



Works approval number	W6580/2021/1
Works approval holder	Owens Group Pty Ltd T/A Enecell Resource Recovery Solutions
ACN	644 001 196
Registered business address	22 Delgado Parade ILUKA WA 6028
DWER file number	DER2021/000408
Duration	11/03/2022 to 11/03/2025
Date of issue	11 March 2022
Premises details	Enecell Resource Recovery Solutions 10 McCook Street Forrestdale WA 6112 Lot 319 on Deposited Plan 63655

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed design capacity
Category 47: Scrap metal recovery: premises (other than premises within category 45) on which metal scrap is fragmented or melted, including premises on which lead acid batteries are reprocessed	34,320 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 14 March 2022, by:

**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
11/3/2022	W6580/2021/1	Works approval granted

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 infrastructure and equipment;
 - (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: Design and construction requirements

Infrastructure		Design and construction requirements	Infrastructure location
1.	Warehouse	<ul style="list-style-type: none"> • Floor to be free of leaks and defects and constructed with a concrete hardstand with a permeability of greater than 1×10^{-9} m/s • Vacuum doors to be present at entry and exit points • Environmentally hazardous liquids must be stored in accordance with the <i>Dangerous Goods Safety Regulations 2007</i> 	As depicted in Figure 1 of Schedule 1
2.	Battery-breaking hydro-separation (BHS) plant: general	<ul style="list-style-type: none"> • All plant and equipment to be free of leaks and defects • Infrastructure to be installed so as to operate in the sequence outlined in Figure 4, Schedule 1 • Infrastructure to be installed so as to minimise vibration through the base of the BHS plant to the concrete hardstand • Infrastructure to be fitted with a combination of the following to prevent spills of material <ul style="list-style-type: none"> ○ High/low level alarms ○ Control valves with interlock control; and ○ One way valves • Entire processing and battery storage area must be bunded to create a secondary containment area • The secondary containment area must drain to a sump of 3.75 m³ capacity, which can out pump any captured liquid • The bund creating the secondary containment area must be at least 200 mm high and must provide a cumulative containment capacity of at least 170 m³ • All concrete floor within the secondary containment area must have a coating applied that will resist chemical degradation 	As depicted in Figure 2 and Figure 3 of Schedule 1

Infrastructure		Design and construction requirements	Infrastructure location
3.	Secondary containment sump	<ul style="list-style-type: none"> The sump must be constructed to a maximum depth of 1.5m below the existing concrete hardstand with a capacity of 3.75m³ During excavation of the existing concrete hardstand, the entire excavation area must be maintained in a damp state All excavated material must be wrapped in 0.2 mm thick heavy plastic (for larger pieces) or wetted down and immediately placed in a containment vessel and covered to contain all particles and fibres within the container during handling All excavated material must be removed from site within 48 hrs to a facility authorised to dispose of asbestos or ACM Signage and fencing must be in place surrounding the excavation area during excavation works, warning of the potential presence of asbestos 	As depicted in Figure 2 of Schedule 1
4.	BHS plant: Battery breaker	<ul style="list-style-type: none"> Must contain water sprays for the purpose of slurry generation and heat control. Entry to hammer mill must be fitted with plastic curtains Hammer mills must be located within an enclosed acoustic chamber. Hammer mill chamber must be connected to a covered extraction system, which is directed to a packed bed wet scrubber 	As depicted in Figure 3 of Schedule 1
5.	BHS plant: Primary hydro separation unit	<ul style="list-style-type: none"> Must act to separate different aspects of crushed ULABs utilising the sink/float method Must be connected to a covered extraction system, which is directed to a packed bed wet scrubber Must be capable of receiving liquids pumped out of the sump located in the middle of the secondary containment area 	As depicted in Figure 3 of Schedule 1
6.	BHS plant: Slurry tanks	<ul style="list-style-type: none"> Must receive and store fine lead slurry and spent electrolyte from the secondary hydro separation tank and deliver fine lead slurry and spent electrolyte to the lead paste filter press Must be connected to a covered extraction system, which is directed to a packed bed wet scrubber Must contain high-capacity level alarms 	As depicted in Figure 3 of Schedule 1
7.	BHS plant: Water recirculation tank X2	<ul style="list-style-type: none"> Each tank must have a storage capacity of at least 10 kL Each tank must contain high level alarms 	As depicted in Figure 2 of Schedule 1
8.	BHS plant: acid neutralisation tank X2	<ul style="list-style-type: none"> Each tank must have a storage capacity of at least 8 kL Each tank must receive and treat spent electrolyte solution with lime to produce gypsum Each tank must contain high level alarms 	As depicted in Figure 2 of Schedule 1

Infrastructure		Design and construction requirements	Infrastructure location
9.	Packed bed wet scrubber	<ul style="list-style-type: none"> • Must consist of an induced draft blower fan, scrubber pump and scrubber tank • Must collect discharges from the battery breaker, the primary hydro separation unit and the slurry tanks • Must discharge air into the air space immediately above the plant and equipment 	As depicted in Figure 2 of Schedule 1
10.	Laundry	<ul style="list-style-type: none"> • Wastewater from all washing machines and grey water from premises operations must be plumbed for disposal to the wastewater treatment system 	As depicted in Figure 2 of Schedule 1

Compliance reporting

2. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/ or installed:
 - (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.
3. The Environmental Compliance Report required by condition 2, must include as a minimum the following:
 - (a) certification by a Qualified, Competent Civil or Structural Engineer that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;
 - (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and
 - (c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Specified actions

4. The works approval holder must develop a Health and Hygiene Management Plan (HHMP) which must include as a minimum the following:
 - (a) The monitoring procedures and frequencies for lead and sulfuric acid concentrations for ongoing operations at the premises, along with an overview of staff roles and responsibilities and the frequency of staff training;
 - (b) Limits for lead and sulfuric acid concentrations determined in line with relevant Safe Work Australia Standard, and contingencies where measurements indicate imminent or increasing risks to the health or wellbeing of staff; and
 - (c) Procedural controls to minimise lead and sulfuric acid exposure to staff.
5. The works approval holder must develop a Fire Response Procedure (FRP) prepared by a suitably qualified fire management consultant that is consistent with Australian Standard AS 3745. The plan must include, but is not limited to:
 - (a) Notification procedures for fire and major spill incidents;

- (b) how fires will be prevented, detected, responded to, suppressed, contained and controlled for all approved activities addressing all waste types and stages of the waste handling, sorting and storage process;
- (c) in the event of a fire occurring within the approved activities, how impacts to the environment and human health will be mitigated;
- (d) how staff will be trained in fire and emergency response on an ongoing, annual basis;
- (e) details on the firefighting equipment and fire response capabilities and responsibilities;
- (f) how major spills will be responded to and contained for all approved activities addressing all potential waste types;
- (g) a premises maps depicting:
 - (i) fire hose reels, hydrants, sprinklers and isolation points;
 - (ii) electrical isolation points;
 - (iii) drainage infrastructure, including details on flow direction and off-site discharge locations (if applicable);
 - (iv) system shutdown points; and
 - (v) fire response crew entry points.
- (h) facility plans depicting:
 - (i) stockpile sizes; and
 - (ii) actual onsite separation distances.
- (i) future engineering solutions for the containment of contaminated runoff within the premises boundary resulting from possible firefighting activities within the warehouse; and
- (j) how the fire and emergency management requirements specified in Table 2 will be complied with.

Table 2: Fire and emergency management requirements

Management requirement		Fire and emergency management requirements
1.	Fire suppression system	The fire suppression system must have a minimum water supply and capacity that provides the maximum hydraulic demand for a minimum of four hours.
2.	Firewater containment	(a) Firewater that occurs at the premises must be effectively contained within the capacity of hardstand and low permeability infrastructure. (b) The containment capacity for firewater must be calculated with the fire hydrant flow rates prescribed in Australian Standard AS 2419.1 and cumulatively the discharge densities prescribed in Australian Standard AS 2118.1 where automatic sprinklers are used: <ul style="list-style-type: none"> (i) for all fully-enclosed structures; and (ii) individually for each outside hardstand and low permeability catchment area.

Management requirement		Fire and emergency management requirements
		<p>(c) The containment capacity for firewater, no less than the volumes calculated in Table 2, item 2(b), must be permanent or achieved automatically when the fire system is activated on the premises.</p> <p>(d) Where the storm water management system is part of the containment capacity for firewater, relevant drains and discharge points must automatically close when the fire system is activated on the premises.</p> <p>(e) Bunding must be available to prevent fire water from entering other drains and discharge points.</p> <p>(f) Contingency arrangements must exist for the removal of firewater in excess of the containment capacity, by a carrier licensed under the <i>Environmental Protection (Controlled Waste) Regulations 2004</i>, to ensure firewater does not discharge to the environment.</p>
3.	Spill management	<p>(a) Spill kits are to be provided, be stocked and maintained; and</p> <p>(b) Adequate spill management practices are to be conducted on an as needs basis.</p>
4.	ULAB and chemical storage infrastructure	In accordance with the requirements of the <i>Dangerous Goods Safety Act 2004</i> .
5.	Signage	<p>Signage maintained at the front of the premises that contains important information for first responders, including:</p> <p>(a) storm water drainage maps and identification of key drainage points and shut off valves; and</p> <p>(b) after hours details with the up-to-date names and phone numbers of contact people in case of emergency.</p>
6.	Public notification system	Contact arrangements for neighbours and a system for alerting them of any fires.

6. The works approval holder must within 7 days of the submission of the Environmental Compliance Report required by condition 2 of this works approval, submit the HHMP and the FRP to the CEO.

Environmental commissioning phase

Environmental commissioning requirements and emission limits

7. The works approval holder may only commence environmental commissioning of an item of infrastructure listed in condition 8:
- once the Environmental Compliance Report has been submitted for that item of infrastructure in accordance with condition 2 of this works approval; and
 - once the HHMP and the FRP have been submitted to the CEO in accordance with condition 6 of this works approval.

8. 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
BHS plant (all components)	<ul style="list-style-type: none"> • The vacuum doors to the warehouse must remain closed when the plant is operating. • The throughput of plant must not exceed 500 tonnes per month during the commissioning period • The plant must only operate between 7:00am and 9:00pm Monday – Friday • Spills of environmentally hazardous material must be cleaned up immediately • Wastewater collected within the controlled drainage system must be recirculated within the BHS plant • The battery breaker, primary hydro separator and lead slurry tanks must operate under negative pressure 	For a period not exceeding 120 calendar days in aggregate.
Packed wet bed scrubber	<ul style="list-style-type: none"> • The scrubber must be inspected weekly to ensure all components remain in good working order 	
Mobile equipment	<ul style="list-style-type: none"> • All equipment must be wiped down with a damp cloth prior passing through the vacuum doors on exiting the warehouse area • Used wipes or cloths must be deposited in a designated IBC for removal from the premises 	
Laundry	<ul style="list-style-type: none"> • Washing machine filters must be maintained in accordance with the manufacturers specifications and must be free of leaks or defects • Plumbing is maintained to be free of leaks and defects and to ensure all waste water from all washing machines is directed for disposal to the wastewater treatment system 	

9. The works approval holder must ensure that all bulka bags containing processed material are wiped down with a damp cloth prior to removal from the premises, with used wipes or cloths deposited in designated IBC for removal from the premises to a premises authorised to accept lead contaminated wastes.

Monitoring during environmental commissioning

10. The works approval holder must undertake the monitoring specified in Table 4 during environmental commissioning.

Table 4: Monitoring of inputs and outputs during Environmental Commissioning

Inputs/Outputs	Parameter	Units	Averaging period	Frequency
ULABs ¹	Volume	Tonnes	Per load	Each load entering the premises
Lead paste	Volume	Tonnes	Per load	Each load leaving the premises
Gypsum	Volume	Tonnes	Per load	
Any other waste and/or product outputs from the premises ²	Volume	Tonnes	Per load	

Note 1: ULABs accepted to the premises must be packaged in accordance with the Australian Dangerous Goods Code 7.5 Packaging Instruction P801.

Note 2: Excluding discharges to the sewer system that are in accordance with the Trade Waste Permit.

11. The works approval holder must monitor the air during environmental commissioning for concentrations of the identified parameters in accordance with Table 5.

Table 5: Monitoring of ambient concentrations during environmental commissioning

Monitoring location	Parameter	Unit	Frequency	Minimum sampling period	Method
Battery breaker	Negative pressure ¹	N/m ² psi mm/Hg	Hourly	N/A	N/A
Primary hydro separator					
Lead slurry tanks 1 and 2					
Wet scrubber exit duct	Temperature	°C	1 test	N/A	USEPA Method 2 (NATA accredited)
	Volumetric flow	m ³	Continuous	N/A	
	Sulfuric acid (H ₂ SO ₄)	mg/m ³	2 tests	60 minutes	Modified USEPA Method 6
Two hot spot static locations, being within a 5m radius of the battery breaker and the de-neutralisation tank	Elemental lead and lead compounds (Pb)	mg/m ³	2 tests undertaken at each hot spot location	8hr duration undertaken at an area of known flow rate between 1 and 4L/min	NIOSH 7105
	Sulfuric acid (H ₂ SO ₄)	mg/m ³	2 tests undertaken at each hot spot location	240 minutes	NIOSH 6004
Two employees (personal exposure)	Sulfuric acid (H ₂ SO ₄)	mg/m ³	2 tests	240 minutes	NIOSH 6004

Note 1: In-field non-NATA accredited analysis permitted.

- 12.** The works approval holder must record the results of all monitoring activity required by condition 11.

Compliance reporting

- 13.** The works approval holder must submit to the CEO an interim Environmental Commissioning Report after the completion of the first 28 calendar days of the commissioning period. The Environmental Commissioning Report must be submitted within 30 calendar days after the completion of the interim commissioning period.
- 14.** The works approval holder must ensure the interim Environmental Commissioning Report required by condition 13 of this works approval includes the following:
- a summary of the environmental commissioning activities undertaken, including timeframes and amount of ULABs processed;
 - the ambient monitoring results recorded in accordance with conditions 11 and 12;

- (c) a record of inputs and outputs to the premises in accordance with condition 10.
- (d) a summary of the environmental performance of each item of infrastructure or equipment as constructed, which at minimum includes records detailing the:
 - (i) commissioning of the BHS Plant; and
 - (ii) inspection records for the packed wet bed scrubber;
- (e) a review of the works approval holder's performance and compliance against the conditions of this works approval; and
- (f) 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.

Records and reporting

General

- 15.** 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.
- 16.** 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;
 - (b) any maintenance of infrastructure that is performed in the course of complying with condition 1;
 - (c) monitoring programmes undertaken in accordance with conditions 10 and 11; and
 - (d) complaints received under condition 15.
- 17.** The books specified under condition 16 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.

Final Commissioning Reporting

- 18.** 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 item of infrastructure specified in Table 3.

- 19.** The works approval holder must ensure the Environmental Commissioning Reports required by condition 18 of this works approval includes the following:
- (a) a summary of the environmental commissioning activities undertaken, including timeframes and amount of ULABs processed;
 - (b) the ambient monitoring results recorded in accordance with conditions 11 and 12;
 - (c) a record of inputs and outputs to the premises in accordance with condition 10.
 - (d) a summary of the environmental performance of each item of infrastructure or equipment as constructed, which at minimum includes records detailing the:
 - (i) commissioning of the BHS Plant; and
 - (ii) inspection records for the packed wet bed scrubber;
 - (e) a review of the works approval holder's performance and compliance against the conditions of this works approval; and
 - (f) 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.

Definitions

In this works approval, the terms in Table 6 have the meanings defined.

Table 6: Definitions

Term	Definition
annual period	a 12 month period commencing from 1 January until 31 December.
BHS plant	means the battery-breaking and hydro separation plant
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 <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> 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	<i>Environmental Protection Act 1986 (WA)</i> .
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i> .

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.
Qualified, competent civil or structural engineer	<p>means a person who:</p> <ul style="list-style-type: none"> a) holds a Bachelor's degree recognised by Engineers Australia; and b) has a minimum of five years of experience working in a supervisory role in civil or structural engineering; and c) is employed by an independent third party external to the Works Approval Holder's business; <p>or is otherwise approved in writing by the CEO to act in this capacity.</p>
waste	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 premises

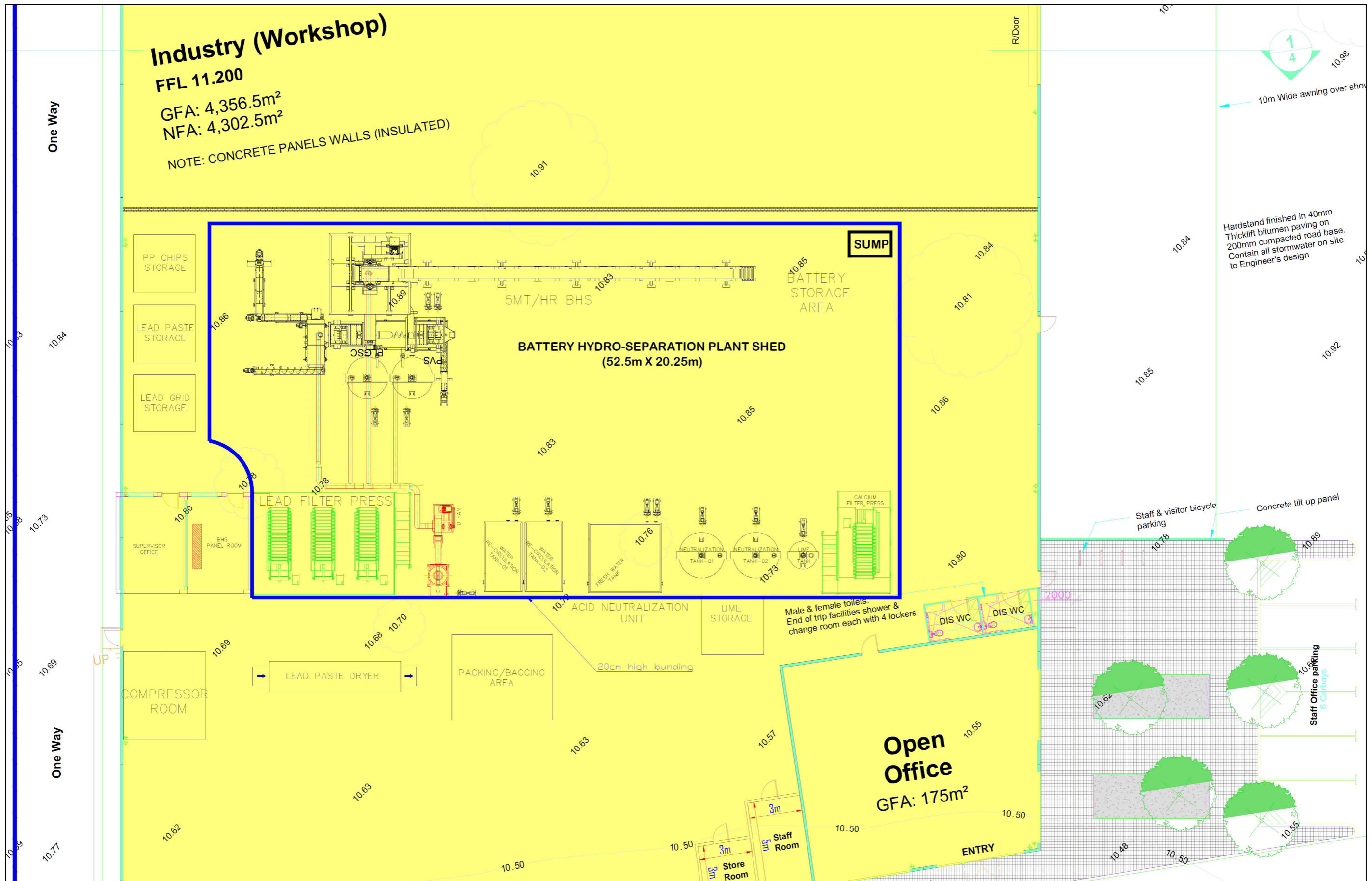


Figure 2: Premises layout – bunding is indicated by the blue line

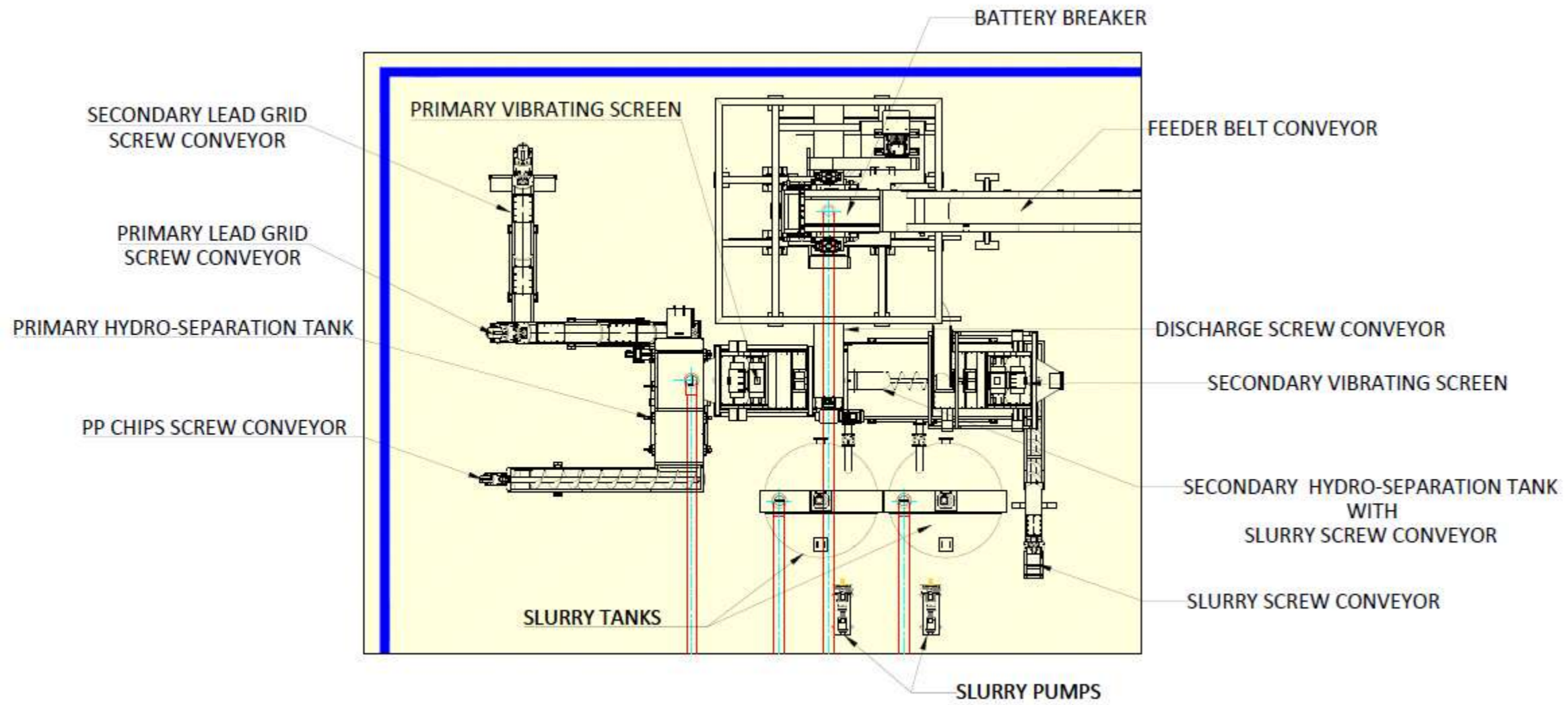


Figure 3: Battery Hydro-Separation Plant layout

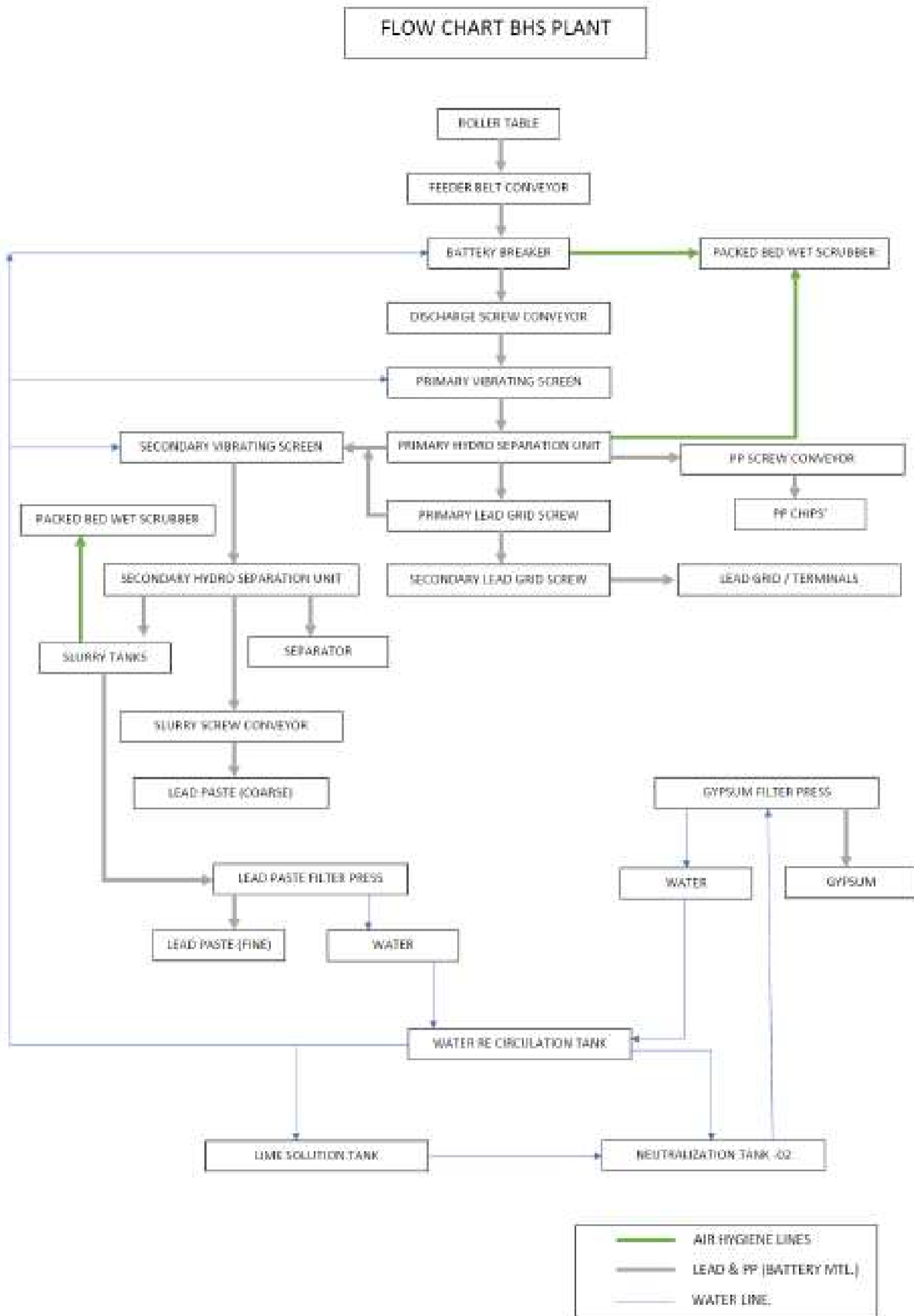


Figure 4: BHS ULAB recycling process and flow diagram.