Government of Western Australia
Department of Water and Environmental Regulation

Amended Works Approval

Works approval number	W6349/2020/1
Works approval holder	Puma Energy (Australia) Bitumen Pty Ltd
ACN	147 981 020
Registered business address	C/- Boardroom Pty Ltd Level 12 Grosvenor Place 225 George Street SYDNEY NSW 2000
DWER file number	DER2020/000002
Duration	03/07/2020 to 02/07/2025
Date of issue	03/07/2020
Date of last amendment	14/03/2022
Premises details	Puma Energy Kwinana 49 Port Road KWINANA BEACH WA 6167 Legal description – Part of Lot 108 on Plan 400167 As defined by the coordinates in Schedule 1

Prescribed premises category description (Schedule 1, Environmental Protection Regulations 1987)	Assessed production / design capacity
Category 36: Bitumen manufacturing: premises on which bitumen is mixed or prepared for use at places or premises other than those premises.	116,000 tonnes per annual period

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

Daniel Hartnup

Digitally signed by Daniel Hartnup
Date: 2022.03.14 13:53:54 +08'00'

Daniel Hartnup
A/MANAGER, PROCESS INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Ref number	Summary of changes
03/07/2021	W6349/2020/1	Works approval granted.
21/10/2021	W6349/2020/1	CEO initiated amendment to extend the works approval expiry date (to five years) and time limited operations (to ten months).
14/03/2022	W6349/2020/1	CEO initiated amendment to extend the works approval time limited operations (to 18 months) (this amendment).

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 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 1.

Table 1: Design and construction/ installation requirements

Infrastructure - Stage 1		Design and construction / installation requirements	Infrastructure location
1.	One CRMB mixing unit	One 25 tonne trailer mounted CRMB mixing unit with a vent connecting the unit to the vapour treatment system. Located within the mixing unit secondary containment slab.	Map 2: Location and layout of new infrastructure and emission discharge points

Infrastructure - Stage 1		Design and construction / installation requirements	Infrastructure location
2.	One PMB mixing unit	One 25 tonne trailer mounted mixing unit with a vent connecting the unit to the vapour treatment system. Located within the mixing unit secondary containment slab.	
3.	Two activated carbon scrubber units (vapour treatment system)	Each activated carbon scrubber unit shall comprise: • a knockout pot for removal of moisture in the vapour flow stream; • a stainless steel treatment chamber containing activated carbon filter beds designed to remove 95% of VOCs; • an extraction fan; and • a 4 m high stack fitted with a sampling port which complies with AS 4323.1. Each activated carbon scrubber unit shall be located within a minimum 9m^2 concrete slab which is constructed to drain to a centre collection sump. The concrete slabs shall have a containment capacity which complies with AS 1940.	
4.	Additive storage tank and unloading bay	One 70kL self bunded additive storage tank located adjacent to a concrete unloading bay. The concrete unloading bay shall be a minimum of 25m^2 and constructed to drain to a centre collection sump. The unloading bay collection sump will be connected to the OWS via an underground pipeline and valve for the transfer of potentially contaminated water. The concrete unloading bay shall have a containment capacity which complies with AS 1940.	
5.	Mixing unit secondary containment slab	A minimum 210m^2 kerbed concrete slab to provide secondary containment for the CRMB and PMB mixing units. The secondary containment slab shall be constructed with a minimum 100mm high kerb around the perimeter to achieve a containment capacity which complies with AS 1940. The secondary containment slab shall be constructed with a concrete collection sump and suitable drains and/or gradient to drain water to the collection sump. The secondary containment slab collection sump will be connected to the OWS via an underground pipeline and valve for the transfer of potentially contaminated water.	Map 2: Location and layout of new infrastructure and emission discharge points
6.	Existing hot bitumen storage tanks TK-103 and TK-104	A stirrer shall be installed in each tank.	Map 3: Discharge point locations and OWS

Infrastructure - Stage 1		Design and construction / installation requirements	Infrastructure location
Infrastructure -Stage 2		**Design and construction / installation requirements**	**Infrastructure location**
7.	Existing hot bitumen storage tank bund extension	Extension of the hot bitumen tank bunded area by a minimum 80 m^2 concrete bunded area. The bund extension shall be constructed with a minimum 650mm high wall around the perimeter to achieve a containment capacity which complies with AS 1940. The bund extension shall be constructed with a concrete collection sump and suitable drains and/or gradient to drain water to the collection sump. The bund extension collection sump will be connected to the OWS via an underground pipeline and valve for the transfer of potentially contaminated water.	Map 2: Location and layout of new infrastructure and emission discharge points
8.	Two bitumen (CRMB and PMB) storage tanks TK-301 and TK-302	The tanks will have a design capacity of 100 tonnes. The tanks shall be located within the hot bitumen tank bund extension. A stirrer shall be installed in each tank. The tanks will have vents which are connected to the vapour treatment system for the transfer of vapours.	
9.	Existing hot bitumen storage tanks TK-105 and TK-106	A stirrer shall be installed in each tank.	Map 3: Discharge point locations and OWS
10.	Two bitumen pumps and associated pipework	The pumps shall be located within a minimum 25m^2 concrete secondary containment slab which drains to a centre collection sump. The secondary containment slab collection sump will be connected to the OWS via an underground pipeline and valve for the transfer of potentially contaminated water. The secondary containment slab shall have a containment capacity which complies with AS 1940.	Map 2: Location and layout of new infrastructure and emission discharge points

Compliance reporting

2. The works approval holder must within 30 calendar days of an item or all 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 professional 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.

Time limited operations phase

Commencement and duration

4. The Works Approval Holder may only commence time limited operations for an item of infrastructure identified in condition 1 where the Environmental Compliance Report as required by condition 2 has been submitted by the Works Approval Holder for that item of infrastructure.

5. The Works Approval Holder may only commence time limited operations for an item of infrastructure as identified in condition 1:

(a) for a period not exceeding 18 months from the day the Works Approval Holder submits the Environmental Compliance Report required by condition 2 for that item of infrastructure; or
(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*.

whichever is sooner.

Time limited operation - infrastructure

6. During time limited operations the works approval holder must ensure that the premises infrastructure listed in Table 2 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirements set out in Table 2.

Table 2: Infrastructure and equipment requirements during time limited operations

Premises infrastructure and equipment	Operational requirements	Infrastructure location
CRMB and PMB mixing units	Vapours from the CRMB and PMB mixing units vents must be transferred to the activated carbon scrubber systems for treatment. The units shall be located within a concrete secondary containment slab which is maintained so that spills and stormwater within the slab are removed or transferred to the OWS for treatment.	Map 2: Location and layout of new infrastructure and emission discharge points
Hot bitumen storage tanks	The tanks shall have an operational overflow alarm. The tanks shall be located within a concrete bunded area which is maintained so that spills and stormwater from the bunded area are removed or transferred to the OWS for treatment.	
CRMB and PMB storage tanks	Vapours from the storage tank vents must be transferred to the activated carbon scrubber systems for treatment. The tanks shall have an operational overflow alarm. The tanks shall be located within a concrete bunded area which is maintained so that spills and stormwater from the bunded area are removed or transferred to the OWS for treatment.	

Premises infrastructure and equipment	Operational requirements	Infrastructure location
Activated carbon scrubber units	If increased odour emissions are observed near the activated carbon scrubber systems they shall be recorded and reported daily in the Premises internal log book. Pressure drop across the carbon bed will be monitored. Carbon beds shall be inspected at each monitoring event undertaken in accordance with condition 0 and a record of inspection shall be kept. Condensate shall be drained from the knockout pots on a daily basis when the scrubber unit is operational.	
Spelceptor 40m^3/hr Oily Water System (OWS)	The OWS shall be inspected on a quarterly basis to check for the presence of retained hydrocarbons, silt and sediments and a record of inspection shall be kept.	Map 3: Discharge point locations and OWS
Hot oil heater, bitumen transfer pumps and heat exchanger	Shall be housed within a shed with a concrete floor. Spills and stormwater within the shed shall drain to a sump or be removed.	Map 1 – Premises boundary
Bitumen truck loading and unloading facility	Bitumen loading and unloading shall be undertaken within a roofed facility with a concrete floor and a vent for discharge of vapours. Spills and stormwater within the facility shall drain to a blind sump or be removed.	
Raw material storage shed	Crumb rubber and polymer will be stored within bags within the raw material storage shed.	

Time limited operations – monitoring and limits

7. During time limited operations, the Works Approval Holder must ensure that the emissions specified in Table 3, are discharged only from the corresponding emission discharge points and only at the corresponding discharge point locations.

Table 3: Authorised discharge points

Emissions	Discharge point	Discharge point height (mAGL)	Discharge location
VOCs H_2S PAHs Particulates	CR mixer vapour treatment (L1)	4	Map 4: Authorised discharge point coordinates and stack IDs
	PMB mixer vapour treatment (L2)	4	
	Oil heater stack	10	
	Truck loading facility vent	8	
VOCs H_2S PAHs	TK-103 to TK106 - existing hot bitumen storage tank vents	20	
Water which has been treated via the OWS	L3 – OWS discharge point to infiltration trench	NA	Map 4: Authorised discharge point coordinates and stack IDs

8. The Works Approval Holder must monitor discharges to air during time limited operations in accordance with the requirements in Table 4.

Table 4: Monitoring of discharges to air during time limited operations

Monitoring and discharge point	Parameter	Units	Sampling method	Frequency	Map Reference
L1 L2	Stack flow rate	m^3 /min	USEPA Method 2	A minimum of twice during time limited operations: Once within eight weeks of commencing time limited operations and Once within six months of commencing time limited operations	Map 2: Location and layout of new infrastructure and emission discharge points
	Stack velocity	m/sec	USEPA Method 2		
	Total VOCs PAHs	g/s and mg/m^3	USEPA Method 18		
	Particulates (PM)	g/s and mg/m^3	USEPA Method 5 or 17		
	H_2S	mg/m^3	USEPA Method 11		

9. The Works Approval Holder must ensure that sampling required under condition 8 of this works approval is undertaken at a sampling location in compliance with the AS 4323.1.

10. The Works Approval Holder must ensure that all non-continuous sampling and analysis undertaken pursuant to condition 8 is undertaken by a holder of a current accreditation from the National Association of Testing Authorities (NATA) for the methods of sampling and analysis relevant to the corresponding relevant parameter.

11. During time limited operations, the Works Approval Holder must ensure that the emissions from the discharge point listed in Table 5 do not exceed the corresponding limit (s) when monitored in accordance with condition 12.

Table 5: Emission and discharge limits during time limited operations

Discharge point	Parameter	Limit (including units)	Discharge point location
L3	pH	5 – 10 pH units	Map 3: Discharge point locations and OWS
	TRH	10 mg/L	

12. The Works Approval Holder must monitor discharges to land in accordance with the requirements specified in Table 6.

Table 6: Monitoring of discharges to land

Discharge point and monitoring location	Parameter	Units	Frequency	Sampling	Analysis
L3	pH	pH units	Monthly, for each month where a discharge to the infiltration trench occurs during the month	Spot sample in accordance with AS/NZS 5667.1 and AS/NZS 5667.10	NATA accredited for the parameters specified
	TRH	mg/L			

Time limited operations – reporting

13. The Works Approval Holder must submit to the CEO a report on time limited operations within 30 calendar days of the completion date of time limited operations or 30 days before the expiration date of the works approval, whichever is sooner.

14. The Works Approval Holder must ensure the report required by condition 13 includes the following:

    (a) the monitoring results obtained during time limited operations under condition 8 and condition 12; and
    (b) any complaint received and recorded by the Works Approval Holder in accordance with condition 15 .

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 6;
    (c) monitoring programmes undertaken in accordance with conditions 8 and 10; 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.

Definitions

In this works approval, the terms in Table 7 have the meanings defined.

Table 7: Definitions

Term	Definition
AS 4323.1	Australian Standard: *Stationary source emissions - Method 1: Selection of sampling positions*
AS/NZS 5667.1	*Water quality—Sampling Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples*
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
CRMB	means crumbed rubber mix bitumen
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
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)
H_2S	Hydrogen sulfide
kL	Means kilolitres
m^2	means metres squared
OWS	Spelceptor oily water separator
PAHs	Poly aromatic hydrocarbons
PMB	means polymer mix bitumen
Premises	the Premises to which this Works Approval applies, as specified at the front of this licence and as shown on the Premises map in Schedule 1: Maps to this works approval
Qualified professional engineer	means a person who: (a) holds a tertiary academic qualification specialising in geotechnical or civil engineering; and (b) has a minimum of 3 years of experience working in the area of geotechnical or civil engineering; or is otherwise approved by the CEO to act in this capacity
time limited operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant conditions
TRH	Total recoverable hydrocarbons
USEPA	means the United States Environmental Protection Agency

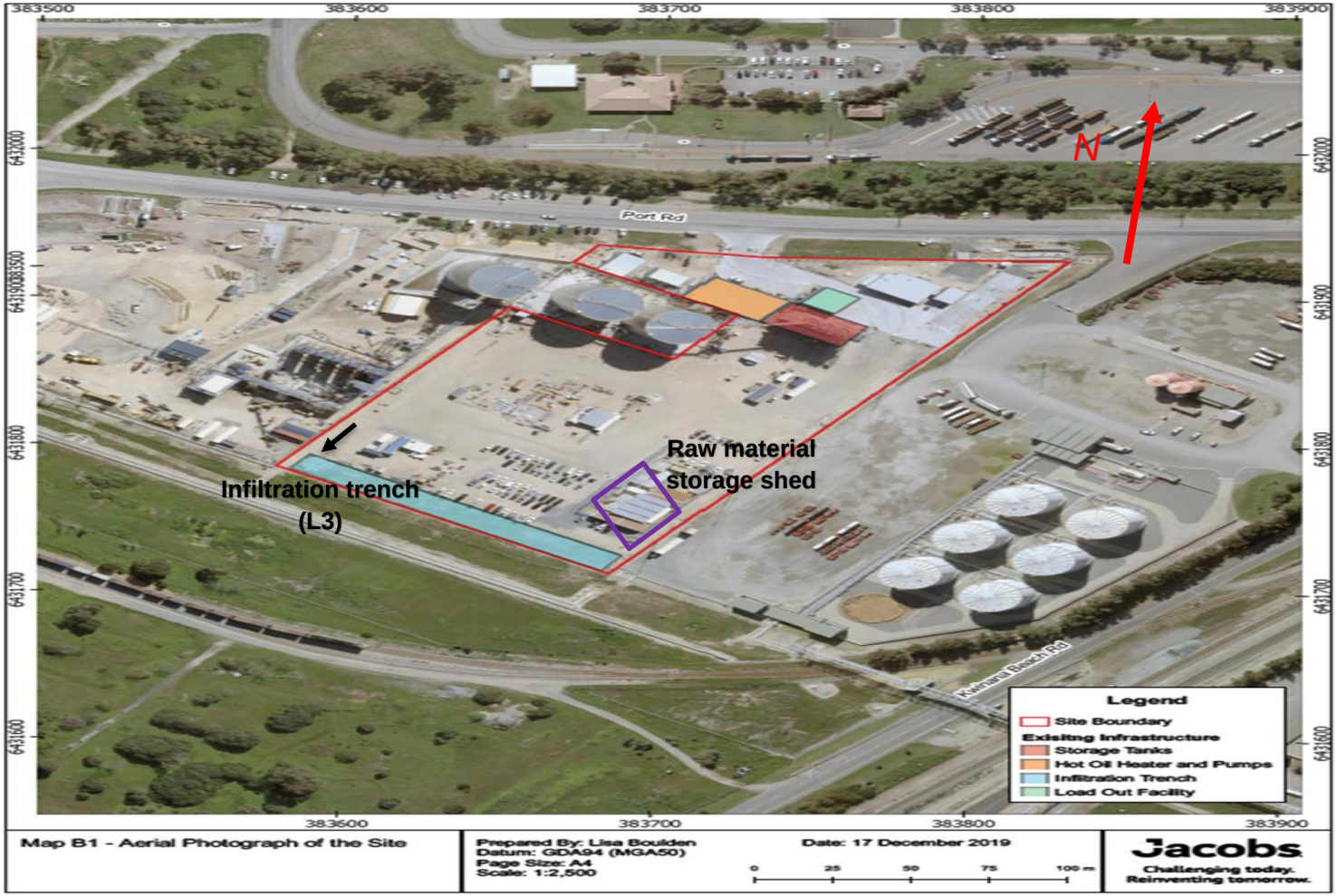
Term	Definition
VOCs	Volatile organic compounds
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval

END OF CONDITIONS

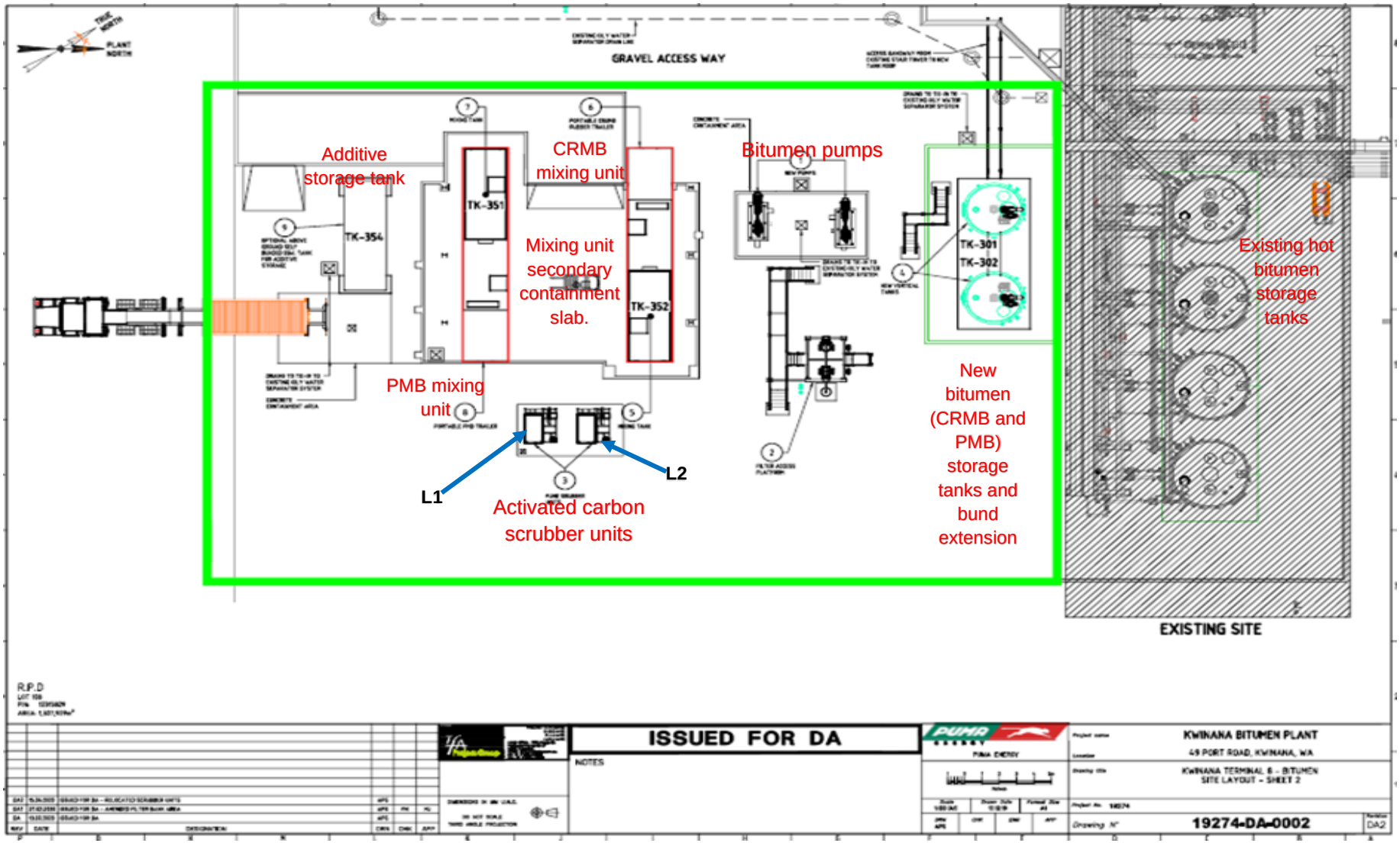
Schedule 1: Maps

Map 1 – Premises boundary

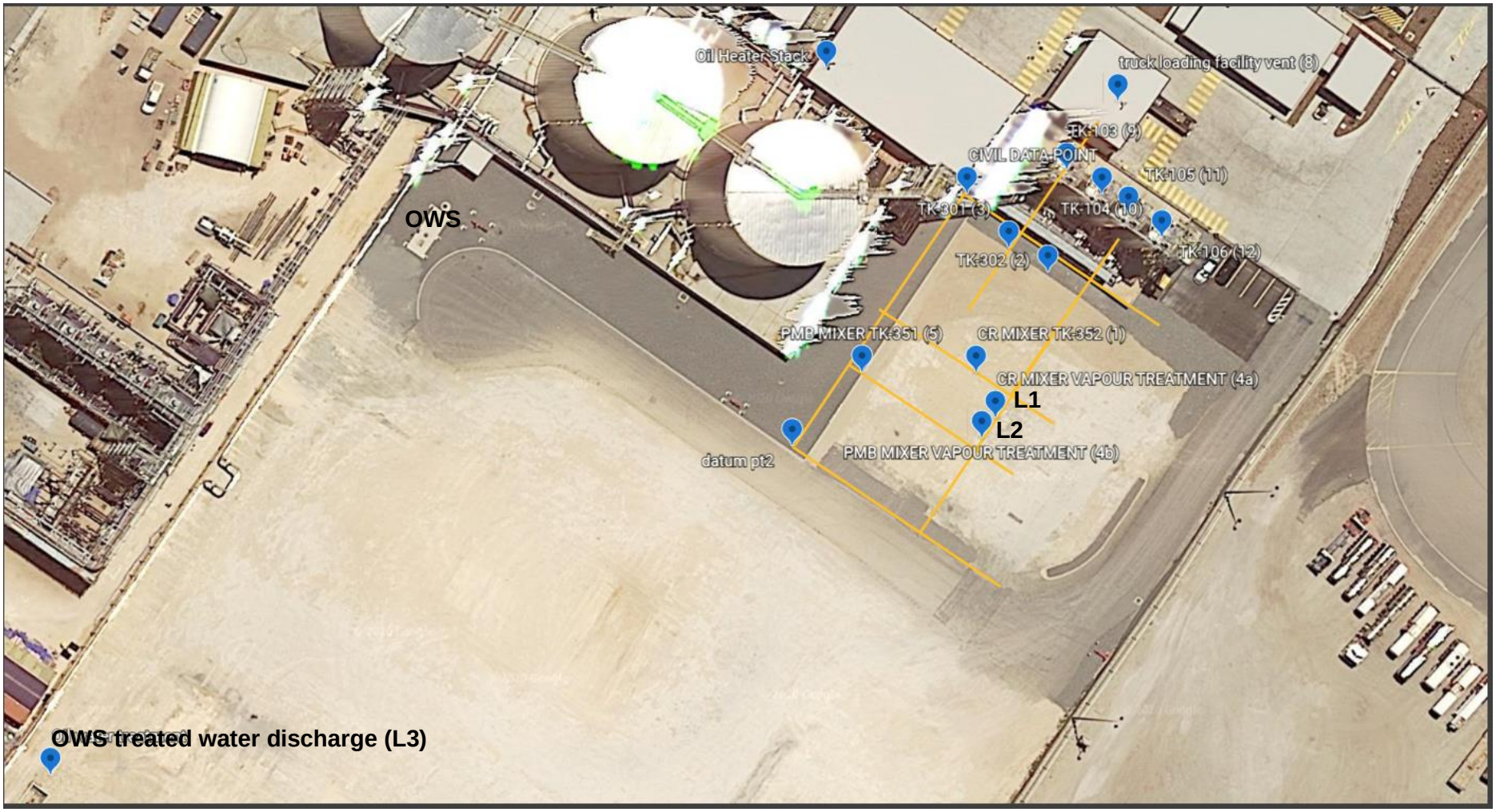
The boundary of the prescribed premises is shown in red in the map below.



Map 2: Location and layout of new infrastructure and emission discharge points



Map 3: Discharge point locations and OWS



Map 4: Authorised discharge point coordinates and stack IDs

STACK / VENT ID	EMISSION POINT	RELEASE HEIGHT (m)	Approx Latitude	Approx Northing	Approx Longitude	Approx Easting
4A	CR MIXER VAPOUR TREATMENT **(L1)**	4	-32.2439832	383732.55	115.7658372	6431851.96
4B	PMB MIXER VAPOUR TREATMENT **(L2)**	4	-32.2439617	383733.94	115.7658516	6431854.3
6	OWS TREATED WATER DISCHARGE **(L3)**	N / A	-32.244074	NA	115.765765	NA
7	OIL HEATER STACK	10	-32.2436638	383756.74	115.766098	6431887.61
8	TRUCK LOADING FACILITY VENT	8	-32.2441265	383757.33	115.765986	6431836.28
9	TK-103	20	-32.2437169	383757.94	115.7661103	6431881.74
10	TK-104	20	-32.2436244	383757.72	115.7661094	6431892.05
11	1K-105	20	-32.2436853	383760.44	115.7661372	6431885.32
12	TK-106	20	-32.24379	383754.64	115.7660744	6431873.17