

# ROUTE STUDY

CLIENT: GOLDWIND AUSTRALIA

PROJECT: SUPERPIT WIND FARM

SCOPE: WIND TURBINE ROAD TRANSPORT

PORT OF ENTRY: GERALDTON

TURBINE TYPE: GW182-150 METRE HH

VERSION: REV00 (22/02/2025)

Rev.	Date	Change	Responsible	Checked
00	28/01/25	Report compiled	W Andrews	✓
00	22/02/25	Report completed	W Andrews	✓

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## 1.0 Introduction

This report has been prepared to understand the complexity and constraints that would be involved in moving wind turbine blades from Geraldton port through to a site close to the Superpit in Kalgoorlie in Western Australia.

For this report we have chosen the Port of Geraldton, as we have used this facility to handle and transport wind turbines through to the Goldfields region in the past.

The route has been recently upgraded to accommodate the GW165 wind turbines for large sections of this route. This larger turbine will require additional upgrades to allow it to be transported to site.

This report confirms the freight task could be transported from the port through to site, but the upgrades listed in the report would need to be completed before this could be possible.

## 2.0 Evaluation

Assessment of the proposed routes was conducted by Rex J Andrews Engineered Transportation based on onsite route surveys as well as previous experience on sections of the identified. The assessment was conducted utilising the knowledge, experience and intellectual property of Rex J Andrews Engineered Transportation on purpose-built equipment and is not intended for use by other parties.

The assessment considered the key constraints encountered on the routes and an estimation of the amount of work required to make the route viable based on previous experience. Table 1 shows the evaluation of each route and provides an overall ranking to give guidance on the most suitable route for the development from a transport perspective. The assessment was based on operational factors and equipment capability and does not consider external factors such as regulatory, landholder, environmental, cultural or any other external factors beyond the knowledge or control of Rex J Andrews Engineered Transportation.

		Harbour	Road Modification	Road Furnishings	Vegetation	Site Entrance	Bridge Calculations	Overhead utilities	Overall Work Required
<b>1</b>	No Work								
<b>2</b>	Some Work								
<b>3</b>	Moderate Amount of Work								
<b>4</b>	Large Amount of Work								
Route 1	Blades	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>3.0</b>
Route 2	Towers, motors and remaining loads	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2.0</b>

Table 1 - Route Evaluation

### **3.0 Project data.**

Date of latest Route Assessment. 28/01/2025.

Survey undertaken by. (Rex J Andrews P/L).

Project name. Superpit Windfarm.

Port of Import. Port of Geraldton (WA).

Project location: Kalgoorlie (WA).

Quantity of turbines: 32 x GW182 150 metre hub height 7.2MW wind turbines

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## 4.0 Transport Combinations

### GW182 TURBINE:

Nacelle (10.75l x 4.97w x 4.2h x 47.8T)

Possible transport configuration. Prime mover with 5x8 Low loader.

Overall Dimension: 25.0l x 5.0w x 5.3h x 89.5T.

Hub (5.5l x 4.51w x 4.25h x 61.8T)

Possible transport configuration. Prime mover with 5x8 Low loader.

Overall Dimension: 25.0l x 4.6w x 5.3h x 93.5T.

Drivetrain 7.93l x 3.3w x 3.9h x 112.7T)

Possible transport configuration. Prime mover with 8x8 platform trailer.

Overall Dimension: 32.0l x 4.2w x 5.0h x 177.5T.

Blades (90.38l x 4.95w x 3.58h x 29.2T)

Possible transport. Prime mover with 2x4-3x8 Extending blade trailer.

Overall Dimension: 105.0l x 5.1w x 5.5h x 96.5T.

### 150 METRE TOWER

T1 Towers (11.0l x 5.92 x 5.92 x 100T)

Configuration. Prime mover with 2x8-9x8 Dolly and Platform trailer.

Overall dimension: 42.0l x 6.0w x 6.1h x 178.0T

T2 Towers (14.0l x 5.6 x 5.6 x 100T)

Configuration. Prime mover with 9x8 Platform trailer.

Overall dimension: 35.0l x 5.6w x 6.6h x 178.0T

T3 Towers (14.0l x 5.6 x 5.6 x 100T)

Configuration. Prime mover with 9x8 Platform trailer.

Overall dimension: 35.0l x 5.6w x 6.6h x 178.0T

T4 Towers (14.0l x 5.6 x 5.6 x 100T)

Configuration. Prime mover with 9x8 Platform trailer.

Overall dimension: 35.0l x 5.6w x 6.6h x 178.0T

T5 Towers (19.04l x 5.6 x 4.97 x 100T)

Configuration. Prime mover with 10x8 Platform trailer.

Overall dimension: 35.0l x 5.6w x 6.6h x 178.0T

T6 Towers (24.5l x 5.6 x 4.97 x 82.5T)

Configuration. Prime mover with 5x8-5x8 Extending platform..

Overall dimension: 39.0l x 5.6w x 6.6h x 160.5T

T7 Towers (25.2l x 4.97 x 4.47 x 92T)

Configuration. Prime mover with 4x8-4x8 Extending platform.

Overall dimension: 36.0l x 5.0w x 6.1h x 123.0T

T8 Towers (25.0l x 4.47w x 3.86h x 52T)

Configuration. Prime mover with 4x4 dolly 3x8 low Jinker.

Overall dimension: 35.0l x 4.5w x 5.6h x 90.5T

## 5.0 Project Location.

The Superpit windfarm is located north of the KCGM Superpit mine in Kalgoorlie Western Australia.

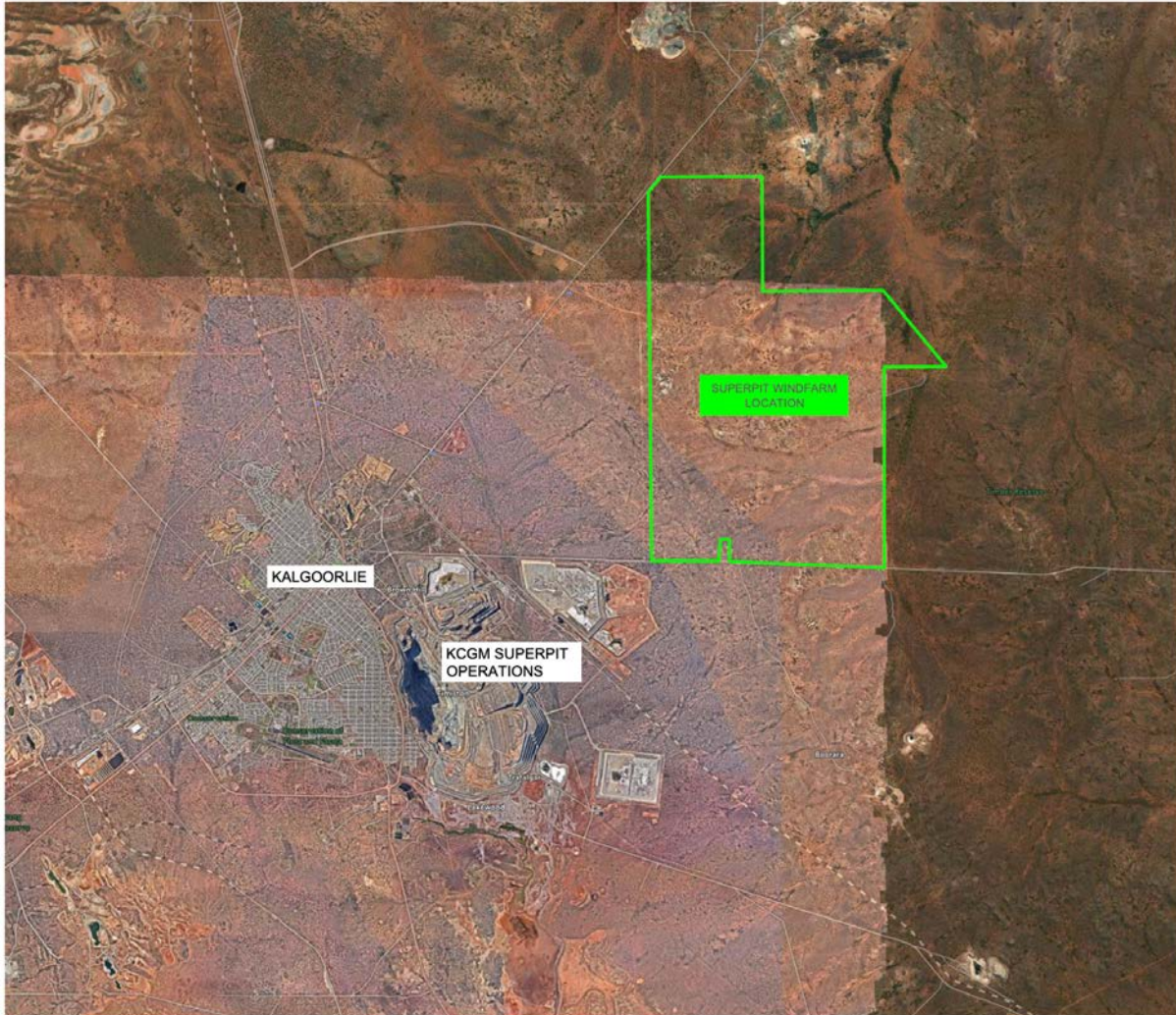


Image 1: Superpit windfarm location

## 6.0 Port of Import.

The wind turbine equipment will be imported from various countries and will arrive on ships into the Port of Geraldton. The ideal berth for these shipments is the Break bulk berth # 6. This facility has a storage area of roughly 30,000 s/q meters, adjacent to the berth.

Access from the storage to the public roads, is via Reg Clarke Road.

GPS link: <https://goo.gl/maps/pumzDF1AVQQ1rGUW7>

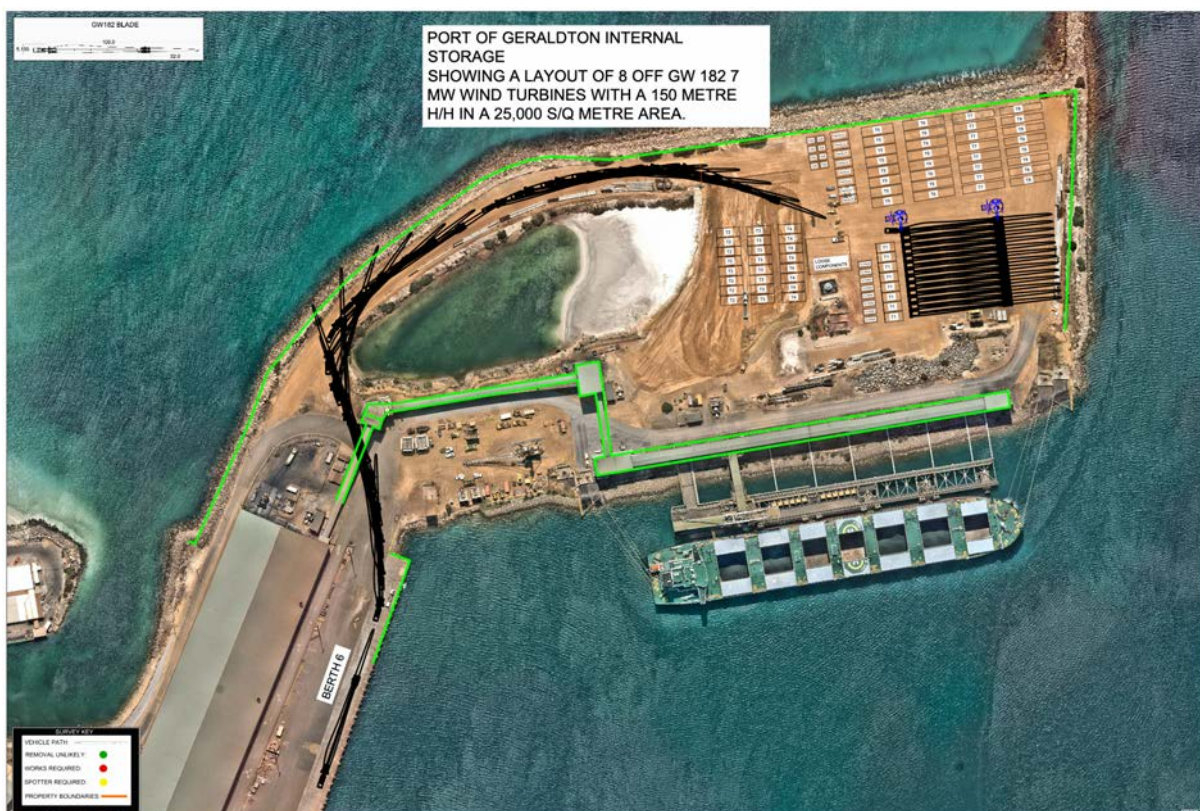


Image 2: Geraldton port berth & storage plan.

## 7.0 Transport route summary: Geraldton Port to the Superpit Windfarm.

We have based this study on the wind turbines entering Australia via the Port of Geraldton. After assessing a number of options out of Geraldton, the following were selected as the routes for this project.

### **ROUTE 1:** Port Geraldton to Superpit Windfarm

**COMPONENTS:** Blades.

**DISTANCE:** 1018 Kilometres

This route took us via Reg Clarke Road, Ian Bogle Road, John Willcock Link Road, N W Coastal Highway, Geraldton-Mount Magnet Road, Great Northern Highway, Laurie Street, Welcome Street, Criddle Street, Richardson Street, Mount Magnet-Sandstone Road, Agnew-Sandstone Rd, Agnew-Leinster Road, Goldfields Highway, Speedway Road Yarri Road.

GPS link: <https://maps.app.goo.gl/p8rv8Qj2jtv1DsQj9>

**NOTE:** The GPS Link shows the route staying on the main road at Mt Magnet. However there will be a new bypass built to the west of the Mt Magnet township that the blades will use to detour the town and head back along Richardson Road from west to east.

### **ROUTE 2:** Geraldton Port to Superpit Windfarm

**COMPONENTS:** Tower sections, motors and smaller loads

**DISTANCE:** 1,029 kilometres

This route took us via Reg Clarke Road, Ian Bogle Road, John Willcock Link Road (**Towers to travel up and over the Brand Highway overpass**), N W Coastal Highway, Geraldton-Mount Magnet Road, Great Northern Highway, Laurie Street, Richardson Street, Mount Magnet-Sandstone Road, Agnew-Sandstone Rd, Agnew-Leinster Road, Goldfields Highway, Leonora-Nambi Road, Leonora heavy load bypass, Laverton-Leonora Road, Main Reef Road, Goldfields Highway, Boorara Road, Black Street, Yarri Road.

GPS link: <https://maps.app.goo.gl/jaJmpxcdsvnzULy36>

## 8.0 Route study 1: Geraldton Port to Superpit windfarm.

We have based this study on the wind turbine components entering Australia via the Port of Geraldton. After assessing a number of options out of Geraldton, the following was selected as the route for the blades on this project.

**COMPONENTS:** Blades.

**DISTANCE:** 1018 Kilometres

This route took us via Reg Clarke Road, Ian Bogle Road, John Willcock Link Road, N W Coastal Highway, Geraldton-Mount Magnet Road, Great Northern Highway, Laurie Street, Welcome Street, Criddle Street, Richardson Street, Mount Magnet-Sandstone Road, Agnew-Sandstone Rd, Agnew-Leinster Road, Goldfields Highway, Speedway Road Yarri Road.

GPS link: <https://maps.app.goo.gl/p8rv8Qj2jtv1Dsqi9>

**NOTE:** The GPS Link shows the route staying on the main road at Mt Magnet. However there will be a new bypass built to the west of the Mt Magnet township that the blades will use to detour the town and head back along Richardson Road from west to east.

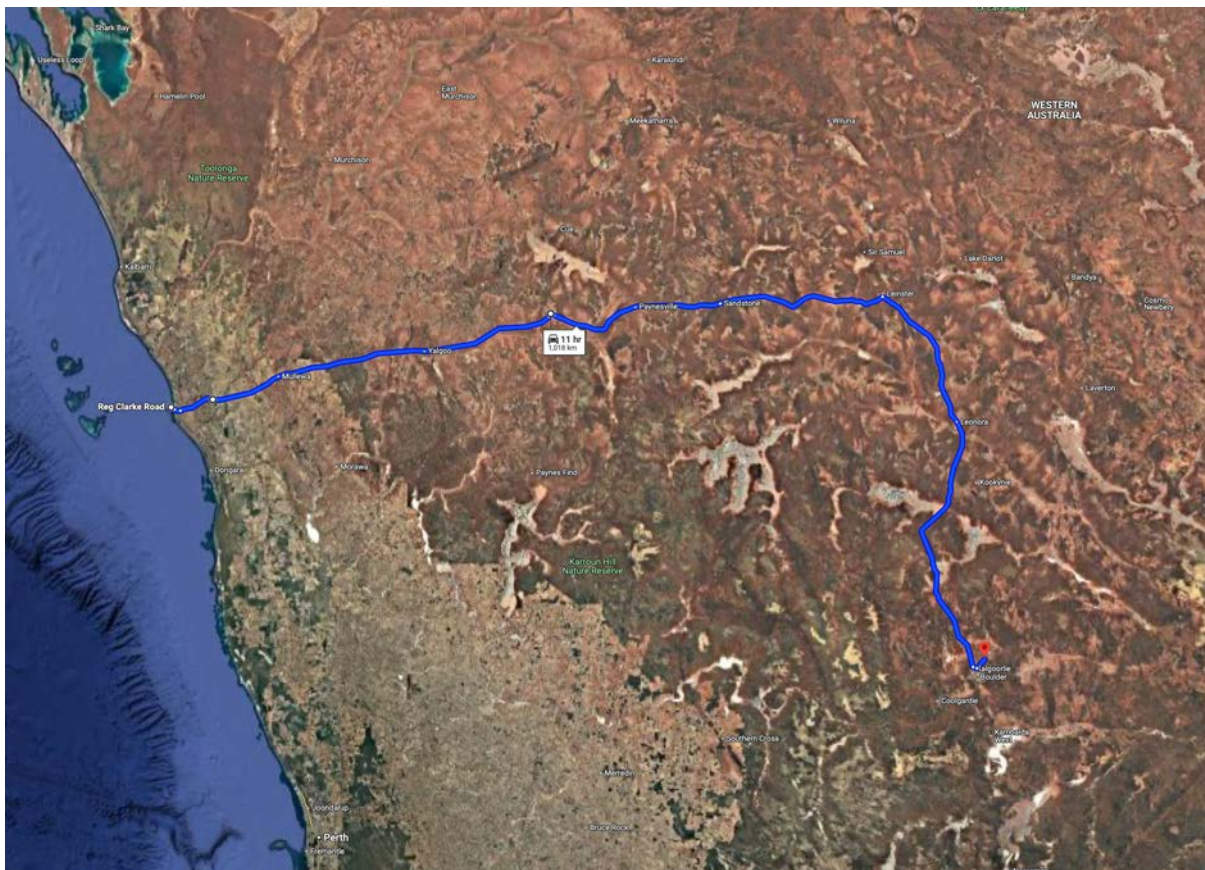


Image 3: Route 1 map

KEY	
CAUTION	
ROAD MODIFICATIONS	
PARKING AREAS	

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
Exiting the port	Port of Geraldton	Geraldton Port north gate onto Reg Clarke Road GPS Link: <a href="https://goo.gl/maps/KVr8SmFCoo7AEmlEV7">https://goo.gl/maps/KVr8SmFCoo7AEmlEV7</a>	Length: 40 Metres Width: 6.0 Metres	Dogleg turn through the security gate	The exit road from the port will need to be widened, and the security gate will need to be modified. The security gate will need to be opened by security. Notification needs to be given to the security the day prior and again 30 minutes prior to the blade departing. Spotter to help guide blades through this pinchpoint.
0.3	Port of Geraldton	Reg Clarke Road GPS Link: <a href="https://maps.app.goo.gl/YxdrdHYUHVUkVUGi7">https://maps.app.goo.gl/YxdrdHYUHVUkVUGi7</a>	Length: 80 Metres Width: 6.0 Metres	Left hand bend	Some vegetation will need to be removed in the tailswing. Spotter to help guide blades through this pinchpoint.
0.5	Geraldton	Reg Clarke Road onto Ian Bogle Road GPS Link: <a href="https://goo.gl/maps/HZ1Qxa1ks6ZWLGCXV8">https://goo.gl/maps/HZ1Qxa1ks6ZWLGCXV8</a>	Length: 70 Metres Width: 6.5 Metres	Right hand turn	Hardstand is required prior to the corner. At the corner a lightpole will need to be relocated and the ramp extended, the fence on the inside will need to be modified, and several signs will need to be made removable.
0.7	Geraldton	Ian Bogle Road onto John Willcock Link GPS Link: <a href="https://goo.gl/maps/PpHV5xznmkp4q6Xv6">https://goo.gl/maps/PpHV5xznmkp4q6Xv6</a>	Length: 85.0 Metres Width: 6.5 Metres	Sweeping left hand bend	Spotter to help guide blades through this section of road.
4.7	Geraldton	John Willcock Link under Brand Highway overpass GPS Link: <a href="https://goo.gl/maps/7RGrWY9RxqumAr2z8">https://goo.gl/maps/7RGrWY9RxqumAr2z8</a>	Height: Left: 6.64 metres high Centre: 6.80 metres high Right: 6.73 metres high	Travel directly ahead	No problems with this section of road.
4.8	Geraldton	John Willcock Link onto NW Coastal Highway GPS Link: <a href="https://goo.gl/maps/8DwadPWWwSKqGwFA7">https://goo.gl/maps/8DwadPWWwSKqGwFA7</a>	Width: 10.5 Metres	Travel directly ahead	No problems with this section of road.
5.3	Geraldton	John Willcock Link under Durlacher Street overpass GPS Link: <a href="https://goo.gl/maps/dkuh3PsyX9keis9s7">https://goo.gl/maps/dkuh3PsyX9keis9s7</a>	Height: Left: 7.40 metres high Centre: 7.39 metres high Right: 7.37 metres high	Travel directly ahead	No problems with this section of road.

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
5.5	Geraldton	N W Coastal Highway onto Geraldton-Mount Magnet Road GPS Link: <a href="https://goo.gl/maps/BnHmUv7vqtfDQPox5">https://goo.gl/maps/BnHmUv7vqtfDQPox5</a>	Length: 70 Metres Width: 6.5 Metres	Right hand turn	Loads to cross over the centre median and onto the incorrect side of the intersection. Blades are to return to the correct side via the centre median strip on Geraldton-Mt Magnet Road. This corner will require sign to be removed and replaced. Sandbags to be placed over the lane divider. Spotter to help guide blades through this pinchpoint.
6.5	Geraldton	Geraldton-Mt Magnet Road under Highbury Street overpass GPS Link: <a href="https://goo.gl/maps/x5D8FV5VrLHS2I7AA">https://goo.gl/maps/x5D8FV5VrLHS2I7AA</a>	Height: Left lane: 7.10 metres Centre lane: 6.97 metres Right lane: 6.75 metres	Travel directly ahead	No problems with this section of road.
7.8	Geraldton	Geraldton-Mt Magnet Road under Abraham Street overpass GPS Link: <a href="https://goo.gl/maps/bcvv8sDerbTGtCro8">https://goo.gl/maps/bcvv8sDerbTGtCro8</a>	Height: Left: 6.85 metres Centre: 6.85 metres Right: 6.85 metres	Travel directly ahead	No problems with this section of road.
9.7	Geraldton	Geraldton-Mount Magnet Road GPS Link: <a href="https://maps.app.goo.gl/zBry8DP1mZ6PjwmB9">https://maps.app.goo.gl/zBry8DP1mZ6PjwmB9</a>	Length: 250 Metres Width: 9.5 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
11.0	Geraldton	Geraldton-Mount Magnet Road through roundabout at Edward Street. GPS Link: <a href="https://goo.gl/maps/HGC3uvRDUqcjs5HM8">https://goo.gl/maps/HGC3uvRDUqcjs5HM8</a>	Length: 50 Metres Width: 6.5 Metres	Travel directly ahead at the roundabout	Spotter to help guide blades through this pinchpoint.
35.5	Bringo	Geraldton-Mount Magnet Road GPS Link: <a href="https://goo.gl/maps/Ku5uLVDxDrTARf916">https://goo.gl/maps/Ku5uLVDxDrTARf916</a>	Length: 75 Metres Width: 6.5 Metres	Merge to the left	Small parking bay that could hold one blade in an emergency.
102.0	Mullewa	Geraldton-Mount Magnet Road intersection with Gray Street GPS Link: <a href="https://goo.gl/maps/5goK7k9uy9fubM1A">https://goo.gl/maps/5goK7k9uy9fubM1A</a>	Length: 85 Metres Width: 8.5 Metres	Right hand turn	The loads will need to cross to the incorrect side prior to the corner and cross back to the correct side after the corner. A lightpole will need to be relocated and a tree removed to allow the oversail of the blade to pass through the corner. Spotter to help guide blades through this pinchpoint.
129.7	Pindar	Geraldton-Mount Magnet Road GPS Link: <a href="https://goo.gl/maps/qySmHswcXegivXzE8">https://goo.gl/maps/qySmHswcXegivXzE8</a>	Length: 75 Metres Width: 6.5 Metres	Merge to the left	Small parking bay that could hold one blade in an emergency.
339.5	Mount Magnet	Geraldton Mount Magnet Road onto the Great Northern Highway GPS Link: <a href="https://goo.gl/maps/7KKxtQC7IVfbXCKM9">https://goo.gl/maps/7KKxtQC7IVfbXCKM9</a>	Length: 70.0 Metres Width: 8.5 Metres	Left hand turn	Spotter to help guide blades through this pinchpoint.

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
342.0	Mount Magnet	The Great Northern Highway onto New Mt Magnet Blade bypass GPS Link: <a href="https://maps.app.goo.gl/GrE3a4e9UK3W1ue66">https://maps.app.goo.gl/GrE3a4e9UK3W1ue66</a>	Length: TBC Width: TBC	Left hand turn	The blades will turn left off the Goldfields Highway and onto a new bypass Road that will reenter the network on Richardson Street in Mt Magnet. Mt Magnet shire will undertake the upgrades required to allow the blades a suitable swept path. Spotter to help guide blades through this pinchpoint.
342.5	Mount Magnet	New Mt Magnet Blade bypass GPS Link: <a href="https://maps.app.goo.gl/siCZBxE1hwCGMfm9">https://maps.app.goo.gl/siCZBxE1hwCGMfm9</a>	Length: 300.0 Metres Width: 20.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
344.0	Mount Magnet	New Mt Magnet Blade bypass onto Moses Street GPS Link: <a href="https://maps.app.goo.gl/2ah2wTFTTCSxAo6c8">https://maps.app.goo.gl/2ah2wTFTTCSxAo6c8</a>	Width: 8.5 Metres	Travel directly ahead	Spotter to help guide blades through this pinchpoint.
344.5	Mount Magnet	Moses Street GPS Link: <a href="https://maps.app.goo.gl/V6H8Dwy8omm1hecX9">https://maps.app.goo.gl/V6H8Dwy8omm1hecX9</a>	Length: 95.0 Metres Width: 8.5 Metres	Right hand bend	Spotter to help guide blades through this pinchpoint.
344.7	Mount Magnet	Moses Street onto Richardson Street GPS Link: <a href="https://maps.app.goo.gl/V6H8Dwy8omm1hecX9">https://maps.app.goo.gl/V6H8Dwy8omm1hecX9</a>	Length: 100.0 Metres Width: 8.5 Metres	Right hand turn	Spotter to help guide blades through this pinchpoint.
346.5	Mount Magnet	Richardson Street onto Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/SJEe8WE98gZJ3ssQ9">https://goo.gl/maps/SJEe8WE98gZJ3ssQ9</a>	Length: 85 Metres Width: 8.5 Metres	Travel directly ahead	No problems with this section of road.
347.0	Mount Magnet	Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/hfJegoL6ZkN48FRG8">https://goo.gl/maps/hfJegoL6ZkN48FRG8</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
417.0	Paynesville	Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/qdHr1aCw71wU95tY6">https://goo.gl/maps/qdHr1aCw71wU95tY6</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the right	Large parking bay suitable for 2 blades in convoy
500.0	Sandstone	Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/Q5UjNyaeef7h6MmS7">https://goo.gl/maps/Q5UjNyaeef7h6MmS7</a>	Length: 140.0 Metres Width: 20.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
501.0	Sandstone	Mount Magnet-Sandstone Road onto The Sandstone Agnew Road GPS Link: <a href="https://goo.gl/maps/swRRdbo4Uipa9gTv8">https://goo.gl/maps/swRRdbo4Uipa9gTv8</a>	Length: 70.0 Metres Width: 8.5 Metres	Right hand corner	One sign needs to be removed and replaced for each load as per the procedure for this pinchpoint. Spotter to help guide blades through this pinchpoint.

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
518.0	Sandstone	Sandstone Agnew Road GPS Link: <a href="https://goo.gl/maps/BgCobDjffQSLTQu86">https://goo.gl/maps/BgCobDjffQSLTQu86</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the right	Large parking bay suitable for 2 blades in convoy
579.0	Sandstone	Sandstone Agnew Road GPS Link: <a href="https://goo.gl/maps/vKzYTSi5SZwknJob8">https://goo.gl/maps/vKzYTSi5SZwknJob8</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
645.0	Leinster	Agnew-Leinster Road GPS Link: <a href="https://goo.gl/maps/sxmVEUkUAqwAfNYo7">https://goo.gl/maps/sxmVEUkUAqwAfNYo7</a>	Length: 175.0 Metres Width: 20.0 metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
646.0	Leinster	Agnew-Leinster Road onto The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/MssTw676eVIHLfdp9">https://goo.gl/maps/MssTw676eVIHLfdp9</a>	Length: 85 Metres Width: 8.5 Metres	Right hand corner	Spotter to help guide blades through this pinchpoint.
649.0	Leinster	The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/qgw4BRNWEXbKTYZV6">https://goo.gl/maps/qgw4BRNWEXbKTYZV6</a>	Length: 175.0 Metres Width: 9.5 metres	Merge to the left	Large parking bay
720.0	Jaguar Mine	The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/tuGCDwAJvzALSZrZ6">https://goo.gl/maps/tuGCDwAJvzALSZrZ6</a>	Length: 175.0 Metres Width: 6.5 metres	Merge to the left	Large parking bay
748.0	King of the hills mine	The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/N8dHJvK3LKU8jdLZ8">https://goo.gl/maps/N8dHJvK3LKU8jdLZ8</a>	Length: 125.0 Metres Width: 8.0 metres	Merge to the left	Large parking bay could be used for overnight rest break.
775.0 to 777.0	Leonora	Goldfields Highway through township GPS Link: <a href="https://goo.gl/maps/c1wPA9zNqDLuwsoe6">https://goo.gl/maps/c1wPA9zNqDLuwsoe6</a>	Length: 55 Metres Width: 8.5 Metres	Left hand turn	No problems with this section of road for the load listed in this report.
1001.0	Kalgoorlie	Goldfields Highway onto Private Road (Speedway Rd) GPS Link: <a href="https://goo.gl/maps/8k7BkAAc8DacqZfo9">https://goo.gl/maps/8k7BkAAc8DacqZfo9</a>	Length: 70 Metres Width: 10.0 Metres	Left hand turn	Vegetation will need to be removed on the inside of the corner. Spotter to help guide blades through this pinchpoint.
1001.0 to 1005.0	Kalgoorlie	Private Road (Speedway Rd) GPS Link: <a href="https://goo.gl/maps/7NyG68QFJ9b5Sz8g7">https://goo.gl/maps/7NyG68QFJ9b5Sz8g7</a>	Length: 120.0 Metres Width: 15.0 metres	Travel along a gravel Merge to the right	Spotter to help guide blades through this pinchpoint.
1005.0	Kalgoorlie	Private Road (Speedway Rd) onto Yarri Road GPS Link: <a href="https://goo.gl/maps/YHskKzKinqNE453h8">https://goo.gl/maps/YHskKzKinqNE453h8</a>	Length: 90.0 Metres Width: 10.0 Metres	Left hand turn	Spotter to help guide blades through this pinchpoint.
1018.0	Kalgoorlie	Yarri Road into Superpit Windfarm Northern site entrance GPS Link: <a href="https://www.arp.gov.au/d38d91bf6506d1c3NA">https://www.arp.gov.au/d38d91bf6506d1c3NA</a>	Length: N/A Width: N/A	Right hand turn	Site entrance to be made suitable for the swept path of the largest load.

## 0.0 Km's: Geraldton Port onto Reg Clarke Road at Geraldton.

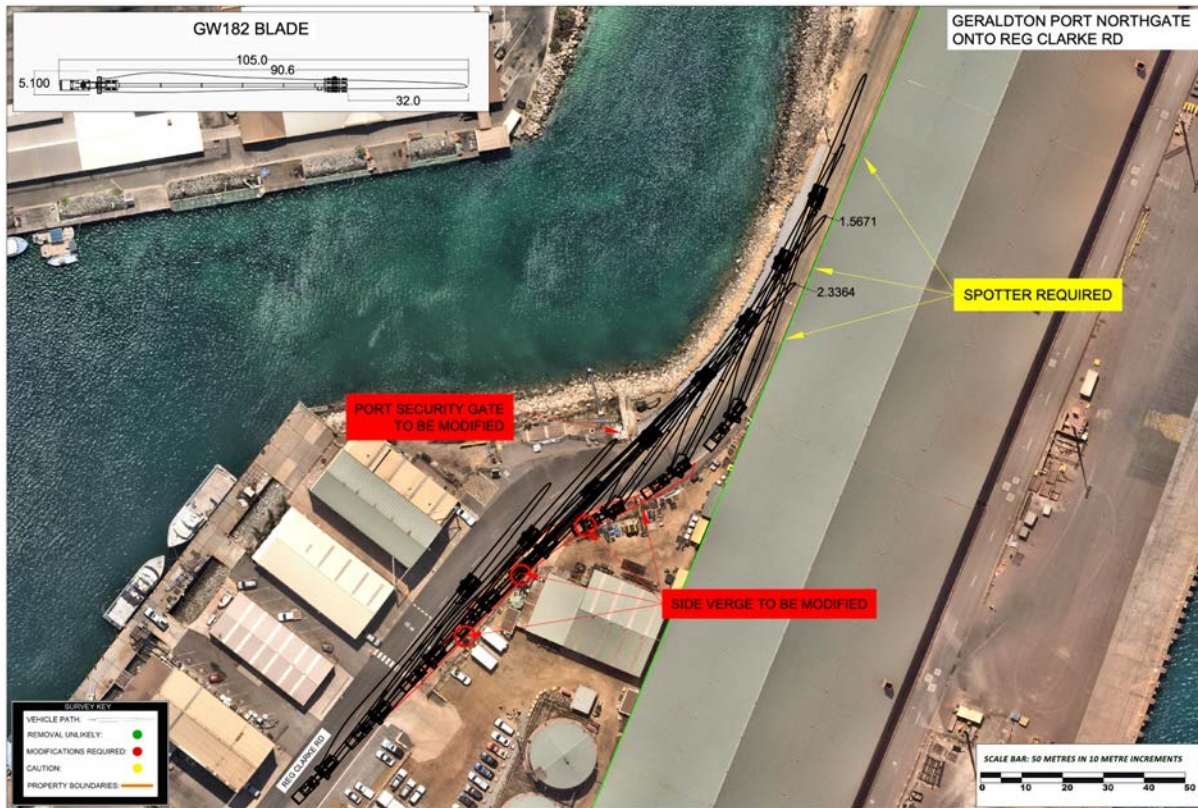


Image 4: Geraldton Port onto Reg Clarke Road procedure.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/KVrfKmFCqo7AEmEV7>

**PROCEDURE:** Dogleg bend through security gate.

**COMMENTS:** The exit road from the port will need to be widened, and the security gate will need to be modified.

**ROAD MODIFICATIONS:** A large amount of works are required.

**PINCHPOINT PROCEDURE:** The security gate will need to be opened by security. Notification needs to be given to the security the day prior and again 30 minutes prior to the blade departing.

A spotter will need to guide the load through this pinchpoint.

### 0.3 Km's: Reg Clarke Road at Geraldton.



Image 5: Reg Clarke Road onto Ian Bogle Road procedure.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/vRfkbE9aqXg4aa89>

**PROCEDURE:** Left hand bend on Reg Clarke Road.

**COMMENTS:** Some vegetation will need to be removed in the tailswing and some signs relocated.

**ROAD MODIFICATIONS:** A moderate amount of works are required.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

0.5 Km's: Reg Clarke Road onto Ian Bogle Road at Geraldton.

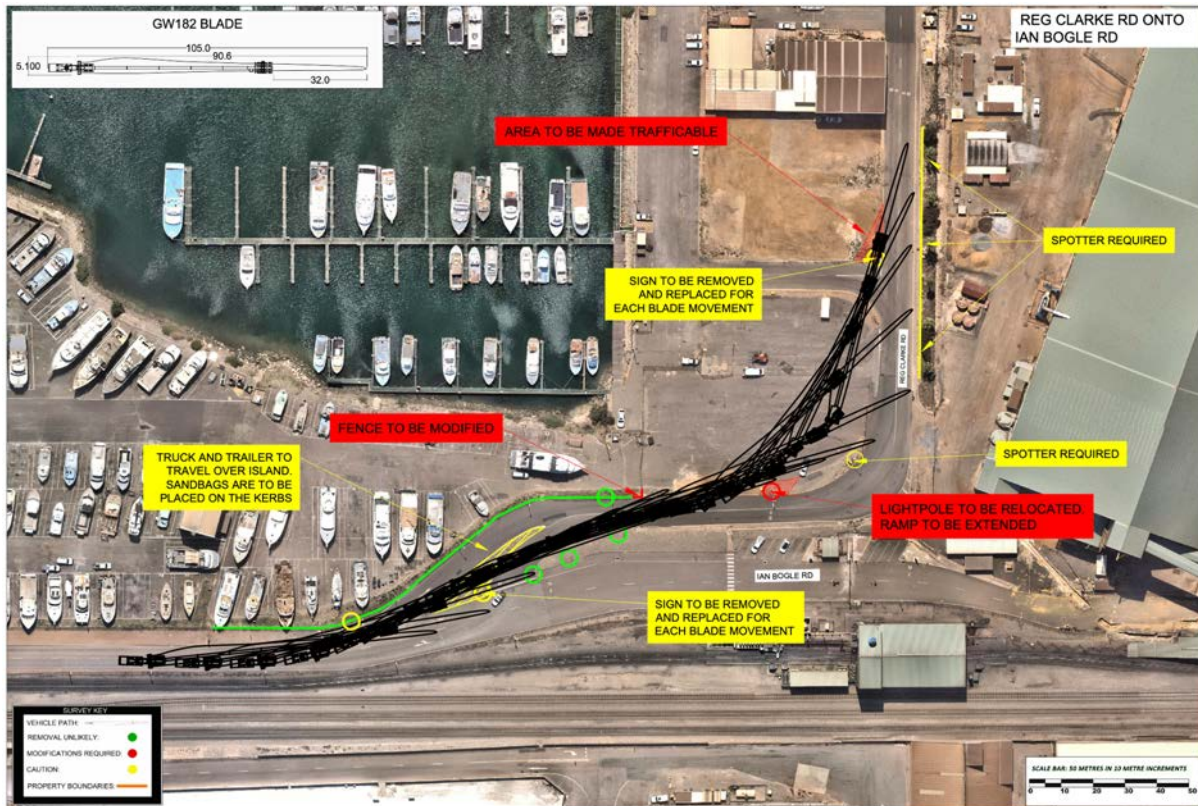


Image 6: Reg Clarke Road onto Ian Bogle Road procedure.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/YbBdU2PT9cT8AaLd7>

**PROCEDURE:** Travel across the inside of the corner, through the parking area, then onto the Ian Bogle Road, while travelling over the modified centre median strip.

**COMMENTS:** Hardstand is required prior to the corner. At the corner a lightpole will need to be relocated and the ramp extended, the fence on the inside will need to be modified, and several signs will need to be made removable.

**ROAD MODIFICATIONS:** A large amount of works are required.

**PINCHPOINT REQUIREMENT:** Two signs to be removed and replaced for each movement. A spotter will need to guide the load through this pinchpoint.

**5.5 Km's: N W Coastal Highway onto Geraldton-Mount Magnet Road at Geraldton.**

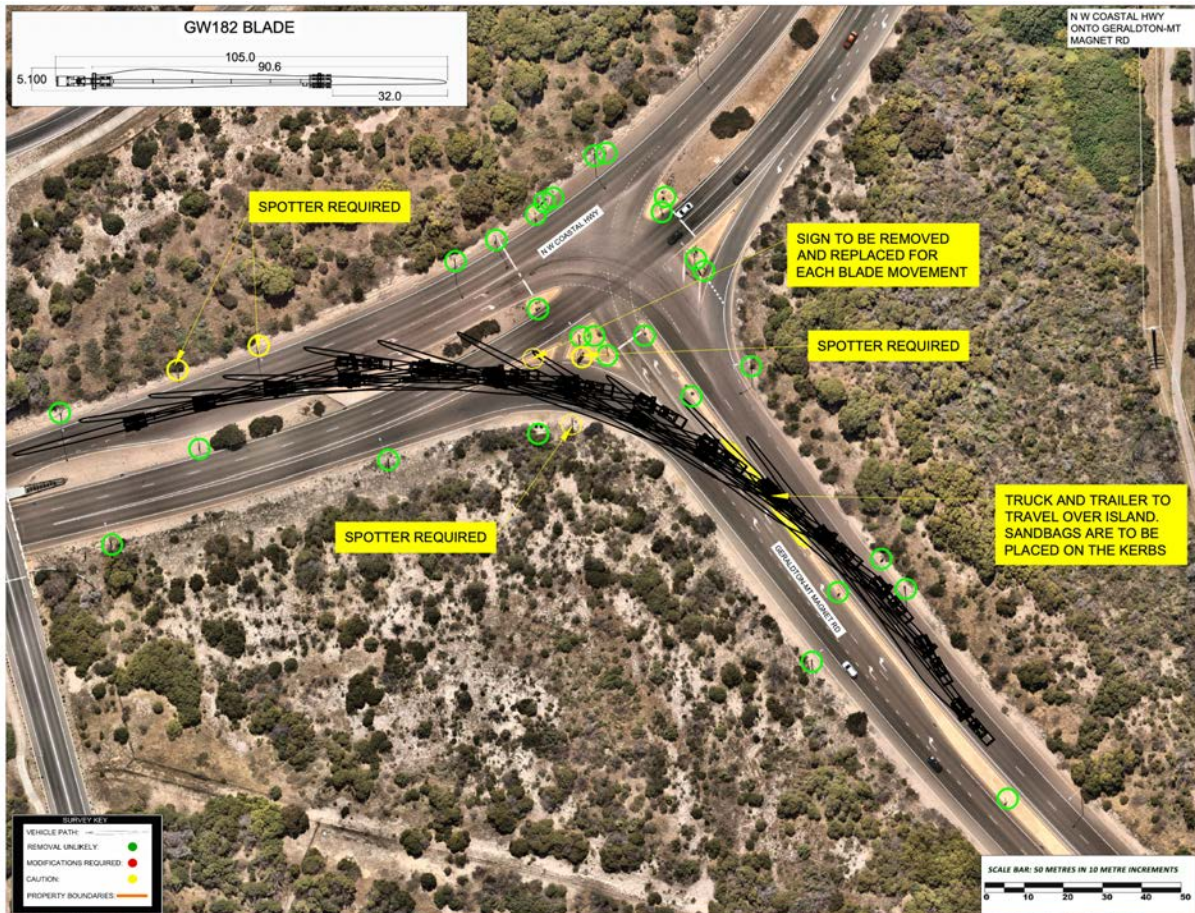


Image 7: NW Coastal onto Geraldton Mt Magnet Road procedure.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/jmcJh5xfYFYf4h8N8>

**PROCEDURE:** Right hand turn from NW Coastal Highway onto Geraldton-Mount Magnet Road.

**COMMENTS:** Loads to cross over the centre median and onto the incorrect side of the intersection. Blades are to return to the correct side via the centre median strip on Geraldton-Mt Magnet Road.

This corner will require sign to be relocated, and another made removable.

**ROAD MODIFICATIONS:** A moderate amount of works are required.

**PINCHPOINT REQUIREMENT:** A sign will need to be removed and replaced for each load, and sandbags to be used on the kerbs marked on the above drawing.

A spotter will need to guide the load through this pinchpoint.

## 11.0 Km's: Geraldton-Mount Magnet Road intersection with Edward Road at Geraldton.

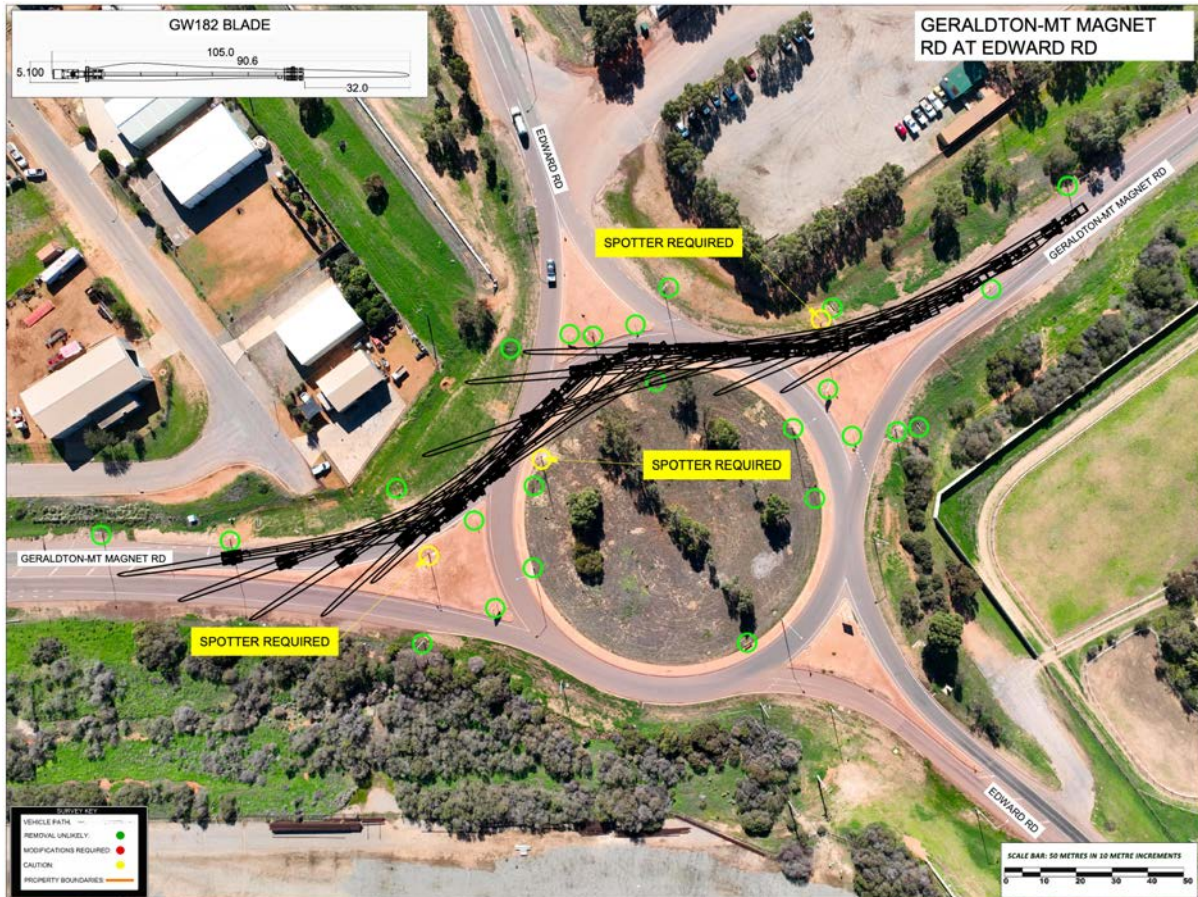


Image 8: Geraldton-Mount Magnet Road intersection with Edward Road.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/4CeXWtZhpeuYCmQN7>

**PROCEDURE:** Travel directly ahead through the roundabout on the correct side of the road.

**COMMENTS:**

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

## 102.0 Km's: Geraldton-Mount Magnet Road intersection with Gray Street at Mullewa.

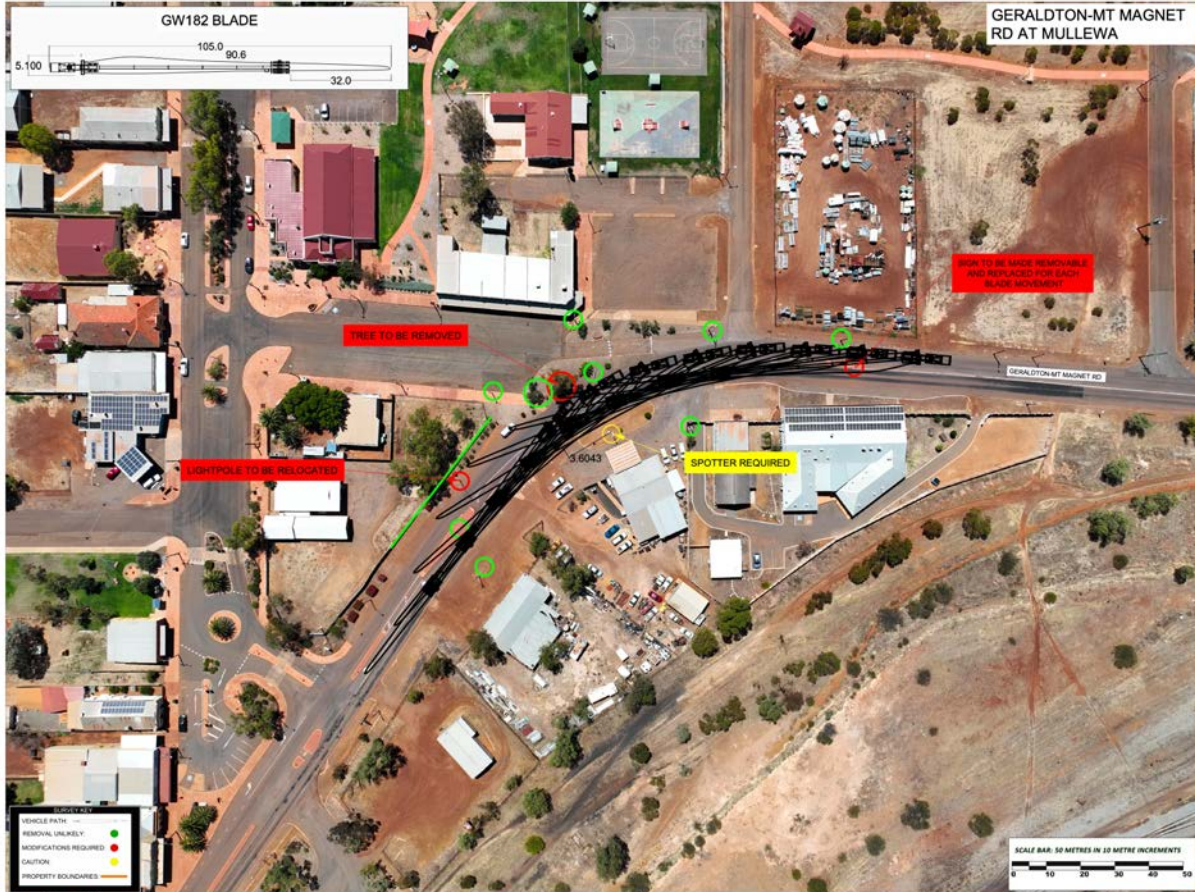


Image 9: Geraldton-Mount Magnet Road intersection with Gray Street

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/PoRBxpZQnJ2YFgmL8>

**PROCEDURE:** Right hand bend on the Geraldton-Mt Magnet Road at Mullewa.

**COMMENTS:** The loads will need to cross to the incorrect side prior to the corner and cross back to the correct side after the corner. A lightpole will need to be relocated and a tree removed to allow the oversail of the blade to pass through the corner.

**ROAD MODIFICATIONS:** A large amount of works are required.

**PINCHPOINT REQUIREMENT:** A sign will need to be removed and replaced for each load. A spotter will need to guide the load through this pinchpoint.

### 339.5 Km's: Geraldton-Mount Magnet Road onto the Great Northern Highway at Mount Magnet.

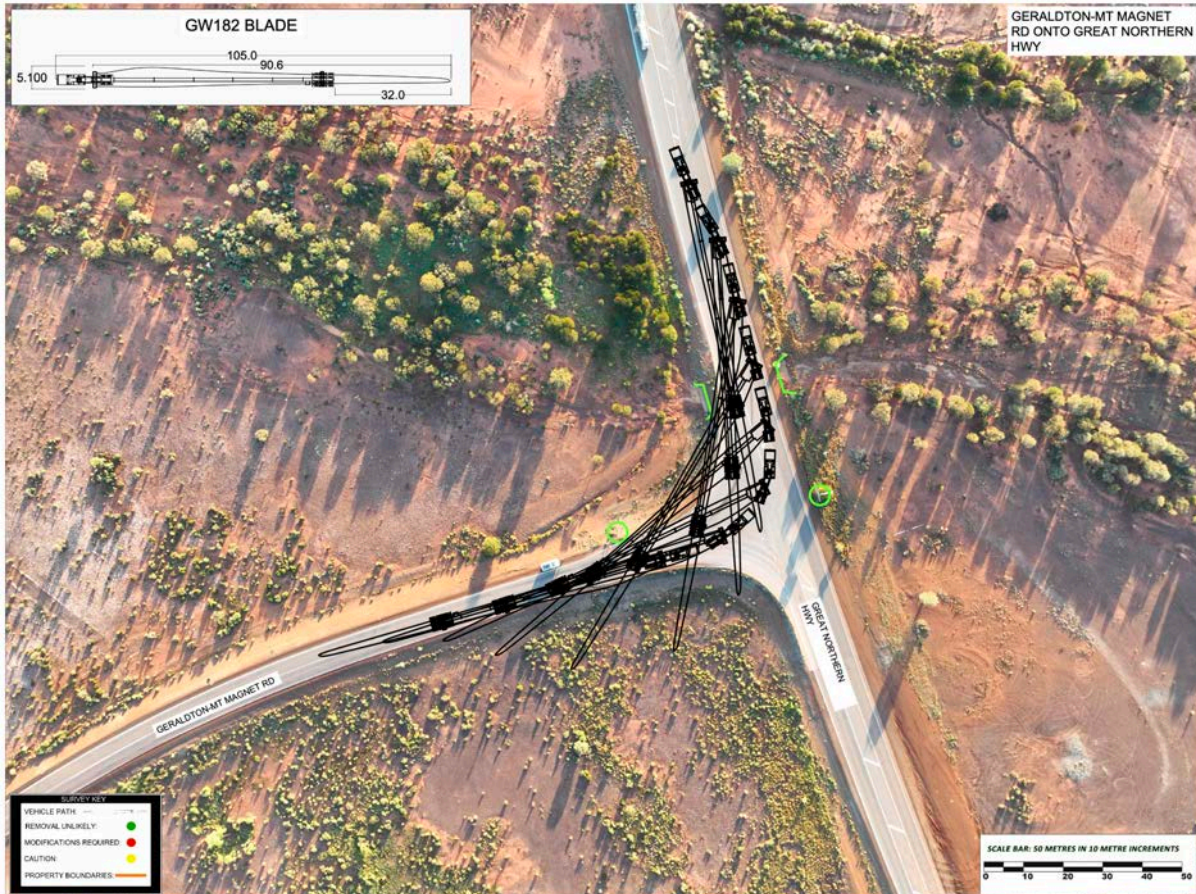


Image 10: Geraldton-Mount Magnet Road onto the Great Northern Highway.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/42ZzrEBbC4ATDrUH7>

**PROCEDURE:** Left hand turn from Geraldton Mt Magnet Road onto the Great Northern Highway.

**COMMENTS:** Blades to travel around the corner from the incorrect side to the incorrect side.

A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** Nil.

**342.0 Km's: The Great Northern Highway onto New Mt Magnet blade bypass.**

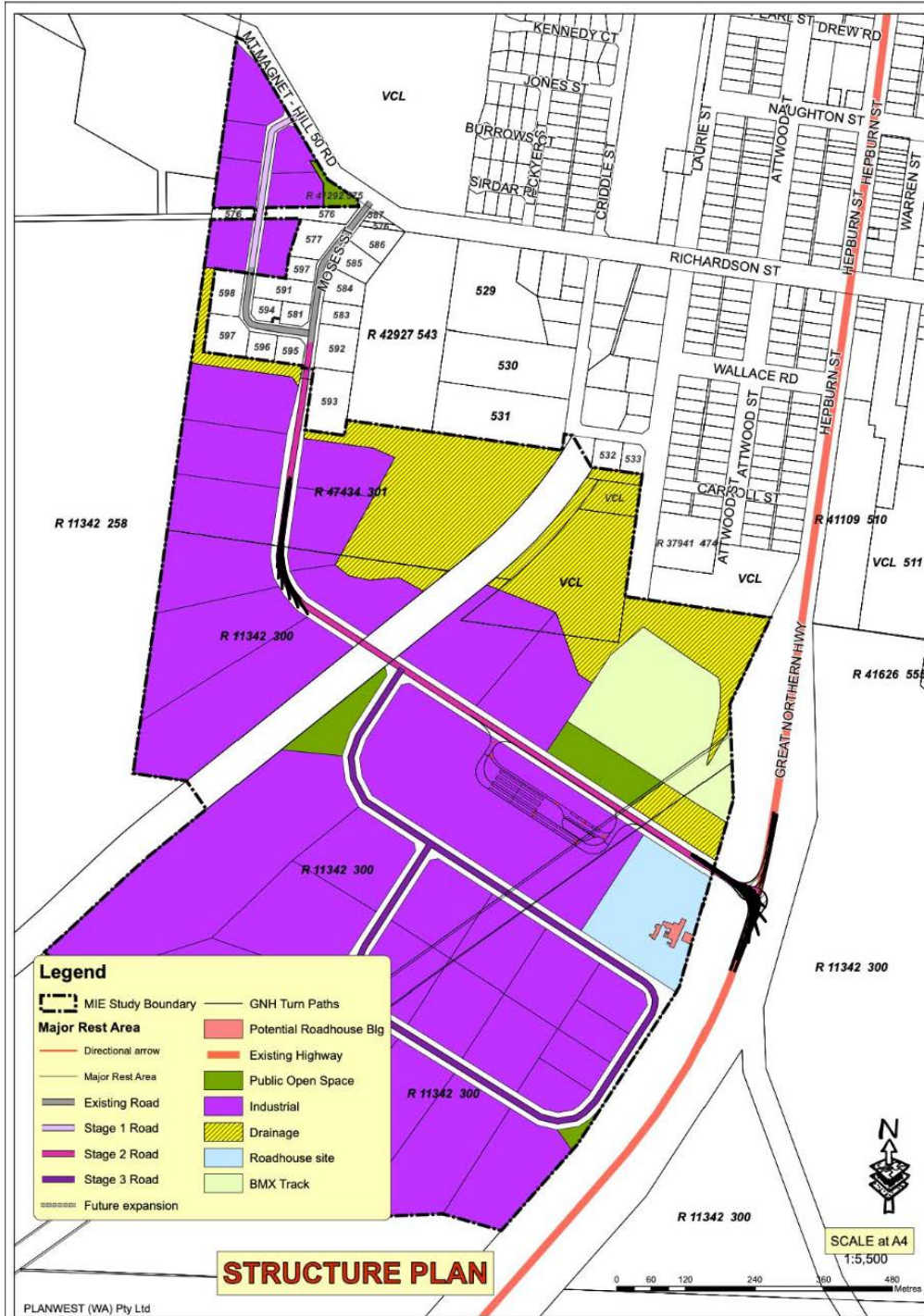


Image 11: The Great Northern Highway onto Laurie Street.



Image 12: Looking west towards the new Mt Magnet blade bypass

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/GvE3g4cqUK3W1uss6>

**PROCEDURE:** Left hand turn from the Great Northern Highway onto the new bypass.

**COMMENTS:** The blades will turn left off the Goldfields Highway and onto a new bypass Road that will re-enter the network on Richardson Street in Mt Magnet. Mt Magnet shire will undertake the upgrades required to allow the blades a suitable swept path.

**ROAD MODIFICATIONS:** A large amount of work is required.

**PINCHPOINT REQUIREMENT:**

A spotter will need to guide the load through this pinchpoint.

Once both blades are onto the new bypass, the loads will have a fatigue rest break.

### 344.5 Km's: Moses Street at Mount Magnet.

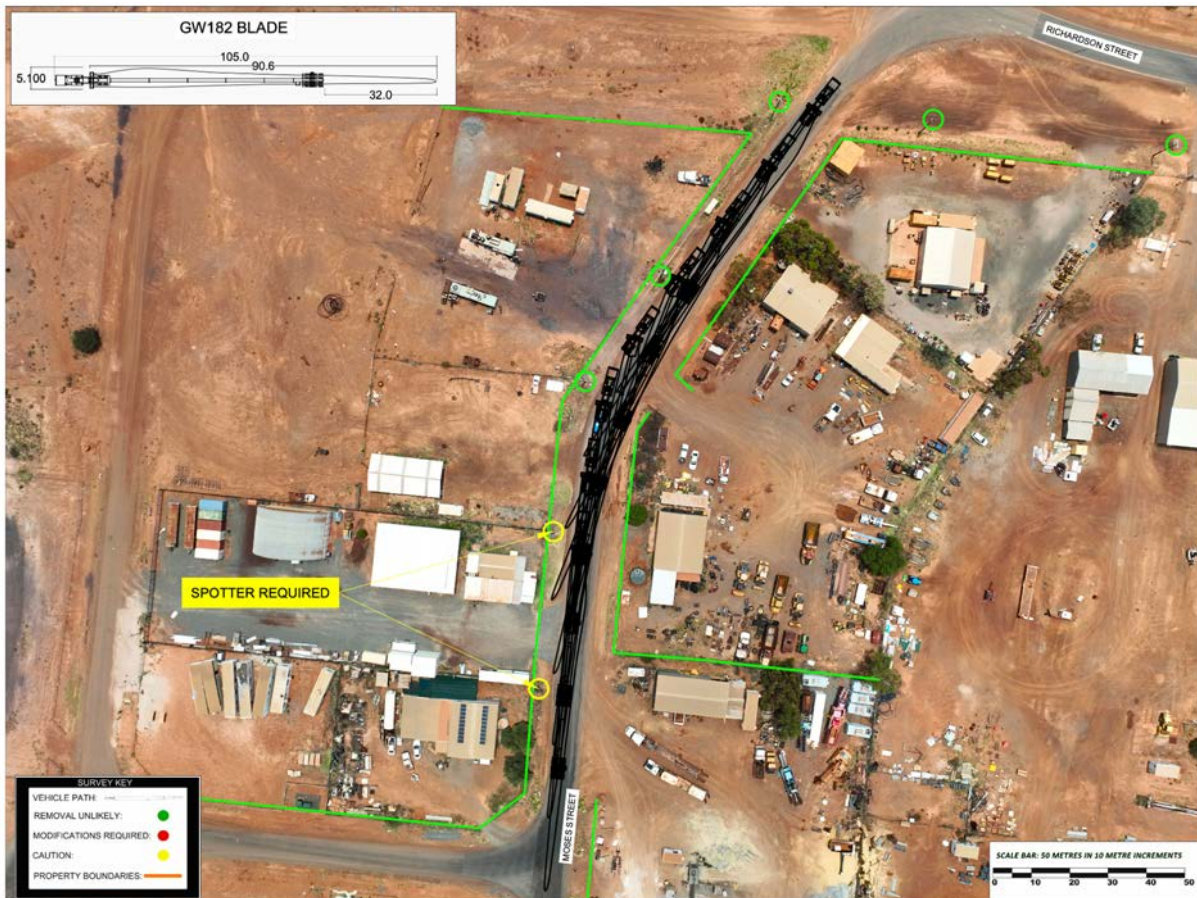


Image 13: Right hand bend on Moses Street

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/2ah2wTFTTCSxAo6c8>

**PROCEDURE:** Right hand bend on Moses Street.

**COMMENTS:** The blades to travel around the corner from the correct side to the correct side.

**ROAD MODIFICATIONS:** No works required.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

## 344.7 Km's: Moses Street onto Richardson Street at Mount Magnet.

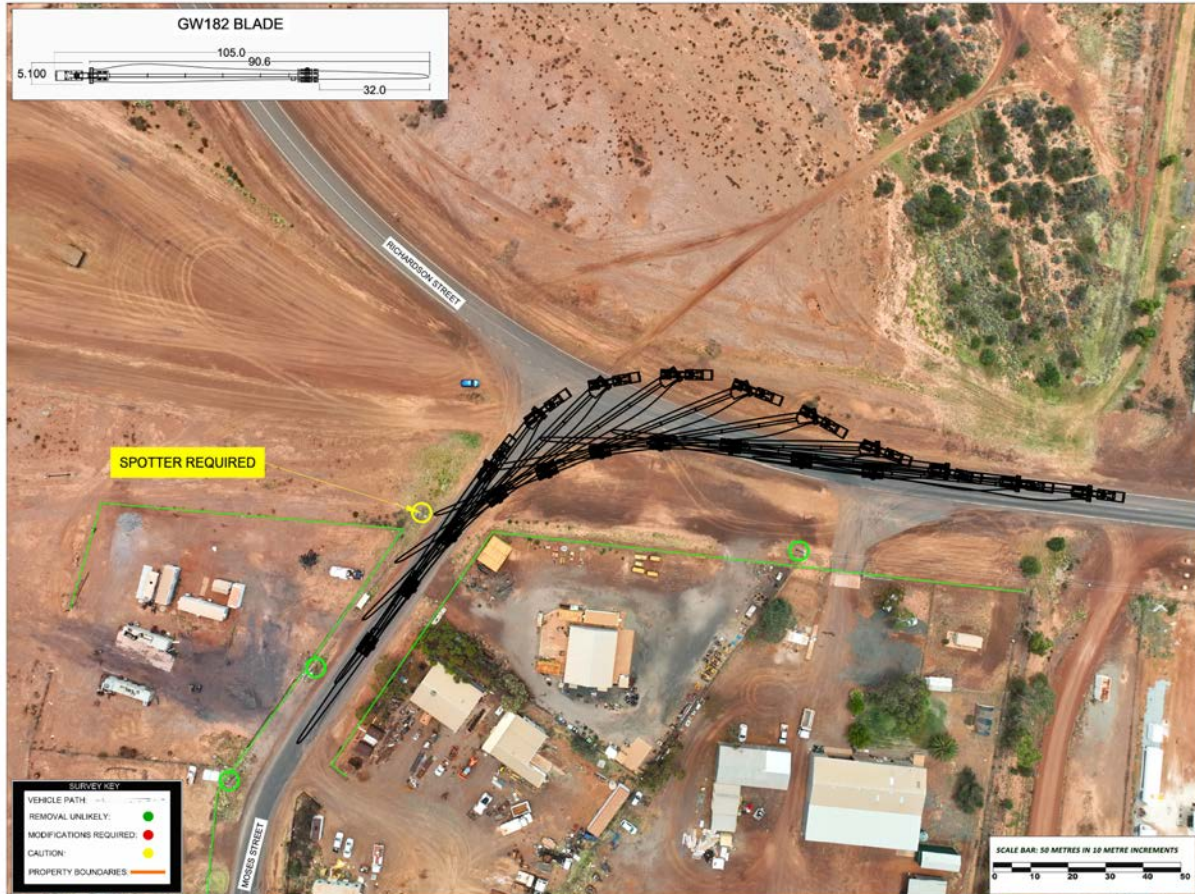


Image 14: Right hand turn from Moses street onto Richardson Street

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/V6H8Dwy8omm1hecX9>

**PROCEDURE:** Right hand bend on Moses Street.

**COMMENTS:** The blades to travel around the corner from the correct side to the correct side.

**ROAD MODIFICATIONS:** No works required.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

**500.0 Km's: Overnight parking on Mt-Magnet Sandstone Road at Mount Magnet.**



Image 15: Entering and exiting Sandstone parking bay.



Image 16: Parking at Sandstone.

**GPS LINK FOR THIS SECTION OF ROAD:**

<https://goo.gl/maps/Q5UjNyaeef7h6MmS7>

**PROCEDURE:** Left hand turn into parking bay for overnight rest break.

As the OSOM loads are on approach to the parking area, the Lead Pilot shall stop traffic on the eastern side of the parking bay. The rear Pilot shall stop traffic on the Western side of the parking bay. When the chute is clear the OSOM loads shall enter the parking bay. Pilots will vacate the Rd once the Mt Magnet – Leinster Rd is clear of the OSOM loads

When the OSOM loads need to depart the parking bay, the Lead Pilot shall stop traffic on the eastern side of the parking bay. The rear Pilot shall stop traffic on the Western side of the parking bay. When the chute is clear the

OSOM loads shall exit the parking bay. Pilots will commence piloting duties. Refer to TGS No.10

**PINCHPOINT REQUIREMENT:** Contractors, employed by Rex J Andrews shall install cones, coning off an area within the parking bay, for the OSOM loads. No general traffic using the parking will be able to park in the coned off area.

**501.0 Km's: Mount Magnet-Sandstone Road onto Sandstone-Agnew Road at Sandstone.**

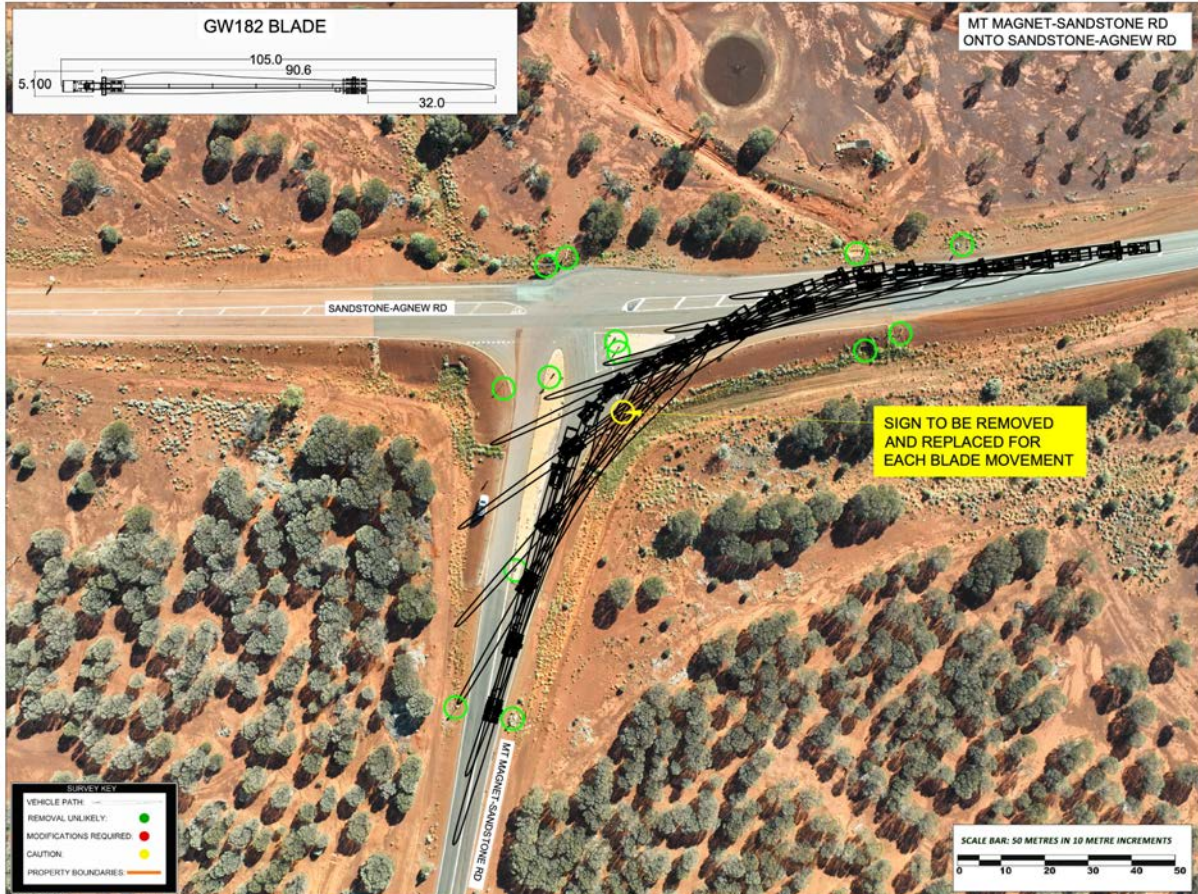


Image 17: Mount Magnet-Sandstone Road onto Sandstone-Agnew Road.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/rdKF6V3bPEJ2UEFP8>

**PROCEDURE:** Right hand turn from Mt Magnet-Sandstone Road onto Sandstone Agnew Road.

**COMMENTS:** The blades to travel around the corner from the incorrect side to the incorrect side for the entirety.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** One sign to be removed and replaced for each movement.

## 646.0 Km's: Agnew-Leinster Road onto the Goldfields Highway at Leinster.

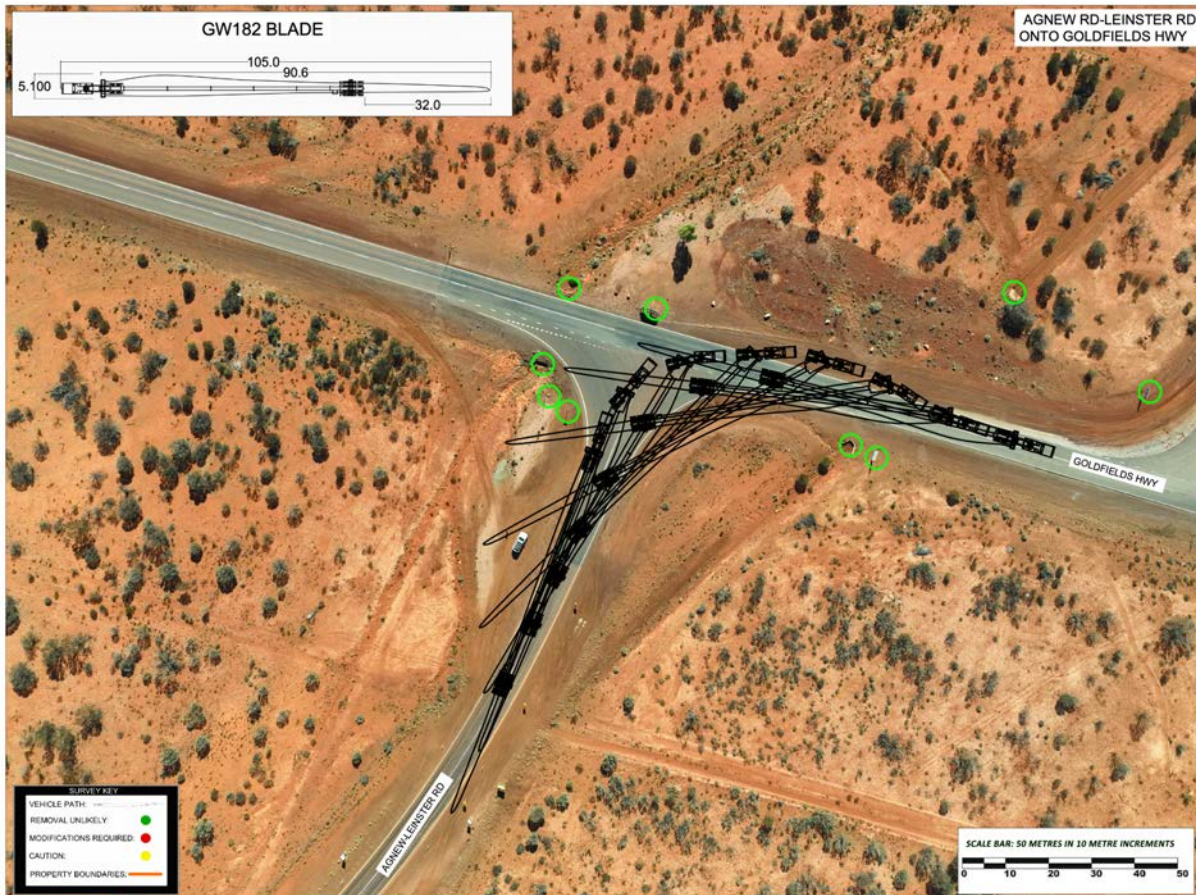


Image 18: Agnew-Leinster Road onto the Goldfields Highway procedure.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/ZWWEteLdrArGU45C7>

**PROCEDURE:** Right hand turn from Agnew-Leinster Road onto the Goldfields Highway.

**COMMENTS:** The blades to travel around the corner from the correct side to the correct side.

**ROAD MODIFICATIONS:** Nil.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

## 1001.0 Km's: Goldfields Highway onto Private Mine Road (Speedway Road) at Kalgoorlie.

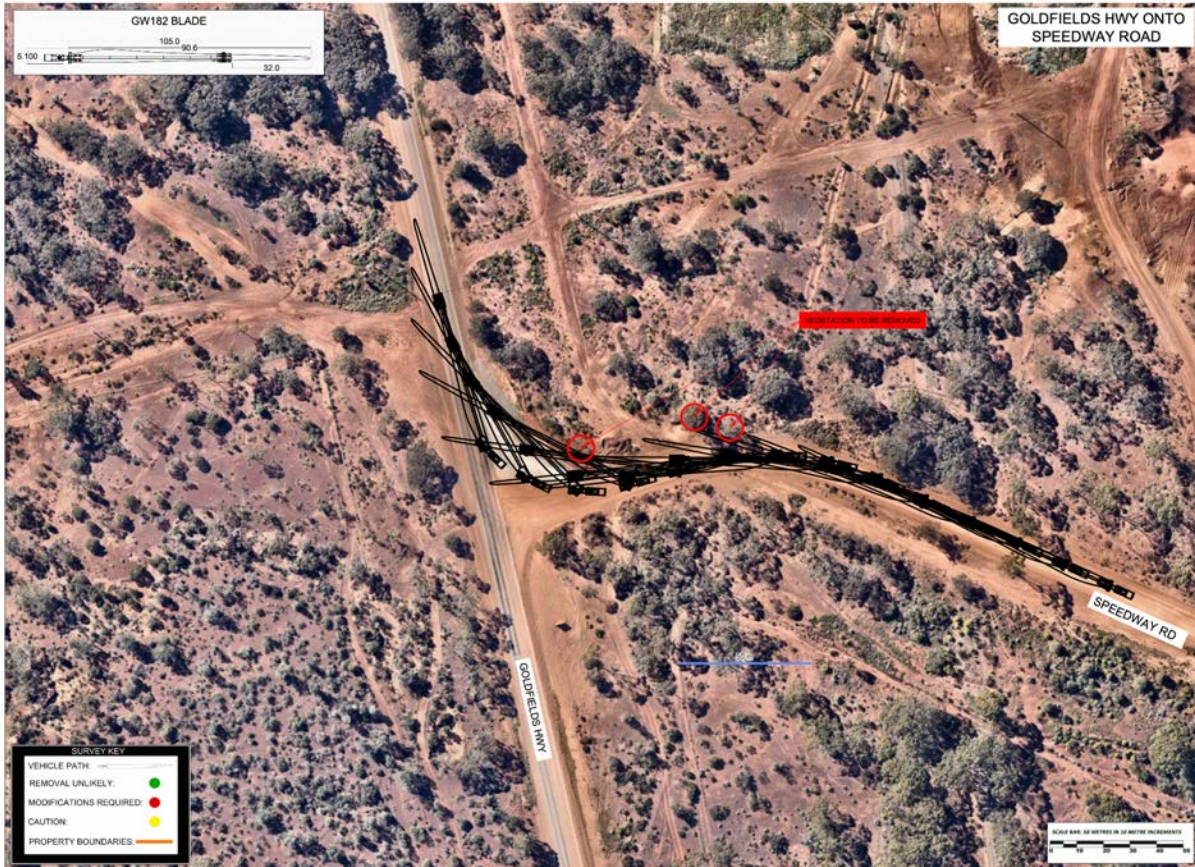


Image 19: Goldfields Highway onto Speedway Road

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/dk2BkaAo8Deca7fo9>

**PROCEDURE:** Left hand turns from the Goldfield Highway onto Speedway Road.

**COMMENTS:** The blades to travel around the corner from the incorrect side to the incorrect side.

**ROAD MODIFICATIONS:** Vegetations will need to be cleared on the inside of the corner.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

**1005.0 Km's: Private Mine Road (Speedway Road) onto Yarri Road at Kalgoorlie.**



Image 20: Speedway Road onto Yarri Road

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/YHskKzKingNE453h8>

**PROCEDURE:** Left hand turn from Speedway Road onto Yarri Road.

**COMMENTS:** The blades to travel around the corner from the incorrect side to the incorrect side.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

**1018.0 Km's: Yarri Road into Superpit Windfarm northern site entrance.**

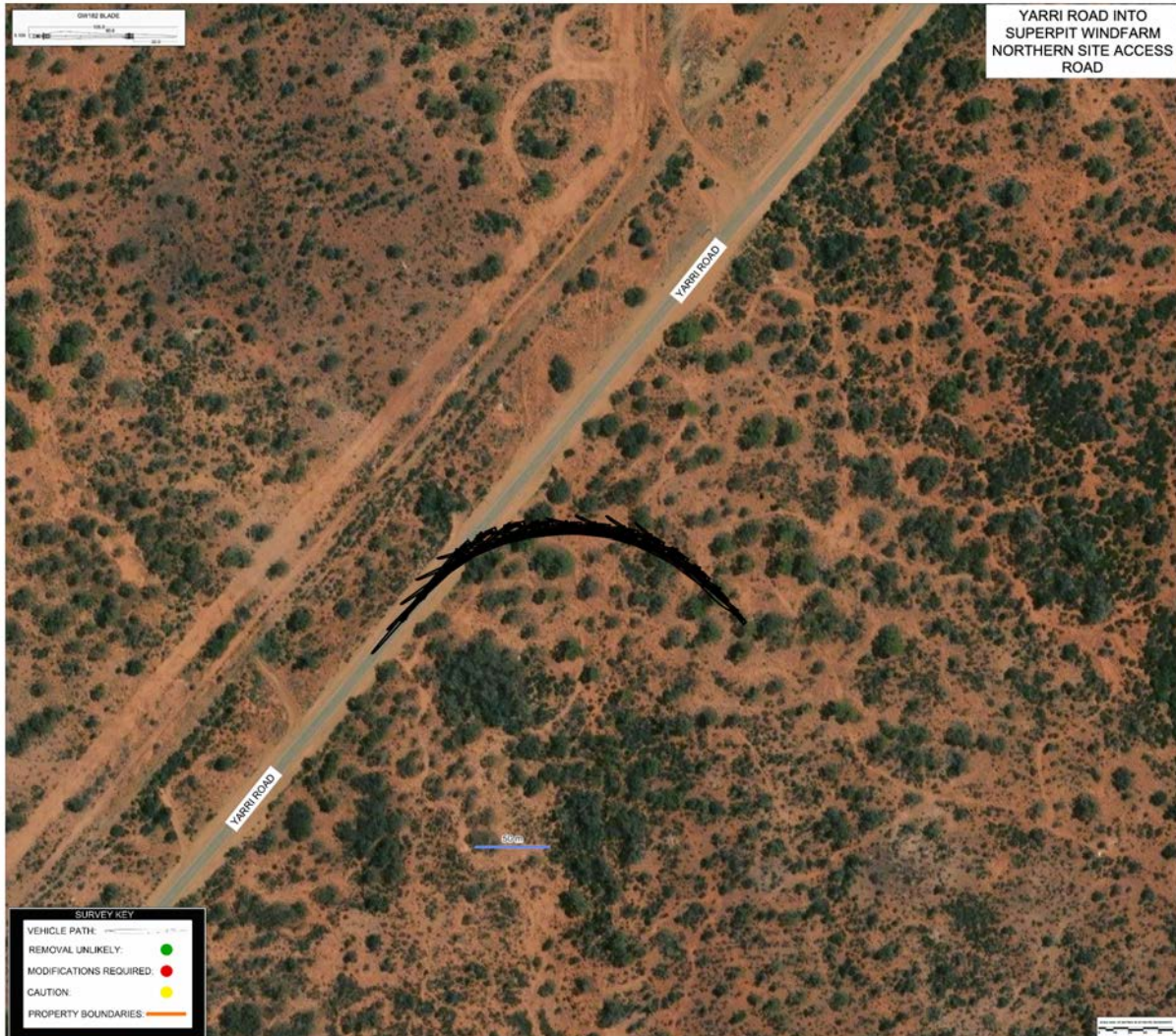


Image 21: Yarri Road into Superpit Windfarm northern site entrance

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/Bd6HkyGznjkeUp2NA>

**PROCEDURE:** Right hand turn from Yarri Road into Superpit Northern site entrance

**COMMENTS:** The blades to travel around the corner from the correct side to the correct side.

**ROAD MODIFICATIONS:** Site will need to make a suitable entrance for the swept path of the largest load.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

## 9.0 Route study 2: Geraldton Port to Superpit Windfarm

We have based this study on the wind turbine components entering Australia via the Port of Geraldton. After assessing a number of options out of Geraldton, the following was selected as the route for the towers and drivetrain on this project.

**COMPONENTS:** Tower sections, motors and smaller loads

**DISTANCE:** 1,029 kilometres

This route took us via Reg Clarke Road, Ian Bogle Road, John Willcock Link Road (**Towers to travel up and over the Brand Highway overpass**), N W Coastal Highway, Geraldton-Mount Magnet Road, Great Northern Highway, Laurie Street, Richardson Street, Mount Magnet-Sandstone Road, Agnew-Sandstone Rd, Agnew-Leinster Road, Goldfields Highway, Leonora-Nambi Road, Leonora heavy load bypass, Laverton-Leonora Road, Main Reef Road, Goldfields Highway, Boorara Road, Black Street, Yarri Road.

GPS link: <https://maps.app.goo.gl/jaJmpxcdsvnzULy36>

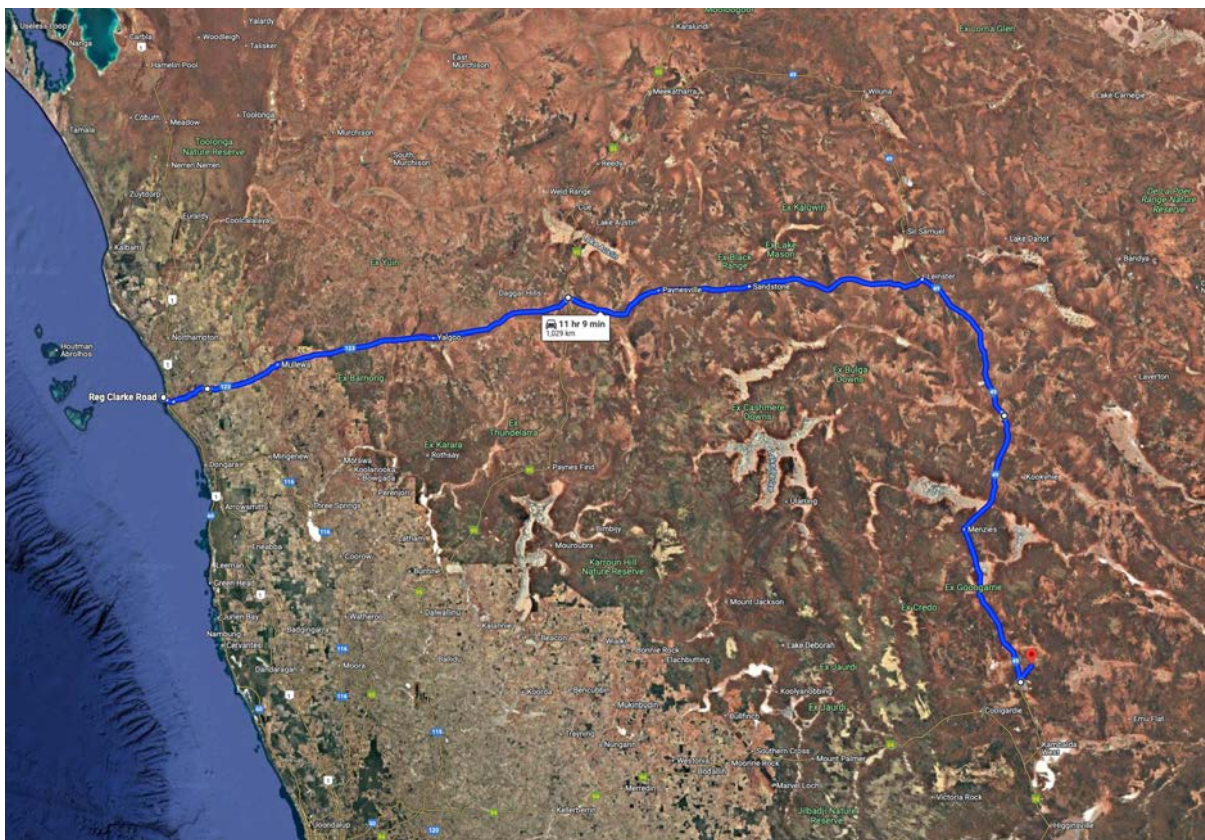


Image 22: Route 2 map

KEY	
CAUTION	
ROAD MODIFICATIONS	
PARKING AREAS	

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
Exiting the port	Port of Geraldton	Geraldton Port north gate onto Reg Clarke Road GPS Link: <a href="https://goo.gl/maps/KVrfKmFCqo7AEmEV7">https://goo.gl/maps/KVrfKmFCqo7AEmEV7</a>	Length: 40 Metres Width: 6.0 Metres	Dogleg turn through the security gate	The security gate will need to be opened by security. Notification needs to be given to the security the day prior and again 30 minutes prior to the blade departing. Spotter to help guide blades through this pinchpoint.
0.5	Geraldton	Reg Clarke Road onto Ian Bogle Road GPS Link: <a href="https://goo.gl/maps/HZ1Qxs1ks6ZWLCXV8">https://goo.gl/maps/HZ1Qxs1ks6ZWLCXV8</a>	Length: 70 Metres Width: 6.5 Metres	Right hand turn	No problems with this section of road.
0.7	Geraldton	Ian Bogle Road onto John Willcock Link GPS Link: <a href="https://goo.gl/maps/PpHV5xznmkp4q6Xv6">https://goo.gl/maps/PpHV5xznmkp4q6Xv6</a>	Length: 85.0 Metres Width: 6.5 Metres	Sweeping left hand bend	Spotter to help guide the loads through this section of road.
4.7	Geraldton	John Willcock Link over Brand Highway overpass GPS Link: <a href="https://maps.app.goo.gl/mt8WDV4F6cn1wW3A">https://maps.app.goo.gl/mt8WDV4F6cn1wW3A</a>	Height: Left: 6.64 metres high Centre: 6.80 metres high Right: 6.73 metres high	All towers take the offramp prior to the Brand Highway underpass and return onto John Willcock Link Road via the onramp.	Loads are to travel on the offramp, then over the Brand Highway and down onto the onramp and back onto John Willcock Link Road.
4.8	Geraldton	John Willcock Link onto NW Coastal Highway GPS Link: <a href="https://goo.gl/maps/8DwadPWWwSKqGwfAZ">https://goo.gl/maps/8DwadPWWwSKqGwfAZ</a>	Width: 10.5 Metres	Travel directly ahead	No problems with this section of road.
5.3	Geraldton	John Willcock Link under Durlacher Street overpass GPS Link: <a href="https://goo.gl/maps/dkuh3PsyX9keis9s7">https://goo.gl/maps/dkuh3PsyX9keis9s7</a>	Height: Left: 7.40 metres high Centre: 7.39 metres high Right: 7.37 metres high	Travel directly ahead	No problems with this section of road.
5.5	Geraldton	N W Coastal Highway onto Geraldton-Mount Magnet Road GPS Link: <a href="https://goo.gl/maps/BnHmUv7yqtFDQPpx5">https://goo.gl/maps/BnHmUv7yqtFDQPpx5</a>	Length: 50 Metres Width: 6.5 Metres	Right hand turn	No problems with this section of road.

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
6.5	Geraldton	Geraldton-Mt Magnet Road under Highbury Street overpass GPS Link: <a href="https://goo.gl/maps/x5D8FV5VrLHS2I7AA">https://goo.gl/maps/x5D8FV5VrLHS2I7AA</a>	Height: Left lane: 7.10 metres Centre lane: 6.95 metres Right lane: 6.78 metres	Travel directly ahead	Loads are to travel under this structure at a height of no more than 6.7 metres. These trailers must stay on the left-hand shoulder while travelling under this structure. As per the image shown below.
7.8	Geraldton	Geraldton-Mt Magnet Road under Abraham Street overpass GPS Link: <a href="https://goo.gl/maps/bcvv8sDerbTGtCro8">https://goo.gl/maps/bcvv8sDerbTGtCro8</a>	Height on gravel side: Left: 6.86 metres Centre: 6.83 metres Right: 6.85 metres	Travel directly ahead	Loads that exceed 6.5 metres in overall height will need to pull over to the right-hand side and travel under the bridge on the gravel section, as per the TGS for this section of road. A height in the gravel section must not exceed 6.8 metres in overall height.
9.7	Geraldton	Geraldton-Mount Magnet Road GPS Link: <a href="https://maps.app.goo.gl/zBry8DP1mZ6PjwmB9">https://maps.app.goo.gl/zBry8DP1mZ6PjwmB9</a>	Length: 250 Metres Width: 9.5 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
11.0	Geraldton	Geraldton-Mount Magnet Road through roundabout at Edward Street. GPS Link: <a href="https://goo.gl/maps/HGC3uvRDUqcis5HM8">https://goo.gl/maps/HGC3uvRDUqcis5HM8</a>	Length: 50 Metres Width: 6.5 Metres	Travel directly ahead at the roundabout	No problems with this section of road.
35.5	Bringo	Geraldton-Mount Magnet Road GPS Link: <a href="https://goo.gl/maps/Ku5uLVDxDrTARf916">https://goo.gl/maps/Ku5uLVDxDrTARf916</a>	Length: 75 Metres Width: 6.5 Metres	Merge to the left	Small parking bay that could hold one blade in an emergency.
100.7	Mullewa	Geraldton-Mount Magnet Road intersection with Gray Street GPS Link: <a href="https://goo.gl/maps/5ppKRk8uy5fnubMTA">https://goo.gl/maps/5ppKRk8uy5fnubMTA</a>	Length: 85 Metres Width: 8.5 Metres	Right hand turn	No problems with this section of road.
129.7	Pindar	Geraldton-Mount Magnet Road GPS Link: <a href="https://goo.gl/maps/qvSmHswcXeqivXzE8">https://goo.gl/maps/qvSmHswcXeqivXzE8</a>	Length: 75 Metres Width: 6.5 Metres	Merge to the left	Small parking bay that could hold one blade in an emergency.
339.5	Mount Magnet	Geraldton Mount Magnet Road onto the Great Northern Highway GPS Link: <a href="https://goo.gl/maps/7KKxtQC7IVfbXCKM9">https://goo.gl/maps/7KKxtQC7IVfbXCKM9</a>	Length: 70.0 Metres Width: 8.5 Metres	Left hand turn	No problems with this section of road.
344.0	Mount Magnet	The Great Northern Highway onto Richardson Street GPS Link: <a href="https://goo.gl/maps/ytGuFRpouq5gAWPW9">https://goo.gl/maps/ytGuFRpouq5gAWPW9</a>	Length: 50.0 Metres Width: 8.5 Metres	Right hand turn	No problems with this section of road.
344.2	Mount Magnet	Richardson Street onto Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/SJEe8WE98qZJ3ssQ9">https://goo.gl/maps/SJEe8WE98qZJ3ssQ9</a>	Length: 85 Metres Width: 8.5 Metres	Travel directly ahead	No problems with this section of road.

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
344.5	Mount Magnet	Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/hfJegoL6ZkN48FRG8">https://goo.gl/maps/hfJegoL6ZkN48FRG8</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
414.5	Paynesville	Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/qdHr1aCw71wU95tY6">https://goo.gl/maps/qdHr1aCw71wU95tY6</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the right	Large parking bay suitable for 2 blades in convoy
496.5	Sandstone	Mount Magnet-Sandstone Road GPS Link: <a href="https://goo.gl/maps/Q5UjNyaeeF7h6MmS7">https://goo.gl/maps/Q5UjNyaeeF7h6MmS7</a>	Length: 140.0 Metres Width: 20.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
498.0	Sandstone	Mount Magnet-Sandstone Road onto The Sandstone Agnew Road GPS Link: <a href="https://goo.gl/maps/swRRdbo4Uipa9gTv8">https://goo.gl/maps/swRRdbo4Uipa9gTv8</a>	Length: 70.0 Metres Width: 8.5 Metres	Right hand corner	No problems with this section of road.
516.5	Sandstone	Sandstone Agnew Road GPS Link: <a href="https://goo.gl/maps/BqCobDiffQLTQu86">https://goo.gl/maps/BqCobDiffQLTQu86</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the right	Large parking bay suitable for 2 blades in convoy
577.3	Sandstone	Sandstone Agnew Road GPS Link: <a href="https://goo.gl/maps/vKzYTSi5SZwknJob8">https://goo.gl/maps/vKzYTSi5SZwknJob8</a>	Length: 150.0 Metres Width: 8.0 Metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
643.5	Leinster	Agnew-Leinster Road GPS Link: <a href="https://goo.gl/maps/sxmVEUkUAqwaFNYp7">https://goo.gl/maps/sxmVEUkUAqwaFNYp7</a>	Length: 175.0 Metres Width: 20.0 metres	Merge to the left	Large parking bay suitable for 2 blades in convoy
645.6	Leinster	Agnew-Leinster Road onto The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/MssTw676eViHLfdp9">https://goo.gl/maps/MssTw676eViHLfdp9</a>	Length: 85 Metres Width: 8.5 Metres	Right hand corner	No problems with this section of road.
647.0	Leinster	The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/gqw4BRNWEXbKTYZV6">https://goo.gl/maps/gqw4BRNWEXbKTYZV6</a>	Length: 175.0 Metres Width: 9.5 metres	Merge to the left	Large parking bay
718.0	Jaguar Mine	The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/tuGCDwAJvzALSZrZ6">https://goo.gl/maps/tuGCDwAJvzALSZrZ6</a>	Length: 175.0 Metres Width: 6.5 metres	Merge to the left	Large parking bay
746.0	King of the hills mine	The Goldfields Highway GPS Link: <a href="https://goo.gl/maps/N8dHJvK3LKU8jdLZ8">https://goo.gl/maps/N8dHJvK3LKU8jdLZ8</a>	Length: 125.0 Metres Width: 8.0 metres	Merge to the left	Large parking bay could be used for overnight rest break.

KM index	Location	Section of road	Existing Measurement	Procedure	Notes
770.0	Leonora	Goldfields Highway onto Leonora-Nambi Road GPS Link: <a href="https://maps.app.goo.gl/VmDbuXVMktYfaWRh7">https://maps.app.goo.gl/VmDbuXVMktYfaWRh7</a>	Length: 50 Metres Width: 8.5 Metres	Left hand turn	No problems with this section of road.
771.0	Leonora	Leonora-Nambi Road onto the Leonora bypass GPS Link: <a href="https://maps.app.goo.gl/W3zBwTcntCybwsph9">https://maps.app.goo.gl/W3zBwTcntCybwsph9</a>	Length: 50 Metres Width: 8.5 Metres	Right hand turn	No problems with this section of road.
772.0	Leonora	Leonora bypass onto the Laverton-Leonora Road GPS Link: <a href="https://maps.app.goo.gl/Z2LhABjhDZWPdE4j8">https://maps.app.goo.gl/Z2LhABjhDZWPdE4j8</a>	Length: 50 Metres Width: 8.5 Metres	Left hand turn	Slight jump up for the longer trailers. Trailers should be lifted prior to undertaking this manoeuvre.
773.0	Leonora	Laverton-Leonora Road onto Main Reef Road GPS Link: <a href="https://maps.app.goo.gl/yPvIikSqEqhnnWLV9">https://maps.app.goo.gl/yPvIikSqEqhnnWLV9</a>	Length: 50 Metres Width: 8.5 Metres	Right hand turn	No problems with this section of road.
776.0	Leonora	Main Reef Road onto the Goldfields Highway. GPS Link: <a href="https://maps.app.goo.gl/fgpeTPrYj3a7mWXw5">https://maps.app.goo.gl/fgpeTPrYj3a7mWXw5</a>	Length: 50 Metres Width: 8.5 Metres	Left hand turn	No problems with this section of road.
1009.0	Kalgoorlie	Goldfields Highway onto Boorara Road GPS Link: <a href="https://maps.app.goo.gl/SwdoMC1gJbakKZrP8">https://maps.app.goo.gl/SwdoMC1gJbakKZrP8</a>	Length: 50 Metres Width: 8.0 Metres	Left hand turn	Spotter to help guide load through this pinchpoint.
1010.0	Kalgoorlie	Boorara Road onto Black Street GPS Link: <a href="https://maps.app.goo.gl/psGeiDKK4U46mouE6">https://maps.app.goo.gl/psGeiDKK4U46mouE6</a>	Length: 50 Metres Width: 8.0 Metres	Left hand turn	Spotter to help guide load through this pinchpoint.
1011.0	Kalgoorlie	Black Street onto Yarri Road GPS Link: <a href="https://maps.app.goo.gl/FYeP1KTdudgFmgPY8">https://maps.app.goo.gl/FYeP1KTdudgFmgPY8</a>	Length: 90.0 Metres Width: 10.0 Metres	Travel directly ahead	Spotter to help guide load through this pinchpoint.
1029.0	Kalgoorlie	Yarri Road into Superpit Windfarm Northern site entrance GPS Link: <a href="https://maps.app.goo.gl/3B87HsGoz1xUj29A">https://maps.app.goo.gl/3B87HsGoz1xUj29A</a>	Length: N/A Width: N/A	Right hand turn	Site entrance to be made suitable for the swept path of the largest load.

## 0.0 Km's: Geraldton Port onto Reg Clarke Road at Geraldton.

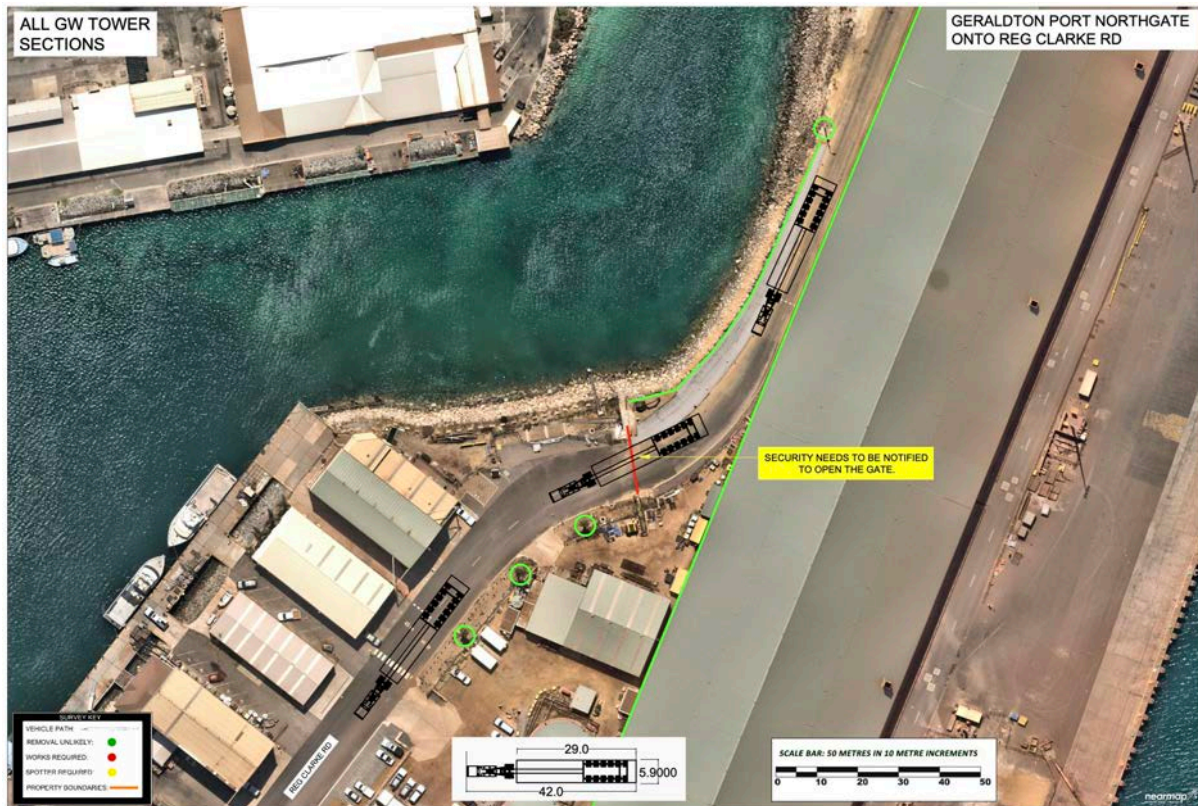


Image 23: Geraldton Port onto Reg Clarke Road

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/KVrfKmFCqo7AEmEV7>

**PROCEDURE:** Dogleg bend through security gate.

**COMMENTS:** A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT PROCEDURE:** The security gate will need to be opened by security. Notification needs to be given to the security the day prior and again 30 minutes prior to the blade departing.

**0.5 Km's: Reg Clarke Road onto Ian Bogle Road at Geraldton.**



Image 24: Reg Clarke Road onto Ian Bogle Road

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/YbBdU2PT9cT8AaLd7>

**PROCEDURE:** Travel across the inside of the corner, through the parking area, then onto the Ian Bogle Road, while travelling over the modified centre median strip.

**COMMENTS:** A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** Two signs to be removed and replaced for each movement.

## 4.7 Km's: John Wilcock Link Road at the Brand Highway in Geraldton.



Image 25: John Wilcock Link Road at Brand Highway

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/imt8WDV4F6cn1wW3A>

**BRIDGE HEIGHTS:** L6.64, C6.8, R6.75

**PINCHPOINT PROCEDURE:** All towers take the offramp prior to the Brand Highway underpass and return onto John Wilcock Link Road via the onramp.

### 5.3 Km's: N W Coastal Highway onto Geraldton-Mount Magnet Road at Geraldton.

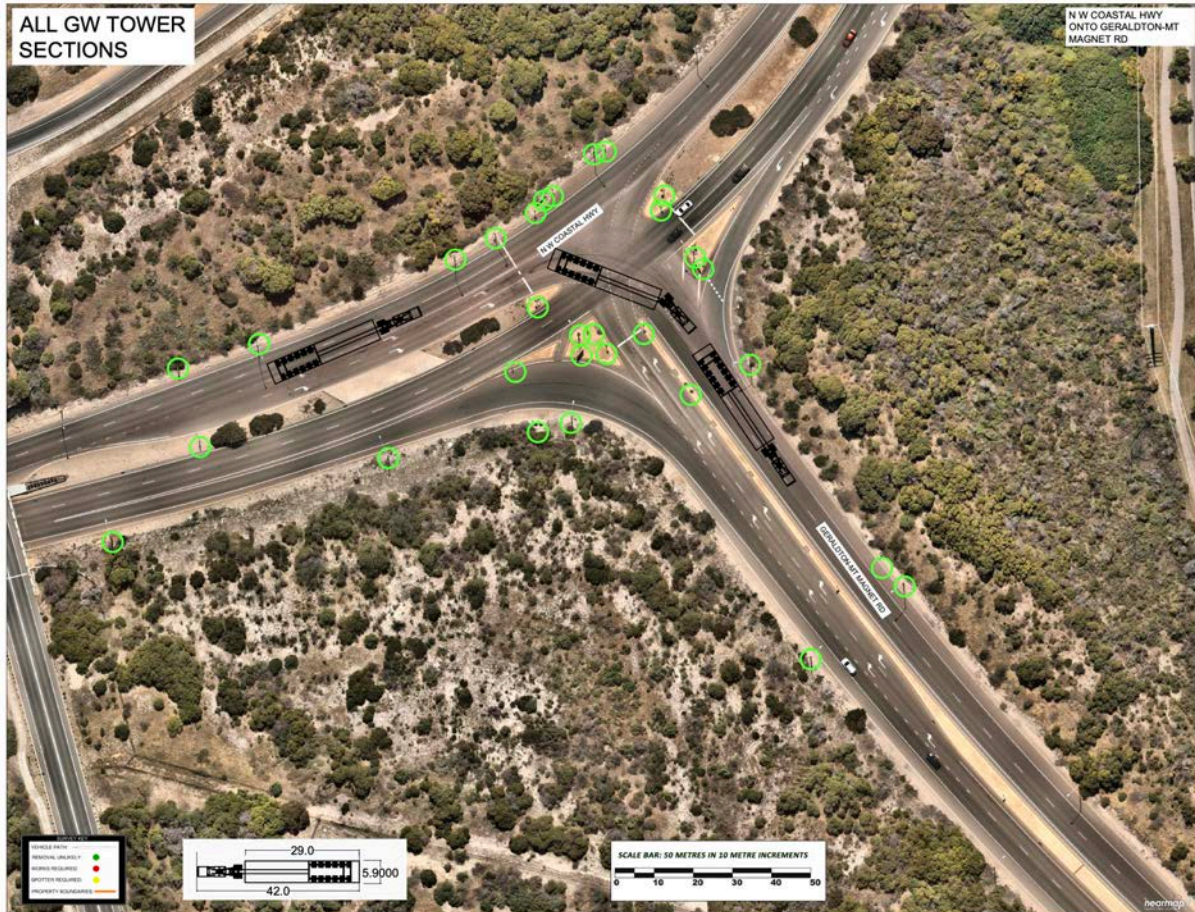


Image 26: NW Coastal onto Geraldton Mt Magnet Road.

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/jmcJh5xfYFYf4h8N8>

**PROCEDURE:** Right hand turn from NW Coastal Highway onto Geraldton-Mount Magnet Road.

**COMMENTS:** Loads to cross over the centre median and onto the incorrect side of the intersection. Blades are to return to the correct side after the centre median strip ends.

A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** Sandbags to be used on the kerb marked on the above drawing.

**6.5 Km's: Geraldton-Mt Magnet Road under Highbury Road in Geraldton.**

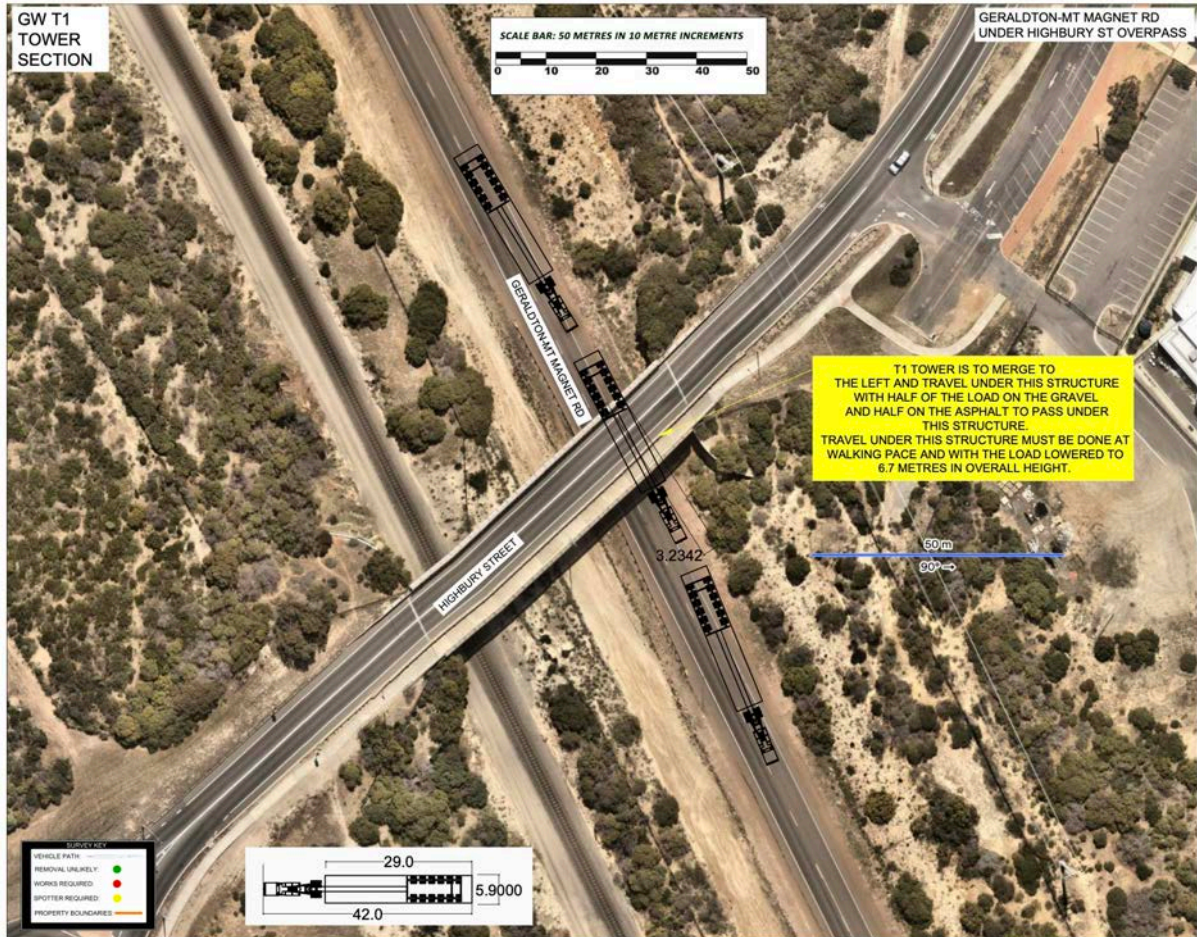


Image 27: T1 tower under Highbury Street overpass on Geraldton-Mt Magnet Road

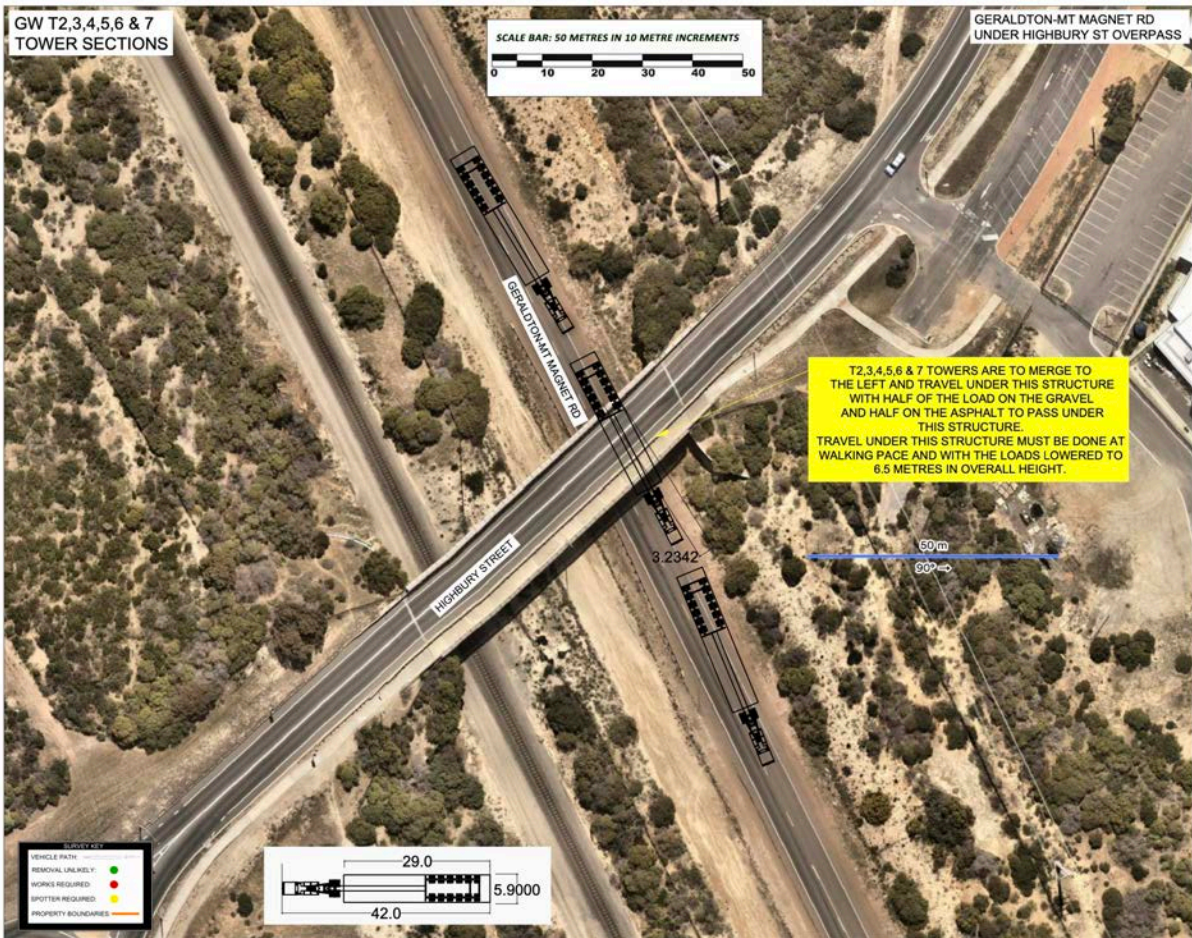


Image 28: T2,3,4,5,6 ,7,8 towers under Highbury Street overpass on Geraldton-Mt Magnet Road

## HIGHBURY ST

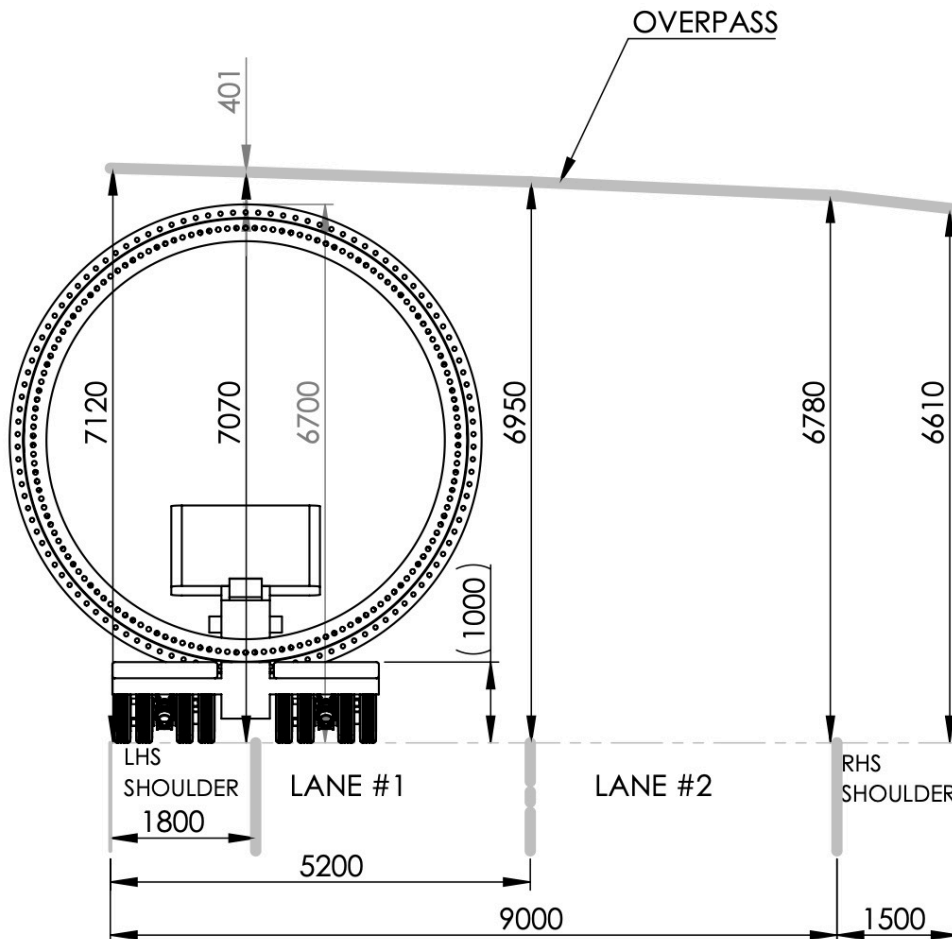


Image 29: Exact heights at Geraldton-Mt Magnet Road under Highbury Road, showing clearance at 6.7 metres

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/x5D8FV5VrLHS2t7AA>

**BRIDGE HEIGHTS:** L7.07, C6.95, R6.78

**PINCHPOINT PROCEDURE:**

**T1 Towers:** Towers are to lower the trailers to under 6.7 metres to travel under this structure at walking pace, and in the far left of the road as per image 34.

**T2,T3,T4,T5,T6, T7 & T8 Towers:** Towers are to lower the trailers to under 6.5 metres to travel under this structure at walking pace, and in the far left of the road as per image 35.

7.8 Km's: Geraldton-Mt Magnet Road under Abraham Road in Geraldton.



Image 30: T1 tower under Abraham Street overpass on Geraldton-Mt Magnet Road



Image 31: T2, T3, T4, T5, T6, T7 & T8 towers under Abraham Street overpass on Geraldton-Mt Magnet Road

## ABRAHAM ST

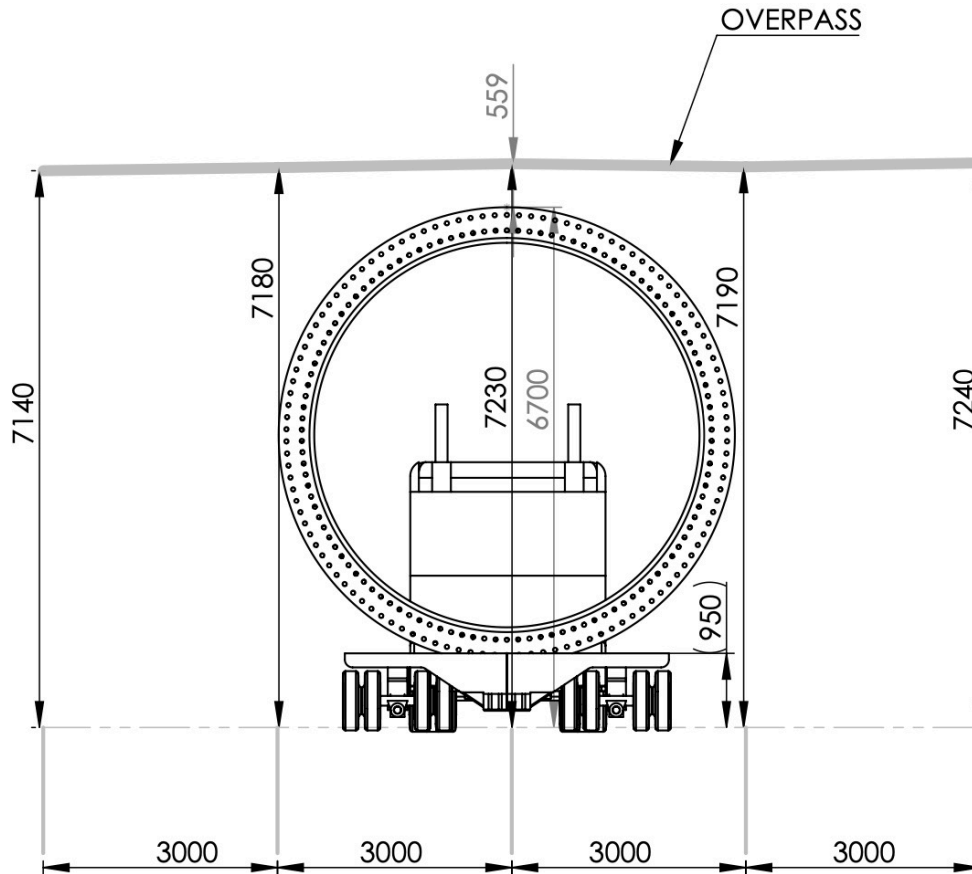


Image 32: Exact heights at Geraldton-Mt Magnet Road under gravel section of Abraham Street, showing clearance at 6.7 metres

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/bcvv8sDerbTGtCro8>

**BRIDGE HEIGHTS:** L7.14, C7.23, R7.19

**PINCHPOINT PROCEDURE:**

**T1 Towers:** Towers are to lower the trailers to under 6.7 metres to travel under this structure at walking pace, and on the gravel section of to the right-hand side of the road as per image 37.

**T2, T3, T4, T5, T6 & T7 Towers:** Towers are to lower the trailers to under 6.5 metres to travel under this structure at walking pace, and in the far left of the road as per image 38.

## 11.0 Km's: Geraldton-Mount Magnet Road intersection with Edward Road at Geraldton.

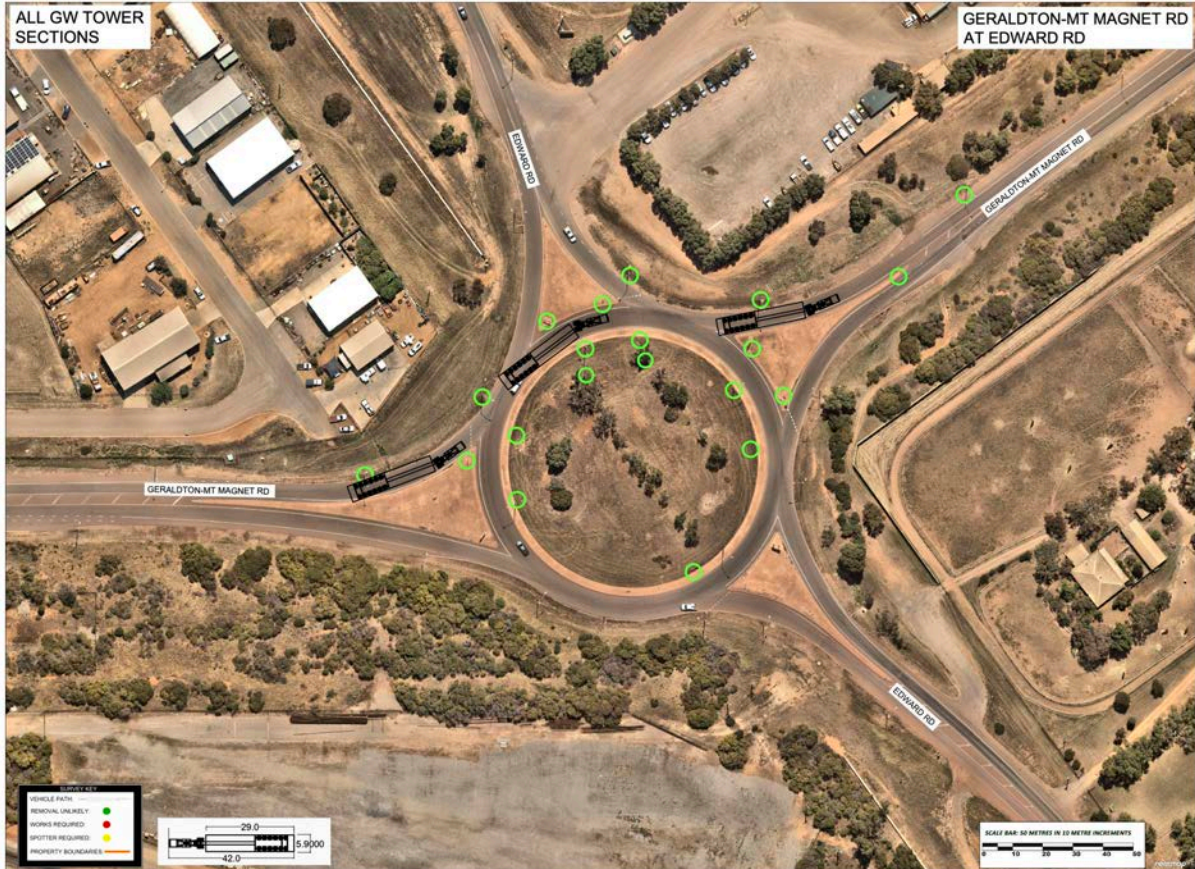


Image 33: Geraldton-Mount Magnet Road intersection with Edward Road

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/4CeXWtZhpouYCmQN7>

**PROCEDURE:** Travel directly ahead through the roundabout on a modified section of road.

**COMMENTS:** A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works will have been completed in April 2024.

**PINCHPOINT REQUIREMENT:** Nil.

**104.7 Km's: Geraldton-Mount Magnet Road intersection with Gray Street at Mullewa.**



Image 34: Geraldton-Mount Magnet Road intersection with Gray Street

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/PoRBxpZQnJ2YFgmL8>

**PROCEDURE:** Right hand bend on the Geraldton-Mt Magnet Road at Mullewa.

**COMMENTS:** The blades to travel around the corner on the correct side of the road, however the trailer will need to cut to the inside of the corner to avoid the pole in the tailswing.

A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** Nil.

### 345.5 Km's: Geraldton-Mount Magnet Road onto the Great Northern Highway at Mount Magnet.



Image 35: Geraldton-Mount Magnet Road onto the Great Northern Highway

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/42ZzrEBbC4ATDrUH7>

**PROCEDURE:** Left hand turn from Geraldton Mt Magnet Road onto the Great Northern Highway.

**COMMENTS:** Blades to travel around the corner from the incorrect side to the incorrect side.

A spotter will need to guide the load through this pinchpoint.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** Nil.

**346.0 Km's: The Great Northern Highway onto Richardson Street at Mount Magnet.**



Image 36: The Great Northern Highway onto Richardson Street

GPS LINK FOR THIS SECTION OF ROAD: <https://goo.gl/maps/SWcM2n5vAnDwdLq28>

## 502.0 Km's: Mount Magnet-Sandstone Road onto Sandstone-Agnew Road at Sandstone.

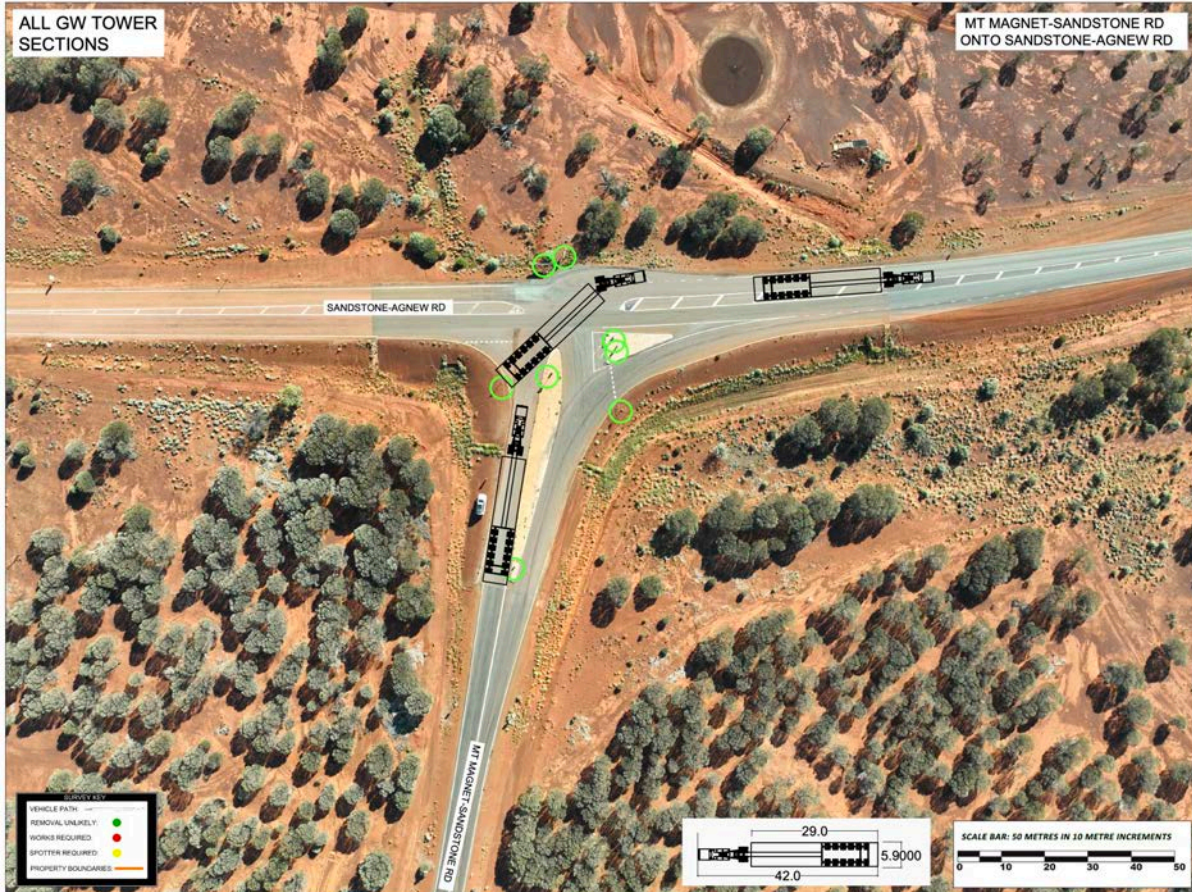


Image 37: Mount Magnet-Sandstone Road onto Sandstone-Agnew Road

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/rdKF6V3bPEJ2UEFP8>

**PROCEDURE:** Right hand turn from Mt Magnet-Sandstone Road onto Sandstone Agnew Road.

**COMMENTS:** The blades to travel around the corner from the incorrect side to the incorrect side for the entirety.

**ROAD MODIFICATIONS:** All works have been completed.

**PINCHPOINT REQUIREMENT:** Two signs to be removed and replaced for each movement.

A spotter will need to guide the load through this pinchpoint.

## 645.6 Km's: Agnew-Leinster Road onto the Goldfields Highway at Leinster.

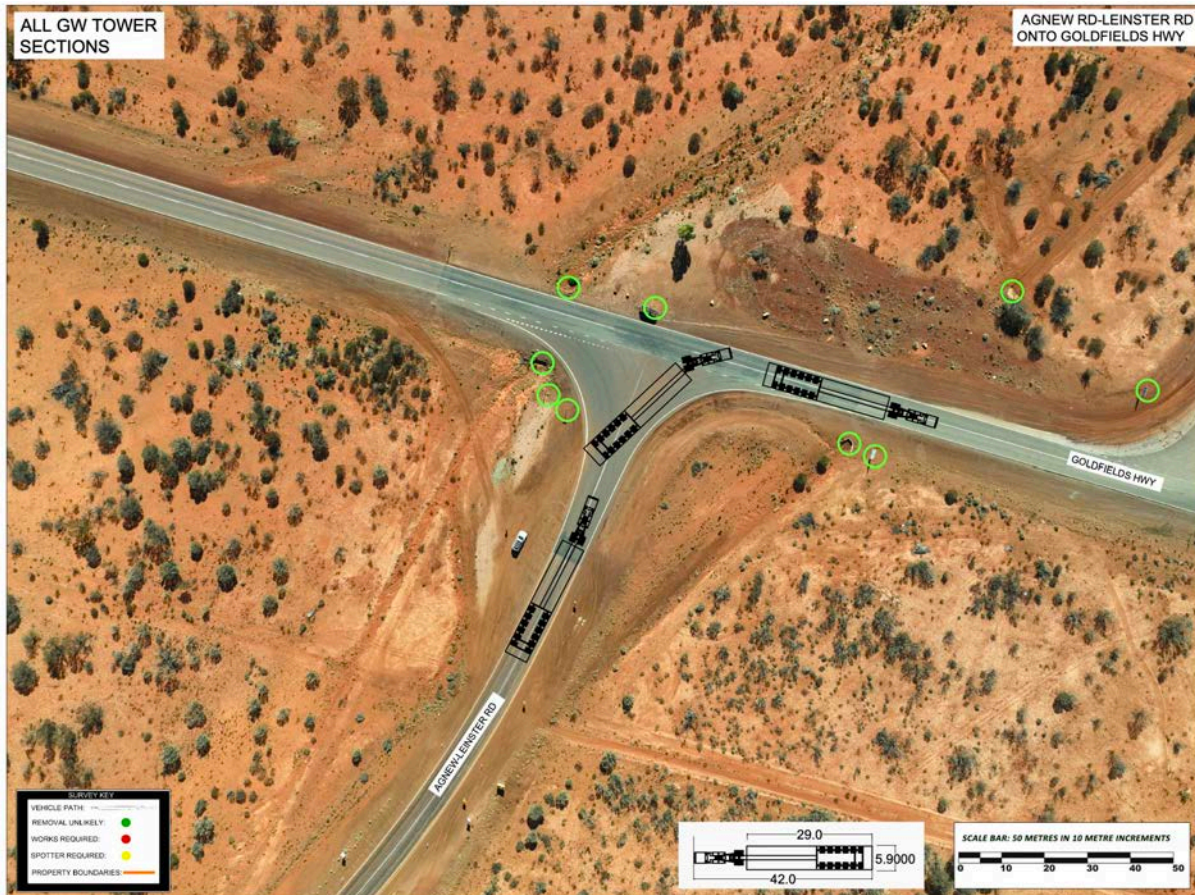


Image 38: Agnew-Leinster Road onto the Goldfields

**GPS LINK FOR THIS SECTION OF ROAD:** <https://goo.gl/maps/ZWWEteLdrArGU45C7>

**PROCEDURE:** Right hand turn from Agnew-Leinster Road onto the Goldfield Highway.

**COMMENTS:** The blades to travel around the corner from the correct side to the correct side.

**ROAD MODIFICATIONS:** No works required.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

770.0 to 772.3 Km's: Leonora Bypass.

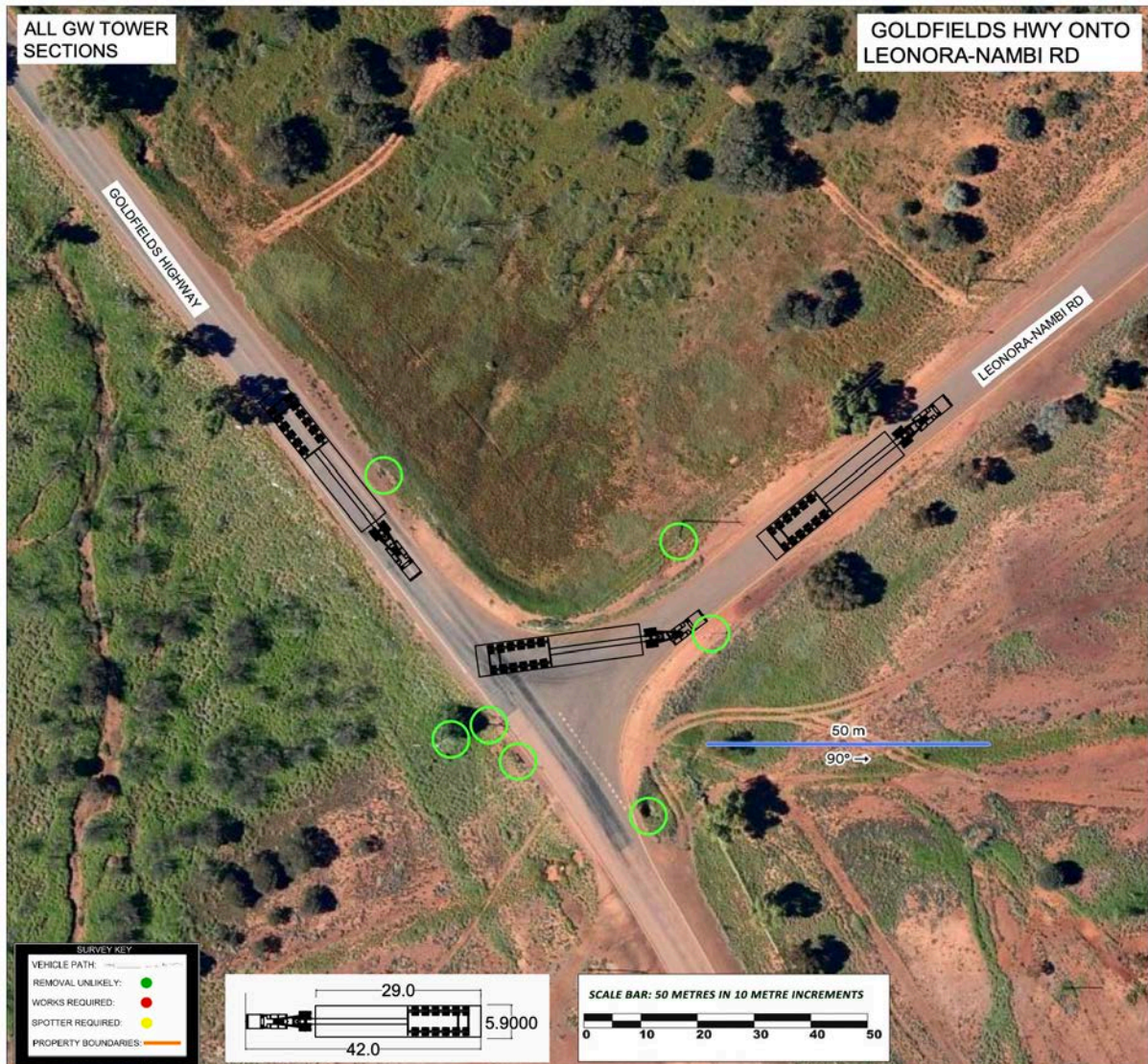


Image 39: Goldfields Highway onto Leonora-Nambi Road

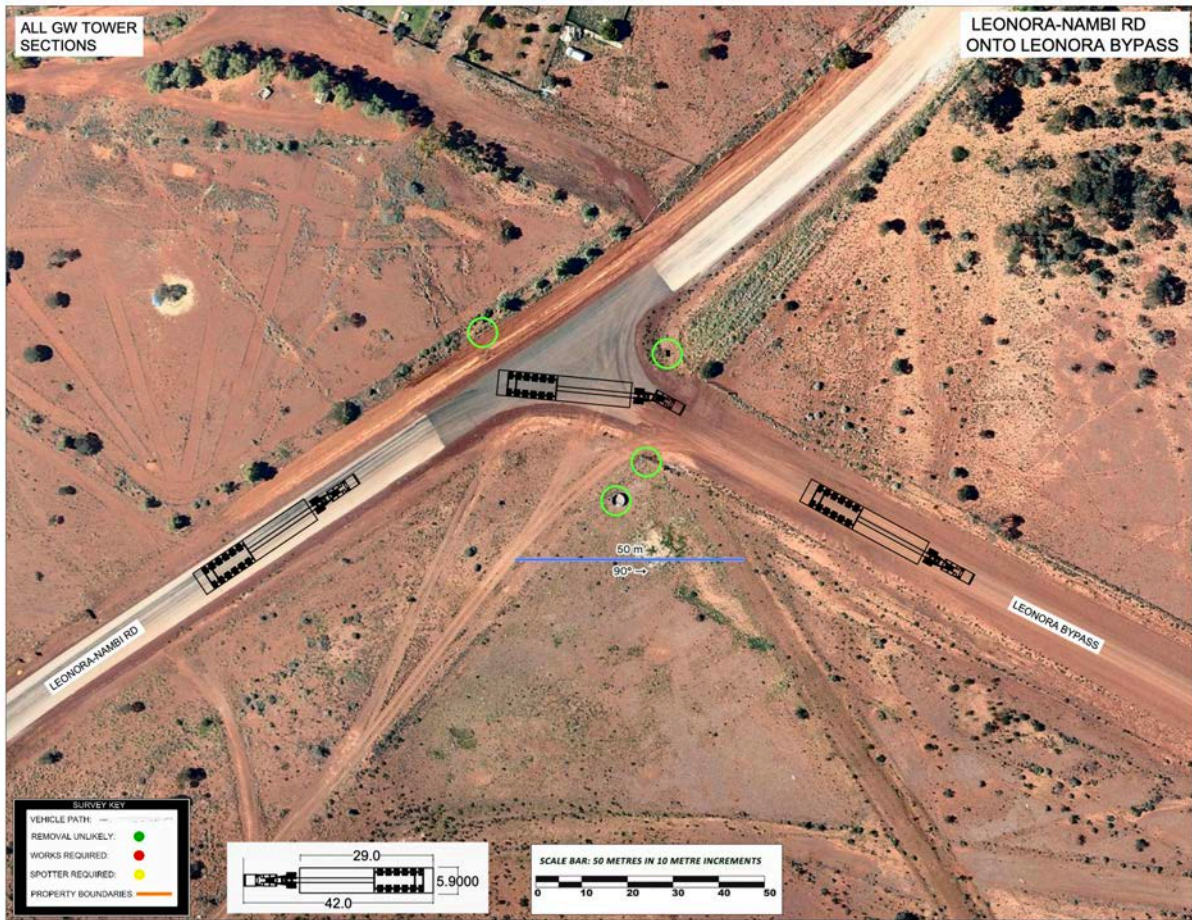


Image 40: Leonora-Nambi Road onto Leonora Bypass

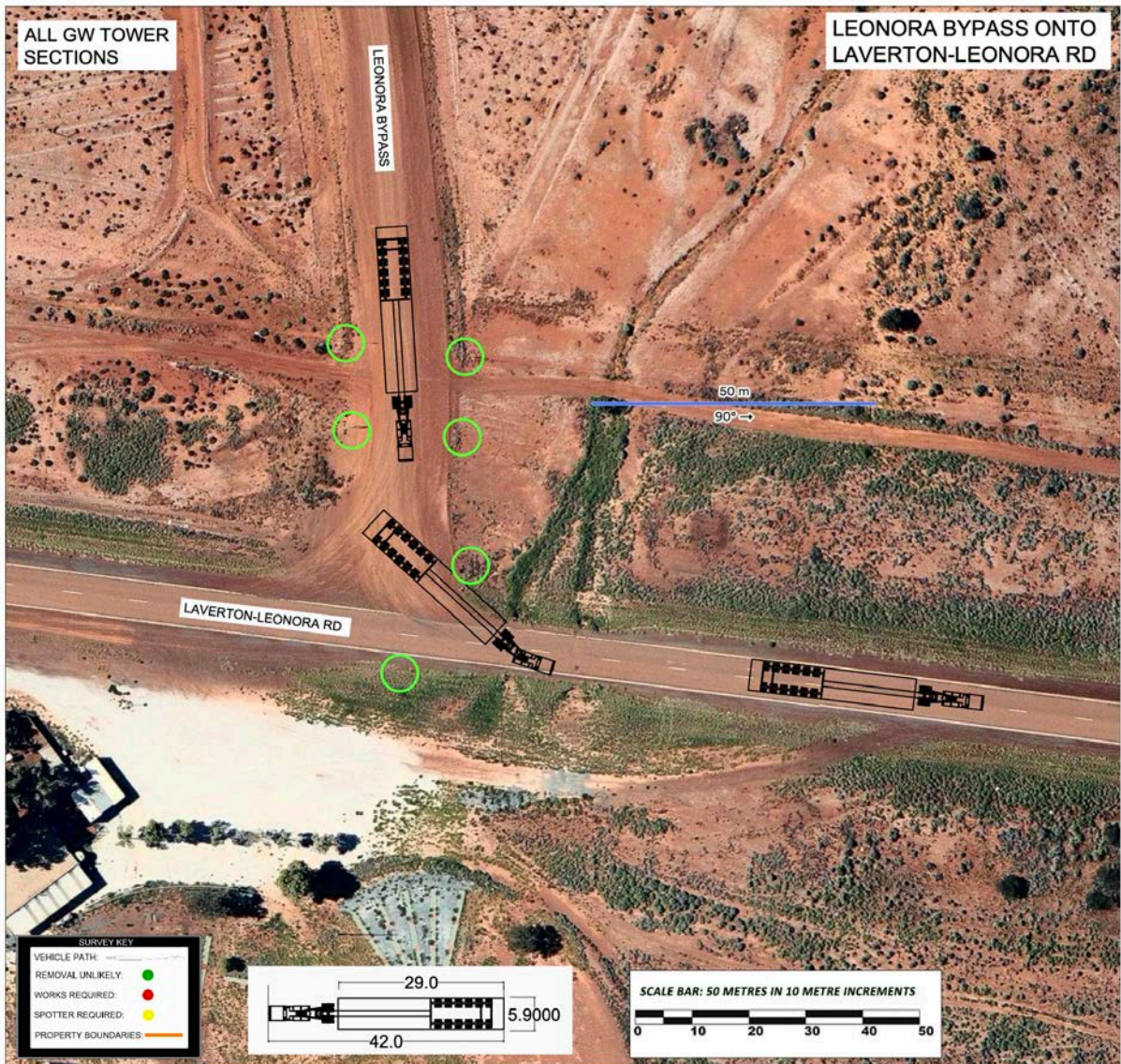


Image 41: Leonora Bypass onto Laverton-Leonora Road

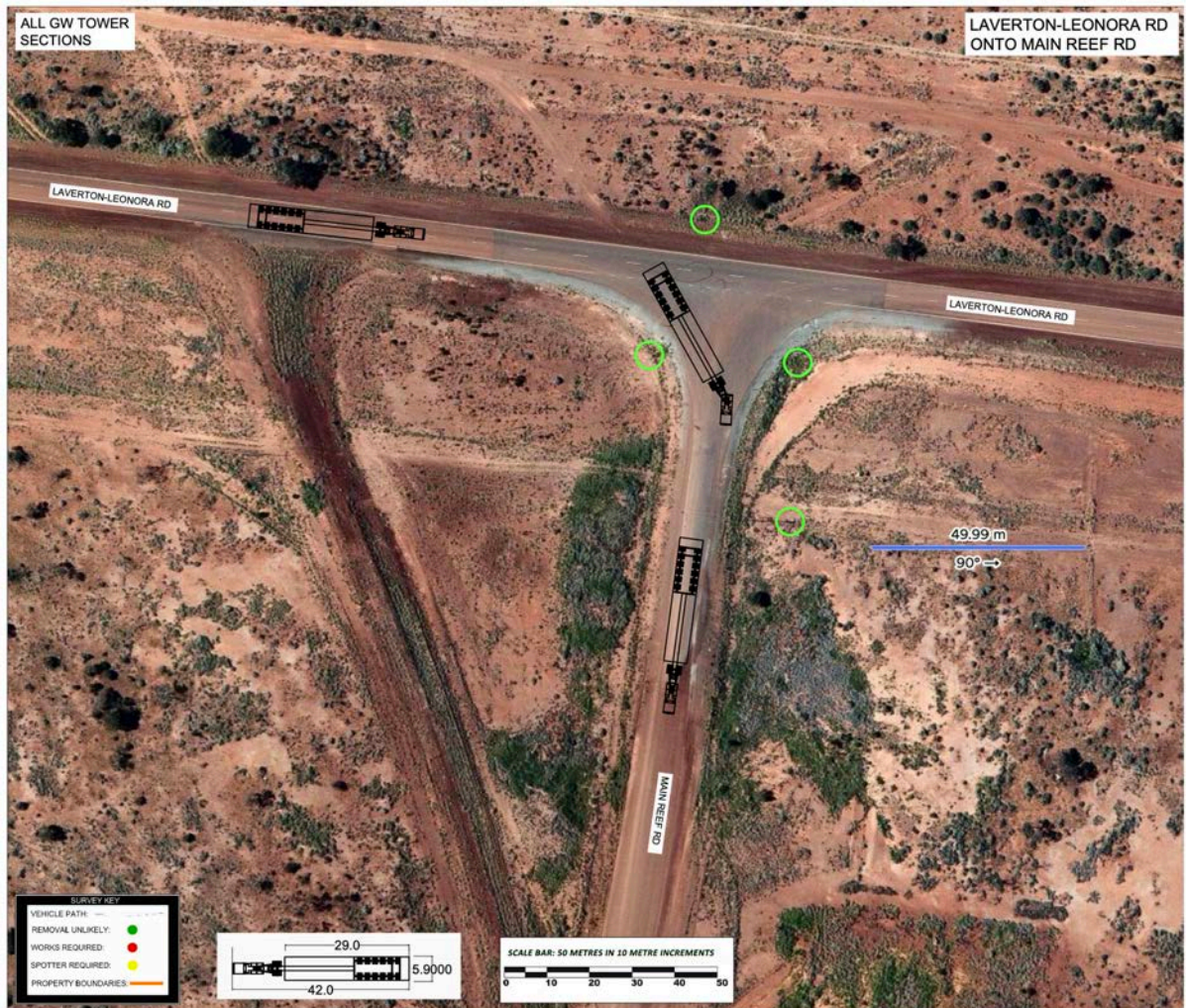


Image 42: Laverton-Leonora Road onto Main Reef Road

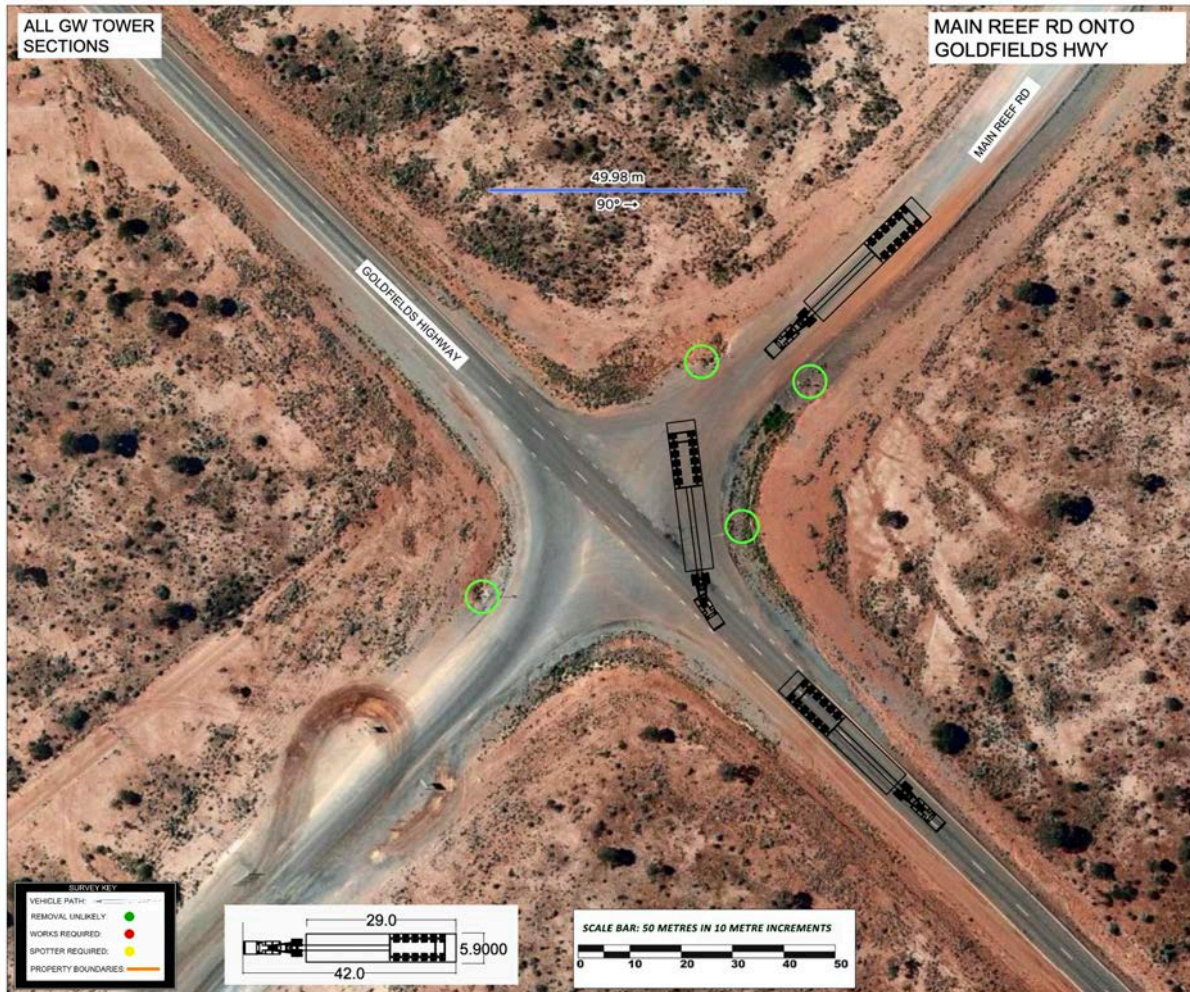


Image 43: Main Reef Road onto Goldfields Highway

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/8GP4vxUnfaCBQhkZ9>

**PROCEDURE:** Turn to the left off the Goldfields Highway and onto the High load bypass Road around Leonora, before returning to the Goldfields Highway on the south side of town

**COMMENTS:** Sections of this road are gravel and the condition of the road should be checked prior to travelling on it.

**ROAD MODIFICATIONS:** No works required.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

**1029.0 Km's: Yarri Road into Superpit Windfarm northern site entrance.**

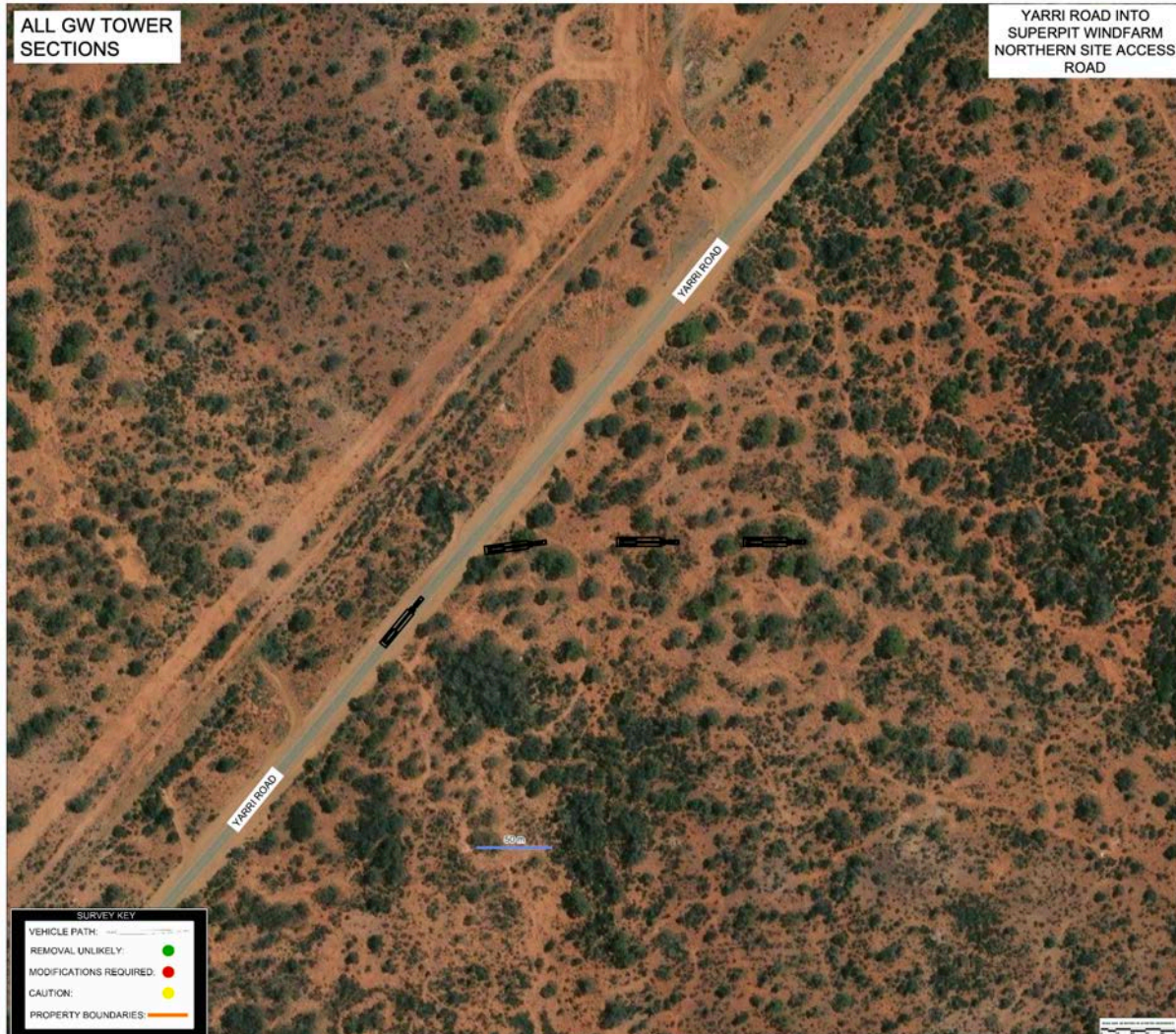


Image 44: Yarri Road into Superpit Windfarm northern site entrance

**GPS LINK FOR THIS SECTION OF ROAD:** <https://maps.app.goo.gl/Bd6HkyGznjkeUp2NA>

**PROCEDURE:** Right hand turn from Yarri Road into Superpit Northern site entrance

**COMMENTS:** The loads are to travel around the corner from the correct side to the correct side.

**ROAD MODIFICATIONS:** Site will need to make a suitable entrance for the swept path of the largest load.

**PINCHPOINT REQUIREMENT:** A spotter will need to guide the load through this pinchpoint.

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## 10.0 Drive over structures location and width:

**Road:** H062  
**Road Name:** John Willcock Link  
**SLK:** 0.17  
**Network Type:** State Road  
**Local Government:** Greater Geraldton (C)  
**Structure Number:** 1553  
**Crossing Name:** Railway 91  
**Width (m):** 14.9  
**Width Between Kerbs (m):** 9.18  
**Longitude:** 114.586548  
**Latitude:** -28.777694

**Road:** H050  
**Road Name:** Geraldton Mt Magnet Rd  
**SLK:** 43.51  
**Network Type:** State Road  
**Local Government:** Greater Geraldton (C)  
**Structure Number:** 0805  
**Structure Name:** ERADU BRIDGE  
**Crossing Name:** Greenough River - Eradu Bridge  
**Width (m):** 8.84  
**Width Between Kerbs (m):** 7.92  
**Longitude:** 115.031629  
**Latitude:** -28.714954

**Road:** H049  
**Road Name:** Goldfields Hwy  
**SLK:** 297.67  
**Network Type:** State Road  
**Local Government:** Leonora  
**Structure Number:** 0830A  
**Crossing Name:** Lake Raeside  
**Width (m):** 9.0  
**Width Between Kerbs (m):** 8.2  
**Longitude:** 121.375923  
**Latitude:** -28.976472

**Road:** H049  
**Road Name:** Goldfields Hwy  
**SLK:** 146.47  
**Network Type:** State Road  
**Local Government:** Leonora  
**Structure Number:** 0963  
**Crossing Name:** Cane Grass swamp  
**Width (m):** 9.25  
**Width Between Kerbs (m):** 8.6  
**Longitude:** 121.173714  
**Latitude:** -30.190266

## 11.0 Conclusion:

After studying all options and undertaking a route survey Route 1 will require modifications prior to the route been suitable for the blades. Route 2 is suitable for transporting the components listed in this report.

The following are the key points that need to be taken into consideration, if the project moves forward with this route.

### TRAVELLING OVER BRIDGE STRUCTURES:

- The four structures that the loads will travel over are all over 8 metres in width and are suitable for the width of the wind turbine transporters.
- It is recommended that the transport company submits permit applications for each component to Main Roads WA for assessment to understand if the combinations will have restrictions travelling over the structures listed in this report. <https://www.mainroads.wa.gov.au/globalassets/heavy-vehicles/getting-a-permit/osom/permit-form-class-1-rav-single-trip-application.pdf?v=49eb03>

### TRAVELLING UNDER OVERHEAD STRUCTURES:

- There are 4 overhead structures while leaving Geraldton. The lowest of these structures is the Brand Highway overpass on John Wilcock Link and the Abraham Street underpasses. These bridges have a maximum safe clearance of 6.4 metres in height.
- The blades have a suitable clearance under all 4 of these structures.
- Loads over 6.4 metres which is all of the tower sections would need to exit John Willcock Road prior to the Brand Highway overpass and travel up and over the bridge. The loads would then need to travel under Highbury Street underpass in the left-hand breakdown lane with the centre of the load travelling over the left hand fog line. The loads would then need to travel under Abraham Street on the right hand side of the road and off onto the gravel section as per the images for this section of road. If the loads can do this than a maximum travel height under these structures would be 6.7 metres in overall height.

### TRAVELLING UNDER OVERHEAD UTILITIES:

- Western Power have issued a 6.8-metre-high clearance for the wind turbine blades to pass under their assets as far as Yalgoo.
- Horizon Power have issued a 6.8-metre-high clearance for the wind turbine blades to pass under their assets from Yalgoo to Kalgoorlie.
- Western Power have issued a 6.6-metre-high clearance for the wind turbine blades to pass under their assets at Kalgoorlie.
- Site to confirm if there are any overhead utilities from the Laverton-Leonora Road through to the wind turbine locations.

**VEGETATION:**

- Vegetation needs removal in Mullawa and Speedway Road at Kalgoorlie. Vegetation will require trimming at Geraldton Port.

**PAVEMENT:**

- The route is of a highway grade material up until Kalgoorlie and is suitable in its current form.
- Speedway Road is gravel but suitable in its current condition.

**SWEPT PATH:**

- An assessment has been undertaken using the blade and the largest towers as both cases. The report lists the modifications that will be required.

## 12.0 Pinchpoint modifications required

The following are the locations that will require road modifications or approvals.

LOCATION	STREET/ROAD	ROAD STAKEHOLDER	TYPE OF WORKS	WORKS COMPLETED
0.0 KM'S GERALDTON	REG CLARKE RD	MIDWEST PORTS	* ROAD WIDENING * SECURITY GATE MODIFICATIONS	NO
0.3 KM'S GERALDTON	REG CLARKE RD	MIDWEST PORTS	* VEGETATION TRIMMING	NO
0.5 KM'S GERALDTON	REG CLARKE RD ONTO IAN BOGLE RD	MIDWEST PORTS	* LIGHTPOLE RELOCATION * RAMP WIDENING * FENCE MODIFICATIONS * SIGN MODIFICATION	NO
5.5 KM'S GERALDTON	N W COASTAL ONTO GERALDTON-MT MAGNET RD	MAIN ROADS WA	* SIGN MODIFICATION	NO
102.0 KM'S MULLEWA	GERALDTON-MT MAGNET RD	MAIN ROADS WA AND CITY OF GERALDTON	* TREE REMOVAL * LIGHTPOLE RELOCATION * SIGN MODIFICATION	NO
342.0 KM'S MT MAGNET	THE GREAT NORTHERN HWY ONTO NEW BYPASS	SHIRE OF MT MAGNET	* ROAD CONSTRUCTION	NO
782.0 KM'S KALGOORLIE	GOLDFIELDS HWY ONTO SPEEDWAY ROAD	SHIRE OF KALGOORLIE	* VEGETATION REMOVAL	NO

### 13.0 References:

Rex J Andrews route survey # 504 REV00  
Main Roads WA  
Goldwind Australia  
Zenith  
KCGM  
Mt Magnet Shire council  
Google Earth/Maps  
Nearmaps  
NHVR (OSOM)  
NHVAS Maintenance Management (NHVAS21193)  
NHVAS Basic Fatigue Management (NHVAS21193)

## 14.0 Appendix A: Transport drawings.