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Plant Hazard Analysis & Risk Assessment

Model: Morbark BVR 13	Date: 01/06/2026

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This Hazard Identification and Risk Assessment document is Model specific. It is based on the knowledge that all new machines of this model were/are produced to the same specification and design. It assumes all examples of this exact model currently in service to be as per the original specification, and to have been and continue to be operated and maintained in accordance with the Manufacturers requirements, and with all applicable statutory and regulatory requirements of an original example of the Model for which it was prepared. This Assessment must be reviewed by all stakeholders as required:

- Having regard to the manufacturers approved options
- Having regard to the general arrangement of miscellaneous equipment or facilities that may be provided on the plant according to the end users requirements or specification
- According to the particular circumstances under which the plant is used and maintained
- As new Hazards are identified and/or as risks are reassessed
- As existing risk control measures are revised or new risk control measures are introduced and implemented
- As and when work procedures are altered or revised
- Having regard to any unauthorised alterations or modifications made to the design or operation of the equipment

Monitor has made every attempt to identify all reasonably foreseeable operating circumstances in preparing this Assessment, however no guarantee as to the completeness of this Assessment is provided or implied.
It is the responsibility of Owners, Employers and Operators to identify all hazards associated with the use of this equipment specifically applicable to the task to be carried out and to where the equipment is to be used or located. They must assess the risk potential for each of the identified hazards and ensure that all reasonably practicable steps are taken to ensure those risks are effectively controlled.

- All operators must be trained and competent in the safe use of this particular piece of equipment, and hold appropriate qualifications as required by applicable regulatory requirements
- Operators of the equipment to which this Plant Risk Assessment refers must read and understand the Instructions for Use and Warnings contained within the Operators Manual prior to use
- All Daily Pre-Start Checks, Routine and Periodic Inspections, Maintenance and Repairs to this equipment must be carried out in accordance with the requirements of AS 4024.3701:2020.

ID	Description of Hazard Potential		Activity	Risk control measures already implemented	Risk	Supplementary risk control measures	Risk score
	Origin	Consequence					
1	Operator Competency						
1.1	Untrained operator, not following proper operating procedures. Distracted operator. Following a poor system of work. Operator working alone.	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death	Set up Operation Maintenance	Operation instructions explained in operator's manual	C4 Extreme	Train operators on safe use of the plant. Operator training should include at least the following: • pre-operation inspections • safe operation of plant • regular maintenance tasks • understanding of plant operation • capabilities and limitations • emergency procedures Do not operate the plant unless proper training has been received. Ensure operator's manual is kept with the plant for reference. Do not operate the plant when distracted, ill, excessively fatigued, or under the influence of drugs or alcohol. Implement appropriate system of work based on manufacturer's recommendations (e.g. operating instructions shown in operator's manual).	B1 Low
1.2	Misuse Unauthorised use of plant	Entanglement (amputation/death) Laceration / cuts / bruises / fractures	Operation	Operator's manual warns about not using the plant for other than its intended purpose.	C4 Extreme	Do not use the plant for any other purpose than its intended use as explained in the operator's manual.	C4 Extreme

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		Serious injury or death				Do not operate the plant unless proper training has been received. Keys are not to remain in an unattended machine.	
2	Plant Limitations						
2.1	Excessive incline causing plant to overturn	Roll over	Driving Operation	Operator's manual recommends that you do not operate on unstable or sloped ground.	C3 High	Do not drive the plant over ground slopes which exceeds its limitations. Avoid driving on ground too soft to support the machine's weight. Make sure the engine and hydraulic oil are warm before working on inclined ground. If the chipper is attached to a vehicle when set up, the hitch is secure, the safety chains are properly attached, the brake is on, and no one is in the vehicle.	B2 Low
3	Operation						
3.1	Damaged control panel	Crushing Impact	Set up Operation		C2 Medium	Regularly inspect control panel.	A1 Rare
3.2	Moving chipper into position	Overturning Crushing	Driving Set up	Follow maximum inclination limits set by manufacturer. Found in operator's manual.	C4 Extreme	Carry out job site risk assessment to determine suitability of the site before commencing any work. Avoid driving on steep ground; find alternative routes whenever possible. Do not drive at fast speeds.	B2 Low

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						Avoid driving on ground too soft to support the machine's weight. Do not stand on the lower side of the plant while driving on steep ground. Never drive across steep ground, always drive with the wheels parallel to ground inclination. Chipper should sit on a level surface with the machine parallel to the ground.	
3.3	Set up	Struck by flying debris – sticks, branches, timber Unsecured chipper causing unexpected movement, serious injury, or death	Operation	Operator's manual states when in use, woodchip and debris are ejected with considerable force from the chute. Must set up on stable level ground.	D3 High	Ensure only operators are within work area - ensure the exclusion zone is in place and operational. Do not allow discharge to be directed onto roads or public rights of way. Make sure the chute directs woodchip to a safe location so that no one can be harmed or property damaged. If hitched to towing vehicle – Park brake on towing vehicle – Hitch secured to vehicle with locking pins – Safety chains attached – Chipper level, with the chipper parallel to the ground. If stand alone with lack support	B2 Low

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						– Chipper level, with the chipper parallel to the ground – Wheel chocks must be placed under both wheels to keep the chipper from moving.	
3.4	Prestart inspection	Laceration / cuts / bruises / fractures	Operation	Prestart inspection as per manufacturers recommendation. Chipper fitted with - E-Stop - Safety control bar - Safety cables - Bump bar - Curtains (if applicable)		Ensure any fitted safety devices or equipment are in good condition and functional during Pre-start check.	A1 Low
3.5	Uncontrolled movement of plant components	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death Muscular stress / Musculoskeletal Disorder	Set up Operation Maintenance Cleaning Troubleshoot	Prestart inspection as per manufacturers recommendation.	C3 High	Isolate power to plant and remove the main switch key when performing maintenance and cleaning tasks. Maintenance to be carried out by a competent person. Pay attention to hazard decals to machine.	B2 Low
3.6	Operator safety	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death	Set up Operation Maintenance Cleaning Troubleshoot	Ensure operator: - Has no loose clothing or jewellery, hair tied back - Has snug fitting PPE with no cuffs or strings - Has clothing tucked in where applicable.	D4 Extreme	May require dust mask dependant on type of timber being chipped.	B2 Low

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				- Is provided with correct rated hearing protection. - Safety footwear			
3.7	Feeding material into chipper	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death Muscular stress / Musculoskeletal Disorder	Operation	Operator's manual recommends that you do not try to force material over 381mm (15") in diameter or no wider than the infeed opening. Use speed (RPM) as directed by manufacturer. Do not exceed.	D4 Extreme	Ensure material to be chipped is clear of metal, stones, plastic, fauna, pests, diseases, rope or other contamination. Ensure material of suitable size for chipper. De-limb/cut as required. Load materials from side of in-feed chute. Do not stand in front during loading. Place butt-end first. Push short stubs through with longer branches. Lay shorter branches of top of longer ones. Do not place hands or body parts into in-feed chute. Once in-feed grabs material, step back from chipper. Do not use force to push materials through.	B3 Medium
3.8	Feeding material into chipper using the winch option	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death	Operation	Operator's manual outlines the procedure for using the winch.	D4 Extreme	Ensure winch cable is properly fastened to the load to prevent the cable unravelling and flying back causing serious injury to the	B2 Low

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		Muscular stress / Musculoskeletal Disorder				operator and/or damage to the machine. Do not allow anyone to stand between the winch load and the winch during operation. The safety control bar must be in the stop position before operating winch. Prior to engaging feed wheels ensure that the feed wheels are stopped before any part of the winch cable or hook breaks the plane of the infeed opening.	
3.9	Swing tongue	Muscular stress Struck by flying debris Contact with other machinery or infrastructure	Operation Transport	Always centre swing tongue before transporting, ensuring pivot pin is securely in place in the slot on the frame and tongue.	B4 High	Do not stand or position yourself near the discharge chute during operation. Move spectators or bystanders away from the discharge chute.	B2 Low
3.10	Discharge	Struck by flying debris – sticks, branches, timber Entanglement (amputation/death) Laceration / cuts / bruises / fractures- Serious injury or death	Operation	Follow procedure in operator's manual if blockage occurs.	D4 Extreme	Ensure discharge chute pointed in the direction that the chipped wood is collected in the back of the tow truck that is hitched to the chipper or a designated area that does not affect safe operation. Clear away discharge regularly. If chipper begins to vibrate or shake violently, stop work immediately and stop machine.	B2 Low

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						Always stop machine, wait for moving parts to stop and lock out power to chipper before removing any blockages. NEVER climb or stand on chipper/in-feed.	
3.11	Faulty/out of order, or poorly maintained plant	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death Muscular stress / Musculoskeletal Disorder	Operation Emergency Maintenance	Operator's manual outlines plant maintenance schedule. Current maintenance inspections up to date as per manufacturers recommendation.	B4 High	Always perform pre-operation inspection before operating the plant. Implement 'tag out' procedure to isolate faulty/out of order plants. Do not use an 'out of order' plant. Record all faults in logbook. Perform plant maintenance as per manufacturer's maintenance schedule. Keep maintenance records / plant logbook up to date.	B1 Low
3.12	Refuelling	Explosion Fire			B4 High	When refuelling: • Keep away from ignition sources • Do not smoke • Avoid spilling fuel over hot engine.	A2 Low
3.13	Engine exhaust pipe	Burn	Operation	Exhaust pipe guarded. "Hot surface" decal in place.	C2 Medium	Do not touch exhaust pipe when hot.	A1 Low

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3.14	Plant modifications after completion of risk assessment.	Crushing Overturning	Operation Set up		C5 Extreme	Ensure modifications made to the plant are inspected, assessed, and approved by a competent person. Review hazard analysis and risk assessment after plant modifications.	B1 Low
4	Transport / Handling						
4.1	Unsecured vehicle	Impact	Transport		C4 Extreme	Ensure the machine is secured in accordance with the requirements described in the manual and with relevant transport regulations.	A2 Low
4.2	Injury sustained when hitching to or unhitching machine from towing vehicle	Strains / Sprains Crush Impact	Transport	Jack support fitted to lift machine to tow coupling height.	C3 High	Ensure park brake is applied before unhitching from vehicle. Ensure jockey wheel and tow coupling are maintained or replaced if damaged.	A2 Low
4.3	Towing Machine	Overturning Impact	Transport		C3 High	Ensure machine is in transportation mode before departing: • Swing tongue is locked into transport position (if applicable) • Discharge chute is securely fixed • Folding tray is upright and locked into place. Clear machine of loose woodchip material before departing.	A2 Low
4.4	Incorrect replacement tyre fitted	Crushing Overturning Impacting	Operation	Maintain correct tyre inflation pressures as per manufacturers recommendation.	B4 High	Ensure replacement tyres match the plant manufacturer specifications.	A1 Low

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4.5	Flat tyre	Overturning Crushing Impact	Operation	Prestart inspection as per manufacturers recommendation.	C4 Extreme	Regularly check condition of pneumatic tyres. Avoid driving over sharp obstacles or debris.	B1 Low
5	Plant Failure						
5.1	Power Failure Burst hydraulic hose	Crushing Overturning Burn Skin irritation	Set up Operation Maintenance		A3 Medium	Check hydraulic hose condition during periodic maintenance. Report and "tag out of service" if identified.	A2 Low
5.2	Excessive hydraulic oil pressure.	Impact Crushing	Set up Operation		C3 High	Check pressure settings during preventative maintenance.	A1 Low
5.3	Emergency Stop not available	Crushing Impact Trauma	Emergency Maintenance		C4 Extreme	Check that the emergency stop button functions correctly.	B1 Low
5.4	Inadequate maintenance procedures	Crushing Impact	Maintenance	Maintenance procedures included in Operator's Manual.	C3 High	Allow only qualified service personnel to perform maintenance tasks.	A2 Low
5.5	Insufficient Lockout / Tag-out when conducting maintenance	Entanglement (amputation/death) Laceration / cuts / bruises / fractures Serious injury or death Muscular stress / Musculoskeletal Disorder	Maintenance	Follow lockout instructions listed in Operator's Manual.	C4 Extreme		B2 Low

RISK MATRIX							ACTION	HEIRACHY OF CONTROLS
		CONSEQUENCE					**EXTREME –** Do not proceed, until further control measures are implemented to lower the risk. Senior management attention required. **HIGH –** Review and introduce additional controls to lower level of risk. Needs senior management attention. **MEDIUM –** Monitor and maintain supervision and controls. Specify management responsibility. **LOW –** Monitor and manage by routine procedures and monitoring.	1. Elimination – controlling the hazard at the source 2. Substitution – e.g. replacing one substance or activity with a less hazardous one 3. Isolation – e.g. use of barriers to shield or isolate the hazard, enclosures for noisy machinery, installing guards on machinery 4. Engineering – e.g. design and install equipment to counteract the hazard 5. Administration – policies and procedures for safe work practices 6. Personal Protective Equipment – e.g. respirators, ear plugs, face masks, safety glasses, safety shoes
		1. Insignificant	2. Minor	3. Moderate	4. Major	5. Catastrophic		
LIKELIHOOD	**E. Almost Certain** Is expected to occur immediately or within a short timeframe	HIGH	HIGH	EXTREME	EXTREME	EXTREME		
	D. Likely Will probably occur in most circumstances	MEDIUM	HIGH	HIGH	EXTREME	EXTREME		
	C. Possible Could happen and has occurred here or elsewhere	LOW	MEDIUM	HIGH	EXTREME	EXTREME		
	B. Unlikely Unlikely to occur	LOW	LOW	MEDIUM	HIGH	EXTREME		
	A. Rare Not expected to occur	LOW	LOW	MEDIUM	HIGH	HIGH		

CONSEQUENCE DESCRIPTORS			
SEVERITY	**SAFETY**	**ENVIRONMENT**	**BUSINESS**
5. Catastrophic	Potential for incident resulting in serious damage and/or fatality	The aspect is legally or contract regulated and has the potential for a disastrous long term impact resulting in prosecution.	Loss > $1M
4. Major	Potential for incident resulting in serious damage and/or permanent disabling illness or injury	The aspect is legally or contract regulated and has the potential for a serious long term impact resulting in prosecution.	Loss of service provision
3. Moderate	Potential for incident resulting in significant damage and/or temporary disabling illness or injury	Significant environmental aspect with short term impact resulting in improvement notice.	Loss $100K - $1M
2. Minor	Potential for incident resulting in moderate damage and/or requiring medical treatment.	The aspect is legally or contract regulated and has the potential for a moderate reversible short term impact resulting in an improvement notice.	Prolonged reduction in service provision or productivity
1. Insignificant	Potential for incident resulting in minor damage and/or injury requiring first aid treatment	The aspect is not legally or contract regulated and has the potential for a minor negligible impact.	Loss $10K - $100K