

EMS0006

Surface Water Management Plan

Porta Products

124 Lowes Mount Road, Oberon NSW

Porta Products Pty Ltd

14 August 2025

This document should be read in conjunction with EMS0060 Construction Environment Management Plan and EMS0001 Operational Environment Management Plan

Revision History

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					Name	Signature
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1 Introduction

1.1 Background

This Management Plan has been prepared for the Porta Products Pty Ltd (Formally Borg Manufacturing, Borg Panels, Australian Panels) Oberon site (and will be referred to herein as the '**Development**').

The development operates as an existing Medium Density Fibre (MDF) and particleboard production facility in Oberon, NSW, manufacturing a range of Customwood MDF products and particleboard products including:

- Standard MDF;
- Moisture Resistant MDF;
- E0 (Low Formaldehyde Emitting) MDF;
- Ultraprime MDF Mouldings;
- Standard particleboard;
- Moisture resistance particleboard;
- Particleboard flooring products for structural applications;
- Decorative Laminated MDF and particleboard; and
- Treated paper for the lamination of MDF and particleboard.

On 29 May 2017 Development Consent SSD 7016 was granted by the Minister for Planning to construct a Particle Board manufacturing facility, modify the existing MDF manufacturing facility and undertake general site works (the Project) at the existing facility located on 124 Lowes Mount Road, Oberon.

Conditions contained within the Consent require Australian Panels to provide for the ongoing environmental management of the Development. Though initially developed to satisfy conditions B32, C4 and C9, this Surface Water Management Plan (SWMP) has been updated to include for condition B33. Additionally, this SWMP will be reviewed and updated as per SSD 7016 condition C10.

1.2 Purpose and Objectives

The purpose of this SWMP is to:

- Consolidate and address the relevant conditions of Development Consent SSD 7016 and Environment Protection Licence (EPL) 3035 to manage surface water at the Development.

The objectives of the SWMP are to:

- Define the strategies and procedures to be implemented to ensure that the Development does not result in unacceptable off-site impacts on surface water systems and downstream users;
- Define a program to monitor and report on the impacts and environmental performance of the Development, and the effectiveness of any management measures; and
- Define a protocol for managing and reporting any incidents, complaints, non-compliances with statutory requirements, and exceedances of the impact assessment criteria and/or performance criteria.

1.3 Structure of this Surface Water Management Plan

This SWMP has been developed to manage site surface water at the Development and to satisfy the requirements set out in Development Consent SSD 7016, and includes information on the following:

- Section 2 – Legislative and Regulatory Compliance
- Section 3 – Site Water Management
- Section 4 – Stormwater Management
- Section 5 – Erosion and Sediment Control
- Section 6 – Surface Water Monitoring Program
- Section 7 – Surface Water Impact Assessment Criteria
- Section 8 – Reporting
- Section 9 – SWMP Review

1.4 Consultation

In accordance with condition C4 the SWMP (dated 28 November 2017) was provided to NSW EPA for review and consultation and submitted to the Secretary of the Department of Planning and Environment for approval on 29 November 2017. The Department were satisfied that the SWMP met with the terms of the relevant conditions of consent and issued approval on 21 December 2017.

As required under condition B33, the SWMP was re-submitted to NSW EPA, DILW and DPIE on 11 December 2020.

As per condition C10, subsequent revised versions of the SWMP will be submitted to the Secretary for approval.

1.5 Training

Training and Assessment Manual EMS0017 Environmental Standard Awareness Water was developed for the site. This training will continue to be delivered to all Supervisors and Operators on site. The Manual outlines employees' responsibilities to assist with managing potential pollution to the surface water and groundwater systems across the Development. The Training and Assessment Manual will be reviewed as necessary where site conditions change to ensure it accurately reflects site operations and training requirements.

2 Legislative and Regulatory Compliance

2.1 Relevant Legislation

Key environmental legislation relating to surface water management for the site includes:

- *Protection of the Environment Operations Act 1997*; and
- *Environmental Planning and Assessment Act 1979*.

2.2 Conditions of Consent

The Development operations are subject to the conditions contained in Development Consent SSD 7016 and the following modifications:

- MOD 1 – extension of mouldings warehouse, reorientation of materials handling building, layout change to particleboard chipper/debarker building, extension of northern noise bund, reconfiguration of elements of the surface water management system, reclamation of the Spring Dam* (approved 20 November 2018)

*MOD 1 condition B33A requires preparation of a Spring Fed Dam Reclamation Management Plan therefore details are not included in this SWMP.

- MOD 2 – installation of an electricity generation gas turbine and ancillary equipment (approved 29 November 2019)
- MOD 3 – additional materials handling equipment, extension to northern warehouse, changes to the site surface water system and construction of further hardstand
- MOD 4 – Additions and alterations to the existing timber processing facility including reclamation of the remaining spring fed dam, relocation and expansion of the existing mechanic's workshop and improvements to the site's water treatment plant (approved 20 August 2022)
- MOD 5 – Minor update to the approved mechanical workshop including additional workshop bays, additional first floor storage and minor updates to the office plus removal of the refuelling system and automated truck washing machine. The proposed development will also result in the increase in length of the stormwater management system to cover an additional 11m length of the mechanics workshop building. (approved 23 April 2024)

As noted above MOD 1 required a Spring Fed Dam Reclamation Management Plan which was developed in accordance with condition B33A. This (part) reclamation work was complete in 2021. No conditions were imposed by the Minister for MOD 2, MOD 3 or MOD 5. SSD 7016 Consent Modification 4 included new condition B33B specifying an update to the Spring Fed Dam Reclamation Management Plan required under condition B33A to incorporate the reclamation of the remainder of the spring fed dam.

The specific requirements for a SWMP (Schedule 2, Condition B32 and B33) and general requirements for environmental management plans (Schedule 2, Condition C9) are detailed in Table 1.

Table 1 Development Consent Conditions

No.	Requirement	Document Reference
	SOILS, WATER QUALITY AND HYDROLOGY	
	Surface Water Management Plan	
B32	Within 6 months of the date of this consent, the Applicant must prepare a Surface Water Management Plan (SWMP) for the Existing Development, that incorporates the <i>Oberon Stormwater Management Strategy</i> , Rev G, prepared by Parsons Brinckerhoff, dated March 2012, to the satisfaction of the Secretary. The SWMP must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C9. The SWMP must:	This Plan
	a) be prepared in consultation with the EPA and DPI;	Section 1.4
	b) detail water use, metering, disposal and management on-site;	Section 3
	c) detail the water licence requirements for the Existing Development;	Section 2
	d) describe the surface water management system on-site;	Section 4

No.	Requirement	Document Reference
	e) include a program to monitor: (i) surface water flows and quality; (ii) surface water storage and use; and (iii) sediment basin operation;	Section 6 Section 4 Section 5
	f) include a sediment and erosion control plan;	Section 5
	g) include surface water impact assessment criteria, including trigger levels for investigating and potential adverse surface water impacts; and	Section 7
	h) include a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria.	Section 7
B33	Prior to commencement of operation of the Project, the Applicant must update the SWMP required under Condition B32 to incorporate the Project and its management to the satisfaction of the Secretary. The updated plan must be prepared in accordance with the requirements of Condition B32, and must incorporate the following:	This Plan
	a) details of the proposed mitigation measures outlined in Section 6.0 of Proposed Particle Board Facility Water Cycle Impact Assessment, prepared by the Sustainability Workshop and dated May 2016, in particular, the final design specifications of the additional stormwater treatment and storage pond and emergency spill basin;	Section 2.3 Section 4
	b) details of the stormwater harvesting and reuse scheme; and	Section 2.7 Section 3.2
	c) outline the surface water monitoring program to measure the performance of the Development against this consent and the EPL.	Section 4, 5 and 6
	MANAGEMENT PLAN REQUIREMENTS	
C9	The Applicant must ensure that the environmental management plans required under Condition C4 of this consent are prepared by a suitably qualified person or persons in accordance with best practice and include:	
	a) detailed baseline data;	Section 6
	b) a description of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures/criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures;	Section 2 Section 6 Section 6
	c) a description of the management measures that would be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;	Sections 3, 4 and 5

No.	Requirement	Document Reference
	d) a program to monitor and report on the: (i) impacts and environmental performance of the Development; and (ii) effectiveness of any management measures (see (c) above);	Section 8
	e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 7
	f) a program to investigate and implement ways to improve the environmental performance of the Development over time;	Section 7
	g) a protocol for managing and reporting any: (i) incidents; (ii) complaints; (iii) non-compliances with statutory requirements; and (iv) exceedances of the impact assessment criteria and/or performance criteria; and	Section 8
	h) a protocol for periodic review of the plan.	Section 9

2.3 Development Consent SSD 7016 Mitigation Measures

Appendix B Applicant's Management and Mitigation Measures to Development Consent SSD 7016 details the reasonable and practical measures to avoid or minimise impacts to the environment that may arise as a result of the Project. The following management and mitigation measures listed below were identified by the Sustainability Workshop in the Proposed Particle Board Facility Water Cycle Impact Assessment (May 2016):

- A new swale with a longer flow path to convey the CHH [Structaflor] runoff around the site and into a new catchment pond has been constructed. This provides for the additional reduction of TSS and remove tannins. The swale has been grassed and vegetated using spray seed to stabilise the banks.
- New swales were constructed to connect overflows from the pond to the existing creek line in accordance with any Controlled Activity guidelines/permits and conditions of consent.
- Construction of a new stormwater first flush basin with a maximum volume of 13ML. This is located downstream of the existing pond and accepts runoff for the whole of the subject site, including any overflows from the existing stormwater treatment pond.
- The 13ML water quality dam was constructed approximately 40m from the top of bank of the nearest watercourse.
- Stormwater harvesting is undertaken as part of the development. The demand for stormwater from both basins is estimated to be approximately 300m³/day with an estimated operational time of 300 days per year. The predicted yield for harvesting is estimated at up to 100ML/year.

The Project is currently operating under modification 4 (MOD 4), approval date 20 May 2022. The mitigation and management measures suggested by Sustainability Workshop in May 2016 may not all be relevant to the current site surface water management system due to modifications to the building infrastructure requiring necessary modifications to the site surface

water management system. These modifications are discussed further below sections of this SWMP.

2.4 Environment Protection Licence

Environment Protection Licence 3035 (EPL 3035) specifies discharge to waters points, water discharge concentration limits and monitoring requirements for operation at the facility.

2.5 Water Licences

The Development holds a Water Access Licence for use of groundwater in operations. Current licence details issued under the *Water Management Act 2000* are summarised in Table 2.

Table 2 Water Licences

Approval Details	Approval Number	Validity of Licence	Approval Kind	Extraction Limit
WAL28951	80WA715797	16 January 2012 – 01 March 2026	Water Extraction	28 Units

2.6 Trade Waste Licence

The Development was not offered a renewal on the Trade Waste Service Contract with Oberon Council. Further DPI Water did not provide concurrence due to the category of discharge. As such, liquid trade waste is now treated on site via the water treatment plant and does not discharge to the sewerage system.

2.7 Stormwater Harvesting

Only polluted runoff from operational areas and roof runoff is harvested for reuse. This runoff is directed via open swales and underground pipe network to the existing stormwater flush basin and to the newly constructed stormwater flush basin. The site is yet to fully realise those volumes estimated for harvesting by the Sustainability Workshop in the *Proposed Particle Board Facility Water Cycle Impact Assessment (May 2016)*.

See Figure 3 for schematic of the site stormwater/surface water management system and section 3.2 for site stormwater consumption.

No runoff from the undeveloped rural land to the west of Lowes Mount Road is harvested. This unpolluted runoff is separated from the polluted industrial runoff into its own swale.

Given that clean/unpolluted runoff is not harvested, there is no need to calculate or exercise any harvestable rights as the only water harvested is from industrial land uses.

3 Site Water Management

3.1 Overview

The following production processes use water for manufacturing:

- **Chip Wash** – Chip is washed via a water washing system, which is used to remove the contaminants (foreign particles and minerals) from the chip. This process promotes longevity of the refiner discs and improves board quality and usability.
- **Chip Squeeze Out and Steaming Bin** – After the chip washing process large steel vessels are filled with clean chip. These are heated using steam to soften the chips

making the refining process easier, this also increases the fibre length as it prevents overworking. Prior to refining, the chip is squeezed to remove excess water. This excess water is used for top up water for the chip wash process.

- **WESP** – is a system for electrostatic wet waste process gas purification which serves to purify waste gases from wood chip drying processes.
- **SAP90** – is a wet extraction system for press exhaust air purification which is used to collect and purify press exhaust vapours from the wood-based panel production line.

In addition to the MDF and particleboard production processes, water is also used:

- In the manufacture of treated paper for use as decorative laminates;
- For creation of steam used in the fibre preparation process; and
- In cooling water for the refiner seals.

Figure 1 provides an overview of the major components of the site water management system and shows metering locations.

3.2 Water Consumption

Inflow water sources to the facility (refer Figure 1) include:

- Town Water – average daily flow of 345m³ metered at entry to the facility on Lowes Mount Road; and
- Recycled water from water treatment plant – average total daily flow of 550m³. Recycled water is made up of:
 - o Spring Dam Water (Ground Water Access Licence 28951 (refer Section 2.5)) – A maximum extraction of 28 mega litres per annum, metered at Spring Dam pump station;
 - o Harvested Stormwater – average daily flow of 123m³ metered at FF2 Dam meter;
 - o Process Water – average daily flow of 400m³ metered at the process locations shown on Figure 1.

The total daily site water usage for the facility is estimated at approximately 895m³. All water meters are read and recorded daily.

Average daily m3 flow from 1/1/21 to present

Legend:

- Effluent - Dirty Water (Orange)
- Intermediate Effluent (Green)
- Clean Water (RO or Town) (Blue)

Flow Diagram Details:

- Inputs:**
 - SQUEEZE OUT: 256
 - HPP SAW MILL WASTE: 38
 - BOILER BLOW DOWN: 12
 - BOILERS: 386
 - REFINER SEALS: 17
 - COOLING TOWERS: 17
 - ADMIN - FIRE HOSES - MISCELLANEOUS: 94
 - CONTI 1 SUPPLY TANK: 403
 - PAPER TREATER: 3
 - WOODCHEM: 104
 - TOWN WATER IN WOODCHEM: 81
- Intermediate Processes:**
 - CHIP WASH: 288
 - EFFLUENT PIT: 338
 - CLARIFIER: 178
 - SBR 1: 198
 - SBR 2: 197
 - DAF: 690 max. 720
 - SAND FILTERS: 0
 - INTERMEDIATE EFFLUENT: 658
 - UF DAM: 665 max. 1,000
 - ULTRA FILTRATION: 556
 - R.O FILTRATION: 501
 - RECOVERY R.O: 55
- Outputs and Recycles:**
 - CHIP WASH MAKEUP: 32
 - INTERMEDIATE EFFLUENT TANKS: 32
 - WET ASH CONVEYOR: 5.34
 - CONTI 1 RESIN: 0
 - CONTI 2 RESIN: 0
 - EAST/WEST CONVEYOR: 0.73
 - TRADE WASTE: 0
 - BRINE TANKS: 6.06
 - RECOVERY R.O: 4.1
 - CENTRIFUGE: 568
 - POLY MAKE UP: 24
 - SPRING DAM: 264
 - STORM WATER: 352
 - SLUDGE DAM: 552
 - TREATED WATER TANKS: 510
 - WATER SOFTENERS: 7
 - BOILER BLOW DOWN: 12
 - STEAM: 9
 - CHIP WASH PUMP SEALS - RESIN MIX - BALTIMORE COOLER: 78
 - TOWN WATER IN MDF: 183
 - BOILER BLOW DOWN: 12
 - REFINER SEALS: 17
 - COOLING TOWERS: 17
 - ADMIN - FIRE HOSES - MISCELLANEOUS: 94
 - CONTI 1 SUPPLY TANK: 403
 - PAPER TREATER: 3
 - WOODCHEM: 104
 - TOWN WATER IN WOODCHEM: 81

3.3 Water Treatment

All site effluent (wastewater) is treated in the water treatment plant. Effluent is also received from HPP Sawmill Site 2 and Woodchem in the form of boiler blow down, cooling tower bleed water and wash down water.

The water treatment plant utilises filtration and biological degradation to remove contaminants from the water for re-use, capturing approximately 400kL per day from the site and reusing it in the manufacturing process.

Under SSD 7016 MOD 4, improvements and additions to the water treatment plant were approved. This included an enclosure to the water treatment biological tanks which will provide a consistently improved treatment process by reducing heat loss and evaporation and maintain optimum temperatures for biological activities to occur. This also included installation of an additional reverse osmosis system to improve production capacity of the water treatment plant.

The Development produces most of the incoming effluent and consumes a large proportion of recycled water, mainly in steam generation. Effluent is generated by the washing and squeezing of chip during the initial stages of the manufacturing process. The volume of effluent generated depends on chip volumes (production rates) and chip moisture. Moist chip will generate more waste effluent than dry chip and typically a greater volume of effluent is generated during the winter months. Air emission control devices that were installed for the particleboard line also generate effluent, these are the WESP and SAP90 purification systems. Approximately 400kL/day of effluent is generated by the facility.

High quality recycled water produced by the Reverse Osmosis (RO) system is used for the boiler (300-400kL/day approximately) and Woodchem (100-150kL/day approximately). The Paper Treater also requires a small amount of high-quality RO or soft water.

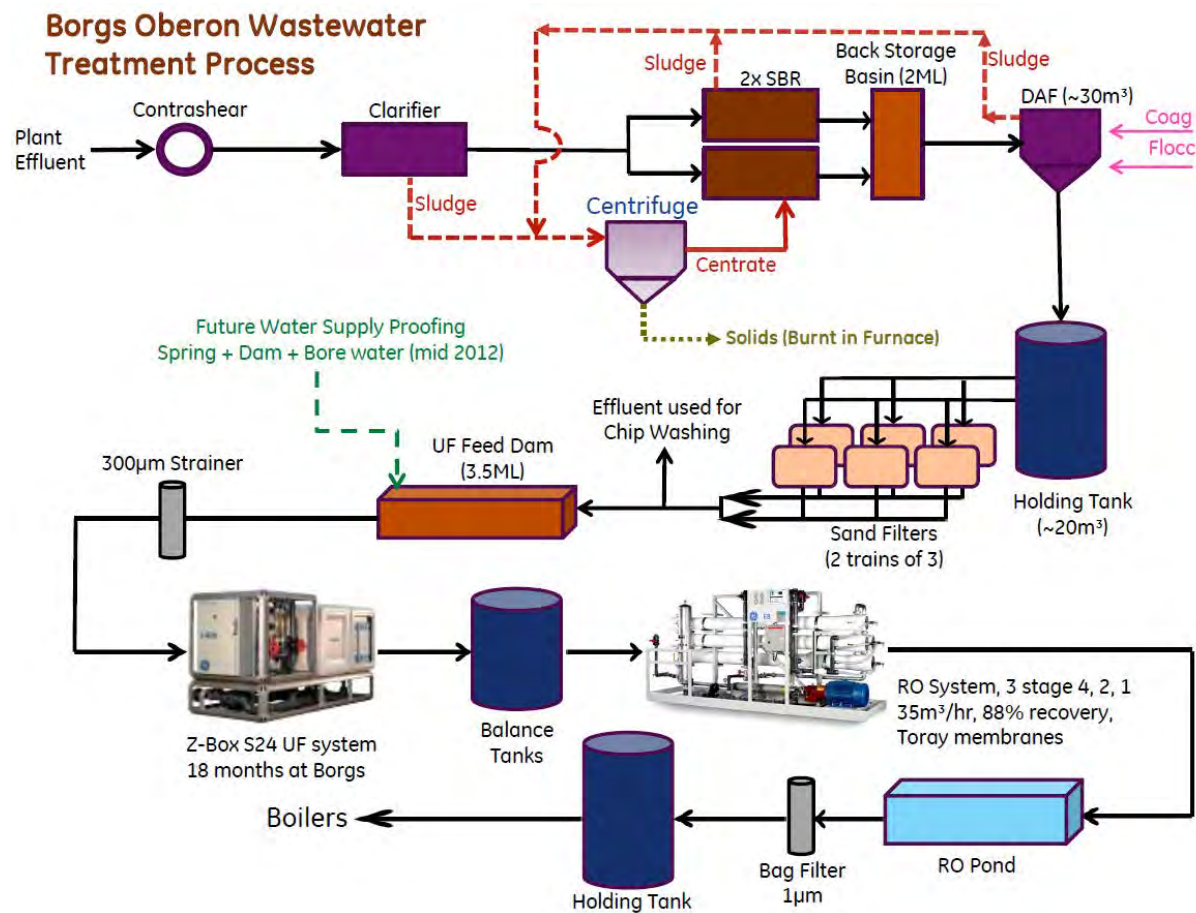
Intermediate effluent or low-quality recycled water treated by dissolved air floatation (DAF) is used for the chip wash systems (approximately 50kL/day). Dewatered waste sludge (biomass) from the centrifuge is sent to the heat plant as fuel for the furnace.

Figure 2 provides an overview of the major components of the water treatment system.

3.4 Wastewater

The water treatment plant produces brine, a waste product from the Reverse Osmosis (RO) system, which is high in dissolved solids. Brine solids are currently recycled within the water treatment plant and reused by way of dilution in the MDF and particleboard manufacturing process.

Figure 2 Major Components of Water Treatment System



4 Stormwater Management

4.1 Overview

Generally, the site grades towards the east, and the licenced discharge points to the tributary which runs to Kings Stockyard Creek are located in the north eastern corner of the site. A high ground water table is known to exist at the site and generally flows towards the north eastern corner. This fluctuating ground water table is a significant constraint of the site since excavation below this level cannot occur without consequential groundwater recharging taking place however is not expected that any excavation will occur which will intercept the groundwater table.

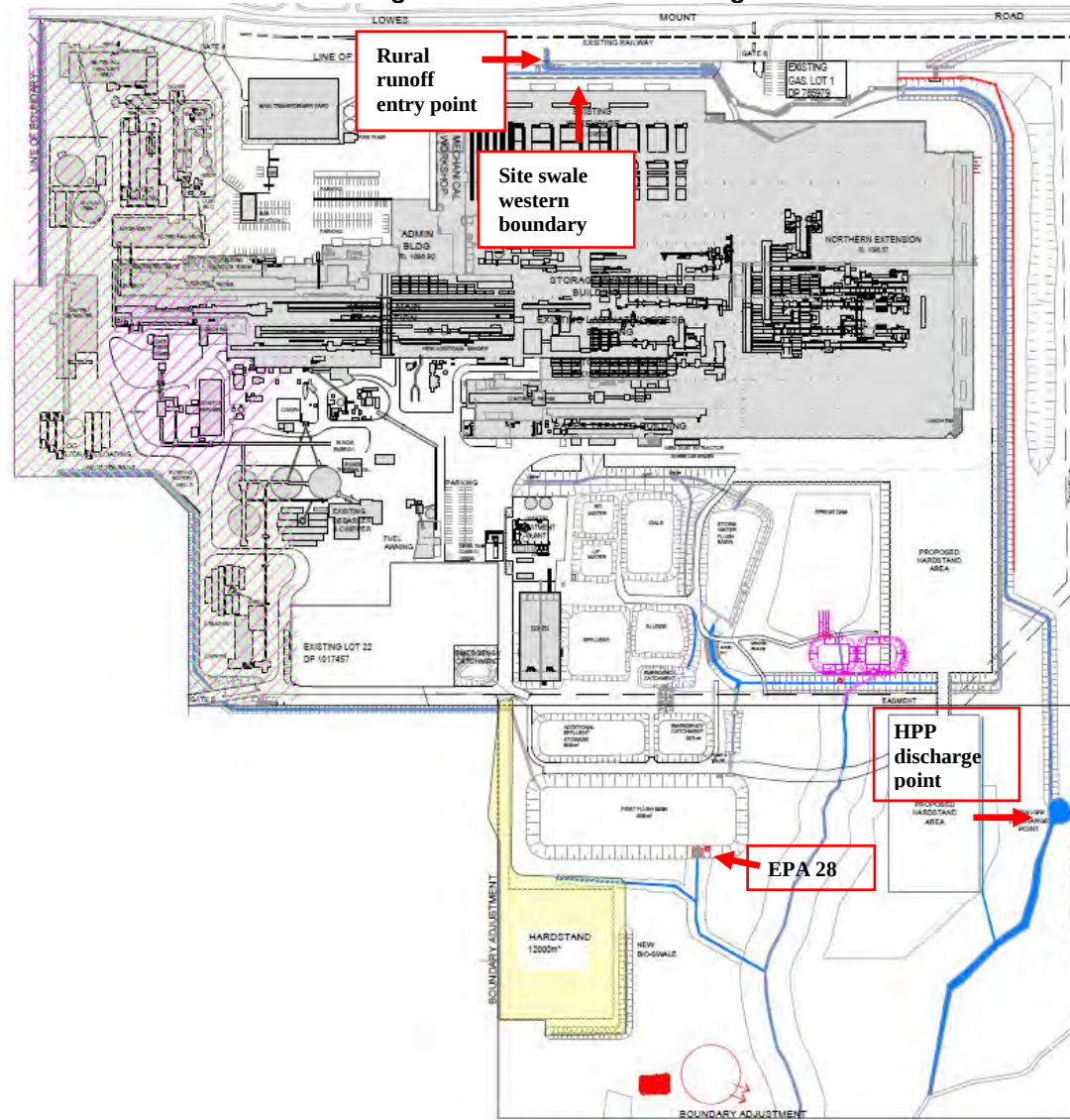
The surface water management system includes runoff from adjoining properties in the Oberon Timber Complex on the western side of Lowes Mount Road, and operates as follows:

- Runoff from Structaflor and Highland Pine Products Sawmill 2 flows across Lowes Mount Road and directed onto the site via the swale on the western boundary
- Runoff from rural parcels of land on Lowes Mount Road is also directed into the site from the western boundary, conveyed via a 'clean' water swale, which runs alongside the site swale following the northern boundary before discharging at HPP discharge point to a tributary of Kings Stockyard Creek
- The facility roof and surface runoff from the western side of the facility is directed into the boundary swale and transferred into the first flush basin
- Runoff from the eastern and open parts of the site, which contains fine fibrous wood material, is directed first to a gross pollutant trap (GPT) and then into the stormwater flush basin
- Any overflow from the existing stormwater flush basin is directed into the first flush basin
- Water captured in the basins is harvested by the site water treatment plant for reuse in the production system
- Stormwater harvesting averaged 9.7m³/day over the reporting period the largest volume of water harvested in one day was 148m³
- Runoff from construction areas is managed in accordance with Erosion Sediment Control Plans as part of the CEMP for SSD7016. Surface water from these zones is directed into the site swale then on to the stormwater basin
- Water discharges from EPL discharge Point 28, and HPP swale discharge point to a tributary of Kings Stockyard Creek (shown on Figure 6)

In accordance with EPL 3035, The Development monitors discharge from the HPP Swale and from the stormwater flush basin (EPA point 28) to the unnamed creek that discharges to Kings Stockyard Creek. The location of the HPP Swale monitoring point is on the outflow of the northern boundary HPP basin. The outflow from the stormwater flush basin (Point 28) is on the eastern side of the basin where a spill way has been constructed. Overflow from this spill way makes its way through riprap to existing grassed swales connected to the tributary which flows to Kings Stockyard Creek. This is shown on Figure 3.

Figure 3 shows the current design specifications including the additional stormwater treatment and storage basin (First Flush Basin), additional effluent storage pond and emergency spill catchments.

Figure 3 Surface Water Management



4.2 Objectives

The main objectives of the stormwater management system are to:

- Ensure water quality discharging from the site adheres to the sites various Environmental Protection Licence 3035 requirements;
- Be capable of conveying the 100-year ARI rainfall event to the discharge location on Kings Stockyard Creek;
- Provide adequately sized retention basins to allow water to be reused on-site;
- Minimise peak flow rates; and
- Maintain the separation of upstream HPP Site 1/rural runoff clean stormwater flows.

4.3 Site Strategy

The main stormwater strategy for the site is to convey and treat stormwater from both the facility and upstream sites using large, grassed and shotcrete swales, underground pipe network and stormwater flush basins. The two flush basins allow water to be captured for reuse on-site and for sediments to settle out. A detailed schematic of the stormwater system is shown in Figure 3.

A 1050 mm diameter culvert under Lowes Mount Road connects Structaflor/HPP2 with the western grass dirty water swale. A 900 mm diameter culvert connects HPP Site 1 with the western clean water swale.

Due to the flat topography of the site the western grassed swales act as elongated basins holding a significant volume of water prior to discharging into the channel systems downstream from Gate 6.

These swales are linked to the channel systems which run along the northern boundary via four (4) x 1050mm diameter culverts constructed in two separate arrangements. The inlet levels to these culverts are raised slightly higher than the upstream swale invert and a large concrete pit connects the culverts below Gate 6.

The northern boundary channel system continues to separate the Structaflor/HPP2 (herein referred to as HPP2) and The Development flows from the HPP1/rural runoff flows (herein referred to as HPP1). The culverts and swales are sized to convey the 100-year flow rates from upstream catchments. In rainfall events greater than 1-year ARI water from all sites converge.

As can be seen in Figure 3, the clean water swale conveying HPP1 is then directed into a basin/discharge point located in the north-eastern part of site. Water from the Spring Dam is currently conveyed via underground pipes into a concrete pit then from the pit via underground pipes to a grassed swale east of the aquifer.

Water from the southern and eastern parts of the site drains towards the north eastern corner and licenced discharge points through a series of swales, underground pipes and sediment basins. Water from the log yard containing fine fibrous wood material, is directed first to a gross pollutant trap and then into the stormwater flush basins.

4.4 Controls

Infrastructure for the protection of stormwater quality at the facility includes the following:

- Bunding of chemical and petroleum products tanks;
- Segregation of stormwater and process waters;
- Treatment and reuse of harvested stormwater;
- Gross pollutant trap to remove fine fibrous wood material; and
- Penstock gate valves to allow for shutting down the stormwater system in the event of a spill or fire emergency.

4.5 Maintenance

Regular cleaning, through manual sweeping and mechanical street sweeping of production areas is undertaken to help prevent dirt, wood fines and chip from entering the stormwater system. The gross pollutant trap also catches debris that is not swept up, further preventing entry to the stormwater basins. This cleaning of production areas helps ensure the final water quality discharging from the site is within EPL limits.

Regular maintenance of the penstock, headwall and other valves, trash racks, and gross pollutant trap ensure the system runs smoothly and that in the event of an emergency all items of equipment are operational. These areas are inspected at least monthly with condition and any identified actions captured on the Monthly Inspection Checklist. Action items are tracked using DataStation or MainPac.

Due to the flat longitudinal swale grades and physical controls, it is possible that sediment will build up in the swale system. The swales and basins are to be cleaned when a significant amount of sediment builds up to keep the swales operating at their optimal performance level.

Monthly inspections are undertaken which identify the need to clean any excess sediment build up.

5 Erosion and Sediment Control

5.1 Overview

Changes in land use have the potential to disturb soils, alter drainage patterns and affect environmental values both on and off site (Landcom, 2004). The operation is a MDF and particleboard manufacturing facility with limited potential for erosion and sediment generation. The facilities and surface water management system have been developed over time as the site has developed and any undeveloped areas are well vegetated.

Erosion is mostly a short-term problem that results from the removal of vegetation and ground cover for construction purposes. The MDF infrastructure areas were constructed many years ago and have become stabilised over time. The newer infrastructure constructed for the particleboard line under SDD 7016 has seen an increase in hardstand area, reducing the potential for erosion and excess sedimentation to occur across the facility.

5.2 Site Activities and Potential for Soil Erosion

The MDF manufacturing facility is well established and areas that were disturbed during the construction phase have been stabilised. Construction for the particleboard line are complete though subsequent modifications see continued additions to the original development consent under SSD 7016. Where these activities have potential to impact on erosion and sedimentation, management and mitigation measures are captured in the Construction Environmental Management Plans.

Surface water has the potential to cause erosion and is managed as part of the normal site operations. Figure 3 shows the surface water management system for the entire Development.

Several types of erosion control measures have been implemented with the aim of preventing soil erosion and the entry of sediments into any of the surrounding water bodies. An Erosion and Sediment Control Plan has been developed for the site and forms part of the Construction Environmental Management Plan.

Open swales and drains shown on Figure 3 are typically constructed with either a parabolic or trapezoidal cross section rather than a V-shape, which can be easily eroded. Channels and associated banks have been grassed or had concrete applied to assist with stability during water flows and to minimise sediment movement. Channels are periodically inspected (at least monthly or following significant rainfall events) to identify and repair damage caused by scour, sediment deposition, channel obstruction and loss of vegetative cover. Physical controls have also been implemented to assist in the slowing the velocity of water flows to allow flocculation of sediment. Physical controls include sediment fence, geofabric wrapped haybales and ballast rock check walls.

Stormwater flush basins constructed within the surface water management system shown on Figure 3 have been designed and located to contain dirty water runoff which is then typically harvested for reuse in the production process.

This infrastructure is regularly maintained and cleaned out once the capacity of the structure is deemed to have been reduced significantly. The structures are inspected after major rainfall events and repairs made as required.

5.3 Maintenance of Erosion and Sediment Controls

The facility has been operational for many years and there are relatively limited opportunities for erosion and sediment generation at this established site, including for the particleboard facility. Regardless, regular inspection and maintenance of permanent structures ensures that the water management system and erosion controls remain effective. At active disturbed areas, regular inspections are undertaken to monitor the condition and effectiveness of controls.

Measures to minimise erosion and sediment generation include:

- Identification and review of surface activities that may change surface water flows and result in erosion;
- Minimising the clearing of vegetation and where clearing is necessary site rehabilitation of disturbed areas;
- Regular checking of rehabilitated areas;
- Installation of temporary and/or additional permanent controls to manage locations that have been identified as requiring attention;
- Diversion of surface and road runoff away from disturbed areas;
- Regular inspection and cleaning of catch drains and structures following storm events or other activities such as vehicle movements that may result in damage; and
- Clearing of excessive vegetation and weeds along drainage lines.

5.4 Managing Stormwater Discharge Quality

The Development has committed to the reduction of pollution through the management of water quality and controlled discharges. A standard operating procedure has been developed for the controlled discharge of water from Flush 2 stormwater basin. Meteorological data for

the site is closely monitored and if rainfall is predicted, samples are collected from the EPA license monitoring point (Point 28). If results are below the license discharge limits capacity is obtained by pump out. If water does not comply with the licensed discharge limits for total suspended solids, water is treated by mixing micronized Gypsum with water and sprayed evenly over the surface of the dam using a water cart/cannon. Once desired laboratory results are obtained, water is pumped out to ensure suitable storage capacity for a rain event.

Another treatment method recently employed on site is the circulation and natural filtering of water between the two stormwater basins (Flush 1 and 2). Water is regularly pumped from flush 2 uphill to flush 1 where the water overtops over/under weir and is naturally treated through a swale system that has been developed to include vegetation and manmade physical controls such as rock check dams, floc blocks and geofabric covered haybales.

6 Surface Water Monitoring Program

Surface water monitoring is undertaken in accordance with the requirements of EPL 3035 issued under the *Protection of the Environment Operations Act 1997*.

6.1 Location of Monitoring/Discharge Points

Surface water is discharged from site via EPA Identification/Licensed discharge point 28 and the HPP Swale discharge point. Both points discharge to a tributary (unnamed creek) of Kings Stockyard Creek as shown on Figure 3.

The locations and type of surface water monitoring and discharge points are listed in Table 3.

Table 3 – EPL 3035 Surface Water Monitoring and Discharge Points

EPA Identification No.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge to waters; Discharge quality monitoring	Discharge to waters; Discharge quality monitoring	Discharge from HPP Swale to unnamed creek that discharges to Kings Stockyard Creek.
28	Discharge to waters; Discharge quality monitoring	Discharge to waters; Discharge quality monitoring	Discharge from First Flush Basin to unnamed creek as shown on monitoring point figure provided to the EPA on 22 August 2017

6.2 Concentration Limits

The concentration of a pollutant discharged from EPA Identification/Licensed discharge point 28 and the HPP Swale discharge point must not exceed the water concentration limits specified in Table 4.

Table 4 – Water Concentration Limits EPA Identification Point 28

Pollutant	Units of Measure	50 percentile concentration limit	100 percentile concentration limit
Aldrin	µg/L		0.3
Biochemical Oxygen Demand (BOD)	mg/L		20

Pollutant	Units of Measure	50 percentile concentration limit	100 percentile concentration limit
Colour	Hazen	80	160
Dieldrin	µg/L		0.3
Methylene Blue Active Substances (MBAS)	mg/L		0.5
Nitrogen (Total)	mg/L		10
Oil and Grease	mg/L		10
pH	pH		6.5-8.5
Phosphorus (Total)	mg/L		0.3
Total Suspended Solids	mg/L		50

6.3 Requirement to Monitor and Frequency

For EPA Identification/Licensed discharge point 28 and the HPP Swale discharge point The Development must monitor, by sampling and obtaining results of analysis, the concentration of each pollutant specified in Table 4.

Sampling is undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales* (DEC, March 2004). Water samples are collected by trained personnel and analysed by NATA accredited laboratories.

The frequency of sampling is weekly during any discharge.

6.4 Surface Water Monitoring Data

All surface water monitoring data is uploaded monthly to the company website:

<https://www.borgs.com.au/locations/oberon-nsw/>

7 Surface Water Impact Assessment Criteria

This section sets out the surface water response plan for the facility. Potential impacts on surface water, triggers, actions and responsibilities for addressing impacts are summarised in Table 7.

7.1 Water Quality Exceedance

Should water quality monitoring indicate that the criteria set out in EPL 3035 (Table 4) have been exceeded, The Development will conduct an incident investigation into the potential sources and/or causes.

As the limits specified in EPL 3035 are the 100-percentile concentration limit, all exceedances will generate an investigation, however the exceedance will need to be determined to be *causing or threatening material harm to the environment* to trigger the pollution incident response measures detailed in the Pollution Incident Response Management Plan.

In the event that a pollution incident causes or threatens material harm to the environment, the Pollution Incident Response Management Plan (PIRMP) is to be immediately implemented, including immediate notification to authorities as outlined in the PIRMP.

Environmental incidents which are identified as *not* causing or threatening material harm to the environment should be contained if safe to do so, then The Development's Incident Reporting procedure undertaken. Exceedances classified as not causing or threatening material harm to the environment will be reported annually in the Annual Review.

Full details on environmental incident investigation and reporting are provided in the OEMP.

7.2 Unlicensed Discharge

In the event of an unlicensed discharge, the Development will notify the EPA immediately after becoming aware of this and undertake an investigation of the discharge event. In the unlikely event that a discharge poses a threat to health of surrounding property owners and occupiers, the Development will implement the Pollution Incident Response Management Plan (PIRMP), which includes notification with those likely to be affected. A list containing surrounding property owner's and occupier's contact details is held by The Development.

The notification procedure is to be initiated by the Environmental Manager for The Development. In the absence of the Environmental Manager the notification procedure is to be initiated by the person designated as fulfilling the responsibilities of the Environmental Manager. Notification will occur within 24 hours of it becoming known to site personnel that surrounding property owners and occupiers are likely to be adversely affected by discharges from the site. A record will be kept of all property owners and occupiers contacted and this will be recorded in DataStation by the Environmental Manager.

An investigation report on the unlicensed discharge will be prepared and provided to the EPA or other relevant agency, including DPE.

7.3 Contingency Plan to Manage Any Unpredicted Impacts

Should impacts eventuate that have not been predicted or considered in the SWMP, the following contingency plan will apply:

- 1) Assess whether impacts constitute a material risk of harm to the environment, and trigger the PIRMP and reporting requirements of the OEMP if necessary;
- 2) Investigate the cause of the unpredicted impact. This may include onsite process owners or external specialists as required;
- 3) Consult with government agencies regarding the unpredicted impact if the impact is material and require additional management strategies; and
- 4) Revise the SWMP.

The scale of the unpredicted impact will inform the level of response required through this process and whether the impact is material and therefore requires external notification.

Table 7 – Surface Water Response Plan – Triggers, Actions and Responsibilities

Aspect	Trigger	Action	Timeframe	Responsibility	Further Information
Water quality impacts	Exceedance of water quality criteria set out in EPL 3035 (Table 4)	Determine if the event is a pollution incident causing or threatening material harm to the environment. If yes, implement The Development's Pollution Incident Response Management Plan (PIRMP) immediately. If not a pollution incident causing or threatening material harm to the environment, follow The Development's Incident Reporting procedure.	Material harm incidents are to be reported immediately to DPE, EPA and any other relevant agency. A written report on the incident is to be provided within 7 days. Incidents/exceedances classified as not causing or threatening material harm to the environment will be reported annually in the Annual Review.	Environmental Manager	Section 7.1
Surface water discharge	Surface water discharge that is not licenced under EPL 3035	Notify DPE, EPA and any other relevant agency and potentially affected persons (where necessary). Trigger the Pollution Incident Response Management Plan immediately if required (PIRMP material harm incident). Investigate and prepare report outlining causes, impacts and recommended mitigation measures. Supply report to agencies. Implement report recommendations.	Notify DPE, EPA and any other relevant agency immediately. Trigger PIRMP immediately if of sufficient magnitude. Provide written report within 7 days.	Environmental Manager	Section 7.2

8 Reporting

8.1 Monitoring Data Review

The Environmental Manager will review all surface water quality monitoring results following a licenced discharge and ensure corrective action is taken where results or trends indicate non-compliance or risk of future non-compliance to the development consent or EPL criteria.

The surface water results are included in the Annual Review. The Annual Review includes a summary of monitoring results during the past year, comparison against the water quality criteria specified in the EPL, and summary of the previous year's monitoring results.

The Annual Review also identifies any trends in water quality impacts and any non-conformance over the year, as well as describing any actions currently implemented or planned to ensure compliance with the water quality impact criteria. The Annual Review is available to the relevant authorities including the Department of Planning and Environment (DPE) and Environment Protection Authority (EPA). It is also placed on the company's website along with a summary of environmental monitoring results in accordance with the requirements of Development Consent SSD 7016 and EPL 3035.

The EPA is provided with an annual return, statement of compliance and a monitoring and complaints summary annually as required by EPL 3035.

The Development conducted an Independent Environmental Audit in 2018 and 2021 and will continue at three yearly intervals in accordance with SSD 7016 condition of consent C15.

8.2 Reporting

8.2.1 Annual Review

In accordance with Development Consent SSD 7016 an Annual Review report is prepared and submitted to the Secretary Department of Planning and Environment on an annual basis.

The Annual Review summarises the environmental performance of the Developments activities for the reporting year. The results of the monitoring undertaken as specified in this SWMP will be compared against the impact assessment criteria in the relevant environmental management plans or monitoring programs and/or limits contained in Development Consent SSD 7016 and EPL 3035 to assess the effectiveness of environmental management.

8.2.2 Exceedance of Criteria / Environmental Incident Management

Notification procedures and actions upon identification of an exceedance of any impact assessment criteria or management levels will be as per the Operational Environmental Management Plan (OEMP), and the Pollution Incident Response Management Plan.

8.2.3 Complaints

Community complaints will be managed in accordance with the procedures in the Operational Environmental Management Plan (OEMP).

9 SWMP Review

In accordance with Development Consent SSD 7016 Condition C10, this SWMP will be reviewed and if necessary revised within 3 months of an:

- Approval of a modification;
- Submission of an incident report under Condition C13;
- Approval of an Annual Review under Condition C11; or
- Completion of an audit under Condition C15.

The SWMP will also be updated as required to reflect any change to on-site management or monitoring programs referred to in this document, or any changes to Development Consent SSD 7016 or EPL 3035.

Revisions to the SWMP will be submitted to the Secretary DPE for approval.

EMS0006

Surface Water Management Plan

Borg Panels

124 Lowes Mount Road, Oberon NSW

Borg Panels Pty Ltd

27 November 2020

This document should be read in conjunction with EMS0060 Construction Environment Management Plan and EMS0001 Operational Environment Management Plan

Revision History

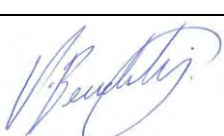
Rev No.	Revision Date	Author / Position	Comments	Details	Authorised	
					Name / Position	Signature
0	06/09/17	Carly McCormack Planning and Environmental Officer		Draft	Victor Bendevski Environmental and Regulatory Compliance	
1	03/10/17	Carly McCormack Planning and Environmental Officer		Final Draft for Consultation with DPI	Victor Bendevski Environmental and Regulatory Compliance	
2	08/11/17	Carly McCormack Planning and Environmental Officer		Final Draft for Consultation with EPA	Victor Bendevski Environmental and Regulatory Compliance	
3	21/11/17	Carly McCormack Planning and Environmental Officer		Final	Victor Bendevski Environmental and Regulatory Compliance	
4	13/12/17	Carly McCormack Planning and Environmental Officer		Final Incorporating DP&E Comments	Victor Bendevski Environmental and Regulatory Compliance	
5	02/11/18	Jacqui Blomberg Environmental Manager	Remove reference to Trade Waste Licence/Service Contract	Review as per SSD7016 C10	Victor Bendevski Environmental and Regulatory Compliance	
6	27/11/20	J Blomberg Environmental Manager		Review and update as per SSD7016 B33 & C10	V Bendevski Environmental and Regulatory Compliance	

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1 Introduction

1.1 Background

Borg Panels operates a Medium Density Fibreboard (MDF) and particleboard manufacturing facility in Oberon, NSW. This facility manufactures a range of Customwood MDF and Custompine particleboard products including:

- Standard MDF;
- Moisture Resistant MDF;
- E0 (Low Formaldehyde Emitting) MDF;
- Ultraprime MDF Mouldings;
- Standard particleboard;
- Decorative Laminated MDF and particleboard; and
- Treated paper for the lamination of MDF and particleboard.

On 29 May 2017 Development Consent SSD 7016 was granted by the Minister for Planning to construct a Particle Board manufacturing facility, modify the existing MDF manufacturing facility and undertake general site works (the Project) at the existing Borg Panels facility located on 124 Lowes Mount Road, Oberon.

Conditions contained within the Consent require Borg to provide for the ongoing environmental management of the Development. Though initially developed to satisfy conditions B32, C4 and C9, this Surface Water Management Plan (SWMP) has been updated as per condition B33 which states:

Prior to commencement of operation of the Project, the Applicant must update the SWMP required under Condition B32 to incorporate the Project and its management to the satisfaction of the Secretary. The updated plan must be prepared in accordance with the requirements of Condition B32, and must incorporate the following:

- (a) details of the proposed mitigation measures outlined in Section 6.0 of Proposed Particle Board Facility Water Cycle Impact Assessment, prepared by the Sustainability Workshop and dated May 2016, in particular, the final design specifications of the additional stormwater treatment and storage pond and emergency spill basin;*
- (b) details of the stormwater harvesting and reuse scheme; and*
- (c) outline the surface water monitoring program to measure the performance of the Development against this consent and the EPL.*

This revision will also address condition C10 where a review of this Plan is required where approval of a modification has been provided by DPIE.

1.2 Purpose and Objectives

The purpose of this SWMP is to:

- Consolidate and address the relevant conditions of Development Consent SSD 7016 and Environment Protection Licence (EPL) 3035 to manage surface water at the Borg Panels facility.

The objectives of the SWMP are to:

- Define the strategies and procedures to be implemented to ensure that the Borg Panels facility does not result in unacceptable off-site impacts on surface water systems and downstream users;
- Define a program to monitor and report on the impacts and environmental performance of the Borg Panels facility, and the effectiveness of any management measures; and
- Define a protocol for managing and reporting any incidents, complaints, non-compliances with statutory requirements, and exceedances of the impact assessment criteria and/or performance criteria.

1.3 Structure of this Surface Water Management Plan

This SWMP has been developed to manage site surface water at Borg Panels and to satisfy the requirements set out in Development Consent SSD 7016, and includes information on the following:

- Section 2 – Legislative and Regulatory Compliance
- Section 3 – Site Water Management
- Section 4 – Stormwater Management
- Section 5 – Erosion and Sediment Control
- Section 6 – Surface Water Monitoring Program
- Section 7 – Surface Water Impact Assessment Criteria
- Section 8 – Reporting
- Section 9 – SWMP Review

1.4 Consultation

In accordance with condition C4 the SWMP (dated 28 November 2017) was provided to NSW EPA for review and consultation and submitted to the Secretary of the Department of Planning and Environment for approval on 29 November 2017. The Department were satisfied that the SWMP met with the terms of the relevant conditions of consent and issued approval on 21 December 2017.

As required under condition B33, the SWMP was re-submitted to NSW EPA, DILW and DPIE on 11 December 2020.

As per condition C10, subsequent revised versions of the SWMP will be submitted to the Secretary for approval as is necessary.

1.5 Training

Training and Assessment Manual EMS0017 Environmental Standard Awareness Water has been developed for the site. This training will be delivered to all Supervisors and Operators on site. The Manual outlines Borg employees' responsibilities to assist with managing potential pollution to the surface water and groundwater systems across the site.

2 Legislative and Regulatory Compliance

2.1 Relevant Legislation

Key environmental legislation relating to surface water management for the site includes:

- *Protection of the Environment Operations Act 1997*; and
- *Environmental Planning and Assessment Act 1979*.

2.2 Conditions of Consent

The facility operations are subject to the conditions contained in Development Consent SSD 7016 and the following modifications:

- MOD 1 – extension of mouldings warehouse, reorientation of materials handling building, layout change to particleboard chipper/debarker building, extension of northern noise bund, reconfiguration of elements of the surface water management system, reclamation of the Spring Dam* (approved 20 November 2018)
*MOD 1 condition B33A requires preparation of a Spring Fed Dam Reclamation Management Plan therefore details are not included in this SWMP.
- MOD 2 – installation of an electricity generation gas turbine and ancillary equipment (approved 29 November 2019)
- MOD 3 – additional materials handling equipment, extension to northern warehouse, changes to the site surface water system and construction of further hardstand

The specific requirements for a SWMP (Schedule 2, Condition B32 and B33) and general requirements for environmental management plans (Schedule 2, Condition C9) are detailed in **Table 1**.

Table 1 Development Consent Conditions

No.	Requirement	Document Reference
	SOILS, WATER QUALITY AND HYDROLOGY	
	Surface Water Management Plan	
B32	Within 6 months of the date of this consent, the Applicant must prepare a Surface Water Management Plan (SWMP) for the Existing Development, that incorporates the <i>Oberon Stormwater Management Strategy</i> , Rev G, prepared by Parsons Brinckerhoff, dated March 2012, to the satisfaction of the Secretary. The SWMP must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C9. The SWMP must:	This Plan
	a) be prepared in consultation with the EPA and DPI;	Section 1.4
	b) detail water use, metering, disposal and management on-site;	Section 3
	c) detail the water licence requirements for the Existing Development;	Section 2
	d) describe the surface water management system on-site;	Section 4
	e) include a program to monitor: (i) surface water flows and quality; (ii) surface water storage and use; and (iii) sediment basin operation;	Section 6 Section 4 Section 5
	f) include a sediment and erosion control plan;	Section 5
	g) include surface water impact assessment criteria, including trigger levels for investigating and potential adverse surface water impacts; and	Section 7

No.	Requirement	Document Reference
	h) include a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria.	Section 7
B33	Prior to commencement of operation of the Project, the Applicant must update the SWMP required under Condition B32 to incorporate the Project and its management to the satisfaction of the Secretary. The updated plan must be prepared in accordance with the requirements of Condition B32, and must incorporate the following:	This Plan
	a) details of the proposed mitigation measures outlined in Section 6.0 of Proposed Particle Board Facility Water Cycle Impact Assessment, prepared by the Sustainability Workshop and dated May 2016, in particular, the final design specifications of the additional stormwater treatment and storage pond and emergency spill basin;	Section 2.3 Section 4
	b) details of the stormwater harvesting and reuse scheme; and	Section 2.7 Section 3.2
	c) outline the surface water monitoring program to measure the performance of the Development against this consent and the EPL.	Section 4, 5 and 6
	MANAGEMENT PLAN REQUIREMENTS	
C9	The Applicant must ensure that the environmental management plans required under Condition C4 of this consent are prepared by a suitably qualified person or persons in accordance with best practice and include:	
	a) detailed baseline data;	Section 6
	b) a description of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures/criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures;	Section 2 Section 6 Section 6
	c) a description of the management measures that would be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;	Sections 3, 4 and 5
	d) a program to monitor and report on the: (i) impacts and environmental performance of the Development; and (ii) effectiveness of any management measures (see (c) above);	Section 8
	e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 7
	f) a program to investigate and implement ways to improve the environmental performance of the Development over time;	Section 7

No.	Requirement	Document Reference
	g) a protocol for managing and reporting any: (i) incidents; (ii) complaints; (iii) non-compliances with statutory requirements; and (iv) exceedances of the impact assessment criteria and/or performance criteria; and	Section 8
	h) a protocol for periodic review of the plan.	Section 9

2.3 Development Consent SSD 7016 Mitigation Measures

Appendix B Applicant's Management and Mitigation Measures to Development Consent SSD 7016 details the reasonable and practical measures to avoid or minimise impacts to the environment that may arise as a result of the Project. The following management and mitigation measures listed below were identified by the Sustainability Workshop in the *Proposed Particle Board Facility Water Cycle Impact Assessment (May 2016)*:

- A new swale with a longer flow path to convey the CHH [Structaflor] runoff around the site and into a new treatment pond should be constructed. This will provide for the additional reduction of TSS and remove tannins. This swale should be vegetated using either appropriate grasses or macrophytes.
- It will be necessary to construct new swales to connect overflows from the proposed pond with the existing creek line and these will all be carried out in accordance with any Controlled Activity guidelines/permits or conditions of consent.
- Construction of a new stormwater treatment pond with a maximum volume of 6ML. This is to be located downstream of the existing pond and will accept runoff for the whole of the subject site, including any overflows from the existing stormwater treatment pond.
- The proposed 6ML water quality dam will be constructed at least 40m from the top of bank of the nearest watercourse. If during detailed design, it needs to be moved closer to the first order creek, a controlled activity permit will be obtained from DPIE.
- Stormwater harvesting will be undertaken as part of the development. The demand for stormwater from both the existing and future pond will be an estimated maximum of 400m³/day, i.e. 200m³/day from each pond with an estimated operational time of 300 days per year. The predicted yield for harvesting is estimated at 120ML/year.

As noted above in Section 2.2, the Project is currently working under approved modification 3 (MOD 3) to SSD 7016 dated 22 May 2020. As such, the mitigation and management measures suggested by Sustainability Workshop in May 2016 do not wholly apply as these subsequent modifications to the building infrastructure resulted in necessary modifications to the site surface water management system. These modifications to the water management system will be discussed further in below sections of this SWMP.

2.4 Environment Protection Licence

Environment Protection Licence 3035 (EPL 3035) specifies discharge to waters points, water concentration limits and monitoring requirements for operation at the facility.

EPL 3035 was varied on 9 October 2017 to align the licence details and conditions with conditions contained in Development Consent SSD 7016 issued by DP&I.

The most current version of EPL 3035 is licence version dated 4 September 2019.

2.5 Water Licences

Borg Panels holds a Water Access Licence for use of groundwater in operations. Current licence details issued under the *Water Management Act 2000* are summarised in **Table 2**.

Table 2 Water Licences

Approval Details	Approval Number	Validity of Licence	Approval Kind	Extraction Limit
WAL28951	80WA715797	16 January 2012 – 01 March 2026	Water Extraction	28 Units

2.6 Trade Waste Licence

Borg Panels were not offered a renewal on the Trade Waste Service Contract with Oberon Council. Further DPI Water did not provide concurrence due to the category of discharge. As such, liquid trade waste is now treated on site via the water treatment plant and does not discharge to the sewerage system.

2.7 Stormwater Harvesting

Only polluted runoff from operational areas and roof runoff is harvested for reuse. This runoff is directed via open swales and underground pipe network to the pre-existing stormwater flush basin and to the newly constructed stormwater flush basin. The site is yet to fully realise those volumes estimated for harvesting by the Sustainability Workshop in the *Proposed Particle Board Facility Water Cycle Impact Assessment (May 2016)*.

See Figure 3 for schematic of the site stormwater/surface water management system and section 3.2 for site stormwater consumption.

No runoff from the undeveloped rural land to the west of Lowes Mount Road is harvested. This unpolluted runoff is separated from the polluted industrial runoff into its own swale.

Given that clean/unpolluted runoff is not harvested, there is no need to calculate or exercise any harvestable rights as the only water harvested is from industrial land uses.

3 Site Water Management

3.1 Overview

The following production processes use water for manufacturing:

- **Chip Wash** – Chip is washed via a water washing system, which is used to remove the contaminants (foreign particles and minerals) from the chip. This process promotes longevity of the refiner discs and improves board quality and usability.
- **Chip Squeeze Out and Steaming Bin** – After the chip washing process large steel vessels are filled with clean chip. These are heated using steam to soften the chips making the refining process easier, this also increases the fibre length as it prevents overworking. Prior to refining, the chip is squeezed to remove excess water. This excess water is used for top up water for the chip wash process.
- **WESP** – is a system for electrical wet waste gas purification which serves to purify waste gases from wood chip drying processes.
- **SAP90** – is a wet extraction system for press exhaust air purification which is used to collect and purify press exhaust vapours from the wood-based panel industry.

In addition to the MDF and particleboard production processes, water is also used:

- In the manufacture of treated paper for use as decorative laminates;
- For creation of steam used in the fibre preparation process; and
- In cooling water for the refiner seals.

Figure 1 provides an overview of the major components of the site water management system and shows metering locations.

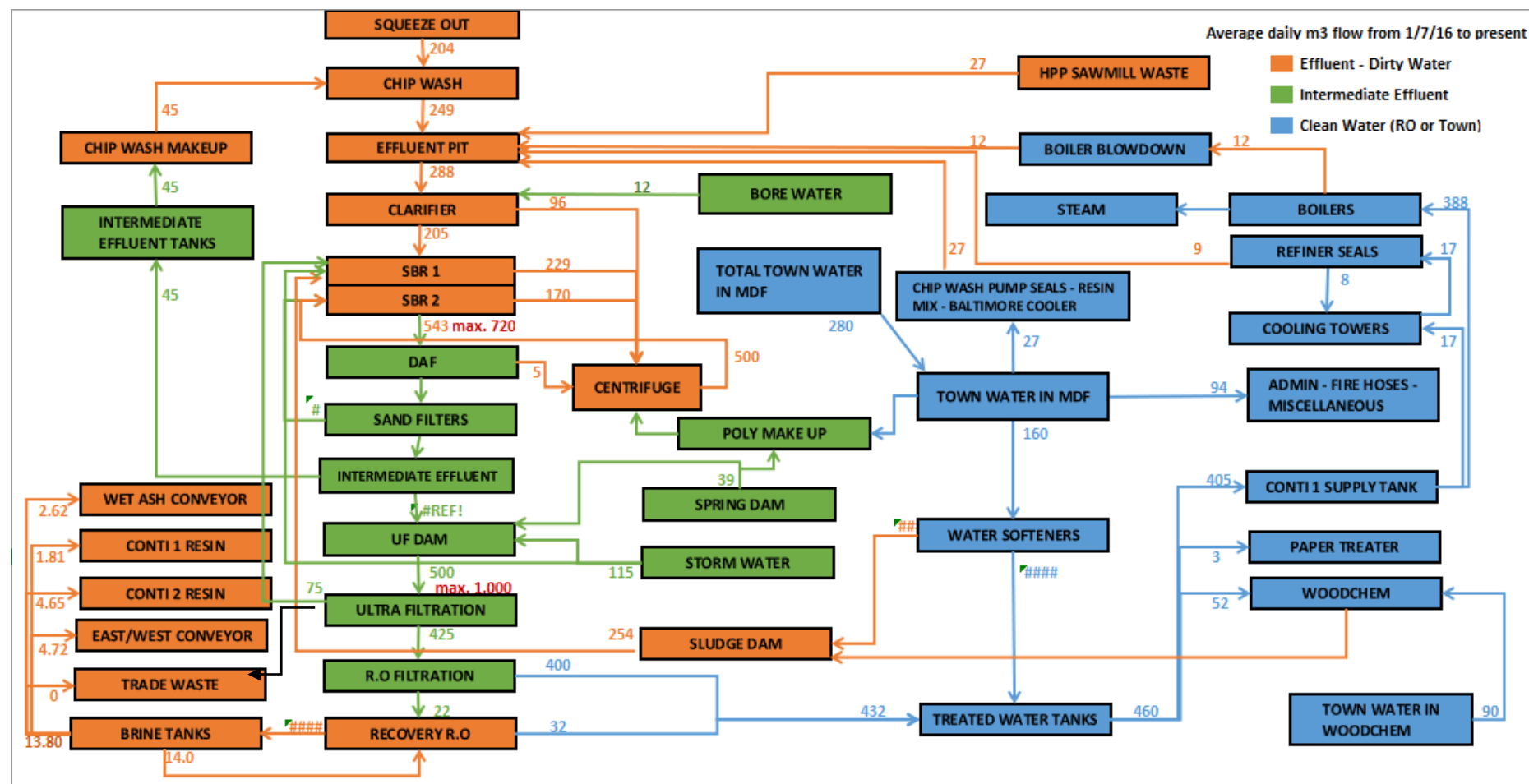
3.2 Water Consumption

Inflow water sources to the Borg Panels facility (refer **Figure 1**) include:

- Town Water – average daily flow of 280m³ metered at entry to the facility on Lowes Mount Road; and
- Recycled water from water treatment plant – average total daily flow of 432m³. Recycled water is made up of:
 - o Spring Dam Water (Ground Water Access Licence 28951 (refer **Section 2.5**)) – average daily flow of 39m³ up to a maximum extraction of 28 mega litres per annum, metered at Spring Dam pump station;
 - o Harvested Stormwater – average daily flow of 115m³ metered at FF2 Dam meter;
 - o Process Water – average daily flow of 280m³ metered at the process locations shown on **Figure 1**.

The total daily site water usage for the facility is estimated at approximately 750m³. All water meters are read and recorded daily.

Figure 1 Average Daily Flow



3.3 Water Treatment

All site effluent (wastewater) is treated in the water treatment plant. Effluent is also received from HPP Sawmill Site 2 and Woodchem in the form of boiler blow down, cooling tower bleed water and wash down water.

The water treatment plant utilises filtration and biological degradation to remove contaminants from the water for re-use, capturing over 400kL per day from the site and reusing it in the manufacturing process.

Borg Panels produces most of the incoming effluent and consumes a large proportion of recycled water, mainly in steam generation. Effluent is generated by the washing and squeezing of chip during the initial stages of MDF manufacturing. The volume of effluent generated depends on chip volumes (production rates) and chip moisture. Moist chip will generate more waste effluent than dry chip and typically a greater volume of effluent is generated during the winter months. Air emission control devices that were installed for the particleboard line also generate effluent. This is from the WESP and SAP90 purification systems. Approximately 400-500kL/day of effluent is generated by the facility.

High quality recycled water produced by the Reverse Osmosis (RO) system is used for the boiler (300-400kL/day approximately) and Woodchem (100-150kL/day approximately). The Paper Treater also requires a small amount of high-quality RO or soft water.

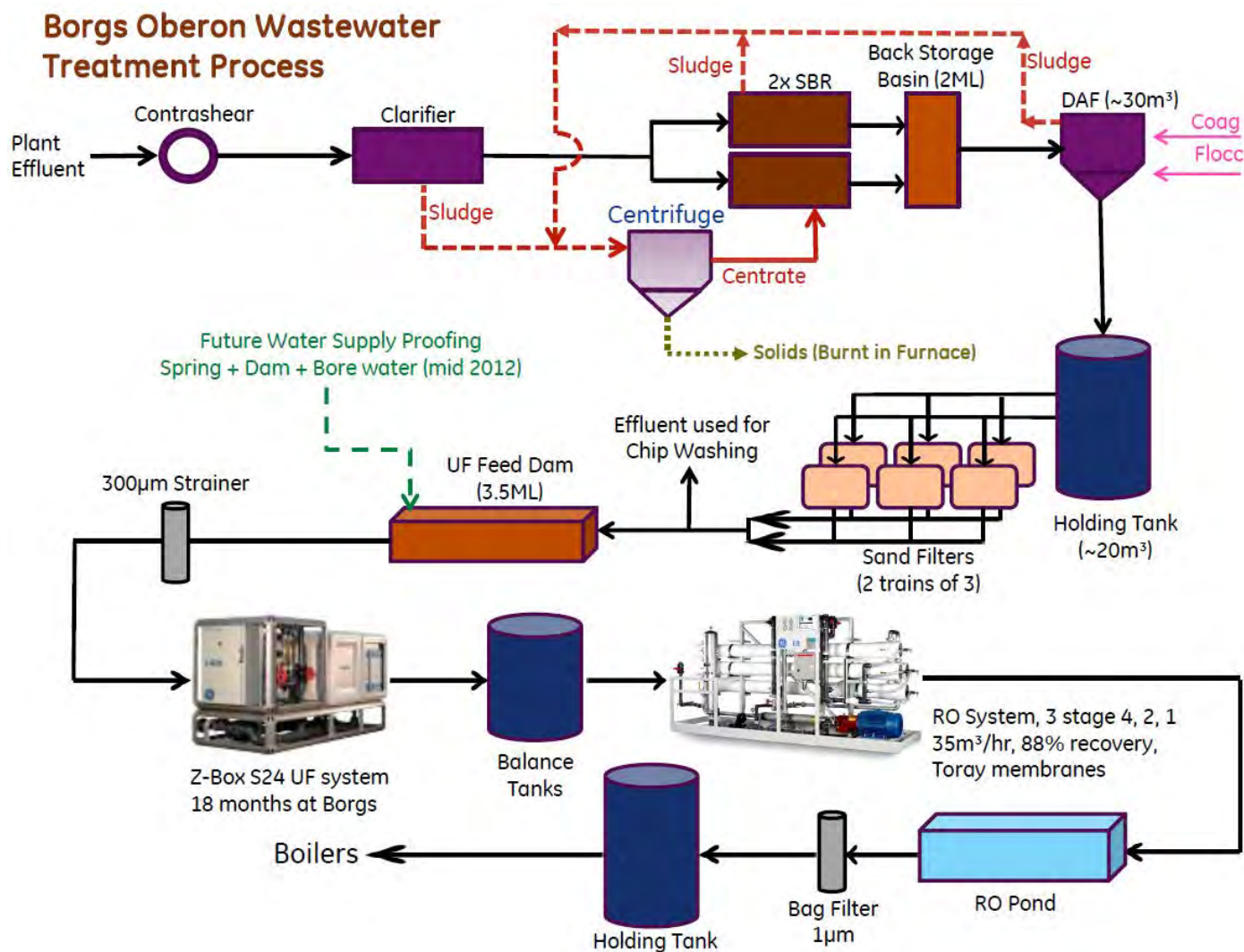
Intermediate effluent or low-quality recycled water treated by dissolved air floatation (DAF) is used for the chip wash systems (approximately (50kL/day). Dewatered waste sludge (biomass) from the centrifuge is sent to the heat plant as fuel for the furnace.

Figure 2 provides an overview of the major components of the water treatment system.

3.4 Wastewater

The water treatment plant produces brine, a waste product from the Reverse Osmosis (RO) system, which is high in dissolved solids. Brine solids are currently recycled within the water treatment plant and reused by way of dilution in the MDF and particleboard manufacturing process.

Figure 2 Major Components of Water Treatment System



4 Stormwater Management

4.1 Overview

Generally, the site grades towards the east, and the licenced discharge points to the tributary which runs to Kings Stockyard Creek are located in the north eastern corner of the site. A high ground water table is known to exist at the site and generally flows towards the north eastern corner. This fluctuating ground water table is a significant constraint of the site since excavation below this level cannot occur without consequential groundwater recharging taking place however is not expected that any excavation will occur which will intercept the groundwater table.

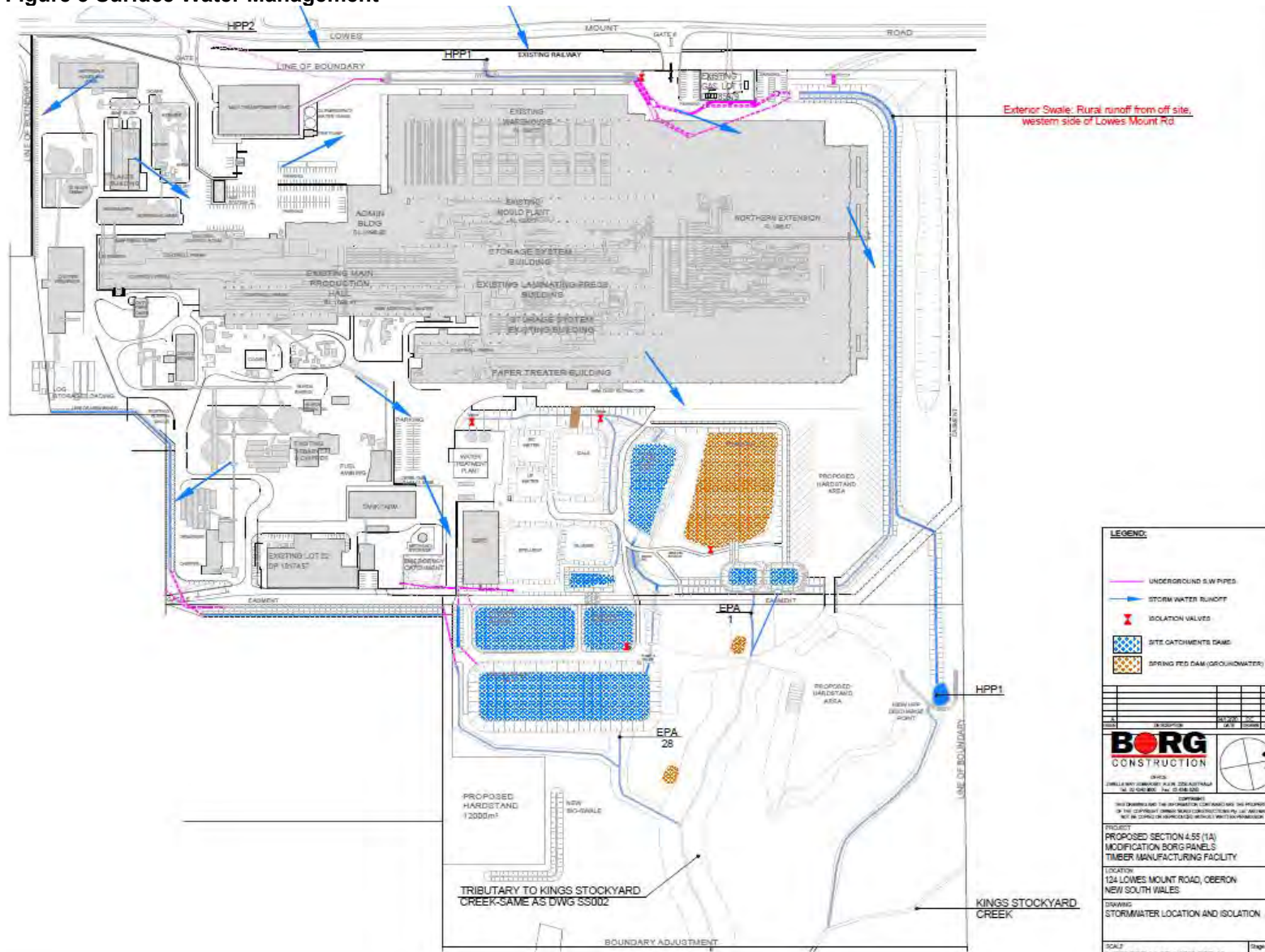
The surface water management system includes runoff from adjoining properties in the Oberon Timber Complex on the western side of Lowes Mount Road, and operates as follows:

- Runoff from Structaflor and Highland Pine Products (HPP) facilities flow across Lowes Mount Road and is directed onto the site in a 'dirty' water swale. This swale was extended to provide a longer flow path during construction under SSD 7016.
- Clean water from rural undeveloped parts of Lowes Mount Road is also directed onto the site in a 'clean' water swale, which runs alongside the dirty water swale.
- Borg Panels roof runoff and runoff from the western side of the facility is directed into the dirty water swale and then conveyed into the existing stormwater flush basin (Flush basin 1) and from there, into the newly constructed stormwater flush basin (Flush basin2) with a holding capacity of 9ML.
- Runoff from the eastern and open parts of the site, which contains fine fibrous wood material, is directed first to a gross pollutant trap and then into the stormwater treatment pond.
- Runoff from the southern part of the facility drains into open swales before being piped to the new stormwater flush basin.
- Emergency catchment dams strategically located to contain runoff in the event of a contamination event.

In accordance with EPL 3035, Borg Panels monitor discharge from the 'v'-notch weir (EPA Point 1) and from the new stormwater flush basin (EPA point 28) to the unnamed creek that discharges to Kings Stockyard Creek. The location of the 'v'-notch weir is on the outflow of the southern dam (MDF Dam). The outflow from the new stormwater flush basin is on the eastern side of the basin where a spill way has been constructed. Overflow from this spill way makes its way through riprap to existing grassed swales connected to the tributary which flows to Kings Stockyard Creek. This is shown on **Figure 3**.

Figure 3 shows the current design specifications including the additional stormwater treatment and storage basin (First Flush Basin), additional effluent storage pond and emergency spill catchments.

Figure 3 Surface Water Management



4.2 Objectives

The main objectives of the stormwater management system are to:

- Ensure water quality discharging from the site adheres to the sites various Environmental Protection Licence 3035 requirements;
- Be capable of conveying the 100-year ARI rainfall event to the discharge location on Kings Stockyard Creek;
- Provide adequately sized retention basins to allow water to be reused on-site;
- Minimise peak flow rates; and
- Maintain the separation of upstream HPP Site 1/rural runoff clean stormwater flows.

4.3 Site Strategy

The main stormwater strategy for the site is to convey and treat stormwater from both the Borg Panels facility and upstream sites using large, flat grassed swales, underground pipe network and stormwater flush basins. The two flush basins allow water to be captured for reuse on-site and for sediments to settle out. A detailed schematic of the stormwater system is shown in **Figure 3**.

A 1050 mm diameter culvert under Lowes Mount Road connects Structaflor/HPP2 with the western grass dirty water swale. A 900 mm diameter culvert connects HPP Site 1 with the western clean water swale.

Due to the flat topography of the site the western grassed swales act as elongated basins holding a significant volume of water prior to discharging into the channel systems downstream from Gate 6.

These swales are linked to the channel systems which run along the northern boundary via four (4) x 1050mm diameter culverts constructed in two separate arrangements. The inlet levels to these culverts are raised slightly higher than the upstream swale invert and a large concrete pit connects the culverts below Gate 6.

The northern boundary channel system continues to separate the Structaflor/HPP2 (herein referred to as HPP2) and Borg flows from the HPP1/rural runoff flows (herein referred to as HPP1). The culverts and swales are sized to convey the 100-year flow rates from upstream catchments. In rainfall events greater than 1-year ARI water from all sites converge.

As can be seen in Figure 3, the clean water swale conveying HPP1 will be directed into a new basin/discharge point located in the north-eastern part of site. This diversion will occur once the MDF and HPP1 catchment basins are removed and infrastructure installed to direct site runoff to each of the flush basins. Water from the Spring Dam will continue to be conveyed via grassed swale to the tributary which runs to Kings Stockyard Creek.

Water from the southern and eastern parts of the site drains towards the north eastern corner and licenced discharge points through a series of swales, underground pipes and sediment basins. Water from the log yard containing fine fibrous wood material, is directed first to a gross pollutant trap and then into the stormwater flush basins.

4.4 Controls

Infrastructure for the protection of stormwater quality at the Borg Panels facility includes the following:

- Bunding of chemical and petroleum products tanks;
- Segregation of stormwater and process waters;
- Treatment and reuse of harvested stormwater;
- Gross pollutant trap to remove fine fibrous wood material; and
- Penstock gate valves to allow for shutting down the stormwater system in the event of a spill or fire emergency.

4.5 Maintenance

Regular cleaning, through manual sweeping and mechanical street sweeping of production areas is undertaken to help prevent dirt, wood fines and chip from entering the stormwater system. The gross pollutant trap also catches debris that is not swept up, further preventing entry to the stormwater basins. This cleaning of production areas helps ensure the final water quality discharging from the site is within EPL limits.

Regular maintenance of the penstock, headwall and other valves, trash racks, gross pollutant trap, and 'v'-notch weir ensure the system runs smoothly and that in the event of an emergency all items of equipment are operational. These areas are inspected at least monthly with condition and any identified actions captured on the Monthly Inspection Checklist. Action items are tracked using DataStation.

Due to the flat longitudinal swale grades it is possible that sediment will build up in the swale system. The swales and basins are to be cleaned when a significant amount of sediment builds up to keep the swales operating at their optimal performance level.

Monthly inspections are undertaken which identify the need to clean any excess sediment build up.

5 Erosion and Sediment Control

5.1 Overview

Changes in land use have the potential to disturb soils, alter drainage patterns and affect environmental values both on and off site (Landcom, 2004). The operation is a MDF and particleboard manufacturing facility with limited potential for erosion and sediment generation. The facilities and surface water management system have been developed over time as the site has developed and any undeveloped areas are well vegetated.

Erosion is mostly a short-term problem that results from the removal of vegetation and ground cover for construction purposes. The MDF infrastructure areas were constructed many years ago and have become stabilised over time. The newer infrastructure constructed for the particleboard line under SDD 7016 has seen an increase in hardstand area, reducing the potential for erosion and excess sedimentation to occur across the facility.

5.2 Site Activities and Potential for Soil Erosion

The MDF manufacturing facility is well established and areas that were disturbed during the construction phase have been stabilised. Construction for the particleboard facility is



complete though subsequent modifications see continued additions to the original development consent under SSD 7016. Where these activities have potential to impact on erosion and sedimentation, management and mitigation measures are captured in the Construction Environmental Management Plans.

Surface water has the potential to cause erosion and is managed as part of the normal site operations. Figure 3 shows the surface water management system for the entire Borg Panels site.

Several types of erosion control measures have been implemented with the aim of preventing soil erosion and the entry of sediments into any of the surrounding water bodies.

Open swales and drains shown on Figure 3 are typically constructed with either a parabolic or trapezoidal cross section rather than a V-shape, which can be easily eroded. Channels and associated banks have been grassed or had concrete applied to assist with stability during water flows and to minimise sediment movement. Channels are periodically inspected (at least monthly or following significant rainfall events) to identify and repair damage caused by scour, sediment deposition, channel obstruction and loss of vegetative cover.

Stormwater flush basins constructed within the surface water management system shown on Figure 3 have been designed and located to contain dirty water runoff which is then typically harvested for reuse in the production process.

This infrastructure is regularly maintained and cleaned out once the capacity of the structure is deemed to have been reduced significantly. The structures are inspected after major rainfall events and repairs made as required.

5.3 Maintenance of Erosion and Sediment Controls

The Borg Panels facility has been operational for many years and there are relatively limited opportunities for erosion and sediment generation at this established site, including for the new particleboard facility. Regardless, regular inspection and maintenance of permanent structures ensures that the water management system and erosion controls remain effective. At active disturbed areas, regular inspections are undertaken to monitor the condition and effectiveness of controls.

Measures to minimise erosion and sediment generation include:

- Identification and review of surface activities that may change surface water flows and result in erosion;
- Minimising the clearing of vegetation and where clearing is necessary site rehabilitation of disturbed areas;
- Regular checking of rehabilitated areas;
- Installation of temporary and/or additional permanent controls to manage locations that have been identified as requiring attention;
- Diversion of surface and road runoff away from disturbed areas;
- Regular inspection and cleaning of catch drains and structures following storm events or other activities such as vehicle movements that may result in damage; and
- Clearing of excessive vegetation and weeds along drainage lines.

6 Surface Water Monitoring Program

Surface water monitoring is undertaken in accordance with the requirements of EPL 3035 issued under the *Protection of the Environment Operations Act 1997*.

6.1 Location of Monitoring/Discharge Points

Surface water is discharged from site via EPA Identification/Licenced Discharge Points 1 and 28. Both points discharge to a tributary (unnamed creek) of Kings Stockyard Creek as shown on Figure 3.

The locations and type of surface water monitoring and discharge points are listed in **Table 3**.

Table 3 – EPL 3035 Surface Water Monitoring and Discharge Points

EPA Identification No.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge to waters; Discharge quality monitoring	Discharge to waters; Discharge quality monitoring	Discharge from 'v'-notch weir to unnamed creek that discharges to Kings Stockyard Creek as shown on the monitoring point figure provided to the EPA on 22 August 2017
28	Discharge to waters; Discharge quality monitoring	Discharge to waters; Discharge quality monitoring	Discharge from First Flush Basin to unnamed creek as shown on monitoring point figure provided to the EPA on 22 August 2017

6.2 Concentration Limits

The concentration of a pollutant discharged from EPA Identification/Licenced Discharge Points 1 and 28 must not exceed the water concentration limits specified in **Table 4**.

Table 4 – Water Concentration Limits EPA Identification Point 1

Pollutant	Units of Measure	50 percentile concentration limit	100 percentile concentration limit
Aldrin	µg/L		0.3
Biochemical Oxygen Demand (BOD)	mg/L		20
Colour	Hazen	80	160
Dieldrin	µg/L		0.3
Methylene Blue Active Substances (MBAS)	mg/L		0.5
Nitrogen (Total)	mg/L		10
Oil and Grease	mg/L		10
pH	pH		6.5-8.5
Phosphorus (Total)	mg/L		0.3
Total Suspended Solids	mg/L		50



6.3 Requirement to Monitor and Frequency

For EPA Identification/Licensed Discharge Points 1 and 28 Borg Panels must monitor, by sampling and obtaining results of analysis, the concentration of each pollutant specified in **Table 4**.

Sampling is undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in New South Wales* (DEC, March 2004). Water samples are collected by trained personnel and analysed by NATA accredited laboratories.

The frequency of sampling is weekly during any discharge.

6.4 Surface Water Monitoring Data

All surface water monitoring data is uploaded monthly to Borg Panels website:

<https://www.borgs.com.au/locations/oberon-nsw/>

7 Surface Water Impact Assessment Criteria

This section sets out the surface water response plan for Borg Panels facility. Potential impacts on surface water, triggers, actions and responsibilities for addressing impacts are summarised in **Table 7**.

7.1 Water Quality Exceedance

Should water quality monitoring indicate that the criteria set out in EPL 3035 (**Table 4**) have been exceeded, Borg Panels will conduct an incident investigation into the potential sources and/or causes.

As the limits specified in EPL 3035 are the 100-percentile concentration limit, all exceedances will generate an investigation, however the exceedance will need to be determined to be *causing or threatening material harm to the environment* to trigger the pollution incident response measures detailed in the Pollution Incident Response Management Plan.

In the event that a pollution incident causes or threatens material harm to the environment, the Borg Panels Pollution Incident Response Management Plan (PIRMP) is to be immediately implemented, including immediate notification to authorities as outlined in the PIRMP.

Environmental incidents which are identified as *not* causing or threatening material harm to the environment should be contained if safe to do so, then the Borg Panels Incident Reporting procedure undertaken. Exceedances classified as not causing or threatening material harm to the environment will be reported annually in the Annual Review.

Full details on environmental incident investigation and reporting are provided in the OEMP.

7.2 Unlicensed Discharge

In the event of an unlicensed discharge, Borg Panels will notify the EPA immediately and undertake an investigation of the discharge event. In the unlikely event that a discharge poses a threat to health of surrounding property owners and occupiers, Borg Panels will implement the Pollution Incident Response Management Plan (PIRMP), which includes notification with those likely to be affected. A list containing surrounding property owner's and occupier's contact details is held by Borg Panels.

The notification procedure is to be initiated by the Environment Coordinator for Borg Panels. In the absence of the Environment Coordinator the notification procedure is to be initiated by the person designated as fulfilling the responsibilities of the Environment Coordinator. Notification will occur within 24 hours of it becoming known to site personnel that surrounding property owners and occupiers are likely to be adversely affected by discharges from the site. A record will be kept of all property owners and occupiers contacted and this will be recorded in DataStation by the Environment Coordinator.

An investigation report on the unlicensed discharge will be prepared and provided to the EPA or other relevant agency, including DPIE.

7.3 Contingency Plan to Manage Any Unpredicted Impacts

Should impacts eventuate that have not been predicted or considered in the SWMP, the following contingency plan will apply:

- 1) Assess whether impacts constitute a material risk of harm to the environment, and trigger the PIRMP and reporting requirements of the OEMP if necessary;
- 2) Investigate the cause of the unpredicted impact. This may include onsite process owners or external specialists as required;
- 3) Consult with government agencies regarding the unpredicted impact if the impact is material and require additional management strategies; and
- 4) Revise the SWMP.

The scale of the unpredicted impact will inform the level of response required through this process and whether the impact is material and therefore requires external notification.

Table 7 – Surface Water Response Plan – Triggers, Actions and Responsibilities

Aspect	Trigger	Action	Timeframe	Responsibility	Further Information
Water quality impacts	Exceedance of water quality criteria set out in EPL 3035 (Table 4)	Determine if the event is a pollution incident causing or threatening material harm to the environment. If yes, implement the Borg Panels Pollution Incident Response Management Plan (PIRMP) immediately. If not a pollution incident causing or threatening material harm to the environment, follow the Borg Panels Incident Reporting procedure.	Material harm incidents are to be reported immediately to DPIE, EPA and any other relevant agency. A written report on the incident is to be provided within 7 days. Incidents/exceedances classified as not causing or threatening material harm to the environment will be reported annually in the Annual Review.	Environment Coordinator/Manager	Section 7.1
Surface water discharge	Surface water discharge that is not licenced under EPL 3035	Notify DPIE, EPA and any other relevant agency and potentially affected persons (where necessary). Trigger the Pollution Incident Response Management Plan immediately if required (PIRMP material harm incident). Investigate and prepare report outlining causes, impacts and recommended mitigation measures. Supply report to agencies. Implement report recommendations.	Notify DPIE, EPA and any other relevant agency immediately. Trigger PIRMP immediately if of sufficient magnitude. Provide written report within 7 days.	Environment Coordinator/Manager	Section 7.2

8 Reporting

8.1 Monitoring Data Review

The Environment Coordinator and/or Environmental Manager will review all surface water quality monitoring results following a licenced discharge and ensure corrective action is taken where results or trends indicate non-compliance or risk of future non-compliance to the development consent or EPL criteria.

The surface water results are included in the Annual Review. The Annual Review includes a summary of monitoring results during the past year, comparison against the water quality criteria specified in the EPL, and summary of the previous year's monitoring results.

The Annual Review also identifies any trends in water quality impacts and any non-conformance over the year, as well as describing any actions currently implemented or planned to ensure compliance with the water quality impact criteria. The Annual Review is available to the relevant authorities including the Department of Planning, Industry and Environment (DPIE) and Environment Protection Authority (EPA). It is also placed on the company's website along with a summary of environmental monitoring results in accordance with the requirements of Development Consent SSD 7016 and EPL 3035.

The EPA is provided with an annual return, statement of compliance and a monitoring and complaints summary annually as required by EPL 3035.

Borg Panels conducted an Independent Environmental Audit in 2018 and will continue at three yearly intervals thereafter in accordance with SSD 7016 condition of consent C15.

8.2 Reporting

8.2.1 Annual Review

In accordance with Development Consent SSD 7016 an Annual Review report is prepared and submitted to the Secretary Department of Planning, Industry and Environment on an annual basis.

The Annual Review summarises the environmental performance of Borg Panels activities for the reporting year. The results of the monitoring undertaken as specified in this SWMP will be compared against the impact assessment criteria in the relevant environmental management plans or monitoring programs and/or limits contained in Development Consent SSD 7016 and EPL 3035 to assess the effectiveness of environmental management.

8.2.2 Exceedance of Criteria / Environmental Incident Management

Notification procedures and actions upon identification of an exceedance of any impact assessment criteria or management levels will be as per the Operational Environmental Management Plan (OEMP), and the Pollution Incident Response Management Plan.

8.2.3 Complaints

Community complaints will be managed in accordance with the procedures in the Operational Environmental Management Plan (OEMP).

9 SWMP Review

In accordance with Development Consent SSD 7016 Condition C10, this SWMP will be reviewed and if necessary revised within 3 months of an:

- Approval of a modification;
- Submission of an incident report under Condition C13;
- Approval of an Annual Review under Condition C11; or
- Completion of an audit under Condition C15.

The SWMP will also be updated as required to reflect any change to on-site management or monitoring programs referred to in this document, or any changes to Development Consent SSD 7016 or EPL 3035.

Revisions to the SWMP will be submitted to the Secretary DPIE for approval.