

## 5 CONCLUSIONS

WSP Australia Pty Ltd has assessed the traffic and transport impact of the proposed additional northbound lane on the Southern Outlet which forms part of Sub Project 1 of the Hobart City Deal Southern Projects.

The works will require widening of the Southern Outlet to create a continuous third northbound lane. Widening will be predominantly undertaken along the eastern side towards south of the project site (i.e. CH580–CH1,400) and along the western side towards the middle of the project (i.e. CH1,300–CH1,850) with the transit lane connecting to the existing Bus Lane to intersections with Davey Street and Macquarie Street. Widening towards the eastern side was preferred to avoid risks associated with large rock cuttings on the Southern Outlet at Tolmans Hill. The widening on the western side at Dynnyrne will require property acquisition.

An assessment of the proposed changes has indicated that it would have benefits in terms of more efficient and reliable bus services, and faster journeys for T3 transit vehicles compared to general traffic, thus encouraging the use of higher occupancy vehicles. However, the project will have an impact on the performance of the road network, including increased queuing and travel times on the Southern Outlet in the AM peak for general traffic.

There are several measures that could be implemented to support the project and improve the performance of the road network for all users including:

- The expected take up of the new bus services will reduce traffic and reduce the magnitude of the impacts listed above. This can be enhanced by offering ticketing that encourages use for commuters who can use the services regularly.
- Shifting some trips to occur before (or after) the AM peak will result in significant reductions on congestion on the Southern Outlet. This can be achieved by encouraging businesses, Government departments and schools to stagger their start hours or through other Travel Demand Management strategies and communications.
- Adopting parking policies that acknowledge the new balance between the travel modes, with more people using the bus and using the park-and-ride facilities.
- Promote the new bus services and higher occupancy vehicle lane to local businesses to make CBD workers and shoppers aware of the new opportunities that may offer a better travel choice for their needs.
- Retiming of signals to match the new demand and improve traffic coordination.

The project overall is considered to have positive benefits to the Hobart transport network as it is likely to achieve the objectives and benefits listed in section 1. However, it is acknowledged that the design of the project on the Southern Outlet as it approaches Davey Street has significantly changed the operation of the Southern Outlet approach to the CBD by designating a priority lane for buses and T3 vehicles and reducing the capacity for general traffic to two lanes. This is considered reasonable because:

- These modes of transport (public transport and higher occupancy vehicles) offer additional capacity in the future with higher acceptance and take-up
- This capacity change controls the volume of traffic entering the CBD, providing benefits for pedestrians, cyclists and public transport – which further reinforces the mode shift away from private vehicle use.

# APPENDIX A

CONCEPT DESIGN DRAWINGS



DRAWING SCHEDULE - HOBART VISION PROJECT

PROJECT DRAWING NO.	DRAWING TITLE
GENERAL	
HB194 15-S-CIV-DRG-00001	COVER SHEET
HB194 15-S-CIV-DRG-00002	DRAWING SCHEDULE
HB194 15-S-CIV-DRG-00003	ALIGNMENT KEY PLAN
HB194 15-S-CIV-DRG-00004	COMPUTER FILE LISTING
HB194 15-S-CIV-DRG-00005	LEGEND AND GENERAL NOTES

SP1 SOUTHERN OUTLET - TYPICAL SECTIONS

HB194 15-S-CIV-DRG-10101	TYPICAL SECTIONS - SHEET 1
HB194 15-S-CIV-DRG-10102	TYPICAL SECTIONS - SHEET 2
HB194 15-S-CIV-DRG-10103	TYPICAL SECTIONS - SHEET 3
HB194 15-S-CIV-DRG-10104	TYPICAL SECTIONS - SHEET 4
HB194 15-S-CIV-DRG-10105	TYPICAL SECTIONS - SHEET 5
HB194 15-S-CIV-DRG-10106	TYPICAL SECTIONS - SHEET 6

SP1 SOUTHERN OUTLET - ALIGNMENT PLANS

HB194 15-S-CIV-DRG-11001	ALIGNMENT PLANS - SHEET 1
HB194 15-S-CIV-DRG-11002	ALIGNMENT PLANS - SHEET 2
HB194 15-S-CIV-DRG-11003	ALIGNMENT PLANS - SHEET 3
HB194 15-S-CIV-DRG-11004	ALIGNMENT PLANS - SHEET 4
HB194 15-S-CIV-DRG-11005	ALIGNMENT PLANS - SHEET 5
HB194 15-S-CIV-DRG-11006	ALIGNMENT PLANS - SHEET 6
HB194 15-S-CIV-DRG-11007	ALIGNMENT PLANS - SHEET 7
HB194 15-S-CIV-DRG-11008	ALIGNMENT PLANS - SHEET 8
HB194 15-S-CIV-DRG-11009	ALIGNMENT PLANS - SHEET 9
HB194 15-S-CIV-DRG-11010	ALIGNMENT PLANS - SHEET 10
HB194 15-S-CIV-DRG-11011	ALIGNMENT PLANS - SHEET 11
HB194 15-S-CIV-DRG-11012	ALIGNMENT PLANS - SHEET 12
HB194 15-S-CIV-DRG-11013	ALIGNMENT PLANS - SHEET 13
HB194 15-S-CIV-DRG-11014	ALIGNMENT PLANS - SHEET 14
HB194 15-S-CIV-DRG-11015	ALIGNMENT PLANS - SHEET 15
HB194 15-S-CIV-DRG-11016	ALIGNMENT PLANS - SHEET 16

SP1 SOUTHERN OUTLET - ROLL PLOTS

HB194 15-S-CIV-DRG-11101	ROLL PLOTS - SHEET 1
HB194 15-S-CIV-DRG-11102	ROLL PLOTS - SHEET 2
HB194 15-S-CIV-DRG-11103	ROLL PLOTS - SHEET 3

SP2 MACQUARIE STREET/DAVEY STREET - TYPICAL SECTIONS

HB194 15-S-CIV-DRG-20101	ALIGNMENT PLANS - SHEET 1
HB194 15-S-CIV-DRG-20102	ALIGNMENT PLANS - SHEET 2
HB194 15-S-CIV-DRG-20103	ALIGNMENT PLANS - SHEET 3
HB194 15-S-CIV-DRG-20104	ALIGNMENT PLANS - SHEET 4
HB194 15-S-CIV-DRG-20105	ALIGNMENT PLANS - SHEET 5
HB194 15-S-CIV-DRG-20106	ALIGNMENT PLANS - SHEET 6

SP2 MACQUARIE STREET/DAVEY STREET - ALIGNMENT PLANS

HB194 15-S-CIV-DRG-21001	ALIGNMENT PLANS - SHEET 1
HB194 15-S-CIV-DRG-21002	ALIGNMENT PLANS - SHEET 2
HB194 15-S-CIV-DRG-21003	ALIGNMENT PLANS - SHEET 3
HB194 15-S-CIV-DRG-21004	ALIGNMENT PLANS - SHEET 4
HB194 15-S-CIV-DRG-21005	ALIGNMENT PLANS - SHEET 5
HB194 15-S-CIV-DRG-21006	ALIGNMENT PLANS - SHEET 6
HB194 15-S-CIV-DRG-21007	ALIGNMENT PLANS - SHEET 7
HB194 15-S-CIV-DRG-21008	ALIGNMENT PLANS - SHEET 8
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HB194 15-S-CIV-DRG-21012	ALIGNMENT PLANS - SHEET 12
HB194 15-S-CIV-DRG-21013	ALIGNMENT PLANS - SHEET 13
HB194 15-S-CIV-DRG-21014	ALIGNMENT PLANS - SHEET 14
HB194 15-S-CIV-DRG-21015	ALIGNMENT PLANS - SHEET 15
HB194 15-S-CIV-DRG-21016	ALIGNMENT PLANS - SHEET 16
HB194 15-S-CIV-DRG-21017	ALIGNMENT PLANS - SHEET 17

SP2 MACQUARIE/DAVEY STREET - ROLL PLOTS

HB194 15-S-CIV-DRG-21101	ROLL PLOTS - SHEET 1
HB194 15-S-CIV-DRG-21102	ROLL PLOTS - SHEET 2
HB194 15-S-CIV-DRG-21103	ROLL PLOTS - SHEET 3

SP3 BROWNS ROAD - ALIGNMENT PLANS

HB194 15-S-CIV-DRG-31001	ALIGNMENT PLANS - SHEET 1
HB194 15-S-CIV-DRG-31002	ALIGNMENT PLANS - SHEET 2
HB194 15-S-CIV-DRG-31003	ALIGNMENT PLANS - SHEET 3
HB194 15-S-CIV-DRG-31101	TURNING PATHS

SP3 HUNTINGFIELD AVENUE - ALIGNMENT PLANS

HB194 15-S-CIV-DRG-41001	ALIGNMENT PLANS - SHEET 1
HB194 15-S-CIV-DRG-41101	TURNING PATHS

FILE NAME:

DATE:

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B	CONCEPT DESIGN					03/07/20
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CLIENT

WSP

PROJECT

HOBART SOUTHERN PROJECTS  
SP01, SP02 AND SP03

STATUS

PRELIMINARY

DRAWING TITLE

DRAWING SCHEDULE

DRAWING No.

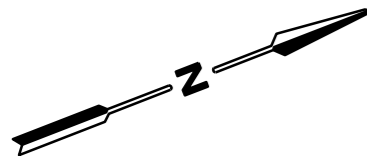
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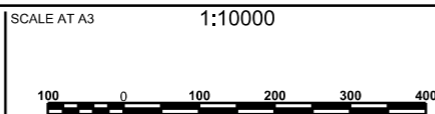
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SP01 AND SP02

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DRAWING TITLE  
KEY PLAN

DRAWING No.  
HB19415-S-CIV-DRG-00003

SHEET  
03

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## SURVEY

CADASTRE BOUNDARIES  
UTILITIES  
ADDITIONAL 3D LINES FOR KERBS IN MACQUARIE AND DAVEY STREET  
3D LINES FOR KERBS IN MACQUARIE AND DAVEY STREET  
PARK AND RIDE 3D SURVEY LINES  
SOUTHERN OUTLET 3D SURVEY LINES

HB19415-S-CIV-XRF-A101.dgn  
HB19415-S-CIV-XRF-A102.dgn  
HB19415-S-CIV-XRF-CH01.dgn  
HB19415-S-CIV-XRF-DE01.dgn  
HB19415-S-CIV-XRF-DE02.dgn  
HB19415-S-CIV-XRF-DE31.dgn  
HB19415-S-CIV-XRF-DE32.dgn  
HB19415-S-CIV-XRF-DE41.dgn  
HB19415-S-CIV-XRF-DE42.dgn  
HB19415-S-CIV-XRF-DE43.dgn  
HB19415-S-CIV-XRF-DR11.dgn  
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HB19415-S-CIV-XRF-KP02.dgn  
HB19415-S-CIV-XRF-LM01.dgn  
HB19415-S-CIV-XRF-S111.dgn  
HB19415-S-CIV-XRF-TS01.dgn  
HB19415-S-CIV-XRF-TS02.dgn  
HB19415-S-CIV-XRF-XS01.dgn  
PS Title Block.dgn

AERIAL  
AERIAL PARK & RIDES  
CHAINAGES  
DESIGN SOUTHERN OUTLET  
DESIGN MACQUARIE/DAVEY STREETS  
DESIGN BROWNS ROAD PARK & RIDE  
DESIGN  
DESIGN  
DESIGN  
DESIGN  
DR11  
KEYPLAN  
KEYPLAN PARK & RIDES  
LINE MARKING  
SI11  
TYPICAL CROSS SECTIONS - SOUTHERN OUTLET  
TYPICAL CROSS SECTIONS - MACQUARIE/DAVEY STREETS  
CROSS SECTIONS - SOUTHERN OUTLET  
TITLE BLOCK

	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	APPROVED	DATE	SCALE AT A3	NTS	pitt&sherry	CLIENT WSP	PROJECT HOBART SOUTHERN PROJECTS SP01, SP02 AND SP03	DRAWING TITLE COMPUTER FILE LIST	SHEET 04
B	CONCEPT DESIGN	6	36			03/07/20			pittsh.com.au Phone 1300 748 874 ABN 67 140 184 309		STATUS <b>PRELIMINARY</b>	DRAWING No. HB19415-S-CIV-DRG-00004	REV B
A	80% SUBMISSION					23/04/20			© 2019 PITT & SHERRY (OPERATIONS) PTY LTD. THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT.				

SURVEY

	TREE		LINE MARKING (NON -CONTOUR)
	REINFORCED CONCRETE PIPE		KILOMETRE POST
	BOX CULVERT		SIGNS
	UNDERGROUND DRAINAGE		LETTER BOX ( AUST. POST )
	SIDE ENTRY PIT		TRAFFIC SIGNAL POLE
	GRATED PIT		TRAFFIC SIGNAL BOX
	JUNCTION PIT		TRAFFIC SIGNAL PIT
	OTHER DRAINAGE PIT		EMERGENCY TELEPHONE
	WING WALL		ROAD FURNITURE (UNCLASSIFIED)
	OBVERT - CULVERT PIPE		MONUMENT/HISTORIC MARK
	END WALL		JOINT USE POLE
	FLUSHER PIT		CABLE PIT
	BUS/TRAM SHELTER		DETECTOR PIT
	RAILWAY STANCHION (LEFT)		RED LIGHT CAMERA FLASH
	BOUNDARY INTERSECTION		RED LIGHT CAMERA
	GATE		SIDE MOUNTED SIGN
	PERMANENT SURVEY MARK		CENTRE MOUNTED SIGN
	SPOT ON BITUMEN		MULTIPLE MOUNTED SIGN
	CERAMIC DELINEATORS/MARKS		BOLLARD
	TRAMWAYS POLE		STAY FOR POLE

EXISTING SERVICES

	DRAIN
	SEWER
	WATER
	ELECTRICITY (UNDERGROUND)

DESIGN WORKS

	KERB AND CHANNEL
	GUARD FENCE
	WIRE ROPE SAFETY BARRIER
	CONCRETE BARRIER
	IMPACT ATTENUATOR
	FENCE
	GATE
	RETAINING WALL
	NOISE WALL
	EXISTING PAVEMENT AREAS
	ULTIMATE DESIGN WORKS (WHERE SHOWN)

GENERAL NOTES

- DRAWINGS TO BE READ IN ACCORDANCE WITH URBAN DESIGN AND ARCHITECTURAL DESIGN DRAWINGS
- DESIGN SOLUTION DEVELOPED IN CONSULTATION WITH TRAFFIC MODELLING.
- WHERE GUARDFENCE POSTS ARE WITHIN 300mm OF DRAINAGE OR SERVICES, ADOPT CONCRETE STRIP FOOTING.
- NEW KERBS TO TRANSITION TO EXISTING KERB OVER 1m.

SET-OUT NOTES

- ALL COORDINATES ARE EXPRESSED TO MGA ZONE 55 AND REDUCED LEVEL ARE AHD.
- ALL LANE DIMENSIONS SHOWN ARE TO LINE OF KERB OR FB BARRIER.

BARRIER TYPES

REG	REGULAR CONTAINMENT LEVEL.
GF	GUARD FENCE
RW	RETAINING WALL (INTEGRAL).

DRAINAGE LEGEND

	PROPOSED DRAINAGE PIPE
	SWALE DRAIN
	DRAINAGE SIDE ENTRY PIT
	DRAINAGE GRATED SIDE ENTRY PIT
	DRAINAGE JUNCTION PIT
	DRAINAGE GRATED PIT
	CONCRETE HEADWALL

BARRIER KEY AND DETAILS

TERMINAL  
CH711  
OFFSET 1.3m  
LINE OF KERB

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HOBERT SOUTHER PROJECTS  
SP01, SP02 AND SP03

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LEGEND AND NOTES

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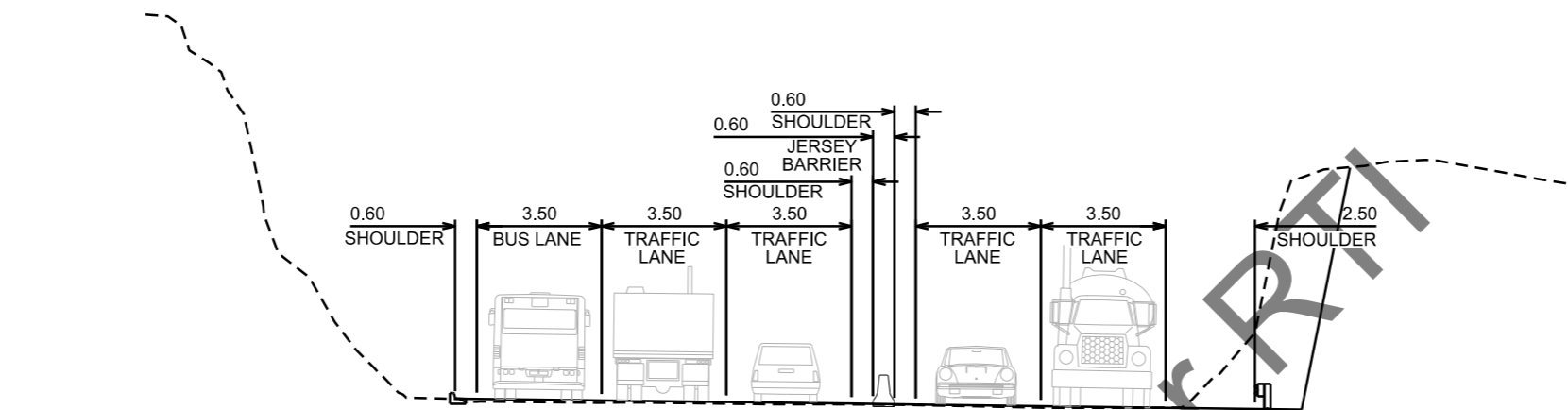
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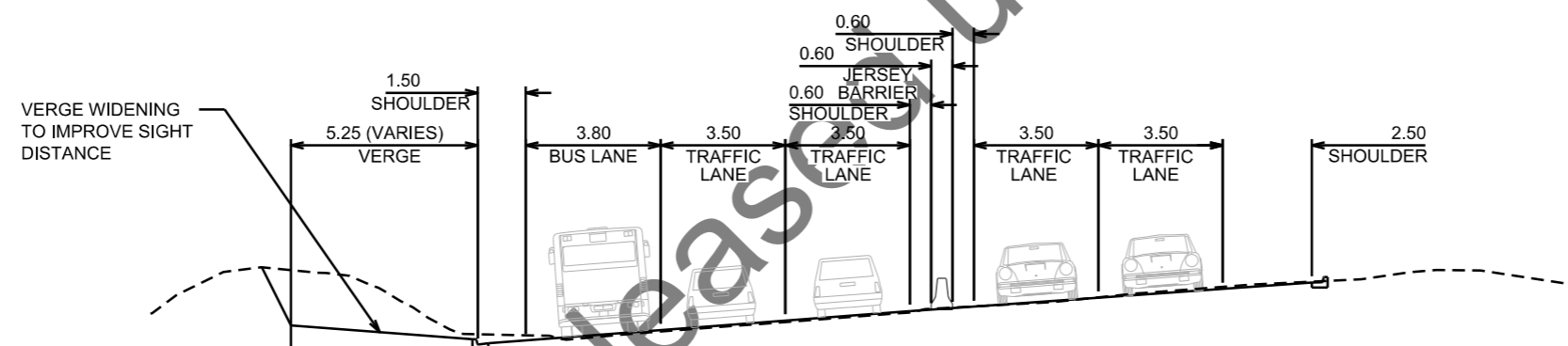
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TYPICAL SECTION  
CH 700



TYPICAL SECTION  
CH 620

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PROJECT

HOBART SOUTHERN PROJECTS  
SP01

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TYPICAL SECTIONS  
SHEET 1

DRAWING No.

HB19415-S-CIV-DRG-10101

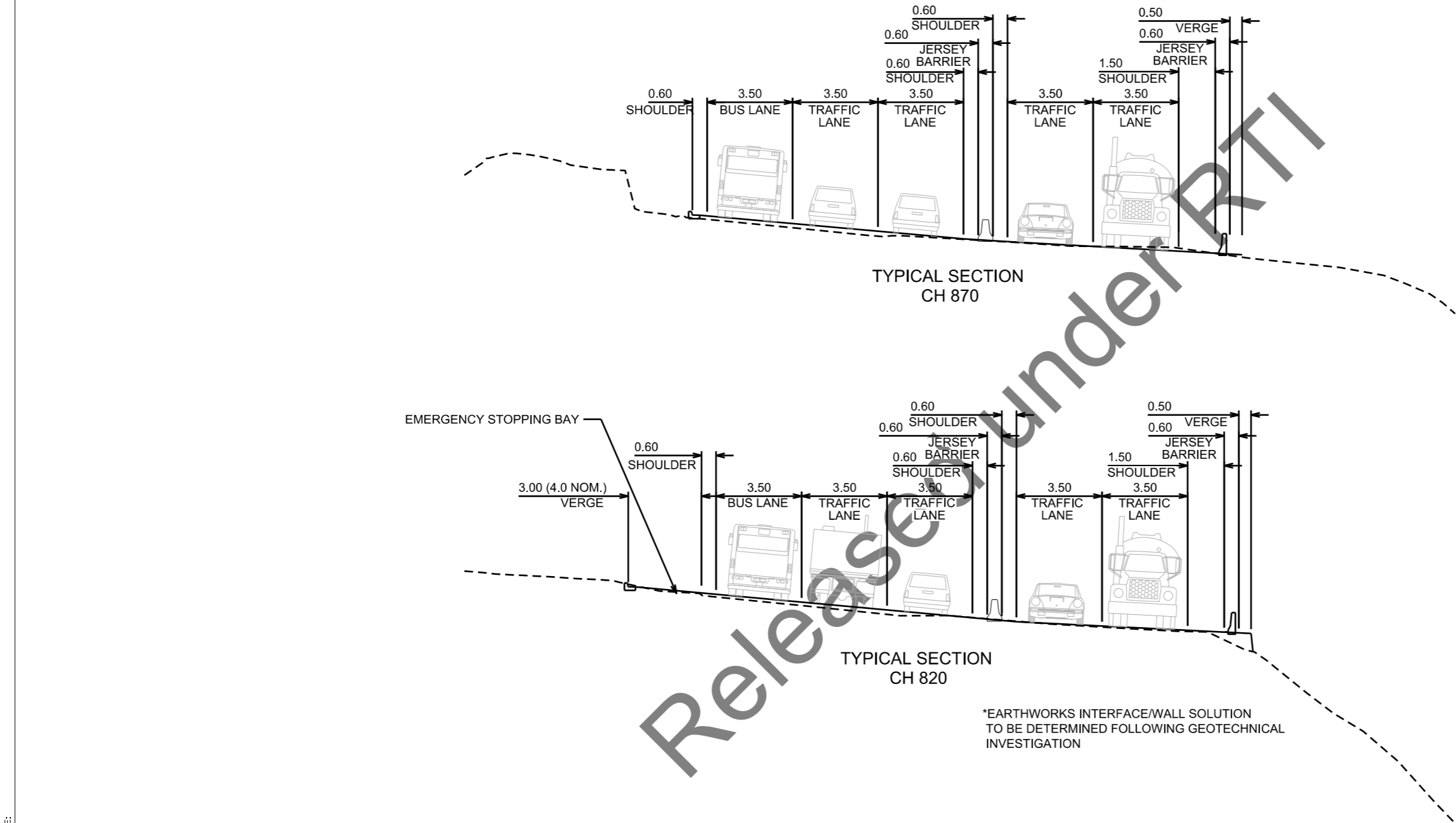
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01

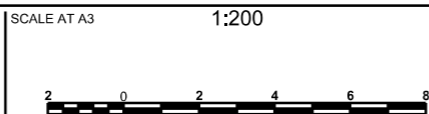
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PROJECT  
**HOBART SOUTHERN PROJECTS  
SP01**

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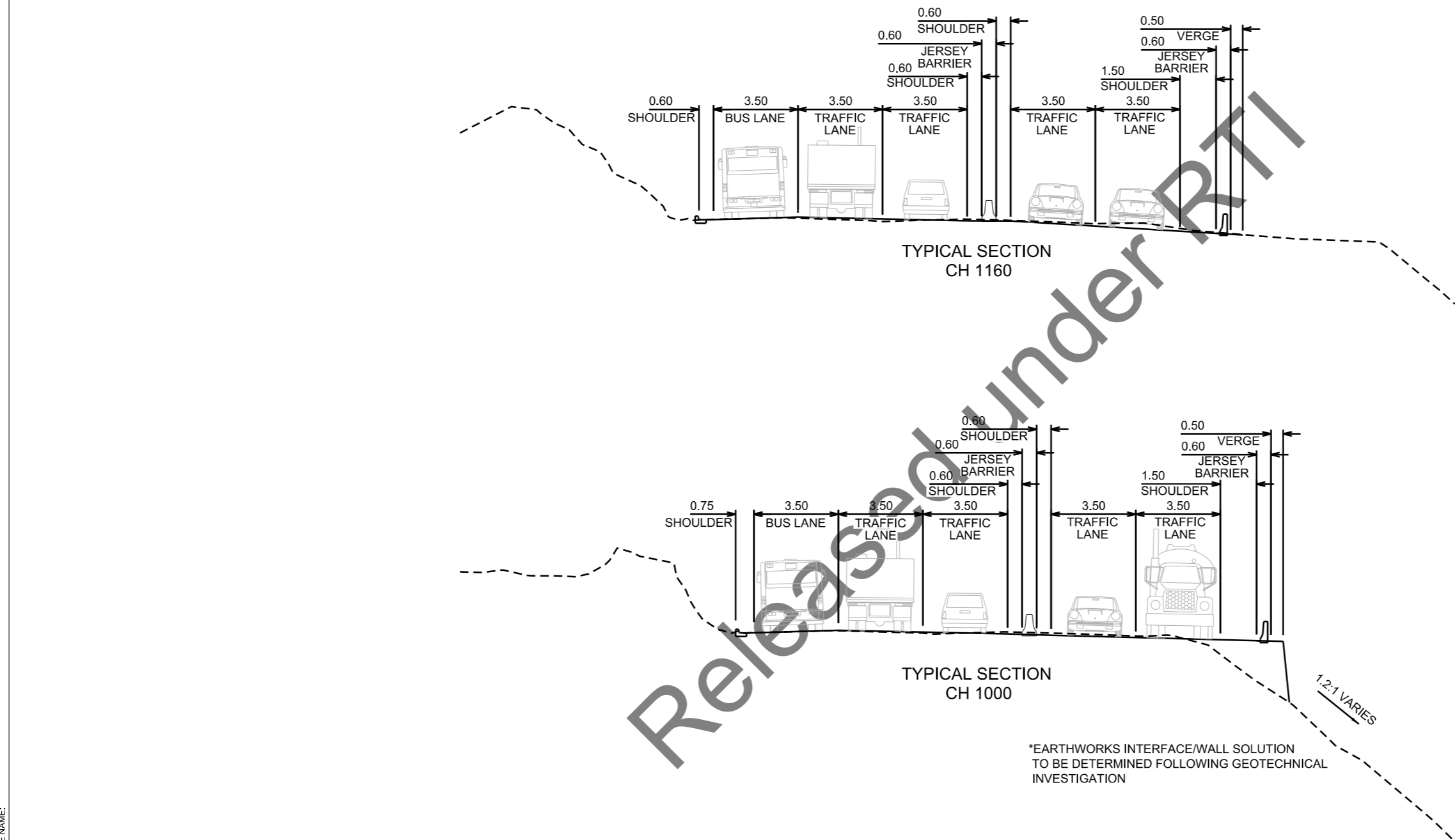
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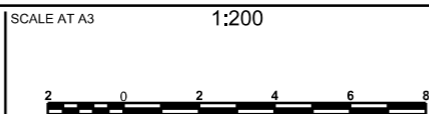
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PROJECT  
**HOBART SOUTHERN PROJECTS  
SP01**

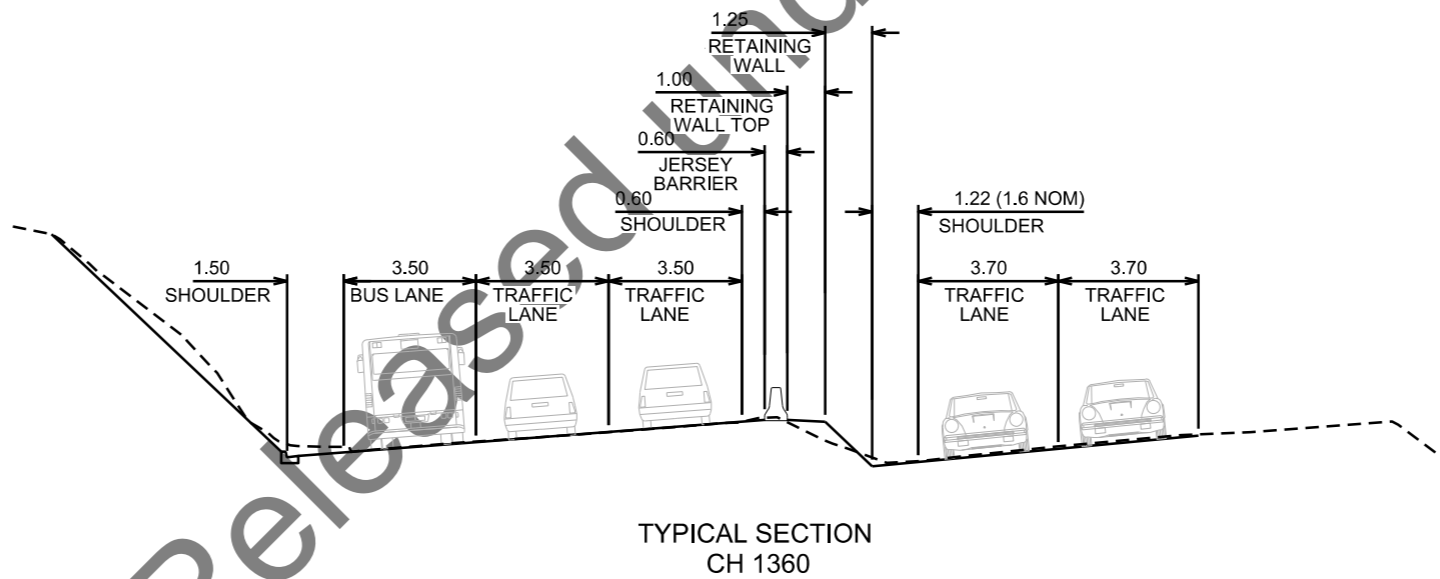
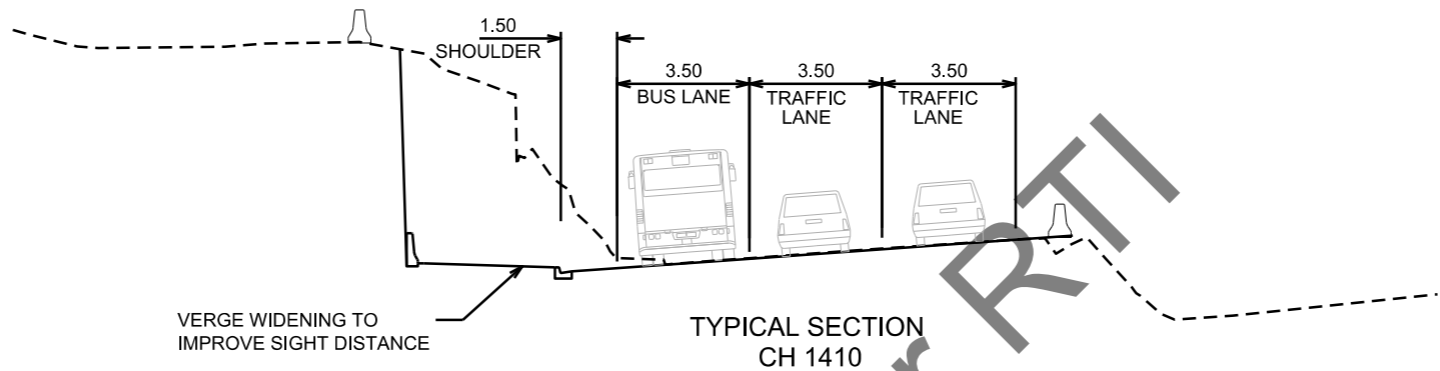
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SHEET 3**

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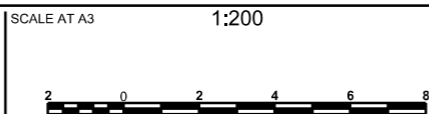
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PROJECT  
**HOBART SOUTHERN PROJECTS  
SP01**

STATUS  
**PRELIMINARY**

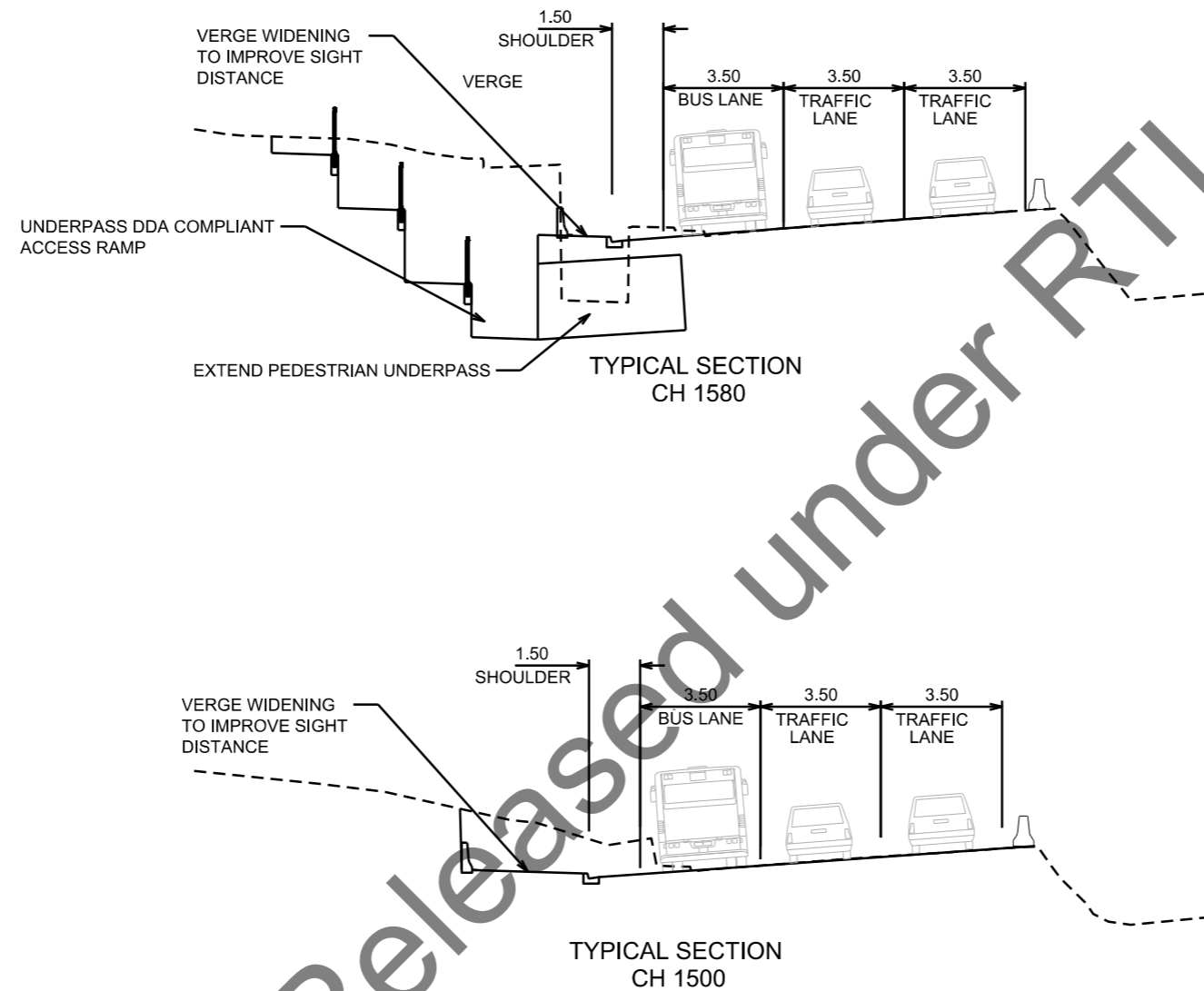
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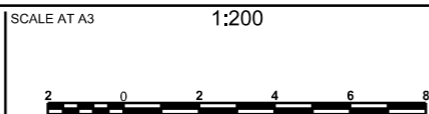
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PROJECT  
HOBART SOUTHERN PROJECTS  
SP01

STATUS  
**PRELIMINARY**

DRAWING TITLE  
TYPICAL SECTIONS  
SHEET 5

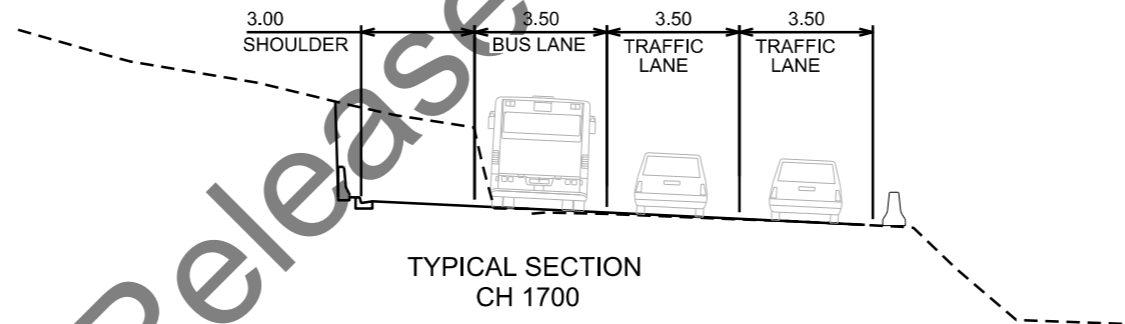
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**05**

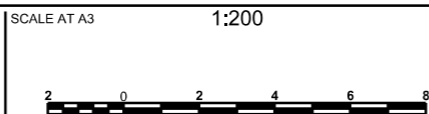
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CLIENT  
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PROJECT  
HOBART SOUTHERN PROJECTS  
SP01

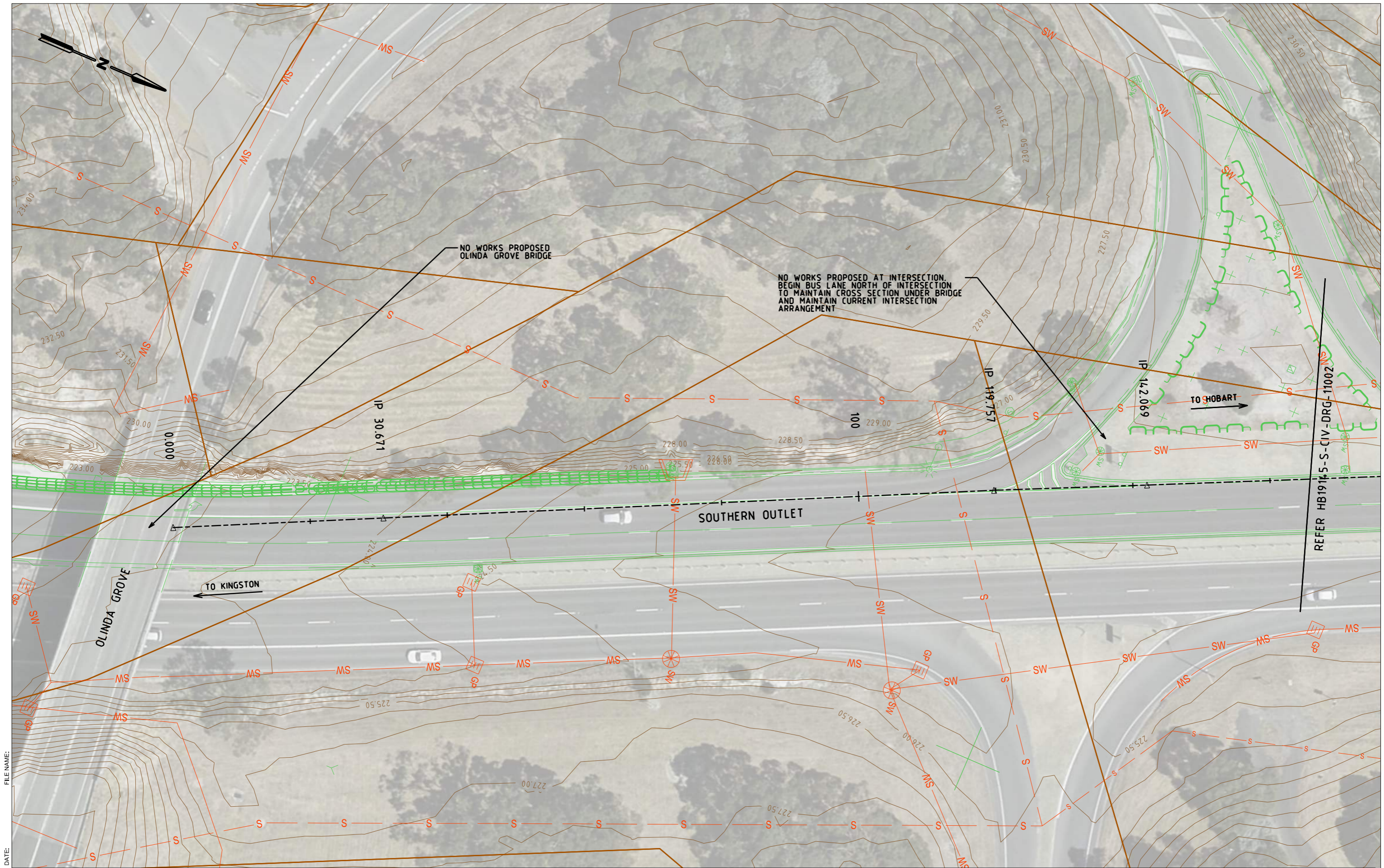
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HB19415-S-CIV-DRG-10106

SHEET  
**06**

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FILE NAME:

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DESCRIPTION	DRAWN	DESIGNED	REVIEWED	APPROVED	DATE
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PROJECT

HOBART SOUTHERN PROJECTS  
SP01

STATUS

PRELIMINARY

DRAWING TITLE

ALIGNMENT PLAN  
SHEET 1

DRAWING No.

HB19415-S-CIV-DRG-11001

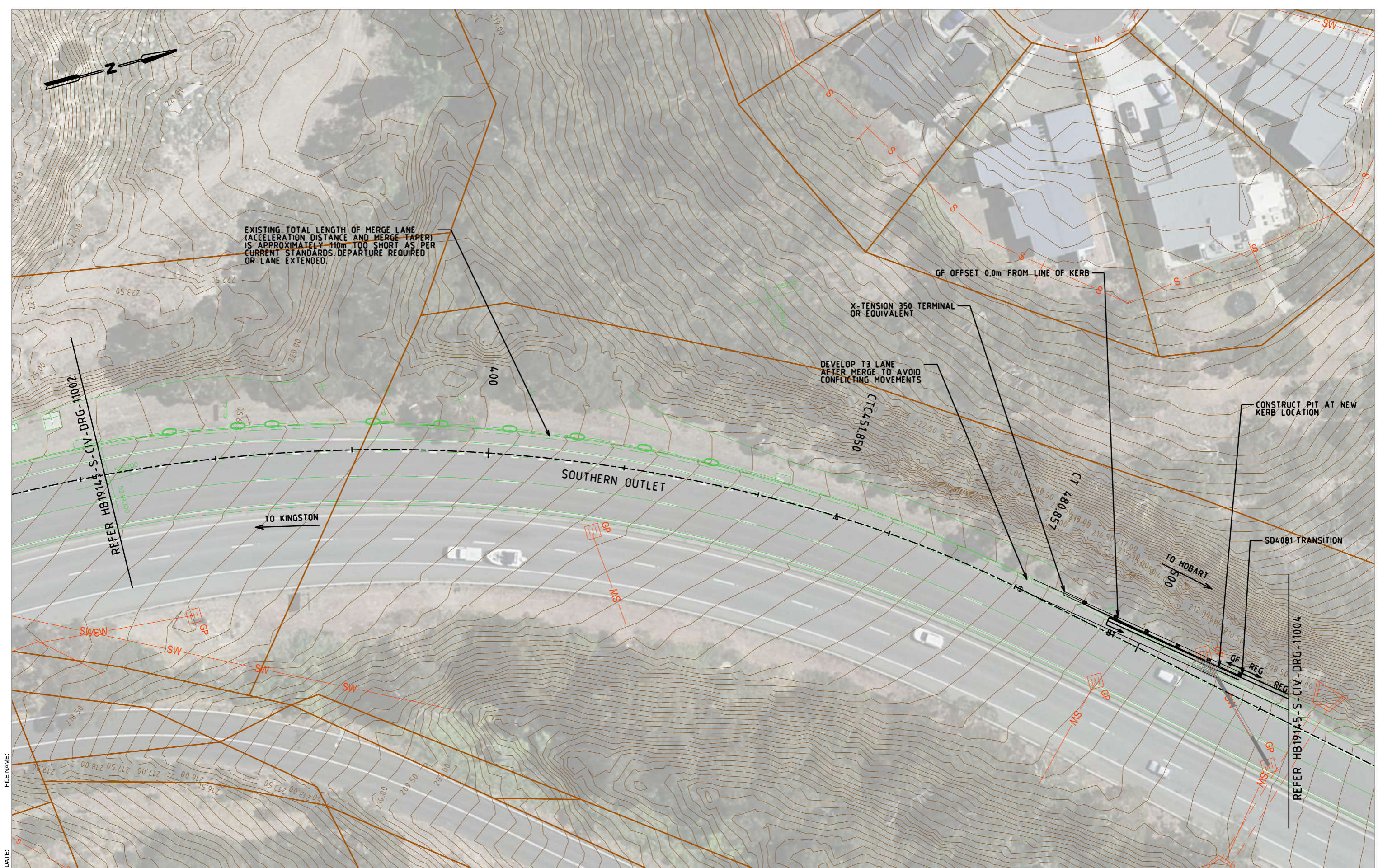
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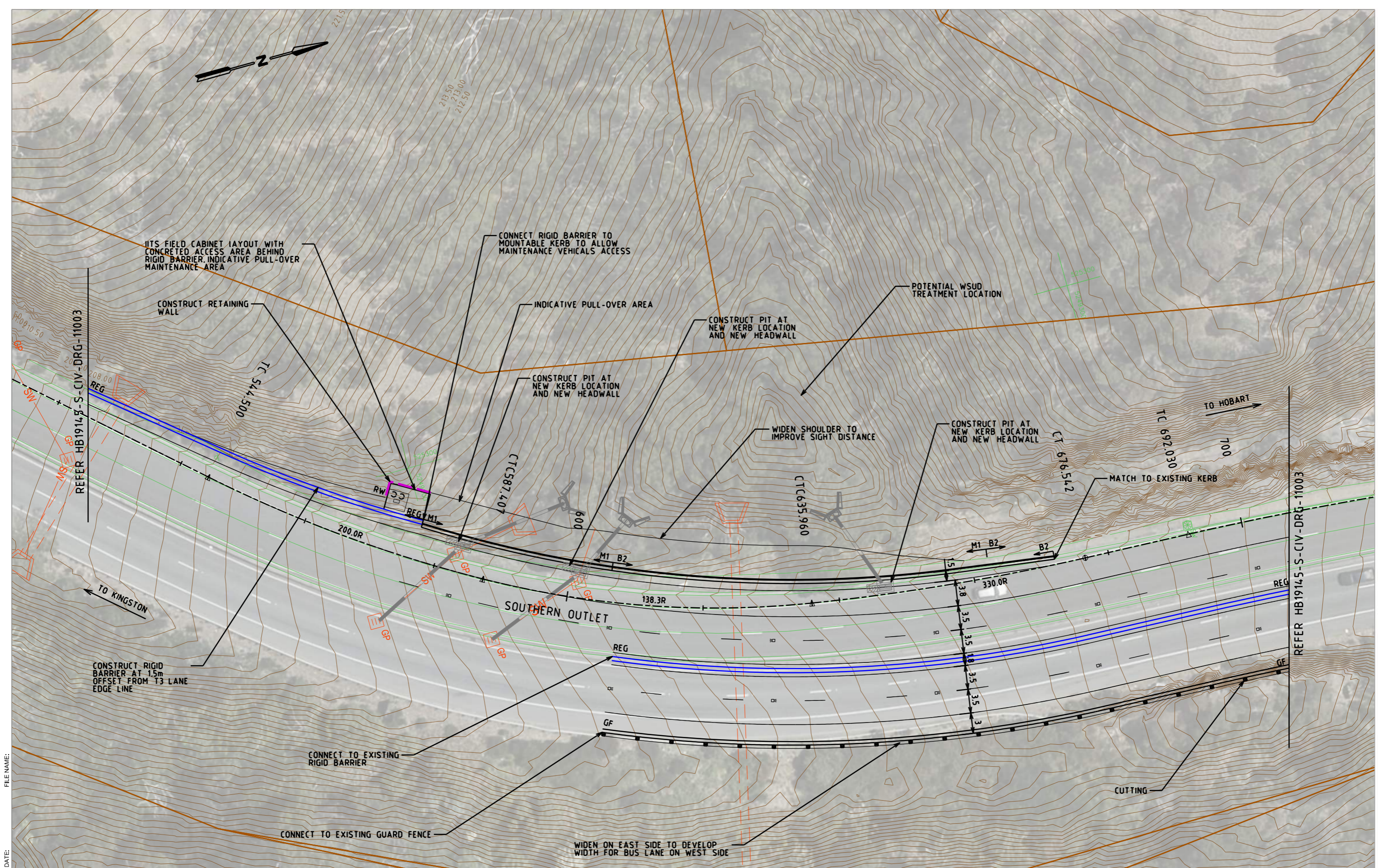
01

REV

B







FILE NAME:  
  
DATE:

DESCRIPTION	DRAWN	DESIGNED	REVIEWED	APPROVED	DATE
B CONCEPT DESIGN					03/07/20
A 80% SUBMISSION					23/04/20

S 36



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PROJECT

HOBART SOUTHERN PROJECTS SP01

STATUS **PRELIMINARY**

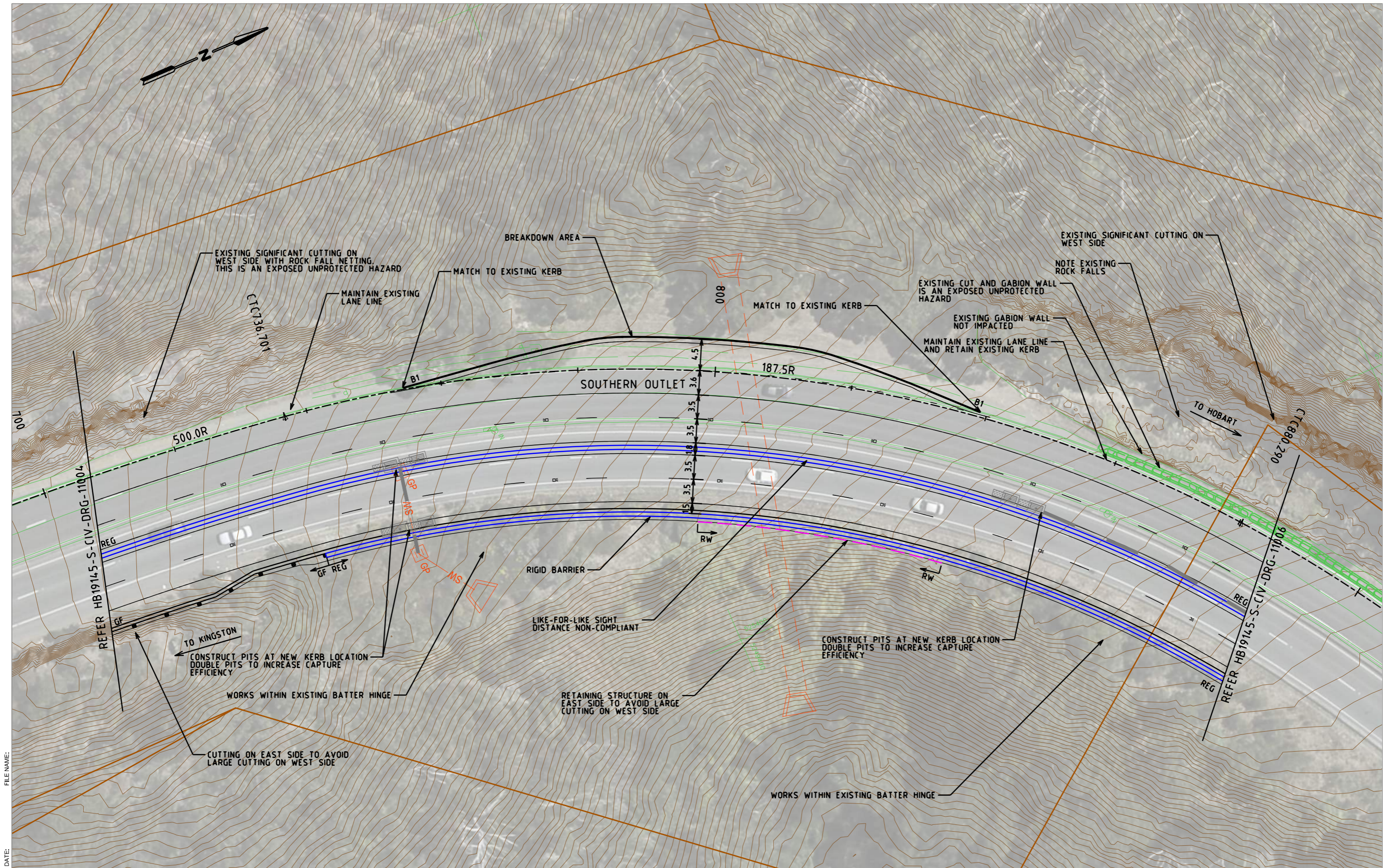
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ALIGNMENT PLAN SHEET 4

DRAWING No. HB19415-S-CIV-DRG-11004

SHEET 04

REV B



FILE NAME:

DATE:

DESCRIPTION	DRAWN	DESIGNED	REVIEWED	APPROVED	DATE
B CONCEPT DESIGN					03/07/20
A 80% SUBMISSION					23/04/20

S 36

SCALE AT A3

1:500



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PROJECT

HOBART SOUTHERN PROJECTS  
SP01

STATUS

PRELIMINARY

DRAWING TITLE

ALIGNMENT PLAN  
SHEET 5

DRAWING No.

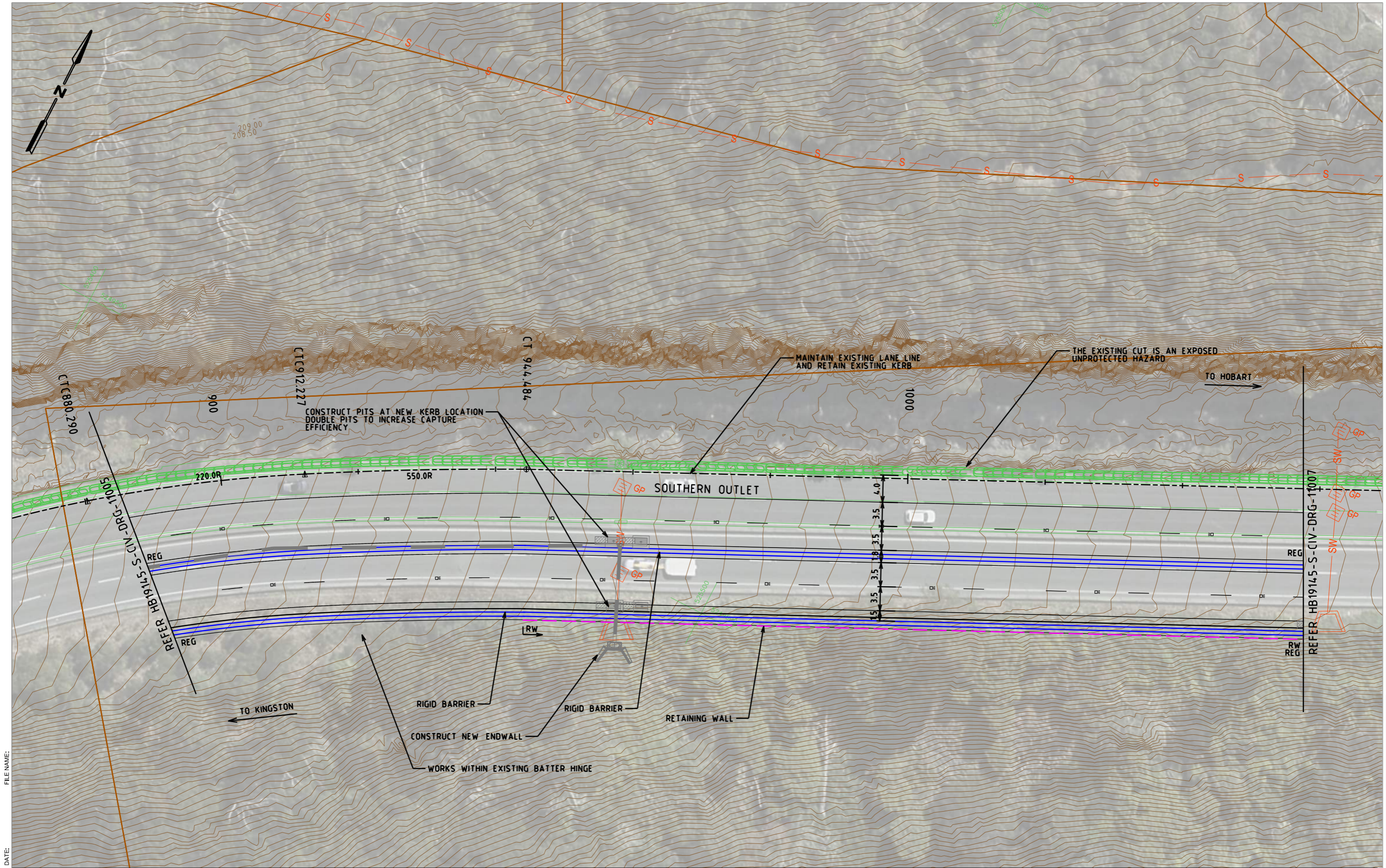
HB19415-S-CIV-DRG-11005

SHEET

05

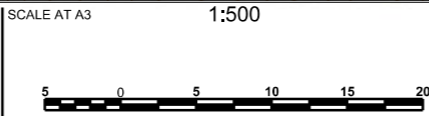
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B



FILE NAME:  
DATE:

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B	CONCEPT DESIGN					03/07/20
A	80% SUBMISSION	s 36				23/04/20



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PROJECT  
HOBART SOUTHERN PROJECTS  
SP01

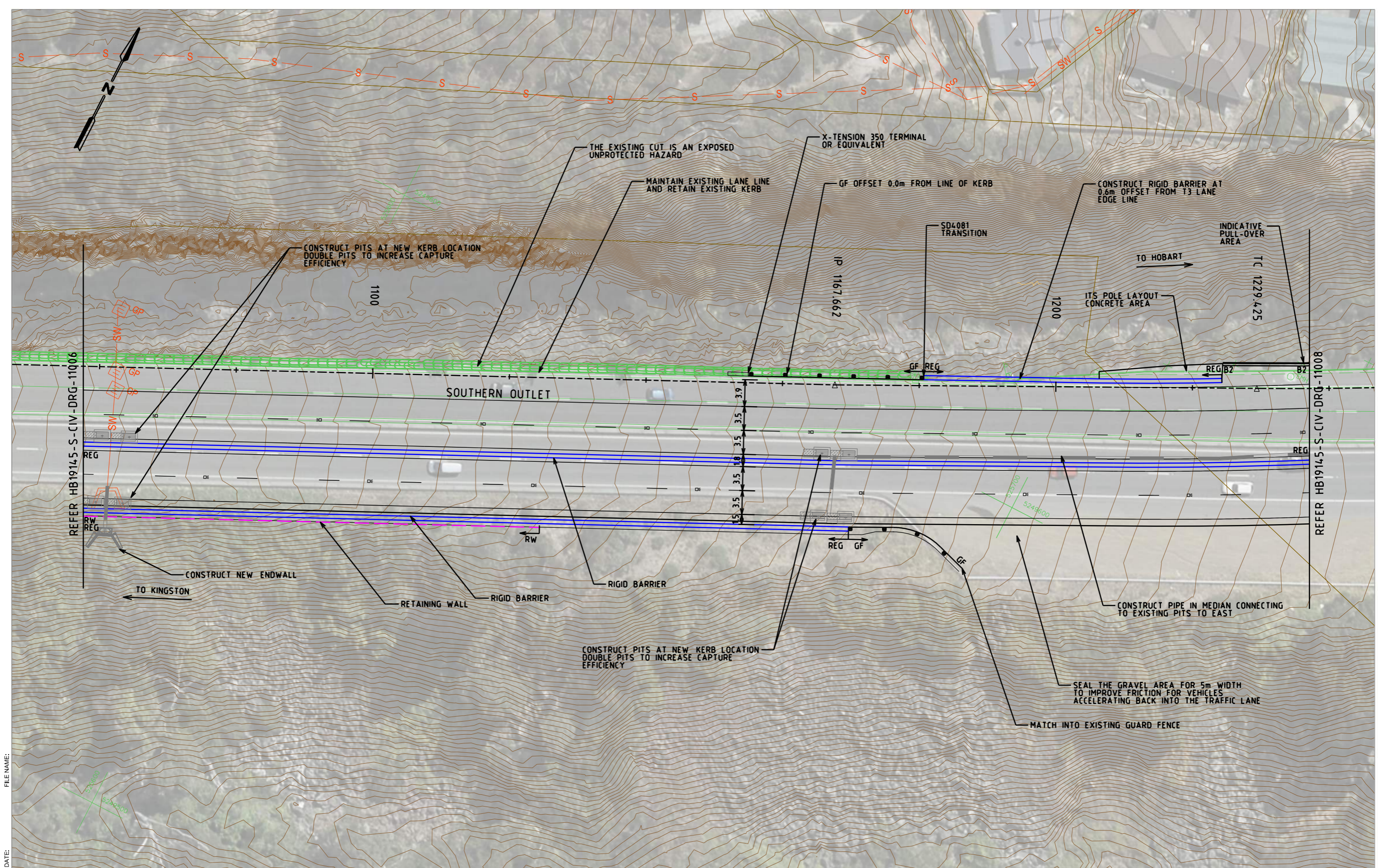
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DRAWING TITLE  
ALIGNMENT PLAN  
SHEET 6

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HB19415-S-CIV-DRG-11006

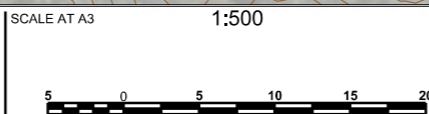
SHEET  
06

REV  
B



FILE NAME:  
DATE:

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B	CONCEPT DESIGN					03/07/20
A	80% SUBMISSION	S 36				23/04/20



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PROJECT  
HOBART SOUTHERN PROJECTS  
SP01

STATUS  
**PRELIMINARY**

DRAWING TITLE  
ALIGNMENT PLAN  
SHEET 7

DRAWING No.  
HB19415-S-CIV-DRG-11007

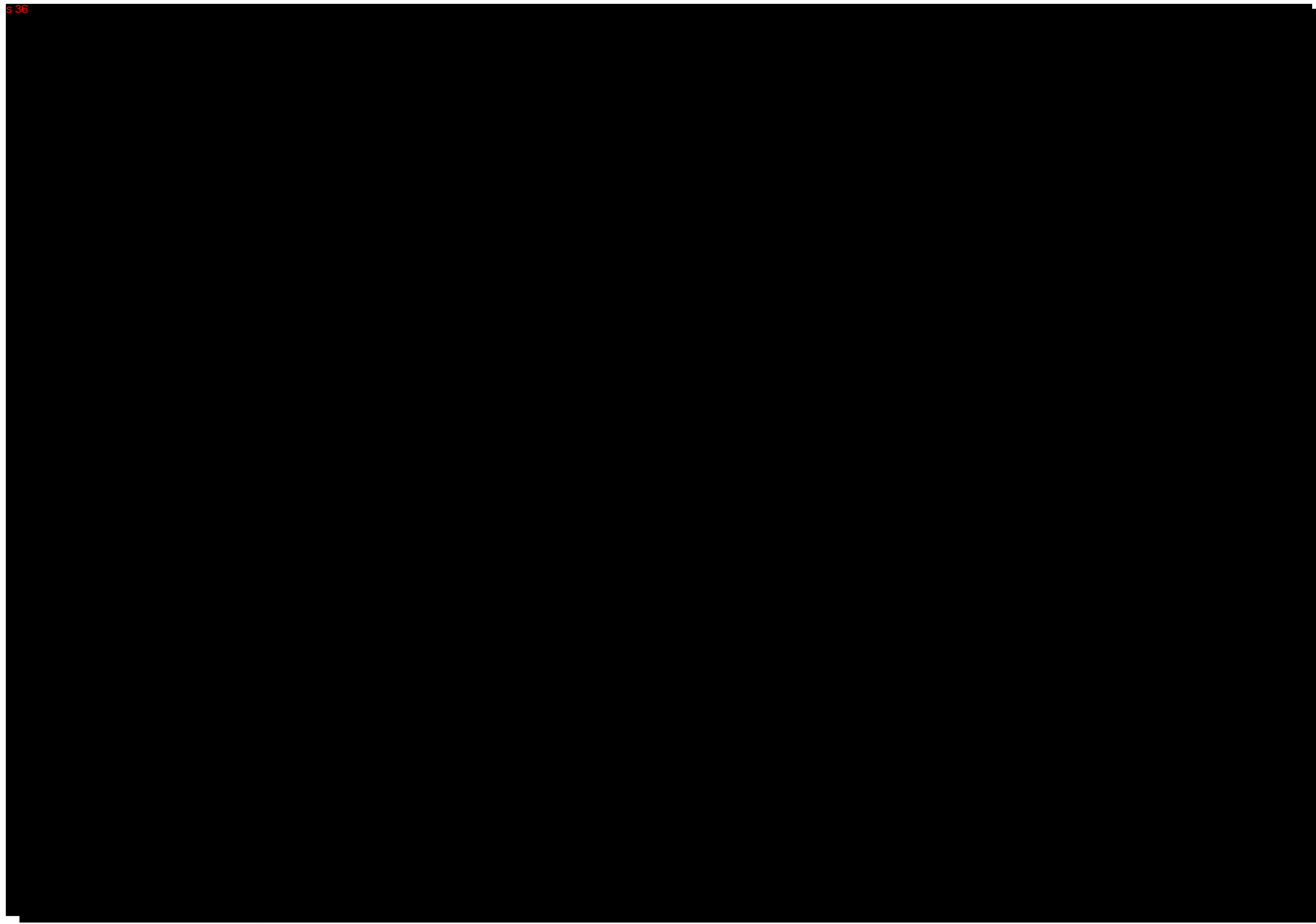
SHEET  
**07**

REV  
B

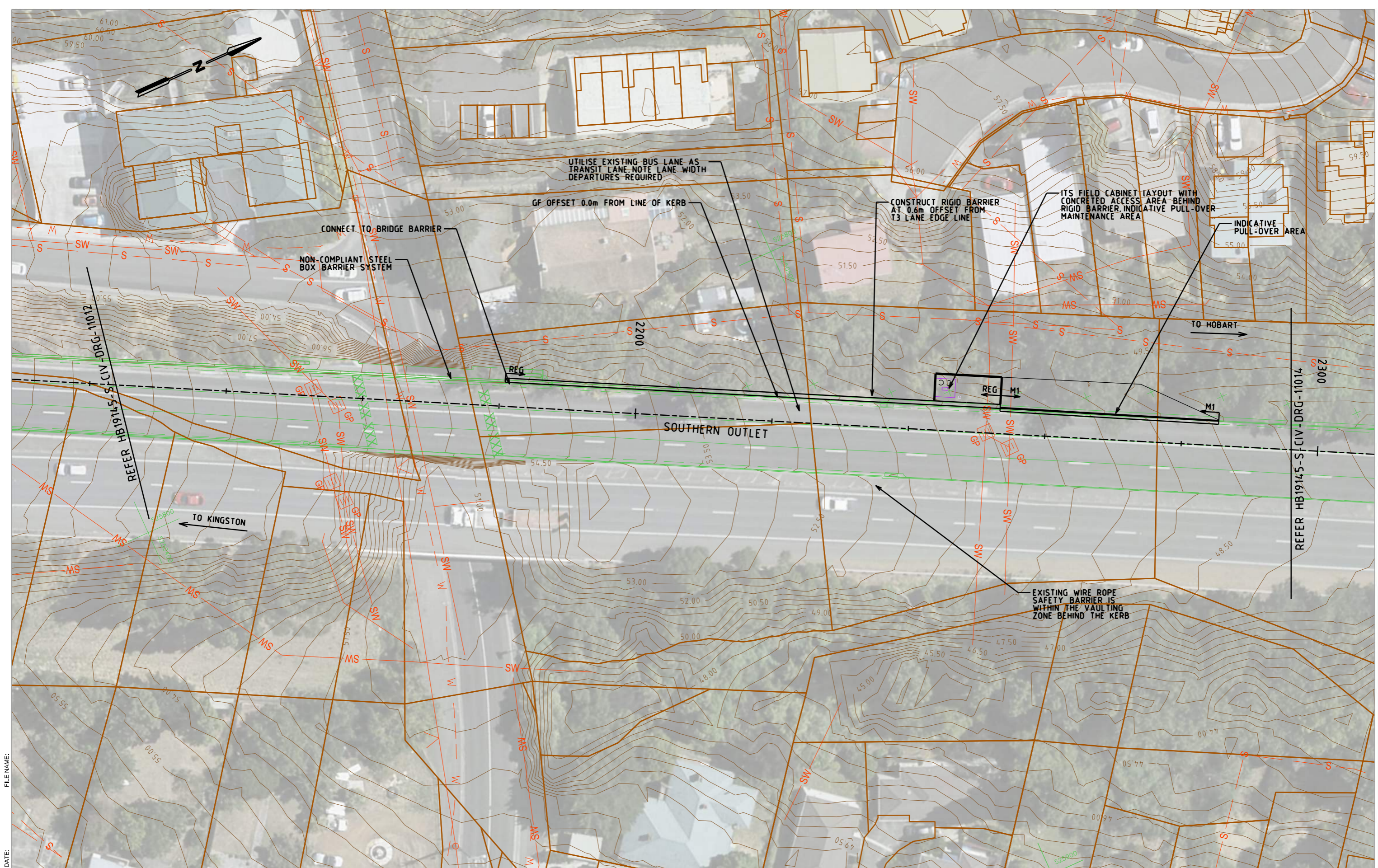






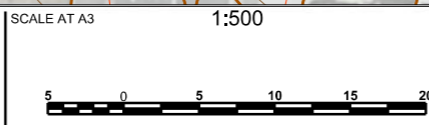






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B	CONCEPT DESIGN					03/07/20
A	80% SUBMISSION					23/04/20



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PROJECT

HOBART SOUTHERN PROJECTS SP01

STATUS **PRELIMINARY**

DRAWING TITLE	SHEET
ALIGNMENT PLAN SHEET 13	13
DRAWING No. HB19415-S-CIV-DRG-11013	REV B



FILE NAME:  
DATE:

	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	APPROVED	DATE
B	CONCEPT DESIGN					03/07/20
A	80% SUBMISSION	S 36				23/04/20



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PROJECT  
HOBART SOUTHERN PROJECTS  
SP01

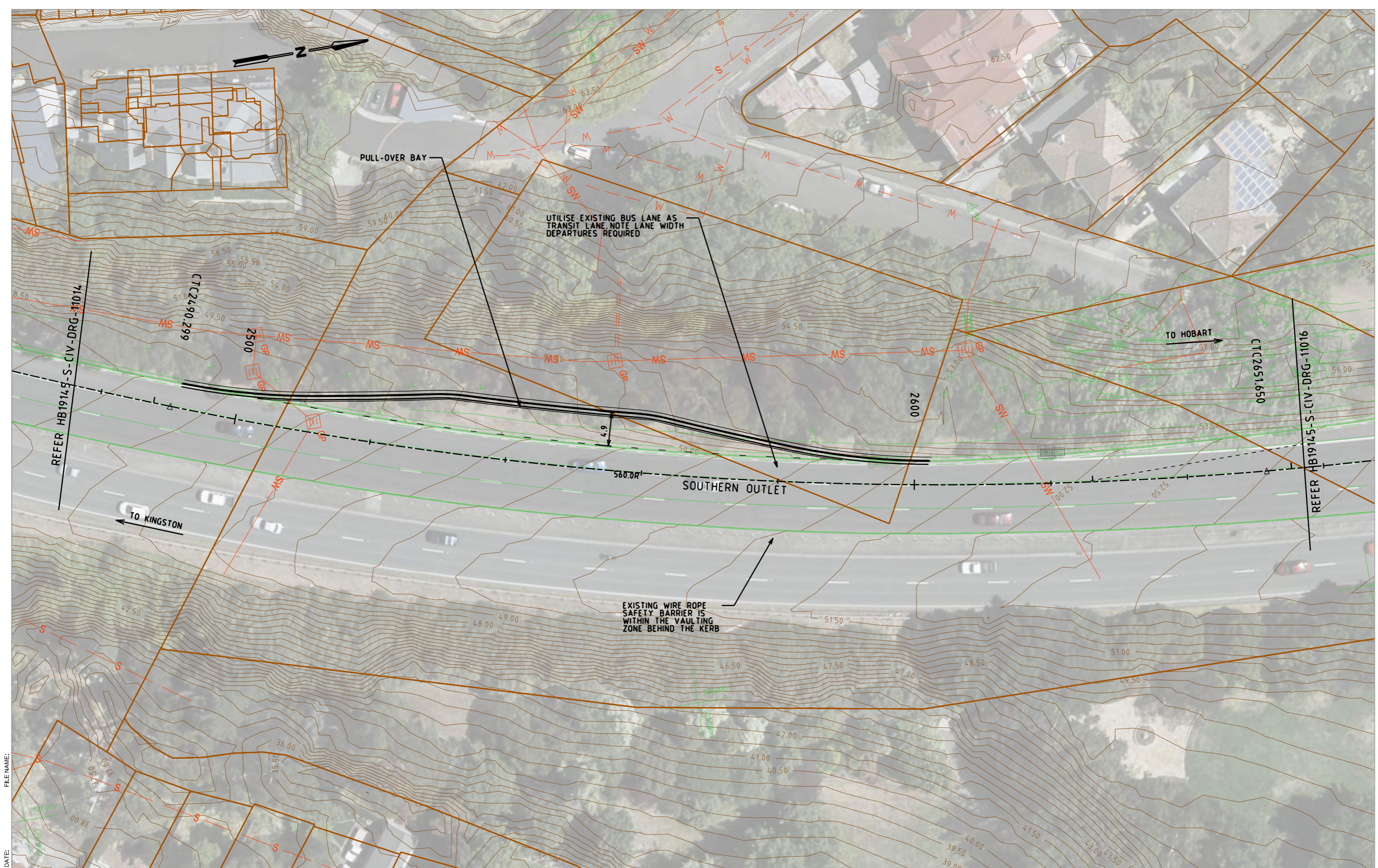
STATUS  
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DRAWING TITLE  
ALIGNMENT PLAN  
SHEET 14

DRAWING No.  
HB19415-S-CIV-DRG-11014

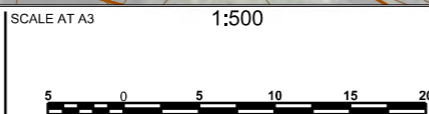
SHEET  
14

REV  
B



FILE NAME:  
DATE:

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B	CONCEPT DESIGN					03/07/20
A	80% SUBMISSION	S 36				23/04/20



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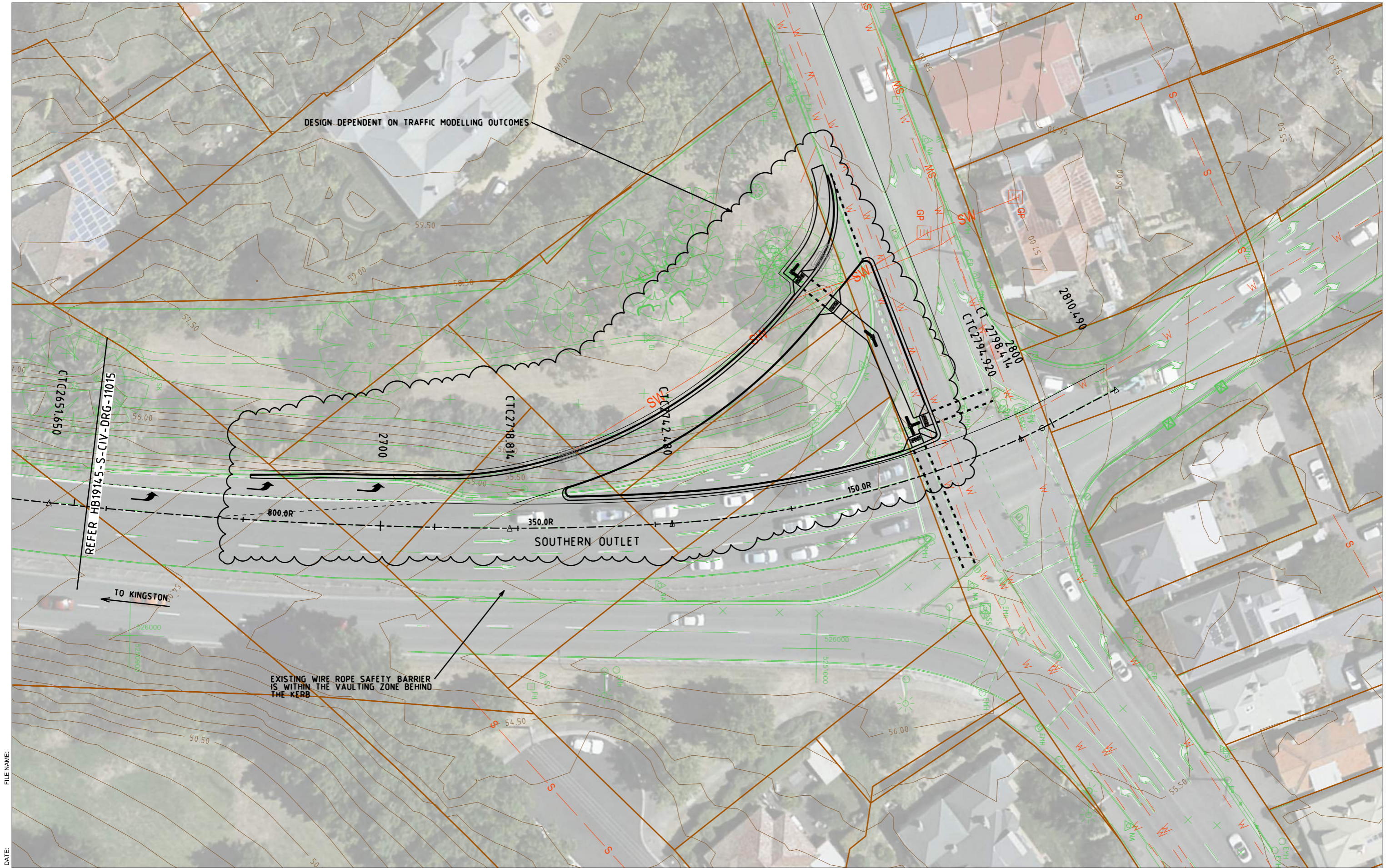
CLIENT  
WSP

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PROJECT  
HOBART SOUTHERN PROJECTS  
SP01

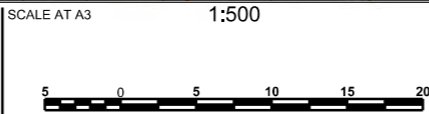
STATUS  
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DRAWING TITLE ALIGNMENT PLAN SHEET 15	SHEET <b>15</b>
DRAWING No. HB19415-S-CIV-DRG-11015	REV B



FILE NAME:  
DATE:

	DESCRIPTION	DRAWN	DESIGNED	REVIEWED	APPROVED	DATE
B	CONCEPT DESIGN					03/07/20
A	80% SUBMISSION	S 36				23/04/20



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PROJECT	HOBART SOUTHERN PROJECTS SP01
STATUS	<b>PRELIMINARY</b>

DRAWING TITLE	ALIGNMENT PLAN SHEET 16	SHEET	16
DRAWING No.	HB19415-S-CIV-DRG-11016	REV	B

# APPENDIX B

## TRAVEL TIME REPORT



## Aimsun AM Model - Travel Time Results - 31 August 2020

### INBOUND - To Hobart CBD

Total corridor (A to C) travel time (minutes)						Project sensitivity tests											
Time	Base		Project			Re-timing			Mode Shift			T3 Design Change					
	Car	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus			
6:30	05:00		05:10	05:00		05:18	05:06		05:04	04:54		05:09	05:13				
6:45	05:01		05:15	05:03		05:26	05:15		05:08	04:59		05:10	05:12				
7:00	05:07		05:23	05:12		05:48	05:19		05:16	05:05		05:20	05:15				
7:15	05:22	08:24	06:13	05:41		06:16	05:35		05:52	05:30		05:58	05:59				
7:30	06:07	08:55	09:34	06:43		08:47	06:26		08:28	05:56		08:21	07:55				
7:45	07:51	09:31	14:24	09:17		11:34	07:16		13:07	07:55		11:53	09:22				
8:00	07:40	09:55	17:59	11:10		13:43	08:45		17:04	10:58		15:05	11:25				
8:15	05:50	09:18	18:26	11:13		14:37	09:20		18:28	12:12		16:49	11:07				
8:30	05:26	08:35	18:36	13:15		15:59	11:17		19:15	13:26		16:33	12:59				
8:45	05:07	07:59	18:40	12:57		17:29	08:45		19:25	14:12		17:55	13:51				

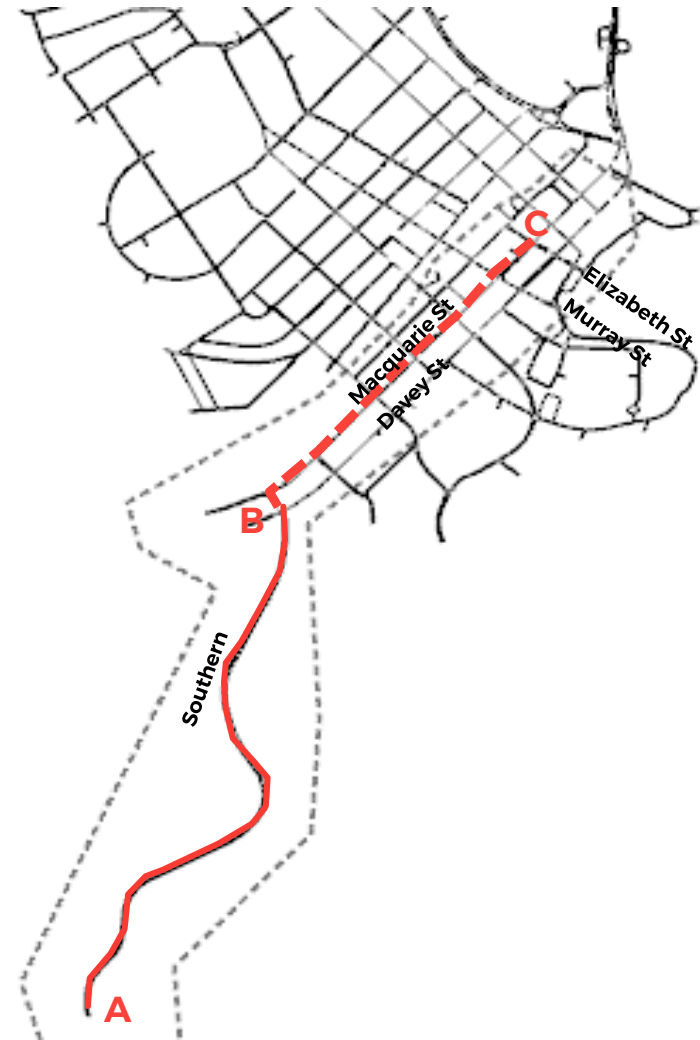
Southern Outlet (A to B) travel time (minutes)						Project sensitivity tests											
Time	Base		Project			Re-timing			Mode Shift			T3 Design Change					
	Car	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus			
6:30	02:21		02:21	02:13		02:26	02:16		02:20	02:13		02:20	02:16				
6:45	02:20		02:24	02:14		02:32	02:17		02:24	02:16		02:20	02:19				
7:00	02:25		02:31	02:17		02:54	02:21		02:27	02:15		02:25	02:19				
7:15	02:35	02:35	03:33	02:31		03:23	02:27		03:11	02:25		02:41	02:35				
7:30	03:20	03:02	07:09	03:32		06:06	03:10		06:10	03:08		03:52	03:21				
7:45	04:52	03:26	12:26	06:40		08:51	04:07		10:59	05:53		07:46	04:42				
8:00	04:23	03:10	14:55	08:22		09:48	04:37		13:50	08:02		10:50	06:07				
8:15	02:44	02:41	14:47	08:40		11:04	04:46		14:40	08:08		11:49	07:04				
8:30	02:28	02:30	14:50	08:52		12:14	05:55		15:21	08:55		11:28	07:15				
8:45	02:24	02:34	14:55	08:32		12:23	05:53		15:12	08:35		11:31	07:02				

Macquarie St (B to C) travel time (minutes)						Project sensitivity tests											
Time	Base		Project			Re-timing			Mode Shift			T3 Design Change					
	Car	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus			
6:30	02:40		02:49	02:47		02:52	02:50		02:44	02:41		02:49	02:57				
6:45	02:41		02:51	02:48		02:54	02:57		02:45	02:44		02:50	02:53				
7:00	02:42		02:53	02:55		02:55	02:59		02:48	02:50		02:55	02:56				
7:15	02:47	05:49	02:40	03:11		02:53	03:08		02:40	03:06		03:17	03:24				
7:30	02:47	05:53	02:25	03:10		02:41	03:16		02:18	02:48		04:28	04:34				
7:45	02:58	06:05	01:58	02:37		02:43	03:09		02:08	02:02		04:07	04:40				
8:00	03:17	06:45	03:04	02:48		03:55	04:08		03:13	02:56		04:15	05:18				
8:15	03:05	06:37	03:38	02:33		03:33	04:33		03:48	04:04		05:00	04:04				
8:30	02:58	06:05	03:47	04:23		03:44	05:23		03:54	04:31		05:05	05:44				
8:45	02:43	05:25	03:45	04:25		05:06	02:52		04:13	05:37		06:24	06:49				

#### Notes:

Travel times have been calculated from Aimsun model outputs (reported in seconds)

The T3 travel time includes all T3 vehicles, both in the T3 lane and in the general travel lanes (the Aimsun model allows vehicles to choose their lane)



# Aimsun AM Model - Travel Time Results - 31 August 2020

## OUTBOUND - To Kingston

Total corridor (D to A) travel time (minutes)						Project sensitivity tests								
Time	Base		Project			Re-timing			Mode Shift			T3 Design Change		
	Car	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus
6:30	04:05	07:14	04:03	04:05	07:39	04:05	04:07	07:31	04:04	04:04	07:38	04:03	04:05	07:39
6:45	04:12	07:08	04:13	04:12	07:37	04:15	04:19	07:37	04:12	04:12	07:37	04:13	04:12	07:38
7:00	04:05	07:03	04:12	04:12	07:35	04:11	04:09	07:43	04:11	04:16	07:37	04:11	04:12	07:36
7:15	04:07	07:41	04:10	04:10	08:07	04:11	04:09	07:58	04:13	04:11	08:10	04:10	04:10	07:50
7:30	04:10	07:40	04:12	04:06	07:41	04:15	04:12	07:26	04:10	04:05	07:36	04:12	04:05	07:35
7:45	04:12	07:39	04:15	04:14	09:02	04:15	04:10	09:05	04:13	04:10	09:03	04:18	04:18	09:01
8:00	04:12	07:45	04:17	04:19	07:54	04:22	04:24	07:54	04:17	04:22	07:56	04:55	04:49	08:03
8:15	04:17	08:25	04:19	04:21	08:00	04:40	04:38	11:12	04:19	04:18	08:02	12:40	13:21	10:57
8:30	04:18	07:26	04:21	04:23	08:05	04:44	05:01	08:50	04:21	04:17	08:07	18:48	19:23	09:16
8:45	04:19	04:23	04:28	04:28	04:36	04:40	04:26	04:28	04:26	04:28	04:28	22:32	23:42	11:20

Davey St (D to B) travel time (minutes)						Project sensitivity tests								
Time	Base		Project			Re-timing			Mode Shift			T3 Design Change		
	Car	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus
6:30	01:53	04:53	01:52	01:55	05:25	01:54	01:56	05:24	01:53	01:53	05:24	01:52	01:55	05:25
6:45	01:58	04:52	02:00	01:59	05:24	02:00	02:04	05:26	01:59	01:58	05:24	02:01	01:58	05:24
7:00	01:54	04:52	02:00	02:01	05:23	02:00	01:58	05:29	01:59	02:04	05:24	01:59	02:01	05:24
7:15	01:54	05:23	01:58	01:59	05:48	01:58	01:57	05:40	02:00	02:00	05:51	01:58	01:59	05:34
7:30	01:57	05:25	01:59	01:54	05:22	02:02	01:58	05:06	01:58	01:53	05:17	02:00	01:53	05:16
7:45	01:58	05:26	02:01	02:02	06:42	02:02	01:58	06:43	02:00	01:58	06:42	02:05	02:06	06:40
8:00	01:59	05:24	02:04	02:06	05:41	02:10	02:10	05:43	02:03	02:09	05:42	02:43	02:39	05:50
8:15	02:03	06:08	02:06	02:09	05:46	02:27	02:25	08:58	02:06	02:06	05:48	10:29	11:10	08:40
8:30	02:05	05:15	02:09	02:09	05:51	02:31	02:48	06:31	02:09	02:03	05:53	16:37	17:10	07:02
8:45	02:05	02:09	02:13	02:13	02:22	02:22	02:24	02:11	02:11	02:14	02:14	20:21	21:30	11:20

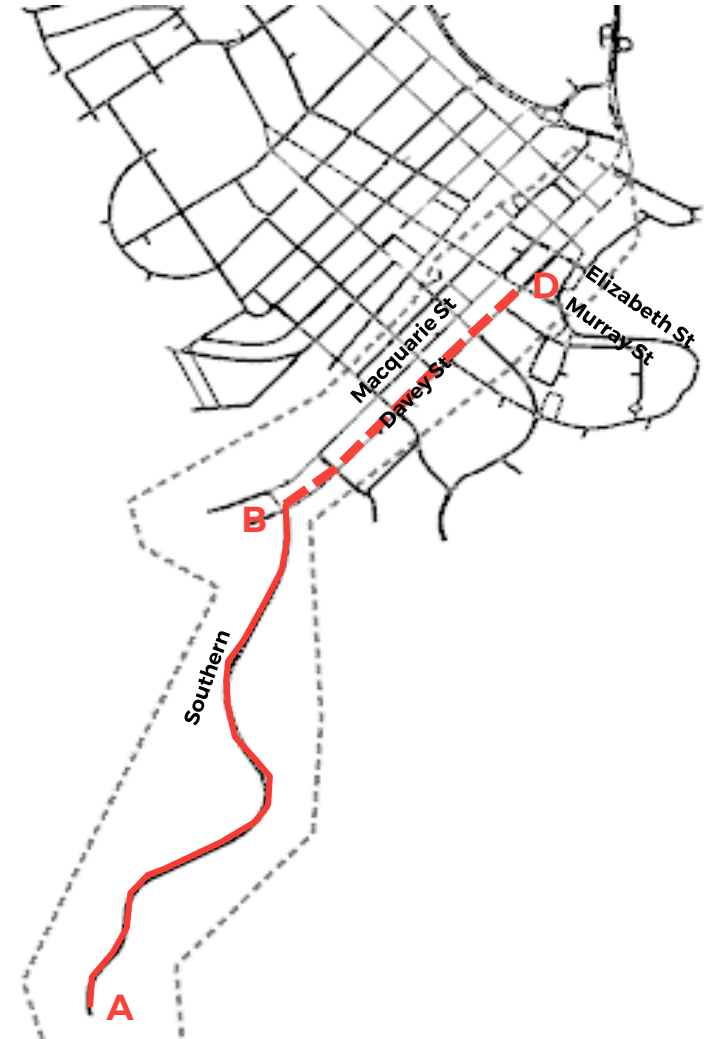
Southern Outlet (B to A) travel time (minutes)						Project sensitivity tests								
Time	Base		Project			Re-timing			Mode Shift			T3 Design Change		
	Car	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus	Car	T3	Bus
6:30	02:11	02:21	02:11	02:10	02:14	02:12	02:11	02:07	02:11	02:11	02:14	02:11	02:10	02:14
6:45	02:14	02:16	02:13	02:14	02:13	02:14	02:15	02:10	02:13	02:14	02:13	02:13	02:14	02:13
7:00	02:11	02:11	02:12	02:10	02:12	02:11	02:11	02:13	02:12	02:12	02:13	02:12	02:10	02:12
7:15	02:13	02:18	02:12	02:11	02:18	02:13	02:12	02:18	02:13	02:11	02:18	02:12	02:12	02:16
7:30	02:13	02:16	02:13	02:12	02:19	02:14	02:14	02:20	02:13	02:12	02:20	02:12	02:11	02:18
7:45	02:14	02:14	02:13	02:12	02:20	02:13	02:12	02:22	02:13	02:12	02:21	02:13	02:12	02:21
8:00	02:14	02:22	02:14	02:13	02:13	02:13	02:14	02:12	02:13	02:13	02:14	02:12	02:10	02:14
8:15	02:15	02:17	02:14	02:12	02:14	02:13	02:14	02:14	02:13	02:13	02:14	02:12	02:11	02:17
8:30	02:13	02:11	02:12	02:12	02:14	02:12	02:13	02:19	02:12	02:12	02:14	02:14	02:11	02:13
8:45	02:14	02:14	02:14	02:15	02:15	02:15	02:16	02:15	02:15	02:14	02:14	02:11	02:12	02:15

### Notes:

Travel times have been calculated from Aimsun model outputs (reported in seconds)

The T3 travel time includes all T3 vehicles, both in the T3 lane and in the general travel lanes (the Aimsun model allows vehicles to choose their lane)

00:00 Model queuing behaviour calibration issue with westbound right-turning traffic at the intersection of Davey Street and the Southern Outlet. Does not accurately reflect anticipated corridor travel time impact.



**INBOUND - To Hobart CBD**

Total corridor (A to C) travel time (minutes)					Project sensitivity tests			
Time	Base		Project		-10% demand		Design change	
	Car	Bus	Car	Bus	Car	Bus	Car	Bus
15:00	05:02		05:13		05:08		05:19	
15:15	05:03		05:31	07:19	05:13	07:19	05:28	07:48
15:30	05:09		05:58	07:33	05:13	07:34	06:13	07:39
15:45	05:12	08:05	05:43	07:48	05:11	07:50	05:56	07:31
16:00	05:06	09:59	06:04	07:44	05:08	07:57	05:52	07:41
16:15	05:05	09:18	06:02	07:58	05:14	07:51	05:42	08:06
16:30	05:00	08:36	05:41	08:11	05:11	07:46	07:37	08:32
16:45	05:01	08:25	05:10	08:05	04:59	07:54	05:53	08:21
17:00	04:58	08:14	05:08	07:59	05:02	08:02	05:07	08:10
17:15	04:57	08:14	05:12	07:42	05:05	07:37	05:08	07:42
17:30	05:01	08:13	05:11	07:26	05:08	07:12	05:09	07:15
17:45	05:10		05:11	08:03	05:05	08:25	05:14	08:08

Southern Outlet (A to B) travel time (minutes)					Project sensitivity tests				
Time	Base		Project		-10% demand		Design change		
	Car	Bus	Car	Bus	Car	Bus	Car	Bus	
15:00	02:16		02:16		02:17		02:17		
15:15	02:17		02:17	02:13	02:18	02:05	02:17	02:07	
15:30	02:17		02:18	02:10	02:16	02:14	02:18	02:06	
15:45	02:16	02:21	02:17	02:07	02:17	02:23	02:17	02:05	
16:00	02:17	02:16	02:19	02:05	02:16	02:09	02:19	02:11	
16:15	02:16	02:11	02:20	02:05	02:19	02:05	02:20	02:08	
16:30	02:16	02:09	02:18	02:14	02:17	02:12	02:19	02:10	
16:45	02:16	02:21	02:17	02:07	02:15	02:02	02:17	02:21	
17:00	02:15	02:10	02:15	02:14	02:16	02:13	02:15	02:06	
17:15	02:15	02:31	02:17	02:20	02:16	02:19	02:17	02:13	
17:30	02:21	02:51	02:23	02:25	02:22	02:26	02:23	02:21	
17:45	02:22		02:22		02:21	02:26	02:22	02:21	

Macquarie St (B to C) travel time (minutes)					Project sensitivity tests				
Time	Base		Project		-10% demand		Design change		
	Car	Bus	Car	Bus	Car	Bus	Car	Bus	
15:00	02:46		02:56		02:51		03:03		
15:15	02:47		03:15	05:05	02:55	05:14	03:12	05:41	
15:30	02:52		03:40	05:23	02:57	05:20	03:55	05:34	
15:45	02:57	05:45	03:26	05:42	02:55	05:26	03:40	05:26	
16:00	02:49	07:43	03:45	05:39	02:52	05:47	03:33	05:29	
16:15	02:48	07:07	03:43	05:52	02:55	05:46	03:23	05:58	
16:30	02:44	06:28	03:23	05:58	02:54	05:34	05:18	06:22	
16:45	02:44	06:04	02:53	05:58	02:44	05:52	03:36	05:58	
17:00	02:43	06:04	02:53	05:44	02:46	05:49	05:21	06:26	
17:15	02:42	05:43	02:54	05:23	02:50	05:18	03:36	06:08	
17:30	02:40	05:22	02:48	05:01	02:45	04:46	02:44	05:49	
17:45	02:48		02:49	08:03	02:44	05:59	02:52	05:47	


**Notes:**

Travel times have been calculated from Aimsun model outputs (reported in seconds)

**Aimsun PM Model - Travel Time Results - 31 August 2020**

**OUTBOUND - To Kingston**

Total corridor (D to A) travel time (minutes)					Project sensitivity tests			
Time	Base		Project		-10% demand		Design change	
	Car	Bus	Car	Bus	Car	Bus	Car	Bus
15:00	04:14		04:14		04:11		04:12	
15:15	04:16		04:19		04:14		04:17	
15:30	04:25	07:03	04:26	07:45	04:22	07:41	04:24	07:56
15:45	04:27	07:29	04:37	07:43	04:23	07:42	04:22	07:55
16:00	04:25	07:56	04:41	07:42	04:28	07:42	04:19	07:54
16:15	04:26	07:16	04:33	07:44	04:27	07:29	04:22	07:53
16:30	04:33	07:53	04:43	07:49	04:30	07:48	04:34	07:51
16:45	04:27	08:04	04:43	07:46	04:33	07:41	04:38	07:51
17:00	04:32	08:15	05:12	07:52	04:39	07:51	04:36	07:48
17:15	04:28	07:10	05:18	07:40	04:32	07:30	04:33	07:45
17:30	04:31	08:03	05:27	08:00	04:38	07:59	04:56	07:49
17:45	04:24		06:15	07:40	04:36	07:41	05:51	07:43

Davey Street only (D to B) travel time (minutes)					Project sensitivity tests			
Time	Base		Project		-10% demand		Design change	
	Car	Bus	Car	Bus	Car	Bus	Car	Bus
15:00	02:00		02:01		01:57		01:59	
15:15	02:02		02:05		02:00		02:02	
15:30	02:10	04:51	02:12	05:23	02:07	05:25	02:09	05:39
15:45	02:12	05:13	02:22	05:24	02:08	05:28	02:06	05:37
16:00	02:09	05:35	02:25	05:24	02:12	05:31	02:04	05:35
16:15	02:10	05:00	02:18	05:29	02:12	05:14	02:06	05:33
16:30	02:15	05:34	02:27	05:29	02:15	05:28	02:19	05:32
16:45	02:11	05:43	02:28	05:30	02:17	05:23	02:23	05:34
17:00	02:15	05:52	02:56	05:27	02:22	05:31	02:20	05:32
17:15	02:12	04:43	03:03	05:19	02:16	05:05	02:18	05:26
17:30	02:14	05:43	03:11	05:35	02:22	05:39	02:41	05:33
17:45	02:08		04:01	05:22	02:22	05:23	03:35	05:25

Southern Outlet (B to A) travel time (minutes)					Project sensitivity tests				
Time	Base		Project		-10% demand		Design change		
	Car	Bus	Car	Bus	Car	Bus	Car	Bus	
15:00	02:14		02:13		02:14		02:12		
15:15	02:14		02:14		02:15		02:14		
15:30	02:14	02:12	02:15	02:21	02:15	02:16	02:15	02:17	
15:45	02:15	02:16	02:15	02:19	02:15	02:14	02:16	02:18	
16:00	02:16	02:21	02:15	02:17	02:16	02:12	02:15	02:19	
16:15	02:17	02:16	02:16	02:16	02:16	02:16	02:16	02:19	
16:30	02:18	02:19	02:15	02:20	02:15	02:21	02:15	02:19	
16:45	02:17	02:21	02:15	02:16	02:16	02:18	02:15	02:17	
17:00	02:17	02:23	02:15	02:26	02:16	02:20	02:16	02:16	
17:15	02:17	02:27	02:15	02:21	02:16	02:25	02:16	02:18	
17:30	02:17	02:21	02:16	02:25	02:16	02:20	02:16	02:16	
17:45	02:16			02:18	02:15	02:18	02:15	02:18	

**Notes:**

Travel times have been calculated from Aimsun model outputs (reported in seconds)



Released under RTI

## Hobart Transport Vision – Southern Projects

### Sub-Project 1: Southern Outlet additional transit lane

Planning and Environment Report

Prepared for  
**WSP**

Client representative

**s 36**

Date  
**19 August 2020**

Rev 00



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## Appendices

**Appendix A** - Heritage Management Strategy

**Appendix B** - Heritage Management Strategy

Prepared by — s 36	Date — 19 August 2020
Reviewed by — s 36	Date — 19 August 2020
Authorised by — s 36	Date — 19 August 2020

### Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Draft for client	s 36			07/04/2020
00	Revised with State Growth comments				19/08/2020

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# 1. Background

The Hobart Transport Vision – Southern Projects aims to achieve a modal shift to public transport for commuters using the Southern Outlet to access the central business district (CBD). In particular, the following are proposed:

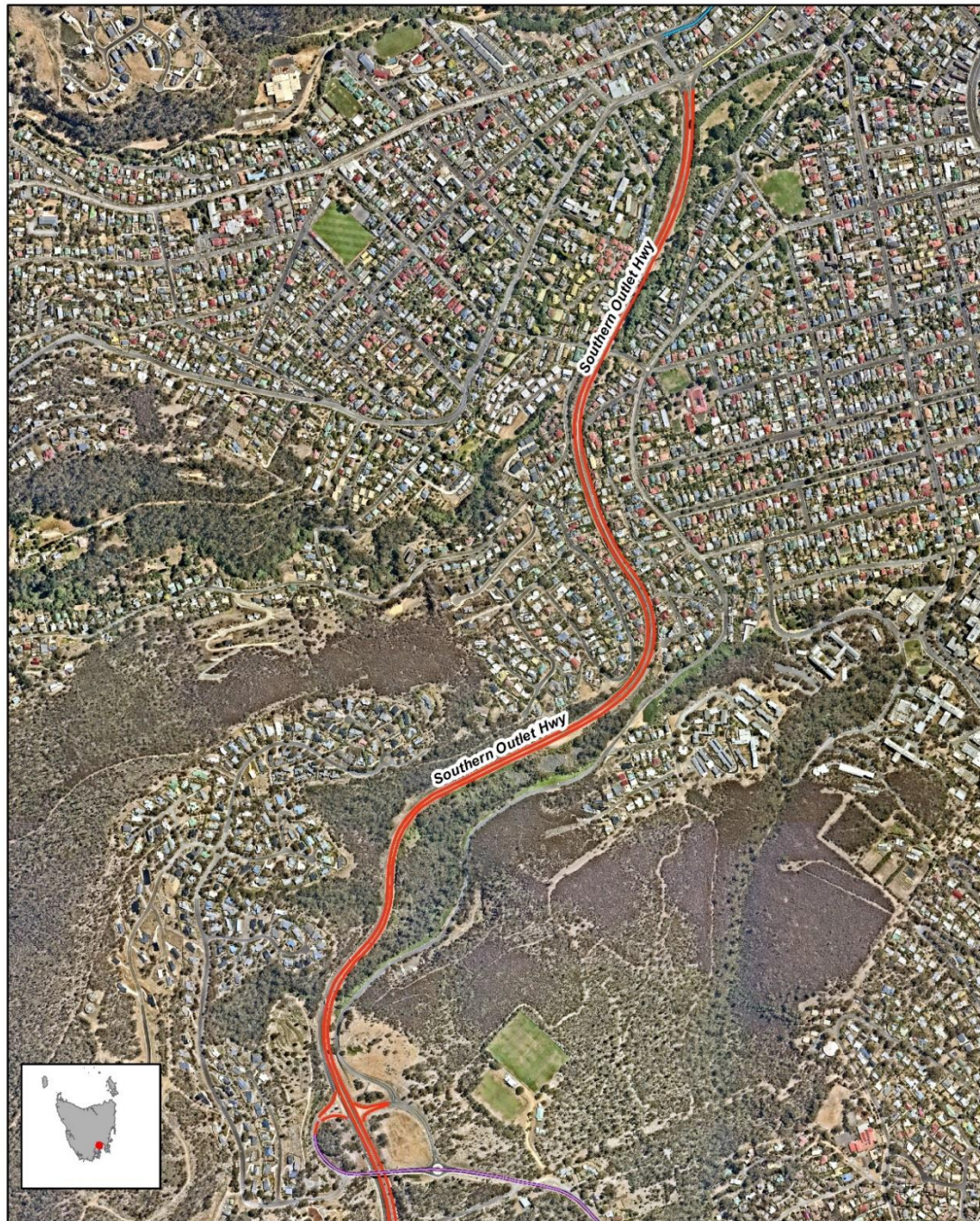
- Design a 5<sup>th</sup> lane inbound to the CBD on the Southern Outlet catering for T3 traffic (incident response, buses, taxis, and cars with three or more occupants).
- Provision of two new park and ride facilities in the Kingborough municipality.
- Establishment of a bus lane in Macquarie Street and a T3 lane in Davey Street.

A Park and Ride Service model is to be developed and measures for enforcement of transit lane operations are also included in the scope of works.

pitt&sherry has been commissioned by WSP who has been engaged by the Department of State Growth (State Growth) to undertake the necessary modelling, design and investigations for these components.

The purpose of this report is to present a preliminary assessment of the potential environmental and planning constraints to the proposed components. Specifically, this report focuses on the proposed transit lane on the Southern Outlet. The study area extends from Olinda Grove Road to Macquarie Street in Hobart and covers a distance of approximately 9 km as shown in Figure 1. A final alignment has not been chosen, however, it is likely the transit lane will be located on the western side of the current Southern Outlet boundary. This report includes details for the western and eastern sides of the road and includes recommendations for further assessments which may be required to support the project.

A Heritage Management Strategy has been prepared by Praxis (Appendix A), and pitt&sherry has prepared a Geotechnical Report (Appendix B), which will inform the design process.



WSP

Overview Map

**pitt&sherry**

## Legend

— Southern Outlet Hwy — Macquarie Street  
— Davey Street — Olinda Grove

MAP REF HB19415R16  
AUTHOR A  
REVISION klawrence  
DATE 20/01/2020

DATA SOURCES  
Base map from NearMap  
Base data from The LIST  
Tasmanian Government

N 0 80 160 320 Meters  
Coordinate System: GDA 1994 MGA Zone 55  
1:11,275 When Printed at A4

Figure 1 Locality plan

## 2. Relevant legislation

The *Land Use Planning and Approvals Act 1993* (LUPAA) identifies the objectives of the Resource Management and Planning System of Tasmania. These objectives are to be furthered, through the operation of LUPAA, through sustainable development, resource management and orderly development. Community involvement and a sharing of responsibility across all levels of government is to be promoted. These objectives are mirrored in the *Environmental Management and Pollution Control Act 1994* (EMPCA), the key environmental legislation in Tasmania.

LUPAA establishes the process for approval of state and local planning scheme provisions and for the assessment of applications for development. EMPCA identifies those uses or developments likely to have a significant impact on the environment and outlines the process for assessment of those proposals. This Act also establishes procedures for pollution prevention and control and enforcement provisions.

The legislation in force which is relevant to development in Tasmania is outlined in Table 1.

Table 1 Legislation relevant to development in Tasmania

Statute	Relevance
<b>Commonwealth</b>	
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	This Act aims to protect and manage those matters considered to be of National Environmental Significance (MNES). These include threatened plant and animal species, ecological communities, heritage sites and reserves. It also applies to particular actions which have the potential for impacts of national significance. This Act is addressed further in this report.
<b>State</b>	
<i>Aboriginal Heritage Act 1975</i>	This Act relates to the protection of Aboriginal cultural heritage. The Aboriginal Heritage Register (AHR) is maintained by Aboriginal Heritage Tasmania (AHT) and a search can be requested to identify any known sites of significance which may impact the proposed alignment. Given that this is an extension of an existing road in an established urban area, the potential for impacts is considered to be low. This Act is addressed further in this report.
<i>Climate Change State Action Act 2008</i>	This Act relates to the State's response to climate change and greenhouse gas emissions. The provision of a transit lane has the potential to reduce commuter vehicle numbers and have a positive impact on greenhouse emissions. No specific consideration is required under this Act.
<i>Environmental Management and Pollution Control Act 1994</i>	The proposed transit lane is classed as 'road works' and is not a use or development that warrants consideration under this Act.
<i>Historic Cultural Heritage Act 1995</i>	This act relates to the protection of European and other cultural heritage. This Act is addressed in the report prepared by Praxis.
<i>Nature Conservation Act 2002</i>	This Act identifies and regulates threatened native vegetation communities. This Act is addressed further in this report.
<i>Threatened Species Protection Act 1995</i>	This Act lists threatened species and regulates activities that may result in their disturbance. This Act is addressed further in this report.
<i>Weed Management Act 1999</i>	This Act declares certain plants as weeds and outlines measures for their control, including land owner obligations. This Act is addressed further in this report.
<b>State Policies</b>	The <i>State Policies and Projects Act 1993</i> establishes the process to put in place State policies under the RMPS of Tasmania. The State Policy on Water Quality Management 1997 is relevant. Water quality (impacted by stormwater) is considered during the design and approvals processes. Design parameters established under this policy are addressed further in this report.

Statute	Relevance
Tasmanian State Road Traffic Noise Management Guidelines (developed under the State Road Noise Strategy 2011)	These guidelines are used by State Growth to manage traffic noise on State roads. They are intended to assist with management of traffic noise and seek to reduce traffic noise to below accepted limits to the extent reasonable, practical and cost effective. These guidelines outline procedures to assess the need for noise mitigation and are separate to any requirements to assess noise impacts under local planning scheme provisions. These are addressed further in this report.
Tasmanian Planning Scheme	LUPAA was amended in 2015 to provide for a single planning scheme for Tasmania, known as the Tasmanian Planning Scheme (TPS). State Planning Provisions came into effect on 2 March 2017 as part of the Tasmanian Planning Scheme, however, they will have no practical effect until a Local Provisions Schedule (LPS) is in effect in the relevant council area. None of the impacted Councils has an approved LPS and the TSP is not relevant at this stage.
Local	
Hobart Interim Planning Scheme 2015 (the Planning Scheme)	The Planning Scheme applies to the proposed transit lane adjacent the Southern Outlet north from Olinda Grove Rd. It contains zone provisions, overlay codes and development codes which include use and development standards to be achieved. It also contains a Significant trees code which nominates certain trees for protection in addition to those considered to have conservation values under legislation above. These are addressed further in this report.

Released under

## 3. Natural Values

### 3.1 Flora and fauna

#### 3.1.1 Commonwealth protected values

Matters of National Environmental Significance (MNES) are identified under the *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). A search of the Commonwealth Protected Matters database<sup>1</sup> was undertaken to identify MNES known or potentially occurring within 1 km of the current Southern Outlet alignment. This confirmed no places of national heritage or world heritage are present in the locality. No wetlands of national or international significance are adjacent or immediately downstream of the road. One threatened ecological community (TEC) occurs within 1 km of the Southern Outlet. This is an area of the TEC Tasmanian Forests and Woodlands dominated by black gum or Brookers gum (*Eucalyptus ovata* / *E. brookeriana*). This is likely to correspond an area of state listed *Eucalyptus ovata* forest and woodland threatened native vegetation community identified under the *Tasmanian Nature Conservation Act 2002* (NC Act - identified in Figure 2). This is located approximately 130 m to the east of the Southern Outlet and is unlikely to be impacted by any works.

The search identified 32 listed threatened species and 12 migratory species which are known or have the potential to occur in the search area. Nine are plants and the remainder are predominantly avian species. Plants species are listed below:

- Caladenia caudata Tailed Spider-orchid
- Caladenia sylvicola Forest Fingers
- Dianella amoena Matted Flax-lily
- Epacris virgate Pretty Heath
- Glycine latrobeana Clover Glycine,
- Lepidium hyssopifolium Basalt Pepper-cress
- Prasophyllum apoxychilum Tapered Leek-orchid
- Thelymitra jonesii Sky-blue Sun-orchid
- Xerochrysum palustre Swamp Everlasting

Terrestrial fauna species are outlined in Table 2. A natural values assessment, based on a design alignment, would assess the potential for impacts on these species in more detail and would be the only way to detect any flora species potentially occurring. There is an area of *Eucalyptus globulus* wet forest located to the east of Tolman's Hill above Proctor's Creek. This species, with *Eucalyptus ovata*, is the primary food source for the swift parrot during the breeding season. Swift parrot is listed as Critically Endangered under the EPBC Act and it is State listed as Endangered. The proposed road works to accommodate the transit lane is unlikely to impact this area of vegetation.

#### 3.1.2 State protected values

Threatened native vegetation communities are identified under NC Act. In addition to the *E. ovata* forest and woodland discussed above, there is an area of *Eucalyptus globulus* dry forest and woodland located approximately 35 m to the west of the Southern Outlet near the top of Proctors Creek (shown on Figure 3). This is unlikely to be impacted by the proposed works.

<sup>1</sup> EPBC Act Protected Matters Report – database accessed 09/01/20

The Tasmanian *Threatened Species Protection Act 1995* lists those species of state significance. A search of the Natural Values Atlas<sup>2</sup> was undertaken and a number of species, additional to the federally listed species mentioned above, were identified as occurring within 500 m of the current road alignment.

Seven plant species listed in the act have been previously recorded within 500 m of the road and are shown on Figure 3. These are listed below and none are protected under Commonwealth legislation:

- *Carex longebrachiata* drooping sedge
- *Olearia hookeri* crimson tip daisybush
- *Pimelea flava* subsp. *flava* yellow riceflower
- *Rhodanthe anthemoides* chamomile sunray
- *Rytidosperma indutum* tall wallaby grass
- *Scleranthus fasciculatus* spreading knawel
- *Vittadinia muelleri* narrowleaf new-holland-daisy

The closest species to the road is tall wallaby grass, located near the Olinda Grove Rd overpass. No works are proposed in this area – works will only north of the intersection. No other species have been recorded within 200 m of the road.

Threatened non-avian fauna species recorded within 500 m of the Southern Outlet are included in Table 2. Most species are also listed under the EPBC Act. Construction and operation of the proposed transit lane is unlikely to impact on bird species unless nesting habitat is removed. There are no records of raptor nests adjacent the road. The potential for nesting habitat to be present would be assessed as part of a natural values assessment.

Table 2 Terrestrial fauna species known or potentially occurring

Species	Status (EPBC/TSPA)	Likelihood of impacts
Spotted-tail Quoll <i>Dasyurus maculatus maculatus</i>	Vulnerable/ Rare	There are no records of this species occurring in this locality on the Natural Values Atlas. There is unlikely to be any denning sites impacted given the likely location of the development area adjacent the existing pavement. Mobile carnivorous species are susceptible to mortality as a result of vehicle collision. The provision of a transit lane is unlikely to alter the potential for this to occur.
Eastern Quoll <i>Dasyurus viverrinus</i>	Endangered/ -	There is unlikely to be any impact on denning sites for this species given the likely location of the development area adjacent the existing pavement. Mobile carnivorous species are susceptible to mortality as a result of vehicle collision. The provision of a transit lane is unlikely to alter the potential for this to occur.
Eastern Barred Bandicoot <i>Perameles gunnii gunnii</i>	Vulnerable/ -	There are multiple records of this species along this section of the Southern Outlet. Habitat values would be low and the potential for mortality due to road kill is unlikely to be increased by construction of the transit lane.
Tasmanian Devil <i>Sarcophilus harrisii</i>	Endangered/ Endangered	Records of this species are more common south of Olinda Grove Rd with no records close to this section of the Outlet.

<sup>2</sup> Natural Values Atlas Report – database access 09/01/2020

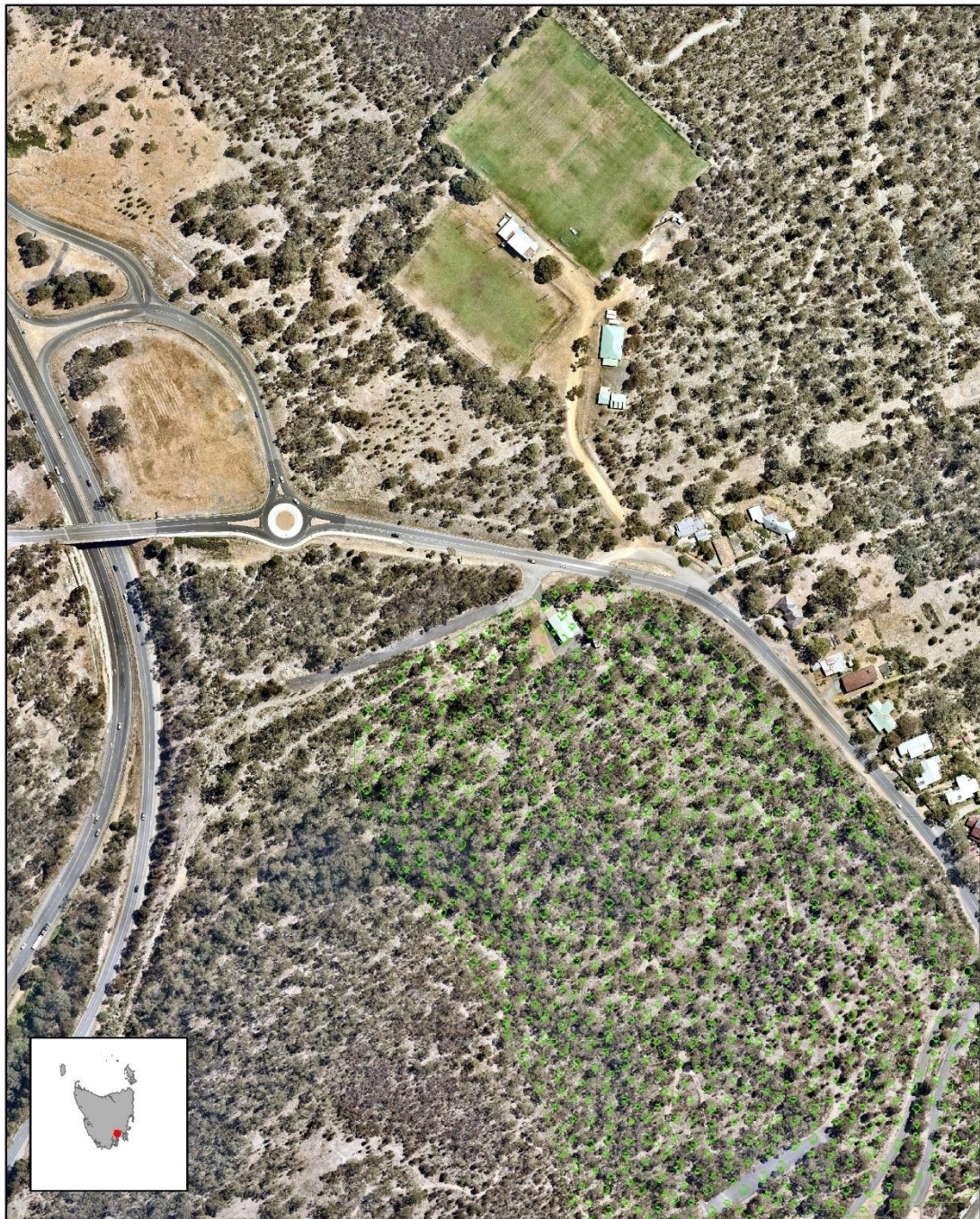
Species	Status (EPBC/TSPA)	Likelihood of impacts
Australian Grayling <i>Prototroctes maraena</i>	Vulnerable/ Vulnerable	This species spends part of its life cycle in the ocean and part in inland waterways. Proctors Creek is the only watercourse within the non-urban portion of the project area, and it shows no connection to the River Derwent (modified into drainage it is assumed). The Sandy Bay Rivulet passes under the Southern Outlet in the built up area and is highly modified at that point. There is little potential for this species to be present within the project area.
Tasmanian Chaostola Skipper <i>Antipodia chaostola leucophaea</i>	Endangered/ Endangered	This species of butterfly occurs in the wider SE locality in sedges that occur on relatively infertile substrates. Habitat for this species is unlikely to be impacted by a transit lane given the proximity of disturbance areas to the existing road.
Ammonite Snail <i>Discocharopa vicens</i>	Critically Endangered/ Endangered	This species is not known from near the Southern Outlet with the nearest records from an area of <i>Eucalyptus obliqua</i> dry forest over 700 m to the west (south of Stoney Steps Rd). This species has only been found under dolerite rocks and there are currently only two extant populations known.

### 3.1.3 Weeds

The Natural Values Atlas Search indicated that the following weeds declared under the Tasmanian *Weed Management Act 1999* have been recorded within 500 m of the Southern Outlet. Gorse is the only one recorded close to the road (one record 50 m to the east):

- *Carduus pycnocephalus* slender thistle
- *Chrysanthemoides monilifera* subsp. *monilifera* boneseed
- *Coprosma robusta* karamu
- *Cytisus scoparius* English broom
- *Erica baccans* berryflower heath
- *Erica lusitanica* Spanish heath
- *Foeniculum vulgare* fennel
- *Genista monspessulana* Montpellier broom
- *Hypericum perforatum* subsp. *veronense* perforated St Johns-wort
- *Lepidium draba* hoary cress
- *Nassella neesiana* Chilean needlegrass
- *Rubus fruticosus* blackberry
- *Salix alba* var. *vitellina* golden willow
- *Salix x fragilis* nothovar. *fragilis* crack willow
- *Ulex europaeus* gorse.

Weeds will be identified during the natural values assessment which will target the road corridor and a suitable buffer. Appropriate weed management actions and timeframes for implementation during construction will be required.




WSP

Threatened Ecological  
Communities

**pitt&sherry**

## Legend

 Eucalyptus ovata forest and woodland

MAP REF HB19415R9  
AUTHOR A  
REVISION klawrence  
DATE 17/01/2020

DATA SOURCES  
Base map from NearMap  
Base data from The LIST  
Tasmanian Government

N 0 25 50 100 Meters  
Coordinate System: GDA 1994 MGA Zone 55  
1:3,517 When Printed at A4

Figure 2 TEC – as represented by State listed *Eucalyptus ovata* forest and woodland threatened native vegetation community



WSP

Threatened Flora &  
Threatened Native Vegetation  
Communities (TAS)

**pitt&sherry**

### Legend

- ▲ Threatened Flora (TAS)
- 17 - Eucalyptus globulus dry forest and woodland
- 20 - Eucalyptus ovata forest and woodland

MAP REF	HB19415R14	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST and
REVISION	klawrence		Natural Values Atlas
DATE	17/01/2020		Tasmanian Government

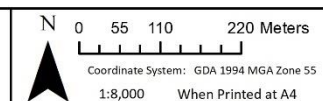


Figure 3 Tasmanian threatened vegetation communities and threatened flora

## 3.2 Hydrology

The project area is within the Derwent Estuary-Bruny catchment and is within the Hobart-Sandy Bay-Lamberts sub-catchment. The road passes through the Proctors and Sandy Bay areas of the Hobart stormwater catchment.

Proctors Creek and two of its tributaries pass under the Southern Outlet in a west to east direction. This is channelised when it reaches Sandy Bay and enters the general stormwater system, ultimately discharging to the River Derwent. The Sandy Bay Rivulet passes under the Southern Outlet near Lynton Avenue and is highly modified at that point.

## 3.3 Geology

The Tasmanian Geoconservation Database lists geodiversity features, systems and processes of conservation significance. It includes features identified in scientific publications and through geoconservation assessments. Management Goals and Notes are provided for each feature which aim to protect the feature and its relevant values. Features are identified on the Natural Values Atlas and while not regulated under specific legislation, the management of these features fall under the Objectives of the Resource Management and Planning System of Tasmania. Some features are protected by specific codes under the relevant planning scheme (e.g. karst systems).

One listed Geoconservation site, the Mt Nelson Dolerite Intrusion exposure, is located either side of the Southern Outlet just north of Olinda Grove Rd (Figure 4). This feature is of national significance (being rare or not occurring outside Tasmania), is a notable example of this type of formation and is representative of the key features of Jurassic dolerite intrusions in Tasmania. Further assessment of the extent of this formation and protective measures in place should be undertaken as part of the design development process.

The Management Goals for this feature are to maintain exposure. Management Notes for the feature state that maintaining clear exposures in road cuttings is the key to maintaining the values of this site and should be considered in any future roadworks. The proposal will be consistent with the recommended management.

## 3.4 Landscape/scenic

No legislated scenic or landscape protection mechanisms are in place along this section of the Southern Outlet. The road passes through a mix of urban development, exposed rock cutting and vegetated corridor, where tracts of vegetation remain between the road and urban uses (refer Figure 5 to Figure 7). The widening of the road corridor to accommodate the transit lane is unlikely to impact significantly on the views available to the motoring public or to the level of visual buffering provided by roadside vegetation offered to adjoining residents.



WSP

Geoconservation sites

**pitt&sherry**

## Legend

 Geoconservation site

MAP REF HB19415R15  
AUTHOR A  
REVISION klawrence  
DATE 20/01/2020

DATA SOURCES  
Base map from NearMap  
Base data from The LIST  
Tasmanian Government

N  
0 15 30 60 Meters  
Coordinate System: GDA 1994 MGA Zone 55  
1:2,586 When Printed at A4

Figure 4 Mt Nelson Dolerite Intrusion exposures



Figure 5 Typical view north along Southern Outlet – vegetated areas (Image courtesy Google)



Figure 6 Typical view north along Southern Outlet – exposed cutting (Image courtesy Google)



Figure 7 Typical view north along Southern Outlet in urban area (Image courtesy Google)

## 3.5 Socio-economic considerations

### 3.5.1 Built environment

Approximately 1.5 km of the proposed transit lane route runs through built up areas and is surrounded by predominantly residential development. Vegetated road side areas either side of the Southern Outlet between Waterworks Rd and Davey St fall within the road reserve (acquired road). Between Richardson St and Waterworks Rd the Southern Outlet passes quite close to residential boundaries although most lots are separated by parcels of acquired road of varying size. The extent of road reservation and acquired road is shown in Figure 8 to Figure 10.

### 3.5.2 Utilities within the road corridor

There are a number of utilities within the road reservation that will require consideration and/or relocation to allow construction. This will be subject to further assessment when design is more advanced.

### 3.5.3 Aboriginal Heritage

Aboriginal cultural heritage is managed by Aboriginal Heritage Tasmania (AHT) under the *Aboriginal Heritage Act 1975*. A search of the Aboriginal Heritage Register should be undertaken to identify any sites of concern. Given the extent of disturbance within the Southern Outlet Corridor the potential for registered sites to be present should be minimal.

### 3.5.4 Historic Heritage

A Heritage Management Strategy (Appendix A) was prepared by Praxis which identified potential heritage issues arising from the proposed Hobart Transport Vision projects, including widening/reconfiguration of the Southern Outlet. The report identified each section of the project area and discussed applicable statutory heritage requirements which may be applicable.

There are a number of Heritage listed properties adjoining the northern end of the Southern Outlet, mostly in the section between Davey and Macquarie Streets, and just to the south of that section. These include:

- Properties listed on the Tasmanian Heritage Register – none are included in the survey corridor
- Properties listed in the Planning Scheme heritage schedule – none are included in the survey corridor
- Heritage Precincts identified under the Planning Scheme - parts of the survey corridor overlap with the Heritage Precinct H4 (Davey Street from Antill Street to the Southern Outlet) and Precinct SH2 (from 353 -357 Macquarie Street). Any major works may require a development application
- Places of Archaeological Potential identified under the Planning Scheme – part of the survey corridor overlaps with a Place of Archaeological Potential – there are exemptions available for some works, however, depending on the extent an application, an archaeological impact assessment may be required, and
- Trees included on the significant trees list – the proximity of works and the potential for impacts on the English Oak at The Hermitage (251 Davey Street) will need to be considered.

There are not considered to be any critical heritage issues on the portion of the survey corridor from Fitzroy Gardens to Olinda Grove.

### 3.5.5 Land productivity

Undeveloped land adjoining the Southern Outlet is predominantly owned by the Crown with some adjacent areas owned by local government. It is not currently used for any agricultural production and is not managed by Sustainable Timbers Tasmania for forestry. Residential areas adjacent the road are privately owned. The northwest of the Olinda Grove Rd junction there are two areas of local government open space reserve. These are unlikely to be impacted due to the availability of reserved road.



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Map 3  
Road Reserve Tenure

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### Legend

- Road Reserve
- Cadastre

MAP REF	HB19415R19	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	21/01/2020		

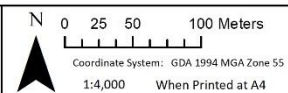


Figure 8 Extent of road reserve and acquired road



WSP

Map 2  
Road Reserve Tenure

**pitt&sherry**

### Legend

- Road Reserve
- Cadastre

<b>MAP REF</b>	HB19415R18	<b>DATA</b>	Base map from NearMap
<b>AUTHOR</b>	A	<b>SOURCES</b>	Base data from The LIST
<b>REVISION</b>	Klawrence		Tasmanian Government
<b>DATE</b>	21/01/2020		

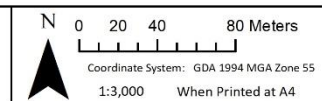


Figure 9 Extent of road reserve and acquired road



WSP

Map 1  
Road Reserve Tenure

**pitt&sherry**

### Legend

- Road Reserve
- Cadastre

MAP REF	HB19415R17	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	21/01/2020		

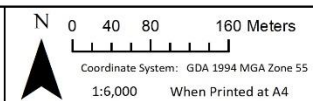


Figure 10 Extent of road reserve and acquired road

## 4. Development considerations

### 4.1 Hobart Interim Planning Scheme 2015

#### 4.1.1 Zoning

Zoning under the Hobart Interim planning Scheme 2015 (the Planning Scheme) is shown on Figure 11 to Figure 14. The land is within the Utilities zone.

#### 4.1.2 Available exemptions

Clause 6 (Limited Exemptions) of the Planning Scheme provides exemptions from the requirement for a planning permit for certain uses. These include:

6.2.4 Minor upgrades by or on behalf of the State government, a Council, or a statutory authority or a corporation all the shares of which are held by or on behalf of the State or by a statutory authority, of infrastructure such as roads, rail lines, footpaths, cycle paths, drains, sewers, power lines and pipelines including:

- (a) minor widening or narrowing of existing carriageways; or
- (b) making, placing or upgrading kerbs, gutters, footpaths, roadsides, traffic control devices and markings, street lighting and landscaping.

These exemptions are limited though and are not available where:

- (a) a code in this planning scheme lists a heritage place or precinct and requires a permit for the use or development that is to be undertaken; or
- (b) the removal of any threatened vegetation is required.

The road, and some adjoining parcels of acquired road, are all owned by the Crown and are vacant. There are no heritage listed buildings on any of these parcels. The proposal may satisfy requirement (a) if no additional land is to be acquired. No land other than the land between Davey and Macquarie Streets is affected by state heritage listing.

Under the Planning Scheme, 'threatened vegetation' refers to a community listed under the EPBC Act or NC Act. The mapped threatened vegetation communities do not occur near the current alignment nor in close enough proximity to be impacted. The absence of these communities would require confirmation through the natural values assessment however their occurrence is considered unlikely and the proposed works likely satisfy requirement (b).

Some Councils will consider provision of an additional lane as "minor" widening and will allow these works under the exemptions. This would need to be confirmed with Council and generally would only apply if the proposal relied upon none of the Performance Criteria within the Planning Scheme. Again, different Council's interpret this differently and once an alignment (or options) are known it can be assessed more fully and confirmation of the approval pathway provided.

#### 4.1.3 Permit requirements

If an exemption is not available, it can be assumed the works are not considered a minor utility and therefore a permit will be required. While generally requiring a Permitted level of assessment, any reliance on Performance Criteria will trigger a Discretionary permit.



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Zone Map 4

**pitt&sherry**

### Legend

Cadastre	12.0 Low Density Residential	19.0 Open Space
<b>Zone</b>	15.0 Urban Mixed Use	20.0 Local Business
11.0 Inner Residential	18.0 Recreation	28.0 Utilities

MAP REF HB19415R4  
AUTHOR A  
REVISION klawrence  
DATE 17/01/2020

DATA SOURCES  
Base map from NearMap  
Base data from The LIST  
Tasmanian Government

N  
0 25 50 100 Meters  
Coordinate System: GDA 1994 MGA Zone 55  
1:3,458 When Printed at A4

Figure 11 Zoning under Hobart Interim planning Scheme 2015



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Zone Map 3

**pitt&sherry**

### Legend

Cadastre

#### Zone

10.0 General Residential

11.0 Inner Residential

19.0 Open Space

28.0 Utilities

34.0 Particular Purpose

MAP REF HB19415R3  
AUTHOR A  
REVISION klawrence  
DATE 17/01/2020

DATA SOURCES  
Base map from NearMap  
Base data from The LIST  
Tasmanian Government

N  
0 25 50 100 Meters  
Coordinate System: GDA 1994 MGA Zone 55  
1:3,458 When Printed at A4

Figure 12 Zoning under Hobart Interim planning Scheme 2015



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Zone Map 2

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### Legend

Cadastre	13.0 Rural Living	29.0 Environmental Management
<b>Zone</b>	14.0 Environmental Living	34.0 Particular Purpose
10.0 General Residential	19.0 Open Space	
12.0 Low Density Residential	28.0 Utilities	

<b>MAP REF</b>	HB19415R2	<b>DATA</b>	Base map from NearMap
<b>AUTHOR</b>	A	<b>SOURCES</b>	Base data from The LIST
<b>REVISION</b>	klawrence		Tasmanian Government
<b>DATE</b>	17/01/2020		

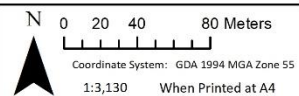


Figure 13 Zoning under Hobart Interim planning Scheme 2015



WSP

Zone Map 1

**pitt&sherry**

### Legend

Cadastre	14.0 Environmental Living	29.0 Environmental Management
<b>Zone</b>	19.0 Open Space	34.0 Particular Purpose
12.0 Low Density Residential	28.0 Utilities	

MAP REF	HB19415R1	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	17/01/2020		

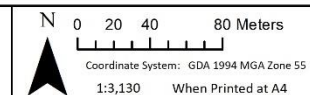


Figure 14 Zoning under Hobart Interim planning Scheme 2015

#### 4.1.4 Overlays and Codes

##### **Landslide Hazard**

Much of the Southern Outlet passes through land identified as being impacted by landslide hazard. This is identified on Figure 15 to Figure 18. The hazard identified is Rockfall susceptibility and is classed as a medium risk for most of the project area with some area of low risk. Large sections of road extending north from a point opposite the end of Kendrick Court is identified as having a low landslide risk associated with the Hobart-Glenorchy deep-seated slide susceptibility.

A separate geotechnical report has been prepared and is attached to this report (Appendix B).

##### **Biodiversity Code**

The southern portion of the project area has Biodiversity Protection areas on either side of the road as shown in Figure 19 and Figure 20. These are unlikely to constrain the proposed transit lane and appear to be well clear of the road corridor.

##### **The Waterways and Coastal Protection Code**

This only applies to development in Waterway and Coastal Protection Areas, Future Coastal Refugia and Potable Water Supply Areas. Waterway and Coastal Protection Area means land within a Waterway and Coastal Protection Area shown on the planning scheme maps or within the relevant distance from a watercourse, as identified in this code. No areas are shown on the overlay maps, however the watercourses are considered to be captured by the code. Sandy Bay Rivulet is not a natural watercourse where it passes under the Southern Outlet near Lyndon Avenue. It is piped from a point west of Waterworks Rd to the west, through to a point on the eastern side of the Southern Outlet. There are unlikely to be any code implications for this section of the works.

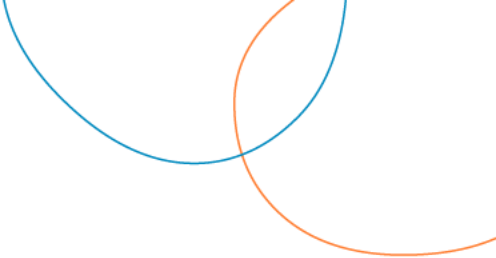
Proctors Creek is likely to qualify as a Class 2 or 3 watercourse which have an associated spatial extent of 30 m and 20 m respectively. Any works within 30 m of Proctors Creek or its tributaries (adopting the maximum likely requirement), will need to satisfy Performance criteria under the code. These include avoidance of impacts on natural values and stream conditions, and management of impacts associated with construction such as clearing, erosion and sediment control. Works are required to be undertaken generally in accordance with the DPIPWE 'Wetlands and Waterways Works Manual' which is standard best practice.

##### **Road and Railway Assets Code**

This code applies to works within 50 m of a Category 1 or 2 road and development which will require new crossings or intensify existing accesses. As the proposed road will be within 50 m of the Southern Outlet which is a Category 1 road with a speed limit of 80 km/h through most of the project area, a traffic impact assessment is likely to be required to demonstrate compliance with the Performance Criteria. P1 requires:

The location of development, from the rail network, or a category 1 road or category 2 road in an area subject to a speed limit of more than 60km/h, must be safe and not unreasonably impact on the efficiency of the road or amenity of sensitive uses, having regard to:

- (a) the proposed setback;
- (b) the existing setback of buildings on the site;
- (c) the frequency of use of the rail network;
- (d) the speed limit and traffic volume of the road;
- (e) any noise, vibration, light and air emissions from the rail network or road;
- (f) the nature of the road;
- (g) the nature of the development;
- (h) the need for the development;

- 
- (i) any traffic impact assessment;
  - (j) any recommendations from a suitably qualified person for mitigation of noise, if for a habitable building for a sensitive use; and
  - (k) any written advice received from the rail or road authority.

Released under RTI





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Landslide Hazard Overlay  
Map 4

**pitt&sherry**

### Legend

-  Cadastre
-  Landslide Hazard Area

MAP REF	HB19415R13	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	17/01/2020		

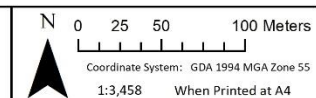


Figure 15 Landslide Risk overlay mapping





WSP

Landslide Hazard Overlay  
Map 3

**pitt&sherry**

### Legend

-  Cadastre
-  Landslide Hazard Area

MAP REF	HB19415R12	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	17/01/2020		

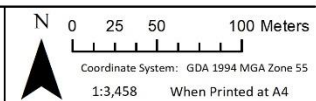
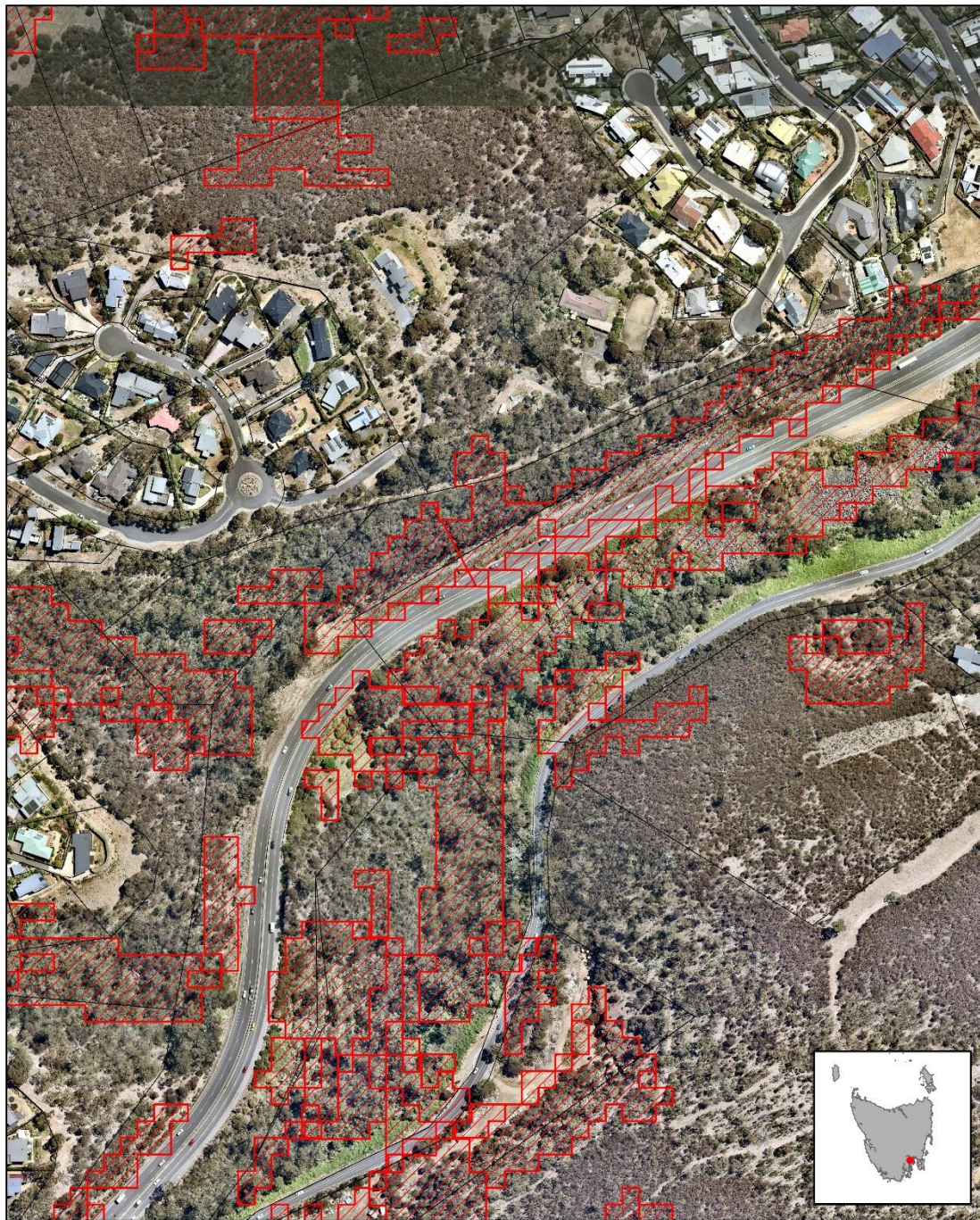


Figure 16 Landslide Risk overlay mapping





WSP

Landslide Hazard Overlay  
Map 2

**pitt&sherry**

### Legend

-  Cadastre
-  Landslide Hazard Area

MAP REF HB19415R11  
AUTHOR A  
REVISION klawrence  
DATE 17/01/2020

DATA SOURCES  
Base map from NearMap  
Base data from The LIST  
Tasmanian Government

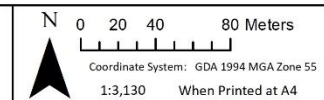


Figure 17 Landslide Risk overlay mapping





WSP

Landslide Hazard Overlay  
Map 1

**pitt&sherry**

### Legend

-  Cadastre
-  Landslide Hazard Area

MAP REF	HB19415R10	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	17/01/2020		

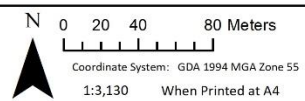


Figure 18 Landslide Risk overlay mapping



WSP

Biodiversity Overlay  
Map 4

**pitt&sherry**

## Legend

- Cadastre
- Biodiversity Protection Area

MAP REF	HB19415R8	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	17/01/2020		

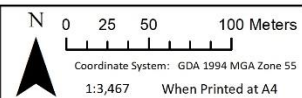


Figure 19 Biodiversity Protection Area



WSP

Biodiversity Overlay  
Map 2

**pitt&sherry**

### Legend

-  Cadastre
-  Biodiversity Protection Area

MAP REF	HB19415R6	DATA	Base map from NearMap
AUTHOR	A	SOURCES	Base data from The LIST
REVISION	klawrence		Tasmanian Government
DATE	17/01/2020		

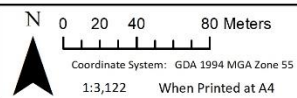


Figure 20 Biodiversity Protection Area

## 4.2 Stormwater

Stormwater management must satisfy the requirements of the Planning Scheme and the State Policy on Water Quality Management 1997. The state policy establishes the water quality parameters to be obtained.

The Planning Scheme requires that stormwater from new impervious surfaces must be disposed of by gravity to public stormwater infrastructure. The acceptable solutions are outlined in Table 3. If these cannot be met the works will rely on Performance Criteria – this will trigger a Discretionary level of assessment.

Table 3 Stormwater standards

Acceptable Solution	Performance Criteria
<b>A1</b>  Stormwater from new impervious surfaces must be disposed of by gravity to public stormwater infrastructure	<b>P1</b>  Stormwater from new impervious surfaces must be managed by any of the following:  (a) disposed of on-site with soakage devices having regard to the suitability of the site, the system design and water sensitive urban design principles  (b) collected for re-use on the site;  (c) disposal to public stormwater infrastructure via a pump system which is designed, maintained and managed to minimise the risk of failure to the satisfaction of the Council.
<b>A2</b>  A stormwater system for a new development must incorporate water sensitive urban design principles for the treatment and disposal of stormwater if any of the following apply:  (a) the size of new impervious area is more than 600 m <sup>2</sup> ;  (b) new car parking is provided for more than 6 cars;  (c) a subdivision is for more than 5 lots.	<b>P2</b>  A stormwater system for a new development must incorporate a stormwater drainage system of a size and design sufficient to achieve the stormwater quality and quantity targets in accordance with the State Stormwater Strategy 2010, as detailed in Table E7.1 unless it is not feasible to do so.

As the proposed transit lane will be larger than 600 m<sup>2</sup> in area the WSUD principles apply – these are outlined in Table 4 and should be incorporated into any design.

Table 4 Stormwater targets

Acceptable Stormwater Quality and Quantity Targets
80% reduction in the average annual load of total suspended solids (TSS) based on typical urban stormwater TSS concentrations.
45% reduction in the average annual load of total phosphorus (TP) based on typical urban stormwater TP concentrations.
45% reduction in the average annual load of total nitrogen (TN) based on typical urban stormwater TN concentrations.
Stormwater quantity requirements must always comply with requirements of the local authority including catchment-specific standards. All stormwater flow management estimates should be prepared according to methodologies described in Australian Rainfall and Runoff (Engineering Australia 2004) or through catchment modelling completed by a suitably qualified person

## 4.3 Noise

Noise generated by the proposed transit lane must satisfy the requirements of the Planning Scheme and the Tasmanian State Road Traffic Noise Management Guidelines.

### 4.3.1 Planning Scheme

The Planning Scheme requirements are associated with the Utility zone provisions and relate to noise generated by the use. These are outlined in Table 5.

Table 5 Planning Scheme noise requirements

Acceptable Solutions	Performance Criteria
<p>A1</p> <p>Noise emissions measured at the boundary of a residential zone must not exceed the following:</p> <p>(a) 55 dB(A) (LAeq) between the hours of 7.00 am to 7.00 pm;</p> <p>(b) 5dB(A) above the background (LA90) level or 40dB(A) (LAeq), whichever is the lower, between the hours of 7.00 pm to 7.00 am;</p> <p>(c) 65dB(A) (LAmix) at any time.</p> <p>Measurement of noise levels must be in accordance with the methods in the Tasmanian Noise Measurement Procedures Manual, issued by the Director of Environmental Management, including adjustment of noise levels for tonality and impulsiveness.</p>	<p>P1</p> <p>Noise emissions measured at the boundary of a residential zone must not cause environmental harm within the residential zone.</p>

Acceptable Solutions	Performance Criteria
Noise levels are to be averaged over a 15 minute time interval.	

The acceptable solution 'A1', has been formulated primarily to address noise emitted industrial or commercial developments and is not well suited to evaluating the impact of traffic noise, however the methodology provided in the traffic noise guidelines is directly applicable to addressing the performance criterium 'P1'.

#### 4.3.2 Noise Management Guidelines

The policies and procedures used by State Growth to manage the impact of traffic noise generated by the roads for which they are responsible, are set out in the Tasmanian State Road Traffic Noise Management Guidelines, Revision 1, October 2015, referred to hereafter as "The guidelines". The guidelines reflect the principles and strategies of the State Road Noise Strategy 2011 and the requirements of the EMPCA. The guidelines describe how noise from new roads or road upgrades should be predicted and checked. They establish key noise level limits that are to be used as design targets and as trigger levels for including noise mitigation measures in a road project, to minimise the noise impacts on neighbouring properties. They also require the application of overarching tests of reasonableness, practicality and cost-effectiveness.

The noise assessment methodology requires the measurement of existing noise levels at a number of characteristic locations within the project area and the prediction of future noise levels at nearby sensitive receivers such as residences, based on the detailed design geometry of the proposed new road and the predicted traffic speed and volumes. The guidelines' design target level for a new road is an LA10 (18hour) of 63 dB(A), where the LA10 (18hour) is defined as the noise level that is exceeded by 10% of all the noise levels recorded in an 18hour period starting at 6am and concluding at midnight.

Where the predicted effect of a road upgrade is to increase the noise level at a residence from below 63 dB(A) to above 63 dB(A), the guidelines call for the implementation of "noise mitigation" measures to reduce the noise levels reaching inside a residence, unless the existing noise level already exceeds 63dB(A), in which case mitigation measures are only required if the predicted future noise level exceeds 68 dB(A). The criteria are applied including an allowance for ten years of traffic growth, after the completion of the project.

Mitigation measures may include building a "noise wall" along the edge of the road, using a quieter road pavement surface or by providing the building owner with "acoustic treatment" of the house to reduce the noise that penetrates inside. Acoustic treatments can consist of double glazing, tighter fitting door seals, additional ceiling insulation etc.

#### 4.3.3 Likely Noise Mitigation Requirements

At the northern (urban) end of the project, the existing road alignment brings large traffic volumes very close to adjoining residences, with no noise migration measures currently in place. It can be reasonably expected that the existing noise levels at most houses will be above 68 dB(A) and that noise mitigation measures will be recommended upon application of the guidelines throughout this part of the project.

Noise walls may need to be considered, although residents on the "uphill" side of the road may find these undesirable as, depending on the height required, they may obstruct existing views. These mitigation actions would be subject an assessment of reasonableness, practicality and cost-effectiveness as outlined above.

The southern end of the project is unlikely to need noise mitigation.

## 5. Summary of preliminary review of constraints

The review of available information has identified the following:

- There is an area of Commonwealth TEC south east of the alignment near Olinda Grove Rd but this is unlikely to be impacted
- State listed threatened native vegetation communities are unlikely to be impacted
- Threatened flora species have not been recorded within 200 m of the current road alignment north of the Olinda Grove Rd intersection, but a flora and fauna survey will confirm the presence of any or suitable habitat
- The flora and fauna survey will also confirm the presence of any trees suitable for potential nesting habitat for threatened bird species such as swift parrot and masked owl (among others)
- Weeds will be identified during the flora and fauna survey, which will target the road corridor and a suitable buffer. Appropriate weed management actions and timeframes will be required for implementation prior to and during construction.
- A site of geoconservation significance is present on both sides of the road (dolerite outcrop) and will require consideration in the design – maintenance of clear exposures in road cuttings is the preferred management of this feature
- The road passes through areas of medium risk landslide hazard which will require consideration
- The area of land available for construction of the road is highly constrained at the northern end where it passes between residential properties
- A number of utilities are located within the corridor and will require consideration in the design (potentially requiring relocation)
- The heritage report prepared by Praxis recommended that no works should be undertaken on any State listed place of heritage significance or any places of archaeological sensitivity unless there is no viable alternative. In the event that any works are required in those places, a rigorous heritage impact assessment must be undertaken
- Works beyond resurfacing or lane reconfiguration (e.g. like-for-like works) within any Place of Archaeological Potential are to be preceded by a statement of archaeological potential, and if necessary, an archaeological impact assessment and archaeological method statement
- Works should seek to avoid impact to significant trees/plantings. If any impact is proposed, then a rigorous assessment will be required to demonstrate there are no alternative
- A search of the Aboriginal Heritage Register should be undertaken to determine if any sites are present. If sites are present an assessment may be required. If none are recorded an Unanticipated Discovery Plan may need to be implemented
- The use is permissible in the Utilities zone – permit requirements will need to be confirmed with Council but a permit is likely to be required
- Stormwater not being discharged to the Council system will be required to meet state water policy standards, and
- A noise assessment will be required to determine the need for noise mitigation and to confirm compliance with the planning scheme. This should be commenced once the concept alignment is finalised and proposed land acquisitions are confirmed.