

**BEFORE A COMMISSIONER APPOINTED BY THE OTAGO REGIONAL
COUNCIL AND THE CENTRAL OTAGO DISTRICT COUNCIL**

IN THE MATTER OF

the Resource Management Act 1991

AND

IN THE MATTER OF

applications by Cromwell Certified
Concrete Limited for resource
consents to expand Amisfield Quarry

**STATEMENT OF EVIDENCE OF RAVINDU FERNANDO
ON BEHALF OF CROMWELL CERTIFIED CONCRETE LIMITED**

(TRAFFIC)

Dated: 30 November 2021

GREENWOOD ROCHE
LAWYERS
CHRISTCHURCH
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1 INTRODUCTION

- 1.1 My name is Ravindu Fernando. I am a Senior Transportation Engineer at Abley Limited (Abley). I have five years of traffic and transportation engineering experience in New Zealand. I have worked in both the private and public sectors and have been involved in a number of land development projects of varying scales. I have a Bachelor of Engineering (Hons) degree majoring in Civil Engineering from the University of Canterbury. I am a member of Engineering New Zealand and a member of the Engineering New Zealand Transportation Group.
- 1.2 I have been involved with the proposal to expand the Amisfield Quarry since January 2020, when Abley was engaged to undertake an assessment of transport effects. I am the author of the Transport Assessment dated 11 September 2020 (Transport Assessment), which forms part of the AEE. I have visited the site and surrounds.
- 1.3 In preparing this evidence, I have read and considered the following documents:
- (a) The applications, the AEE and the Transport Assessment;
 - (b) Submissions on the applications relevant to transport matters, including the submission by Waka Kotahi NZ Transport Agency (Waka Kotahi) ;
 - (c) The Section 42A report for the District Council prepared by Mr Whyte; and
 - (d) The evidence of Mr Travis Allison (the quarry manager) on behalf of the applicant.
- 1.4 Whilst this is a Council hearing, I acknowledge that I have read and agree to comply with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2014. My qualifications as an expert are set out above. Other than where I state that I am relying on the advice of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise. I have not omitted to consider material

facts known to me that might alter or detract from the opinions that I express.

2 **SCOPE OF EVIDENCE**

2.1 My evidence addresses:

- (a) The transportation environment, including the existing site access and road safety;
- (b) The transportation effects of the proposed activity;
- (c) My assessment of the proposed activity against the Central Otago District Plan and other relevant standards;
- (d) Submissions that raise specific transportation effects;
- (e) The Section 42A report; and
- (f) The proposed consent conditions.

3 **SUMMARY**

- 3.1 The location of the existing site access, associated office spaces and parking area will not change as part of the proposal to expand the Amisfield Quarry.
- 3.2 The proposed expansion is expected to generate up to 24 additional vehicle trips during the peak hour (4pm – 5pm) and 56 additional vehicle trips (28 additional trucks) per day. An assessment of truck logs shows that approximately 80% of all trucks visiting the site arrive from the south. All current employees live in Cromwell and the occasional visitors to the site are also likely to come from Cromwell. Accordingly, it is assumed that 80% of light vehicles travelling to the site also arrive from the south.
- 3.3 There are currently widened shoulders on both sides of SH6 near the site access, to allow vehicles to go past another vehicle which is waiting or decelerating to turn into the site.
- 3.4 The Waka Kotahi Planning Policy Manual requires that this site access operates as an intersection because accessways that are likely to generate more than 100 equivalent car movements (ecm) per day are

required be designed as intersections (one truck and trailer to and from a property equates to 10 ecm). My assessment of the appropriate turning treatments concluded that a higher order right turning facility is required to support the increased turning movements at the site access. However for the left turning movement, the existing provisions are sufficient. Accordingly, it is proposed that a right turn bay is provided on SH6 at the site access in accordance with Waka Kotahi design standards.

- 3.5 The right turn bay will require some level of seal widening on the eastern side of the road and an existing culvert just south of the site access will also need to be widened. Although the new edge line will not extend beyond the existing culvert, the clearance from the northbound lane will be reduced by approximately 1m. Therefore it is proposed that the existing culvert is widened by approximately 2m.
- 3.6 The proposal complies with all transport related rules in the Central Otago District Plan relating to site accesses. While the existing onsite parking provisions are largely non-compliant with the corresponding District Plan rules, it is noted that these are all existing non-compliances authorised by the existing land use consent that are not expected to be exacerbated as a result of the proposed quarry expansion. In my view, parking-related rules such as the requirement to delineate individual parking spaces are not intended to be applicable to an activity such as a quarry where general public access is limited and infrequent.
- 3.7 I have also reviewed the transport-related matters raised in submissions. All matters raised by Waka Kotahi have been resolved by providing additional information and reaching an agreement on appropriate conditions of consent. I have reviewed the conditions of consent proposed by the applicant and agreed by Waka Kotahi, and confirm that they are appropriate and reflect my advice.
- 3.8 The transport-related matters raised in some submissions relate to additional heavy vehicle movements on SH6 and increased turning movements at the site access. As set out in my evidence, any potential safety or operational issues at the site access have been adequately mitigated by the proposed right turning bay. In my

opinion, the increase in heavy vehicle movements arising from the quarry expansion will not lead to any adverse road safety or efficiency effects.

- 3.9 Overall, I consider that any effects on the wider transport network will be minimal and the Section 42A report for the District Council concurs. The proposed quarry expansion (with the associated roading improvements) can be supported from a traffic and transport perspective.

4 **THE TRANSPORTATION ENVIRONMENT**

- 4.1 The site is accessed via SH6, which has a posted speed limit of 100km/h along the site frontage. The carriageway is sealed and consists of one traffic lane in each direction. Near the site access, widened shoulders are provided on both sides of the road to allow vehicles to go past another vehicle waiting or decelerating to turn into the site. The site access is shared with the vineyard located immediately north of the quarry.
- 4.2 This section of the State Highway has an average daily traffic volume of 3,193 vehicles/day¹. My assessment of hourly traffic volumes identified the peak hour to be between 4pm and 5pm, with an average traffic volume of 295 vehicles per hour. The peak hour directional split was roughly similar, with 143 southbound and 152 northbound vehicles.
- 4.3 Data for crashes recorded between 2016 and 2020 inclusive and any crash data available for 2021 were obtained from the Waka Kotahi Crash Analysis System (CAS). The search area included SH6, 250m to either side of the site access and a 50m buffer at the Mount Pisa Road/ SH6 intersection. Only one crash was recorded in the past five years, which was a non-injury crash, approximately 70m south of the quarry access, resulting from a dog running across the road in front of a vehicle. On the basis of the historical crash records, I conclude that there are no underlying safety issues along SH6 near the site and at the Mount Pisa Road/SH 6 intersection.

¹ Derived from Waka Kotahi TMS traffic count data between January 2019 and January 2020

5 ASSESSMENT OF TRANSPORTATION EFFECTS

- 5.1 The proposal includes the deepening of the existing quarry and its expansion onto an adjoining site north east of the existing quarry.
- 5.2 The daily and the peak hour trip generation following the proposed quarry expansion has been determined based on the information provided by the applicant. Table 1 and Table 2 below outline the projected daily and peak hour trip generation respectively.

Table 1: Daily Trip Generation

	Trip Generation (vehicles/ day) - Heavy Vehicles	Trip Generation (vehicles/ day) - light Vehicles	Total Trip Generation (vehicles/ day)
Current Operations	94 (<i>47 trucks - arrivals and departures</i>)	32 (<i>10 vehicles - arrivals, departures and 6 vehicles doing one return trip during the day</i>)	126
Following proposed expansion	150 (<i>75 trucks - arrivals and departures</i>)	32 (<i>unchanged from the existing</i>)	182

Table 2: Peak Hour Trip Generation

	Trip Generation (vehicles/ hour) - Heavy Vehicles	Trip Generation (vehicles/ hour) - light Vehicles	Total Trip Generation (vehicles/ hour)
Current Operations	40 (<i>20 trucks - arrivals and departures</i>)	10 (<i>5 vehicles, arrivals and departures</i>)	50
Following proposed expansion	64 (<i>32 trucks - arrivals and departures</i>)	10 (<i>unchanged from the existing</i>)	74

- 5.3 The vehicle arrival and departure directions have been determined through the assessment of truck logs for the past year, which identified that 80% of all trucks arrive at the site from the south, thereby turning right into the site. Currently, all of the employees come from Cromwell and any occasional visitors are likely to arrive from Cromwell. Accordingly, 80% of the light vehicles are also expected to arrive at the site from south. All vehicles are assumed to leave in the same direction from which they arrive.
- 5.4 The Central Otago District Plan states that vehicle accesses on State Highways should be in accordance with Waka Kotahi standards. Waka Kotahi Planning Policy Manual (Appendix 5B: Accessway standards and guidelines) notes that accessways that are likely to generate more

than 100 equivalent car movements (ecm) per day² are required to be designed as intersections. However there is no specific guidance within the Waka Kotahi intersection design guidelines that clearly outlines the thresholds for different right and left turning treatments. I have therefore considered Austroads Guidelines³ to determine the appropriate turning facility provision. The nature of the required turning facility depends on the peak hour turning volumes, peak hour major road traffic volume and the speed environment.

- 5.5 I concluded that the existing widened shoulder is inadequate given the increased traffic movements proposed, and that a higher order right turning facility into the site is required at the site access. I recommended that a full length right turning bay is provided in accordance with Waka Kotahi design standards⁴ (see **Attachment A** to my evidence for draft outline plans).
- 5.6 My assessment also identified that a basic left turning treatment, i.e. shoulder widening, is sufficient to cater for the increase in left turning traffic into the site.
- 5.7 Providing a right turn bay into the site will require some level of seal widening on the eastern side of the road and widening of an existing culvert just south of the site access. The new edge line will not extend beyond the existing culvert but the clearance from the southbound lane will be reduced by approximately 1m. Therefore, the existing culvert should be widened by approximately 2m (see Attachment A to my evidence).
- 5.8 On the northern side of the access, the new alignment of the southbound lane encroaches on the existing widened shoulder for left turning vehicles. However a part of the existing berm can be used to provide additional shoulder widening to the same length and width as the existing (see Attachment A to my evidence).

² Note that a truck and trailer to and from a property equates to 10 ecm (Waka Kotahi Planning Policy Manual – Appendix 1, Glossary)

³ Guide to Road Design Part 4: Intersections and Crossings

⁴ Waka Kotahi Manual of Traffic Signs and Markings (MOTSAM) Section 3, Intersection and Pavement Markings

- 5.9 I have also recommended that the site access also be widened to facilitate smoother vehicle turning.

6 **CENTRAL OTAGO DISTRICT PLAN**

- 6.1 I have undertaken an assessment of the proposal against the transport-related rules of the Central Otago District Plan and have concluded that the proposal is compliant other than the one matter addressed below.
- 6.2 The vehicle parking area within the site is unsealed and individual parking spaces are not delineated, hence not complying with the District Plan Rule 12.7.2. This is an existing non-compliance which is authorised by the existing land use consent that has not resulted in any safety or operational issues. These parking areas will typically only be used by the employees who are familiar with the site layout, and public access to the site is infrequent.

7 **SUBMISSIONS**

- 7.1 I have reviewed the submissions to the District Council which relate to transport/traffic matters.
- 7.2 The submission by Waka Kotahi supports the upgrade of the access to the site to a full length right turn bay. Conditions of consent relating to the following matters have been agreed between the applicant and Waka Kotahi and were included in the applicant's draft proposed conditions:
- (a) Detailed design of the right turn bay will be compliant with Waka Kotahi Standards;
 - (b) Temporary traffic management will be put in place during the period of right turn bay construction; and
 - (c) The right turn bay will be constructed prior to commencing quarrying within the expanded area.
- 7.3 A sign is proposed to be installed at the site entrance, to assist visitors to locate the site access (the access to the site is currently not sign-posted). I understand that proposed design of the sign, its colour and

lettering⁵ are acceptable to Waka Kotahi, and I consider that the sign is appropriate for the speed environment of the adjacent highway.

- 7.4 The sign location has also been confirmed as along the site access, (southern side) from approximately 28m from the edge line of the SH6 southbound lane⁶. This will reduce to 25m following the proposed right turn bay construction (as the road alignment changes and the southbound lane will be shifted further east). The proposed sign location does not obstruct a driver's clear line of sight to SH6. During correspondence subsequent to its submission, I understand that the location of the sign is also acceptable to Waka Kotahi.
- 7.5 The Waka Kotahi submission also states that other relevant factors in considering signage should include vehicle headlight reflection, proximity to official traffic signs, whether it will comprise reflective materials and moving parts, internal or external illuminance, the strength, rigidity and impact performance of the sign support and the number of words and/or symbols to be displayed on the sign.
- 7.6 The proposed sign will not be illuminated, will not comprise reflective and moving parts and the sign surface will be of a non-reflective material to ensure vehicle headlight reflection will not be a concern. The strength, rigidity and impact performance of the sign supports are not anticipated to be a concern given the sign will be offset by more than 20m from the live lane on SH6.
- 7.7 The submission from Manukau Fifty Limited expresses a concern that increased quarry traffic turning into and across its land may be unmanageable and dangerous for its vineyard workers. I understand that the land on which the site access is located is owned by CCCL but that Manukau Fifty has an easement over that area which is used by vineyard workers to access the vineyard.
- 7.8 I do not consider that the increased traffic using the access poses a danger to vineyard workers wishing to turn onto the access. There is sufficient visibility and traffic will be travelling at low speed on the access road.

⁵ As shown on page 6 of the Section 42A report

⁶ As shown on page 6 of the Section 42A report

7.9 The submission by Justine and Philip Davis also raises a general concern about traffic safety and an increase in traffic movements to and from the site.

7.10 Any potential road safety risks associated with the increase in turning movements to and from the site are mitigated by the proposed right turning bay. This will ensure vehicles arriving from the south will not impede northbound through vehicles. This reduces the risk of high speed rear end crashes and turning vehicles potentially choosing insufficient gaps in the opposing southbound traffic stream to avoid impeding through vehicles. The right turning bay will also benefit the vineyard workers by providing them a safer means of turning into the site.

8 SECTION 42A OFFICERS' REPORT (DISTRICT COUNCIL)

8.1 The Section 42A report does not raise any transport concerns and concludes that the proposal will have less than minor adverse transport effects⁷.

9 CONSENT CONDITIONS

9.1 I reviewed the draft transport related conditions of consent proposed by the applicant prior to those conditions being provided to the District Council on or about 10 November 2021. I confirm that those conditions are appropriate, and reflect both my advice and the agreements reached with Waka Kotahi. Those conditions have been included in the Section 42A report as proposed by the applicant.

10 CONCLUSION

10.1 According to my assessment, the additional trips (primarily additional truck movements) resulting from the proposed expansion of the Amisfield Quarry warrant the provision of a right turning facility into the site access in accordance with Waka Kotahi design standards.

10.2 The proposed right turn bay will require some seal widening on the eastern side of the road, and an existing culvert just south of the site

⁷ Section 42A report, pages 24 - 25

access will need to be widened. These changes in the road infrastructure will be undertaken according to Waka Kotahi Standards and will not result in any adverse safety or operational outcomes.

10.3 I have reviewed the proposal against transport related rules of the Central Otago District Plan and concluded the proposal is compliant with all but one rule which is an existing non-compliance authorised by the existing land use consent. This is not exacerbated by the proposal and is acceptable, in my opinion.

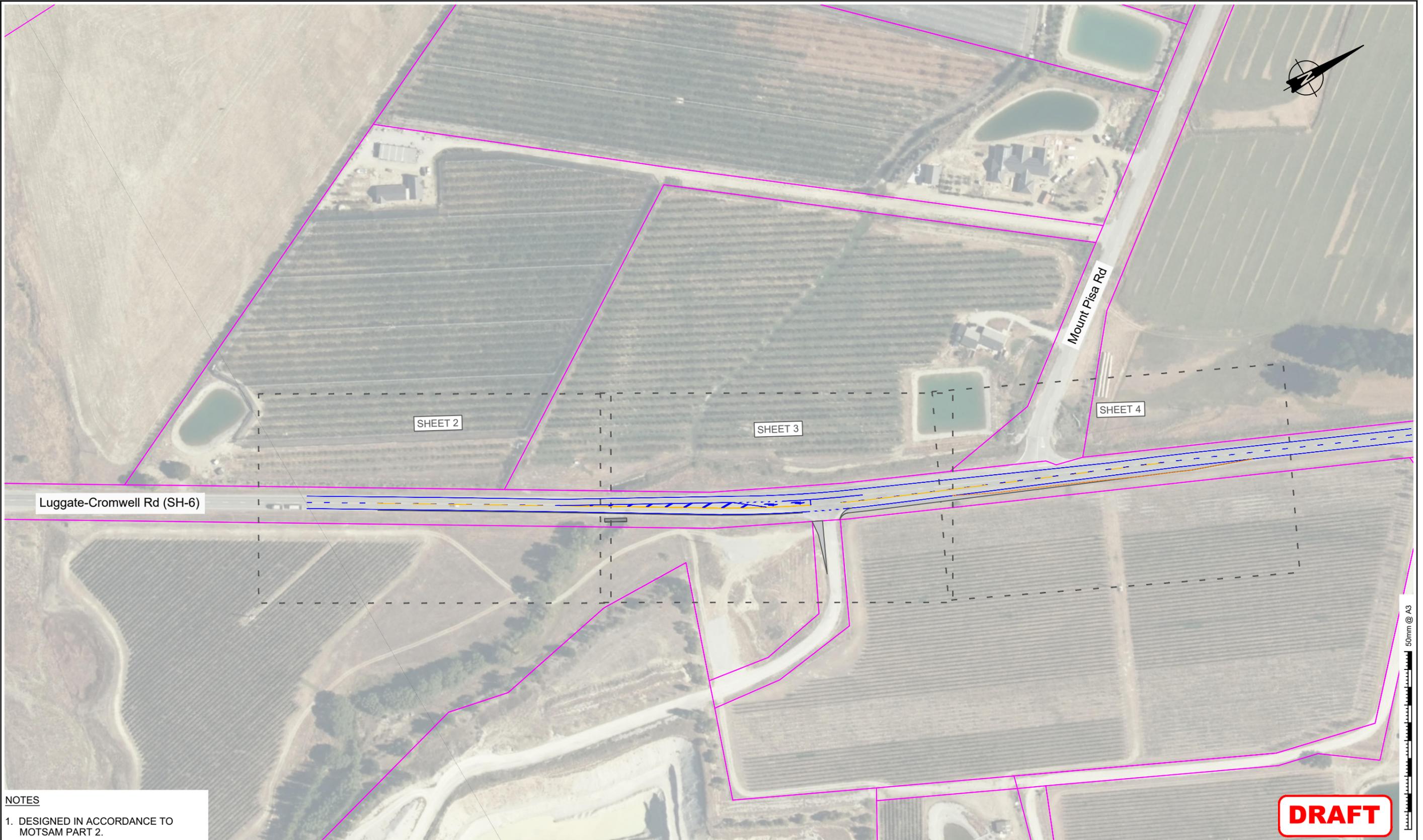
10.4 I have also reviewed the transport-related matters raised in submissions and have concluded that all such matters are satisfactorily addressed through conditions of consent and/or the mitigation proposed.

10.5 Overall, I conclude that any effects on the wider transport network from the expansion will be minimal and the expansion (and the associated roading improvements) can be supported from a traffic and transport perspective.

Ravindu Fernando

November 2021

Attachment A – Proposed right turn bay, site access and associated improvements



NOTES
 1. DESIGNED IN ACCORDANCE TO MOTSAM PART 2.

DRAFT

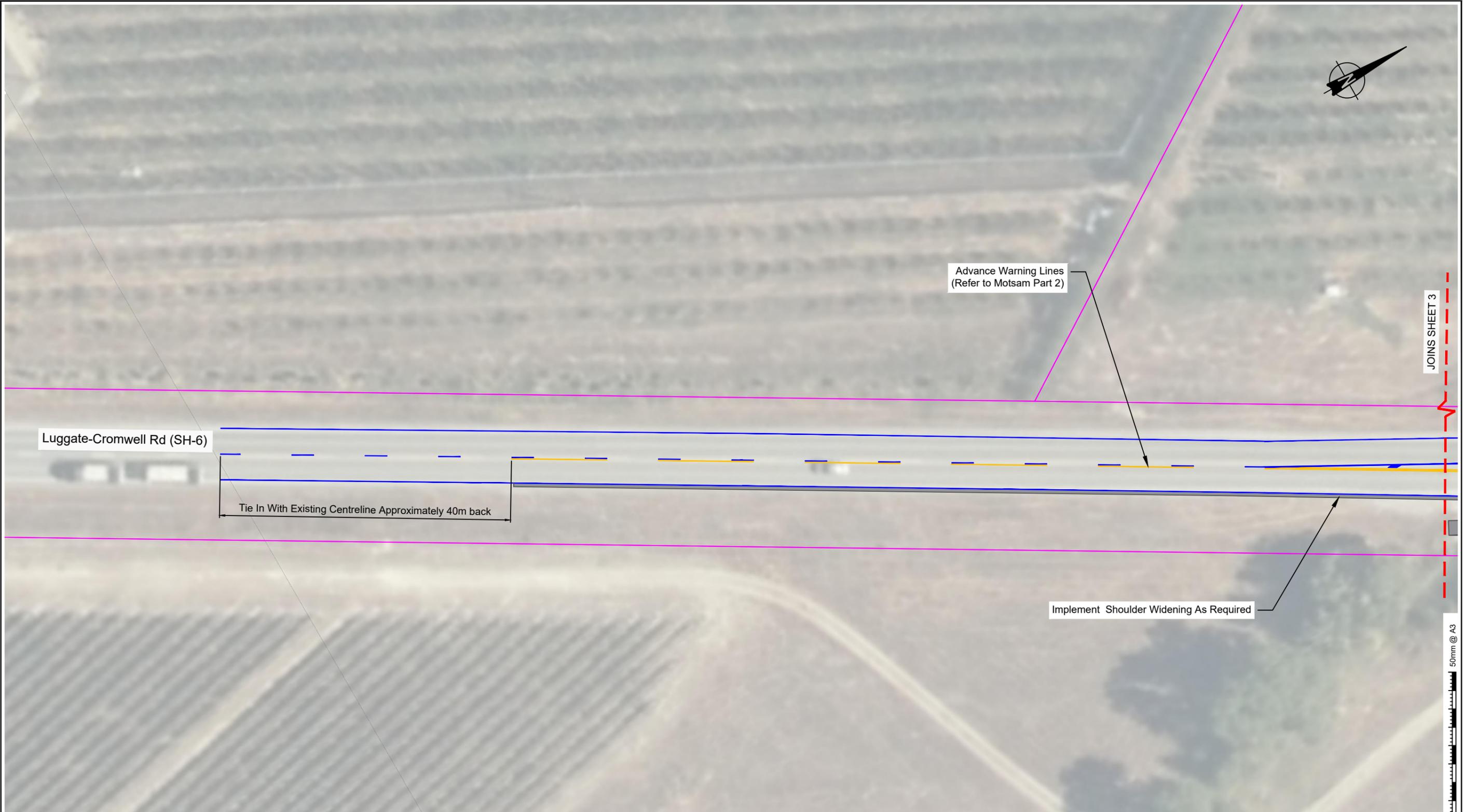
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Design	HJ
Drawn	HJ
Checked	RF
Issued	11/08/2020
Scale	1:2000 @ A3

Amisfield Quarry Expansion
 Site Access
 Proposed Right-Turn Bay on SH-6
 Conceptual Design -Overview

Project No.	LPL-J001
Dwg #	ATC10536
Sheet	1
Revision	A



Luggate-Cromwell Rd (SH-6)

Advance Warning Lines
(Refer to Motsam Part 2)

Tie In With Existing Centreline Approximately 40m back

Implement Shoulder Widening As Required

JOINS SHEET 3

50mm @ A3

NOTES
1. DESIGNED IN ACCORDANCE TO MOTSAM PART 2.

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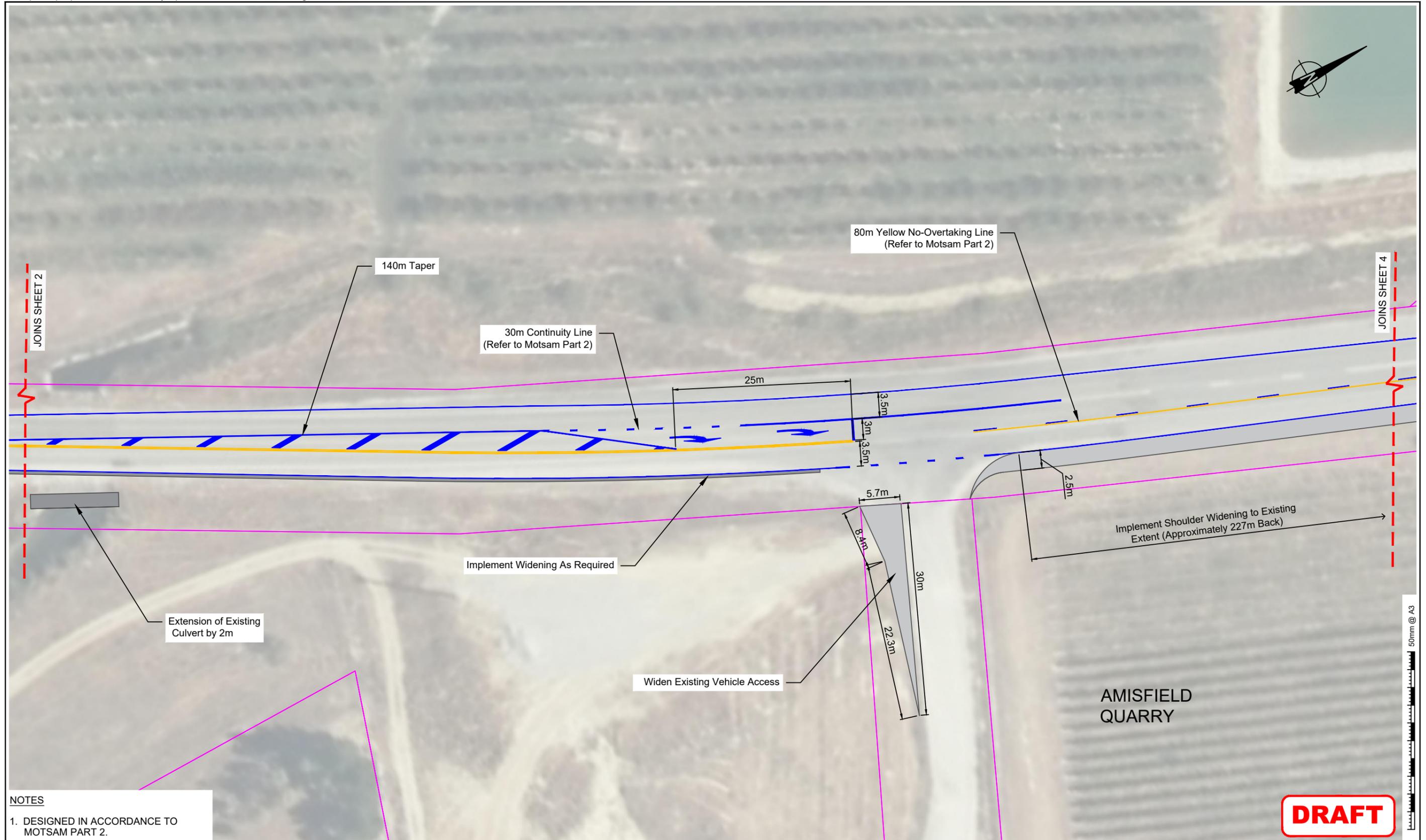
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Design	HJ
Drawn	HJ
Checked	RF
Issued	11/08/2020
Scale	1:500 @ A3

Amisfield Quarry Expansion
Site Access
Proposed Right-Turn Bay on SH-6
Conceptual Design

Project No.	LPL-J001
Dwg #	ATC10536
Sheet	2
Revision	A



NOTES
 1. DESIGNED IN ACCORDANCE TO MOTSAM PART 2.

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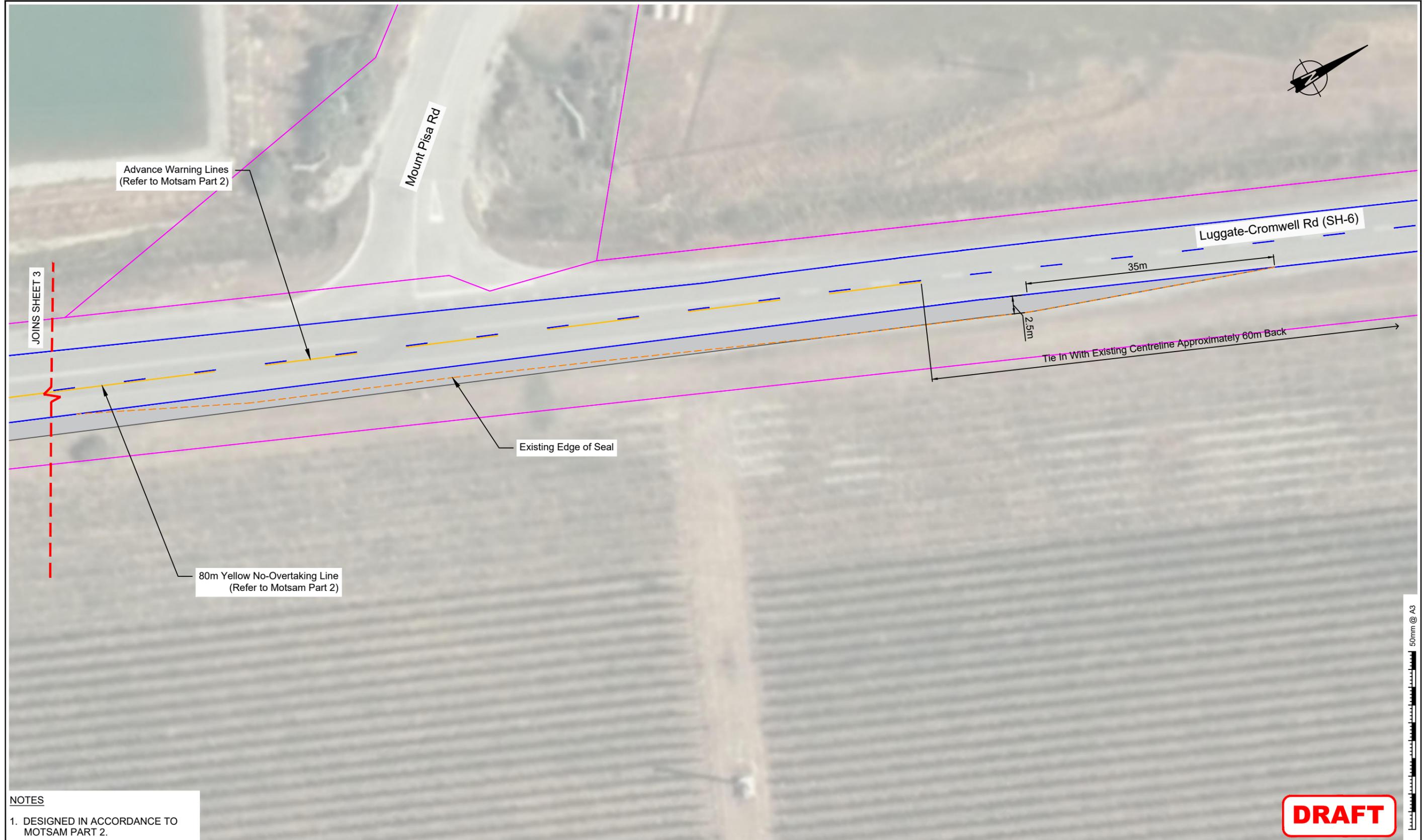
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Drawn	HJ
Checked	RF
Issued	11/08/2020
Scale	1:500 @ A3

Amisfield Quarry Expansion	
Site Access	
Proposed Right-Turn Bay on SH-6	
Conceptual Design	

Project No.	LPL-J001
Dwg #	ATC10536
Sheet	3
Revision	A



NOTES
 1. DESIGNED IN ACCORDANCE TO MOTSAM PART 2.

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Rev	Date	By	Chk	Description
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Design	HJ
Drawn	HJ
Checked	RF
Issued	11/08/2020
Scale	1:500 @ A3

Amisfield Quarry Expansion
 Site Access
 Proposed Right-Turn Bay on SH-6
 Conceptual Design

Project No.	LPL-J001
Dwg #	ATC10536
Sheet	4
Revision	A