

**SHIRE OF LAKE GRACE
LOCAL PLANNING SCHEME NO.4**



NOTICE OF PUBLIC ADVERTISEMENT OF PLANNING PROPOSAL

Planning and Development Act 2005
Shire of Lake Grace

The local government has received an application to use and/or develop land for the following purpose and public comments are invited.

Property Details: Lot 12 on Deposited Plan 57312 Biddy-Camm Road, Lake Grace (Note: No street address number assigned).

Proposal: The permanent retention and use of four (4) existing grain storage bulkheads comprising a total combined storage capacity of 114,625 tonnes and various associated improvements on the abovementioned property previously approved by Council on a temporary basis in September and October 2025.

Details of the proposal including supporting documentation and plans are attached.

Comments on the proposal are now invited and can be emailed to shire@lakegrace.wa.gov.au or posted to the Shire's Chief Executive Officer at PO Box 50 LAKE GRACE WA 6353 by no later than **Friday 20 November 2026**. All submissions must include the following information:

- Your name, address and contact telephone number;
- How your interests are affected; whether as a private citizen, on behalf of a company or other organisation, or as an owner or occupier of property;
- Address of property affected (if applicable); and
- Whether your submission supports or objects to the proposal and reasons why.

All submissions received may be made public at a Council meeting and included in a Council Agenda, which will be available on the Shire's website, unless a submission specifically requests otherwise.

Alan George
Chief Executive Officer
Shire of Lake Grace

28 October 2026



Co-operative Bulk Handling Ltd
ABN 29 256 604 947
Level 6, 240 St Georges Terrace
Perth WA 6000 Australia
GPO Box L886
Perth WA 6842 Australia
Telephone
+61 8 9237 9600
Grower Service Centre
1800 199 083
cbh.com.au

21 September 2026

Alan George
Chief Executive Officer
Shire of Lake Grace
Via email: ceo@lakegrace.wa.gov.au

Dear Alan,

LOT 12 ON DEPOSITED PLAN 57312 – PROPOSED GRAIN HANDLING & STORAGE FACILITY.

CBH is seeking development approval from the Shire of Lake Grace for four open storage bulkheads adjacent to its existing grain processing facility located at Lot 12 on Deposited Plan 57312, Lake Grace.

As you would be aware, CBH received a record harvest in FY25/26 and the existing network at the time was not able to cope with the increased storage demand. To accommodate this storage shortfall CBH added ~1.7 million tonnes of low specification storage to the network. CBH intends to convert this temporary low specification storage to permanent through the development application process.

At Council Meetings on the 02 September 2025 and again 22nd October 2025, the Shire of Lake Grace approved a request by CBH for a temporary works exemption for a total of four open storage bulkheads (TBH12, TBH13, TBH14 & TBH15) and associated vehicular access and drainage works adjacent to its Lake Grace facility. This temporary works exemption will expire on 16th November 2026 being 12 months following construction of the bulkheads.

The recent FY25/26 harvest was the largest on record with 24.2 million tonnes received across the network and there was considerable feedback about the growing crop size taking into consideration the innovative practices of growers and accelerated conversion of hectares from sheep to cropping.

As such we are currently in the process of preparing for a storage shortfall for the FY26/27 harvest and preparing for larger crops sooner than originally contemplated. To address this increased demand, it is proposed to retain the four storage bulkheads (TBH12, TBH13, TBH14 & TBH15) the subject of the temporary works exemption that has a lower specification than permanent bulkhead storage such as a gravel or dirt basecourse serviced with Drive Over Grids (DOGs).

The subject application is proposed in accordance with Clause 68 of Schedule 2 (Deemed Provisions) of the Planning and Development (Local Planning Schemes) Regulations 2015 and the provisions of the Shire of Lake Grace Local Planning Scheme No. 4.

The two main items of consideration for an application of this type are traffic generation and stormwater management and are discussed further below.

Stormwater Management

The stormwater management strategy consists of directing runoff from the TBH 12-15 areas and directing it to the southwest corner of the CBH site via a network of drains and pipes, before ultimately discharging into the existing southwest basins/dams.

CBH confirms that a new basin within the CBH site to retain/discharge the TBH stormwater prior to discharging outside of the CBH site was not required.

As confirmed by CBH, the levee bund/drain discharge is directed to the existing downstream drain that will eventually discharge into the existing basin/dam located to the south of the project site.

The capacity of the existing basin/dam and upstream drain is outside of the survey area has not been assessed. It is noted that the drainage strategy increases the flow, and possibly velocity, to the existing basin/dam and drain. CBH will continue to monitor the discharge from their site and the downstream existing drains/dam/basin and undertake any maintenance/rectification that may be required due to the increase in volume/velocity.

The emergency bulkheads drains and culverts have been checked against runoff from a 5-year ARI event. A Stormwater Management Plan has been provided in support of this application for development approval.

Traffic Management

A Traffic Impact Statement has been provided in support of this application for development approval.

CBH acknowledges that current site operations contribute to traffic movements within and around both the existing Lake Grace grain receival site and the new facility located to the east of the permanent Lake Grace site off Biddy-Camm Road. These existing traffic movements have been assessed as part of this Traffic Impact Statement.

CBH is currently investigating a range of operational and infrastructure options that have the potential to alter traffic flow arrangements across the site. This includes opportunities to consolidate vehicle movements within CBH-controlled land and reduce interactions with the surrounding road network. The intent of these investigations is to improve traffic efficiency, enhance safety outcomes, and optimise site access and circulation.

As these options remain under evaluation, the ultimate long-term traffic configuration for the site has not yet been determined. Accordingly, CBH considers it premature to commit to permanent upgrades to the external road network that may be materially affected by future changes to site access and traffic movements.

In the interim, CBH will continue to manage site traffic through an operational Traffic Management Plan during harvest. The Traffic Management Plan will incorporate appropriate controls and procedures to safely manage vehicle movements. This approach ensures traffic impacts and associated risks are appropriately managed in the short to medium term, while allowing sufficient flexibility to finalise and implement the most effective long-term traffic solution for the site and surrounding road network.

Conclusion

The proposed retention of the four open storage bulkheads (TBH12, TBH13, TBH14 & TBH15) is aligned with the planning framework and is not considered to result in any new amenity impacts to the surrounding area. CBH respectfully requests the Application for Development Approval is considered by the Shire of Lake Grace expeditiously given the straightforward nature of the application, the bulkheads have already been constructed with no known amenity impacts as well as its general compliance with the Shire's planning framework.

I look forward to hearing from you and if there is any further information that I can provide to assist with Council's consideration of my application, please do not hesitate to contact me on 08 9216 6061 or timothy.roberts@cbh.com.au

Yours Sincerely,

A handwritten signature in blue ink, appearing to read 'Timothy Roberts', with a stylized flourish underneath.

Timothy Roberts

Lead – Planning & Approvals

WESTERN



AUSTRALIA

TITLE NUMBER

Volume

Folio

2688

200

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

BGRoberts
REGISTRAR OF TITLES



LAND DESCRIPTION:

LOT 12 ON DEPOSITED PLAN 57312

REGISTERED PROPRIETOR: (FIRST SCHEDULE)

CO-OPERATIVE BULK HANDLING LIMITED OF LEVEL 6 240 ST GEORGES TERRACE PERTH WA 6000
(T P727866) REGISTERED 29/9/2023

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS: (SECOND SCHEDULE)

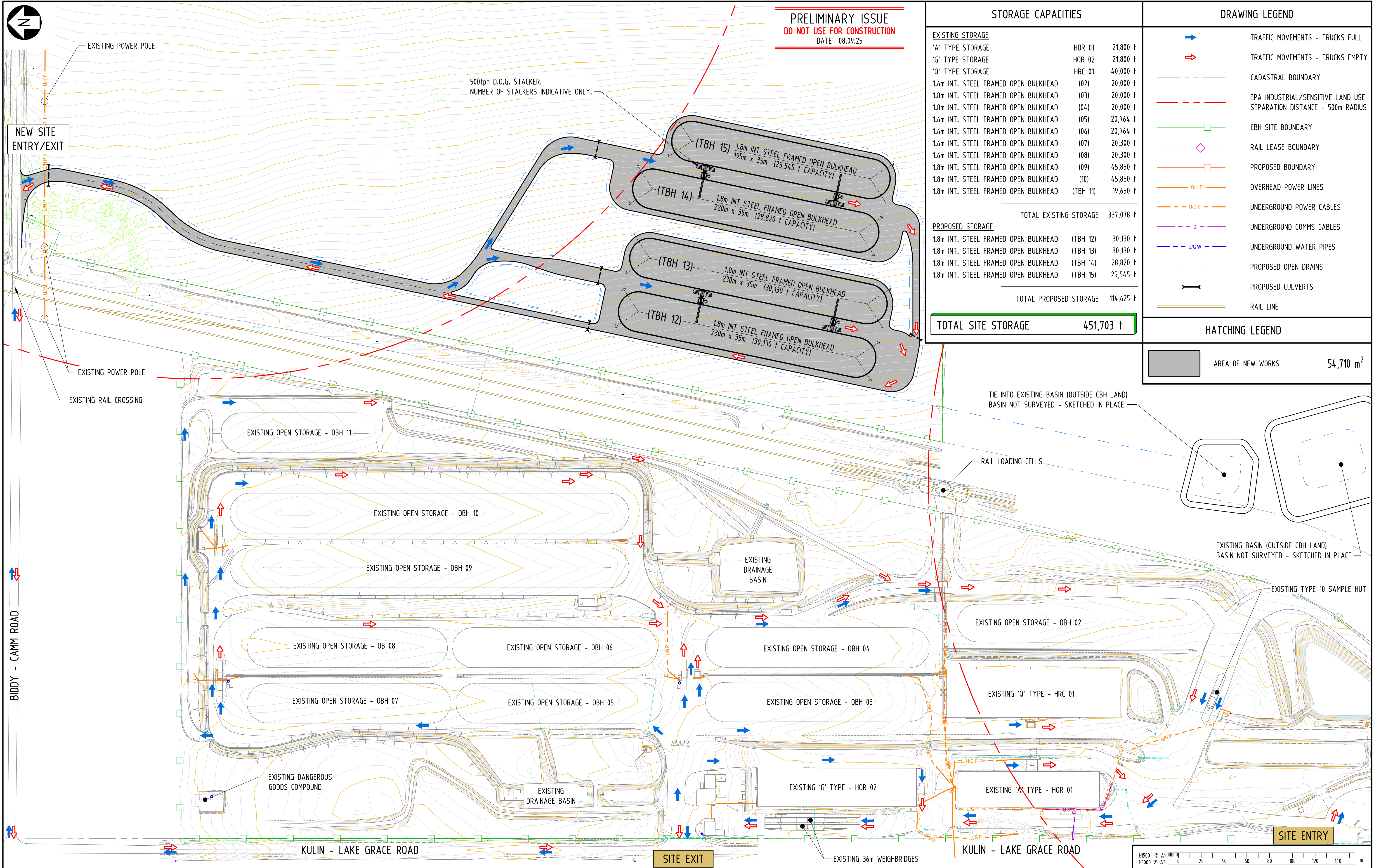
Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
Lot as described in the land description may be a lot or location.

-----END OF CERTIFICATE OF TITLE-----

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

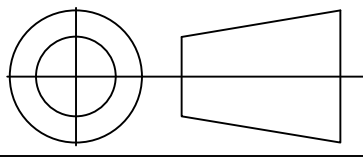
SKETCH OF LAND: DP57312
PREVIOUS TITLE: 2208-26
PROPERTY STREET ADDRESS: NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY: SHIRE OF LAKE GRACE



STORAGE CAPACITIES			
EXISTING STORAGE			
'A' TYPE STORAGE	HOR 01	21,800 t	
'G' TYPE STORAGE	HOR 02	21,800 t	
'Q' TYPE STORAGE	HRC 01	40,000 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(02)	20,000 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(03)	20,000 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(04)	20,000 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(05)	20,764 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(06)	20,764 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(07)	20,300 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(08)	20,300 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(09)	45,850 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(10)	45,850 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 11)	19,650 t	
TOTAL EXISTING STORAGE		337,078 t	
PROPOSED STORAGE			
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 12)	30,130 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 13)	30,130 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 14)	28,820 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 15)	25,545 t	
TOTAL PROPOSED STORAGE		114,625 t	
TOTAL SITE STORAGE		451,703 t	

DRAWING LEGEND	
	TRAFFIC MOVEMENTS - TRUCKS FULL
	TRAFFIC MOVEMENTS - TRUCKS EMPTY
	CADASTRAL BOUNDARY
	EPA INDUSTRIAL/SENSITIVE LAND USE SEPARATION DISTANCE - 500m RADIUS
	CBH SITE BOUNDARY
	RAIL LEASE BOUNDARY
	PROPOSED BOUNDARY
	OVERHEAD POWER LINES
	UNDERGROUND POWER CABLES
	UNDERGROUND COMMS CABLES
	UNDERGROUND WATER PIPES
	PROPOSED OPEN DRAINS
	PROPOSED CULVERTS
	RAIL LINE

HATCHING LEGEND	
	AREA OF NEW WORKS 54,710 m ²

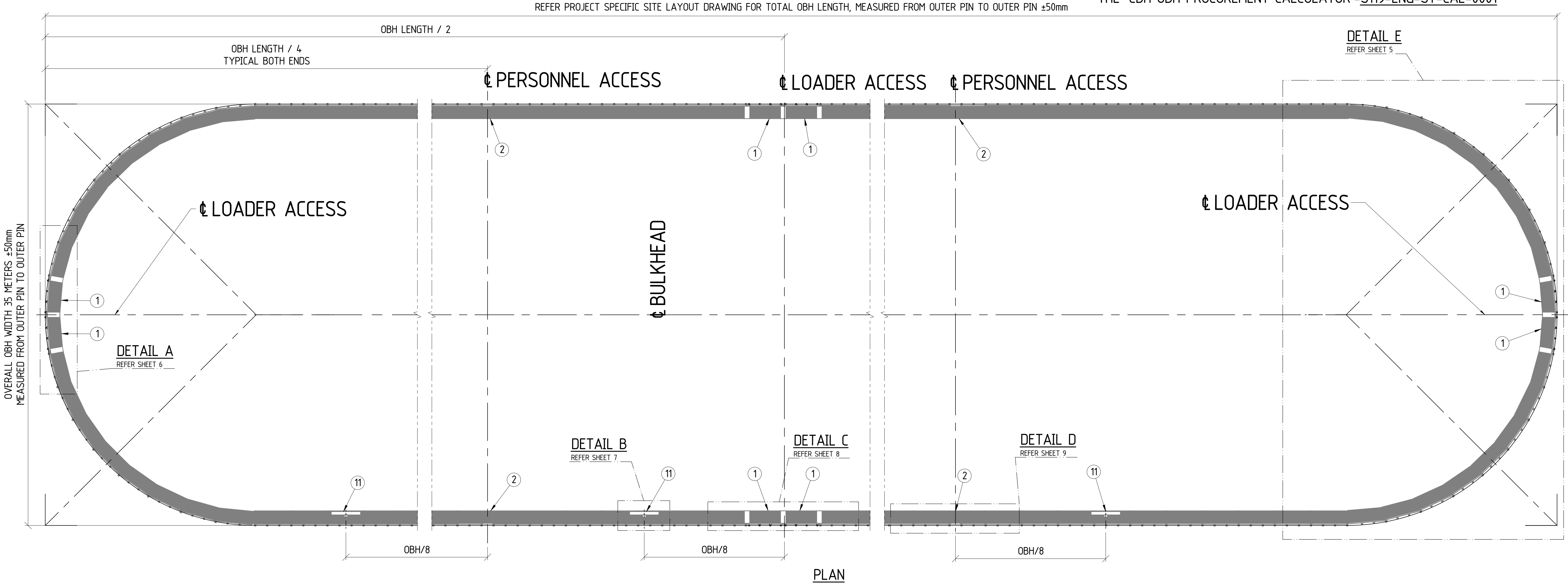


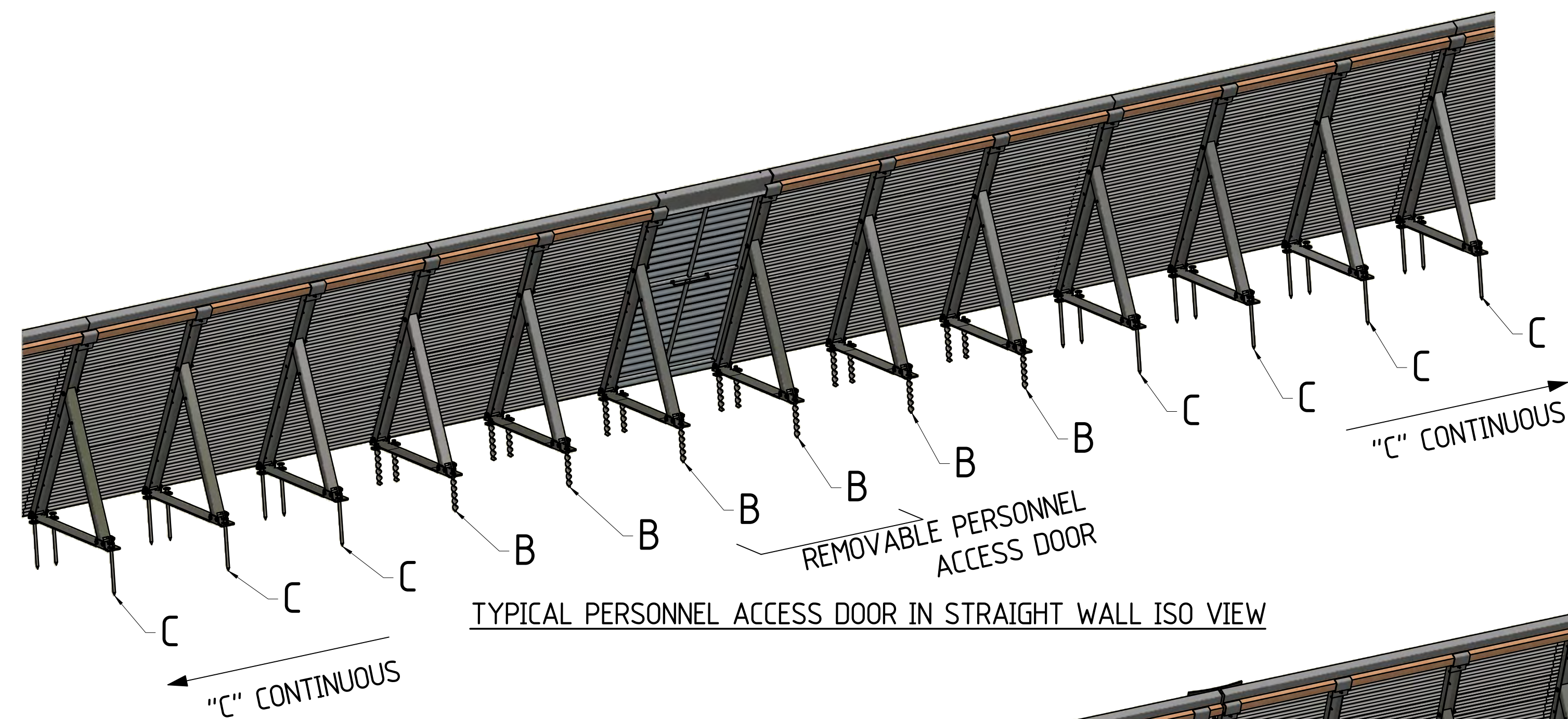
INSTALLATION NOTES:

1. OBH LENGTH AND WIDTH DIMENSIONS ARE SPECIFIED FROM REAR PIN TO THE OPPOSITE REAR PIN. REFER PROJECT SPECIFIC SITE LAYOUT DRAWING FOR DIMENSIONS.
2. TOLERANCE FOR OVERALL OBH WIDTH AND LENGTH ARE +/- 50MM. TOLERANCE FOR FRAME SPACING +/- 10mm.
3. NOTE DIFFERENT ANCHORING DETAILS FOR DOOR/GATES AND FRAMES EITHER SIDE OF BULKHEAD OPENINGS. REFER ANCHORING DETAILS ON SHEETS 2 AND 3.
4. NOTE ADDITIONAL Z-CAPPING, WOOD AND CLADDING TRIMMING REQUIRED AT GATE JOINS. REFER SHEETS 6 AND 8 FOR DETAILS.
5. TYPICAL CLADDING OVERLAP IS 200mm, CENTERED OVER THE CENTERLINE OF THE STRUT, FOR ALL JOINS EXCEPT AT GATE AND DOOR JOINS. REFER SHEETS 6 - 9.
6. ALL Z-CAPPING MUST BE ALIGNED AS ACCURATELY AS POSSIBLE. ANY MISALIGNMENT IN Z-CAPPING WILL TEAR THE OBH TARP. REFER NOTES ON SHEETS 6, 8 AND 9 FOR TOLERANCES.
7. FOUR PERSONNEL ACCESS DOORS TO BE INSTALLED AS SHOWN. TWO INSTALLED EACH SIDE AT MIDPOINTS BETWEEN END OF OBH AND CENTRE BULKHEAD OPENING.
8. THREE FUMIGATION T-PIECES TO BE INSTALLED ON SAME SIDE AS ELECTRICAL CONNECTION. REFER SHEETS 1 AND 7 FOR INSTALLATION DETAILS. REFER CBH DRAWING S119-ENG-ME-DER-0001 FOR VENDOR DRAWING OF T-PIECE.
9. DRAWING DEPICTS TYPICAL OBH SIZE OF 35M WIDE BY 300M LONG AND ASSOCIATED STANDARDISED REQUIRED QUANTITIES OF FUMIGATION TEES, PERSONAL ACCESS DOORS AND FRONT END LOADER ACCESS GATES. SITE SPECIFIC OBH REQUIREMENTS SHALL BE CONFIRMED WITH THE NOMINATED CBH REPRESENTATIVE PRIOR TO CONSTRUCTION.
10. BULKHEAD CONTENTS ARE INTENDED TO BE FUMIGATED IN A SEALED ENVIRONMENT BY USE OF WALL CANVICON AND OVER STACK TARPS - THE CONTRACTOR SHALL MINIMISE ANY MEANS WHICH COULD DETRIMENTALLY AFFECT THE SEALING CAPABILITY, SUCH AS SHARP EDGES THAT COULD CUT TARP.

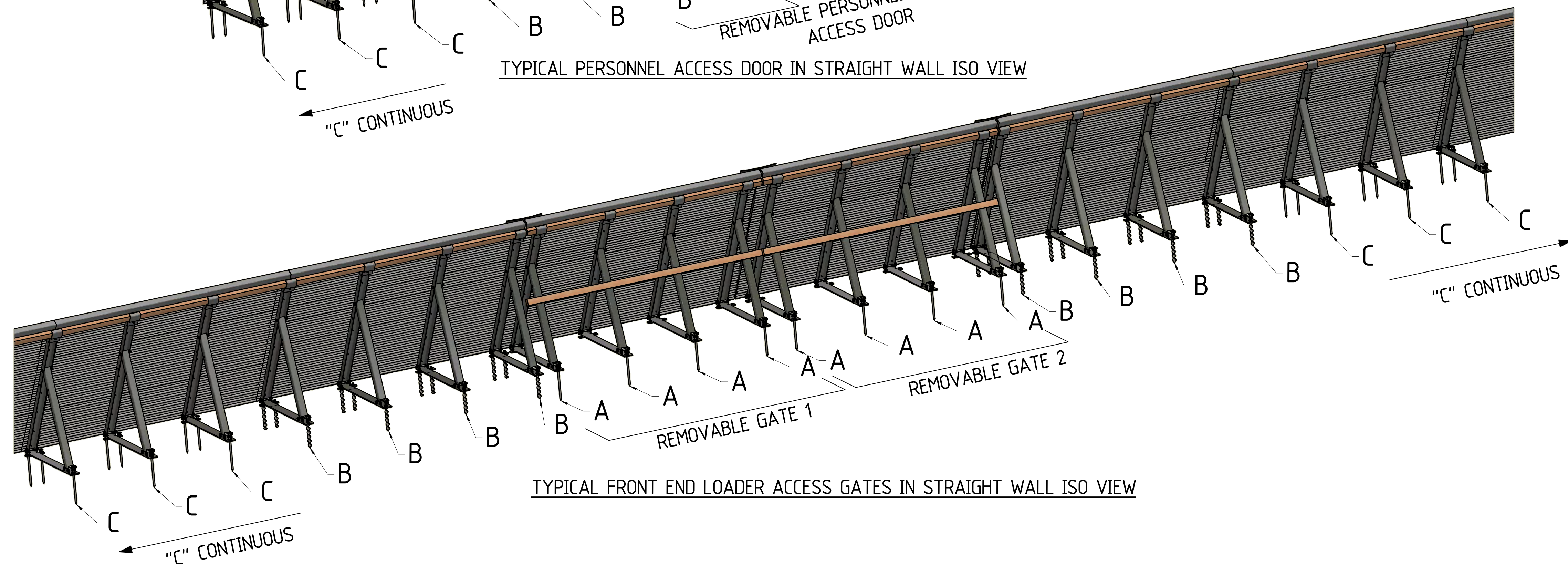
PARTS LIST (PER UNIT)									
ITEM No	DESCRIPTION	WIDTH	LENGTH	QTY	CBH OR SUPPLIER PART No	PROCESS	SAP Code	MASS Kg	TO DETAIL
1	FRONT END LOADER ACCESS GATE			REFER NOTE	S119-ENG-ST-ASY-0034	FIELD FIT	N/A	184.4	Yes
2	PERSONNEL ACCESS DOOR			REFER NOTE	S119-ENG-ST-ASY-0017	FITTING	N/A	17.1	Yes
3	STRAIGHT PIN STRUT ASSEMBLY			REFER NOTE	S119-ENG-ST-ASY-0004	FITTING	N/A	36.4	Yes
4	SPIRAL PIN STRUT ASSEMBLY			REFER NOTE	S119-ENG-ST-ASY-0005	FITTING	N/A	36.2	Yes
5	CUSTOM ORB ZINC ALUME 0.42mm BMT 550 MPa MIN. (YIELD)	762	3200	REFER NOTE	S119-ENG-ST-PRT-0010	FITTING	DREQ	1.3	No
6	DIA 20 STRAIGHT PIN ANCHOR		420	REFER NOTE	S-014-A0000	FIELD KIT	DREQ	1.1	Yes
7	SPIRAL PIN ANCHOR		300	REFER NOTE	S119-ENG-ST-DER-0052	FITTING	DREQ	0.8	Yes
8	Z CAPPING 16PL PGI	300	3000	REFER NOTE	S119-ENG-ST-PRT-0011	FAB SHEET	108015	11.4	Yes
9	TIMBER SAWN KARRI STRUC3 75mmx50mmx3m	75	3000	REFER NOTE	S119-ENG-ST-PRT-0014	FITTING	108594	6.2	No
10	TARP CLAMP 6PL	130	257	REFER NOTE	S119-ENG-ST-PRT-0012	FAB PROFILE	107901	1.6	Yes
11	FUMIGATION TEE PIECE			REFER NOTE	S119-ENG-ME-DER-0001	FITTING	N/A		Yes
12	RUBBER STRIP 450mm WIDE, 8mm THICK	450	2050	REFER NOTE	S119-ENG-ST-PRT-0048	FIELD KIT	DREQ	6.9	No
13	M10 x 120 GALV BOLT GR8.8 (50mm THREAD Min.)			REFER NOTE		FIELD KIT	DREQ	0.1	No
14	M10 GALV. NUT			REFER NOTE		FIELD KIT	DREQ	0.0	No
15	M10 GALV FW			REFER NOTE		FIELD KIT	DREQ	0.0	No
16	METAL TEK SCREW, HEX HEAD, 14g-20x22mm, CLASS 4, WITH SEAL			REFER NOTE		FIELD KIT	DREQ	0.0	No
17	METAL TEK SCREW, HEX HEAD, 14g-20x45mm, CLASS 4, WITH SEAL			REFER NOTE		FIELD KIT	DREQ		No
18	NOVALAST LTM 151			REFER NOTE		FIELD KIT	DREQ		No
19	BOSTIK SEAL AND FLEX 1			REFER NOTE		FIELD KIT	DREQ		No

** QTY NOTE: TO CALCULATE EXACT ORDER QUANTITIES, REFER TO THE 'CBH OBH PROCUREMENT CALCULATOR'-S119-ENG-ST-CAL-0001

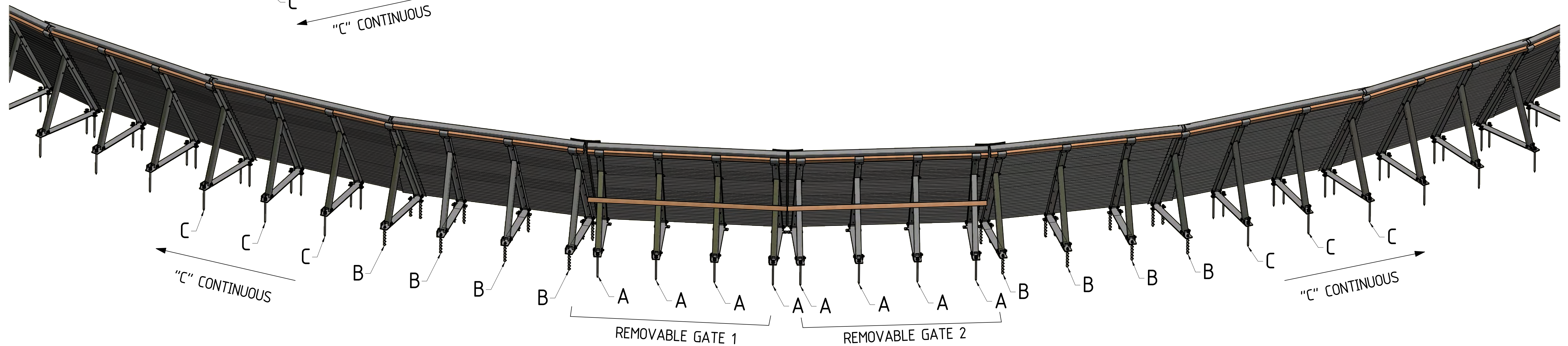




TYPICAL PERSONNEL ACCESS DOOR IN STRAIGHT WALL ISO VIEW



TYPICAL FRONT END LOADER ACCESS GATES IN STRAIGHT WALL ISO VIEW



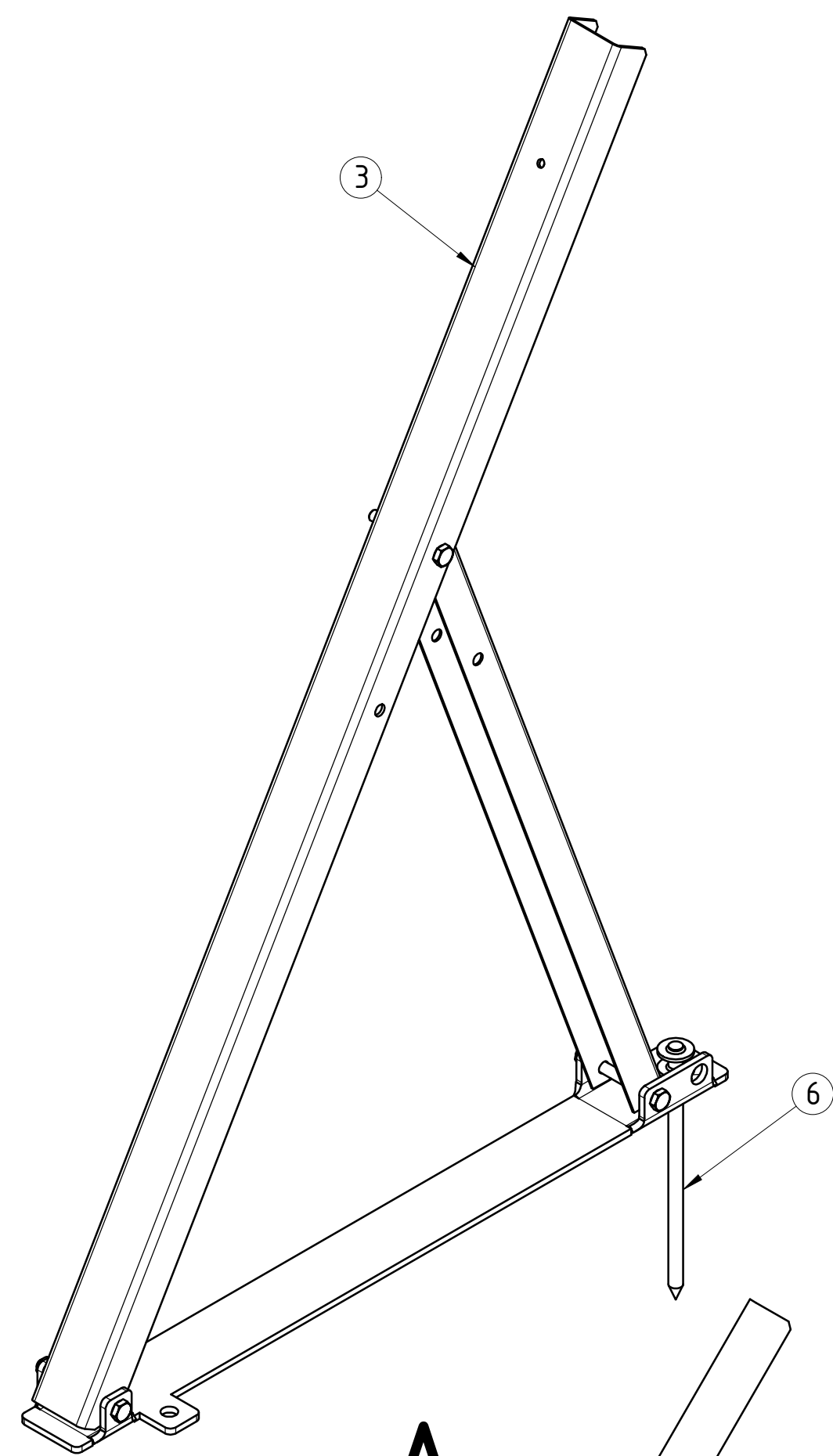
TYPICAL FRONT END LOADER ACCESS GATES IN CURVED WALL ISO VIEW

DO NOT SCALE FROM THIS DRAWING

[illegible]

DRAWING No
S119-ENG-ST-DGA-0003

SHEET	REV.
2 OF 9	0



A

ARRANGEMENT 'A'

- PURPOSE:** ARRANGEMENT FOR FRONT END LOADING (S119-ENG-ST-ASYM) PIN ANCHOR IS TO BE RE-DOOR IS TO BE RE-DOOR
- STRUT TYPE:** STRUT
- PIN TYPE:** STRAIGHT
- PIN QUANTITY:** 1

B

ARRANGEMENT

- PURPOSE: ARRANGEMENT OF TRUSSES ON EITHER SIDE OF THE GATES AND 3 STAIRS ACCESS DOORS, AND REMOVED THE SUPPORTS FOR HIGHER WIND LOADS.
- STRUT TYPE: SPIRAL
- PIN TYPE: SPIRAL
- PIN QUANTITY: 3

UTS
CESS
SONNEL
S ARE
RIENCE

C

ARRANGEMENT

PURPOSE: ARRANGEMENT FOR TRENCH SHORING LOCATIONS, OTHER THAN 'A' AND 'B' ARE USED

- **STRUT TYPE:** STRUT
- **PIN TYPE:** STRUT PIN
- **PIN QUANTITY:** 2

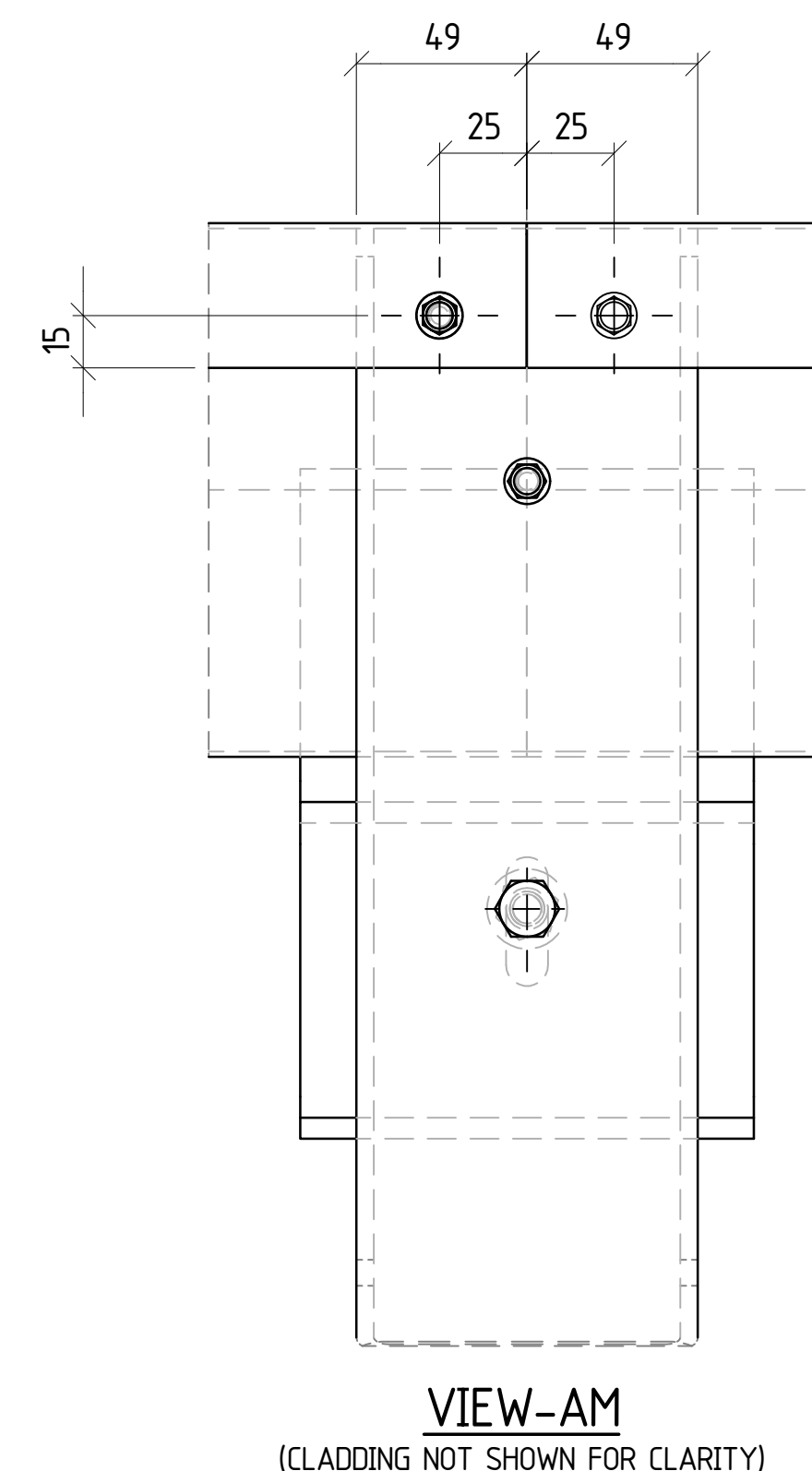
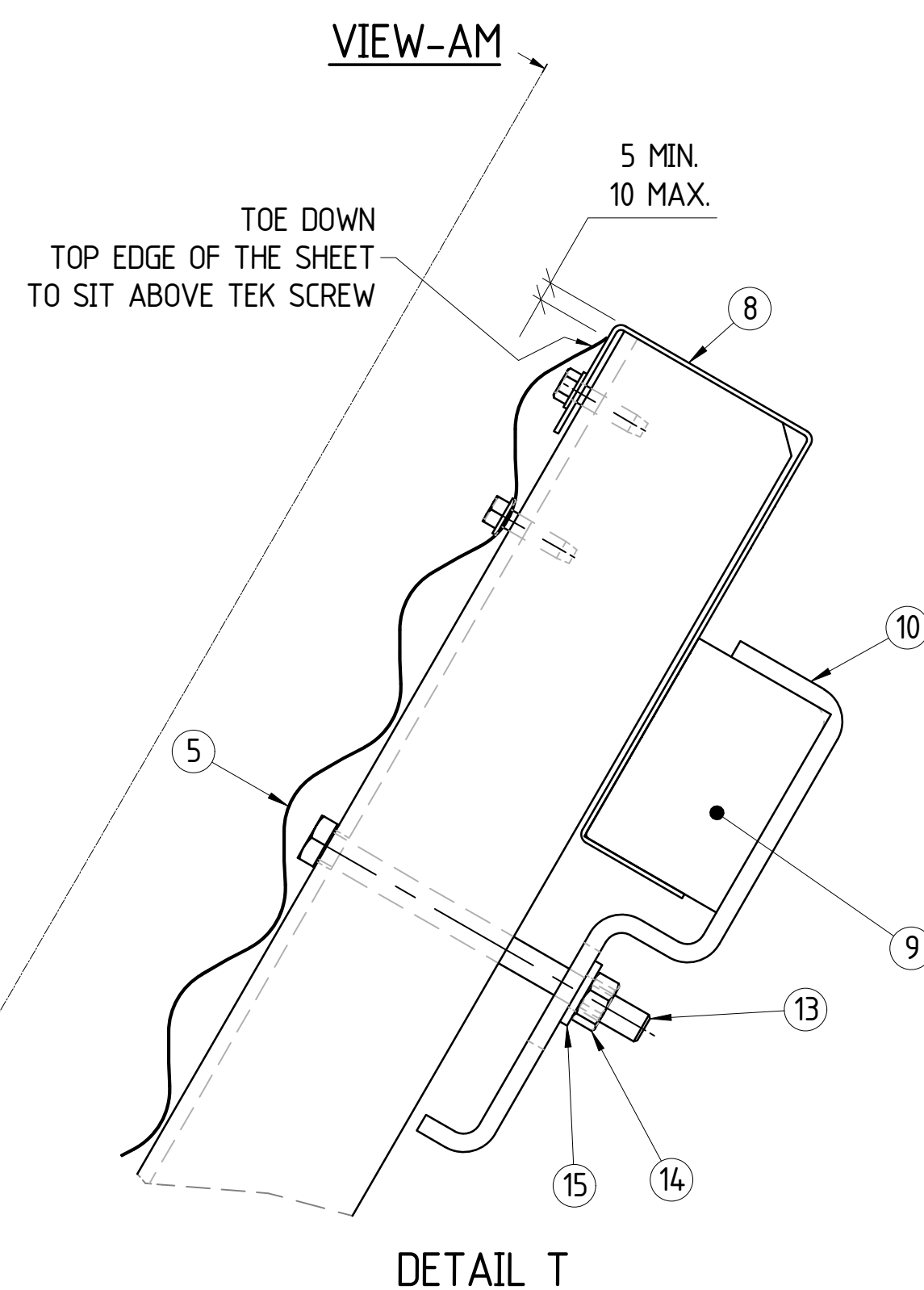
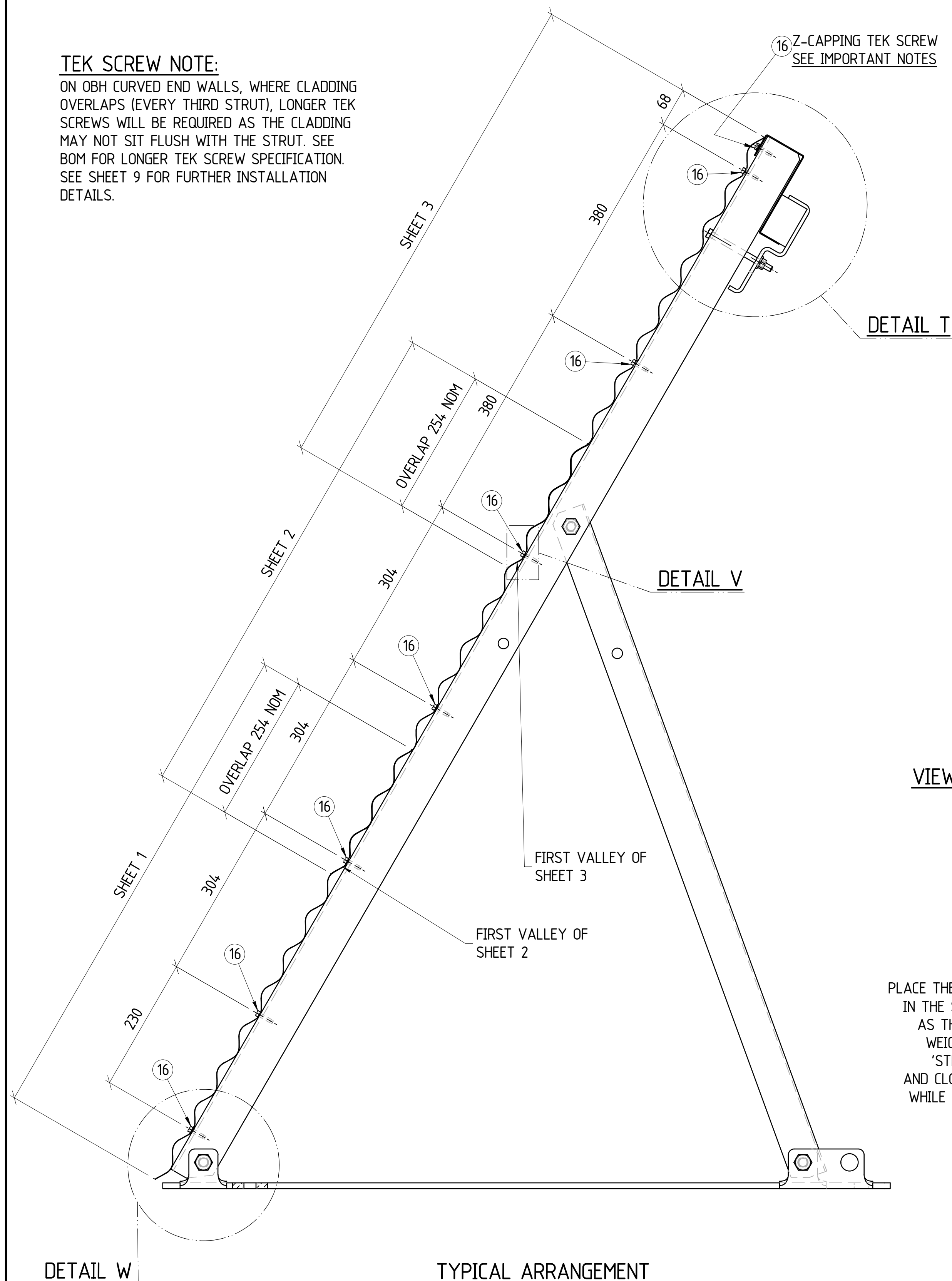
A

B

0

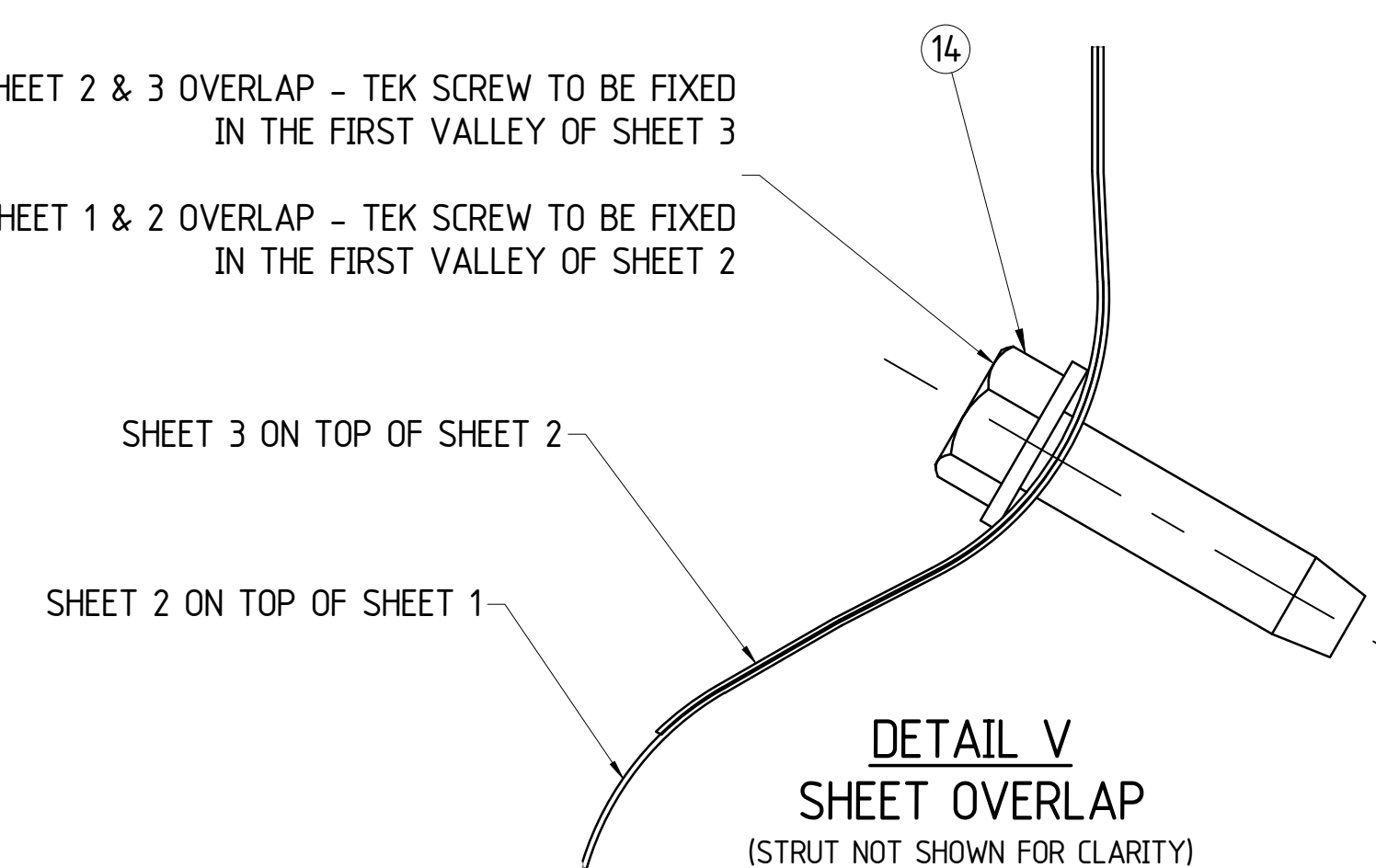


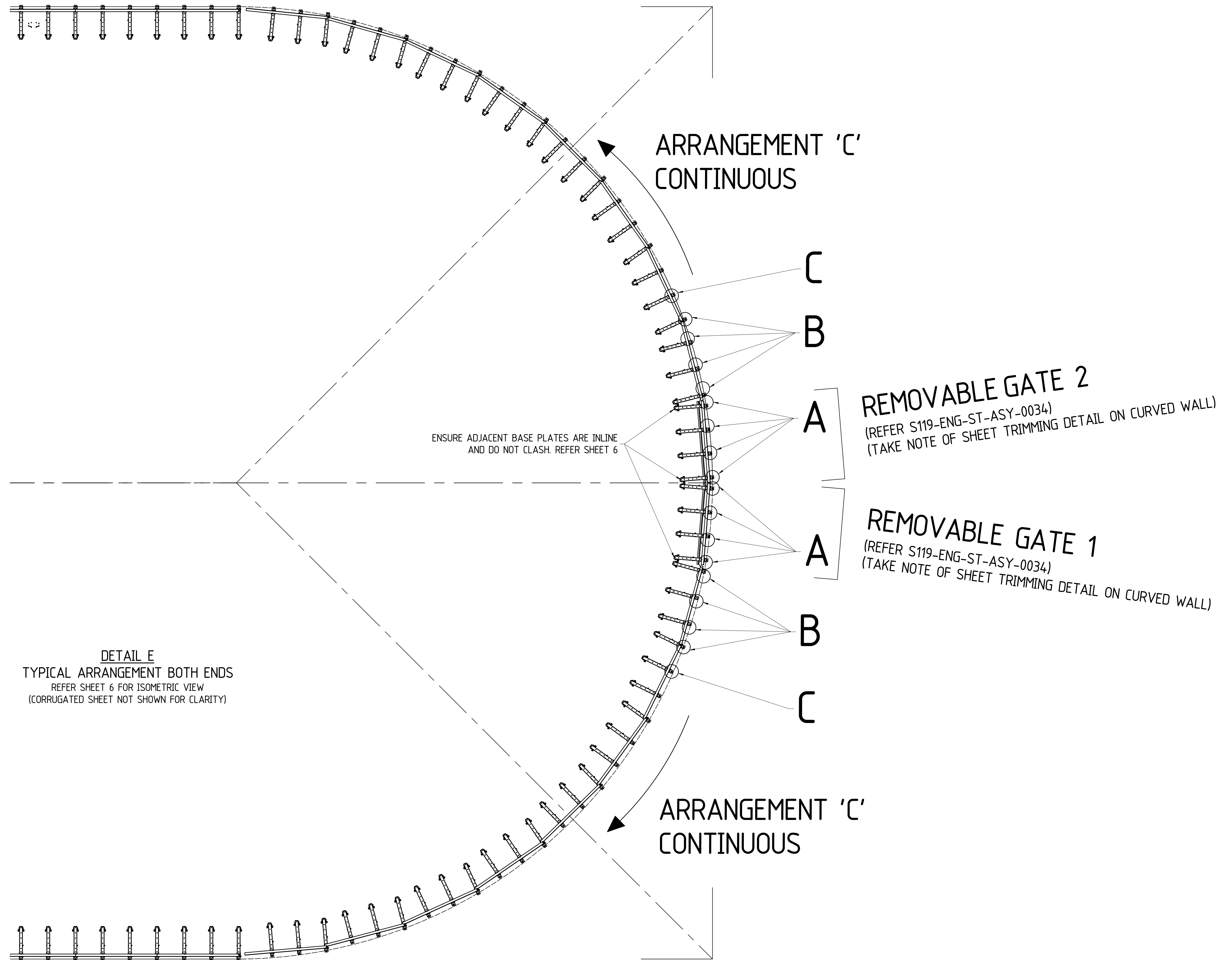
ON OBH CURVED END WALLS, WHERE CLADDING OVERLAPS (EVERY THIRD STRUT), LONGER TEK SCREWS WILL BE REQUIRED AS THE CLADDING MAY NOT SIT FLUSH WITH THE STRUT. SEE BOM FOR LONGER TEK SCREW SPECIFICATION. SEE SHEET 9 FOR FURTHER INSTALLATION DETAILS.



SHEET 2 & 3 OVERLAP - TEK SCREW TO BE FIXED
IN THE FIRST VALLEY OF SHEET 3

SHEET 1 & 2 OVERLAP - TEK SCREW TO BE FIXED
IN THE FIRST VALLEY OF SHEET 2

[illegible]



DO NOT SCALE FROM THIS DRAWING

REF DRG No.	REFERENCE DRAWING TITLE

REV	DATE	REVISIONS

				0	10/06/202
	BY	CHK	APP	REV	DATE

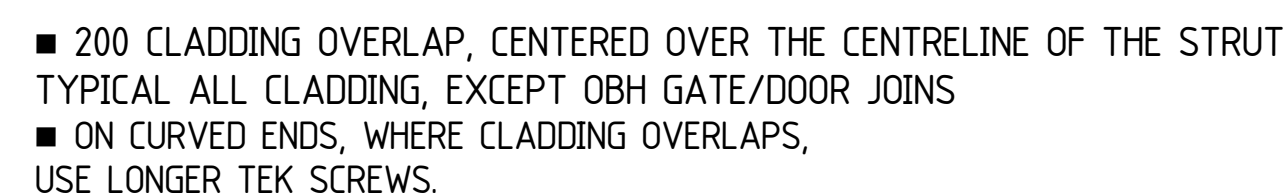
0	COPIED FROM S.-119, ISSUED FOR CONSTRUCTION
	REVISIONS

					DRAWN	SCR 10/06/2020
					CHECKED	LS 10/06/2020
					ENGINEER	BC 11/06/2020
	SCR	LS	NH			
	BY	CHK	APP		APPROVED	NH 11/06/2020

SITE	VARIOUS
PROJECT	STANDARD

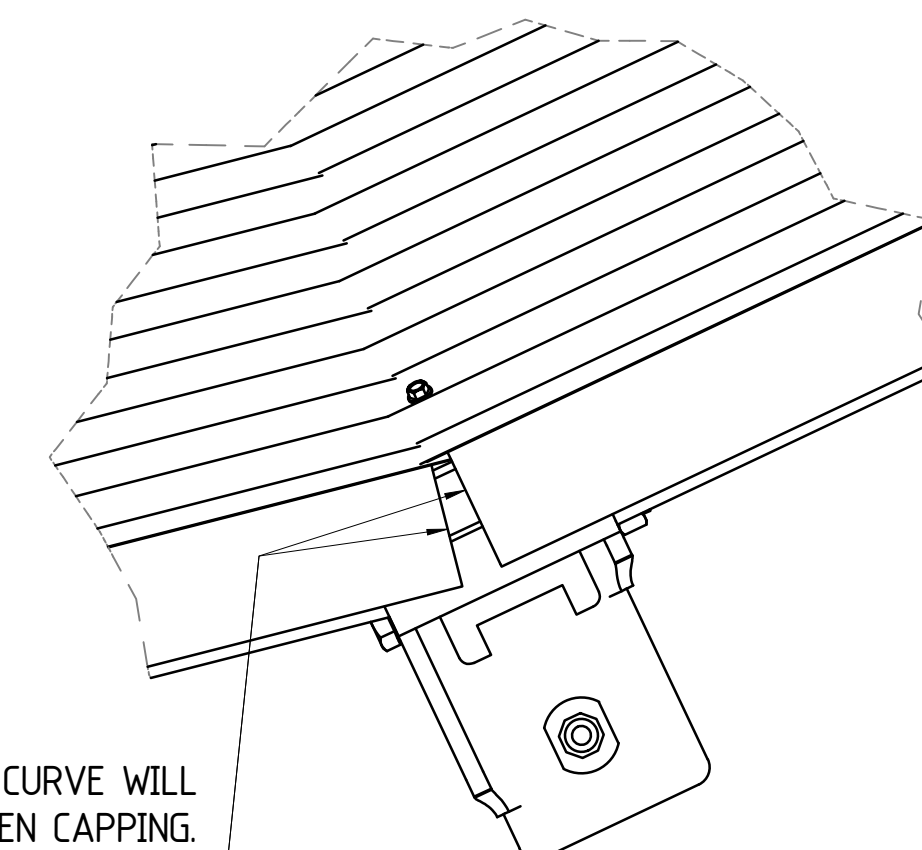
DRAWING No	SHEET	REV.
S119-ENG-ST-DGA-0003	5 OF 9	0

SIZE
A1



- ATTACH CONVEYOR BELT OVER JOINTS (SEE BOM FOR BELT DETAILS)
- FIX RUBBER USING 45MM LONG TEK SCREWS,
USING 7 TEK SCREWS PER RUBBER STRIP

- 200 CLADDING OVERLAP, CENTERED OVER THE CENTRELINE OF THE STRUT
- TYPICAL ALL CLADDING, EXCEPT OBH GATE/DOOR JOINS
- ON CURVED ENDS, WHERE CLADDING OVERLAPS,
USE LONGER TEK SCREWS.



FITTING THE Z-CAPPING TO A CURVE WILL
CREATE A GAP BETWEEN CAPPING.
MINIMISE GAP AS MUCH AS POSSIBLE TO AVOID THE
SHARP EDGES RIPPING THE OBH TARP.
VERTICAL AND HORIZONTAL MISALIGNMENT
SHOULD BE A MAXIMUM OF 2MM

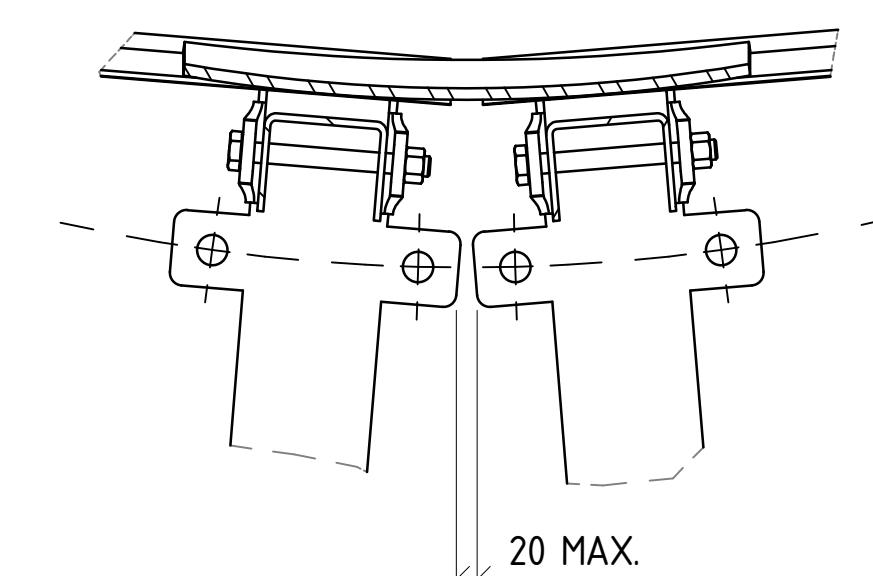
DETAIL AC

CLADDING, Z-CAPPING AND WOOD, ALL TRIMMED
TO SUIT ON BOTH SIDES TO CREATE A BUTT JOINT
BETWEEN THE FIXED WALL AND THE REMOVABLE GATE.
REFER S119-ENG-ST-ASY-0003 FOR CLADDING TRIMMING DETAIL.
MAX ALLOWABLE GAP BETWEEN BUTT
JOINTS IS 20mm - TYPICAL ALL GATES

DETAIL A
FRONT END LOADER ACCESS GATES IN CURVED WALL
TYPICAL BOTH ENDS

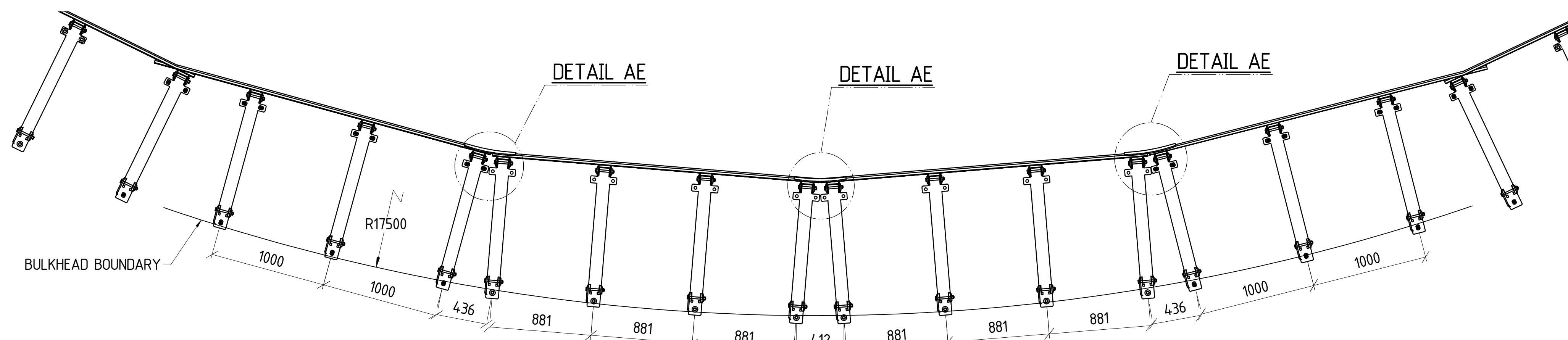
CLADDING, Z-CAPPING AND WOOD, ALL TRIMMED
TO SUIT ON BOTH SIDES TO CREATE A BUTT JOIN
BETWEEN THE FIXED WALL AND THE REMOVABLE GATE.
REFER S119-ENG-ST-ASY-0003 FOR CLADDING TRIMMING DETAIL.
MAX ALLOWABLE GAP BETWEEN BUTT
JOINTS IS 20mm - TYPICAL ALL GATES

20 MAX. GAP
TYPICAL ALL ACCESS WAYS



DETAIL AE
TYPICAL STRUT FOOT ALIGNMENT
AT GATE JOINS
(PINS NOT SHOWN FOR CLARITY)

ELEVATION



SECTION B
FRAMES FOOT PRINT



CBH GROUP HEAD OFFICE
LEVEL 6, 240 ST GEORGES TERRACE,
PERTH W.A 6000
PH (08) 9237 9600 FAX (08) 9322 3942

DO NOT SCALE FROM THIS DRAWING

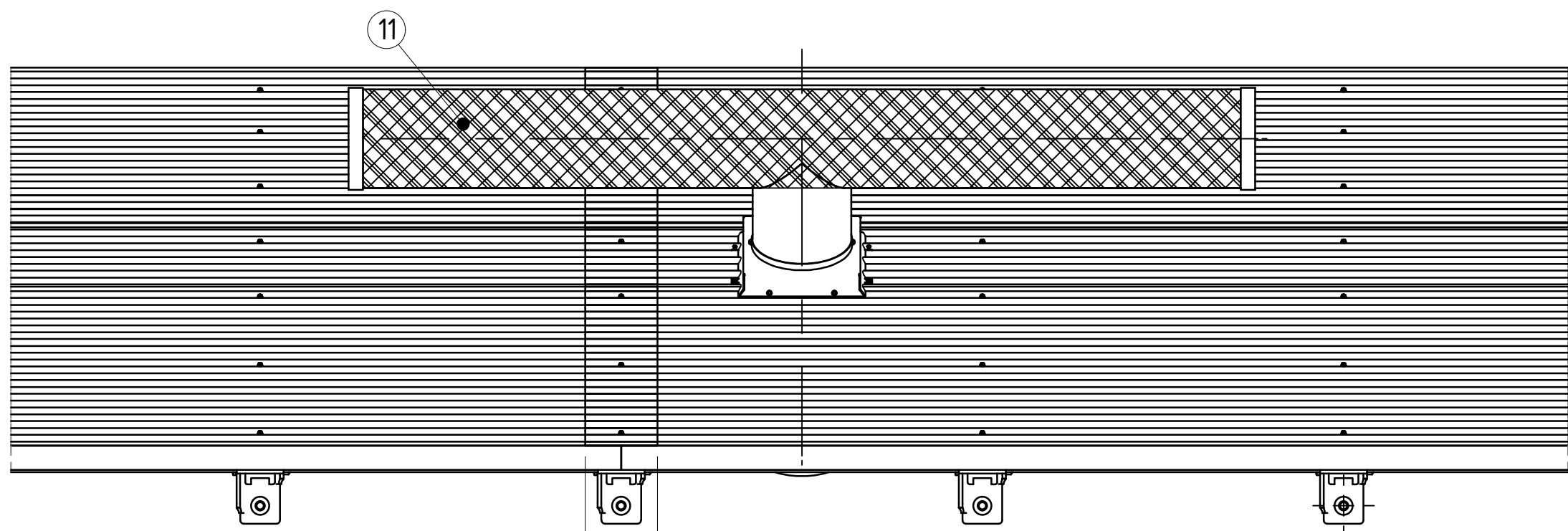
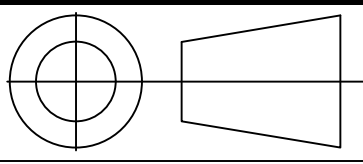
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	DRAWN	SCR 10/06/2022
	CHECKED	LS 10/06/2022
	ENGINEER	BC 11/06/2022
P	APPROVED	NH 11/06/2022

20	DRAWING TITLE
20	1.8m OPEN BULK HEAD
20	GENERAL ARRANGEMENT
20	CURVED OBH OPENING DETAIL

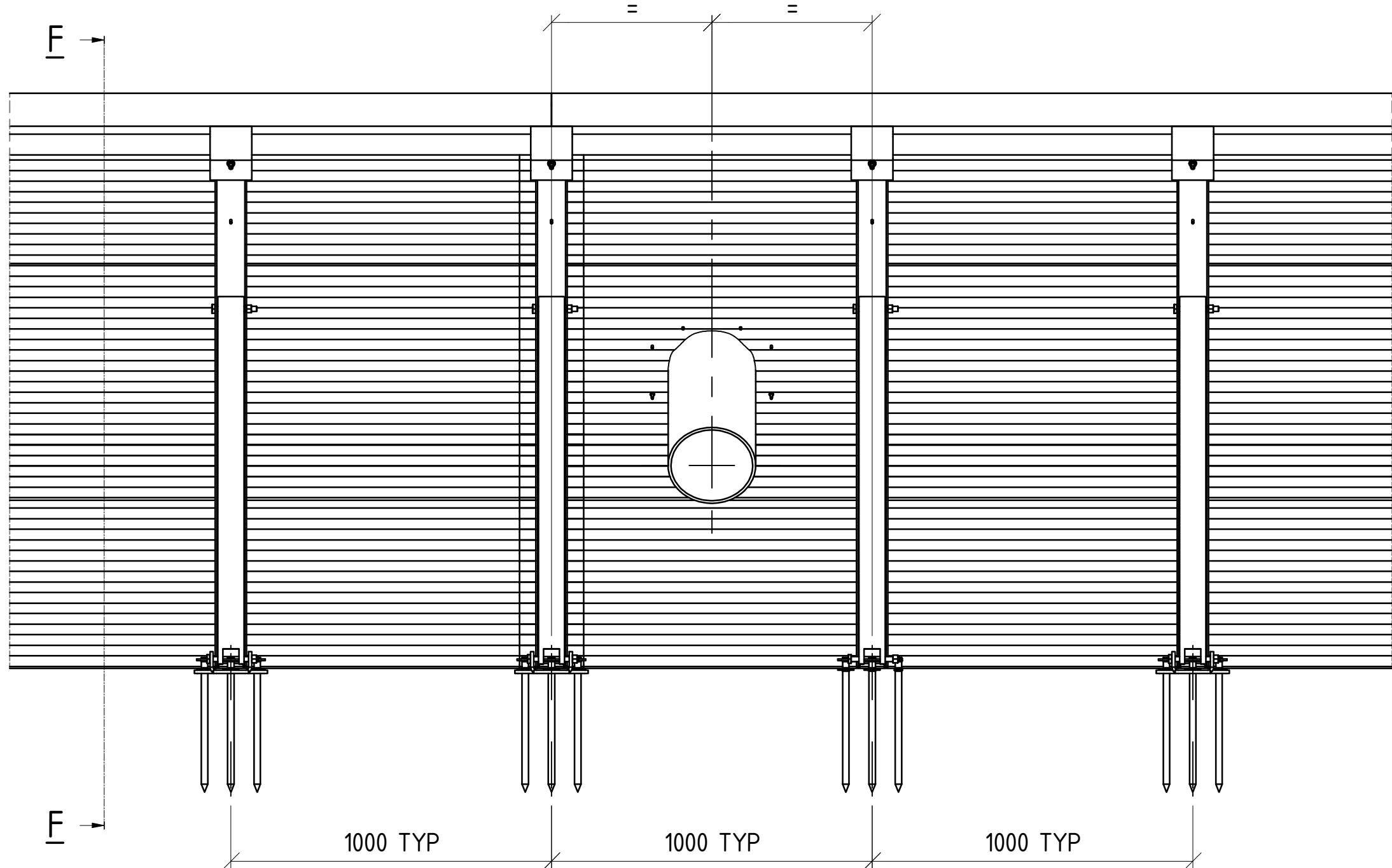
SITE	VARIOUS
PROJECT	STANDARD

DRAWING No	SHEET	REV
S119-ENG-ST-DGA-0003	6 OF 9	0

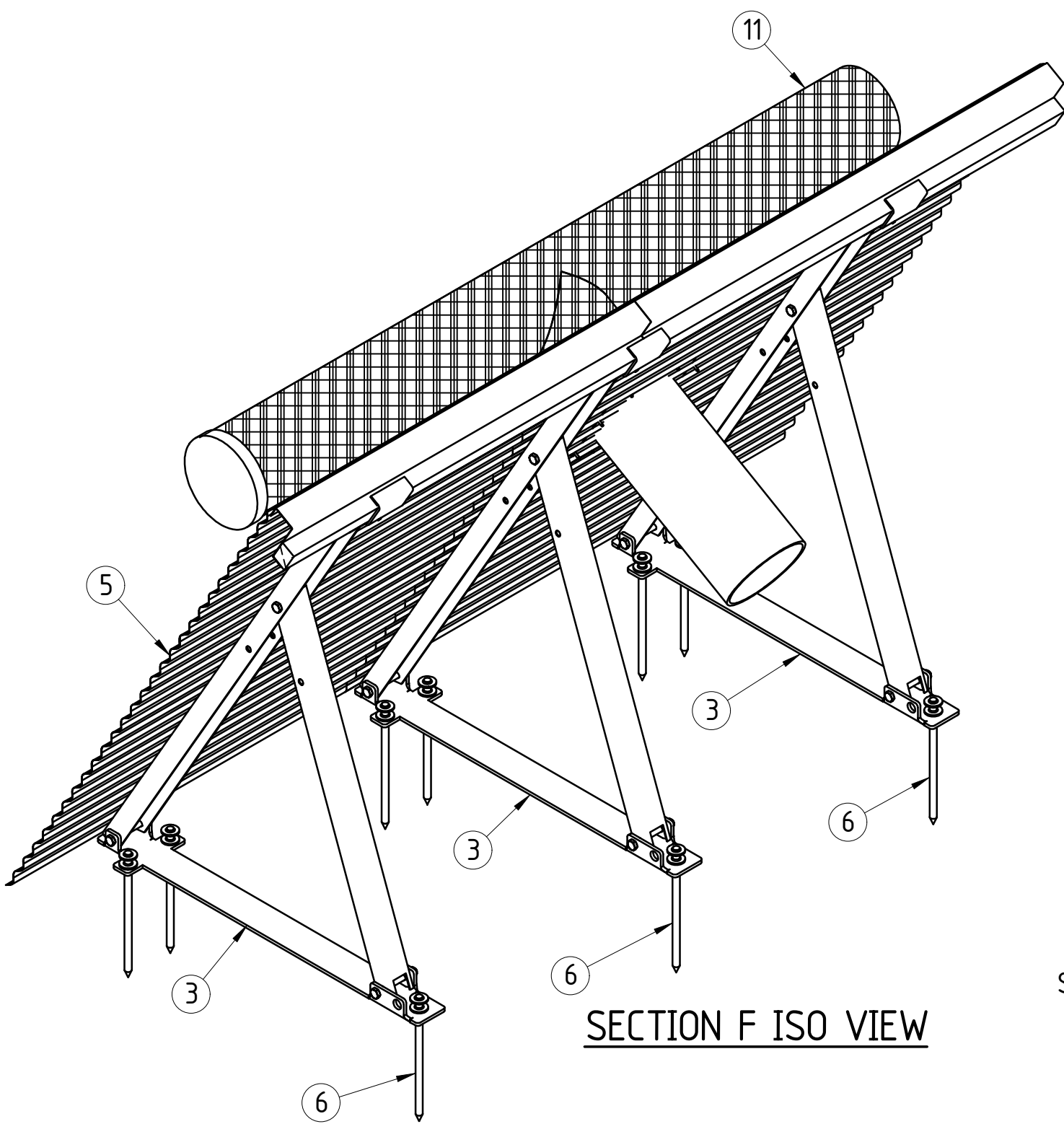


200 CLADDING OVERLAP, CENTERED OVER THE CENTRELINE OF THE STRUT
TYPICAL ALL CLADDING, EXCEPT OBH GATE/DOOR JOINS

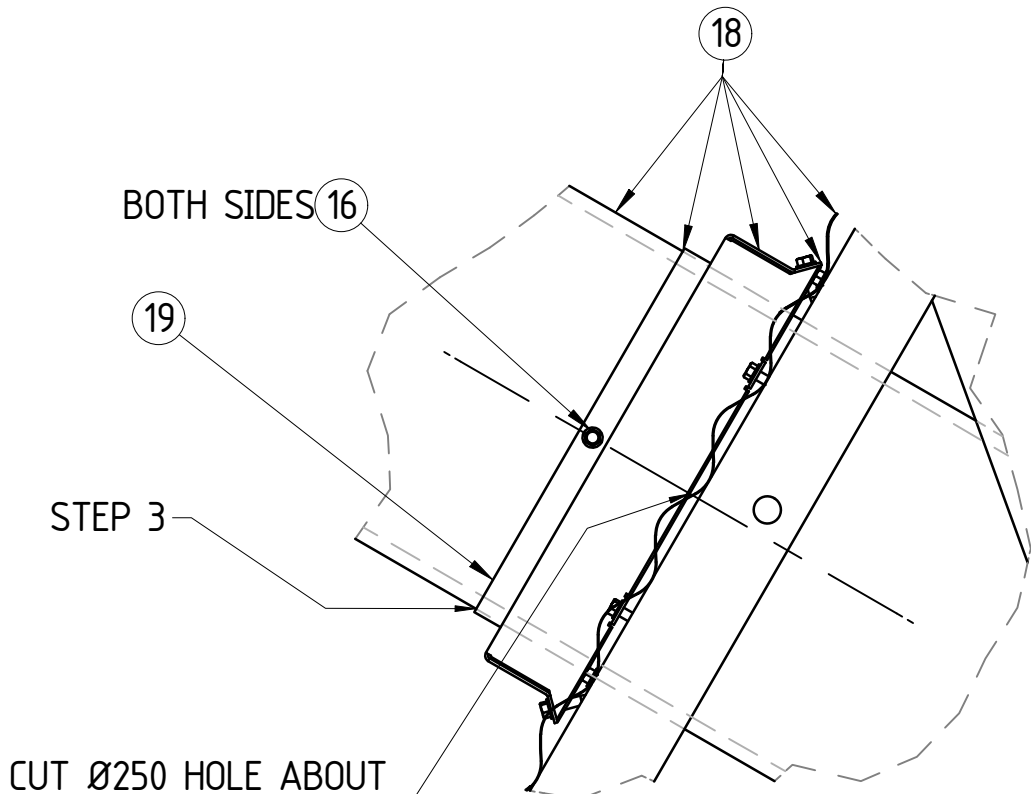
DETAIL B
'T' PIECE INSTALLATION DETAIL



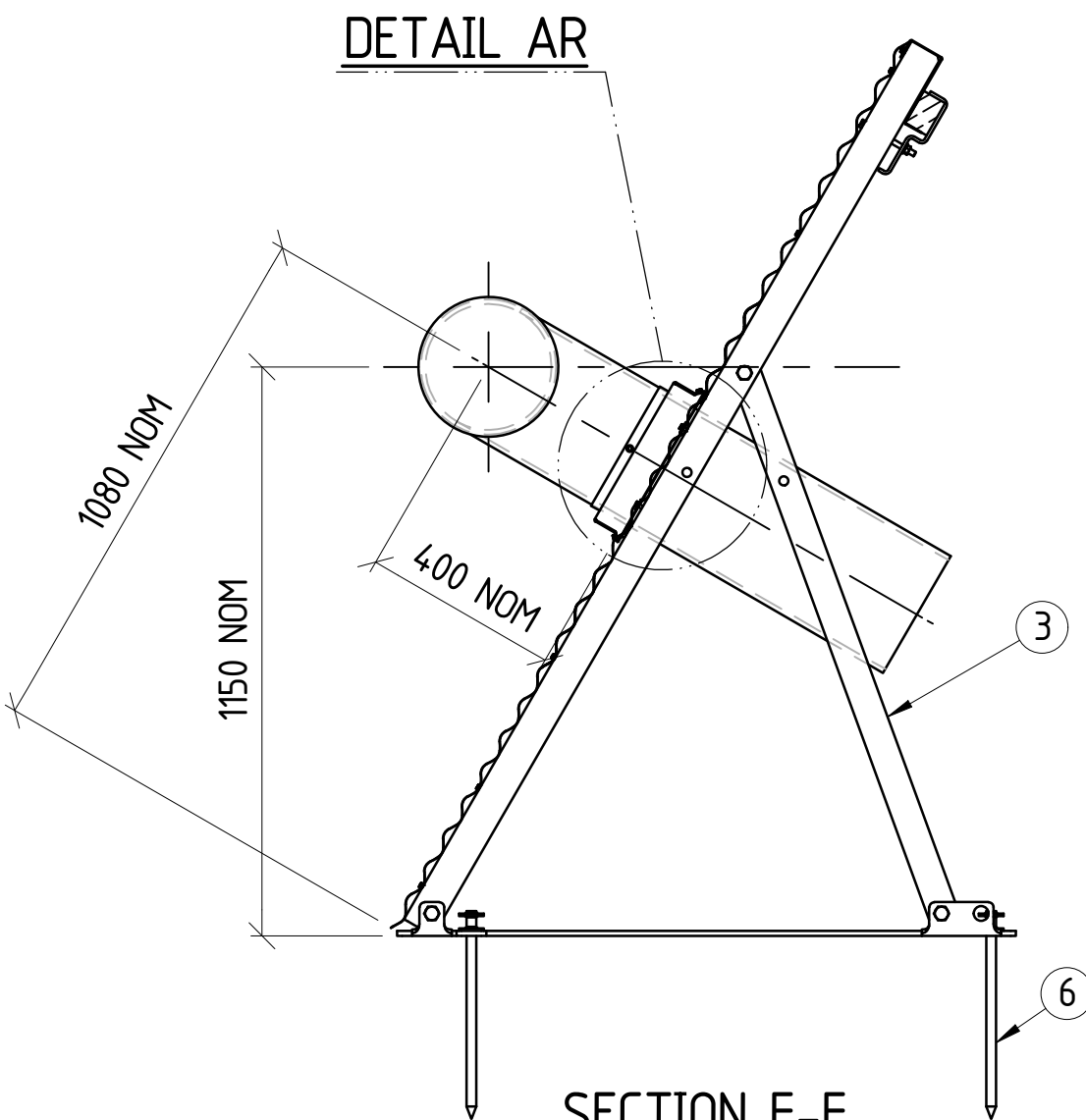
ELEVATION



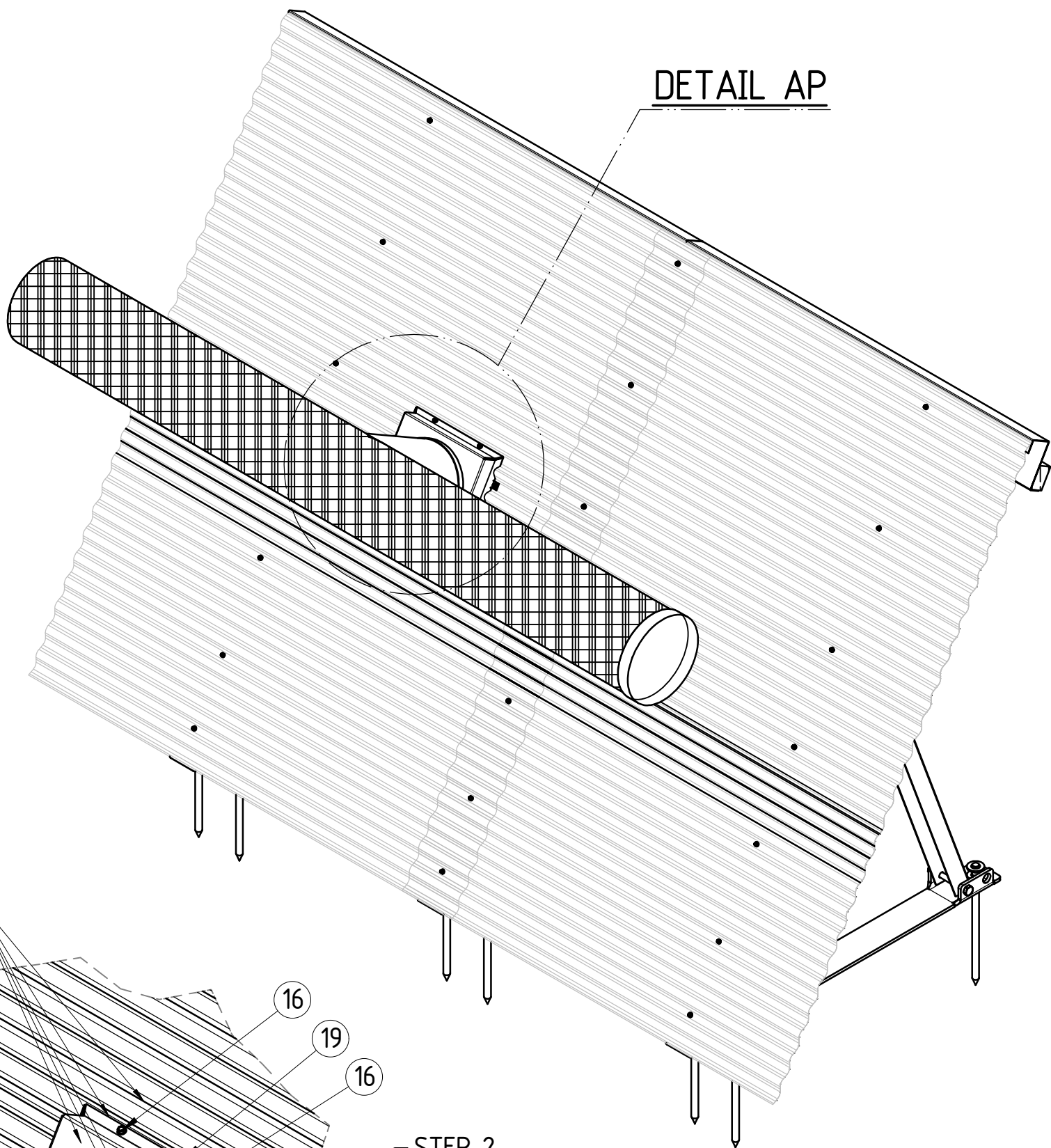
SECTION F ISO VIEW



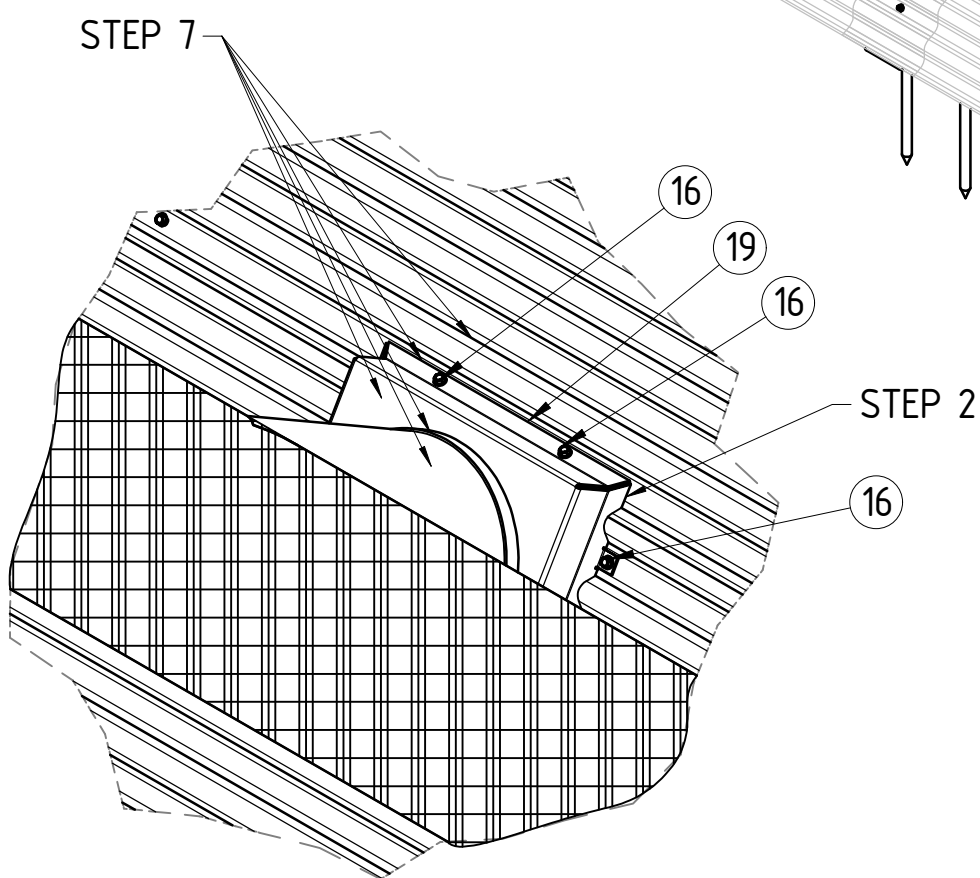
DETAIL AR



SECTION F-F



DETAIL AP



DETAIL AP

BACKGROUND:

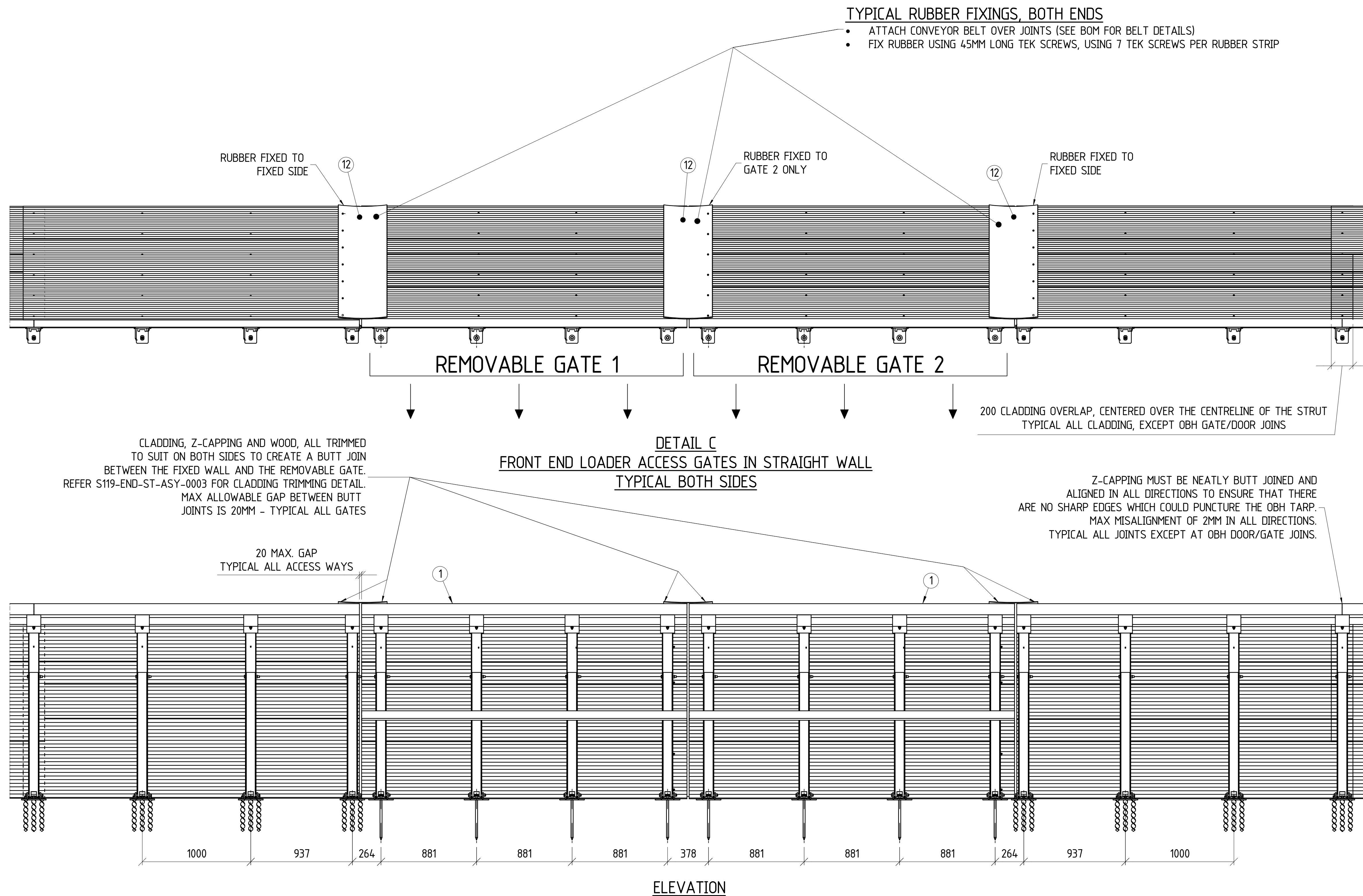
- THE 'T' PIECE IS USED TO PUMP HAZARDOUS FUMIGANT INTO THE STORAGE AFTER IT IS FULLY SEALED. CARE MUST BE TAKEN WHEN INSTALLING THE 'T' PIECE AND APPLYING THE SEALANTS TO ENSURE THE SEAL IS APPLIED TO A HIGH QUALITY.

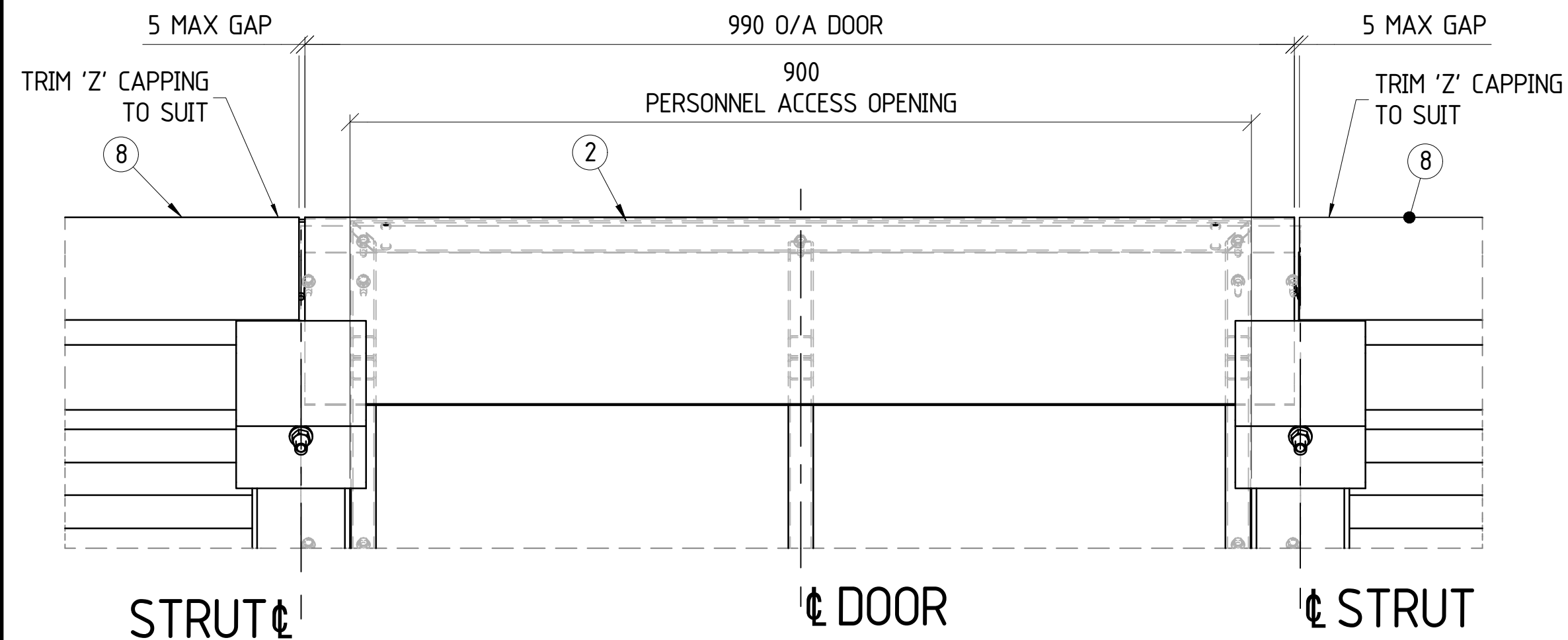
USE THE FOLLOWING QUANTITY'S PER 1 'T'PIECE

- 1 X 600ML SAUSAGE OF BOSTIK SEAL AND FLEX 1
- 1L OF NOVALAST LTM 151

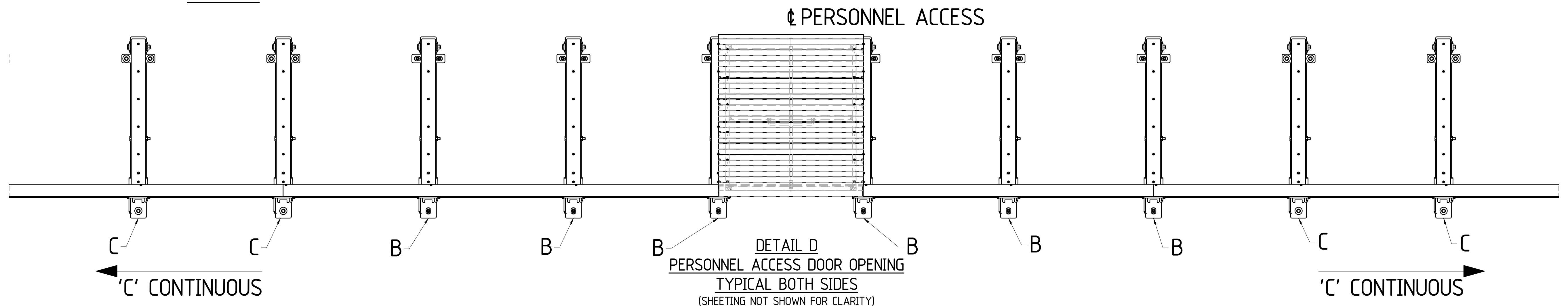
PROCEDURE:

- STEP 1: PREPARE AND CLEAN SURFACES WHERE SEALANTS ARE TO BE APPLIED AS PER MANUFACTURERS SPECIFICATIONS.
- STEP 2: INITIAL COLLAR INSTALL; APPLY A THICK (5-10MM) BEAD OF 'BOSTIK SEAL N FLEX 1' TO ALL EDGES OF THE T-PIECE MOUNTING COLLAR WHICH WILL CONTACT THE CORRUGATED CLADDING. TEK SCREW T-PIECE MOUNT (WITH BOSTIC SEALANT APPLIED) TO THE CLADDING USING 8 TEK SCREWS, EVENLY SPACED AROUND THE T-PIECE MOUNTING COLLAR.
- STEP 3: INSERT T-PIECE INTO THE T-PIECE MOUNTING COLLAR. SECURE THE T-PIECE AT THE LOCATION SHOWN, USING 2 X TEK SCREWS, THROUGH THE MOUNTING COLLAR RING. APPLY A THICK (5-10MM) BEAD OF 'BOSTIK SEAL N FLEX 1' AROUND THE JOIN AND AROUND ANY GAPS, INCLUDING AROUND THE TEK SCREWS. ALSO APPLY A THICK BEAD TO FILL THE GAP BETWEEN THE CLADDING AND THE T-PIECE, ON THE OUTSIDE OF THE BULKHEAD.
- STEP 4: LET SEALANT DRY AS PER MANUFACTURER'S DIRECTIONS.
- STEP 5: APPLY A SECOND THICK (5-10MM) BEAD OF 'BOSTIC SEAL N FLEX 1' AROUND ALL JOINS BETWEEN THE T-PIECE MOUNTING COLLAR, THE T-PIECE AND THE CLADDING.
- STEP 6: LET SEALANT DRY AS PER MANUFACTURER'S DIRECTIONS.
- STEP 7: PAINT THE ENTIRE T-PIECE MOUNTING COLLAR AND 150MM OF CLADDING AROUND THE COLLAR. ALSO PAINT 150MM OF THE T-PIECE, PAST THE COLLAR RING JOIN. PAINT WITH 'NOVALAST 151 LTM'
- STEP 8: LET SEALANT DRY AS PER MANUFACTURER'S DIRECTIONS.

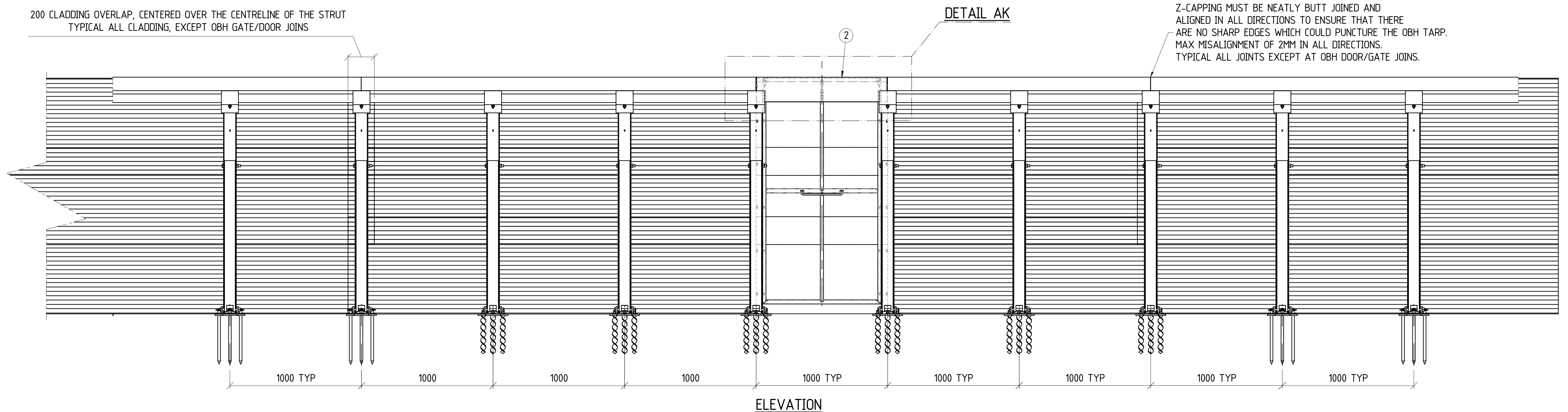
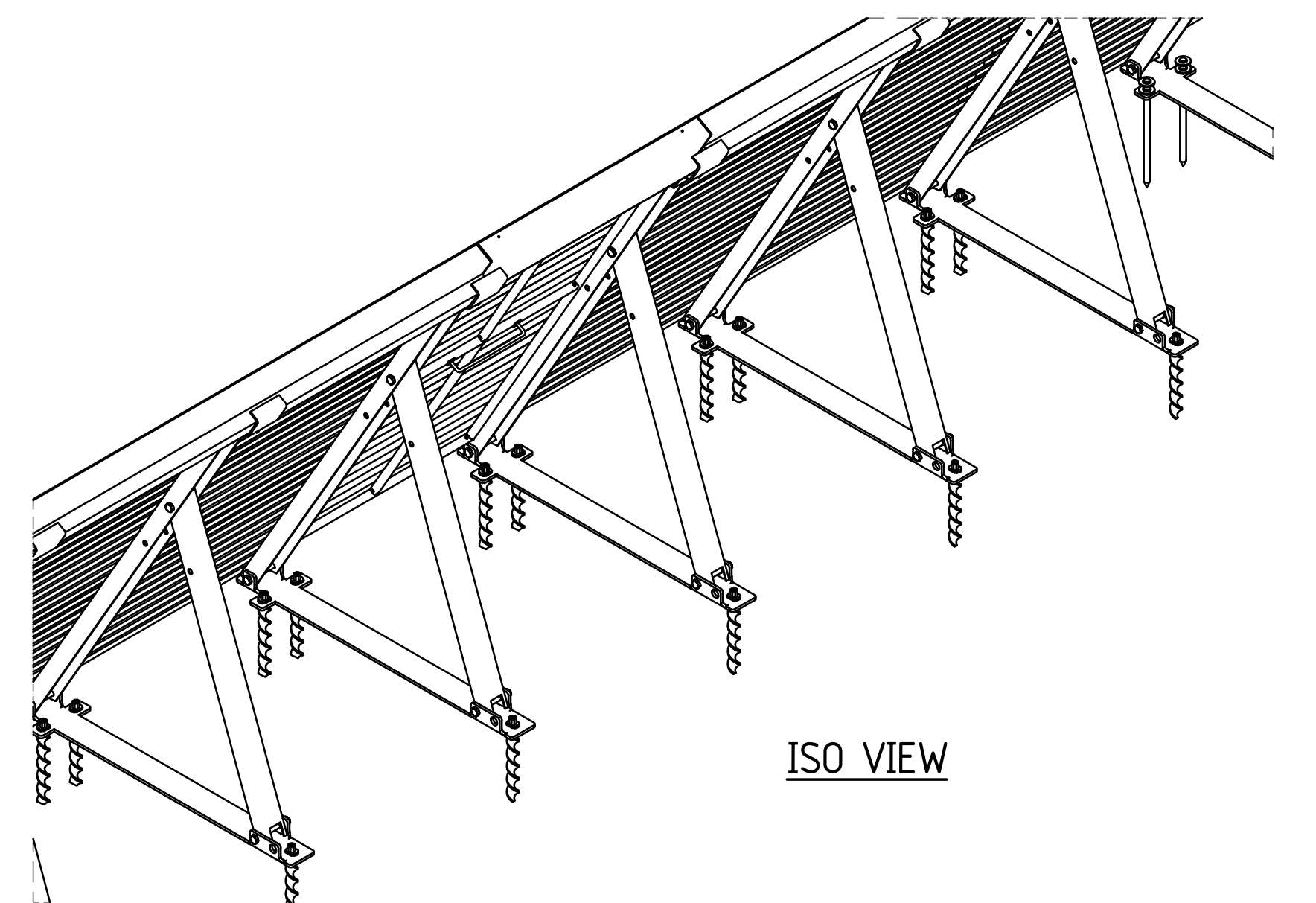




DETAIL AK

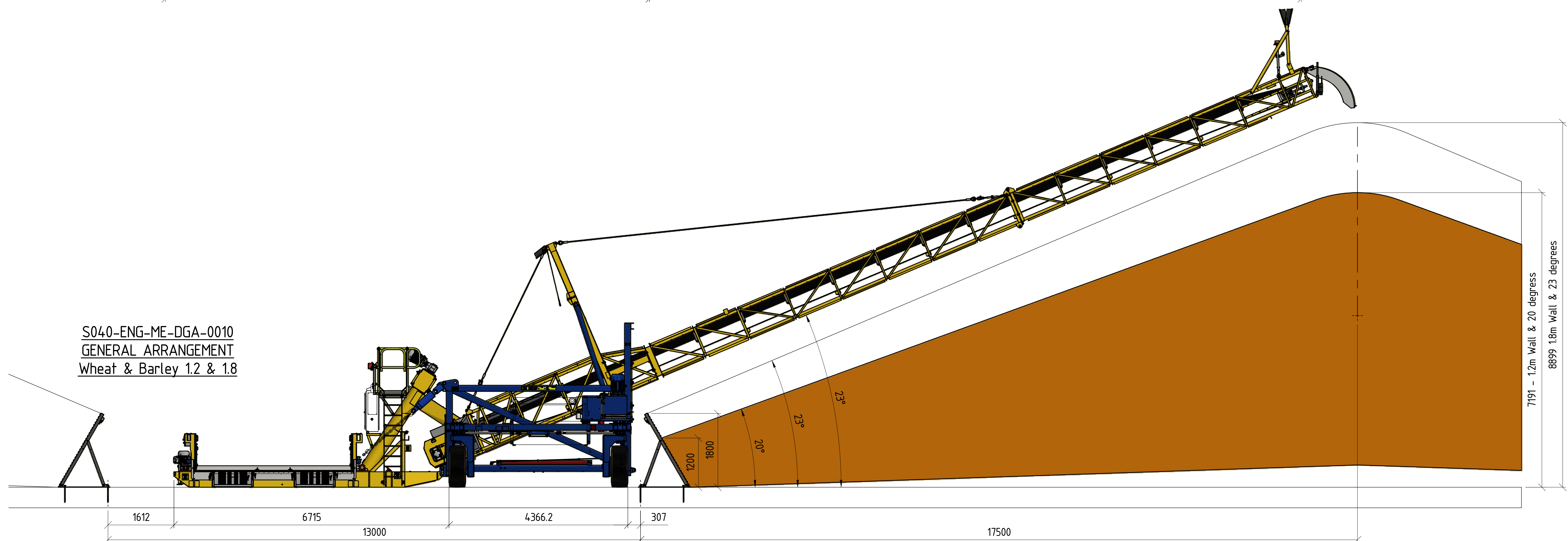
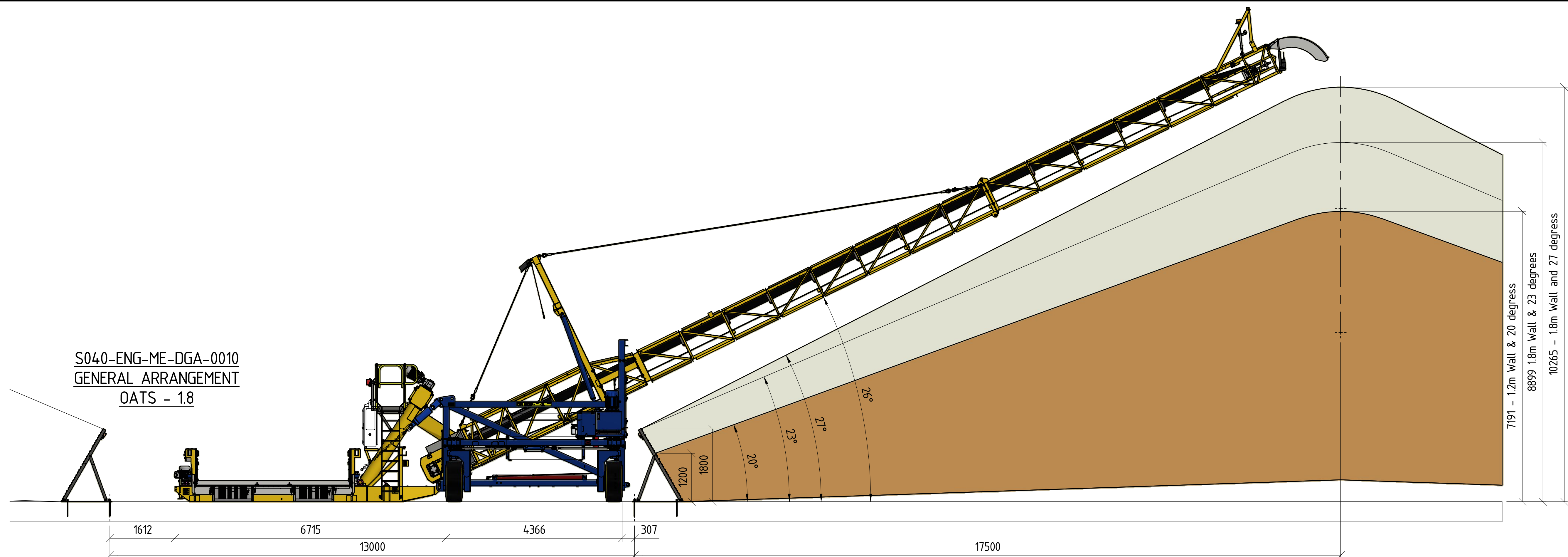


200 CLADDING OVERLAP, CENTERED OVER THE CENTRELINE OF THE STRUT
TYPICAL ALL CLADDING, EXCEPT OBH GATE/DOOR JOINS

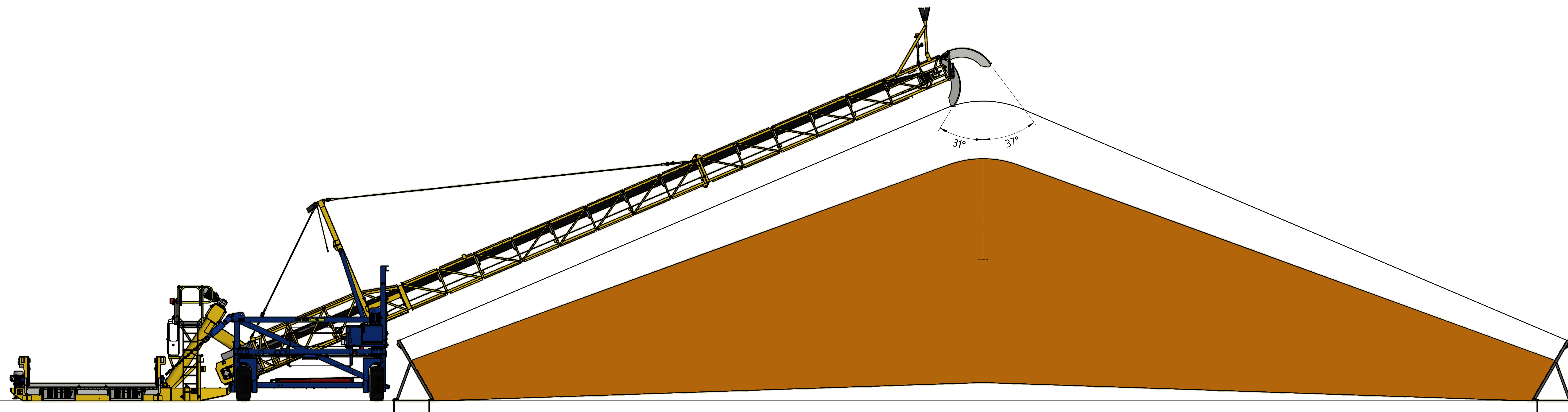
ELEVATION

ISO VIEW





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S040-ENG-ME-DGA-0010
GENERAL ARRANGEMENT



Stormwater Management Plan

Project:	Lake Grace Peak Planning Stormwater Management Plan
Client:	CBH
Author:	B. Smith
Date:	13 th June 2026
Shawmac Document #:	2605002-SWMP-002
CBH Document #:	TBC

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Document Status: Client Review

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Contents

1.	Introduction	3
1.1.	The Project.....	3
1.2.	Purpose.....	3
2.	Pre Development Situation	4
2.1.	Surface Water Catchments.....	4
3.	Post Development Stormwater Management Strategy	6
3.1.	Current Strategy Overview.....	6
3.2.	Design Criteria and Modelling Assumptions	8
3.3.	Stormwater Quantity and Model Outcomes	10
	Appendix A – CBH Concept Design.....	11

Figures

Figure 1: CBH Concept Extract	3
Figure 2: Existing Catchments.....	5
Figure 3: Post Development Drainage Strategy	7
Figure 4: XPStorm Model	9

Tables

Table 1: Estimated Predevelopment Discharge	5
Table 2: Culvert Design Outcome– 5-year ARI	10
Table 3: Drain Design Outcome– 5-year ARI	10



2. Pre Development Situation

2.1. Surface Water Catchments

The existing Lake Grace permanent CBH site consists of four major catchments, which direct stormwater into four existing stormwater basins. Runoff from the bulkheads is conveyed to these basins via a network of pipes and open drains. A rail corridor runs along the southeastern boundary of the site, with Kulin Lake Grace Road located to the west and Biddy Camm Road to the north. The TBH area is located on largely vacant land to the east of the rail corridor and is predominantly surrounded by vacant land, except for Biddy Camm Road to the north.

Figure 2 below shows the existing CBH catchments.

At present, stormwater from Catchment A, B, C and D are captured by CBH's open drains and culverts and directed into the existing internal Basin A, B, C and D, respectively.

The TBH area is located within a large upstream catchment, outside of the existing CBH site, with natural grading falling towards the west and southwest.

There are also existing basin/dams located to the south that captures a portion of an eastern undeveloped catchment.

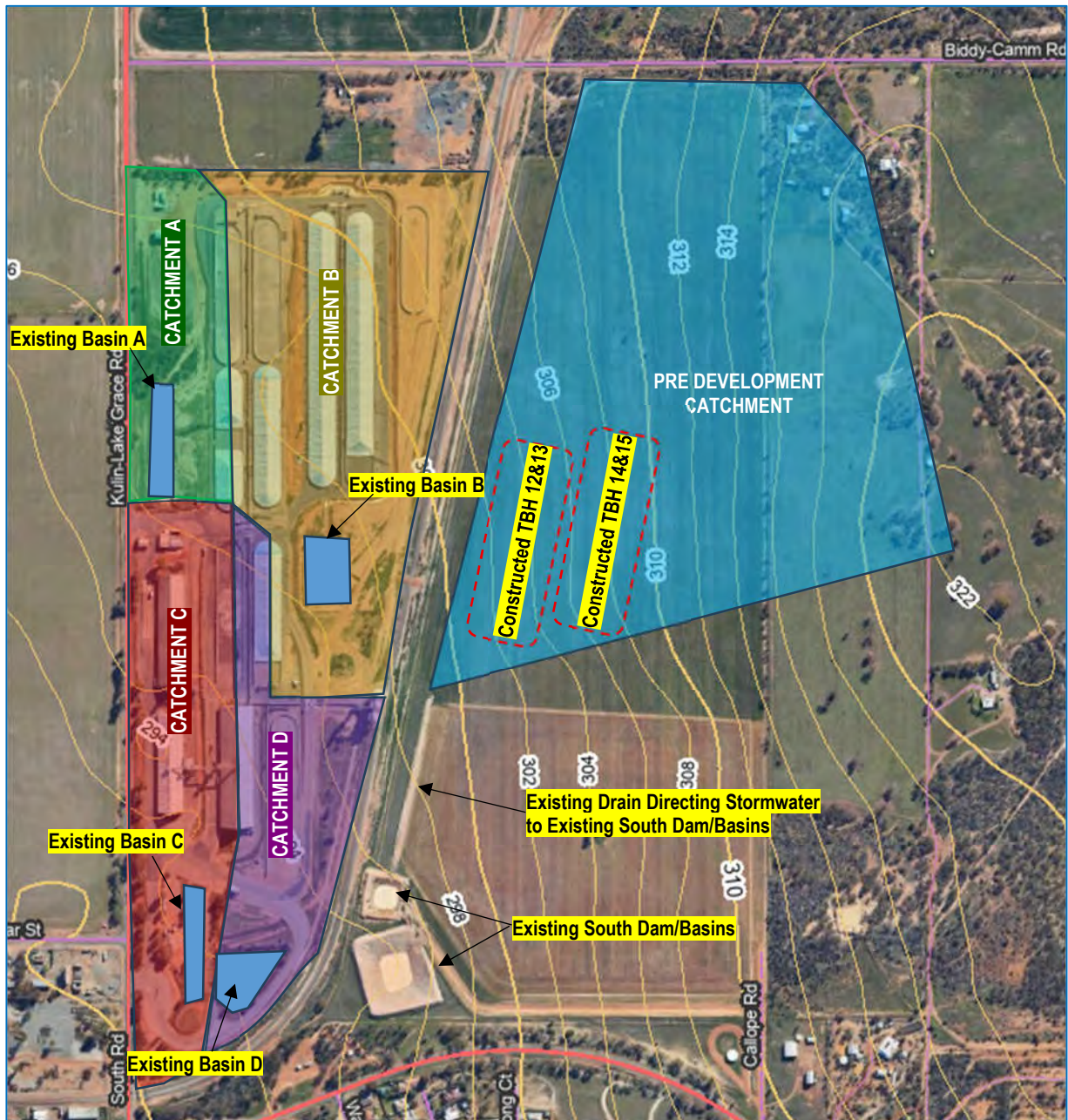


Figure 2: Existing Catchments

An XP-STORM model was developed to estimate the 2-year ARI pre-development flow from the catchment where the existing TBH 12-15 are located. The resulting flow rates are summarised in **Table 1**.

Table 1: Estimated Predevelopment Discharge

Item	2-year ARI Flow
Pre-development catchment	0.46m ³ /s

3. Post Development Stormwater Management Strategy

3.1. Current Strategy Overview

The stormwater management strategy consists of directing runoff from the TBH 12-15 areas and directing it to the southwest corner of the CBH site via a network of drains and pipes, before ultimately discharging into the existing southwest basins/dams.

CBH has confirmed that a new basin within the CBH site to retain/discharge the TBH stormwater prior to discharging outside of the CBH site was not required.

As confirmed by CBH, the levee bund/drain discharge is directed to the existing downstream drain that will eventually discharge into the existing basin/dam located to the south of the project site as shown in previous **Figure 2** and **Figure 3**.

The capacity of the existing basin/dam and upstream drain is outside of the survey area has not been assessed. It is noted that the drainage strategy increases the flow, and possibly velocity, to the existing basin/dam and drain. CBH should continue to monitor the discharge from their site and the downstream existing drains/dam/basin and undertake any maintenance/rectification that may be required due to the increase in volume/velocity.

The emergency bulkheads drains and culverts have been checked against runoff from a 5-year ARI event.

The TBH work area consists of five major catchments. Catchment A comprises an existing drain catchment that runs parallel to Biddy–Camm Road upstream of the new access road connection. A culvert (Culvert A), designed for a 5-year ARI event, was constructed beneath the access road at this location to convey the upstream flow and maintain the existing flow path.

Catchment C consists of an upstream undeveloped catchment. Runoff from this catchment was directed to Catchment B (west side of access road) via a network drains and pipes (Culverts B & E).

Similarly, Catchment D consist of upstream undeveloped catchment. Runoff from this catchment was directed to Catchment B (west side of access road) via a network drains and pipes (Culverts C, D & F).

Catchment B primarily includes the access roads, TBH12, TBH13, TBH14, TBH15 areas and upstream catchments (catchments C & D). Runoff from this catchment is directed via a network of drains and pipes to the existing downstream existing basin/dam.

Catchment E consist of upstream undeveloped catchment and will be directed to the existing downstream existing basin/dam via the proposed network of drains.

The construction of the TBH's did not impact the existing stormwater management strategy at the existing CBH site west of the rail line and have therefore has not been further assessed.

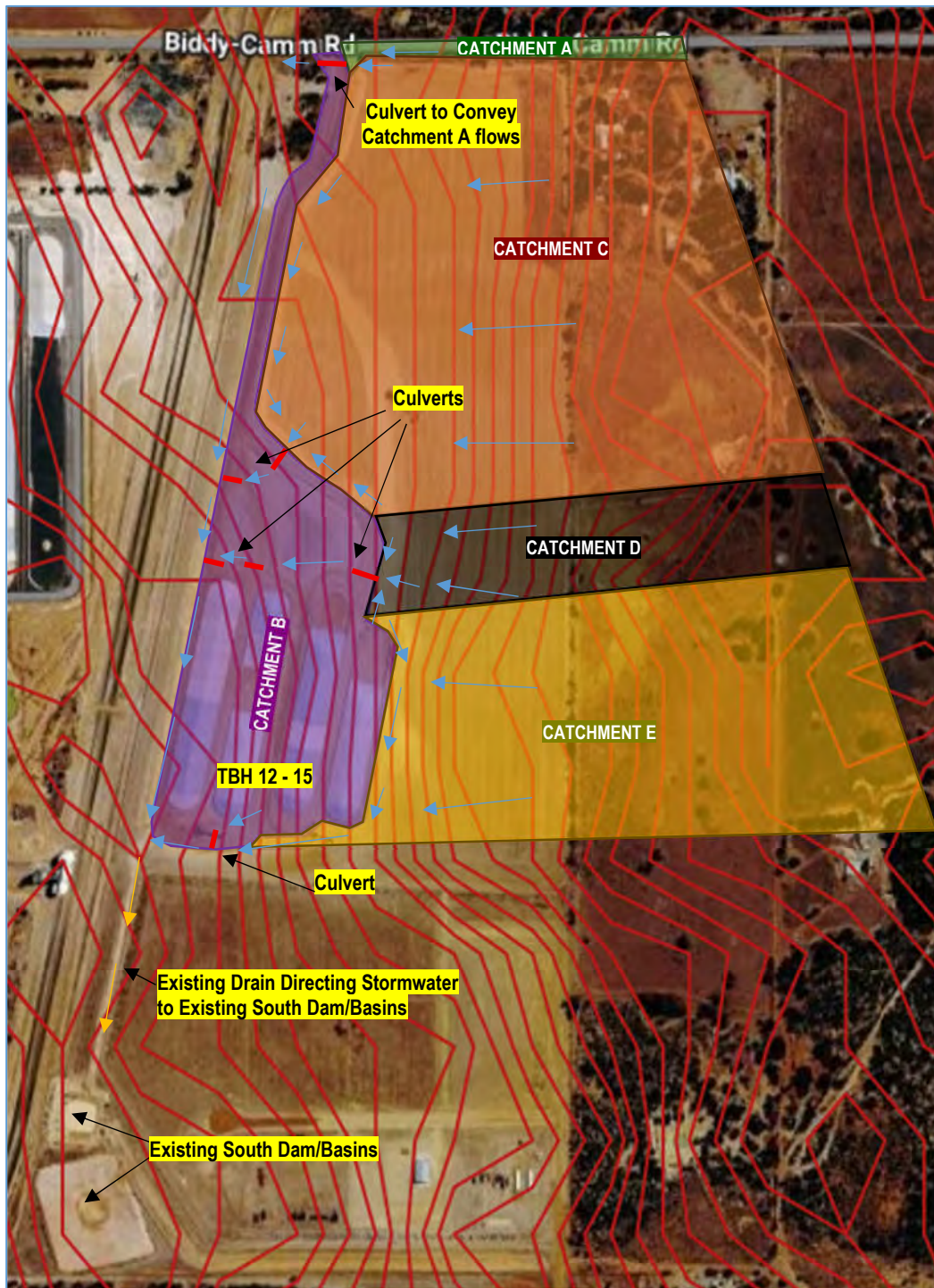


Figure 3: Post Development Drainage Strategy

3.2. Design Criteria and Modelling Assumptions

The adopted strategy and CBH's design specifications, with the key stormwater management design criteria and assumptions are summarised as follows:

- Adequately protect the site from inundation and flooding both from internal catchments and external upstream catchments.
- TBHs are designed for a 5-year ARI event.
- Manage, control and convey the design ARI event post development event with a freeboard of 300mm. (Consideration may be given to a reduction to 150mm when flooding does not present a risk to infrastructure and operations).
- Open drains are to be set at a minimum 300mm deep below the bottom of pavement, or 600mm below surface where no pavement is to be installed.
- As per CBH Peak Planning Specification, no scour protection or road kerb to be implemented.
- Culverts may have a minimum cover of 400mm (RCP Class 4).
- Minimum culvert size of 450mm diameter (except at basin outlets).
- Minimum drain fall of 0.3%.
- 2m/s maximum velocity.

An XPSTORM model was built to assess the constructed works as shown in **Figure 4**. The following key assumptions were adopted:

- Design rainfalls and temporal patterns are based on ARR 2019.
- A nominal 50mm/day basin infiltration rate has been assumed to reflect seepage and evaporation.
- Infiltration losses have been assumed as follows:
 - Pervious areas – 15mm initial loss, 0mm continuing loss.
 - Impervious areas (e.g. new/existing pavements) – nil losses (assumed).
- Model outcomes reflect the median event from the hydraulic model.
- Culvert entry/exit loss coefficients are assumed as 0.5/1.0 respectively.
- Mannings 'n' values assumed as follows:
 - Pavement drains – 0.016
 - Table/open drains – 0.025
 - Concrete culverts – 0.014
 - Corrugated HDPE lined culverts – 0.012

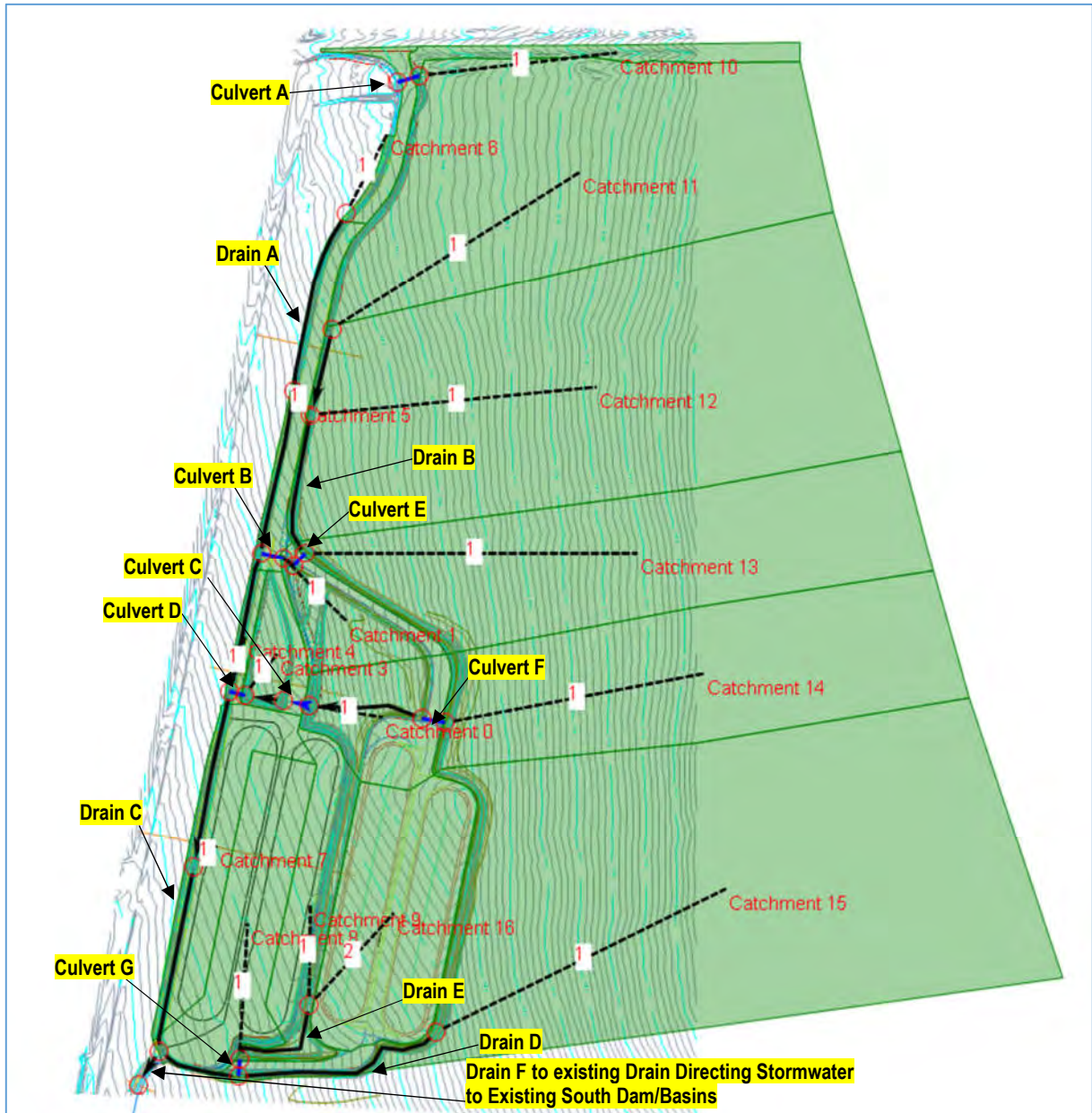


Figure 4: XPStorm Model

3.3. Stormwater Quantity and Model Outcomes

Table 2 and Table 3 provides a summary of the modelling outcomes for the culverts and drains, respectively.

Table 2: Culvert Design Outcome– 5-year ARI

Culvert	Location	Type	HW Level (m AHD)	Shoulder Level (m AHD)	Freeboard to Shoulder Level (m)	Max Flow (m ³ /s)	Max Velocity (m/s)
Culvert A	Under access road near Biddy–Camm Road connection	1x450 HDPE	309.22	309.52	0.30	0.005	0.12
Culvert B	Under access road north of TBHs carrying upstream flow	2x600 HDPE	303.46	304.39	0.93	0.076	1.24
Culvert C	Under access road north of TBH 12	1x600 HDPE	303.40	303.58	0.18 *	0.153	1.85
Culvert D	Under access road north of TBHs carrying upstream flow	1x600 HDPE	301.72	302.67	0.95	0.172	0.94
Culvert E	Under access road to TBH 14 and 15 (north of TBH 12 and 13)	2x600 HDPE	303.99	304.96	0.97	0.52	2.21
Culvert F	Under access road to TBH 14 and 15 (North of TBH 14 and 15)	1x600 HDPE	306.98	307.31	0.33	0.116	0.93
Culvert G	Under access road south of TBH 14 and 15	1x600 HDPE	300.72	301.41	0.69	0.42	1.93

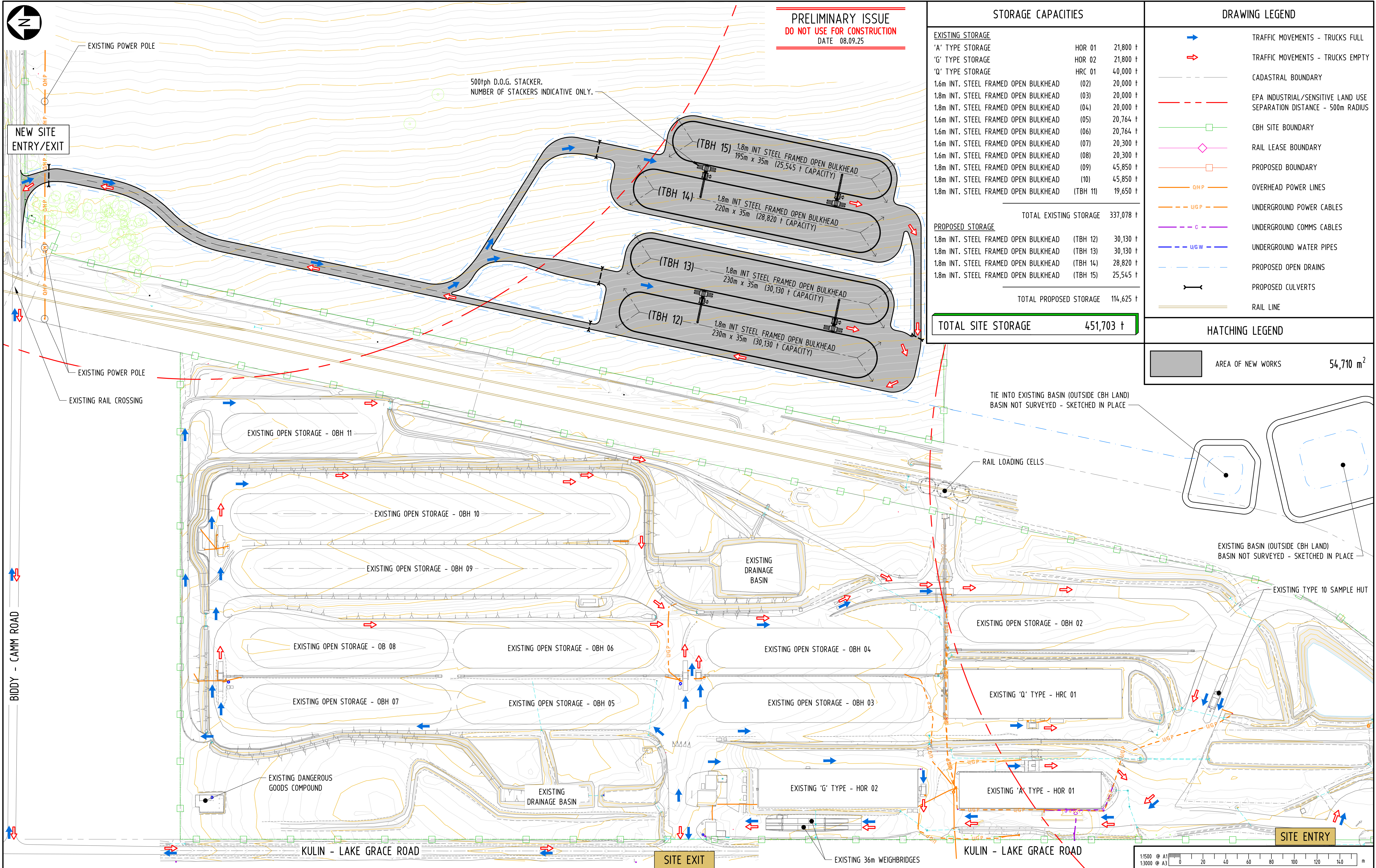
* It is noted that freeboard to shoulder at Culvert C would actually be greater, as stormwater would instead overflow/backflow to the north towards Culvert B instead of TWL rising at the Culvert C location. Culvert B has additional freeboard allowance for this additional flow.

Table 3: Drain Design Outcome– 5-year ARI

Culvert	Location	Type	HW Level (m AHD)	Shoulder Level (m AHD)	Subgrade Level (m AHD)	Freeboard to Subgrade Level (m)	Max Flow (m ³ /s)	Max Velocity (m/s)
Drain A	Northwest of TBHs	1.0 m wide 0.6 m deep Trapezoidal	303.19	304.39	302.96	0.37	0.068	0.76
Drain B	Northeast of TBHs	1.0 m wide 0.8m deep Trapezoidal	303.99	304.97	303.73	0.54	0.40	1.17
Drain C	Southwest of TBHs	1.0 m wide 0.8m deep Trapezoidal	299.19	299.99	299.15	0.76	0.76	1.15
Drain D	Southeast of TBHs	1.0 m wide 0.8m deep Trapezoidal	300.2	301.48	299.89	0.49	0.30	1.55
Drain E	Between TBH 13 and 14	1.0 m wide 0.8m deep Trapezoidal	300.72	301.40	300.26	0.34	0.30	1.07
Drain F	To existing Drain Directing Stormwater to Existing South Dam/Basins	1.5 m wide 1.0 m deep Trapezoidal	298.89	299.99	299.15	1.18	1.22	1.20



Appendix A – CBH Concept Design



PRELIMINARY ISSUE
DO NOT USE FOR CONSTRUCTION
DATE 08.09.25

STORAGE CAPACITIES			
EXISTING STORAGE			
'A' TYPE STORAGE	HOR 01	21,800 t	
'G' TYPE STORAGE	HOR 02	21,800 t	
'Q' TYPE STORAGE	HRC 01	40,000 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(02)	20,000 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(03)	20,000 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(04)	20,000 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(05)	20,764 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(06)	20,764 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(07)	20,300 t	
1.6m INT. STEEL FRAMED OPEN BULKHEAD	(08)	20,300 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(09)	45,850 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(10)	45,850 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 11)	19,650 t	
TOTAL EXISTING STORAGE		337,078 t	
PROPOSED STORAGE			
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 12)	30,130 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 13)	30,130 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 14)	28,820 t	
1.8m INT. STEEL FRAMED OPEN BULKHEAD	(TBH 15)	25,545 t	
TOTAL PROPOSED STORAGE		114,625 t	
TOTAL SITE STORAGE		451,703 t	

DRAWING LEGEND	
	TRAFFIC MOVEMENTS - TRUCKS FULL
	TRAFFIC MOVEMENTS - TRUCKS EMPTY
	CADASTRAL BOUNDARY
	EPA INDUSTRIAL/SENSITIVE LAND USE SEPARATION DISTANCE - 500m RADIUS
	CBH SITE BOUNDARY
	RAIL LEASE BOUNDARY
	PROPOSED BOUNDARY
	OVERHEAD POWER LINES
	UNDERGROUND POWER CABLES
	UNDERGROUND COMMS CABLES
	UNDERGROUND WATER PIPES
	PROPOSED OPEN DRAINS
	PROPOSED CULVERTS
	RAIL LINE

HATCHING LEGEND	
	AREA OF NEW WORKS 54,710 m ²



Traffic Impact Statement

Project:	Lake Grace Grain Receival Site Transport Impact Statement
Client:	CBH
Author:	B. Smith
Date:	25 th August 2026
Shawmac Document #:	2605002-TIS-002
CBH Document #:	TBC

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Document Status: For Use

Revision	Prepared By	Reviewed By	Approved By	Issue	Date
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B	R. Needham		R. Needham	Use	25.08.2026

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Contents

1.	Introduction	7
1.1.	The Project.....	7
1.2.	Purpose.....	8
1.3.	CBH Commentary.....	9
2.	Existing Situation.....	10
2.1.	Road Network	10
2.2.	Carriageway Width and Cross Section	11
2.3.	Traffic Volumes	11
2.4.	RAV Status	12
2.5.	Speed Limit	14
2.6.	Crash History	16
2.7.	Changes to Surrounding Transport Networks.....	16
3.	Transport Logistics.....	17
3.1.	Current CBH Traffic Data	17
3.2.	Proposed Development	17
3.3.	Proposed Haulage Vehicle.....	18
3.4.	Receival Period and Operating Hours.....	18
3.5.	Haulage Route and Truck Movements – Harvest Period	18
4.	Traffic Impact Assessment.....	24
4.1.	Assessment Years	24
4.2.	Impact on Roads	24
4.2.1.	Road Minimum Widths	24
4.2.2.	Road Safety	24
4.3.	Intersections.....	24
4.3.1.	Safe Intersection Sight Distance	24
4.3.2.	Approach Sight Distances	32
4.3.3.	Intersection Volumes.....	37



4.3.4.	Auxiliary Lanes	39
4.3.5.	Swept Path Assessment	43
4.4.	Railway Crossings	47
4.4.1.	Stacking Distance.....	47
4.4.2.	Railway Approach Sight Distance	47
4.4.3.	Railway Sight Distance.....	48
5.	Conclusions	54
	Appendix A – Traffic Counts	56

Figures

Figure 1: Site Location.....	7
Figure 2: Temporary OBH Design Excerpt.....	8
Figure 3: Adjacent Road Network.....	10
Figure 4: Tandem Drive 7.1 RAV Network	13
Figure 5: Tri Drive 4.1 RAV Network	14
Figure 6: Speed Zoning	15
Figure 7: Typical Tandem Drive RAV 7 Trucks	18
Figure 8: Current Receival Delivery Proportions	19
Figure 9: Harvest Period 45-Day Peak Total Movement Volumes	22
Figure 10: Harvest Period Peak Daily / Hourly Total Movement Volumes.....	23
Figure 11: Sight Distance Checks – Kulin-Lake Grace Road (To CBH Site Exit).....	27
Figure 12: Sight Distance Checks – Kulin-Lake Grace Road (To Biddy-Camm Road)	28
Figure 13: Sight Distance Checks – Biddy-Camm Road (To Temporary CBH Site Entry/Exit)	29
Figure 14: Kulin-Lake Grace Road / CBH Site Exit Intersection Looking North.....	30
Figure 15: Kulin-Lake Grace Road / CBH Site Exit Intersection Looking South	30
Figure 16: Kulin-Lake Grace Road / Biddy-Camm Road Intersection Looking North	31
Figure 17: Kulin-Lake Grace Road / Biddy-Camm Road Intersection Looking South	31
Figure 18: Buntine - Marchagee / CBH Site Exit Intersection Looking West	32



Figure 19: Buntine - Marchagee / CBH Site Exit Intersection Looking East	32
Figure 20: Approach Sight Distance Measurement – CBH Site Exit to Kulin-Lake Grace Road	34
Figure 21 : CBH Site Exit Looking from Kulin-Lake Grace Road.....	34
Figure 22: Approach Sight Distance Measurement Biddy-Camm Road to Kulin-Lake Grace Road.....	35
Figure 23 : Kulin-Lake Grace Road Looking from Biddy-Camm Road	35
Figure 24: Approach Sight Distance Measurement - Biddy-Camm Road to Temporary CBH Site Entry/Exit	36
Figure 25 : Temporary CBH Site Entry/Exit Looking from Biddy-Camm Road	36
Figure 26: Intersection Volumes – Kulin-Lake Grace Road / CBH Site Entry.....	37
Figure 27: Intersection Volumes – Kulin-Lake Grace Road / CBH Site Exit	38
Figure 28: Intersection Volumes – Kulin-Lake Grace Road / Biddy-Camm Road	38
Figure 29: Intersection Volumes – Biddy-Camm Road / Proposed Site Entry/Exit.....	39
Figure 30: Intersection Configuration Warrants – Kulin-Lake Grace Road / CBH Site Entry Intersection	40
Figure 31: Intersection Configuration Warrants – Kulin-Lake Grace Road / CBH Site Exit Intersection.....	40
Figure 32: Intersection Configuration Warrants - Kulin-Lake Grace Road / Biddy-Camm Road Intersection.....	41
Figure 33: MRWA Guideline Drawing 202231-0007 Extract – SL/SR	42
Figure 34: MRWA Guideline Drawing 202231-0007 Extract – BAL/BAR	42
Figure 35: RAV 7 Manoeuvring at Kulin-Lake Grace Road / CBH Site Entry – Left In / Right In Movement.....	43
Figure 36: RAV 7 Manoeuvring at Kulin-Lake Grace Road / CBH Site Exit – Left Out / Right Out Movement.....	44
Figure 37: RAV 7 Manoeuvring at Kulin-Lake Grace Road / Biddy-Camm Road – Right In / Left Out Movement	44
Figure 38: RAV 7 Manoeuvring at Biddy-Camm Road / Temporary CBH Site Entry/Exit – Right In / Left Out Movement.....	45
Figure 39: Stacking Distance – Biddy-Camm Road Level Crossing.....	47
Figure 40: Railway Approach Sight Distance - Biddy-Camm Road Level Crossing	48
Figure 41: Biddy-Camm Level Crossing - West Side Looking North	48
Figure 42: Biddy-Camm Level Crossing - West Side Looking South.....	49
Figure 43: Biddy-Camm Level Crossing - East Side Looking North	49
Figure 44: Biddy-Camm Level Crossing - East Side Looking South.....	50



Figure 45: Available Sight Distance Along Rail Line.....	51
Figure 46: ARC Infrastructure General Operational Instructions - Lake Grace Speeds	52

Tables

Table 1: Road Configuration.....	11
Table 2: Daily Traffic Volumes.....	11
Table 3: Peak Hour Traffic Volumes.....	12
Table 4: Crash History.....	16
Table 5: Historical Record Harvest Truck Movements	17
Table 6: Estimated 2026 Receival Directional Split.....	19
Table 7: Destination OBH Split.....	19
Table 8: Rural Road Minimum Width.....	24
Table 9: SISD Calculations.....	26
Table 10: Approach Sight Distance	33
Table 11: Railway Sight Distance.....	52

1. Introduction

1.1. The Project

To cater for increased demand for grain storage from the 2025 harvest, CBH recently expanded their Lake Grace grain receival site by constructing temporary Open Bulkheads (OBH) on a new site to the east of the existing permanent Lake Grace site, off Biddy-Camm Road

CBH are now proposing to operate the four temporary OBH's on an ongoing basis, however they are only intended to be used in peak seasons when capacity is constrained at the existing permanent site.

The general site location and scope of works area is shown in **Figure 1** and an excerpt of the design drawings for the temporary OBH's is shown in **Figure 2**



Figure 1: Site Location

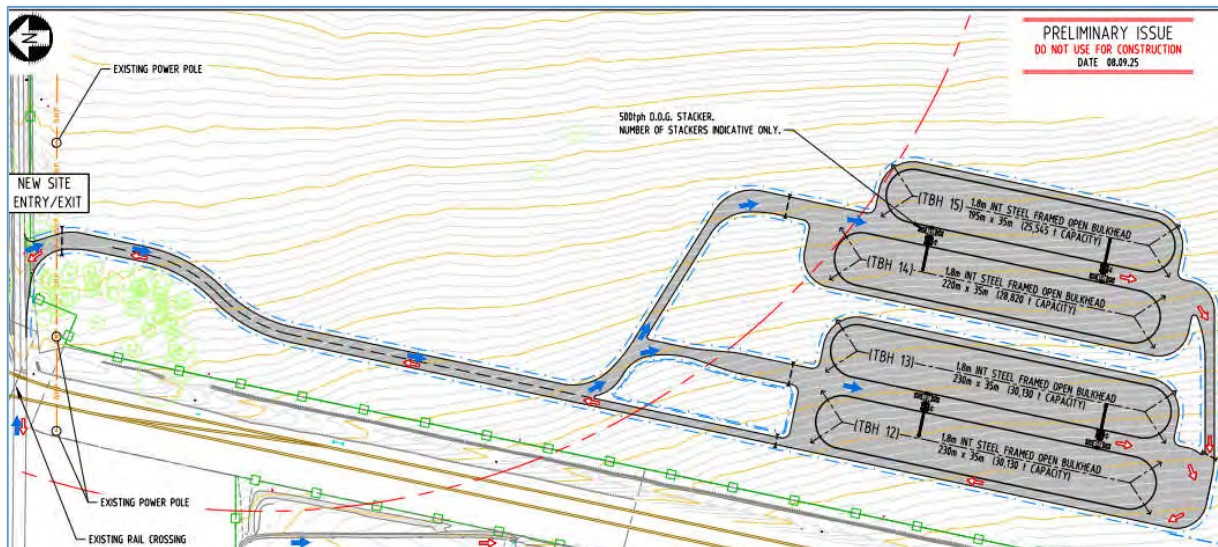


Figure 2: Temporary OBH Design Excerpt

Shawmac has been engaged by CBH to prepare a Transport Impact Statement to support the ongoing operation of the site.

1.2. Purpose

The TIS has been prepared in accordance with MRWA's requirements and with reference to WAPC's Traffic Impact Assessment Guidelines, and includes:

- Documenting the details of the proposed works.
- Documenting the existing situation including road network, traffic volumes (CBH and background), crash history, RAV network etc.
- Estimate the existing and future traffic generation and trip distribution based on CBH provided site traffic data.
- Assessing the Kulin-Lake Grace Road / Site Entry, the Kulin-Lake Grace Road / Site Exit, the Kulin-Lake Grace Road / Biddy-Camm Road intersection and the Kulin-Lake Grace Road / Temporary Site Entry and Exit for suitability in terms of:
 - Vehicle swept paths.
 - Sight Distance
 - Intersection configuration assessment
 - Acceleration lane assessment
- Assessing the immediately surrounding road network for suitability for their current RAV status.



1.3. CBH Commentary

CBH have provided the following comments regarding the outcomes of this TIS and the relationship between the storage development and traffic movements around the site:

“CBH acknowledges that current site operations contribute to traffic movements within and around both the existing Lake Grace grain receival site and the new facility located to the east of the permanent Lake Grace site off Biddy-Camm Road. These existing traffic movements have been assessed as part of this Traffic Impact Statement.

CBH is currently investigating a range of operational and infrastructure options that have the potential to alter traffic flow arrangements across the site. This includes opportunities to consolidate vehicle movements within CBH-controlled land and reduce interactions with the surrounding road network. The intent of these investigations is to improve traffic efficiency, enhance safety outcomes, and optimise site access and circulation.

As these options remain under evaluation, the ultimate long-term traffic configuration for the site has not yet been determined. Accordingly, CBH considers it premature to commit to permanent upgrades to the external road network that may be materially affected by future changes to site access and traffic movements.

In the interim, CBH will continue to manage site traffic through an operational Traffic Management Plan during harvest. The Traffic Management Plan will incorporate appropriate controls and procedures to safely manage vehicle movements. This approach ensures traffic impacts and associated risks are appropriately managed in the short to medium term, while allowing sufficient flexibility to finalise and implement the most effective long-term traffic solution for the site and surrounding road network.”

2. Existing Situation

2.1. Road Network

The layout and hierarchy of the existing local road network according to the Main Roads WA *Road Information Mapping System* is shown in **Figure 3**.

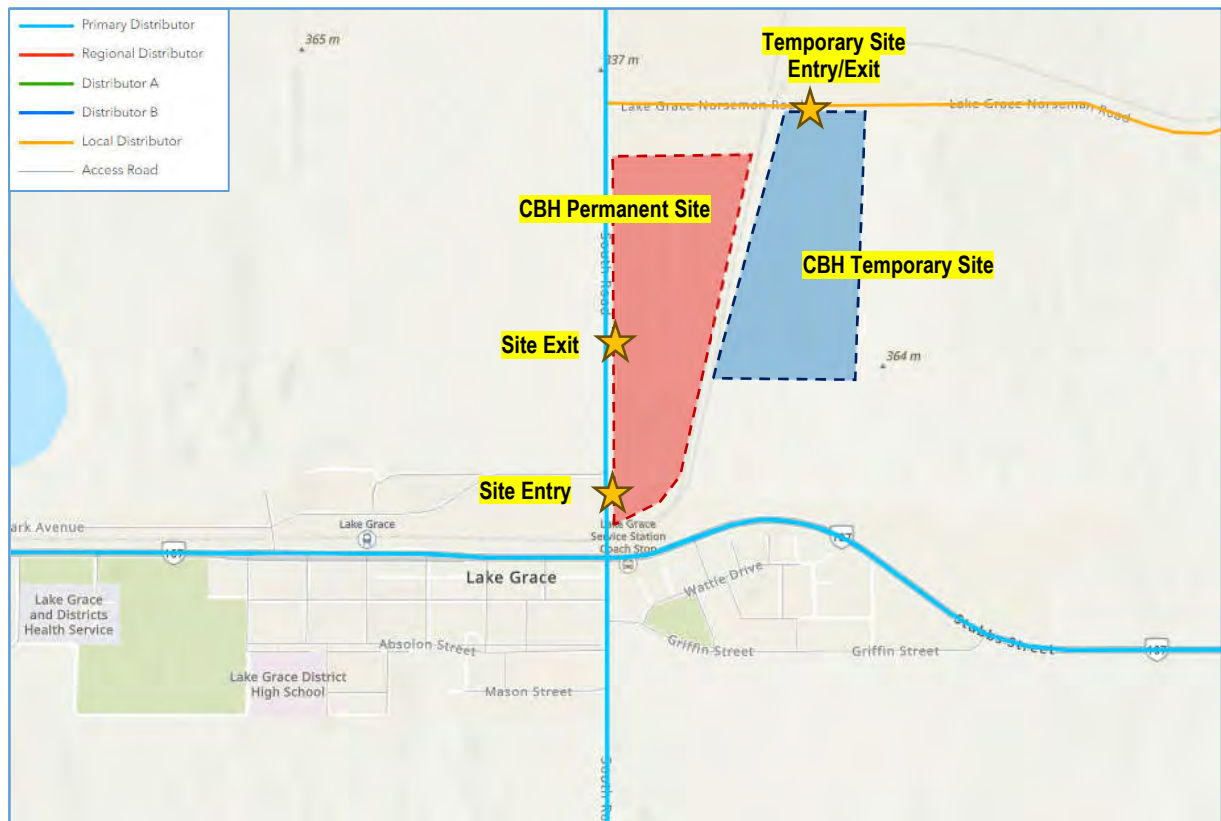


Figure 3: Adjacent Road Network

2.2. Carriageway Width and Cross Section

The configurations of the relevant roads are summarised in **Table 1**.

Table 1: Road Configuration

Road and Location	Road Type	Cross Section	Sealed Pavement Width (Approx.)	Carriageway Width (Approx.)
Kulin Lake Grace Road	Primary Distributor	Two lane single carriageway	7.0m	10.5m
Biddy-Camm Road	Local Distributor	Two lane single carriageway	7.0m	9.0m

2.3. Traffic Volumes

The available traffic count data for Kulin Lake Grace Road was sourced from MRWA's Traffic Map. The traffic counts sourced for Kulin Lake Grace Road (South of North Lake Grace Kalgarin Road) were recorded in 2025/2026. A 3% annual increase to 2026/2027 has been adopted to reflect current day figures.

There are no count sites for Biddy-Camm Road. Traffic volumes for these roads have conservatively been assumed based on the layout and hierarchy of the existing local road network. For the purpose of this assessment, the following has been assumed:

- Peak hour traffic is equivalent to 10% of the estimated daily volume,
- Peak hour distribution is 50% eastbound and 50% westbound, and
- There is no CBH traffic included in the existing traffic volumes.

The traffic data for the relevant roads are summarised in **Table 2** and

Table 2: Daily Traffic Volumes

Road	Location	Estimated Daily (2026/27)	% HVs	Data Source
Kulin Lake Grace Road	South of North Lake Grace Kalgarin Road	294	46.7	MRWA 2025/26
Biddy-Camm Road	Temporary Site Entry / Exit	90	40.0	Assumed

Table 3: Peak Hour Traffic Volumes

Road / Direction	Location	MRWA/Estimated (2026/27)	
		AM Peak	PM Peak
Kulin-Lake Grace Road / NORTH	South of North Lake Grace Karlgin Road	14	16
Kulin-Lake Grace Road / SOUTH	South of North Lake Grace Karlgin Road	17	13
Biddy-Camm Road / EAST	Temporary CBH Entry/Exit	5	5
Biddy-Camm Road / WEST	Temporary CBH Entry/Exit	5	5

2.4. RAV Status

As per MRWA HVS network mapping tool:

- Kulin–Lake Grace Road (South of CBH Exit) is categorised as Tandem Drive RAV 7.3 / Tri Drive 4.3 without conditions
- Kulin–Lake Grace Road (North of CBH Exit) is categorised as Tandem Drive RAV 7.1 / Tri Drive 4.1 without conditions
- Biddy-Camm Road is categorised as Tandem Drive RAV 7.1 / Tri Drive 1.1 with the following conditions:
 - No operation on unsealed road segment when visibly wet, without road owner's approval.

Figure 4 and **Figure 5** show the RAV network for the road network in the vicinity of the site.

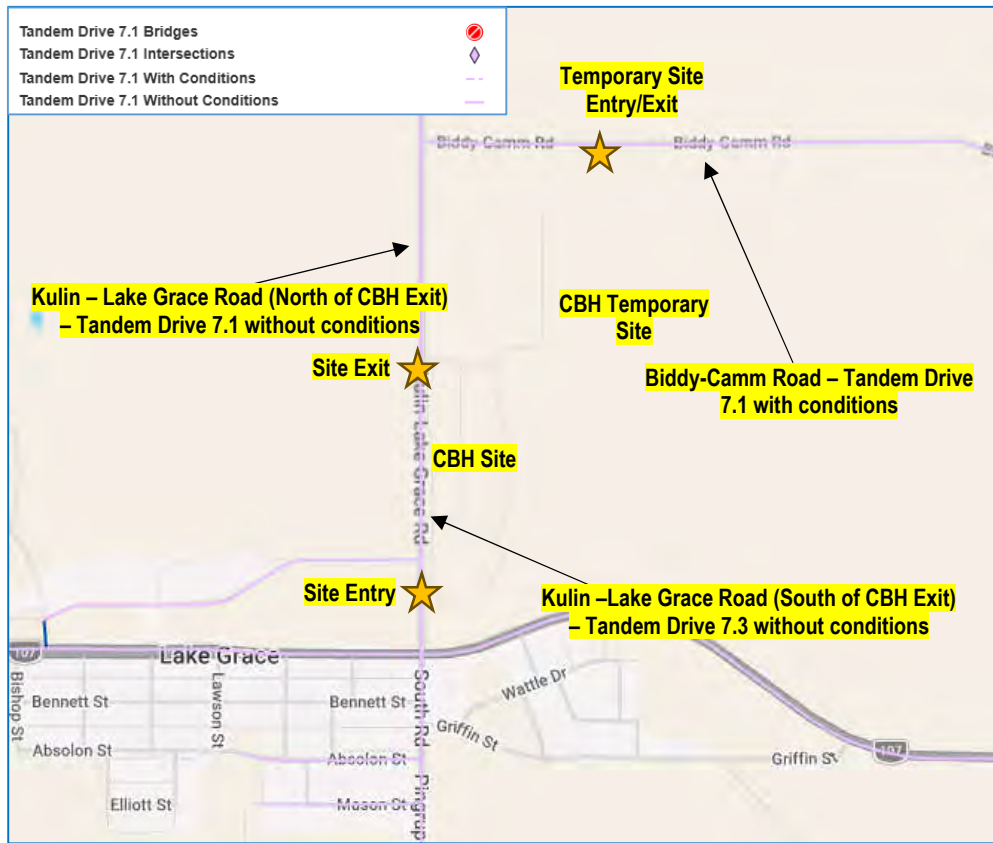


Figure 4: Tandem Drive 7.1 RAV Network

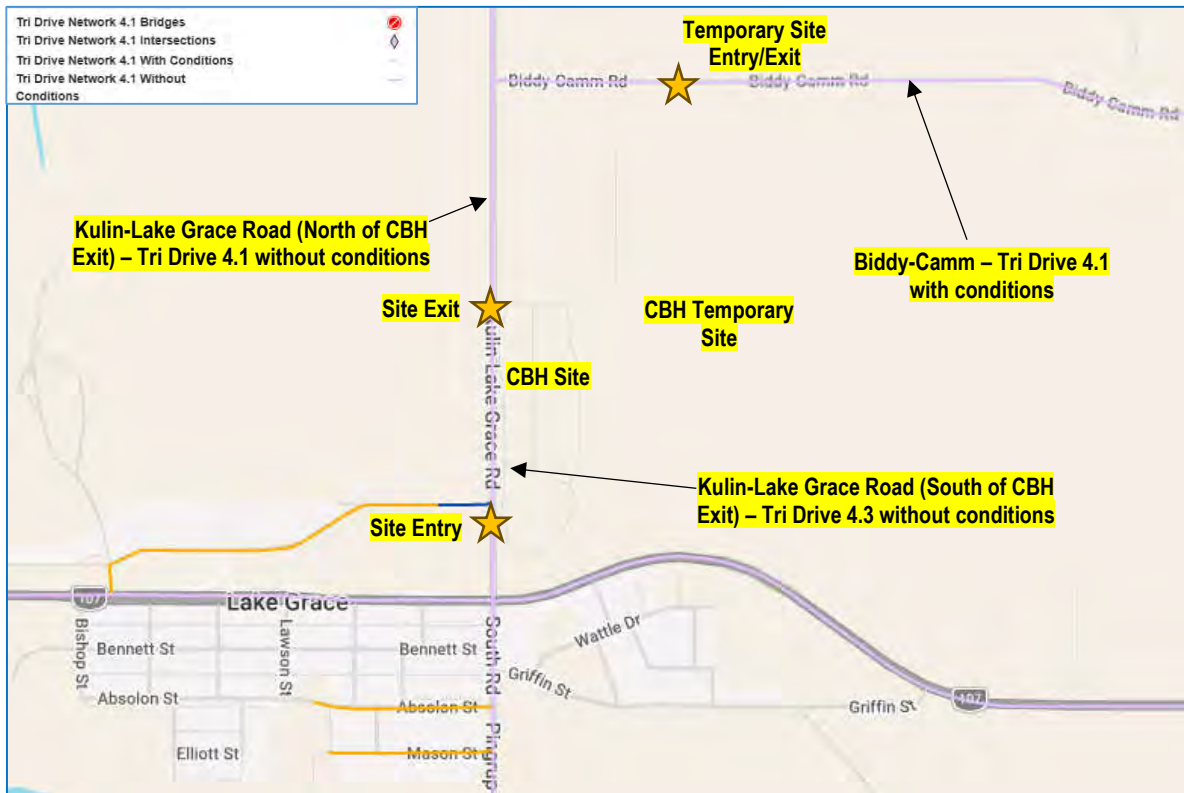


Figure 5: Tri Drive 4.1 RAV Network

2.5. Speed Limit

The speed limit of the adjacent road network is shown below in **Figure 6**.

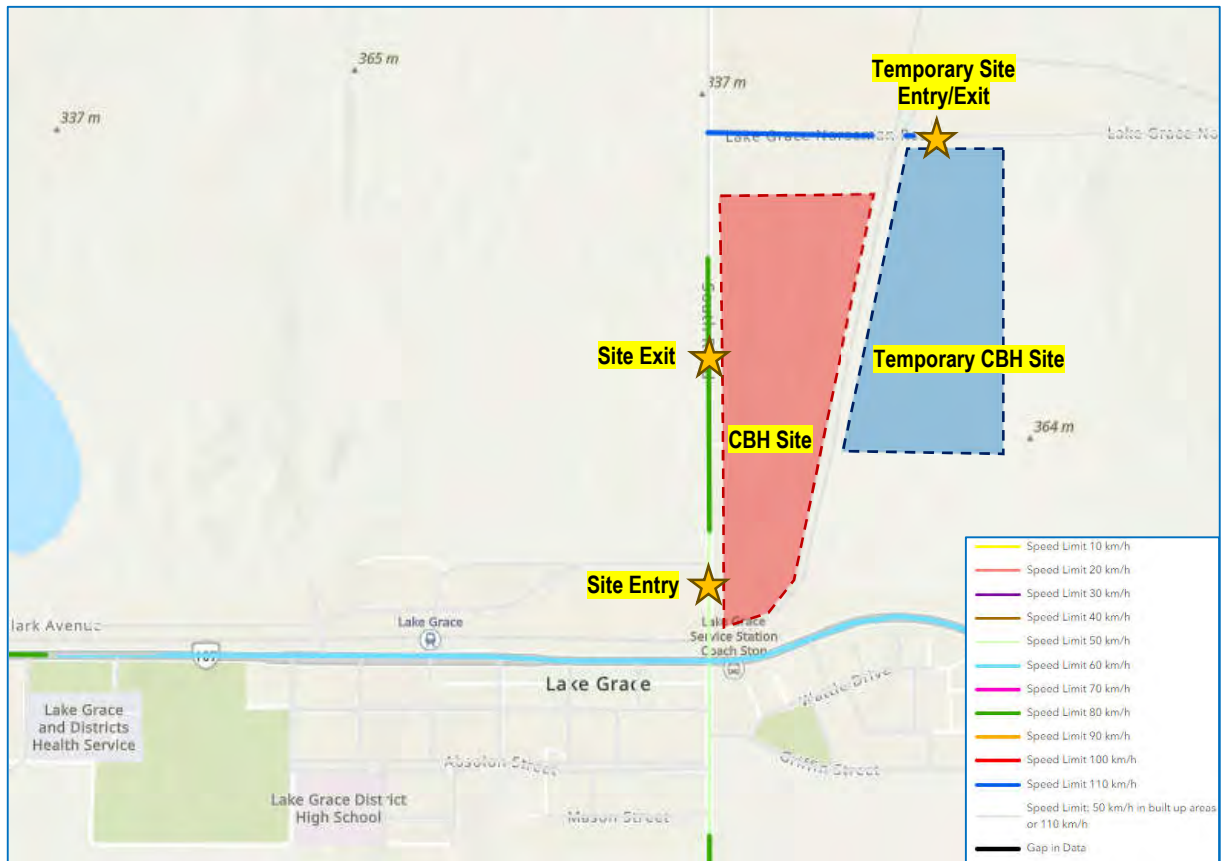


Figure 6: Speed Zoning

2.6. Crash History

Crash data for the relevant roads were sourced from MRWA Crash Analysis Reporting System (CARS) for the 5-year period ending 31/12/2025. The CBH Site Entry is at SLK 101.48, and the CBH Site Exit is at SLK 101.13 both on Kulin-Lake Grace Road. The Temporary CBH Site Entry/Exit is located at SLK 0.47 on Biddy-Camm Road. The report is summarised in **Table 4**.

Table 4: Crash History

Location	Number of Crashes	MR Nature and Location	Severity
Gorge Rock Lake Grace Road (Kulin-Lake Grace Road) (SLK 96.61 to 101.68)	3	1x Non-Collision at SLK 99.25 1x Right Angle at SLK 101.43 1x Right Angle at SLK 101.68	PDO Major Medical Hospital
Biddy – Camm Road (SLK 0.00 to 6.24)	0	N/A	N/A

The crashes shown on Kulin-Lake Grace Road are typical of a Primary Distributor and do not demonstrate any specific safety risk.

As shown, there have been no crashes recorded Biddy-Camm Road.

2.7. Changes to Surrounding Transport Networks

There are no known changes to the adjacent road network that have potential to affect this assessment.

3. Transport Logistics

3.1. Current CBH Traffic Data

CBH have provided the following traffic data associated with the Lake Grace site as shown below and in **Table 5**.

- Peak Season Receivals (from local growers) - 440,857t
- Average Carryover (grain remaining from previous harvest) – 28,463t
- CBH Road Movements In (receival from up-country sites) – 11,762t
- Total Site Task – 481,081t
- Available capacity after recent expansion – 451,703t
- Available capacity prior to expansion – 337,078t
- Average in-loading truck payload - 57t

Table 5: Historical Record Harvest Truck Movements

Description	Receival Window Total (tonnes)	Average Truck Payload (tonnes)	Harvest Period Movements Total	Average Loads per day
Peak Site Task (in-loading)	452,619	57	7941	88

3.2. Proposed Development

CBH advise that if local grower production exceeds the capacity of the Lake Grace receival site, then CBH must out-turn grain while harvest deliveries are being made, to continue to offer a service to growers. These are termed Harvest Essential Moves (HEMs). HEMs increase the traffic on the surrounding roads during the peak harvest period. Based on CBH records, for the peak site task without the storage expansion, 1,253 total truck movements, or 28 daily truck movements are required for HEMs which would transfer grain from Lake Grace, south towards Albany port. The ongoing operation of the temporary area during peak seasons seeks to eliminate the need for HEMs and instead store the grain on site to out-turn outside of the harvest period when the road network is less busy.

The temporary storage area provides 114,625t of temporary specification storage. According to data provided by CBH, the existing nameplate permanent storage capacity of 337,078t (provided at the existing permanent site) has increase to 451,703t following completion of the temporary site. Both sites will operate in tandem and truck movements will occur between the two sites.

CBH has also confirmed that this storage capacity would be sufficient to manage the peak site task and no longer require road HEMs.

3.3. Proposed Haulage Vehicle

It is proposed to continue the use RAV 7 trucks up to 36.5m long for haulage of grain. Refer to **Figure 7** for a typical configuration of the RAV 7 vehicles. In addition, CBH also noted that while this site is rated for RAV7, smaller RAV vehicles are also used.

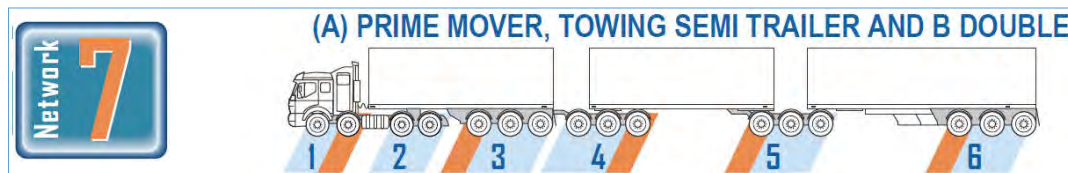


Figure 7: Typical Tandem Drive RAV 7 Trucks

3.4. Receival Period and Operating Hours

CBH have indicated that on average the harvest receival period will last approximately three months, generally from October through to December. During this period, it is known that delivery patterns peak for around 45 days with 80% of the crop delivered in this time. Receival sites will operate 7 days a week for 12 hours a day during the harvest period.

3.5. Haulage Route and Truck Movements – Harvest Period

Based on CBH's historical records, **Figure 8** shows the directional split of the truck movements which will arrive to the Lake Grace site prior to construction of the storage expansion. These movements are expected to continue after construction of the expansion. Refer to **Table 6** for the current receival proportions.

All trucks will initially arrive at the existing site to undergo sampling, and 'weigh in'. From there, trucks will be directed to their designated storage areas which may be either at the existing site or the temporary site. As only the main site will have a weighbridge, trucks that delivered to the temporary site will return to the main site, 'weigh out', and return to their origin. Trucks that delivered to the main site can 'weigh out' and return directly to their origin.

To estimate the movements between the two sites, the total site task has been split according to each sites proportion of the total nameplate storage as shown in **Table 7**.



Figure 8: Current Receival Delivery Proportions

Table 6: Estimated 2026 Receival Directional Split

Season	Direction	Total Tonnes	Percentage Split
2026	North	171,995	38%
2026	South	280,624	62%

Table 7: Destination OBH Split

Destination Storage	Storage Capacity (tonnes)	Portion
Existing	337,078	74.6%
Temporary	114,625	25.4%
Total	451,703	100%

There are four potential origins, and delivery routes are as follows:

- 38% of trucks will approach the site from the north, heading south along Kulin-Lake Grace Road, turning

left into the existing site entry, weighing in at the existing CBH site. They will then split depending on their discharge location:

- 74.6% (28.4% of total) will discharge at the existing CBH Site, weighing out there, before turning right onto Kulin-Lake Grace Road and returning to their point of origin.
- 25.4% (9.6% of total) will exit the existing CBH site, turning right onto Kulin-Lake Grace Road, turn right onto Biddy-Camm Road, and then turn right into the temporary CBH Site, discharging, exiting the temporary CBH Site by turning left onto Biddy-Camm Road, before turning right onto Kulin-Lake Grace Road and returning to their point of origin.
- 62% of trucks will approach the site from the south, heading north along Kulin-Lake Grace Road, turning right into the existing site entry, weighing in at the existing CBH site. They will then split depending on their discharge location:
 - 74.6% (46.3% of total) will discharge at the existing CBH Site, weighing out there, before turning left onto Kulin-Lake Grace Road and returning to their point of origin.
 - 25.4% (15.7% of total) will exit the existing CBH site, turning right onto Kulin-Lake Grace Road, turning right onto Biddy-Camm Road, and then turn right into the Temporary CBH Site, discharging, exiting the temporary CBH Site by turning left onto Biddy-Camm Road, before turning left onto Kulin-Lake Grace Road and returning to their point of origin.

As noted in **Section 3.4**, the grain is not received consistently throughout the harvest period and data from CBH suggest that generally 80% of grain is received within 45 days.

For the purposes of assessing the peak period impacts, the following assumptions have been made:

- 80% of total grain tonnes are received within and evenly distributed over 45 days.
- Truck deliveries occur over a 12-hour period, and 10% of all daily volumes are received within a peak hour.

Based on the anticipated total harvest delivery of 7,940 movements (as per **Table 5**) the site will generate:

- 6,352 truck movements during the 45-day peak period.
- 141 movements per day during the 45-day peak.
- 14 movements during a peak hour of the 45-day peak.

Figure 9 shows the predicted harvest period traffic distribution to the surrounding road network and **Figure 10** shows the predicted harvest peak daily and peak hour traffic distribution.

The changes in traffic volumes and movements from the existing operations during the 45-day harvest peak are



summarised as follows (note figures are rounded to the nearest whole number):

- Kulin-Lake Grace Road / Site Entry:
 - A reduction in 28 right turn daily movements from Kulin-Lake Grace Road into the Site Entry (Empty HEM's)
 - An increase in 36 left turn daily movements from Kulin-Lake Grace Road into the Site Entry
- Kulin-Lake Grace Road / Site Exit:
 - A reduction in 28 left turn daily movements from the Site exit onto Kulin-Lake Grace Road (Loaded HEM's)
 - An increase in 36 right turn daily movements from the Site exit onto Kulin-Lake Grace Road
- Kulin Lake Grace Road / Biddy-Camm Road:
 - New movements of 36 right turn daily movements from Kulin Lake Grace Road onto Biddy-Camm Road
 - New movements of 36 left turn daily movements from Biddy-Camm Road onto Kulin Lake Grace Road
- Biddy-Camm Road / Temporary Site Entry/Exit:
 - New movements of 36 right turn daily movements Biddy-Camm Road into the Temporary Site Entry
 - New movements of 36 left turn daily movements from the Temporary Site exit onto Biddy-Camm Road
- Kulin-Lake Grace Road at the Site Entry
 - A reduction in 28 southbound through daily movements (Loaded HEM's)



Figure 9: Harvest Period 45-Day Peak Total Movement Volumes



Figure 10: Harvest Period Peak Daily / Hourly Total Movement Volumes

4. Traffic Impact Assessment

4.1. Assessment Years

The development is assessed based on 2026 network condition.

4.2. Impact on Roads

4.2.1. Road Minimum Widths

The road widths of the surrounding roads were checked against the Rural Road Minimum Width in accordance with Appendix A of the MRWA RAV assessment guideline. The comparison is shown below in **Table 8**.

As previously discussed in **Section 2.3**, there is no data available for Biddy-Camm Road. Therefore, traffic volumes for this road have been conservatively assumed based on the layout and hierarchy of the existing local road network.

Table 8: Rural Road Minimum Width

Road	Location	Existing AADT (No CBH)	Proposed AADT (Peak)	Maximum Speed (RAV) (km/hr)	RAV Status	Existing/ Required Minimum Seal (m)	Existing/ Required Carriageway Width* (m)
Kulin-Lake Grace Road	Between Stubbs Street and Biddy-Camm Road	294	652	100	RAV7	7.0 / 6.5	10.5 / 8.3
Biddy-Camm Road	Between Kulin-Lake Grace Road and Temporary CBH Entry/Exit	90	162	100	RAV 7	7.0 / 6.0	9.0 / 8.0

Notes: *Sealed width or Carriageway width if it is unsealed.

As shown above, the existing road sealed widths comply with the minimum requirements.

4.2.2. Road Safety

The crash history of the adjacent road network (as previously outlined in **Section 2.6**) does not suggest any particular safety issues (there have been no crashes recorded on Biddy-Camm Road, and the crashes recorded on Kulin-Lake Grace Road are typical of a rural Primary Distributor).

4.3. Intersections

4.3.1. Safe Intersection Sight Distance

The Safe Intersection Sight Distance (SISD) is the minimum distance which should be provided on the major road at any intersection. SISD provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation (e.g., in the worst case, stalling across the traffic lanes) and to decelerate to a stop before reaching the collision point.

The SISD is assessed based on the following parameters:

- An observation time of 3 seconds as per Austroads Part 3;
- A reaction time of 2.5 seconds;
- Deceleration coefficients for the purpose of SISD calculations are 0.36 for light vehicles and 0.28 for heavy vehicles (Road Train Type 1 / RAV 7 equivalent);
- Driver eye height is 2.4m for trucks and 1.1m for cars;
- Object height of 1.25m; and
- Sight distance offset 3-5m from edge of proposed holding line.

A comparison of available and required SISD are summarised in **Table 9**.

Table 9: SISD Calculations

Location	Direction	Vehicle Type	Design Speed (km/h)	Coefficient of Deceleration	Decision Time (s)	Decision Time (s)	Longitudinal Grade (%)*	Required SISD (m)	Available SISD (m)
Kulin-Lake Grace Road / CBH Site Exit	NB	Trucks	90	0.28	3.0+2.5	5.5	-1.00	256	+300
		Cars	90	0.36	3.0+2.5	5.5	-1.00	229	+300
	SB	Trucks	90	0.28	3.0+2.5	5.5	-2.00	260	+300
		Cars	90	0.36	3.0+2.5	5.5	-2.00	231	+300
Kulin-Lake Grace Road / Biddy-Camm Road	NB	Trucks	100	0.28	3.0+2.5	5.5	2.00	284	+310
		Cars	110	0.36	3.0+2.5	5.5	2.00	293	+310
	SB	Trucks	100	0.28	3.0+2.5	5.5	-0.50	296	+310
		Cars	110	0.36	3.0+2.5	5.5	-0.50	302	+310
Biddy-Camm Road / Temporary CBH Site Entry and Exit	EB	Trucks	90	0.28	3.0+2.5	5.5	2.50	242	+275
		Cars	90	0.36	3.0+2.5	5.5	2.50	220	+275
	WB	Trucks	90	0.28	3.0+2.5	5.5	-2.50	263	+275
		Cars	90	0.36	3.0+2.5	5.5	-2.50	233	+275

*Positive for through traffic travelling uphill and negative for through traffic travelling downhill. Grades are conservative estimates based on google earth.

As shown in **Figure 11**, the SISD on Kulin-Lake Grace Road is sufficient for northbound and southbound directions to achieve the minimum requirements in accordance with the Austroads Guide to Road Design Part 4A.

As shown in **Figure 12**, the SISD on Kulin-Lake Grace Road to Biddy-Camm Road is sufficient for northbound and southbound directions to achieve the minimum requirements in accordance with the Austroads Guide to Road Design Part 4A.

As shown in **Figure 13**, the SISD on Biddy-Camm Road to Temporary CBH Site Exit is sufficient to achieve the minimum requirement in accordance with the Austroads Guide to Road Design Part 4A for the eastbound and westbound directions. These were calculated assuming a 90km/h speed given that the exit is within the braking/acceleration zone of the stop control at the rail crossing, and if the stop control were ever to be removed, the railway crossing would be posted at 80km/h in accordance with MRWA's Railway Crossing Control Policy and Guidelines.

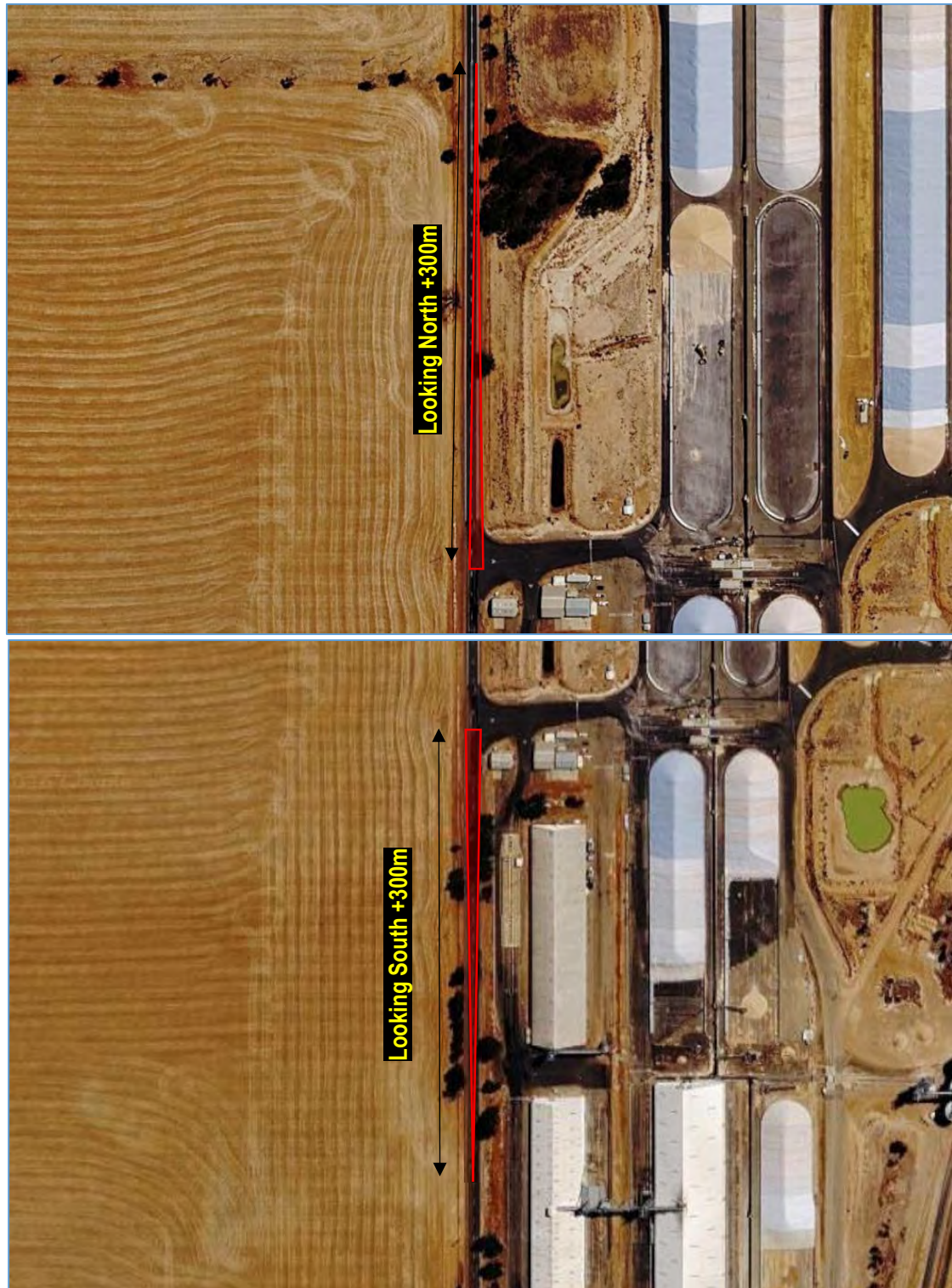


Figure 11: Sight Distance Checks – Kulin-Lake Grace Road (To CBH Site Exit)



Figure 12: Sight Distance Checks – Kulin-Lake Grace Road (To Biddy-Camm Road)



Figure 13: Sight Distance Checks – Biddy-Camm Road (To Temporary CBH Site Entry/Exit)

The line-of-sight photos at the intersections are shown in **Figure 14** through **Figure 19**.



Figure 14: Kulin-Lake Grace Road / CBH Site Exit Intersection Looking North



Figure 15: Kulin-Lake Grace Road / CBH Site Exit Intersection Looking South



Figure 16: Kulin-Lake Grace Road / Biddy-Camm Road Intersection Looking North



Figure 17: Kulin-Lake Grace Road / Biddy-Camm Road Intersection Looking South



Figure 18: Buntine - Marchagee / CBH Site Exit Intersection Looking West



Figure 19: Buntine - Marchagee / CBH Site Exit Intersection Looking East

4.3.2. Approach Sight Distances

The Approach Sight Distance (ASD) is required to ensure that drivers of trucks and light vehicles approaching the Major Road intersection from the Minor Road at the 85th percentile operating speed are able to see the intersection and stop at the holding line.

The ASD is assessed based on the following parameters:

- A reaction time of 2.5 seconds for light vehicles and heavy vehicles;
- Deceleration coefficients for the purpose of SISD calculations are 0.36 for light vehicles and 0.28 for heavy vehicles (Type 1 Road Train / RAV 7 equivalent); and
- Driver eye height is 2.4m for trucks and 1.1m for cars.
- Object height is 0.0m.

The required and available ASD at the intersection has been determined from Austroads Part 4A Equation 2 are summarised in **Table 10**.

Table 10: Approach Sight Distance

Location	Vehicle Type	Design Speed (km/h)	Coefficient of Deceleration	Reaction Time (s)	Longitudinal Grade (%) *	Required ASD (m)	Available ASD (m)
Kulin-Lake Grace Road / CBH Site Exit Intersection	Trucks	40	0.28	2.5	-3.0	53	75+
	Cars	40	0.36	2.5	-3.0	37	75+
Kulin-Lake Grace Road / Biddy-Camm Road Intersection	Trucks	100	0.28	2.5	-2.5	224	250+
	Cars	110	0.36	2.5	-2.5	219	250+
Biddy-Camm Road / Temporary CBH Site Entry/Exit	Trucks	40	0.28	2.5	-1.0	51	75+
	Cars	40	0.36	2.5	-1.0	42	75+

*Positive for traffic travelling uphill and negative for through traffic travelling downhill.

As shown, the ASDs for the intersections are acceptable.

The measurement of ASD for the Kulin-Lake Grace Road / CBH Site Exit Intersection is shown in **Figure 20** and the line of sight is shown in **Figure 21**.

The measurement of ASD for the Kulin-Lake Grace Road / Biddy-Camm Road Intersection shown in **Figure 22**, and the line of sight is shown in **Figure 23**.

The measurement of ASD for the Biddy-Camm Road / Temporary CBH Site Entry/Exit Intersection is shown in **Figure 24**, and the line of sight is shown in **Figure 25**.



Figure 20: Approach Sight Distance Measurement – CBH Site Exit to Kulin-Lake Grace Road



Figure 21 : CBH Site Exit Looking from Kulin-Lake Grace Road



Figure 22: Approach Sight Distance Measurement Biddy-Camm Road to Kulin-Lake Grace Road



Figure 23 : Kulin-Lake Grace Road Looking from Biddy-Camm Road



Figure 24: Approach Sight Distance Measurement - Biddy-Camm Road to Temporary CBH Site Entry/Exit



Figure 25 : Temporary CBH Site Entry/Exit Looking from Biddy-Camm Road

4.3.3. Intersection Volumes

For the purposes of assessing the warrants for auxiliary lanes, the peak hour volumes at the Kulin-Lake Grace Road / CBH Site Entry intersection are shown in **Figure 26**, the Kulin-Lake Grace Road / CBH Site Exit intersection in **Figure 27**, the Kulin-Lake Grace Road / Biddy-Camm Road intersection in **Figure 28**, and the Biddy-Camm Road / Temporary CBH Site Entry/Exit intersection in **Figure 29** (Refer to **Section 3.5** for the detailed peak hour volume estimation).



Figure 26: Intersection Volumes – Kulin-Lake Grace Road / CBH Site Entry

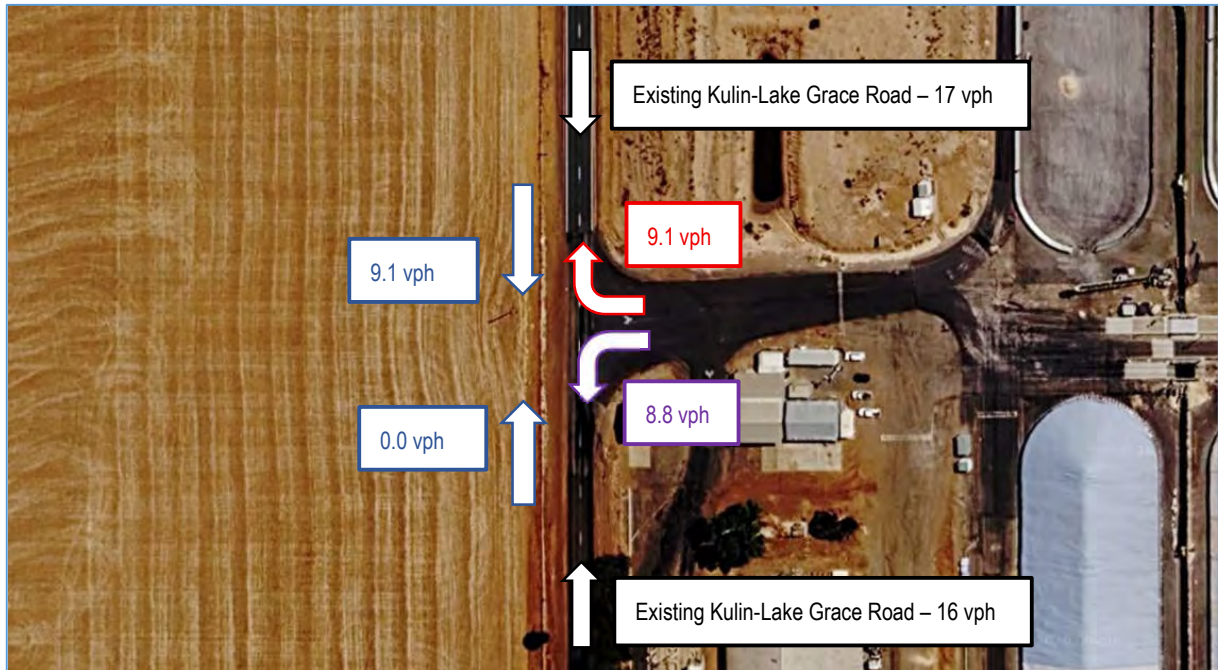


Figure 27: Intersection Volumes – Kulin-Lake Grace Road / CBH Site Exit

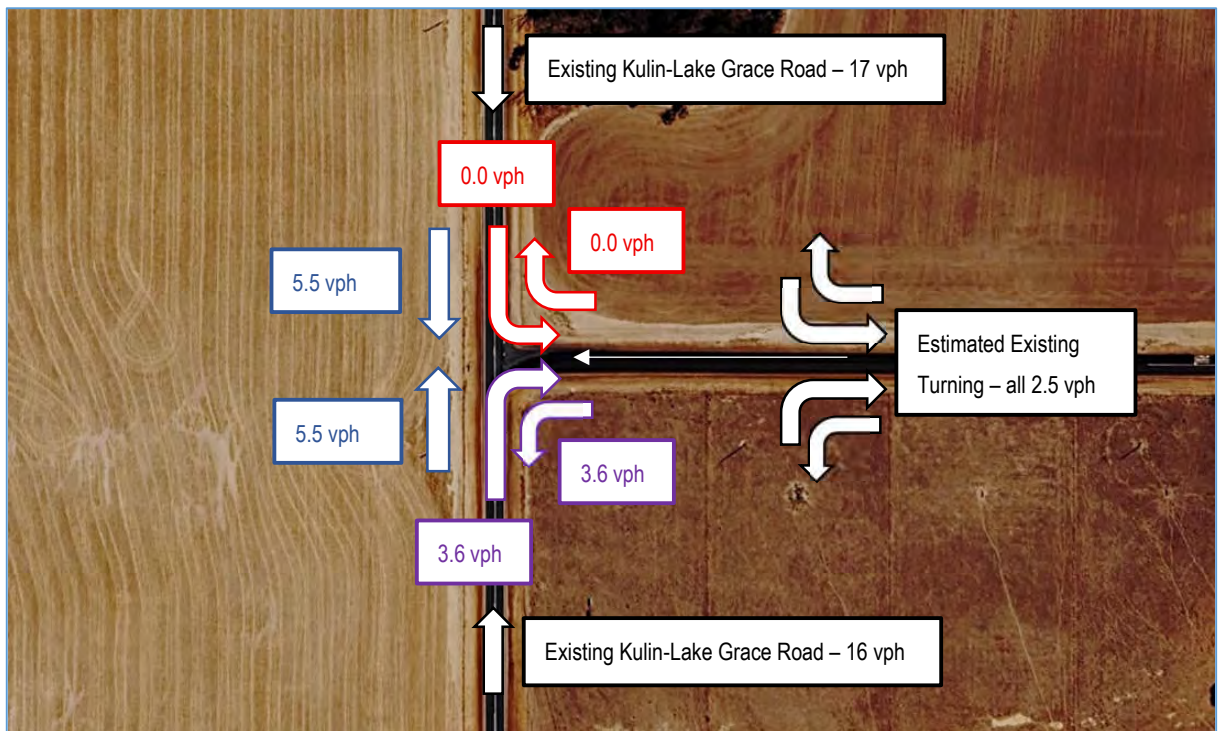


Figure 28: Intersection Volumes – Kulin-Lake Grace Road / Biddy-Camm Road

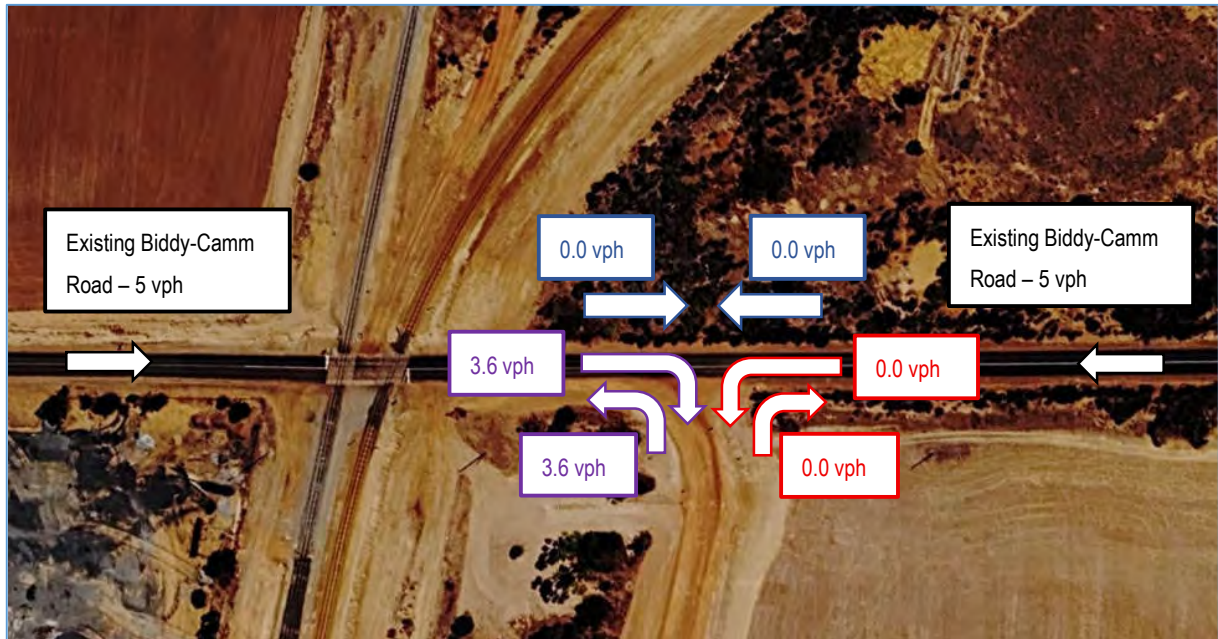


Figure 29: Intersection Volumes – Biddy-Camm Road / Proposed Site Entry/Exit

4.3.4. Auxiliary Lanes

The requirements for turning treatments on Kulin-Lake Grace Road were calculated using the Intersection Warrants calculator provided in Main Roads WA Supplement to Austroads Guide to Road Design - Part 4 A.8. The results of the assessment are shown in **Figure 30**, **Figure 31** and **Figure 32**.

The warrants were not assessed for the site access off Biddy-Camm Road as this is a local government road, and the warrants do not strictly apply to a private access (i.e. not an intersection). Further, the existing traffic volumes are very low (conservatively 10 vehicles in the peak hour).

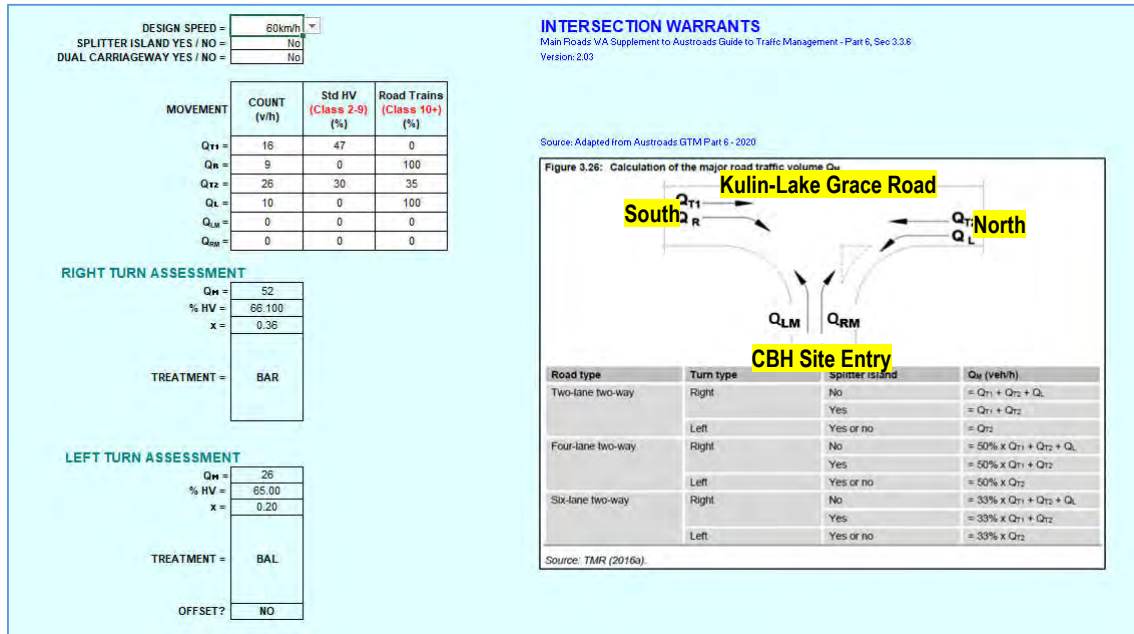


Figure 30: Intersection Configuration Warrants – Kulin-Lake Grace Road / CBH Site Entry Intersection

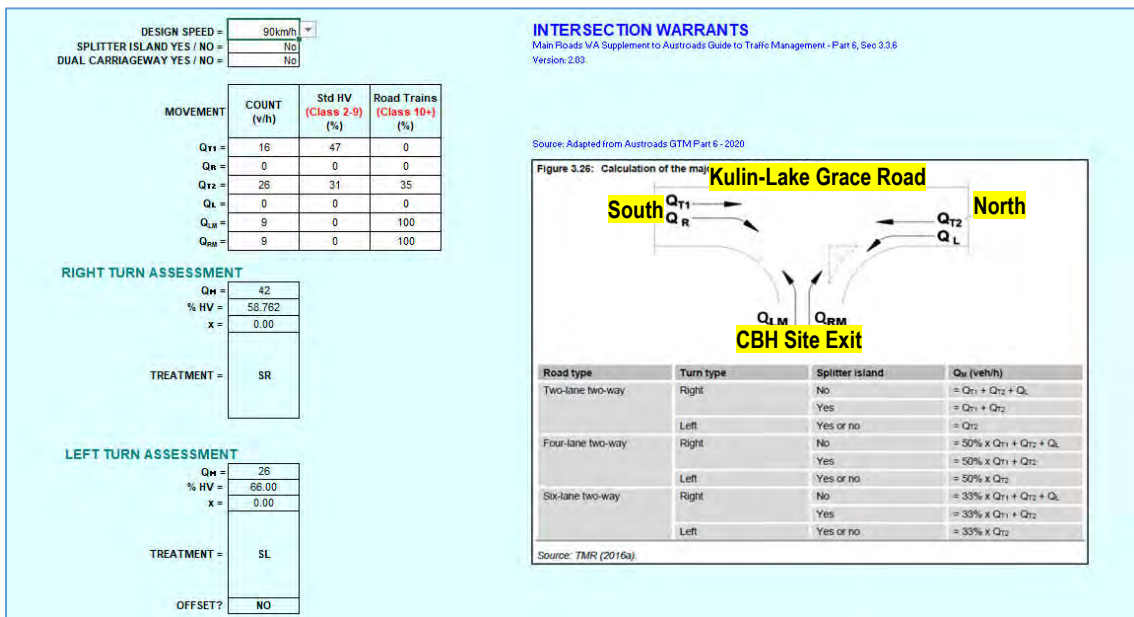


Figure 31: Intersection Configuration Warrants – Kulin-Lake Grace Road / CBH Site Exit Intersection

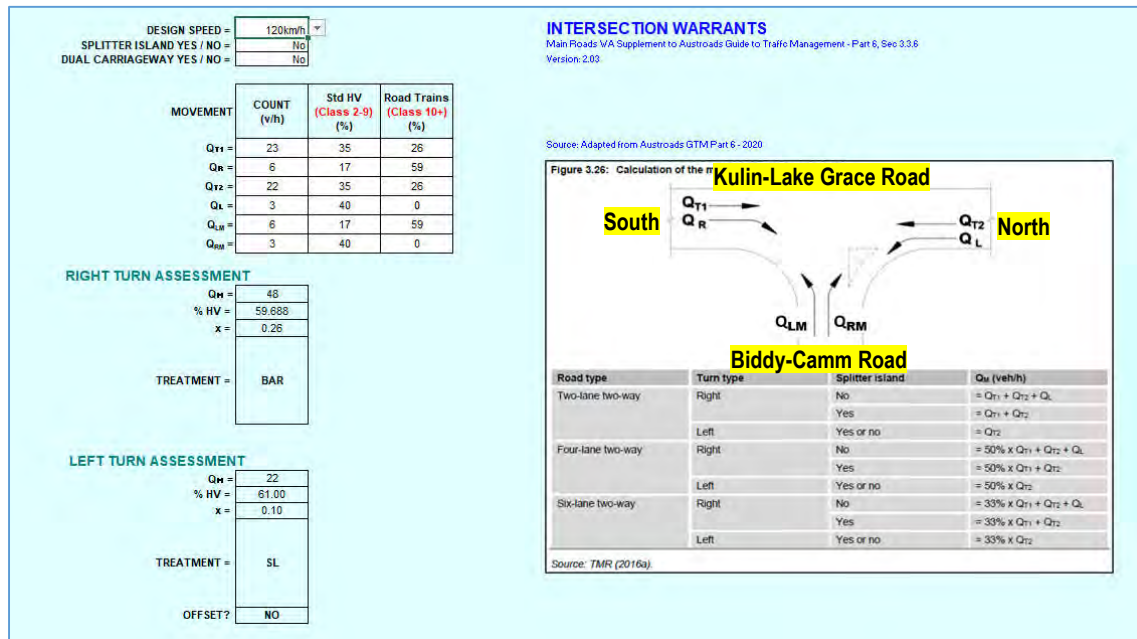


Figure 32: Intersection Configuration Warrants - Kulin-Lake Grace Road / Biddy-Camm Road Intersection

The required left-turn and right turn treatments at the Kulin-Lake Grace Road / CBH Site Entry intersection are Basic Left Turn (BAL) and Basic Right Turn (BAR) treatments. The proposal results in a significant reduction in right turn movements from the existing situation, and it is considered that the BAR treatment is not warranted accordingly. The proposal however, results in a significant increase in left turn movements compared with the existing situation, and so shoulder widening for the BAL may be warranted.

The required left-turn and right turn treatments at the Kulin-Lake Grace / CBH Site Exit are Simple Left Turn (SL) and Simple Right Turn (SR) treatments. This intersection currently has Simple Left Turn (SL) and Simple Right Turn (SR) treatments and accordingly, no modifications are required.

The required left-turn and right turn treatments at the Kulin-Lake Grace / Biddy-Camm Road intersection are Simple Left Turn (SL) and Basic Right Turn (BAR) treatments. This intersection currently has Simple Left Turn (SL) and Simple Right Turn (SR) treatments, and so shoulder widening for the BAR may be warranted.

As per MRWA Guideline drawing 202231-0007, a SL/SR treatment does not require a widened sealed shoulder to be installed at the proposed intersections (refer **Figure 33** for extract) but should be designed to accommodate the swept path movements from the design vehicle.

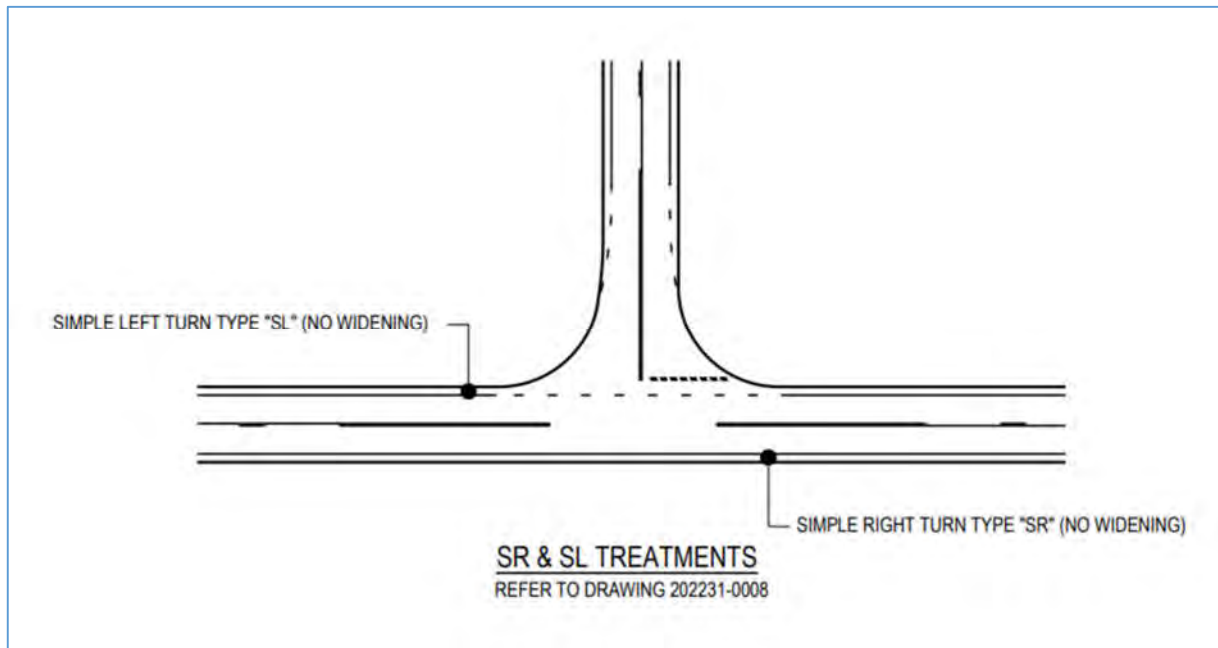


Figure 33: MRWA Guideline Drawing 202231-0007 Extract – SL/SR

As per MRWA Guideline drawing 202231-0007, a BAR/BAL treatment will require widened sealed shoulders and should be designed to accommodate the swept path movements from the design vehicle (refer **Figure 34** for extract).

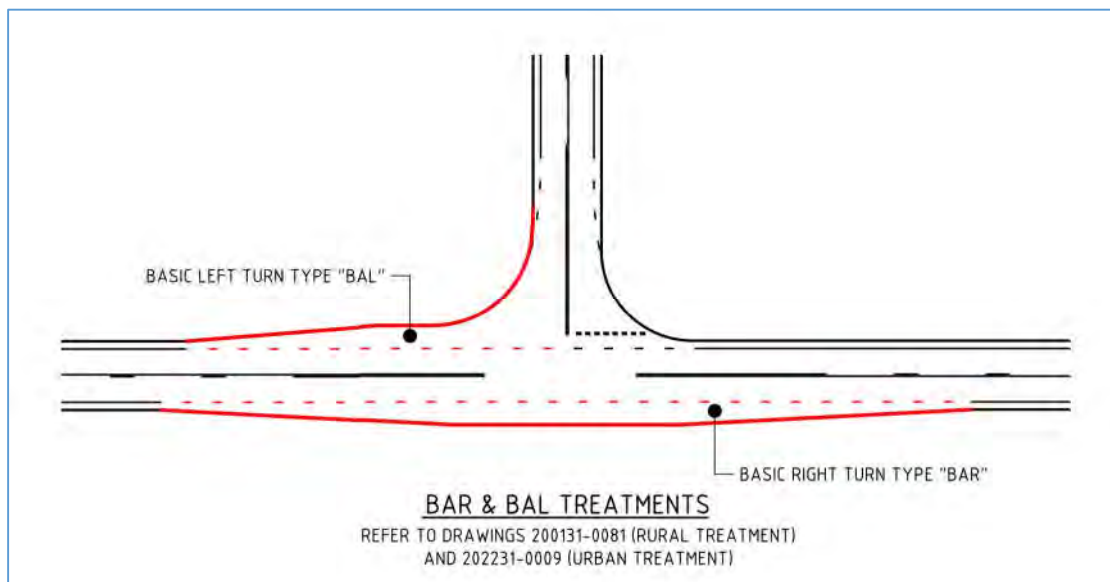


Figure 34: MRWA Guideline Drawing 202231-0007 Extract – BAL/BAR

4.3.5. Swept Path Assessment

A swept path analysis was completed to determine if the existing intersection geometry is sufficient to accommodate the proposed RAV vehicle movements. The analysis has been undertaken in AutoTURN software using the Main Roads WA vehicle template for RAV5-7 vehicles (22m turning radius) and Google maps imagery.

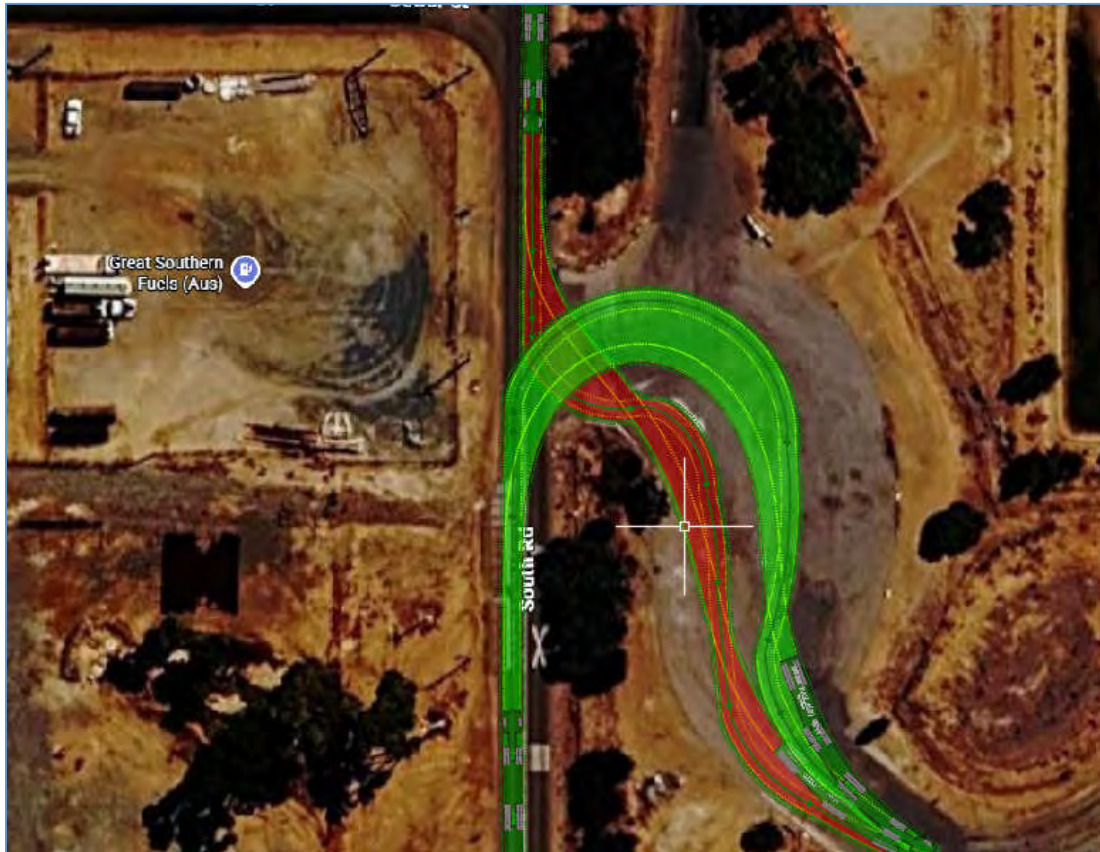


Figure 35: RAV 7 Manoeuvring at Kulin-Lake Grace Road / CBH Site Entry – Left In / Right In Movement

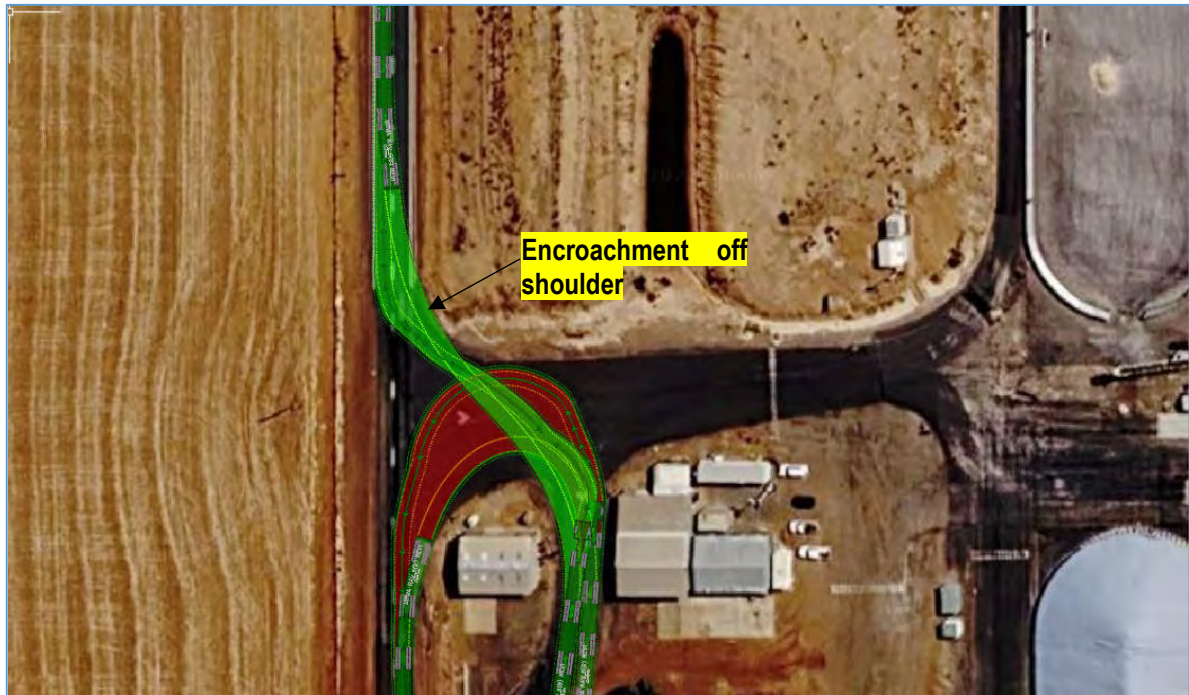


Figure 36: RAV 7 Manoeuvring at Kulin-Lake Grace Road / CBH Site Exit – Left Out / Right Out Movement



Figure 37: RAV 7 Manoeuvring at Kulin-Lake Grace Road / Biddy-Camm Road – Right In / Left Out Movement



Figure 38: RAV 7 Manoeuvring at Biddy-Camm Road / Temporary CBH Site Entry/Exit – Right In / Left Out Movement

The analysis indicates that the designated movements using RAV 7 vehicles can be completed within the existing intersection extents at CBH Entry on Kulin-Lake Grace Road.

The analysis indicates that the designated movements using RAV 7 vehicles cannot be completed within the existing intersection extents at the CBH Exit on Kulin-Lake Grace Road. It is noted that these movements are currently being made on site, and the analysis may reflect conservatism in the swept-path models (particularly lock to lock time in this instance).

At the Kulin-Lake Grace Road / Biddy-Camm Road intersection the vehicles must travel over the unsealed shoulder on the southern side of the intersection and there is evidence of gravel being tracked onto the sealed portion. It is noted that these movements are currently permitted under the RAV network, however it is recommended that, at a minimum, CBH monitor the conditions and undertake sweeping of the sealed pavements and repairs to the shoulder as required.

The analysis indicates the designated movements using RAV 7 vehicles can be completed within the existing intersection geometry at the Kulin-Lake Grace Road / CBH Site Entry intersection. At the temporary site entry and exit on Biddy-Camm Road, the movements can be made within the existing pavement extents, however there is insufficient room for opposing movements to be made at the same time. As per CBH's commentary (refer **Section 1.3**), CBH is not intending to widen the access and proposes to address this issue by installing a stop sign to



ensure movement priority is provided to entering vehicles, and to implement a traffic management plan which would prevent any vehicles travelling to the temporary site until any vehicles within the temporary site have left.

4.4. Railway Crossings

4.4.1. Stacking Distance

As per MRWA's RAV Route Assessment Guidelines the following stacking distance is required:

- **Approach:** RAV Length + 3.5m, measured from the vehicle stopping line at the railway crossing to the nearest shoulder edge of the crossroad.
- **Departure:** RAV Length + 3.5m, measured from the vehicle stopping line at the intersection to within 3.5m of the nearest railway track.

Stacking Distance has been assessed to a 36.5m RAV7 design vehicle, requiring 40m for approach and departure Stacking Distance.

Figure 39 shows the available Stacking Distance for the Biddy-Camm Road Level Crossings.



Figure 39: Stacking Distance – Biddy-Camm Road Level Crossing

The Biddy-Camm Road level crossing has sufficient stacking distance for RAV7 on the eastern and western legs.

4.4.2. Railway Approach Sight Distance

As per MRWA's RAV Route Assessment Guidelines, the driver of a RAV approaching a give way or stop sign controlled rail crossing must be able to see the crossing from a distance conforming to Appendix D of the guidelines. **Figure 40** shows Approach Sight Distance to the level crossing.



Figure 40: Railway Approach Sight Distance - Biddy-Camm Road Level Crossing

As shown, there is adequate sight distance provided to the Rail Crossing.

4.4.3. Railway Sight Distance

As there are now CBH RAV movements along Biddy-Camm Road, sight distance requirements along the railway have been checked. **Figure 41** through **Figure 44** show the line of sight photos from either side of the railway crossing.



Figure 41: Biddy-Camm Level Crossing - West Side Looking North



Figure 42: Biddy-Camm Level Crossing - West Side Looking South



Figure 43: Biddy-Camm Level Crossing - East Side Looking North



Figure 44: Biddy-Camm Level Crossing - East Side Looking South



Figure 45: Available Sight Distance Along Rail Line

The MRWA RAV assessment guidelines outline the sight distance requirements for a RAV, after having stopped at a railway crossing with a Give way or Stop sign in accordance with Australian Standard AS1742.7 (2016) – Manual of Uniform Traffic Control Devices Part 7: Railway Crossings Equation D1.

Equation D1 determines the minimum distance require for the driver of a RAV stopped at the crossing to be able to see an oncoming train to safely cross.

Train speeds have been estimated from the ARC Infrastructure: General Operational Instructions v1.8 website, which confirms an empty train speed of 80km/hr for the Lake Grace to Kuender rail line, and 60km/hr for the Lake Grace to Buniche rail line (refer **Figure 46**).

ARC INFRASTRUCTURE: GENERAL OPERATIONAL INSTRUCTIONS v1.8														
Selection Criteria														
District: ALL Clear All Filters														
Search Results														
Track Speeds Train Hailing Loads Local Instructions Operational Instructions														
Section: Lake Grace Name From: Name To:														
District	Section	Name From	Name To	Km From	Km To	Distance	Footnote	Empty	18t	19t	21t	23t	25t	Pass R/c
GSR	Lake Grace - Hyden	LAKE GRACE	KUENDER	0.000	19.000	19.000		80	80	70	0	0	0	0
GSR	Lake Grace - Hyden	KUENDER	PINGARONG	19.000	44.000	25.000		80	80	70	0	0	0	0
GSR	Lake Grace - Hyden	PINGARONG	KARLGARIN	44.000	78.000	34.000		80	80	70	0	0	0	0
GSR	Lake Grace - Hyden	KARLGARIN	HYDEN	78.000	94.000	16.000		80	70	60	0	0	0	0
GSR	Wagin - Newdegate	TARDIN ROCK	LAKE GRACE	97.000	119.000	22.000		80	80	70	0	0	0	0
GSR	Wagin - Newdegate	LAKE GRACE	BUNICHE	119.000	157.000	38.000		80	50	45	0	0	0	0

Figure 46: ARC Infrastructure General Operational Instructions - Lake Grace Speeds

The following assumptions were used in Equation D1.

- Railway speed (V_t) is assumed to be 80km/hr (Lake Grace to Kuender rail line) and 60km/hr (Lake Grace to Buniche rail line)
- RAV7 Truck (L) – 36.5m Length
- Driver Eye Height – 2.4m
- Sum of the perception time and time to depress clutch (J) – 2.5s
- Width of Road Carriageway (W_r) – 7m
- Width of outer railway track (W_t) – 20m (includes both rail lines)
- Angle between rail track and road (Z) – 85 degrees
- Clearance from the stop line to nearest rail (C_v) – 3.5m
- Clearance from the stop line on the departure side of the crossing (C_t) – 5m
- Average acceleration of RAV – 0.29m/s² (cautious driving)

Based on the sight distance parameters above, **Table 11** shows the minimum required sight distance.

Table 11: Railway Sight Distance

Rail Line	Location / Approach	Design Speed V_t (km/hr)	J (s)	G_s	W_r/W_t (m)	Angle	C_v / C_t (m)	Length of design vehicle (RAV7)	Average acceleration of RAV7 (m/s ²)	Required SD (m)	Available SD (m)	
											N	S
Lake Grace to Kuender	West Side	80	2.5	1	7/18	85	3.5/5	36.5m	0.29	597	600	600
	East Side	80	2.5	1	7/18	85	3.5/5	36.5m	0.29	597	600	600
Lake Grace to Buniche	West Side	60	2.5	1	7/18	85	3.5/5	36.5m	0.29	448	310	600
	East Side	60	2.5	1	7/18	85	3.5/5	36.5m	0.29	448	230	600

As shown, the available sight distance exceeds the minimum requirement for the Lake Grace/Kuender rail line but the Lake Grace/Buniche rail line is deficient due to the alignment of the approach. It is also noted that although the sight distances for the Lake Grace/Kuender rail line are assessed as conforming in the north direction, it is



recommended that the sight lines are checked on site as sight distances could potentially be restricted by vegetation and/or existing terrain.

Due to the restricted sight distances to the Lake Grace/Buniche rail line to the north, and as trucks need to cross the full length of both rail lines when crossing, it is recommended that CBH investigate further (e/g ALCAM assessment) and that implementation of flashing lights/boom gates maybe required.

5. Conclusions

This Transport Impact Statement has been prepared for the proposed works at the CBH Lake Grace Site and has concluded the following:

- CBH estimate that the proposed storage increase will result in a decrease of 1,252 Harvest Essential Moves, or 28 daily movements during the 45-day harvest peak period.
- CBH estimate that the permanent utilisation of the temporary CBH Site will result in additional movements on Kulin-Lake Grace Road, as trucks will need to utilise the main site to 'weigh in' prior to discharging at the temporary site, before returning to the main site to 'weigh out'.
- The estimated traffic generation can be accommodated within the capacity of the adjacent road network.
- The crash history does not suggest any inherent safety issues in the existing road network that would be worsened by the proposal.
- The existing sealed and carriageway widths of the surrounding road are above the minimum road width for their relative RAV categories.
- The available sight distances at all intersections/accesses meet the minimum requirements.
- Due to the restricted sight distances to the Lake Grace/Buniche rail line to the north, and as trucks need to cross the full length of both rail lines when crossing, it is recommended that CBH investigate further (e/g ALCAM assessment) and that implementation of flashing lights/boom gates maybe required.
- Based on MRWA's intersection configuration warrant assessment tool:
 - The required left-turn and right turn treatments at the Kulin-Lake Grace Road / CBH Site Entry intersection are Basic Left Turn (BAL) and Basic Right Turn (BAR) treatments. The proposal results in a significant reduction in right turn movements from the existing situation, and it is considered that the BAR treatment is not warranted accordingly. The proposal however, results in a significant increase in left turn movements compared with the existing situation, and so shoulder widening for the BAL may be warranted.
 - The required left-turn and right turn treatments at the Kulin-Lake Grace / CBH Site Exit are Simple Left Turn (SL) and Simple Right Turn (SR) treatments. This intersection currently has Simple Left Turn (SL) and Simple Right Turn (SR) treatments and accordingly, no modifications are required.
 - The required left-turn and right turn treatments at the Kulin-Lake Grace / Biddy-Camm Road intersection are Simple Left Turn (SL) and Basic Right Turn (BAR) treatments. This intersection currently has Simple Left Turn (SL) and Simple Right Turn (SR) treatments, and so shoulder widening for the BAR may be warranted.
- The swept path analysis indicates that:

- The designated movements using RAV 7 vehicles can be completed within the existing intersection extents at CBH Entry on Kulin-Lake Grace Road.
- The designated movements using RAV 7 vehicles cannot be completed within the existing intersection extents at CBH Exit on Kulin-Lake Grace Road. It is noted that these movements are currently being made on site, and the analysis may reflect conservatism in the swept-path models (particularly lock to lock time in this instance).
- At the Kulin-Lake Grace Road / Biddy-Camm Road intersection the vehicles must travel over the unsealed shoulder on the southern side of the intersection and there is evidence of gravel being tracked onto the sealed portion. It is noted that these movements are currently permitted under the RAV network, however it is recommended that, at a minimum, CBH monitor the conditions and undertake sweeping of the sealed pavements and repairs to the shoulder as required.
- At the temporary site entry and exit on Biddy-Camm Road, the movements can be made within the existing pavement extents, however there is insufficient room for opposing movements to be made at the same time. CBH is not intending to widen the access and proposes to address this issue by installing a stop sign to ensure movement priority is provided to entering vehicles, and to implement a traffic management plan which would prevent any vehicles travelling to the temporary site until any vehicles within the temporary site have left.
- CBH notes that their long-term plans for the site(s) are unclear and would potentially result in different traffic impacts than outlined in this TIS. Accordingly, CBH propose to address the current traffic impacts through continued implementation of a Traffic Management Plan until such time as the long-term plans for the site are confirmed, at which time more substantive upgrades to the road network could be considered.



Appendix A – Traffic Counts



SITE 6097

2025/26

Monday to Friday

 Northbound

Peak Statistics



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

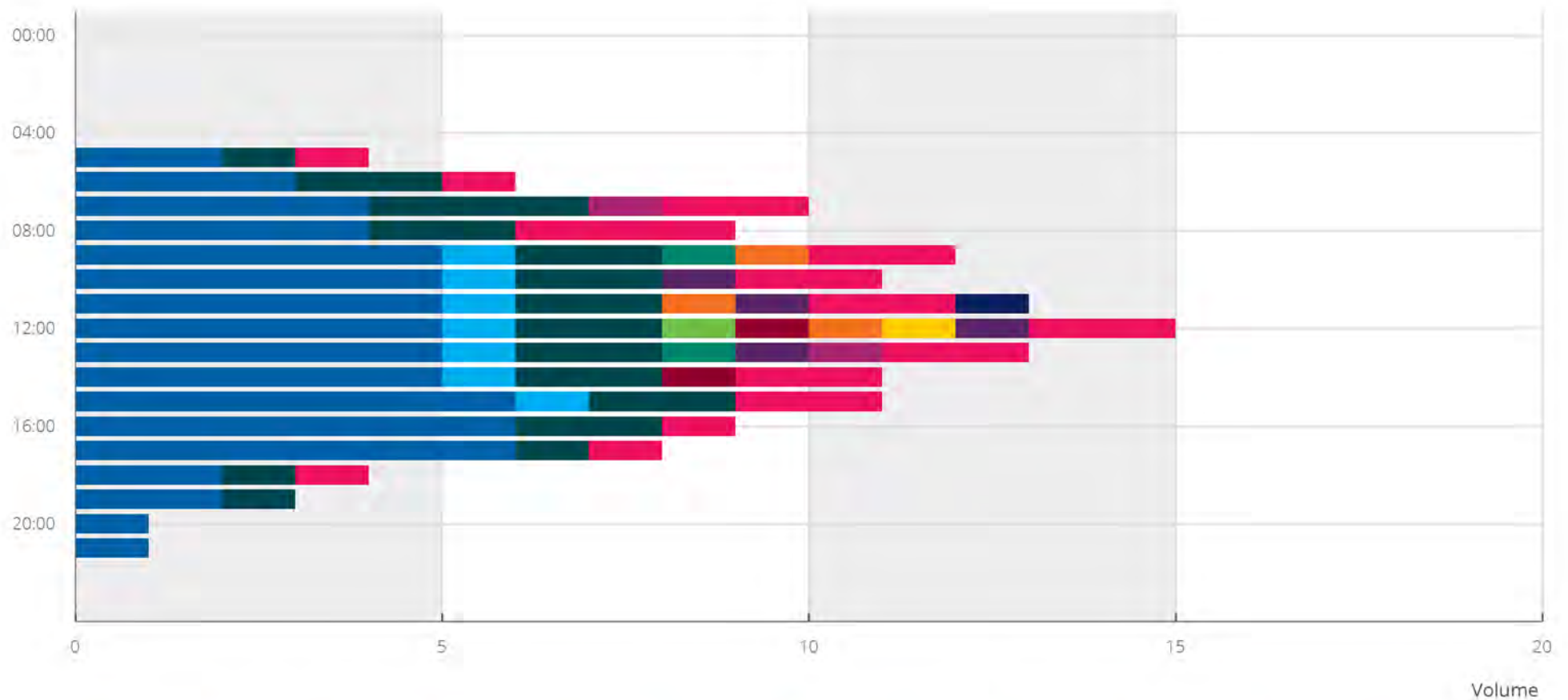
2025/26

Monday to Friday



Northbound

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Monday to Friday

	S Southbound												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	1	0	0	0	0	0	0	0	0	1	0	0	2
06:00	3	0	1	0	0	0	0	0	0	0	1	0	5
07:00	5	0	1	0	0	0	0	0	0	0	2	0	8
08:00	6	1	2	0	0	0	0	0	0	0	2	0	11
09:00	6	1	2	0	0	1	1	1	0	1	3	0	16
10:00	6	1	2	0	0	0	1	0	1	1	2	0	14
11:00	6	1	2	0	0	0	1	0	1	0	3	0	14
12:00	5	1	2	1	0	0	0	0	1	0	2	0	12
13:00	5	1	2	1	0	0	0	0	0	0	2	0	11
14:00	6	1	2	0	0	0	0	0	1	0	2	0	12
15:00	5	0	2	0	1	0	0	0	0	0	2	0	10
16:00	5	1	2	0	0	0	0	0	0	0	2	0	10
17:00	4	0	2	0	0	0	0	0	0	0	1	0	7
18:00	3	0	1	0	0	0	0	0	0	0	1	0	5
19:00	2	0	1	0	0	0	0	0	0	0	1	0	4
20:00	1	0	1	0	0	0	0	0	0	0	0	0	2
21:00	1	0	0	0	0	0	0	0	0	0	0	0	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	70	8	25	2	1	1	3	1	4	3	26	0	144

Peak Statistics										
AM	TIME	10:30	10:15	08:45		09:00	08:15	08:30	10:30	04:30
	VOL	8	2	3		1	1	1	2	1
PM	TIME	15:45	13:30	16:30	12:45	15:15			14:00	15:15
	VOL	6	2	4	2	1			1	3



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

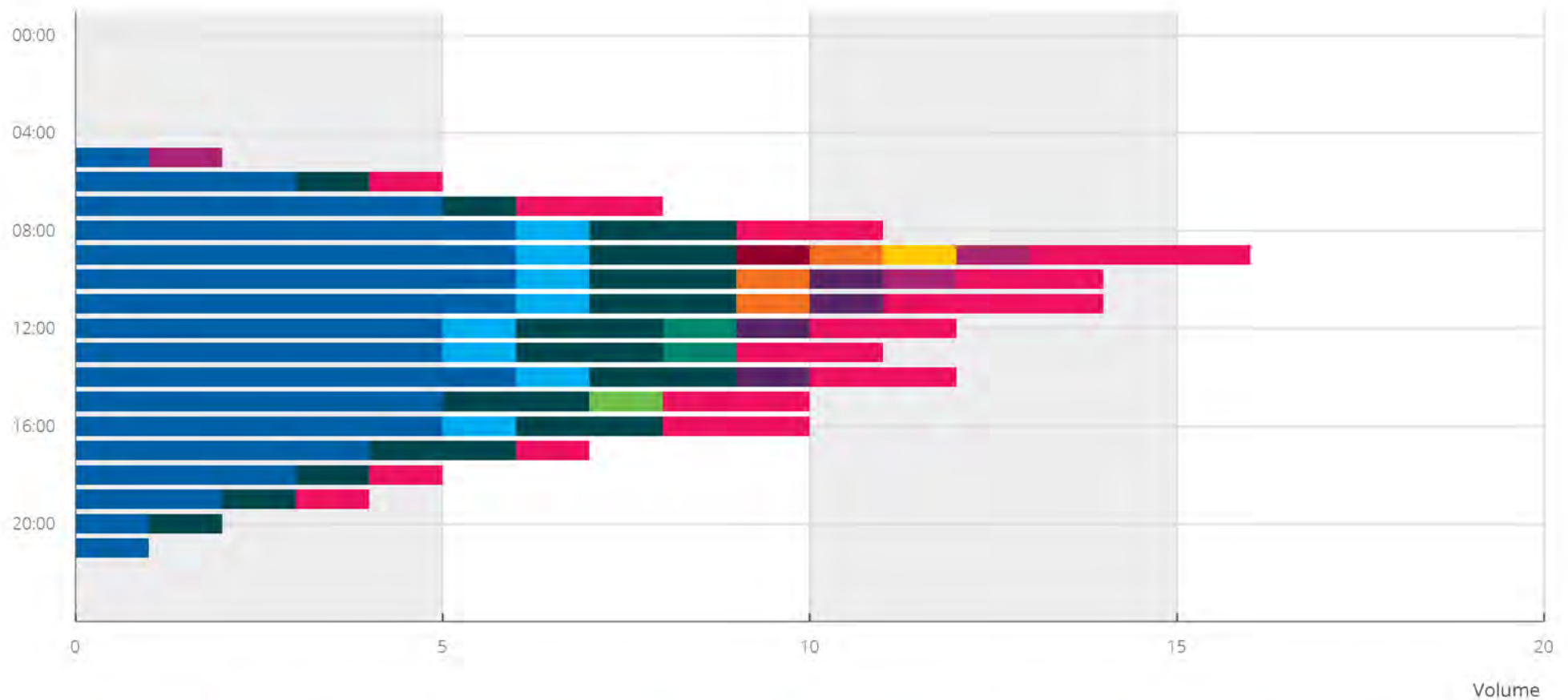
2025/26

Monday to Friday



Southbound

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Monday to Friday

	 Both Directions												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	3	0	1	0	0	0	0	0	0	1	1	0	6
06:00	6	0	3	0	0	0	0	0	0	0	2	0	11
07:00	9	0	4	0	0	0	0	0	0	1	4	0	18
08:00	10	1	4	0	0	0	0	0	0	0	5	0	20
09:00	11	2	4	1	0	1	2	1	0	1	5	0	28
10:00	11	2	4	0	0	0	1	0	2	1	4	0	25
11:00	11	2	4	0	0	0	2	0	2	0	5	1	27
12:00	10	2	4	1	1	1	1	1	2	0	4	0	27
13:00	10	2	4	2	0	0	0	0	1	1	4	0	24
14:00	11	2	4	0	0	1	0	0	1	0	4	0	23
15:00	11	1	4	0	1	0	0	0	0	0	4	0	21
16:00	11	1	4	0	0	0	0	0	0	0	3	0	19
17:00	10	0	3	0	0	0	0	0	0	0	2	0	15
18:00	5	0	2	0	0	0	0	0	0	0	2	0	9
19:00	4	0	2	0	0	0	0	0	0	0	1	0	7
20:00	2	0	1	0	0	0	0	0	0	0	0	0	3
21:00	2	0	0	0	0	0	0	0	0	0	0	0	2
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	137	15	52	4	2	3	6	2	8	5	50	1	285

 Peak Statistics													
AM	TIME	10:30	10:15	10:30	08:15	09:00	11:15	08:30	10:30	04:30	08:15	10:15	10:30
	VOL	14	3	6	1	1	3	1	4	1	6	1	36
PM	TIME	16:15	14:15	16:30	12:45	15:15	14:15	12:00	12:00	13:45	13:45	12:30	12:15
	VOL	12	3	6	3	1	1	1	1	2	1	6	28

Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

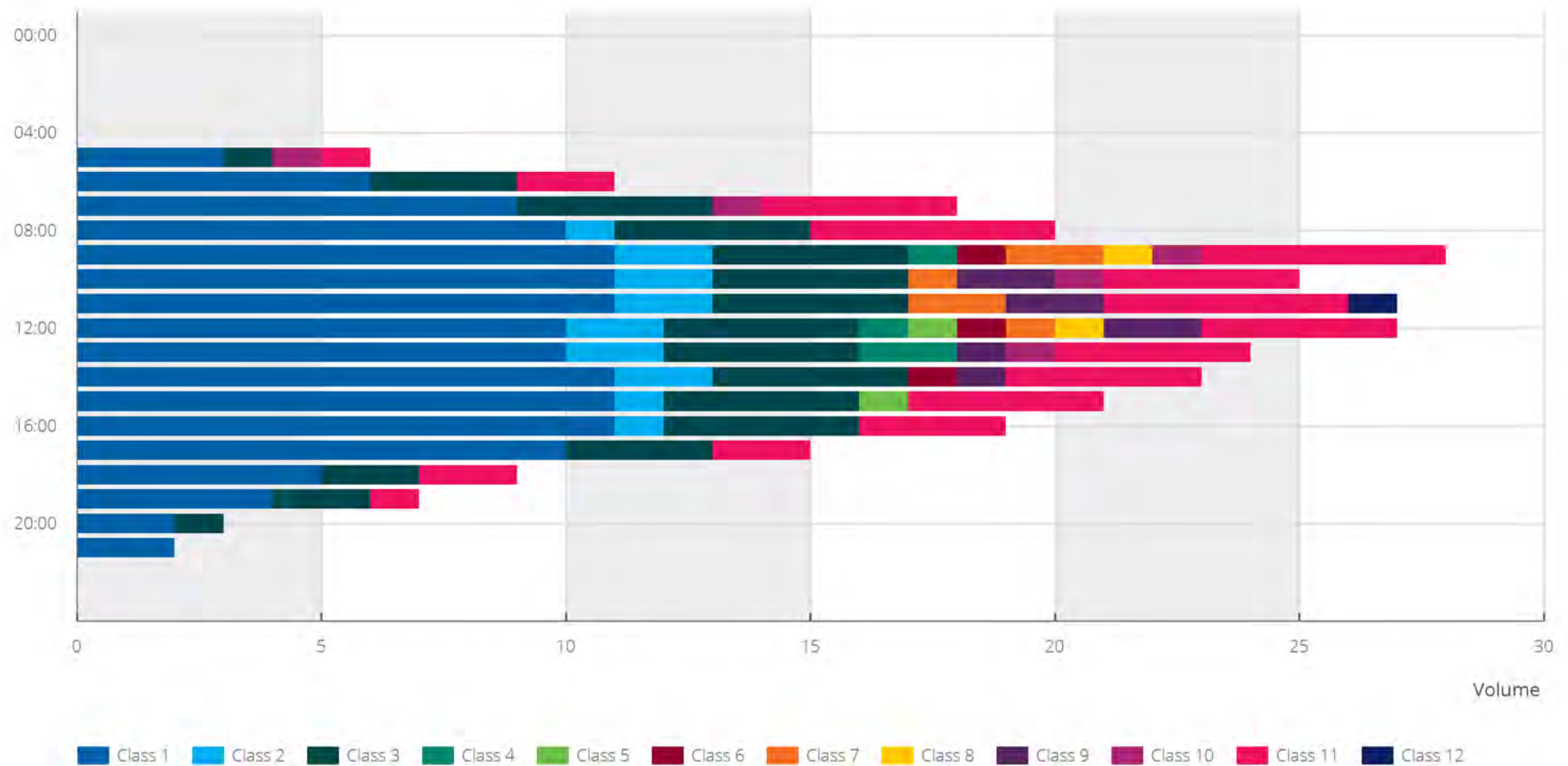
SITE 6097

2025/26

Monday to Friday

 Both Directions

Vehicle Type





SITE 6097

2025/26

Monday to Sunday

 Northbound

 Peak Statistics



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

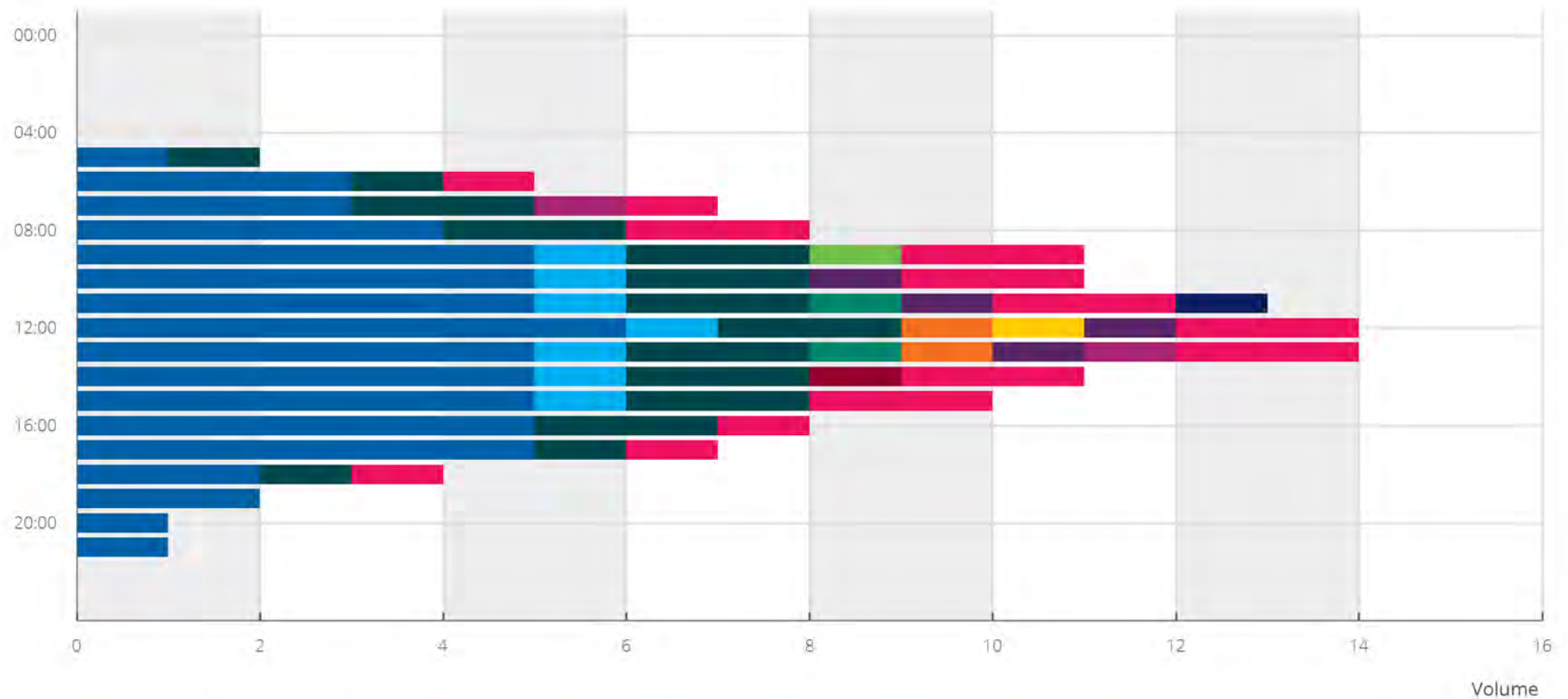
2025/26

Monday to Sunday



Northbound

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Monday to Sunday

	S Southbound												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	1	0	0	0	0	0	0	0	0	1	0	0	2
06:00	2	0	1	0	0	0	0	0	0	0	1	0	4
07:00	5	0	1	0	0	0	0	0	0	0	1	0	7
08:00	5	1	1	0	1	0	0	0	0	0	2	0	10
09:00	6	1	2	0	0	1	0	1	0	0	2	0	13
10:00	6	1	2	0	0	0	1	0	1	1	2	0	14
11:00	6	1	2	0	0	0	1	0	1	0	2	0	13
12:00	5	1	2	1	0	0	0	0	0	0	2	0	11
13:00	5	1	2	1	0	0	0	0	1	0	2	0	12
14:00	5	1	2	0	0	0	0	0	1	0	2	0	11
15:00	5	1	2	0	0	0	0	0	0	0	2	0	10
16:00	4	0	2	0	0	0	0	0	0	0	2	0	8
17:00	4	0	2	0	0	0	0	0	0	0	1	0	7
18:00	3	0	1	0	0	0	0	0	0	0	1	0	5
19:00	2	0	0	0	0	0	0	0	0	0	0	0	2
20:00	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	1	0	0	0	0	0	0	0	0	0	0	0	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	66	8	22	2	1	1	2	1	4	2	22	0	131

 Peak Statistics												
AM	TIME	10:30	09:15	08:45	07:30	09:00	09:15	08:30	09:15	04:30	07:45	09:15
	VOL	7	2	3	1	1	1	1	1	1	3	16
PM	TIME	12:15	14:15	16:30	12:45				14:00		15:15	12:15
	VOL	6	2	4	2				1		3	15



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

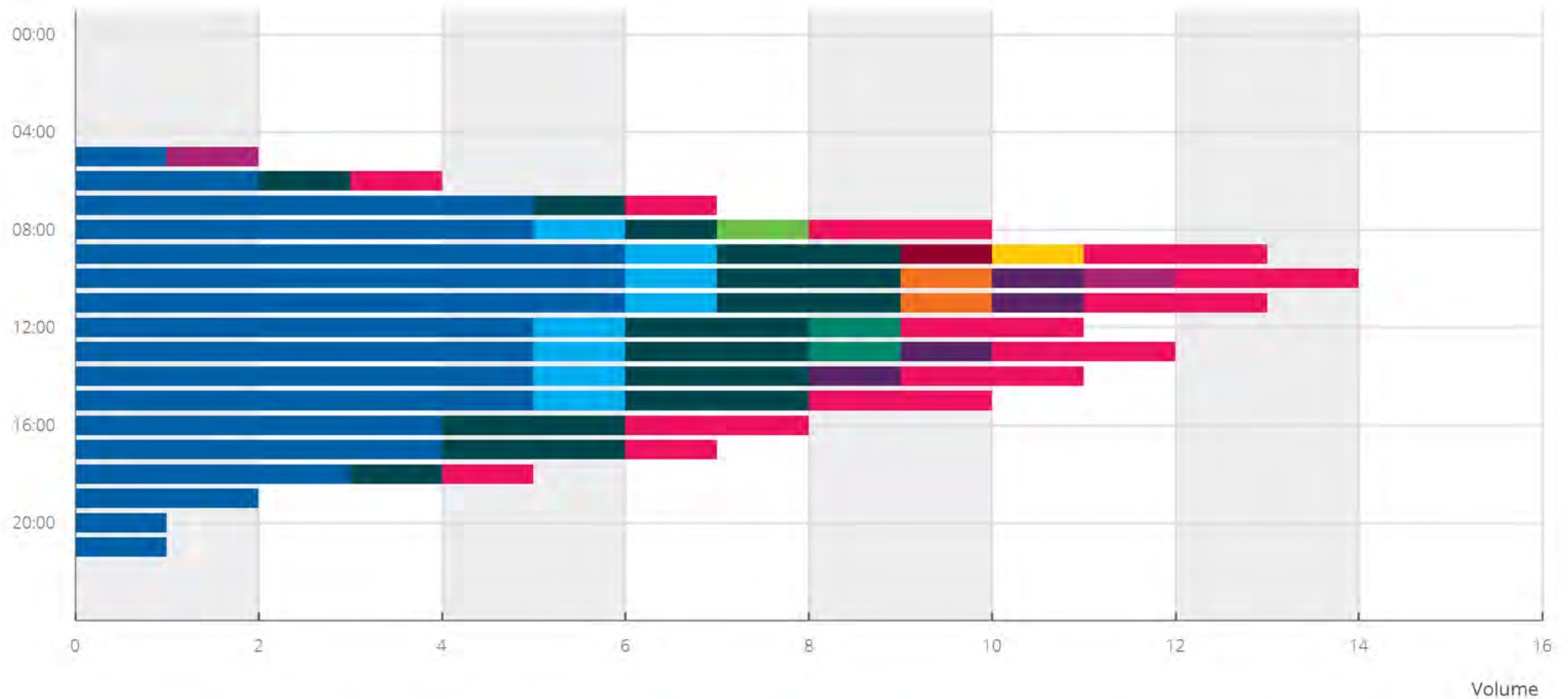
2025/26

Monday to Sunday



Southbound

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Monday to Sunday

	 Both Directions												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	2	0	1	0	0	0	0	0	0	1	0	0	4
06:00	5	0	2	0	0	0	0	0	0	0	2	0	9
07:00	8	0	3	0	0	0	0	0	0	1	2	0	14
08:00	9	1	3	0	1	0	0	0	0	0	4	0	18
09:00	11	2	4	0	1	1	0	1	0	0	4	0	24
10:00	11	2	4	0	0	0	1	0	2	1	4	0	25
11:00	11	2	4	1	0	0	1	0	2	0	4	1	26
12:00	11	2	4	1	0	0	1	1	1	0	4	0	25
13:00	10	2	4	2	0	0	1	0	2	1	4	0	26
14:00	10	2	4	0	0	1	0	0	1	0	4	0	22
15:00	10	2	4	0	0	0	0	0	0	0	4	0	20
16:00	9	0	4	0	0	0	0	0	0	0	3	0	16
17:00	9	0	3	0	0	0	0	0	0	0	2	0	14
18:00	5	0	2	0	0	0	0	0	0	0	2	0	9
19:00	4	0	0	0	0	0	0	0	0	0	0	0	4
20:00	2	0	0	0	0	0	0	0	0	0	0	0	2
21:00	2	0	0	0	0	0	0	0	0	0	0	0	2
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	129	15	46	4	2	2	4	2	8	4	43	1	260

 Peak Statistics														
AM	TIME	09:30	09:45	09:15	10:30	07:30	09:00	09:15	08:30	10:30	04:30	07:45	11:00	09:15
	VOL	12	4	6	1	1	1	1	1	3	1	6	1	28
PM	TIME	12:15	14:15	16:30	12:45		14:00	13:00	12:00	13:45	13:45	12:45		12:45
	VOL	12	4	5	3		1	1	1	2	1	6		29



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

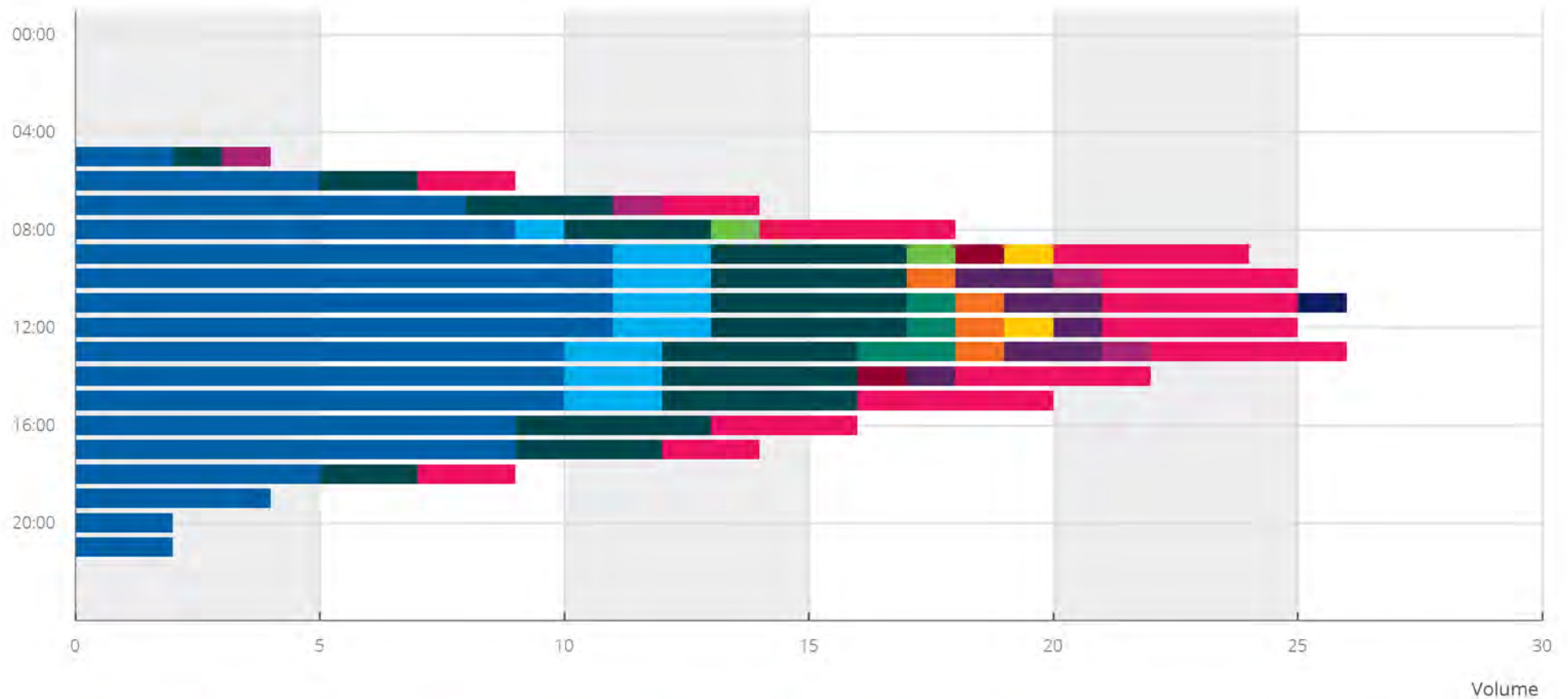
2025/26

Monday to Sunday



Both Directions

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Weekend

	Northbound												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	2	0	1	0	0	0	0	0	0	0	1	0	4
07:00	2	0	1	0	0	0	0	0	0	0	1	0	4
08:00	3	0	1	1	1	0	0	0	0	0	1	0	7
09:00	4	0	1	0	0	0	0	0	0	0	1	0	6
10:00	5	1	2	0	0	0	0	0	1	0	1	1	11
11:00	5	1	2	0	0	0	0	0	0	0	1	0	9
12:00	6	1	1	0	0	0	1	0	0	0	1	0	10
13:00	5	1	2	0	0	1	1	0	1	0	1	0	12
14:00	4	1	1	0	0	0	0	0	0	0	1	0	7
15:00	4	1	1	0	0	0	0	0	0	1	1	0	8
16:00	3	1	1	0	0	0	0	0	0	0	1	0	6
17:00	3	0	1	0	0	0	0	0	0	0	1	0	5
18:00	2	0	1	0	0	0	0	0	0	0	0	0	3
19:00	2	0	0	0	0	0	0	0	0	0	0	0	2
20:00	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	1	0	0	0	0	0	0	0	0	0	0	0	1
22:00	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	54	7	16	1	1	1	2	0	2	1	12	1	98

Peak Statistics											
AM	TIME	11:15	09:45	09:30	08:00	08:00			09:45	07:30	10:00
	VOL	6	1	3	1	1			1	2	1
PM	TIME	12:00	14:15	16:15			13:00	13:45	13:45	15:15	14:15
	VOL	6	2	2			1	1	1	1	2



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

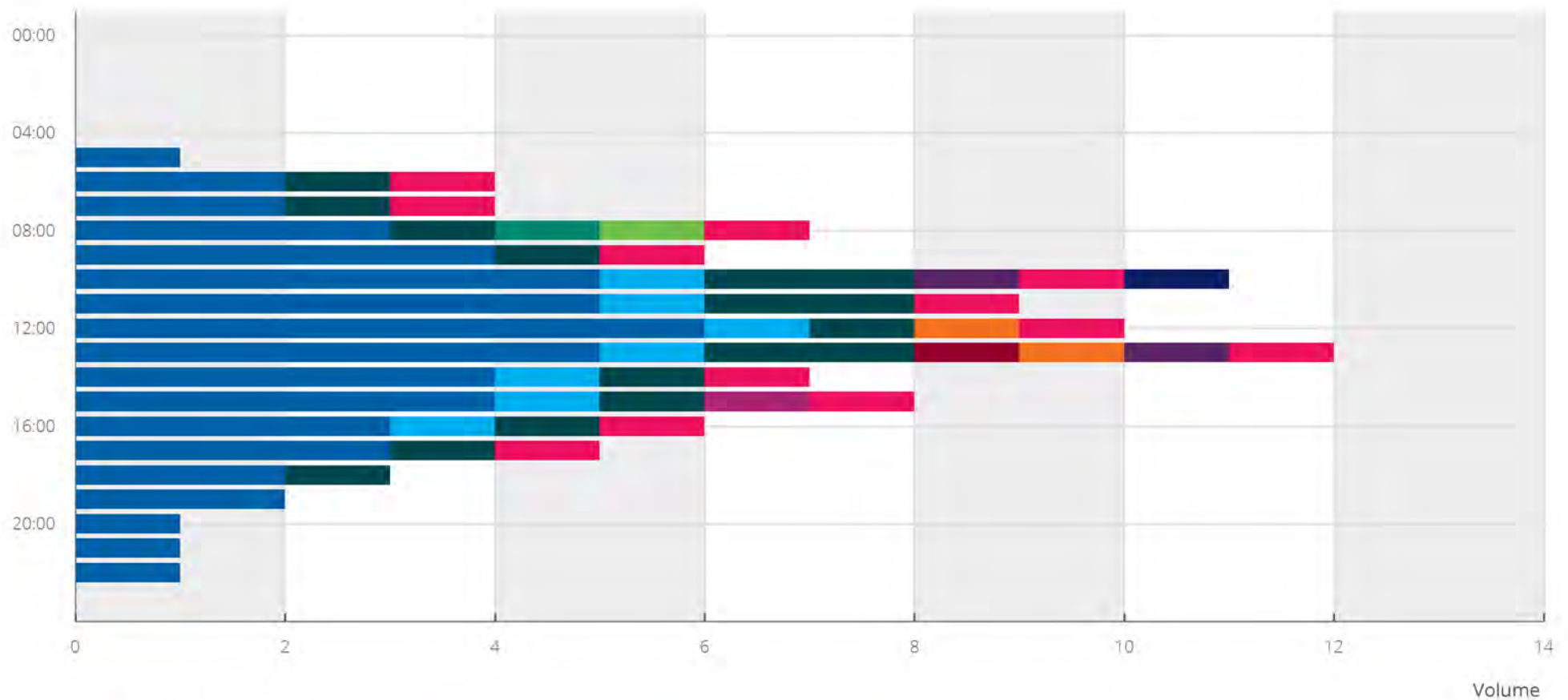
2025/26

Weekend



Northbound

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Weekend

	S Southbound												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	1	0	0	0	0	0	0	0	0	0	1
06:00	1	0	1	0	0	0	0	0	0	0	1	0	3
07:00	2	0	1	0	0	0	0	0	0	0	1	0	4
08:00	4	1	1	0	1	0	0	0	0	0	1	0	8
09:00	5	1	1	0	0	0	1	0	0	0	1	0	9
10:00	6	2	1	0	0	1	0	0	1	0	1	0	12
11:00	5	1	1	0	0	0	1	0	0	0	1	0	9
12:00	5	1	1	1	0	0	0	0	0	1	1	0	10
13:00	5	1	1	1	0	0	0	0	1	0	1	0	10
14:00	5	1	1	0	0	0	0	0	0	0	1	0	8
15:00	4	0	1	0	0	0	0	0	0	0	1	0	6
16:00	3	0	1	0	0	0	0	0	0	0	1	0	5
17:00	3	0	1	0	0	0	0	0	0	0	1	0	5
18:00	3	0	1	0	0	0	0	0	0	0	0	0	4
19:00	2	0	0	0	0	0	0	0	0	0	0	0	2
20:00	1	0	0	0	0	0	0	0	0	0	0	0	1
21:00	1	0	0	0	0	0	0	0	0	0	0	0	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	55	8	14	2	1	1	2	0	2	1	12	0	98

Peak Statistics											
AM	TIME	09:15	09:30	06:45	11:45	07:30	09:15	08:45	09:15	07:45	09:30
	VOL	6	3	2	1	1	1	1	1	2	14
PM	TIME	12:45	13:30	17:30	12:30				13:30	12:45	12:30
	VOL	6	2	2	2				1	1	12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

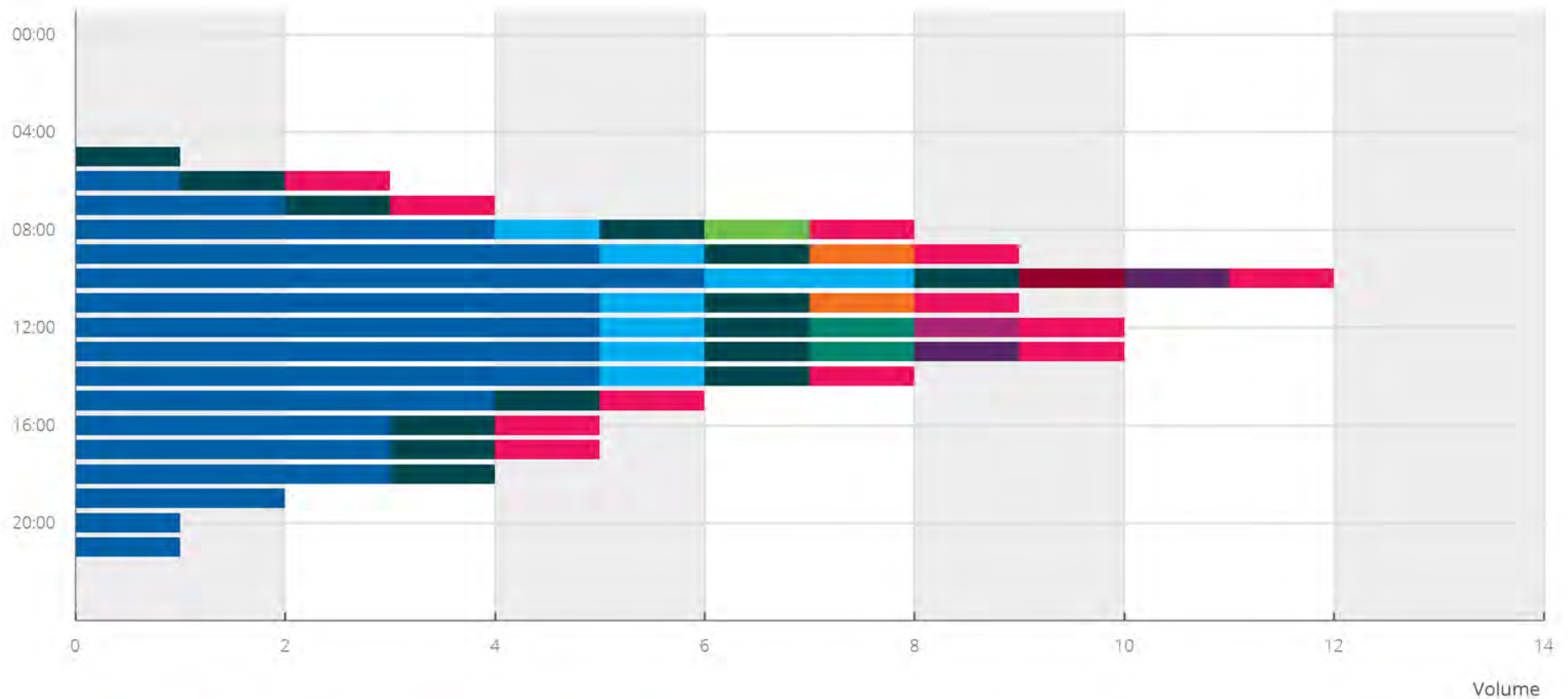
2025/26

Weekend



Southbound

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

2025/26

Weekend

	 Both Directions												
	Vehicle Type												
	1	2	3	4	5	6	7	8	9	10	11	12	All
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	1	0	1	0	0	0	0	0	0	0	0	0	2
06:00	3	0	2	0	0	0	0	0	0	0	2	0	7
07:00	4	0	2	0	0	0	0	0	0	0	2	0	8
08:00	7	1	2	1	2	0	0	0	0	0	2	0	15
09:00	9	1	2	0	0	0	1	0	0	0	2	0	15
10:00	11	3	3	0	0	1	0	0	2	0	2	1	23
11:00	10	2	3	0	0	0	1	0	0	0	2	0	18
12:00	11	2	2	1	0	0	1	0	0	1	2	0	20
13:00	10	2	3	1	0	1	1	0	2	0	2	0	22
14:00	9	2	2	0	0	0	0	0	0	0	2	0	15
15:00	8	1	2	0	0	0	0	0	0	1	2	0	14
16:00	6	1	2	0	0	0	0	0	0	0	2	0	11
17:00	6	0	2	0	0	0	0	0	0	0	2	0	10
18:00	5	0	2	0	0	0	0	0	0	0	0	0	7
19:00	4	0	0	0	0	0	0	0	0	0	0	0	4
20:00	2	0	0	0	0	0	0	0	0	0	0	0	2
21:00	2	0	0	0	0	0	0	0	0	0	0	0	2
22:00	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	109	15	30	3	2	2	4	0	4	2	24	1	196

 Peak Statistics												
AM	TIME	09:30	09:45	09:15	08:00	08:00	09:15	08:45	09:45	07:45	10:00	09:30
	VOL	11	4	4	1	2	1	1	2	4	1	24
PM	TIME	12:45	13:30	13:30	12:30		13:00	13:45	13:30	15:15	14:15	13:30
	VOL	11	4	4	2		1	1	2	1	3	22



Hourly Vehicle Type Volumes

Kulin Lake Grace Rd (M017)

South of North Lake Grace Karlgarin Rd (SLK 88.21)

SITE 6097

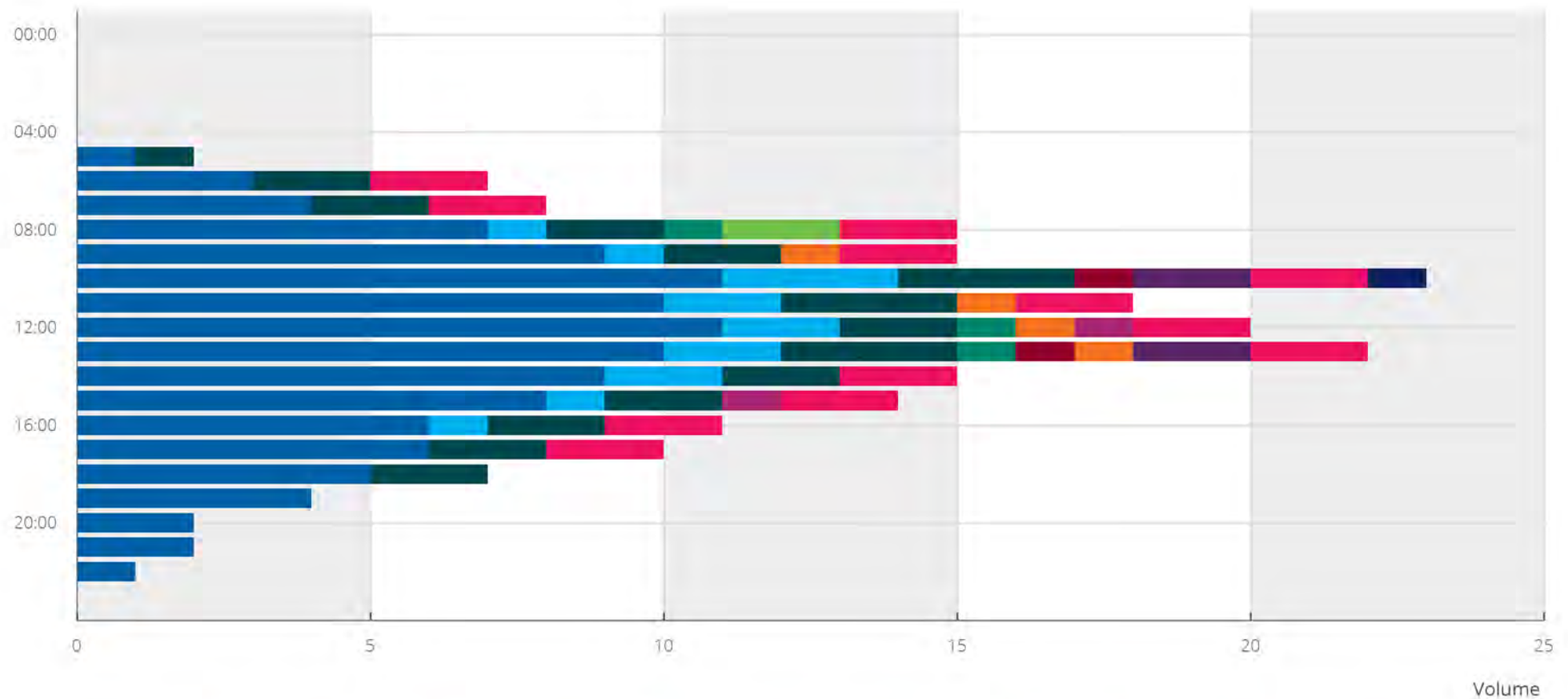
2025/26

Weekend



Both Directions

Vehicle Type



Class 1 Class 2 Class 3 Class 4 Class 5 Class 6 Class 7 Class 8 Class 9 Class 10 Class 11 Class 12