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Division of RAMTRANS Australia ABN: 45067491678 RPEQ: 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

22 August 2023 Reference: 220708.01FA

NBRS
4 Glen Street
Milsons Point NSW 2061
Attention: John Vasco

DESIGN ADVICE AND SWEPT PATH ANALYSIS FOR THE PROPOSED MONARO FIRE CONTROL CENTRE AT GEEBUNG STREET, POLO FLAT

Dear John,

Reference is made to your request to provide design advice and swept path analysis for the proposed Monaro Fire Control Centre facilities at Geebung Street, Polo Flat, as depicted in **Annexure A**.

It has been advised that the largest vehicles expected to access the site are Category 1 fire vehicles which will access the sheds of the site as well as a semi-trailer which will travel to the site for deliveries. To assess the ability of these vehicles to access the site, swept path analysis has been performed using *Autoturn 11* software package with results reproduced in **Annexure B**. It is noted that the detailed plans include an indicative 12m width road area at the southern edge of the site used for access. The plans identify this road as being proposed by others and excluded from the scope of these works. If changes to this road design were to occur in the future the swept paths may need to be updated accordingly.

The adopted design vehicle to represent Category 1 fire vehicles for manoeuvring into and out of the storage shed is an 8.8m long Medium Rigid Vehicle (MRV) in accordance with *Clause 2.2(b)* of *AS2890.2:2018*. The design vehicle for deliveries is a 20m long Articulated Vehicle (AV) in accordance with *Clause 2.2(d)* of *AS2890.2:2018*. The swept path results indicate that the site's internal and access design is able to successfully accommodate the design vehicles and that the proposed fire vehicle storage bays are able to be successfully accessed by fire vehicles.

It should be noted that the swept path for the fuel tanker to access the aircraft hangar requires the overflow parking area and training ground for manoeuvring. The fuel tanker shall operate under a plan of management to ensure that there are no cars parked in the overflow parking area and that the training ground is clear of obstructions and activity when the fuel tanker is scheduled to undertake deliveries to the aircraft hangar. It has been advised that AVs will only use the eastern driveway of the site for access. Subject to the required changes in **Section 1.2**, the design vehicles are able to successfully access the proposed development.

1 Car Park Design & Compliance

The car parking layout as depicted in **Annexure A,** has been assessed to achieve the relevant clauses and objectives of *AS2890.1:2004*, *AS2890.2:2018* and *AS2890.6:2022*, subject to the variations from the standards in **Section 1.1** and required changes in **Section 1.2**. Swept path testing has been undertaken and the results are reproduced within **Annexure B** for reference.

The proposed car parking and vehicular access design achieves the following:

- 8.2m wide two-way western driveway facilitating access to Unnamed Road off Geebung Street;
- 10.0m wide two-way eastern driveway facilitating access to Unnamed Road off Geebung Street;
- Minimum 7.0m wide parking aisles;
- Minimum 5.4m long, 2.6m wide spaces for staff / visitors;
- Minimum 5.4m long, 2.4m wide accessible spaces with adjacent associated 5.4m long, 2.4m wide shared space;
- Minimum headroom of 2.2m for general circulation and 2.5m headroom clearance provided over accessible and adaptable car parking areas;

Whilst the plans have been assessed to comply with the relevant standards, subject to the required changes in **Section 1.2**, it is usual and expected that a design certificate be required at the Construction Certificate stage to account for any changes following the development application.

1.1 Variations from Standards

1.1.1 Fire Vehicle Roller Door Headroom Clearance

The proposed headroom at the fire brigade roller door locations is 4.2m. This is strictly non-compliant with AS2890.2:2018 which specifies a minimum headroom clearance of 4.5m for MRVs. Reference is made to the *Planning for Bush Fire Protection 2019* which states the following regarding headroom clearance for fire vehicles:

> ***A3.1 Vertical Clearance***
>
> *An unobstructed height of 4 metres should be maintained above all access ways including clearance from building construction, archways, gateway and overhanding structures (e.g. ducts, pipes, sprinklers, walkways, signs and beams). This also applies to vegetation overhanging roads.*

The fire brigade roller doors comply with this requirement of a minimum 4m headroom in accordance with *Planning for Bush Fire Protection 2019* and as such is considered acceptable. Therefore, the proposed variation from the standards is considered acceptable.

1.2 Required Changes

1.2.1 Bollards Underneath Downpipes / Roof Edge

The minimum headroom underneath the roof awning of the stores building is less than the minimum 4.5m required under *AS2890.2:2018* with further restrictions caused by downpipes resulting in headroom clearances lower than 4.0m. To prevent circulating AVs from potential collisions with the roof / downpipes and fire vehicles from colliding with the downpipes, bollards are required to be detailed underneath the downpipes at the edge of the roofline.

The swept path results indicate that AVs can circulate the site without encroaching underneath the roofline and fire vehicles can successfully enter and exit the District Vehicle Store bays in the instance where bollards are installed. This change can be made during detailed design at the Construction Certificate stage.

Please contact the undersigned should you require further information or assistance.

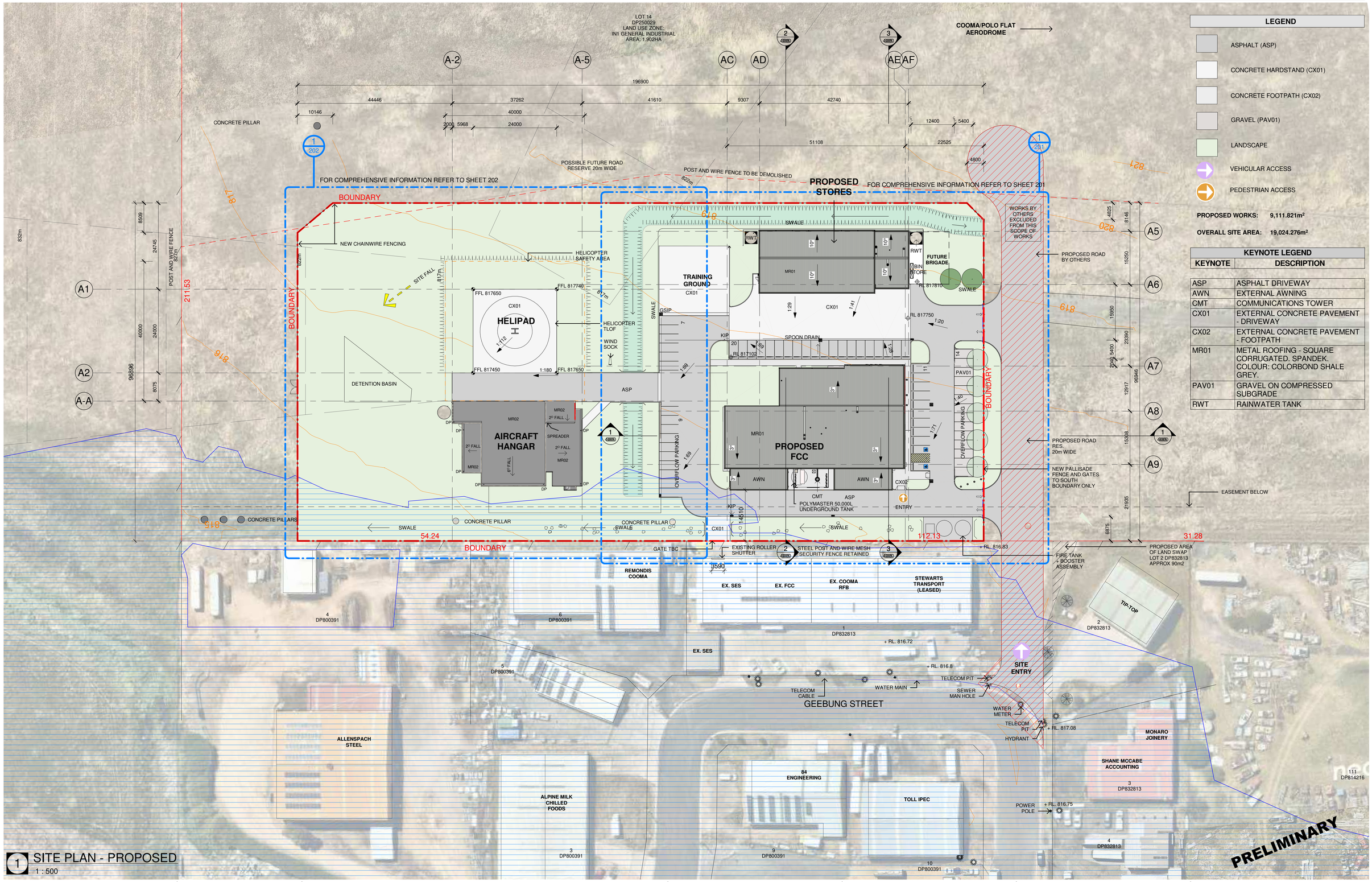
Yours faithfully,

McLaren Traffic Engineering

Laen Stewart
Senior Traffic Engineer
BE (Civil)
TfNSW Accredited Level 1 Road Safety Auditor
TfNSW Accredited Traffic Management Plan Designer

ANNEXURE A: PROPOSED PLANS

(3 SHEETS)



LEGEND

- ASPHALT (ASP)
- CONCRETE HARDSTAND (CX01)
- CONCRETE FOOTPATH (CX02)
- GRAVEL (PAV01)
- LANDSCAPE
- VEHICULAR ACCESS
- PEDESTRIAN ACCESS

PROPOSED WORKS: 9,111.821m²

OVERALL SITE AREA: 19,024.276m²

KEYNOTE LEGEND

KEYNOTE	DESCRIPTION
ASP	ASPHALT DRIVEWAY
AWN	EXTERNAL AWNING
CMT	COMMUNICATIONS TOWER
CX01	EXTERNAL CONCRETE PAVEMENT - DRIVEWAY
CX02	EXTERNAL CONCRETE PAVEMENT - FOOTPATH
MR01	METAL ROOFING - SQUARE CORRUGATED. SPANDEK. COLOUR: COLORBOND SHALE GREY.
PAV01	GRAVEL ON COMPRESSED SUBGRADE
RWT	RAINWATER TANK

1 SITE PLAN - PROPOSED

1 : 500

PRELIMINARY

Issue

No.	Date	Description	Chkd
P2	22/02/2023	ISSUE TO BCA CONSULTANT	JV
P3	28/02/2023	100% SCHEMATIC	JV
P4	27/03/2023	Prelim DA	JV
P5	27/04/2023	DRAFT ISSUE FOR DA APPROVAL	JV
P6	03/07/2023	ISSUE FOR INFORMATION	SR
P7	04/07/2023	95% DESIGN DEVELOPMENT	JV
P8	13/07/2023	95% DESIGN DEVELOPMENT	JV
P9	27/07/2023	PRELIMINARY	SR
P10	02/08/2023	ISSUE FOR DA APPROVAL	SR

Changes to this Revision

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NSW PUBLIC WORKS ADVISORY
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NCC CONSULTANT
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02 9939 1530
showe@mbc-group.com.au

Drawing Title
SITE PLAN - PROPOSED

Project
NSW RURAL FIRE SERVICE - MONARO FIRE CONTROL CENTRE

11 GEEBUNG ST, POLO FLAT, NSW 2630
LOT 14 DP150029
SNOWY MONARO REGIONAL COUNCIL

for
NSW RURAL FIRE SERVICE

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Nominated Architect:
Andrew Duffin NSW 5602
NBRS & Partners Pty Ltd VIC 51197
ABN 16 002 247 565

Date 21/08/2023 2:17:23 PM
Scale 1 : 500 @ A1

Drawing Reference 22396-NBRS-A-COO-DA-103
Revision P10

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CONTINUED ON DRAWING 202

1 GROUND FLOOR PLAN - SOUTH

1 : 200

BOUNDARY

LEGEND

- ASPHALT (ASP)
- CONCRETE HARDSTAND (CX01)
- CONCRETE FOOTPATH (CX02)
- GRAVEL (PAV01)
- LANDSCAPE
- VEHICULAR ACCESS
- PEDESTRIAN ACCESS

PROPOSED WORKS: 9,111.821m²

OVERALL SITE AREA: 19,024.276m²

EXTENT OF EXISTING RUNWAY

KEYNOTE LEGEND

KEYNOTE	DESCRIPTION
ASP	ASPHALT DRIVEWAY
BOL02	BOLLARD - INDUSTRIAL ROUND FIXED BOLLARD
CX01	EXTERNAL CONCRETE PAVEMENT - DRIVEWAY
CX02	EXTERNAL CONCRETE PAVEMENT - FOOTPATH
FK	FLUSH KERB
FLP	FLAGPOLE
FNC01	PERIMETER PALISADE FENCING
GSIP	GRATED STORMWATER INLET PIT
KG	KERB & GUTTER
KIP	KERB INLET PIT
KO	KERB ONLY
PAV01	GRAVEL ON COMPRESSED SUBGRADE
RW	RETAINING WALL
RWT	RAINWATER TANK
WST	WHEELSTOP

Issue

No.	Date	Description	Chkd
P1	31/01/2022	80% SCHEMATIC	SR
P2	22/02/2023	ISSUE TO BCA CONSULTANT	JV
P3	28/02/2023	100% SCHEMATIC	JV
P4	27/03/2023	Prelim DA	JV
P5	27/04/2023	DRAFT ISSUE FOR DA APPROVAL	JV
P6	03/07/2023	ISSUE FOR INFORMATION	SR
P7	04/07/2023	95% DESIGN DEVELOPMENT	JV
P8	27/07/2023	PRELIMINARY	SR
P9	02/08/2023	ISSUE FOR DA APPROVAL	SR

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Drawing Title
GROUND FLOOR PLAN - SOUTH KG

Project
NSW RURAL FIRE SERVICE - MONARO FIRE CONTROL CENTRE

11 GEEBUNG ST, POLO FLAT, NSW 2630
LOT 14 DP150029
SNOWY MONARO REGIONAL COUNCIL

for
NSW RURAL FIRE SERVICE

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Date 21/08/2023 2:18:13 PM
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Drawing Reference 22396-NBRS-A-COO-DA-201
Revision P9

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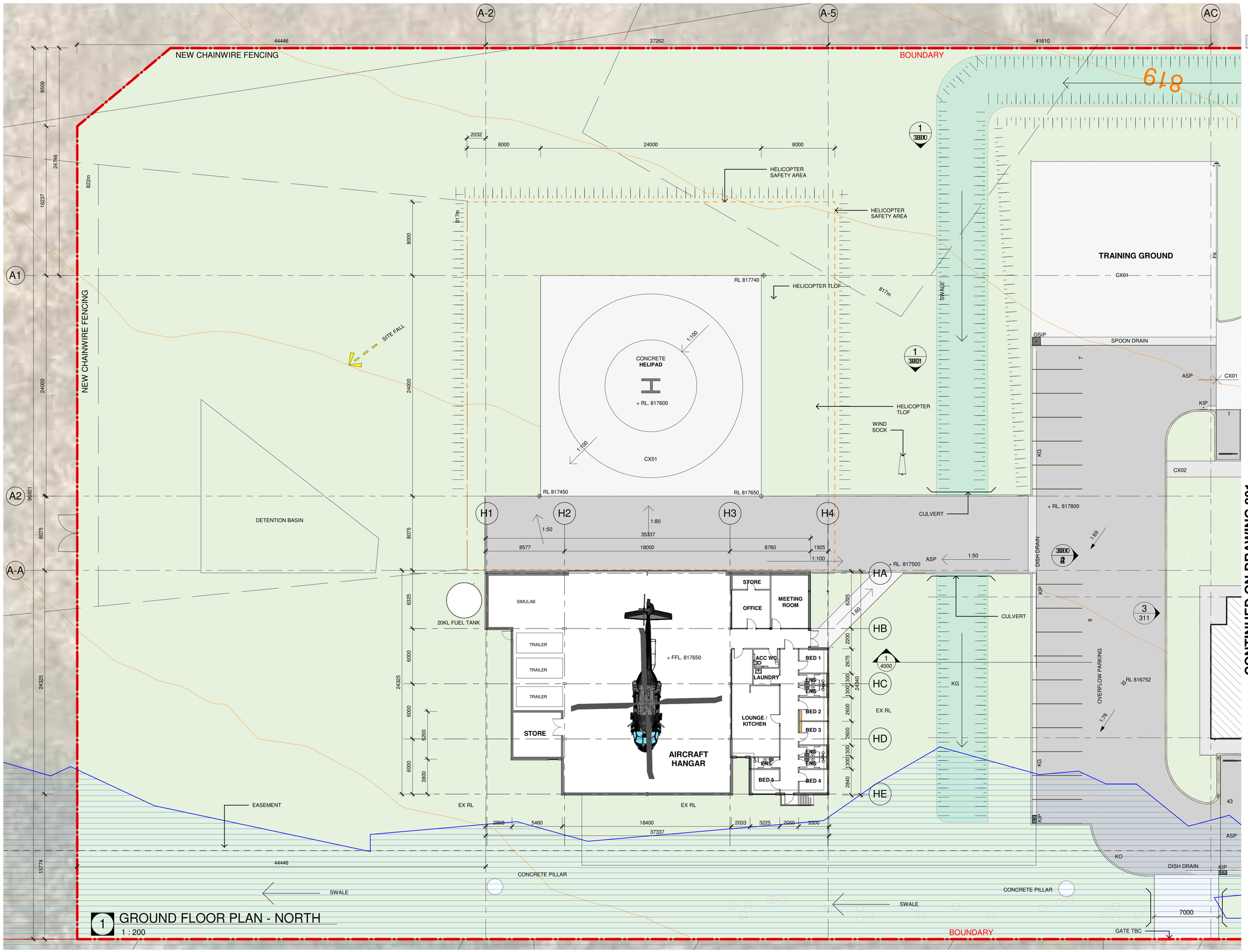
PRELIMINARY



1 GROUND FLOOR PLAN - NORTH
1 : 200

NBRS

LEGEND

- ASPHALT (ASP)
- CONCRETE HARDSTAND (CX01)
- CONCRETE FOOTPATH (CX02)
- GRAVEL (PAV01)
- LANDSCAPE
- VEHICULAR ACCESS
- PEDESTRIAN ACCESS

PROPOSED WORKS: 9,111.821m²

OVERALL SITE AREA: 19,024.276m²

KEYNOTE LEGEND	
KEYNOTE	**DESCRIPTION**
ASP	ASPHALT DRIVEWAY
CX01	EXTERNAL CONCRETE PAVEMENT - DRIVEWAY
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FK	FLUSH KERB
GSIP	GRATED STORMWATER INLET PIT
KG	KERB & GUTTER
KIP	KERB INLET PIT
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P6	02/08/2023	ISSUE FOR DA APPROVAL	SR

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Drawing Title
GROUND FLOOR PLAN - NORTH

Project
NSW RURAL FIRE SERVICE - MONARO FIRE CONTROL CENTRE

11 GEEBUNG ST, POLO FLAT, NSW 2630
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SNOWY MONARO REGIONAL COUNCIL

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Date 21/08/2023 2:19:00 PM
Scale As indicated @ A1

Drawing Reference
22396-NBRS-A-COO-DA-202

Revision
P6

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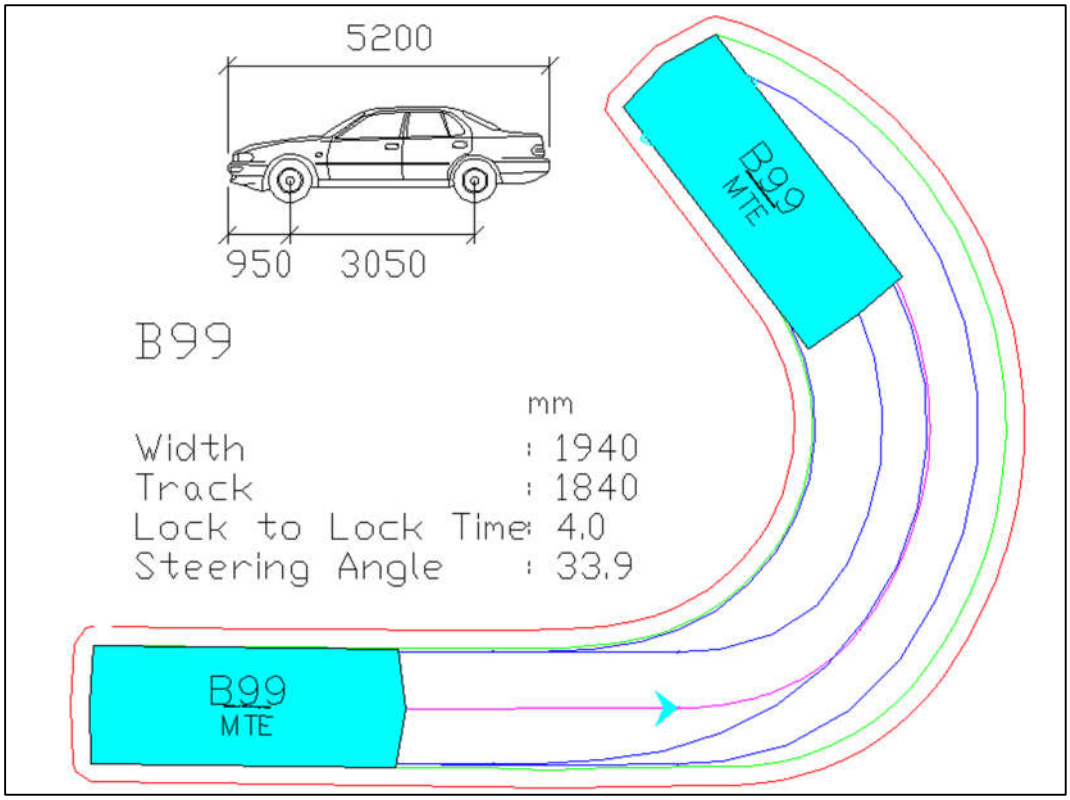
ANNEXURE B: SWEPT PATH TESTING

(9 SHEETS)

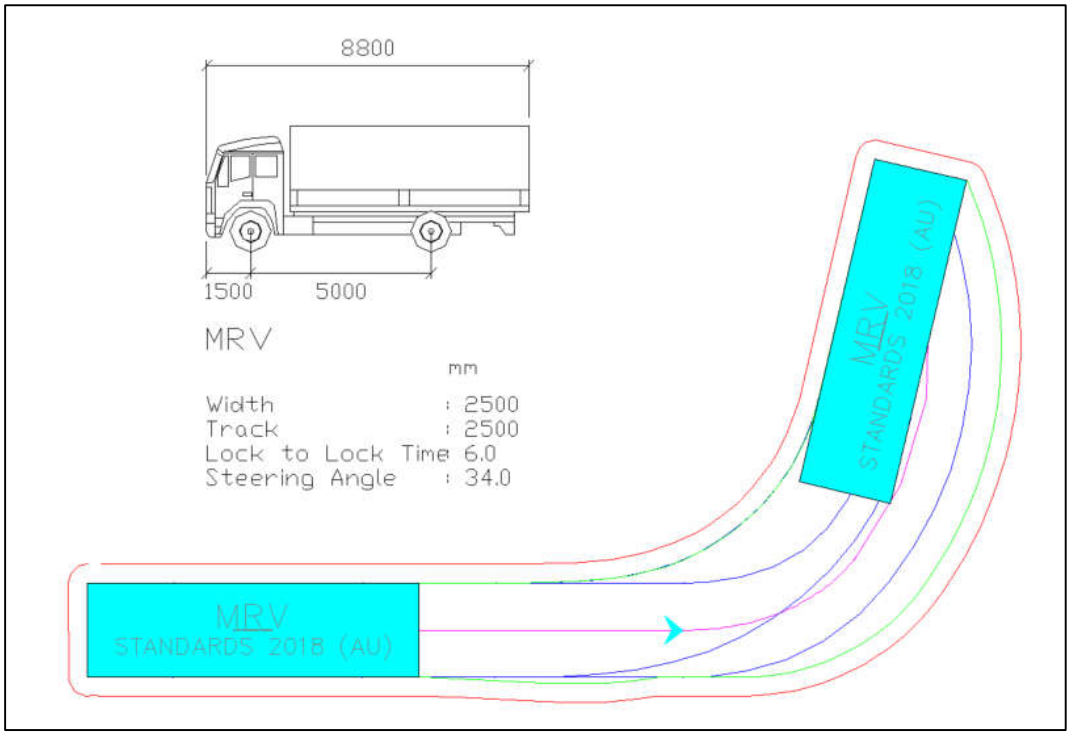


AUSTRALIAN STANDARD 99.8TH PERCENTILE SIZE VEHICLE (B99)

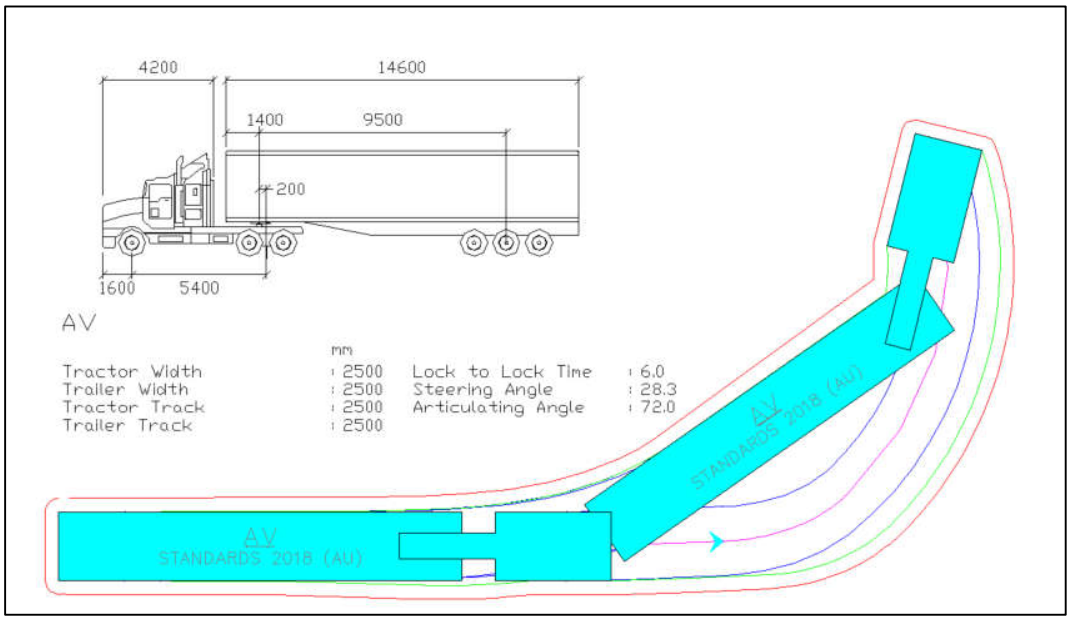
Blue – Tyre Path

Green – Vehicle Body

Red – 300mm Clearance



AUSTRALIAN STANDARD MEDIUM RIGID VEHICLE (MRV)

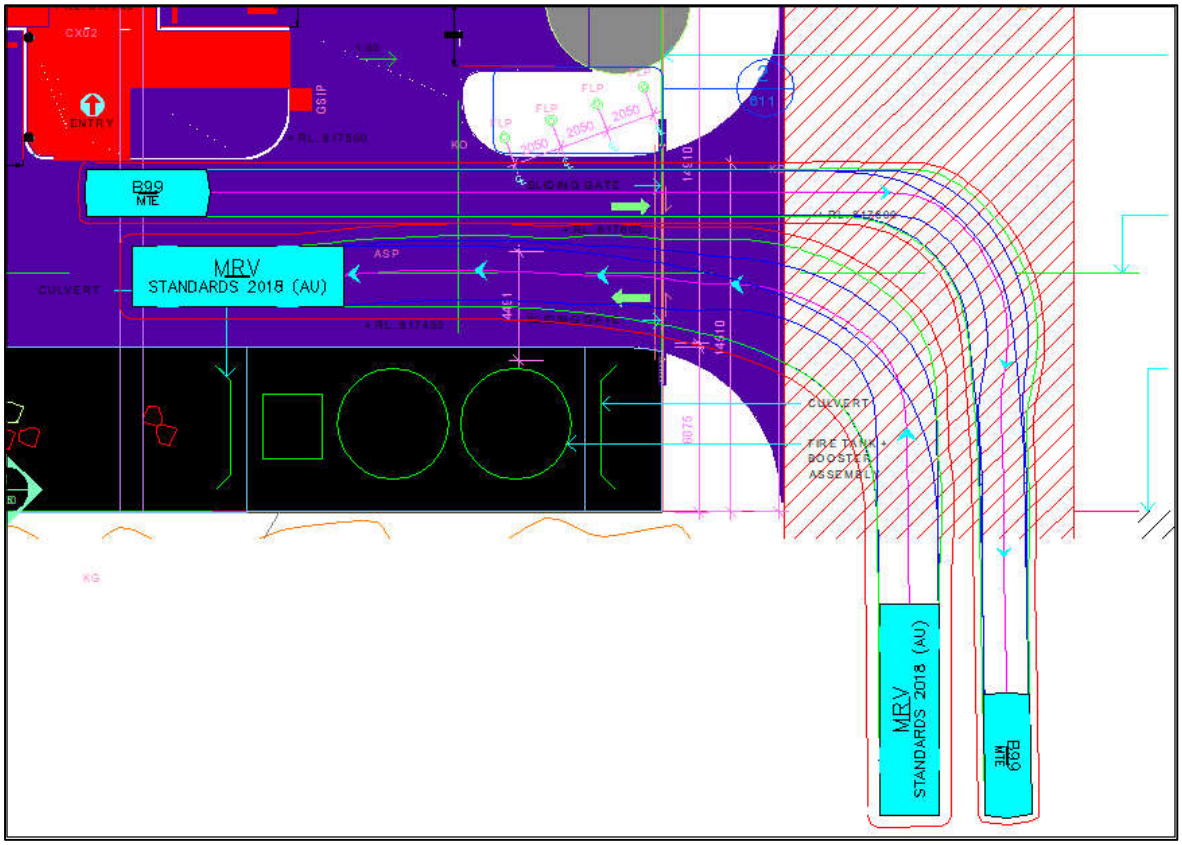


AUSTRALIAN STANDARD ARTICULATED VEHICLE (AV)

Blue – Tyre Path

Green – Vehicle Body

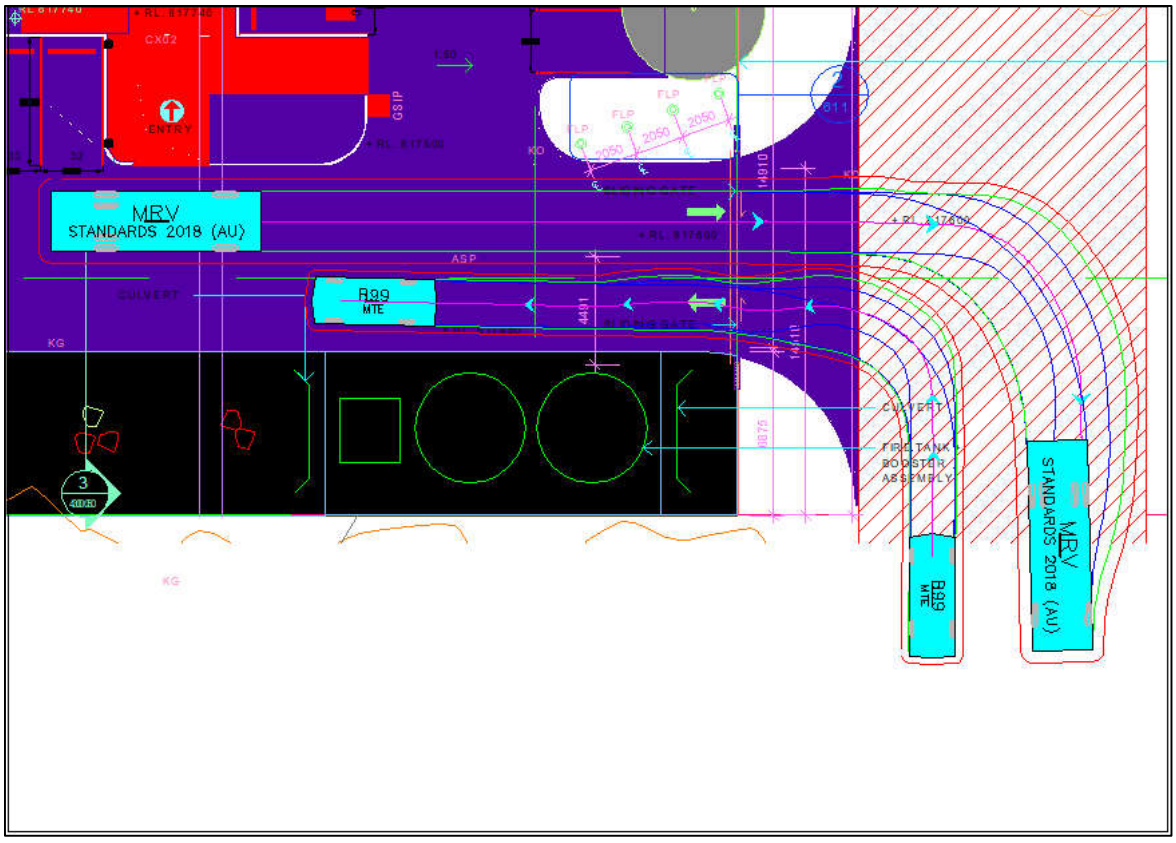
Red – 500mm Clearance



Circulation – Two-way Passing

B99 Passing MRV at southern site driveway

Successful



Circulation – Two-way Passing

MRV Passing B99 at southern site driveway

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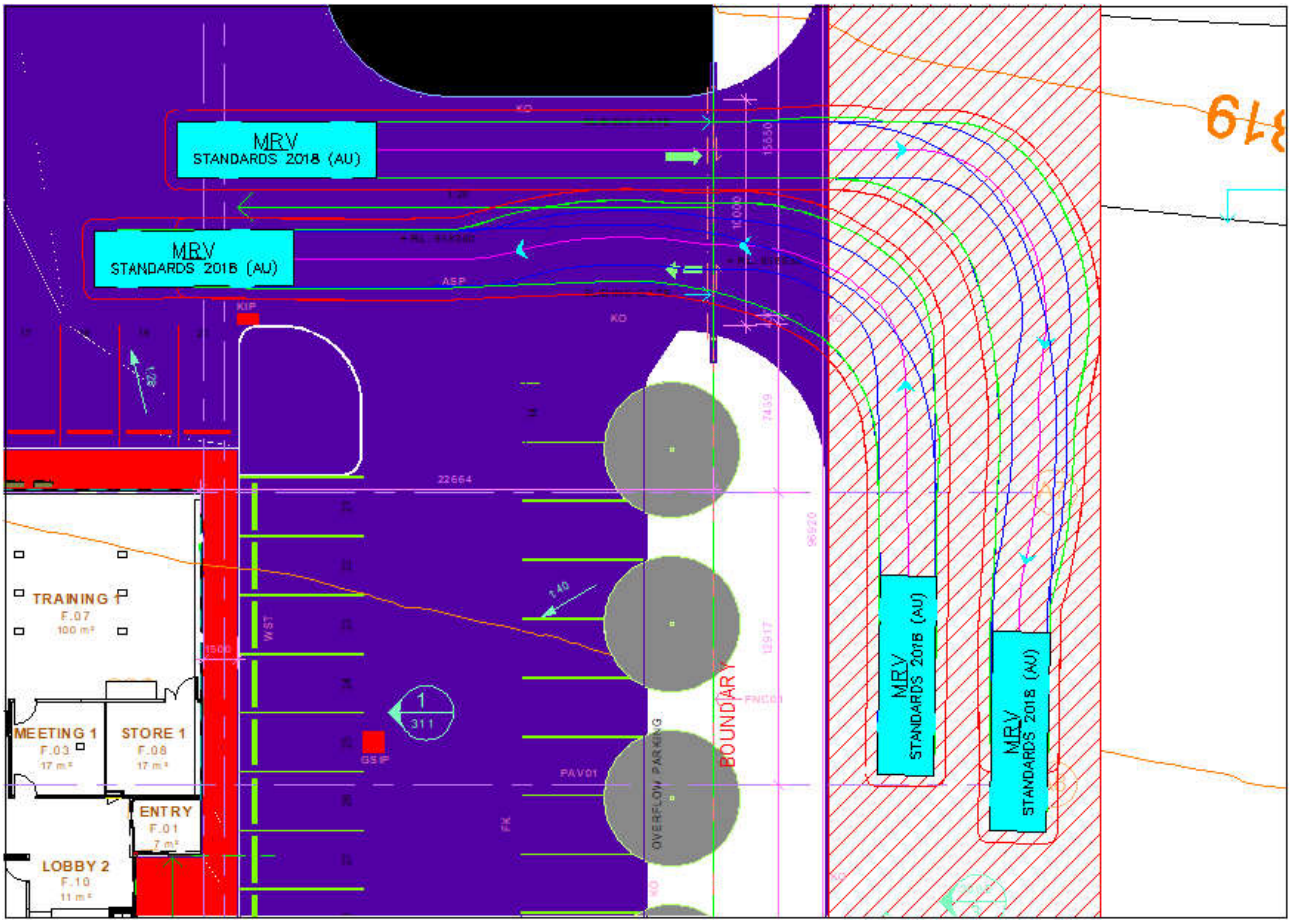
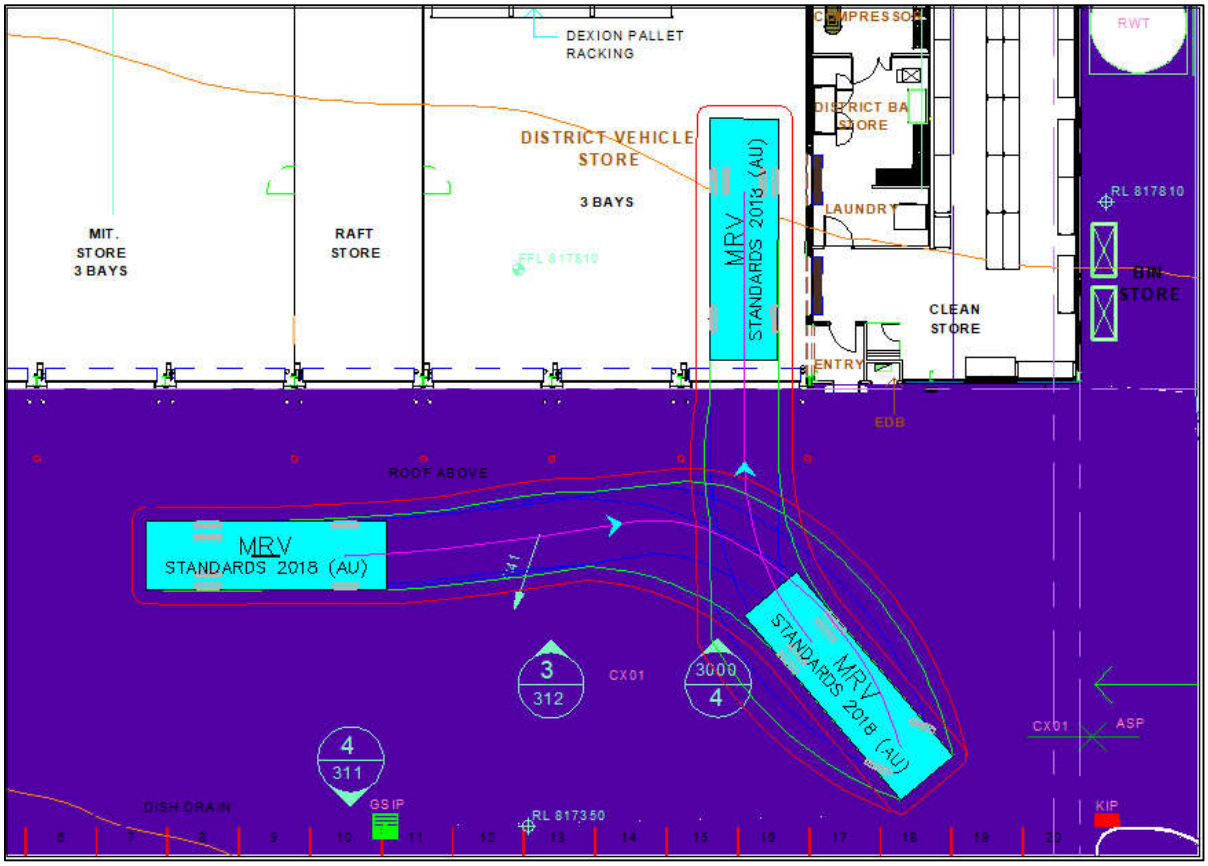
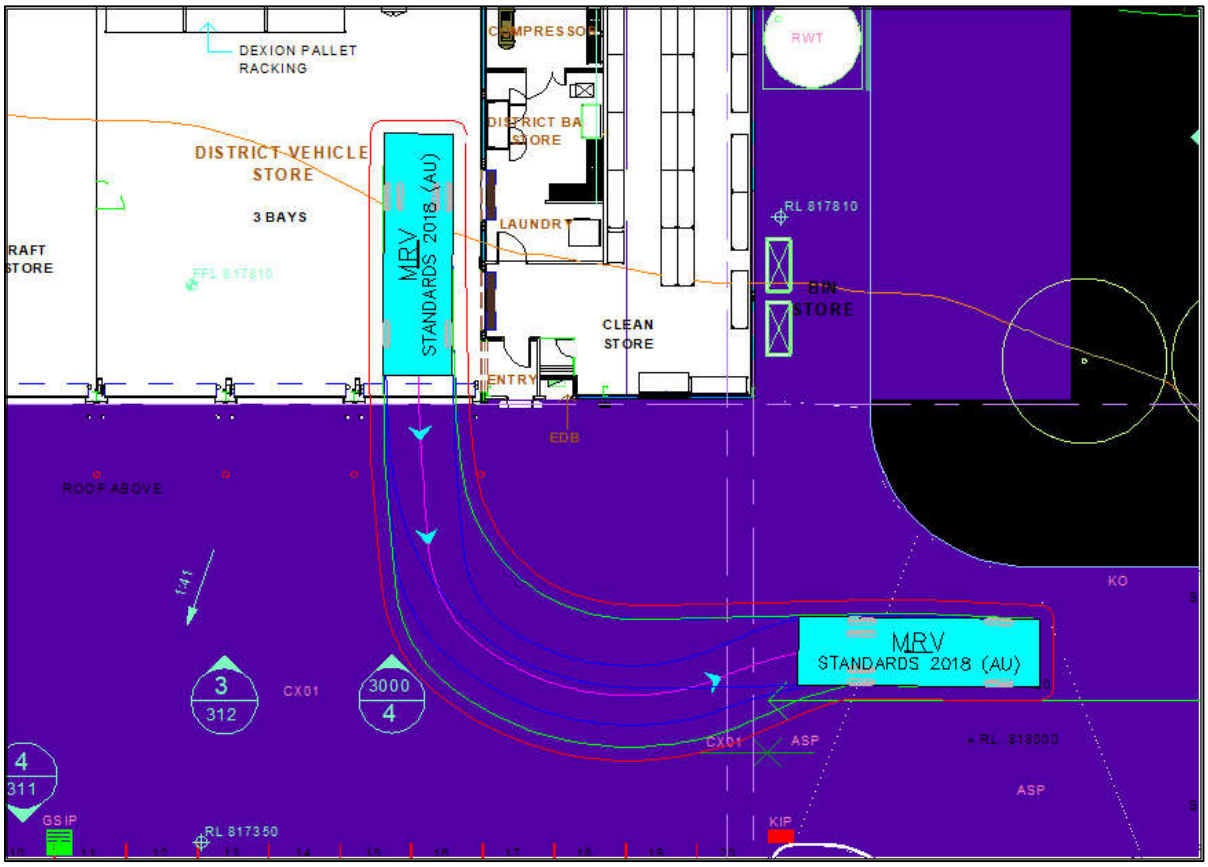


Circulation – Two-way Passing

MRV Passing MRV at northern site driveway

Successful

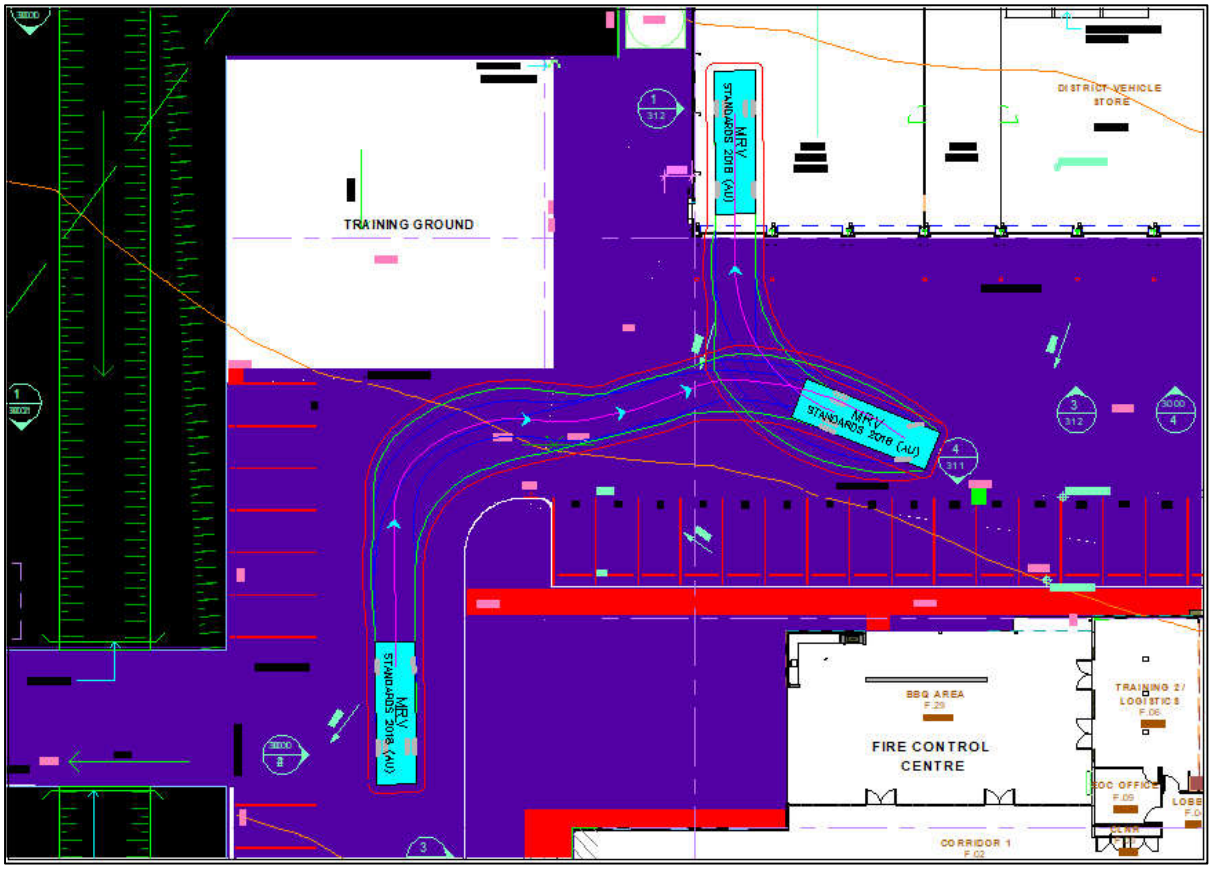


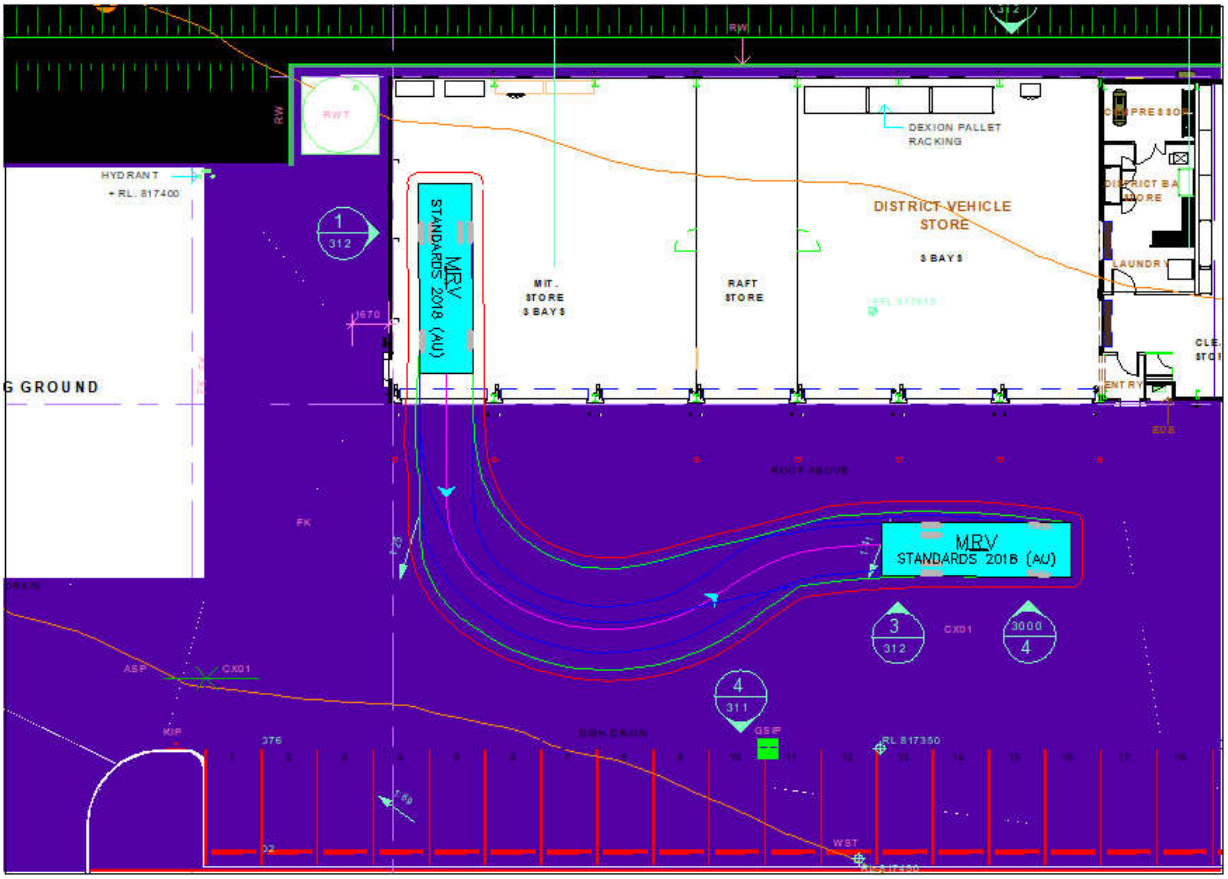


MRV Entry / Exit from District Vehicle Store Bay 3

2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

Successful

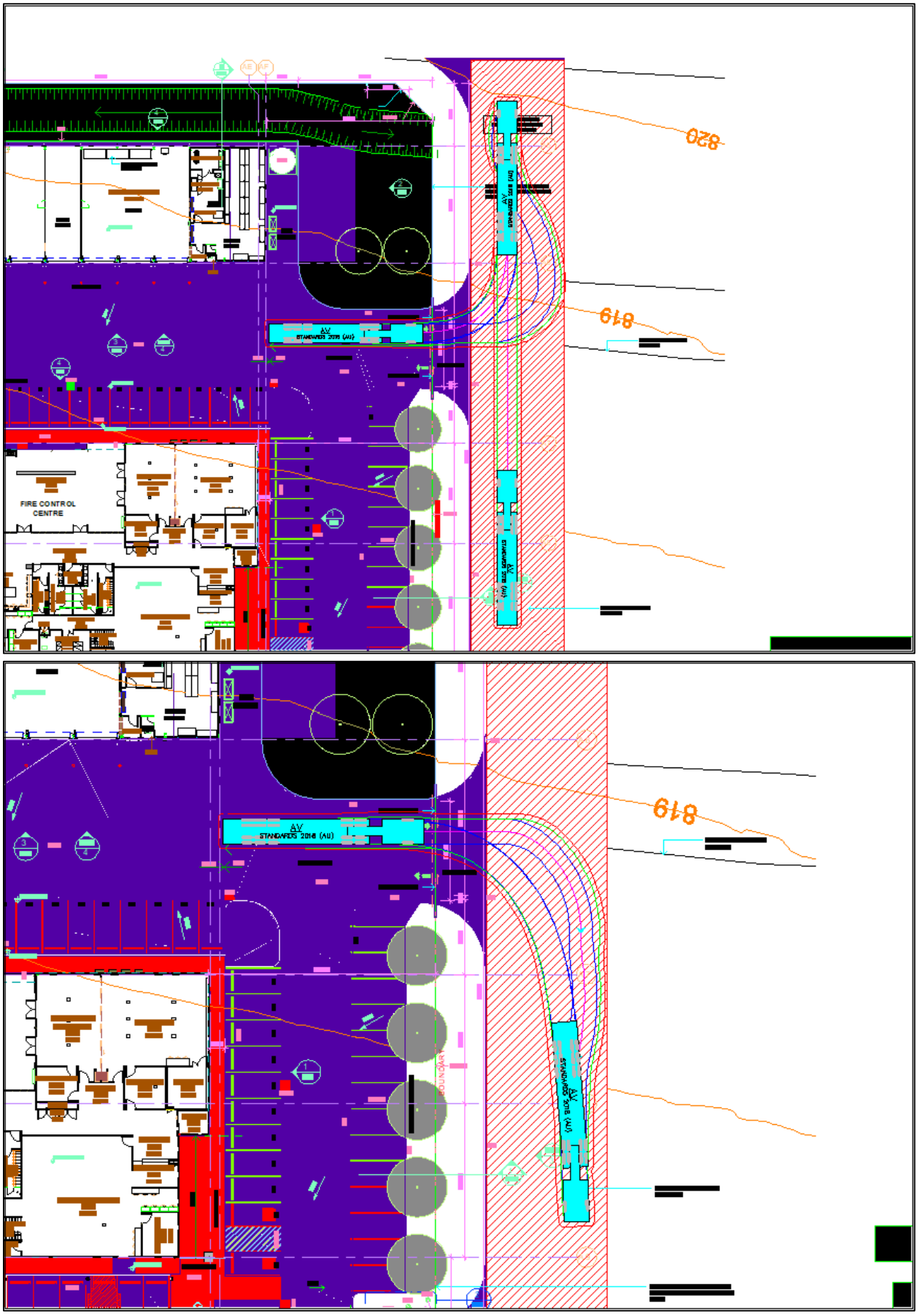




MRV Entry / Exit from District Vehicle Store Bay 3

2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

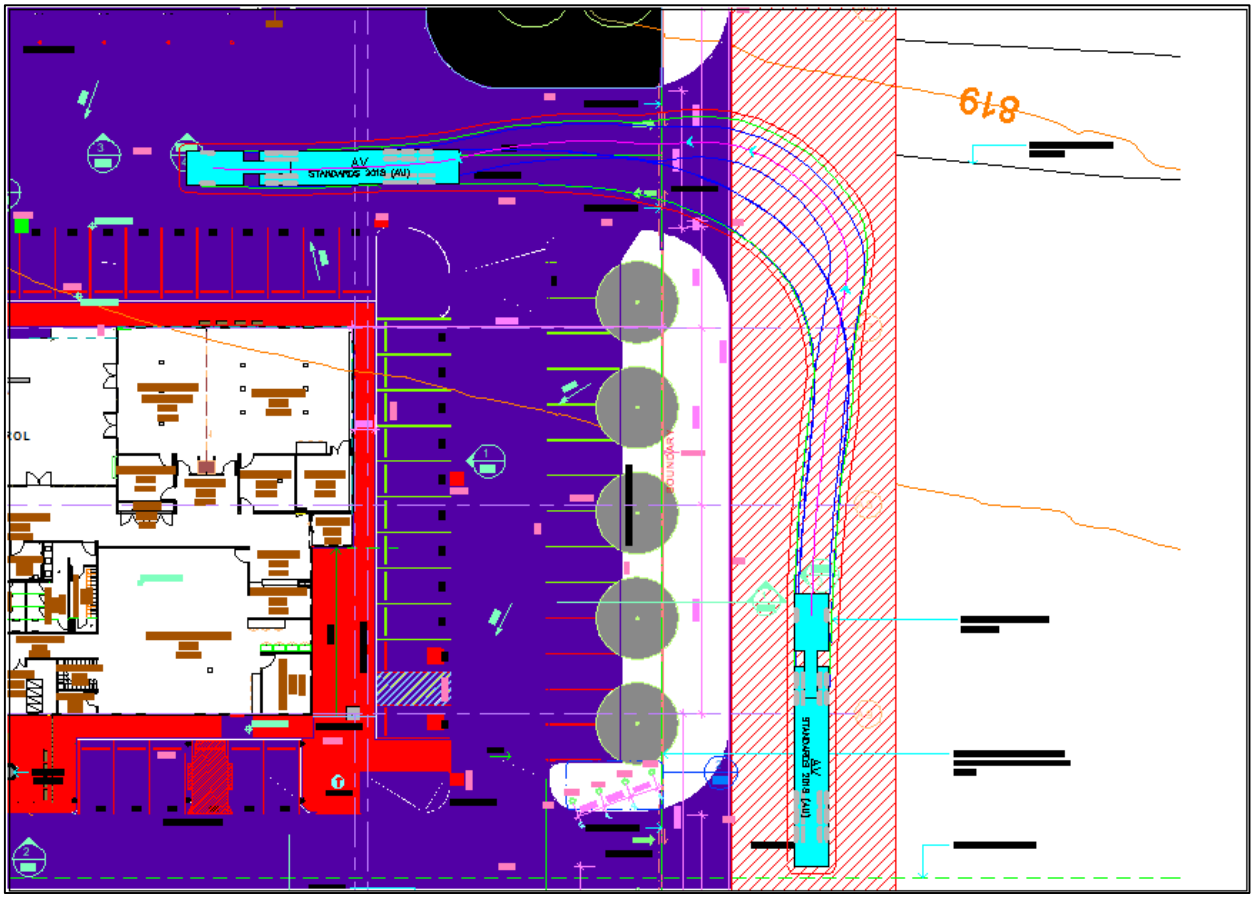
Successful

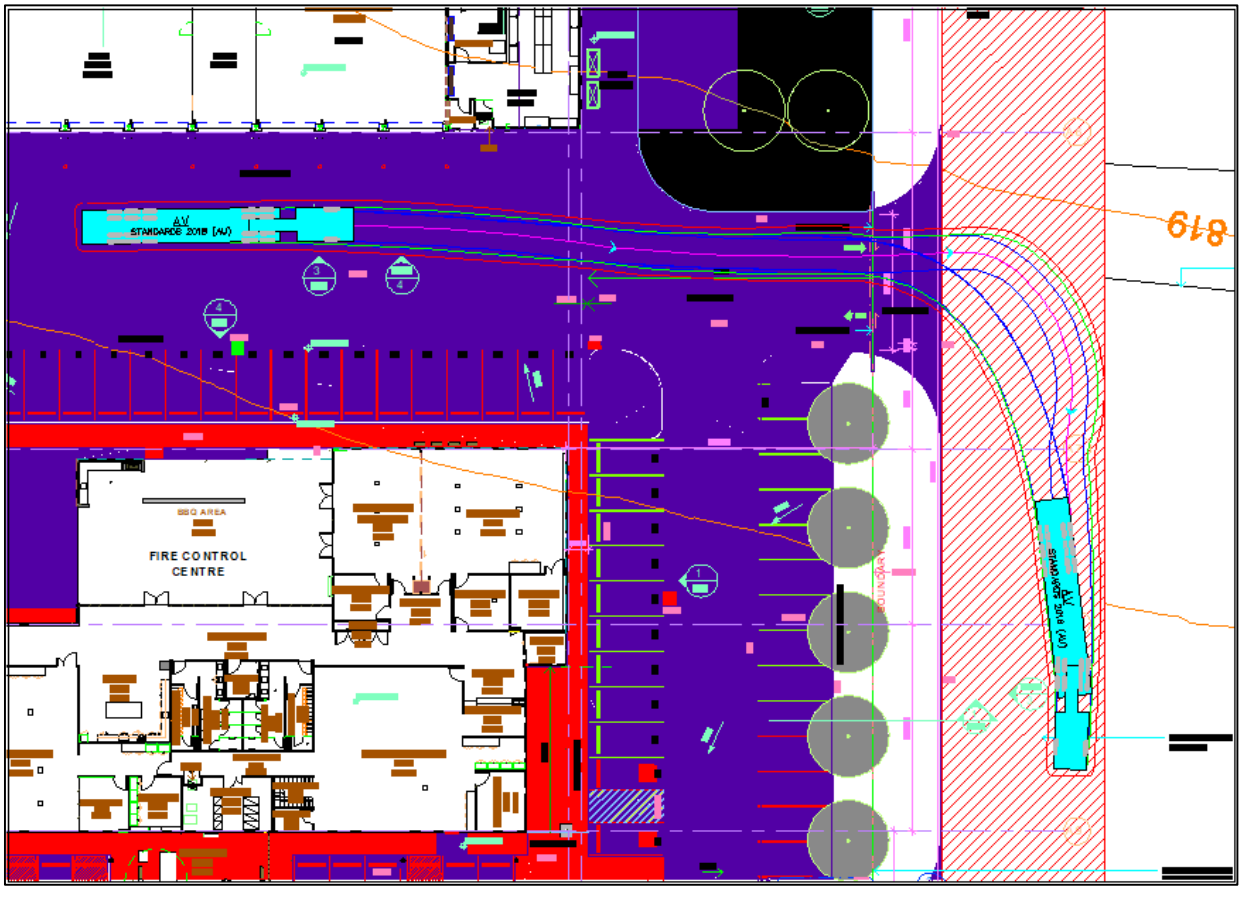


AV General Deliveries Entry / Exit

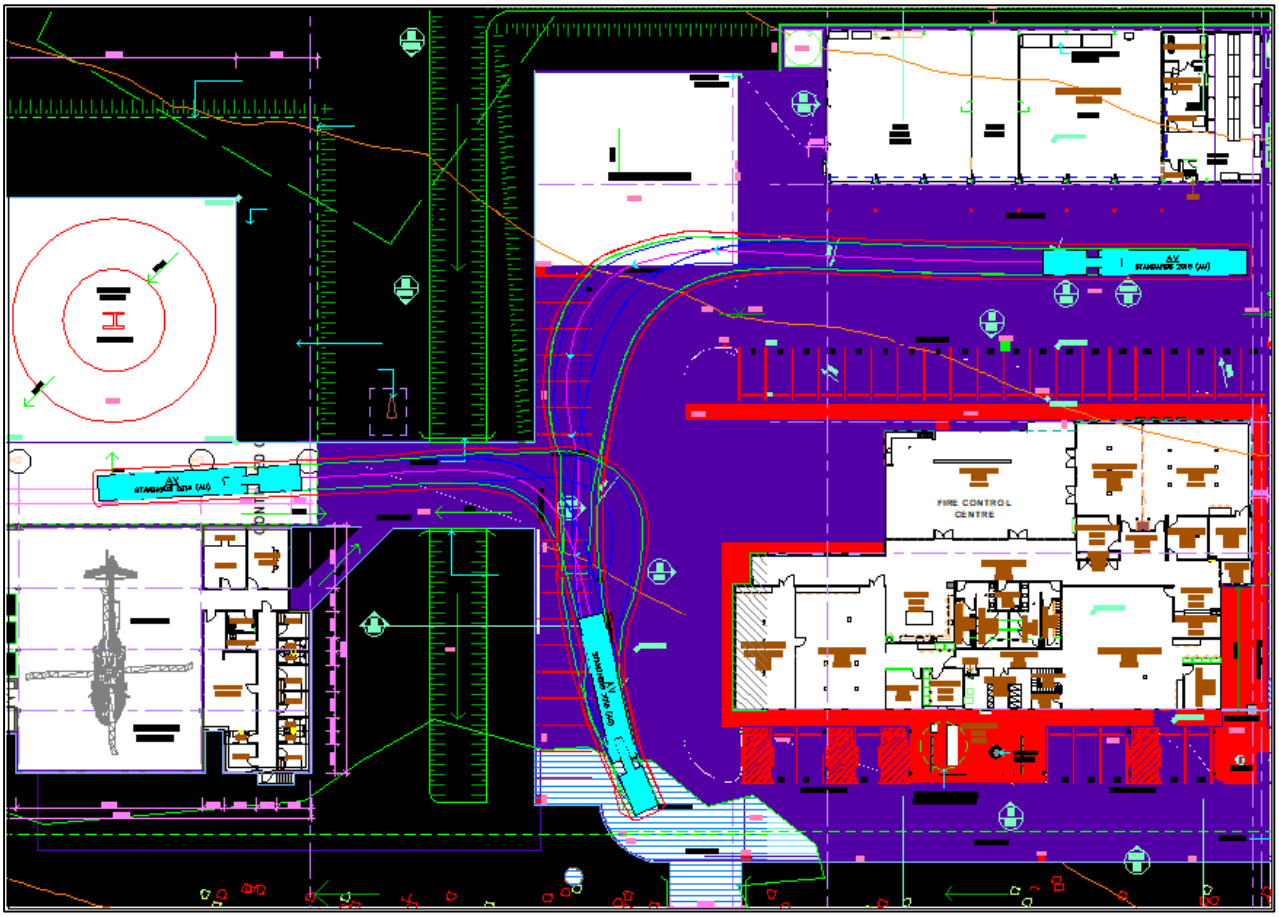
2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

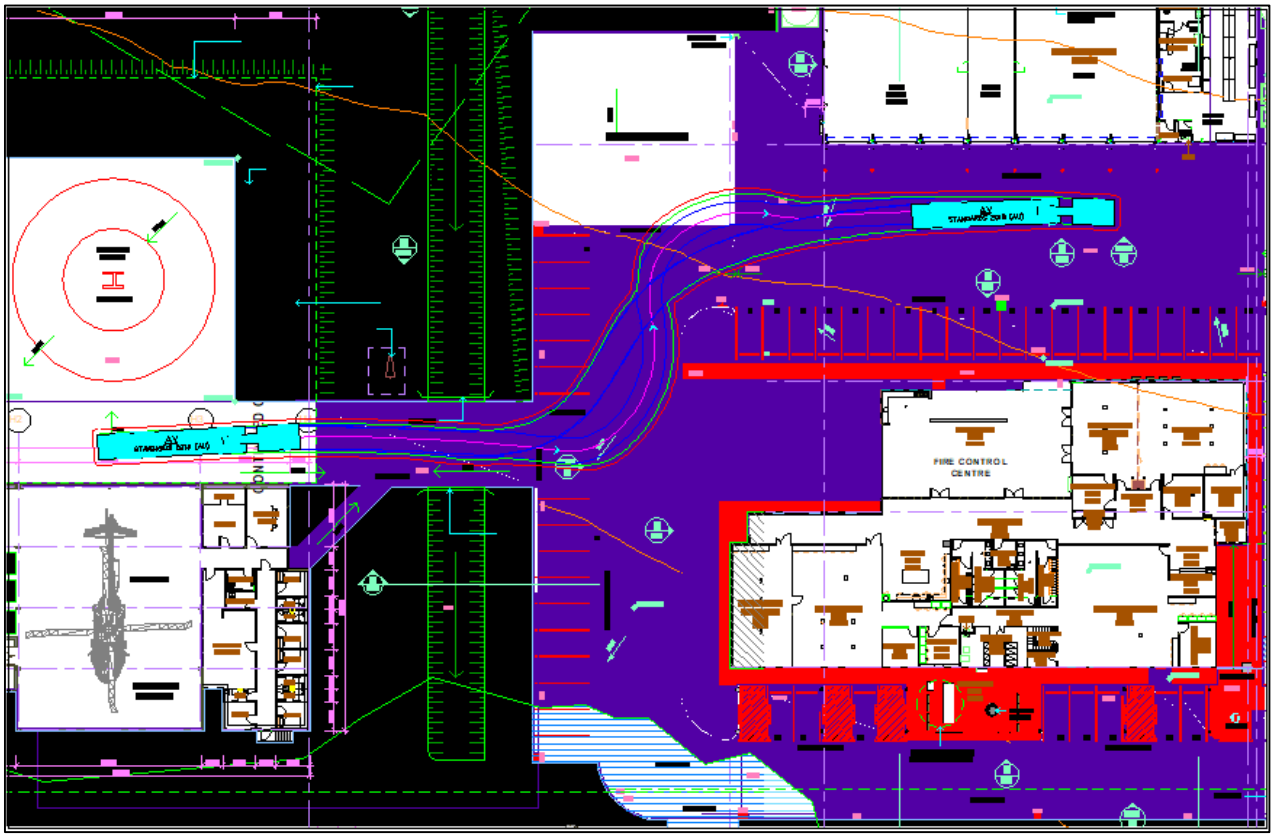
Successful





AV Fuel Tanker Deliveries Site Entry / Exit Successful





AV Fuel Tanker Entry / Exit from Hangar Bay

2 Manoeuvres REVERSE IN / 1 Manoeuvre FORWARD OUT

Successful – *Under a plan of management*