed during high wind, dusty or rainy conditions.
Quality Assurance and Quality Control	Construction and installation performance must be measured by the following specifications: • Construction requirements (as specified by Condition 1 and this table); • Manufacturer requirements (as specified by the supplier of the High Density Polyethylene liner); • Conformance testing – to show materials meet the following

minimum requirements;

Property	Units	Value	Test	Testing Frequency
Thickness	mm	2.0	ASTM D5994	One or every two rolls
Specific Gravity	g/cc	0.94	ASTM method D1505	
Carbon black content	-	2-3%	ASTM D4218	
Minimum tensile yield strength	kN/m	22	ASTM D6693	One per batch
Minimum tensile break strength	kN/m	16		
Minimum elongation at yield	-	12%		
Minimum elongation at break	-	100%	ASTM D638	
Water permeability (liquid tightness) (minimum)	M/s	$<1x10^{-9}$	ASTM E96	Every five years

*The parameters shown in the table are key parameters for refence only, refer to GRM13 Standards Table 2(b) for the full complement of the properties to which the Liner shall comply to.

- The fabrication, supply and installation testing specifications for the HDPE liner require compliance with, but not limited to:
  - ASTM D7007 Standard Practice for Ultrasonic Testing of Geomembranes; and
  - ASTM 6365 Standard Practice fot the Non-destructive Testing of Geomembrane Seams using the Spark Test

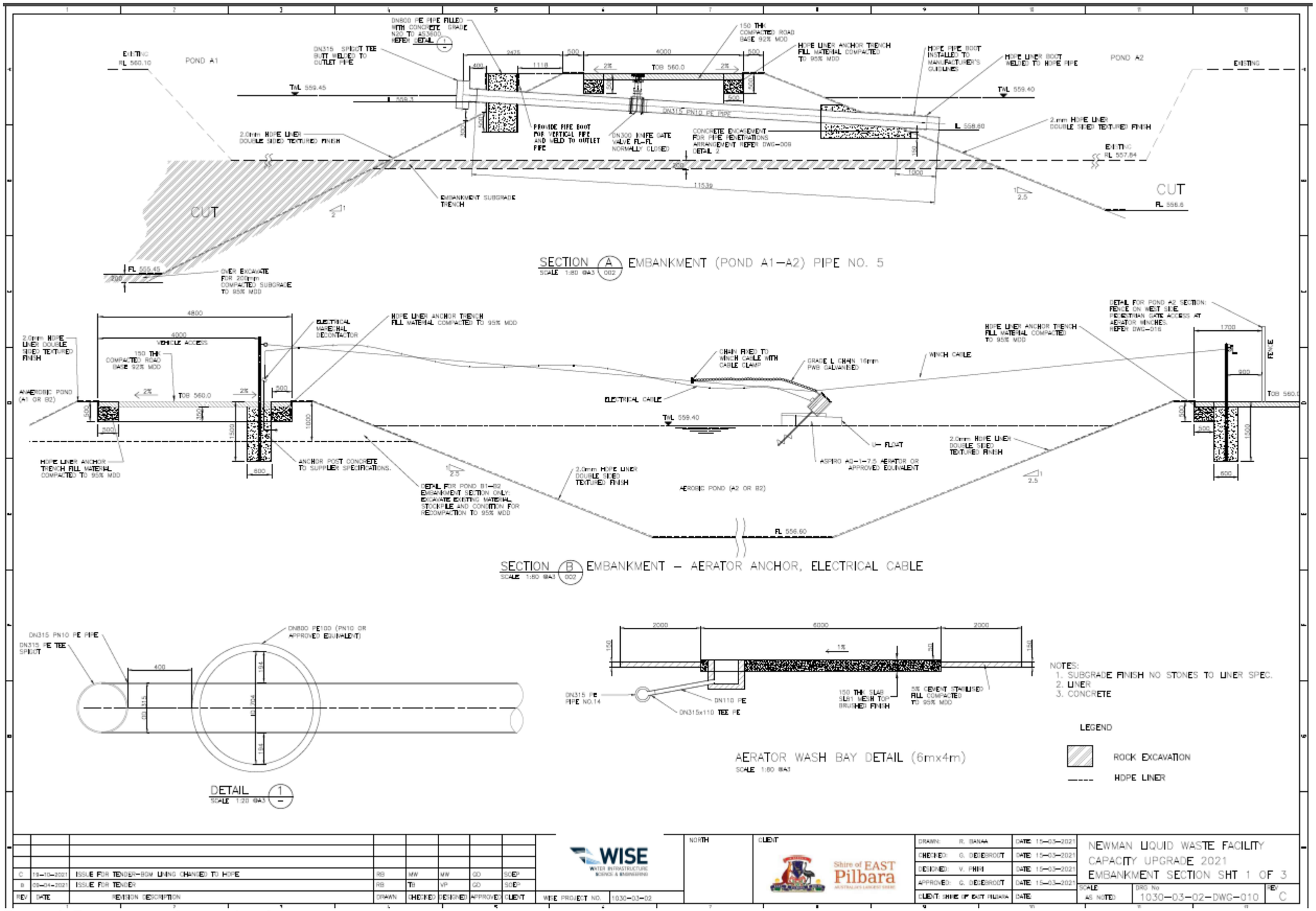

Figure 4: Embankment Section 1 or 3

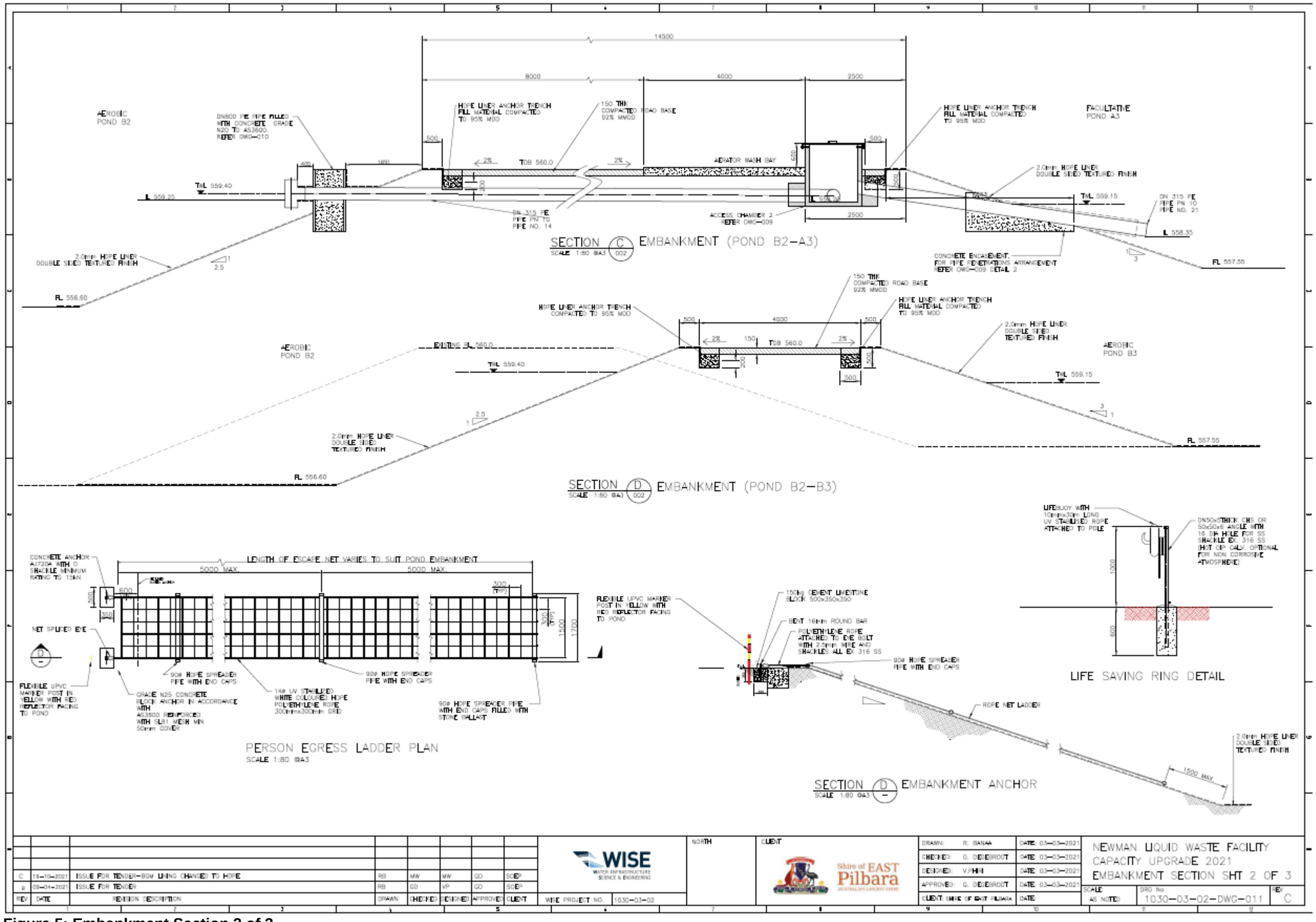

Figure 5: Embankment Section 2 of 3

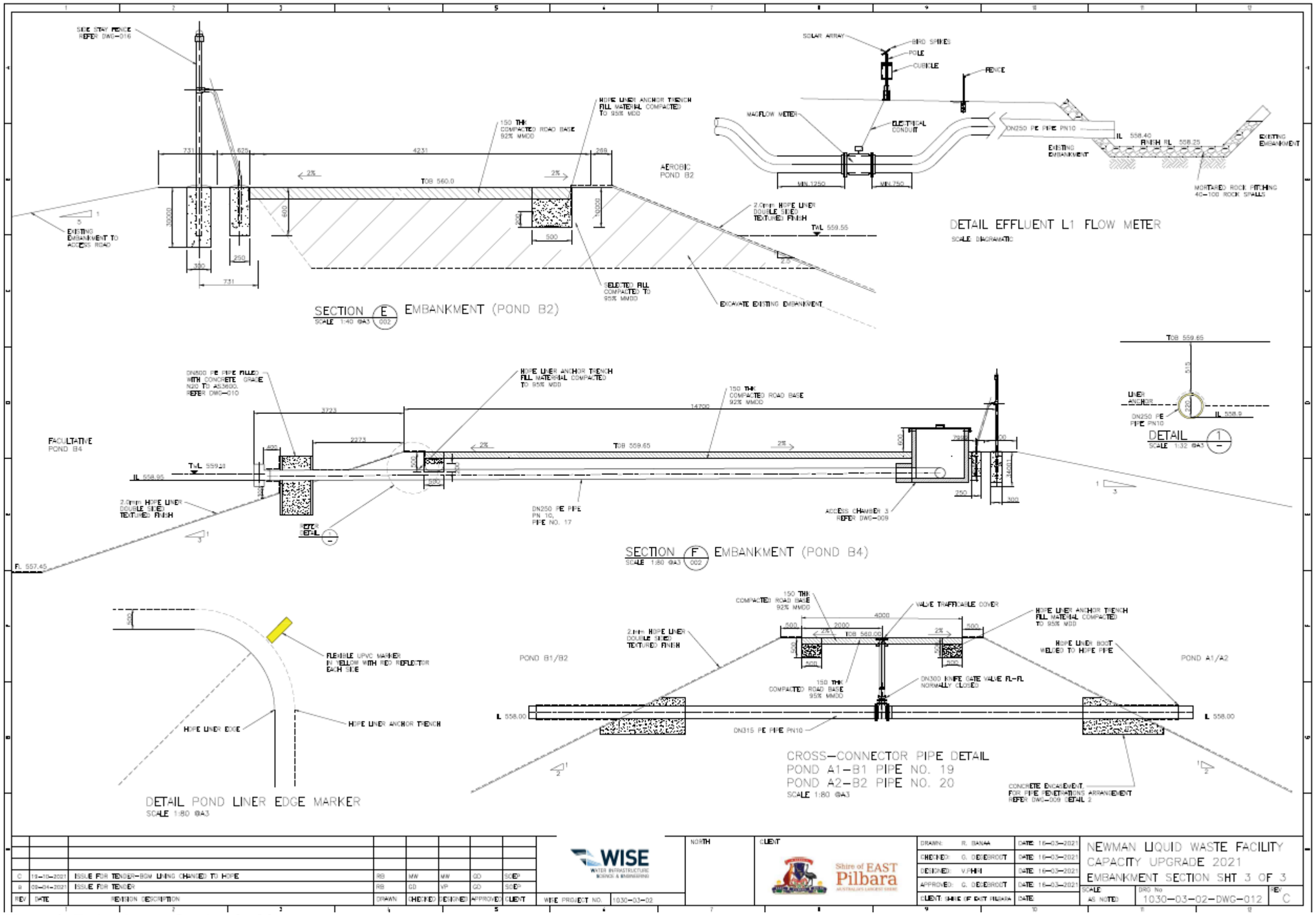

Figure 6: Embankment Section 3 of 3