
Feasibility study for a CCA vineyard post aggregation site



FINAL REPORT TO WINE AUSTRALIA

Project Number: **WA 2403**

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Australian Government

Wine Australia

Preface and acknowledgement

The idea for this feasibility study came from a conversation in September 2023 with Barb Cowey of Primary Industries and Regions SA. We were discussing potential options to reduce the cost to winegrape growers of disposal of discarded CCA-treated vineyard posts. Barb suggested that posts could be received and aggregated at unused regional waste receival sites.

At about the same time, I met with a few entrepreneurs offering technology to process end-of-life CCA posts. One of the uncertainties in their business model was the lack of large stockpiles of posts with known ongoing supply. Regional aggregation sites could therefore be a solution to the needs of these start-ups as well as providing a simpler disposal pathway for local growers.

In December 2024, Wine Australia was grateful to receive a grant from the SA Government through Green Industries SA to co-fund an investigation into the feasibility of regional aggregation of CCA posts within South Australia. Wine Australia's proposal for the feasibility study was supported by the South Australian Wine Industry Association, Wine Grape Council of SA, and Waste Management & Resource Recovery Association of Australia. These associations had advocated for the feasibility study with the newly formed South Australian intra-government CCA Treated Timber Working Group.

In mid-December 2024, Wine Australia appointed Rawtec Pty Ltd to conduct the feasibility study with the main output being:

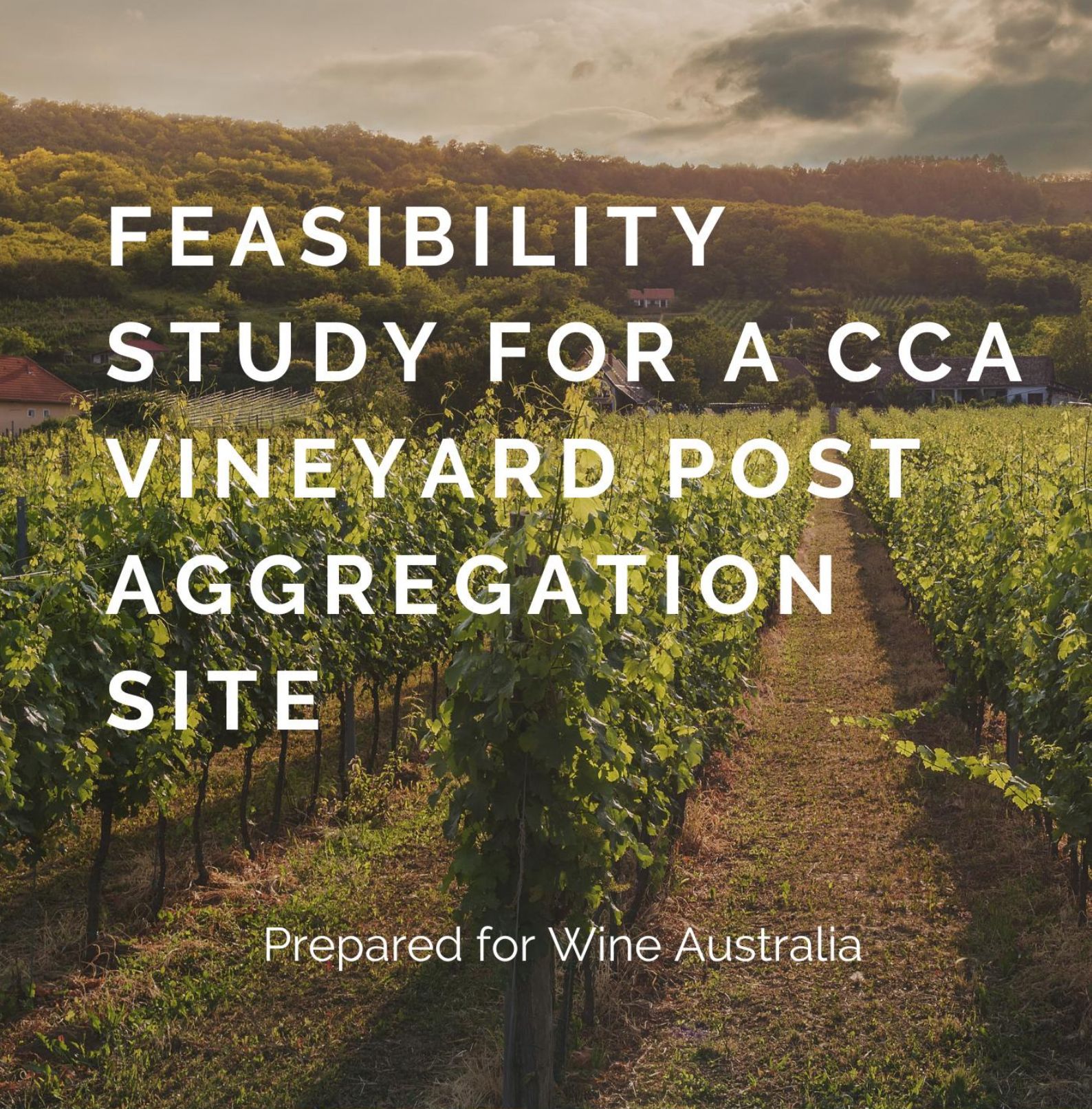
“ . . . a Report to inform the wine industry sector and decision makers within the South Australian state and local governments as to viability of operating sites in wine regions that could be used for the aggregation of CCA-treated posts collected or delivered from nearby vineyard owners.”

The report from Rawtec follows.

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Senior Research & Innovation Program Manager, Wine Australia

23 April 2025



FEASIBILITY STUDY FOR A CCA VINEYARD POST AGGREGATION SITE

Prepared for Wine Australia



Wine
Australia

Document verification

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26 Feb 2025	1.0	Feasibility Study for a CCA Vineyard Post Aggregation Site	M Rawson, G Webster, L De Garis, M Ellis	M Rawson
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Acknowledgment of Country

We acknowledge the Kaurna people of the Adelaide Plains as the traditional custodians of the land on which we live and work on. We respect their spiritual relationship with Sea and Country and acknowledge their Elders – past and present. We also pay our respect to the cultural authority of Aboriginal and Torres Strait Islander peoples from other areas of South Australia and Australia.

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Executive Summary

Feasibility Study for a CCA Vineyard Post Aggregation Site

This feasibility study, commissioned by Wine Australia and conducted by Rawtec (with Waste & Management Services), evaluates the viability of establishing, and operating an aggregation site for chromated copper arsenate (CCA) posts. The study evaluates potential locations, operational requirements, and risk management strategies to suggest a suitable approach for implementation.

CCA-treated vineyard posts have been widely used in SA's wine industry for over 50 years, with a lifespan of 30 to 40 years. Currently, there is no clear responsible end-of-life management strategy apart from disposal at a suitably engineered and licensed landfill sites, leading to risks such as:

- Environmental contamination from improper storage or disposal, or from combustion by bushfires.
- Workplace health & safety (WHS) hazards related to stockpiling and handling.
- Business and economic challenges, including high disposal costs and limited accessible disposal sites.
- Landfill sites that are not suitably engineered for leachate management carry a risk of breaching the Environment Protection (Water Quality) Policy 2015.

It is estimated that 35 million CCA-treated posts are in use, with up to 1.8 million posts removed annually due to breakage. Additionally, recent economic challenges in the wine industry have led to vineyard removals, further increasing stockpiles of obsolete CCA vineyard posts.

Key Findings

Environmental, Safety & Business Risks

A risk assessment was conducted to compare potential CCA aggregation sites with current uncontrolled private stockpiles. Key risks of aggregating and storing CCA vineyard posts include:

- Leaching of arsenic, chromium, and copper into soil and water.
- Dust and airborne contamination from handling CCA-treated timber.
- Fire hazards, requiring proper stockpile spacing, firebreaks, and emergency response measures.
- Reputational risks and long-term financial liabilities if stockpiles are abandoned.

The study outlines risk mitigation strategies, including proper site selection, hardstand storage, dust suppression, fire prevention measures, and strict operational controls.

Site Selection & Assessment

The study assessed over 500 sites, narrowing it down to 15 high-potential locations across five key wine regions, with a focus on the Riverland and Limestone Coast regions. Sites were evaluated based on:

- Proximity to vineyards and transport infrastructure.
- Existing site infrastructure (e.g., landfills, transfer stations).
- Environmental impact and compliance requirements.

- Operational feasibility and long-term viability

Operational & Establishment Models

Three potential models were considered:

1. Greenfield Site: Requires full development; highest cost (~\$2.62 per post¹, 21-42 months implementation time).
2. Brownfield Site (No Current Operations): Existing infrastructure but not operational; moderate cost (~\$1.26 per post¹, 9-18 months implementation time).
3. Brownfield Site (Existing Operations): Co-located with an active waste facility; most cost-effective (~\$0.68 per post¹, 8-15 months implementation time).

Table 1: Summary of cost analysis for the three analysed models and financial liability

	Capital Cost (\$)	Annual Operating Cost (\$/yr)	Total Cost per post (\$/post) ²
Greenfield	\$ 5,342,942	\$ 168,781	\$ 2.62
Development & Upfront Costs	\$ 5,092,942	N/A	\$ 1.70
Operating Costs	N/A	\$ 168,781	\$ 0.84
Closure Costs	\$ 250,000	N/A	\$ 0.08
Brownfield- No Existing Operations	\$ 1,259,375	\$ 168,781	\$ 1.26
Development & Upfront Costs	\$ 1,134,375	N/A	\$ 0.38
Operating Costs	N/A	\$ 168,781	\$ 0.84
Closure Costs	\$ 125,000	N/A	\$ 0.04
Brownfield- Existing Operations	\$ 1,021,875	\$ 68,659	\$ 0.68
Development & Upfront Costs	\$ 959,375	N/A	\$ 0.32
Operating Costs	N/A	\$ 68,659	\$ 0.34
Closure Costs	\$ 62,500	N/A	\$ 0.02
Financial Liability	\$ 2,343,500	N/A	\$ 2.34
Financial Liability (excl. landfill levy)	\$ 1,780,000	N/A	\$ 1.78

The Brownfield (Existing Operations) model is the preferred option, given its lower capital costs, faster implementation timeline (8-15 months), and existing infrastructure.

¹ Includes capital costs, amortised over 15 years, and 200,000 posts per year

² Capital costs are amortised over 15 years and 200,000 posts per year, Annual Operating costs (\$/yr) are amortised across 200,000 posts per year

Key Recommendations & Next Steps

To proceed with establishing a CCA vineyard post aggregation site, the following steps are recommended:

- Confirm financial & technical feasibility – Assess the cost/technical feasibility of combined aggregation and processing or reusing stockpiled posts. This could include short term piloting or other trial recovery & processing program.
- Engage industry stakeholders – Determine the willingness of vineyard owners to cover transportation and disposal costs.
- Refine site selection – Prioritize brownfield sites with existing waste operations.
- Address financial liability – Develop a framework to manage stockpile risks if a reuse or recycling solution is not viable.

A CCA vineyard post aggregation site presents an important and necessary step for managing SA's growing stockpile of end-of-life CCA vineyard posts. By establishing a controlled, regional storage site, Wine Australia can:

- Reduce environmental and WHS risks associated with uncontrolled stockpiles.
- Improve disposal efficiency and cost-effectiveness for vineyard owners.
- Support future recycling and circular economy initiatives.

While operational and financial risks exist for a CCA vineyard post aggregation site, they are manageable and consistent with other waste and recycling operations. Brownfield sites with existing operations should be prioritized to ensure a cost-effective, low-risk, and sustainable approach to managing end-of-life CCA vineyard posts.

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Acronyms

CCA	Chromated Copper Arsenate
SA	South Australia
EPA SA	Environmental Protection Authority of South Australia
C&I	Commercial and Industrial waste
WHS	Work Health & Safety



Introduction

Chromated Copper Arsenate (CCA) treated timber has been widely used as vineyard posts and fencing in South Australia (SA) for the past 50 years. These posts have a typical lifespan of 30 to 40 years, yet there is currently no clear end-of-life management strategy for them. As a result, significant volumes of CCA vineyard posts are already or nearing end-of-life, posing environmental, business, and work health and safety (WHS) risks.

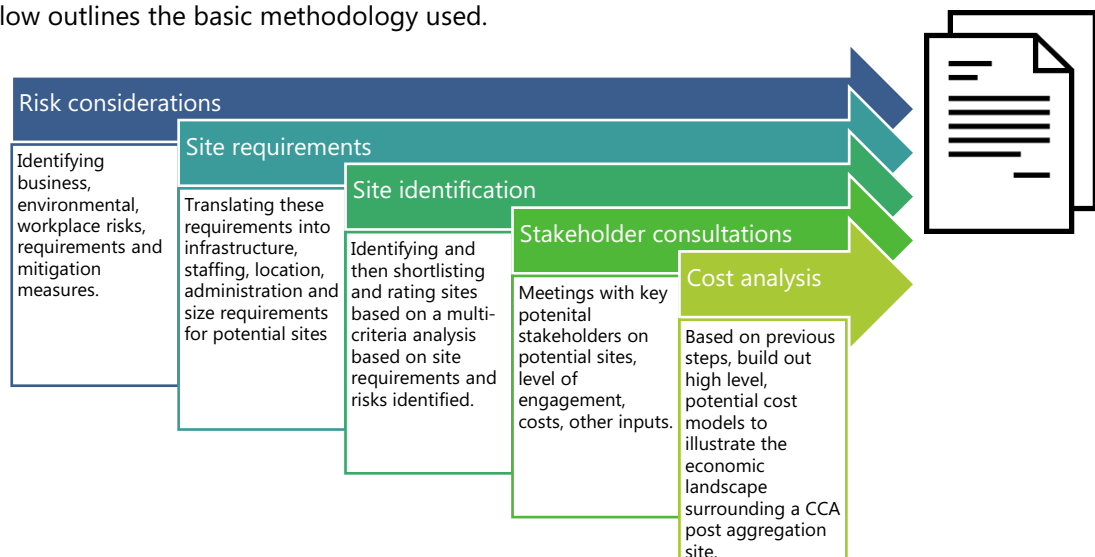
There are an estimated 30 million CCA-treated vineyard posts currently in use across the SA wine industry³. Up to 1.8 million posts are removed annually due to breakage⁴. Additionally, the wine industry has recently faced economic challenges, leading to vineyard removals and a growing number of obsolete CCA vineyard posts on agricultural land. While some CCA vineyard posts are sent to landfill, stockpiling CCA vineyard posts is common, due to high disposal costs and limited accessible disposal sites⁵. The industry needs a solution for end-of-life CCA vineyard posts.

Recognising this, Wine Australia is working to find a safe, cost-effective solution, either in terms of reuse, recovery or affordable and safe disposal.

Wine Australia contracted Rawtec (with Waste & Management Services) to produce a study evaluating the feasibility of aggregation sites for CCA-treated posts. Specifically, it considers:

- **Risk analysis** – Identifying environmental, WHS, and business risks,
- **Site identification** – Assessing suitable locations for potential aggregation sites within key wine regions,
- **Consultations** – Engaging local stakeholders to further understand the issue and establish other key considerations,
- **Cost considerations** – Evaluating the financial feasibility of site establishment and ongoing operation,
- **Operating model** – Demonstrating how an aggregation site could function effectively.

This report is the culmination of multiple considerations from different angles and stakeholders. The graphic below outlines the basic methodology used.



³ Estimated from reported data in End-of-Life Timber Vineyard Post Numbers and Volume, University of Sunshine Coast and Wine Australia (71 million across Australia, 80% are CCA-treated, 53% of posts are in SA)

⁴ End-of-Life Timber Vineyard Post Numbers and Volume, University of Sunshine Coast and Wine Australia

⁵ End-of-Life Timber Vineyard Post Numbers and Volume, University of Sunshine Coast and Wine Australia

Environmental, Safety and Business Risks

Safe handling and storage of CCA vineyard posts, regardless of age, is important to mitigate environmental, workplace health & safety (WHS), and fire risks.

Considerations for compliant site management include:

- a hardstand storage area with tarps for cost-effective containment
- proper stockpile arrangement of posts
- clear access to and on site
- fire controls.

Brownfield sites are ideal locations (e.g., old landfills or existing transfer stations), as they are already impacted and have existing waste management infrastructure/operations.

The risks associated with stockpiles of CCA vineyard posts have been identified, including:

- Environmental risks (Table 2)
- Workplace health and safety risks (Table 3)
- Business risks (Table 4)

Table 2: Environmental Risks & Mitigation Actions

Risk	Impact	Mitigation Actions	Relevant Regulations & Requirements
Residual Leaching of Chemicals (Arsenic, Chromium, Copper)	Prolonged rain exposure may cause minor localised runoff into the soil. This is important to consider especially for locations with high rainfall, and/or high water tables.	Hardstand Surface: Store posts on hardstand surface to restrict soil infiltration. Cover with Tarps: Reduces rain exposure, further minimizing leaching. Stormwater Management / Stockpile Drainage: Consider non-CCA bearers (timber or concrete sleepers?) to lift CCA vineyard posts off the ground. Ensure slight grading to direct runoff away from storage areas to storm water storage area. Soil Monitoring Program: Consider development and implement a soil monitoring program. Test soil near stockpiles to ensure compliance. Brownfield sites offer compacted surfaces & drainage infrastructure reducing leaching risks. Keep posts intact: chipping and mulching increases the surface area of the timber and can produce more concentrated leachate under certain conditions.	EPA SA Waste Management Guideline - CCA timber waste – storage and management: Waste treated timber must be stored and handled responsibly to avoid soil contamination. Environmental Protection Act 1993 (SA): Requires controls on contaminated waste to prevent pollution.
Airborne Contamination (Dust & Fibers from Handling)	Cutting or breaking posts has the potential to release fine toxic particles into the air.	No On-Site Cutting: Prohibit sawing, grinding, or breaking of posts at the storage site. Potential future processing or reusing should consider this risk and address. Dust Suppression: Use mist sprays when handling posts in dry, windy conditions. PPE for Workers: Require gloves, masks, and protective clothing. Use equipment (e.g. telehandler) to move posts	Work Health and Safety Act 2012 (SA): WHS regulations require dust management in workplaces. EPA SA Air Quality Policy 2016: Regulates airborne contaminants from industrial activities.

Risk	Impact	Mitigation Actions	Relevant Regulations & Requirements
Fire Hazards from Stored CCA vineyard posts	While CCA-treated timber is not highly flammable, prolonged dry conditions, arson, or bushfire could result in the timber burning, releasing toxic fumes.	<p>Stockpile Layout with Firebreaks: Ensures emergency access and reduces fire spread risks.</p> <p>Suitable firebreaks from property boundary and other activities.</p> <p>Fire Extinguishers & Hydrants On-Site: Maintain firefighting equipment and a suitable water supply at the site.</p> <p>Fire Prevention Training for Staff: Workers must be aware of fire hazards and emergency response procedures.</p>	<p>Fire and Emergency Services Act 2005 (SA): Establishes fire safety requirements for waste storage sites.</p> <p>EPA SA Fire Prevention Guidelines: Requires firebreaks and emergency access at waste storage facilities.</p> <p>Environment Protection (Air Quality) Policy 2016: Controls toxic emissions from CCA-treated timber fires.</p>
Stockpile Management Risks (Overcrowding, Poor Layout)	Poorly managed stockpiles can increase fire risks, impede access for emergency response, and cause handling issues.	<p>Maximum Storage Limit avoids excessive accumulation and ensures site safety.</p> <p>Stockpile Rows with Minimum Separation Distance: Allows safe movement of machinery & emergency vehicles.</p> <p>Regular Inspections: Ensure compliance with site storage limits and firebreak maintenance.</p>	<p>EPA SA Waste Management Guideline: CCA timber waste storage and management: Guidelines for safe stockpile arrangement & size limits, including financial assurances</p> <p>Local Government Waste Management Policies: Define safe waste storage practices.</p>

Table 3: Workplace Health & Safety (WHS) Risks & Mitigation Actions

Risk	Impact	Mitigation Actions	Relevant Regulations & Requirements
Manual Handling Injuries	Heavy posts can cause back strain, crush injuries, or musculoskeletal disorders.	Mechanical Lifting Equipment: Use forklifts & cranes instead of manual labour. Team Lifting Procedures: If manual handling is necessary, enforce safe lifting techniques.	SafeWork SA Manual Handling Guidelines: Requires businesses to minimize manual handling risks.
Worker Exposure to Toxic Residues	Skin contact or inhalation of arsenic and CCA dust may cause irritation or long-term health risks.	PPE Requirements: May use gloves, masks, and protective clothing if any manual handling. Most handling will be via plant/equipment. Hygiene Facilities: Provide hand-washing stations for workers handling posts.	Work Health and Safety Regulations 2012 (SA): Requires exposure controls for hazardous materials.

Table 4: Business risks & mitigation actions

Risk	Impact	Mitigation Actions	Relevant Regulations & Requirements
Reputational Damage	Poorly managed storage sites may attract community opposition.	Transparent Waste Management: Work with vineyard groups & councils to promote responsible storage and disposal. Community Engagement: Hold public information sessions on site safety.	Local Government Act 1999 (SA): Community complaints must be addressed in waste facility operation plans.
Future cost for processing unknown	Future processing costs are unknown which may create a liability.	Cost-Sharing with Industry: Explore / understand model where CCA vineyard post industry/growers contribute to processing. Seek Support Funding: Explore applicable state & federal financial incentives. Understand worst case liability for transport / disposal to suitably licensed landfill.	
Long term Liability /Abandonment	Stockpiles of CCA being abandoned after aggregation, leaving the responsibility of the posts to the site owner.	Preexisting Market: Establish markets for stockpiled materials to reduce holding times. Removal Planning: Develop material removal plans with set timeframes before stockpiling. Understand worst case liability for transport/disposal to suitably licensed landfill. Determine mechanism to ensure covered Financial Assurance: Ensure compliance and financial health of the site operator to cover the financial liability/assurance required by government	EPA SA Waste Management Guideline: CCA timber waste storage and management: Ensure compliance with environmental waste disposal laws to prevent stockpile abandonment. EPA SA Financial assurances and stockpiling: who, when, what and how much: Ensure that stockpiled waste can be managed appropriately in the event of stockpile abandonment or financial collapse.

An appropriate context for these risks is important:

- The risks can be mitigated and managed and do not differ significantly from those already managed by Councils, Government or private industry managing waste and recycling materials.
- They are present with any stockpile of CCA vineyard posts and are likely unmitigated in current private stockpiles. The mitigation actions are all better alternatives to current practices.
- The risks and leaching processes at a single, well-managed aggregation site should be evaluated in comparison to the current decentralized practices, where posts are often stored without regulation across numerous smaller sites within a grape-growing region. These individual storage locations typically lack effective risk control measures, increasing the potential for environmental contamination and safety hazards.



Identified Sites

The project included identifying sites suitable for the stockpiling of CCA vineyard posts. More than 500 sites in South Australia were initially identified, which was narrowed down to 15 high-potential sites across five major wine regions. The methodology is detailed in Appendix 1.

These analyses are based on publicly available information, site knowledge and consultations. Wine Australia should conduct further research and consult stakeholders before progressing the selection of an aggregation site.

Site stockpile and operational requirements

We defined stockpile size and operational requirements a site would need before identifying viable sites in wine regions (Table 5). A nominal 1 million post stockpile size site has been considered. This can be scaled depending on the region.

Table 5: Operating requirements with reference and assumed values

Operating requirement	Assumed Value	Comment
Average CCA vineyard post diameter	110 mm	Based on 110 mm average (Timber Circularity Post Report)
Average CCA vineyard post length	1.4 m	Based on 1.6 m average (Timber Circularity Post Report) & Wine Australia – Riverland posts are shorter
Average weight per post	7 kg	Based on 8 kg average (Timber Circularity Post Report) - Revised down given shorter average length
Stockpile length	50 m	Based on aerial images of current stockpiles
Stockpile width	2 post lengths	Based on aerial images of current stockpiles
Stockpile height	3 m	Based on EPA SA Guideline for Stockpile Management
Space between stockpiles	4 m	Based on EPA SA Guideline for Stockpile Management - Increased to account for access and varied lengths of post.
Maximum turnover of posts per year	200,000 posts 1,400 tonnes	Based on Timber Circularity Project Resource Map - Rounded down, assumed some informal reuse or disposal. Approximately matches Riverland CCA vineyard post generation annually from attrition. It does not consider how much volume may come from stockpiled posts.
Maximum stockpiling capacity	1,000,000 posts 7,000 tonnes	Approx 5 years of attrition generation if not processing or reusing CCA vineyard posts in the Riverland.
Minimum required storage area	2.5 ha	Calculated based on stockpile and buffer requirements
Operational hours	8 hours per week	Calculated based on a maximum post receipt rate of 30t/week

Assessing Sites

Based on the operational requirements, we created a shortlist of potential sites for each region. These were assessed against a multi-criteria analysis (Table 6). Sites were rated as 'high' or 'medium' potential based the multi-criteria analysis results.

The Riverland and Limestone Coast were the focus for site selection, with additional consideration given to the Barossa Valley, Clare Valley, and Langhorne Creek.

Maps of these sites are in Appendix 2, and all sites across the five regions can be viewed on an [interactive map](#), where 'high' potential sites are marked in green.

Table 6: Criteria used to assess sites identified in the regions

Criteria	Description
Proximity to Collection Points including road Access and Traffic Flow	Distance from key waste generation sites (vineyards) and central location within the region to maximize convenience. Ease of access for heavy vehicles and transport routes. Cost to transport to site considered.
Size and Capacity	Adequate space for storage, sorting, and vehicle movement
Existing Infrastructure	Existing suitable infrastructure for accepting CCA vineyard posts – e.g. roads, fencing, leachate management. Costs savings to establish considered.
Site ownership	Who owns the site and potential to be complementary operations. Consideration of current and previous use (e.g. old landfill site)
Environmental Impact including Flood and Fire Risk	Proximity to sensitive areas and potential impact. Assessment of natural hazard risks and mitigation measures
Environmental Licensing Requirements and Planning Considerations	Is site currently licence or has been licenced for waste, recycling or other relevant activity. Compliance with local government land-use regulations
Community Considerations	Potential impact on nearby residents and businesses, including opportunities with local businesses
Security & Safety Risks, Emergency Response & Contingency Plans	Risk of theft, vandalism or accidents. Availability of mitigation strategies for operational disruptions

Riverland Region

The Riverland is Australia's largest wine region, growing almost half of South Australia's wine grapes in 2021⁶. The nearest licensed disposal site for end-of-life CCA vineyard posts is over 150 km west of the main wine-growing area. High transport and landfill costs have led to large, unsafe stockpiles in vineyards.

Ten potential sites were shortlisted, outlined in the map (Figure 1) and a high-level summary in Table 7.

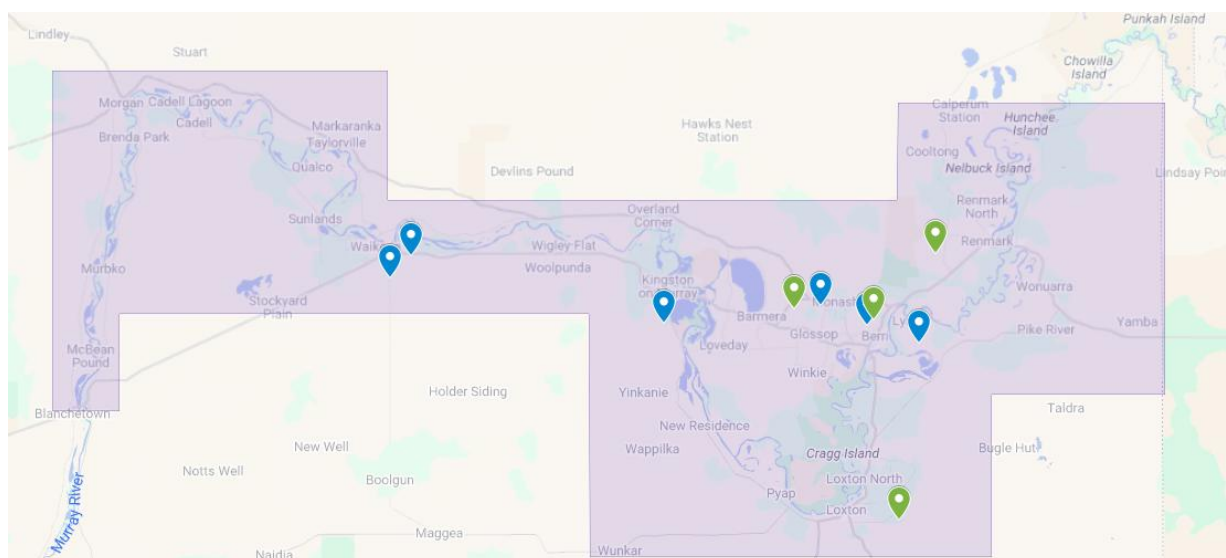


Figure 1: Map of the shortlisted Riverland CCA vineyard post aggregation sites. Green sites are of high potential. The shaded purple area shows relevant wine region (Riverland)

⁶ SA Winegrape Crush Survey 2021, Vinehealth Australia and Wine Australia

Table 7: List of the shortlisted Riverland CCA vineyard post aggregation sites, with key information on ownership, location, operations and size.

Site name	Site owner	Location	Operations	Size	Potential
Renmark Transfer Station	Renmark Paringa Council	750 Government Rd, Renmark SA 5341	Transfer Station, receives C&I	40 ha	High
Monash Transfer Station	Cleanaway	92 Hoskin Rd, Monash SA 5342	Transfer Station, receives C&I. Asbestos Landfill	9 ha	High
Old Monash Quarry Site	Berri Barmera Council / Trility	McDonald Rd, Monash SA 5342 (alt. entrance off Sturt Hwy, opp. Field Days Dr)	Liquid Waste Depot	100+ ha	High
Loxton Transfer Station	District Council of Loxton Waikerie	Mackey Rd, Loxton SA 5333	Transfer Station, receives C&I	58 ha	High
Monash Old Landfill	Berri Barmera Council	Sections 534, 718 & 719 Henwood Rd, Monash SA 5342	Closed Landfill	10-20 ha	Medium
Moorook Transfer Station	District Council of Loxton Waikerie	Sections 454 & 684 Schenscher Rd, Moorook SA 5332	Transfer Station, receives C&I	10-20 ha	Medium
Waikerie Transfer Station	District Council of Loxton Waikerie	264 Maggea Rd, Waikerie SA 5330	Transfer Station, receives C&I	10-20 ha	Medium
Paringa Old Landfill	Renmark Paringa Council	Section 89 Gurra Rd, Hundreds of Paringa SA	Closed Landfill	100+ ha	Medium
Minnis Rd Site	Berri Barmera Council	Minnis Rd, Berri SA 5342	Nil	10-20 ha	Medium
Sturt Hwy Quarry	District Council of Loxton Waikerie	Sturt Highway, Waikerie SA 5330 (opp. Waikerie Gliding Club)	Quarrying	20-50 ha	Medium

Limestone Coast Region

The Limestone Coast includes several wine regions in South Australia's southeast, such as Coonawarra, Wrattenbully, Padthaway, and the Limestone Coast zone. Together, they produced nearly a third of the state's wine grapes in 2021⁷.

The nearest licensed disposal site for end-of-life CCA vineyard posts is more than 300 km north of the main wine-growing area, and cost of transport and landfill have led to large unsafe stockpiles of CCA vineyard posts across the region.

Seven potential sites were shortlisted, outlined in the map (Figure 2) and a high-level summary in Table 8.

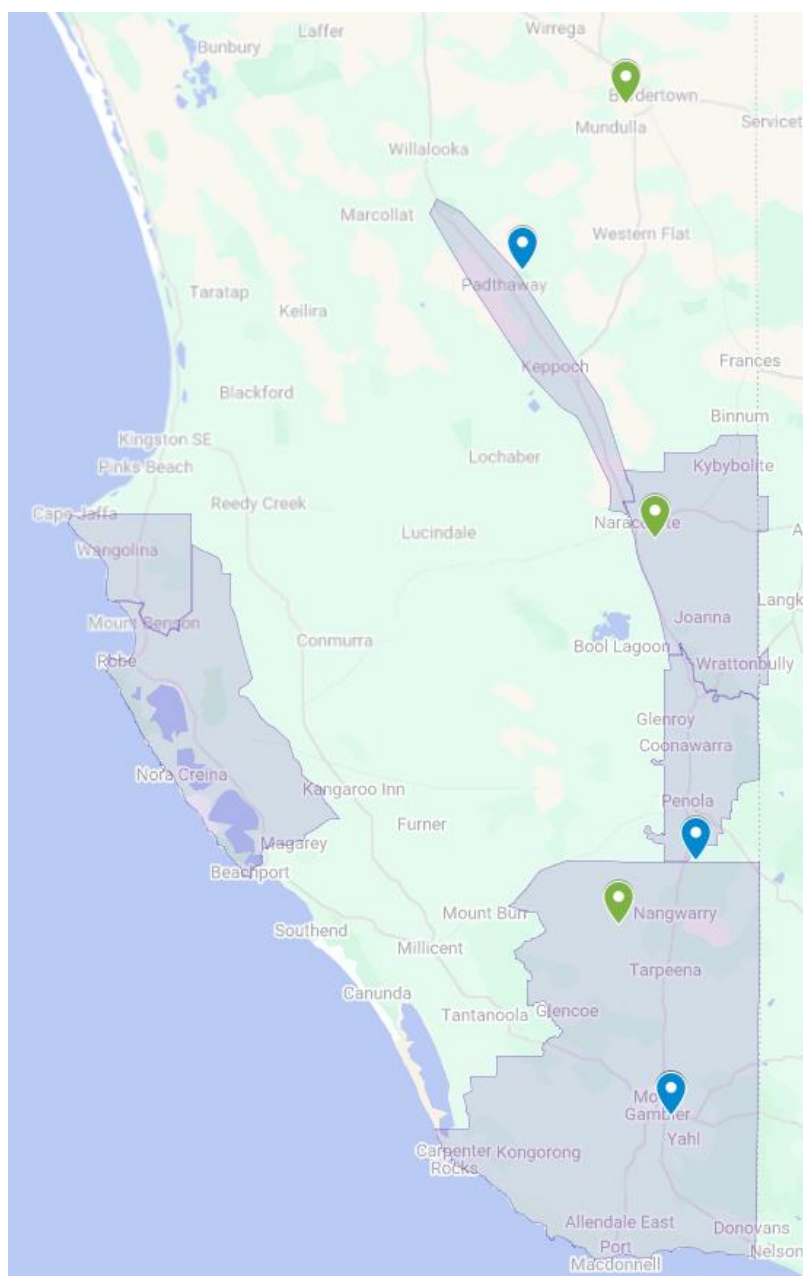


Figure 2: Map of the shortlisted Limestone Coast CCA vineyard post aggregation sites. Green sites are of high potential. The shaded purple areas show the relevant wine regions (Coonawarra, Mount Benson, Mount Gambier, Padthaway, Robe, and Wrattenbully)

⁷ SA Winegrape Crush Survey 2021, Vinehealth Australia and Wine Australia

Table 8: List of the shortlisted Limestone Coast CCA vineyard post aggregation sites, with key information on ownership, location, operations and size.

Site name	Site owner	Location	Operations	Size	Potential
Kalangadoo Timber Processing Facility	Plantation Treated Timber	North East Terrace, Kalangadoo SA 5278	Timber preservation works	10 ha	High
Bordertown Landfill	Tatiara District Council	Pigeon Flat Rd, Bordertown SA 5268	Transfer Station, receives C&I Landfill Depot	18 ha	High
Naracoorte Waste Transfer Station	Naracoorte Lucindale Council	201 Blackwell Rd, Naracoorte SA 5271	Transfer Station, receives C&I Landfill Depot	18 ha	High
Mt Gambier Council Transfer Station	City Of Mount Gambier	5 Eucalypt Dr, Mount Gambier SA 5290	Waste Recovery Facility	0-5 ha	Medium
Padthaway Landfill	Tatiara District Council	Section 125 Padthaway-Mundulla Rd, Padthaway SA 5271	Landfill Depot	0-5 ha	Medium
Mt Gambier Cleanaway Transfer Station	Cleanaway	7 Eucalypt Dr, Mount Gambier SA 5290	Waste Recovery Facility	0-5 ha	Medium
Penola Landfill	Wattle Range Council	195 Tower Rd, Penola SA 5277	Waste Recovery Facility Landfill Depot	5-10 ha	Medium



Establishment and Operational Cost and Timeline Consideration

The cost analysis for a CCA vineyard post aggregation site includes three different scenarios:

- A greenfield site:
 - no prior history of waste management on site, no existing structures or impassible terrain.
 - *For example, a fallow paddock.*
- A brownfield site with no current operations:
 - has a history of, or currently has, an EPA SA license to accept waste, may have some existing structures, but has no current operations.
 - *For example, a closed landfill site.*
- A brownfield site with existing operations:
 - currently has an EPA SA license to accept waste and currently accepts waste in its operations.
 - *For example, an operational transfer station.*

The analysis is high level and based on establishing a site that can accept 200,000 posts a year, with a maximum stockpile of one million posts, operating eight hours a week. These parameters are based on a site operating in the Riverland region and may change for other wine regions.

Development and environmental approval processes differ significantly for greenfield sites versus brownfield sites:

- Greenfield Site: Requires full approvals, including new zoning, infrastructure design, environmental impact assessments, and public consultation.
- Brownfield Site: Often faster approval process if the site already has waste-handling permissions, but may require remediation of past contamination, structural upgrades, and monitoring of historical pollutants.
- The approvals required and processes are outlined in Appendix 3.

A brownfield site (e.g., an old landfill or waste transfer station) can streamline approvals, reduce environmental risks, and minimize new land disturbances while still ensuring safe and compliant operations.

Greenfield site

Establishing a greenfield site is the most expensive option and will take the longest timeframe to establish (Table 9).

The site establishment costs estimated are considered conservative and may reduce depending on agreed conditions and requirements. The development could be staged to reduce the initial site establishment costs (e.g. not make the full pad)

Estimated timeline for establishment of a Greenfields CCA aggregation site are:

- Site confirmation/preliminaries/agreements: 3 – 12 months
- Development Approvals and EPA SA Licencing: 12 – 24 months
- Site Establishment: 6 – 12 months

Indicative total timeframe before receiving first CCA vineyard posts: 21 – 48 months

Table 9: Cost analysis for a Greenfield CCA vineyard post Aggregation Site in the Riverland

	Capital Cost (\$)	Annual Operating Cost (\$/yr)	Total Cost per post (\$/post)*
Development & Establishment Costs	\$ 5,092,942	N/A	\$ 1.70
Development Approval	\$ 550,000	N/A	\$ 0.18
Site Establishment	\$ 4,542,942	N/A	\$ 1.51
Operating Costs	N/A	\$ 168,781	\$ 0.84
Mobile Plant	N/A	\$ 24,570	\$ 0.12
Administration, Staffing & Utilities	N/A	\$ 144,211	\$ 0.72
Closure Costs	\$ 250,000	N/A	\$ 0.08
Total	\$ 5,342,942	\$ 168,781	\$ 2.62
Cost per tonne \$ 375			

* Capital costs are amortised over 15 years and 200,000 posts per year, Annual Operating costs (\$/yr) are amortised across 200,000 posts per year

The analysis of a greenfield site included the following assumptions:

- The site has no history of an active EPA SA license to accept waste
- No existing fit-for purpose infrastructure is on site
- Mobile plant equipment capital & operating costs are amortised with an off-site operation
- Closure and Post Closure costs are accounted for in the site's closure costs
- An end-of-life post disposal method is identified and removes posts from the stockpiles as required. Any additional costs associated with the end-of-life disposal of the posts is not considered.

Brownfield site – No current operations

Establishing a brownfield site that has no current operations has a medium cost and establishment timeline (Table 10).

Estimated timeline for establishment of a Brownfields (no current operations) CCA aggregation site are:

- Site confirmation/preliminaries/agreements: 3 – 6 months
- Development Approvals (if required) and EPA SA Licencing (if required): 3 - 12 months
- Site Establishment: 3 - 6 months

Indicative total timeframe before receiving first CCA vineyard posts: 9 – 24 months

Table 10: Cost analysis for a Brownfield (no current operations) CCA vineyard post Aggregation Site in the Riverland

	Capital Cost (\$)	Annual Operating Cost (\$/yr)	Total Cost per post (\$/post)*
Development & Establishment Costs	\$ 1,134,375	N/A	\$ 0.38
Development Approval	\$ 175,000	N/A	\$ 0.06
Site Establishment	\$ 959,375	N/A	\$ 0.32
Operating Costs	N/A	\$ 168,781	\$ 0.84
Mobile Plant	N/A	\$ 24,570	\$ 0.12
Administration, Staffing & Utilities	N/A	\$ 144,211	\$ 0.72
Closure Costs	\$ 125,000	N/A	\$ 0.04
Total	\$ 1,259,375	\$ 168,781	\$ 1.26
Cost per tonne \$ 181			

* Capital costs are amortised over 15 years and 200,000 posts per year, Annual Operating costs (\$/yr) are amortised across 200,000 posts per year

The analysis of this option included the following assumptions:

- The site has a previously active EPA SA license to accept waste, as a transfer station, landfill depot or recovery facility
- The site does not currently operate as a waste receival facility
- Development approval requirements are limited given the site's history as an EPA SA licensed waste facility
- Most required infrastructure is in place, and fit-for purpose for the activities required (only requires a pad, internal roads and mobile plant equipment)
- Mobile plant equipment capital & operating costs are amortised with an off-site operation
- Closure and Post Closure costs are accounted for in the site's previous/existing EPA SA licensed requirements
- An end-of-life post disposal method is identified and removes posts from the stockpiles as required. Any additional costs associated with the end-of-life disposal of the posts is not considered.

Brownfield site – Existing operation(s)

Establishing a site on a brownfield site with existing operations is the most cost-effective option and is the fastest to establish (Table 11).

The site establishment costs estimated are considered conservative and may reduce depending on agreed conditions and requirements.

Estimated timeline for establishment of a Brownfields (existing waste operations) CCA aggregation site are:

- Site confirmation/preliminaries/agreements: 3 – 6 months
- Development Approvals (if required) and EPA SA Licencing (adjustment if required): 3 – 12 months
- Site Establishment: 3 – 6 months

Indicative total timeframe before receiving first CCA vineyard posts: 9 – 24 months

Table 11: Cost analysis for a Brownfield (existing waste operations) CCA vineyard post Aggregation Site in the Riverland

	Capital Cost (\$)	Annual Operating Cost (\$/yr)	Total Cost per post (\$/post)*
Development & Establishment Costs	\$ 959,375	N/A	\$ 0.32
Development Approval	\$ 62,500	N/A	\$ 0.02
Site Establishment	\$ 896,875	N/A	\$ 0.30
Operating Costs	N/A	\$ 68,659	\$ 0.34
Mobile Plant	N/A	\$ 21,060	\$ 0.11
Administration, Staffing & Utilities	N/A	\$ 47,599	\$ 0.24
Closure Costs	\$ 62,500	N/A	\$ 0.02
Total	\$ 1,021,875	\$ 68,659	\$ 0.68
Cost per tonne \$ 98			

* Capital costs are amortised over 15 years and 200,000 posts per year, Annual Operating costs (\$/yr) are amortised across 200,000 posts per year

The analysis of this option includes the following assumptions:

- The site currently operates as a waste receival facility with an active EPA SA license to receive waste
- Development approval is limited given existing operation(s) and amortisation across existing operation(s)
- Most required infrastructure is in place, and fit-for purpose for the activities required (only requires a pad and mobile plant equipment)
- Mobile plant equipment capital & operating costs are amortised with the existing on-site operation(s)
- Most administration, staffing and utility costs are pre-existing (given existing operations) or amortised across the existing operation(s)
- Closure and Post Closure costs are accounted for in the site's existing EPA SA licensed requirements
- An end-of-life post disposal method is identified and removes posts from the stockpiles as required. Any additional costs associated with the end-of-life disposal of the posts is not considered.

Site Ownership and Operating Models

There are a range of options for the ownership and operating model of a CCA stockpile site.

Site Ownership and Management

Potential CCA vineyard post aggregation sites are likely to be owned and operated by:

- Councils – e.g. Waste/recycling transfer station, landfill (open or closed) or other parcels of land
- Waste and Recycling Industry – e.g. Operating resource recovery/transfer stations or landfills
- Private Owners/Other Business – e.g. Related businesses such as CCA vineyard post producers, large vineyards or wineries

Existing operations with suitable development approvals and EPA SA licenses are prioritised for consideration following the risk review undertaken earlier in 'Environmental, Safety and Business Risks'.

It is possible that the site owner is not the site operator. Examples could include Council engaging a contractor to operate a Council owned site on their behalf.

Transfer of ownership of CCA vineyard posts

The transfer of ownership and responsibility for the CCA vineyard posts from the disposer to the site operator occurs when they are delivered to site and the disposer pays the disposal/recycling fee (if applicable). This is important to consider, particularly if the site operator is different to the site owner, to ensure the site owner does not get left with the CCA vineyard post stockpile liability.

Site Operations

Once established, the time inputs for ongoing operations can be minimised depending on how the process to receive and stockpile posts is set up.

All site types have the same recommended receipt and storage protocols (Table 12).

Table 12: Recommended receipt and storage protocols

Protocol	How achieved	Example
Receipt Time Window	Establish set time windows to receive CCA vineyard posts. This could include requiring booking time and quantity in a slot to deliver so not waiting for unload.	Every 2 weeks for 4 hours, CCA vineyard posts can be delivered to the site.
Acceptance Criteria	Acceptance criteria to be established prior to operation on how posts are required to be delivered to enable efficient unloading and stockpiling	Posts need to be delivered in bundles of xx and metal straps to enable unloading with site telehandler. Posts need to be minimum of xx in length and aggregated in bundles with same diameter posts. No split posts accepted (if this is reasonable) Posts to be free of vegetation, wire, excessive dirt
Stockpile & Site Maintenance	Routine inspections of CCA stockpile and surrounding areas. Programmed maintenance to maintain low grass/fire breaks and site housekeeping	Once per month do inspection and programmed maintenance.
Stocktake & Reporting	Ensure stockpiled volumes are maintained below maximum allowed for site. Completed reporting as required	Monthly assessment and reporting of in and out as well as visual assessments

Potential liability for site operator/owner

The motivation for aggregating CCA vineyard posts is to support the development of a reuse or processing options. If these pathways do not develop, it makes more sense to directly dispose the CCA vineyard post to a suitably engineered licenced landfill.

Wine Australia is separately investigating future uses/processing of used CCA vineyard posts from vineyards. To facilitate reuse or processing options there needs to be feedstock supply certainty and reliable access to meaningful tonnes of CCA vineyard posts. Feedstock supply arrangement will need to meet the specific requirements of processing technology used. Consultations have indicated this is in the order of 10,000-30,000 tonnes per year.

An overall risk is that these future pathways do not develop and a stockpile of CCA vineyard posts remains. The transport and disposal liability of this stockpile and who covers this liability needs to be considered.

Whether this is the site owner/operator, industry (CCA vineyard post producers, wine industry) or state government is not addressed in this feasibility assessment.

Estimating potential liability

The modelling and site selection is based on a site that can store 7,000 t (one million posts) with space to host future processing. The financial liability of storing CCA vineyard posts is calculated as the cost of transport and disposal from the potentially established CCA aggregation site.

The financial liability if the site closes is determined by the total cost of transport and disposal of the stockpiled posts at an engineered and licensed landfill. Assuming the rural landfill levy applies, this comes to \$2.3 million or \$2.34 per post (Table 13). If levy is excluded the liability reduces to \$1.8 million.

Table 13: Potential financial liability of a CCA vineyard post aggregation site (8kt CCA vineyard posts) based on current disposal options.

	Total (\$)	Cost per post (\$/post)	Cost per tonne (\$/t)
Financial Liability	\$2,343,500	\$2.34	\$335
Financial Liability (excl. landfill Levy)	\$1,780,000	\$1.78	\$254

The financial liability (Table 13) is based on a Riverland site. A Limestone Coast site is expected to have higher liability due to a greater transportation distance. The disposal costs also assume that posts are disposed at South Australian landfills.

Benefits and Drawbacks of Operating a Regional CCA Vineyard Post Aggregation Site

Establishing a CCA vineyard post aggregation site has a range of positive benefits, particularly in preventing illegal dumping, ensuring regulatory compliance, and reducing environmental contamination. However, there are also potential drawbacks if the site is not managed appropriately (Table 14).

The benefits are most significant in the regional areas with the most demand for a site, like the Riverland.

Table 14: Benefits and potential drawbacks of a CCA vineyard post aggregation site

Category	Benefits	Potential drawbacks
Environmental Impact	Prevents Illegal Dumping & Burning Reduces environmental contamination from arsenic, chromium, and copper leaching.	Potential Soil & Water Contamination - If not managed properly, leachate runoff could impact local soil and groundwater.
	Controlled Storage & Handling Reduces uncontrolled disposal across farms and ensures safer processing.	Fire & Air Pollution Risks - If not managed properly a fire could result in toxic smoke emissions from burning CCA-treated timber and cleanup costs. Same risk is they are stored at vineyards.
	Utilizes Brownfield Sites - Using old landfills or transfer stations minimizes additional environmental impact.	
Economic Impact	Cost Savings for Vineyard Owners -Provides a closer single disposal point, reducing disposal expenses for vineyard operators.	Operational Costs - Running the facility requires capital investment in infrastructure, staff, and compliance monitoring as well as ongoing operating and maintenance costs.
	Job Creation - Employment opportunities in waste management, transport, and processing/reuse roles.	Uncertainty in Recycling Markets Limited end-of-life solutions for CCA vineyard posts may cause long-term storage issues.
	International Branding - reduces the risk of potential damage to 'Brand Australia' from any incident that occurs, potentially resulting in decreased wine sales and flow on effects to growers/winemakers.	
Regulatory & Compliance	Ensures Compliance with EPA SA Regulations - Controlled storage meets environmental safety requirements.	Requires Ongoing Regulatory Monitoring → Regular inspections & audits increase administration
	Supports Regional Waste Strategy - Aligns with state & local government circular economy and waste reduction policies.	
Fire & Safety Risks	Centralized Risk Management → Easier to implement fire control measures, monitor storage limits, and enforce safety rules.	Stockpile Fire Hazard → Accumulation of old posts poses a long-term fire risk if not properly spaced and managed.
	Designated Firebreaks & Safety Procedures → Reduces likelihood of fire spreading to nearby properties.	
Community & Social Perception	Improves Public Perception of Waste Management - Demonstrates proactive environmental stewardship.	Local Resident Concerns - Communities may oppose waste storage in their area due to perceived risks of traffic, contamination & fire.
	Enhances Regional Sustainability Efforts - Supports responsible resource recovery and circular economy goals.	
Long-Term Viability & Future Opportunities	Potential for Future Recycling Solutions - If technology improves, CCA vineyard posts could be processed into safer materials or reused	Limited Market for Reuse/Recycling - Currently, few recycling options exist for CCA-treated wood, leading to long-term stockpiling risks.
	Encourages Expansion of Other Waste Aggregation Initiatives - Could lead to broader regional waste solutions for other agricultural byproducts.	

Summary and Next Steps

The key findings from this investigation into developing a CCA vineyard post aggregation site include:

- Each region has suitable aggregation sites. In the Riverland and Limestone Coast region there are multiple sites with good potential.
- The environmental, safety and business risks associated with a CCA aggregation site can be managed, consistent with other waste and recycling management sites
- There are multiple site ownership and management options and will depend on the stakeholders involved.
- Three options for the cost to establish and operate a CCA aggregation site were modelled.
 - Greenfield sites
 - Brownfield with no current operations
 - Brownfield with existing current operations.
- The benefits and potential drawbacks for establishing a site were assessed indicating a significant net benefit which will support finding a suitable process for the CCA vineyard posts.

From the investigations, a brownfield with existing current onsite operations is the most cost-effective lowest risk and should be prioritised for consideration. It is estimated that a site can be

- established and operating for \$0.68 per post or \$98 per tonne
- developed in around eight months (compared to four years for a greenfield site).

Next steps

Progressing the concept of a CCA aggregation site will require:

- Confirming the feasibility and cost to process/reuse the CCA vineyard posts from the CCA aggregated stockpile
- Testing the appetite of the industry/growers to pay the gate rate required to cover the aggregation and processing/reuse costs, for example via a pilot program
- Shortlisting aggregation sites in the Riverland area and approach owners to determine interest in establishing a CCA aggregation site.
- Exploring options to cover potential financial liability of an aggregated CCA vineyard post stockpile.
- Considering how future processing requirements could impact on how these are being stored.

Establishing a CCA aggregation site is a positive and logical step in progressing the circularity of CCA vineyard posts from the wine industry. It can provide improved certainty for feedstock for potential reuse or recycling/processing. It also significantly reduces the environmental and safety risks of disaggregated CCA vineyard post storage in a wine region.

An aggregation site does not come without risks and costs however they are manageable and consistent with other risks related to waste and recycling management.

Appendix 1: Methodology for Site selection

Site Requirements

The size of each post was considered, with the diameter and length varying⁸. Based on information received through Wine Australia, the average diameter was assumed to be 110mm, length to be 1.4m, and weight per post at 7kg.

The requirements for a stockpile were centred around the Riverland region, which by estimates generates around 216,000 end of life CCA vineyard posts each year⁹, and has up to 4.5 million posts stockpiled since 1991¹⁰. Based on this information, it was assumed that a site in the Riverland region should be able to stockpile up to 1 million posts, accepting up to 200,000 posts a year.

Current stockpiles of end-of-life CCA vineyard posts (and likely other treated timber posts) show long stockpiles of posts stacked perpendicular to the length of the row.

Stockpile accessibility and adequate fire breaks were considered in calculating the area required to store posts. Stockpiles were assumed to be 2 post lengths wide, up to 50m long, and stacked to 3m high, with distances between stockpiles at 4m (to allow for sufficient access on the sides of stockpiles and fire breaks, while ensuring a high packing efficiency). Accessibility at the ends of stockpiles was also considered in the site's storage footprint.

Table 15 below lists the assumed site operational requirements based on these assumptions.

Table 15: Assumed operating requirements for a CCA vineyard post aggregation site in the Riverland

Operating requirement	Assumed Value
Maximum turnover of posts per year	200,000 posts, 1,400 tonnes
Maximum stockpiling capacity	1,000,000 posts, 7,000 tonnes
Minimum required storage area	2.5 ha
Operational hours	8 hours per week

List of Sites

A comprehensive list of sites in South Australia was compiled, using a combination of the EPA SA public license search, consultations with stakeholders, and industry knowledge of the areas. These site's locations were determined and were assigned one of six regions (Riverland, Limestone Coast, Clare Valley, Barossa Valley, Langhorne Creek, or N/A).

Based on the location, sites were then initially filtered based on their overall activities for viability. The shortlisted sites (up to 10 per region) were then assessed against a multi-criteria analysis (MCA) to determine whether they were of high or medium potential. Further description of the MCA and weighting can be found in External Appendix A, and the MCA results for the shortlisted sites can be found in External Appendix B.

⁸ Timber Circularity Post Report, Appendix 6

⁹ <https://www.usc.edu.au/research/forest-research-institute/national-centre-for-timber-durability-and-design-life/timber-circularity-project/resource-map>

¹⁰ Timber Circularity Post Report, Figure 17 and Appendix 5

Appendix 2: Maps other regions

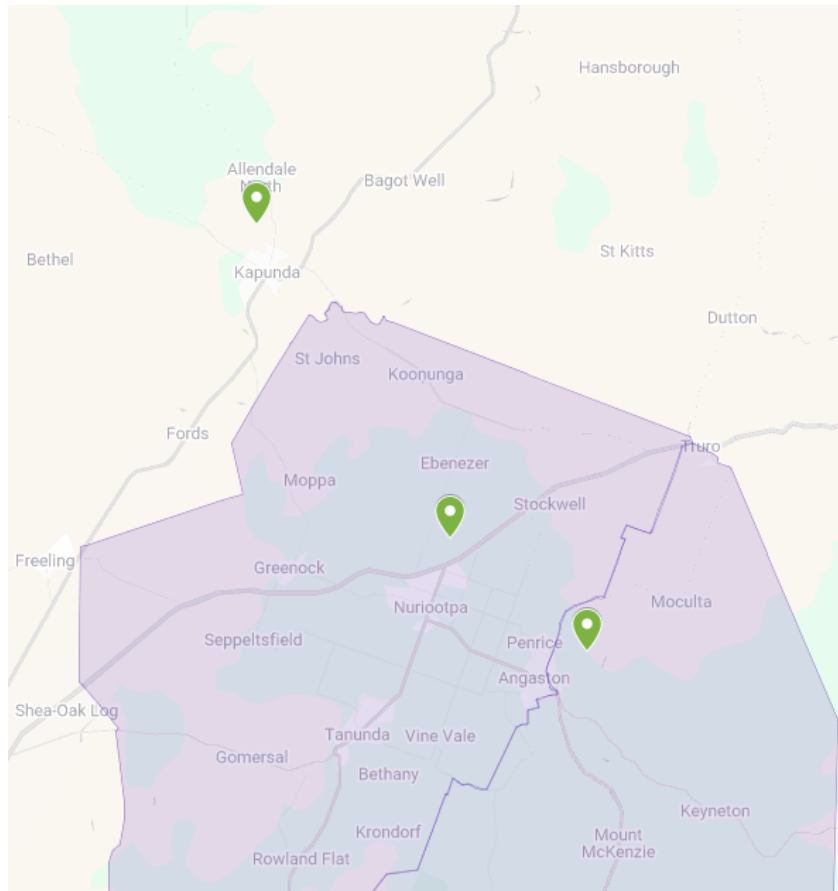


Figure 3: Map of Shortlisted Sites in the Barossa Valley. The shaded purple areas show the relevant wine regions (Barossa Valley and Eden Valley).

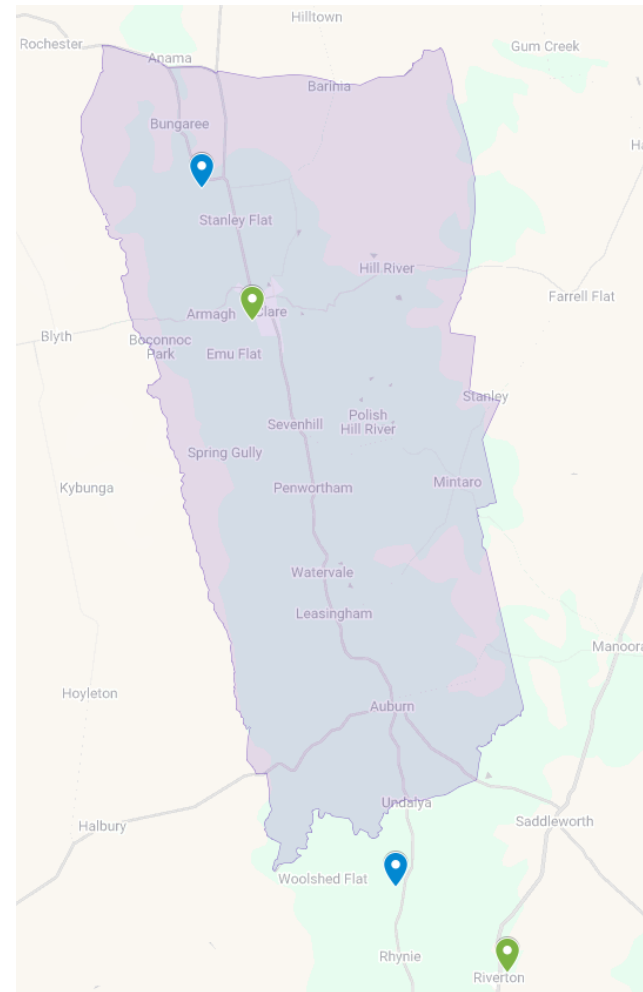


Figure 4: Map of Shortlisted Sites in the Clare Valley. The shaded purple area shows the relevant wine regions (Clare Valley).

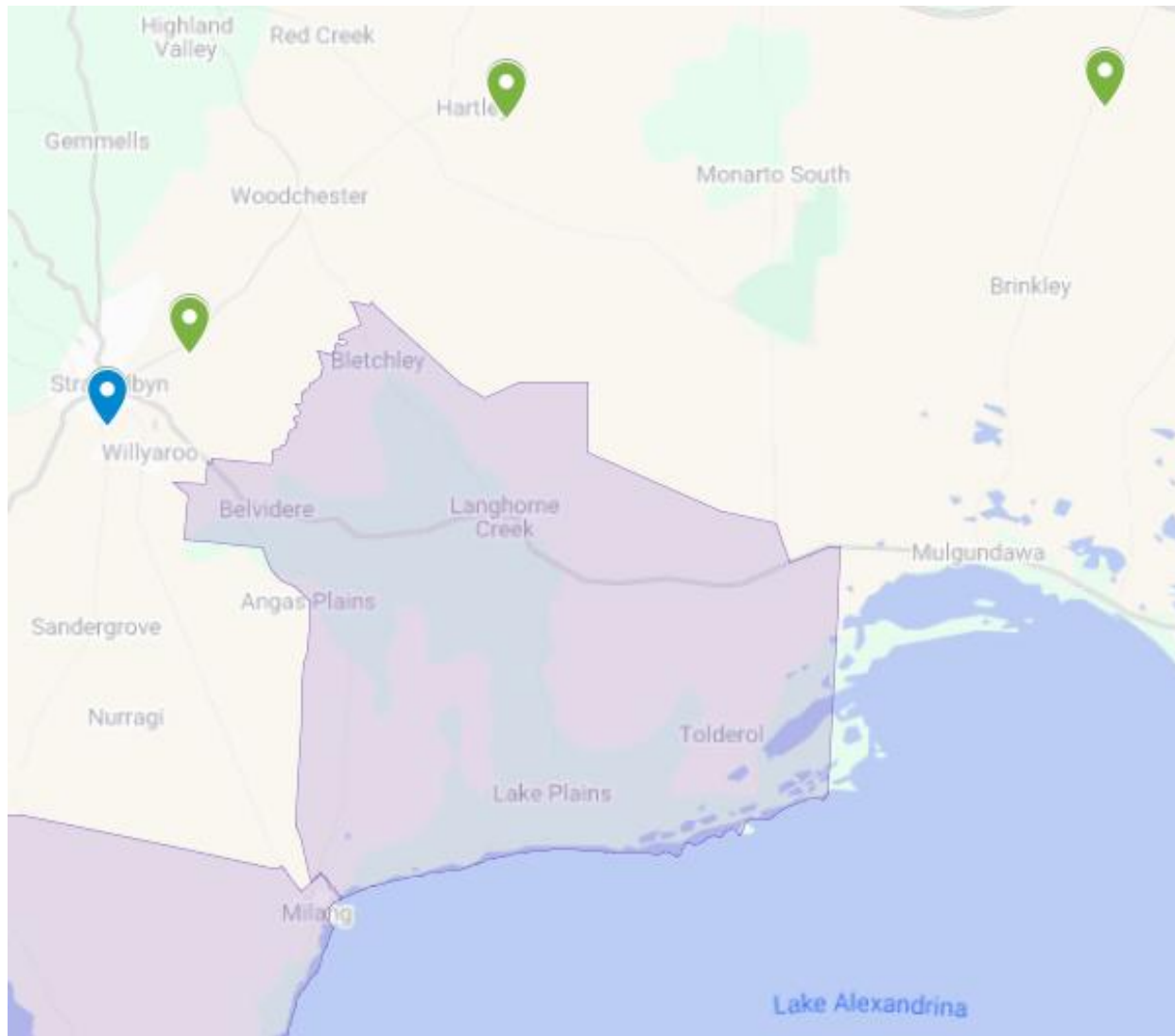


Figure 5: Map of Shortlisted Sites in Langhorne Creek. The shaded purple areas show the relevant wine regions (Currency Creek and Langhorne Creek).

Appendix 3: Development Approval Requirements

Table 16: Required Approvals for establishing a CCA vineyard post aggregation site in the Riverland, SA.

Approval Type	Authority	Greenfield Site Requirements	Brownfield Site Requirements	Relevant Regulations
Development Approval	Local Council (e.g., Berri Barmera, Renmark Paringa Council)	<ul style="list-style-type: none"> - Submit full development application for land-use change. - Secure planning and zoning approvals. - Require public notification and community consultation due to new development. 	<ul style="list-style-type: none"> - Submit modification application if site already has waste handling zoning. - Ensure compliance with existing zoning conditions. - May require site rehabilitation plan before new use is approved. 	<ul style="list-style-type: none"> - Planning, Development and Infrastructure Act 2016 (SA) - Local Council Development Plans
Environmental Licence	EPA SA (Environment Protection Authority)	<ul style="list-style-type: none"> - Obtain EPA licence for new waste facility establishment. - Conduct Environmental Impact Assessment (EIA). - Implement runoff and leachate controls. - Design waste management infrastructure from scratch. 	<ul style="list-style-type: none"> - Amend existing EPA licence if the site is already permitted for waste handling. - Conduct site contamination assessment to ensure existing contaminants don't interact with new waste materials. - Implement remediation measures if required. 	<ul style="list-style-type: none"> - Environment Protection Act 1993 (SA) - EPA SA Waste Guidelines for CCA-Treated Timber
Building & Infrastructure Compliance	Local Council & State Government	<ul style="list-style-type: none"> - Obtain Building Rules Consent for new site infrastructure. 	<ul style="list-style-type: none"> - Assess existing structures for compliance with modern safety and environmental standards. - Retrofit existing buildings to meet fire and waste management codes. - May require building upgrades for compliance. 	<ul style="list-style-type: none"> - Building Code of Australia (BCA) - Local Government Act 1999 (SA)
Waste & Hazardous Material Management	EPA SA	<ul style="list-style-type: none"> - Develop new waste handling procedures and infrastructure. - Install dedicated hardstand areas for CCA-treated posts. - Implement stormwater and leachate control systems from project initiation. 	<ul style="list-style-type: none"> - Modify existing waste permits to include CCA vineyard post storage. - Conduct groundwater and soil testing for pre-existing contamination. - Implement additional mitigation measures to prevent leachate interaction with legacy waste. 	<ul style="list-style-type: none"> - Waste to Resources Policy (SA) - EPA SA Waste Management Licensing

Approval Type	Authority	Greenfield Site Requirements	Brownfield Site Requirements	Relevant Regulations
Public Health & Community Consultation	Local Council & SA Health	<ul style="list-style-type: none"> - Mandatory public consultation as part of environmental and development approval. - Address concerns about dust, noise, and truck movements. - Submit Health Impact Assessment if near residential areas. 	<ul style="list-style-type: none"> - Consultation may not be required if site is already designated for waste use. - Existing community concerns over past site use may require additional engagement. - Implement additional monitoring if historical contamination exists. 	<ul style="list-style-type: none"> - South Australian Public Health Act 2011 - Local Council By-Laws on Noise & Public Health
Trade Waste & Water Management	EPA SA & Local Water Authority (SA Water)	<ul style="list-style-type: none"> - New stormwater and drainage systems required to prevent contamination. - May require trade waste permit for leachate discharge. - Construct bunded areas to contain potential spills. 	<ul style="list-style-type: none"> - Assess existing water infrastructure and drainage to ensure compliance. - Retrofit or upgrade existing water treatment if required. - May need ongoing monitoring of historical pollutants. 	<ul style="list-style-type: none"> - Water Industry Act 2012 (SA) - EPA SA Water Quality Guidelines
Fire & Emergency Preparedness	CFS (Country Fire Service) & Local Council	<ul style="list-style-type: none"> - Implement firebreaks and emergency response plans. - Design storage areas with fire-resistant materials. - Install hydrants and fire suppression systems. 	<ul style="list-style-type: none"> - Assess existing fire infrastructure and upgrade if needed. - May require additional fire suppression systems if co-located with combustible legacy waste. 	<ul style="list-style-type: none"> - Fire and Emergency Services Act 2005 (SA) - EPA SA Fire Prevention Guidelines
Traffic & Site Access	Local Council & SA Department for Infrastructure & Transport (DIT)	<ul style="list-style-type: none"> - Traffic impact assessment required due to new truck movements. - New road access permits may be needed. - Design safe entry & exit points for heavy vehicles. 	<ul style="list-style-type: none"> - Modify existing road permits if site use changes significantly. - Ensure truck movements comply with local traffic plans. - Upgrade existing road infrastructure if required. 	<ul style="list-style-type: none"> - South Australian Road Traffic Act 1961 - DIT Heavy Vehicle Access Guidelines



External Appendix A: MCA Criteria

Located in 'Feasibility Study for a CCA Vineyard Post Aggregation Site: External Appendices' document.

External Appendix B: MCA Results

Located in 'Feasibility Study for a CCA Vineyard Post Aggregation Site: External Appendices' document.

External Appendix C: Site descriptions

Located in 'Feasibility Study for a CCA Vineyard Post Aggregation Site: External Appendices' document.

External Appendix D: Consultations

Located in 'Feasibility Study for a CCA Vineyard Post Aggregation Site: External Appendices' document.





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