

KIWIRAIL EMERGENCY MANAGEMENT PLAN: Otira Tunnel



Appendix

February - 2018

This Document Is Uncontrolled When Printed

Revision Table

Issue Number	Prepared (P), Reviewed (R), Recommended (RD)	Approved by	Date of Approval
Original April 2016	(P) C.Stoop (A) M Marshall (R) Southern Tunnel Focus Group (R) Carl Mills	Phillip O'Connell Manager Zero Harm Systems	April 2016
<i>One</i> <i>February 2018</i>	<i>(A) M Marshall</i> <i>(R) Upper South Island Tunnel Focus Group</i>	<i>Gary Hutchins</i> <i>Industrial Standards Zero Harm</i>	<i>February 2018</i>

The master document will be updated and those holding controlled copies of the Appendix will be advised of the change and the requirement to destroy all old copies and replace them with the current version.

This document is to be read in conjunction with

1. KiwiRail Emergency Management Plan for Tunnels (ROR&P Section 11.1)
2. KiwiRail Otira Tunnel Operations TARPs and Duty Cards (ROR&P Section 11.1)
3. Network Local Instructions L6.1
4. Joint Crisis Management Plan

Holders of KiwiRail Emergency Management Plan for Tunnels and Otira Tunnel appendix

1. KiwiRail Network Control Manager
2. National Train Control Centre
3. Otira Incident Control Point (ICP)
4. Arthurs Pass Incident Control Point (ICP)
5. Network Services Depots at Otira
6. Police– electronic copy
7. Fire Service– electronic copy
8. St Johns Ambulance– electronic copy
9. NZ Mines Rescue Service– electronic copy

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Otira Tunnel Emergency Management Plan

This part contains Emergency Management information that is specific to the Otira tunnel.

1. Otira Tunnel Information

Below is basic information about the Otira tunnel location and operation.

Details of access to the tunnel and emergency facilities are in section 2.

The **Otira Tunnel** is a railway tunnel on the Midland Line in the South Island of New Zealand, between Otira and Arthur's Pass. It runs under the Southern Alps from Arthur's Pass to Otira - a length of over 8.5 kilometres (5.3 mi).

The gradient is mainly 1 in 33, and the Otira end of the tunnel is over 250 m lower than the Arthur's Pass end. Construction commenced in 1907 and the concrete lined tunnel opened on 4 August 1923, it was the seventh longest tunnel in the world and the longest in the British Empire.

The tunnel dimensions were 4.72 metres high and 4.27 metres wide at rail level, increasing to 4.57 meters at the widest point.

Because of its length and gradient, gases such as carbon dioxide and carbon monoxide could easily build up, potentially making the tunnel both unhealthy and unworkable with steam engines.

The tunnel was electrified with a 1500V DC overhead system. The electric locomotives were used until the electrification was decommissioned in 1997, with the availability of upgraded DX Class diesel locomotives, the equipment was removed. This marked the end of electrification in the South Island.

To overcome the fume problem, a combination of a door and fans is used, similar to that used in the Cascade Tunnel in the USA. After a train enters the tunnel from the Otira end the door closes off the entrance, and a large fan extracts the fumes behind the train. Once the fumes have been extracted, the door is reopened. Because of the fumes, the Tranz Alpine's observation cars are closed for the trip through the tunnel.

All operations in the tunnel are under the control of the KiwiRail Train Controller. This VHF radio system throughout the tunnel and telephones installed in the tunnel at about 1200m intervals that give direct contact to the Train Controller.

The tunnel also has a limited UHF system.

The tunnel is in regular use with up to fourteen coal and four freight trains with two passenger trains movements daily, with up to 450 passengers and train crew on each passenger movement.

The tunnel is regularly accessed for inspection and maintenance purposes by KiwiRail maintenance personnel and on occasion contractors.



**Warning:**

Trains may set back out of the tunnel without the Train Controller's permission

Do not cross bridges 49 and 50 until confirmed safe by Train Control

Tranz Alpine train has locomotives attached at both ends and in emergency situations is able to move in either direction or both by splitting the train in two

Geographical locations

Arthur's Pass is on the **eastern** side of the Southern Alps
148.00km west of Christchurch and 95.6 km east of Greymouth
Arthurs Pass Station is situated close to the portal

Arthurs Pass Portal GPS Lat -42° 56' 21"S Long 171° 33' 47" E

Otira is on the **western** side of the Southern Alps.
160.6km west of Christchurch and 81.7 km east of Greymouth

Otira tunnel is located 3km *east* of the Otira Station.
Western Portal GPS Lat -42° 51' 45"S Long 171° 32' 55" E

Traction Substation is situated close to the Western Portal, if used care must be taken to avoid the electrical hazards in the building.

Gradient of tunnel - 1 in 33, (downhill from Arthurs Pass)
Trains travelling up hill (up the gradient in the tunnel) travel in the direction from Otira to Arthur's Pass.

Hazards

- Uneven under foot conditions,
- Coal dust on all surfaces in the tunnel
- Covered drain on left hand side when walking down hill (some covers may be missing)
- Exhaust fume may be present from diesel machinery
- Water falling from various points in the tunnel
- Low air temperature (wind chill factor, reduces temperature, when fan lines are running)
- Electrical cables on tunnel walls

2. Protection of the Railway Line

In the event of an emergency being declared, Train Control will initially provide emergency protection of the railway line using Rule 904 between

- Otira, No. 8R Up Departure signal and
- Arthurs Pass, No. 8L Down Home signal.

When a Rail Incident Controller is appointed, they must arrange for a Mis 60 to be issued to a qualified Rail Protection Officer who will co-ordinate emergency rail movements between the Otira No.8R Up Departure signal and Arthurs Pass No. 8L Down Home signal

The special conditions portion of the Mis60 is to include reference to call Train Control before arriving at No.4R ABC Up Home signal.

3. Equipment and Logistics

3.1. Site access to Otira Incident Control Point (ICP) and Otira Tunnel Western Portal (forward staging point)

Otira ICP: The ICP on the Western side of the Otira Tunnel is set up in the Otira Network Services building. Access to the Network Services Building is provided by way of key pad CX624

The Network Services and Railway Station buildings are on Settlement Road which is accessed off State Highway 73



Otira Network Services Building (ICP): GPS location 42° 49' 54"S, 171° 33' 49"E

Otira Station Building: GPS location 42°49'44S, 171°46"E.

Otira Tunnel Western Portal

Road access to the Western Portal and Bridge 50 (which is the closest vehicle access to the Western Portal) is found off State Highway 73 near the railway Overbridge heading east out of Otira.



This road is normally locked gate requiring a KiwiRail P9 key; it is 1.4 km from the gate to the Western Portal, and Bridge 50

Emergency service vehicles and buses are able to use the track in the event of an emergency and will be capable of reaching Bridge 50 and have access to the Western Portal *via Bridge 50 or the river ford.*



Warning:
Do not cross Bridge 50 until confirmed safe by Train Control

3.2. Site access to Arthurs Pass tunnel portal and Incident Control Point (ICP)

ICP: The Arthurs Pass Station building within the Arthurs Pass yard area will normally be the ICP, however if the event escalates to a point the station is too small for the event, then it will be relocated to DOC Head Quarters at Arthurs Pass, .

The Station is located approximately 500m from the tunnel portal. The area itself is locked via a chain link fence and requires a KiwiRail 100 key and the Arthurs Pass Station Building has a coded push key lock (code C X 624, this code also applies to Otira Railway Station) .

However, all access to the tunnel will require track protection from Train Control, as Bridge 49 is between the Arthurs Pass Station Building and the Arthurs Pass Tunnel Portal.





DOC Head Quarters (Visitors Centre) ICP for major events



Arthurs Pass Helipad: GPS location 42°56'40"S, 171°33'54"E.

3.3. Cell phone coverage

The Arthur's Pass Village area is covered by Vodafone, *Spark* & 2degrees (all Digital 3G/4G), with limited capacity.

From Arthurs Pass coverage into the Otira tunnel is only between 500–1000m into the tunnel.

Western Portal has limited coverage, only for two phones and data, up to 30m from containers on western side of river

Otira Village *has limited coverage from Spark (027)*

3.4. ICP facilities

The Western Portal has the equipment as listed in the equipment register in Section 3. 15.

Each ICP at the Otira Network Services and the Arthurs Pass Station Buildings has an Emergency Board with a template defining who has been allocated which role, and a folder for each role containing a labelled vest, Duty Card and other information. If the person allocated to a role changes during the course of an emergency, the folder must be handed over and the whiteboard and communications log must reflect that change.

Facilities at the site access areas and tunnel portals have been designated for key emergency response functions including muster points, helicopter landing points, medical triage, and vehicle parking.

These are listed in Section 5. A site plan is maintained in the ICPs showing the location of all such facilities.

If the space and facilities at the Otira Network Services and/or the Arthurs Pass Station Buildings and the ICP's become inadequate for the event then the ICP will be relocated to DOC Head Quarters at Arthurs Pass . ICP's re-designated as Forward Staging Points. The decision to relocate will be made by the IC.

3.5. Emergency Services

Otira ICP

Police: the closest Police Station is Arthurs Pass. The response time is approximately 30 minutes.

Fire: the nearest Fire Station is Kumara. The response time is approximately 45 minutes.

Ambulance: the closest Ambulance base is Greymouth. The response time is approximately 1 hour but may vary.

Rescue Helicopter: is based *at Greymouth* airport. The response time is approximately 30 minutes. If helicopter rescue is required it will be arranged via the Ambulance service.

Arthurs Pass Forward Staging point

Police: the closest Police Stations are

- Arthurs Pass -the response time is approximately 5 minutes.
- Hokitika. The response time is approximately 1 hour 20 minutes.

Fire: the nearest Fire Stations are located at

- Arthurs Pass Rural Fire Service The response time is approximately 5 minutes.
- Nearest NZFS fire station are at Springfield (response time 70 minutes) *and* Kumara (response time 63 minutes)

Ambulance: the closest Ambulance base is Greymouth Hospital. The response time is approximately 1 hour 20 minutes to Arthurs Pass site access.

Rescue Helicopter: is based at Greymouth airport. The response time is approximately 30 minutes. If helicopter rescue is required it will be arranged via the Ambulance service.

NZ Mines Rescue Service

NZ Mines Rescue Service can be deployed from Rapahoe Rescue station with a response time of approximately 1 hour 20 minutes.

3.6. Communications Protocols

The Otira tunnel radio communication system a means of communication between the tunnel site and the Train Control. Train Control is continuously attended.

All alarms from train radios are received audibly and visually by Train Control until acknowledged. Emergency line phone calls are always monitored by a minimum of 3 Control desks simultaneously.

Network Services personnel must carry a UHF type radio to portals when called out by Train Control to a tunnel emergency.

3.7. Air flow and Ventilation

The Otira tunnel is normally ventilated by natural air flow from West to East and has a Controlled Ventilation system, consisting of a sliding door and two fan lines positioned at the Western end of the Tunnel.



Tunnel ventilation modes

Automatic Operation

Once an Up train is completely inside the tunnel the door will close and the first fan line (locomotive cooling) will start after a time delay. When the train is clear of the axle counter heads at Arthur's Pass the second fan line will start and will run flush cycle before the door reopens and turns off both fans.

When a Down train is clear of UTD indicator the door will close and both fans will start. After 15 minutes the fans will turn off and the door will open.

Remote Control from Train Control

In this mode Train Control has control of the operation of the ventilation fans and when required the doors.

Calls after passing the door will indicate to Train Control that the relevant ventilation system fans must be started immediately.

Local Remote Operation

The operation of the system will be under the direction of Train Control. The door is controlled on site from local door and fan remote control boxes mounted on the side of the traction substation at the Western Portal, the controls being operated by a qualified person.

Before local control can be taken, the ventilation system must be in local remote mode. This is achieved by either selection from Train Control or failure of the Signalling system.

- In this situation Train Control must not allow a train to leave Otira until there is a qualified person present at the tunnel to operate the door ventilation system.

Manual Operation

Manual operation of the system will be under the direction of Train Control.

The door and fans are controlled from the Control room at the Western Portal by competent Signals personnel by passing the Tunnel computer system.

Tunnel Door

The door must be open before a train may be signalled to enter the block section between Arthurs Pass and Otira.



Warning:

Non insulated Rail vehicles on bridge 50 may reset the tunnel system and open the tunnel door

Note: Automatic operation of the tunnel door will not be possible for insulated vehicles, i.e. some KiwiRail Infrastructure vehicles; Track Maintenance Machines or Hi-rail vehicles. For these movements the doors must be operated remotely from either Train Control or at the tunnel door control box.

3.8. Door emergency operation with tunnel

The tunnel door when closed can be opened inside the tunnel from emergency reset buttons; one located in No. 6 Refuge and the other adjacent to the airlock room door. These buttons will also turn the fan off.

3.9. Emergency Access at Western Portal of Tunnel

An airlock room is situated next to the tunnel door to allow access to and from the tunnel while the door is closed and the fans are operating



Picture 1:
Airlock room outside entrance



Picture 2:
Airlock room inside tunnel entrance

3.11. Tunnel Communication

Otira Tunnel radio system

Otira Tunnel operated both VHF and UHF frequencies

VHF Channel 4 is the direct link to communicate to and from Train Control

UHF channel 41 is a link to communicate to other radios within the tunnel only

Test Radio located at Telephone Portal	Repeater located at	Repeater coverage location or kilometrage	
1	118.4 km	Arthur's Pass portal	Arthur's Pass–118.6
2	119.6 km	120 km	118.5 km–121.5
3	123.2 km	123 km	121.5 –124.3
4	124.4 km	Western Portal	124.3–Otira

Note: Train Control VHF Channel 4 can be disconnected from Train Control between Arthurs Pass and Otira. (Train Control will not be able to hear or receive transmissions) by Train Control base calling the tunnel repeater using the following selcall codes

- To activate the tunnel localisation 10104
- To Restore Train control to the Tunnel repeater system 10103

Train Control telephones locations

118.409	119.617	120.832	122.039	123.247	124.450
Lift receiver and check for dial tone then dial number # key used for speed dial					
# 1	Train Control emergency				
# 2	East Train Control				
# 3	West Train Control				
For any other number, dial "1" for outside line then the number you require, e.g. 044983367 for East Control					



Picture of refuge with telephone, radio and gas detection equipment



Inside the Telephone box

3.12. Cabling on Tunnel Walls

Location when looking in the Otira – Arthurs Pass direction	
Left hand wall	Right hand wall
<ul style="list-style-type: none"> • 1 x 48 Fibre Optic cable for the tunnel phones and Radio system and CTC, Axle Counter. Light • 1 x 1.25" Leaky Coax Cable for Tunnel radio system. Runs the length of tunnel. RF • 1 x 110V ac Signals cable for the door indicator signals inside tunnel. 	<ul style="list-style-type: none"> • 1 x 12 Fibre Optic Cable back up if the main fibre gets damaged. Runs form Eastern Portal to the phone portal nearest the Western Portal. Light if used • 1 x 230V ac Power cable running from Arthurs Pass to phone portal 3 . • 1 x 230V ac Power Cable running from Otira Portal to phone Portal 4 .

Beside these cables there are numerous old obsolete olds that are no longer being used.



Warning:
All cables must be treated as alive until confirmed safe

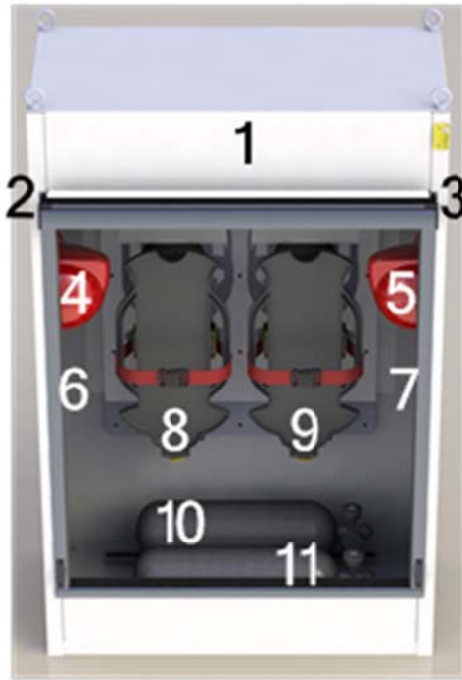
3.13. Emergency Stations

Otira Stations has 6 Emergency Stations

Within the Otira Tunnel there are 6 locations that has additional CABA SCSR and other emergency supplies,

3.14 Equipment and Facilities Registers - details for each locations are show in 5.0 Site Maps

Emergency Station Cabinet Layout



Cabinet Contents

1. Self-contained self-rescuers x 4
2. Breathing apparatus change over hook
3. Breathing apparatus change over hook
4. Spare helmet and torch
5. Spare helmet and torch
6. Rescue hood
7. Rescue hood
8. Spare breathing apparatus set with 9l cylinder
9. Spare breathing apparatus set with 9l cylinder
10. 9l cylinder for rescue hood
11. 9l cylinder for rescue hood

3.14. CABA Compressors



Compressors are located at Otira and Middleton for recharging CABA cylinders

3.15. Equipment and Facilities Registers

The following tables detail equipment and facilities provided at the Otiria tunnel for emergency response purposes.

An 'Emergency Board' is set up at each ICP to provide rapid access to all relevant information needed for an emergency response to an event and for ongoing management of that event.

The Network Services Area Asset Engineer is to ensure that the checks and maintenance requirements as set out and recorded in Maximo:

- Routine check - at the frequency indicated, includes:
 - Checking that equipment is secure and present in the required quantities, and is in good working condition.
 - Where appropriate carrying out a functional check, for example a radio check call.
 - Checking security and weather tightness of facilities.
 - Checking road access is in good condition.
 - Checking ground conditions are free of vegetation and obstructions.
- Maintenance – includes:
 - Carrying out or arranging for routine maintenance as specified by the manufacturer of the equipment.
 - Maintaining buildings as required.
 - Maintaining road access as required.
 - Maintaining ground conditions and removing vegetation/obstructions in designated facility areas.
- Records:
 - All checks and maintenance must be managed through the Sirius work management system and records of completion retained within the system. They must also be signed off in the book provided for the purpose at the Otira ICP (for Otira and in-tunnel equipment). This book will provide a ready record on site that checks have taken place.
 - Equipment must be tagged as serviceable with check date and identification of the person carrying out the check.
- After emergency event or site exercise:
 - All equipment must be cleaned, inspected and maintained (or replaced if necessary) and returned to designated locations...

Otira ICP Equipment & Facilities Register		
Equipment	Location	Inspection/Maintenance
General		
Mains power supply, internal lighting and plug outlets	In the Otira <i>station</i>	6 monthly routine check
<i>Safety Glasses x 12</i>	<i>In the Otira station</i>	<i>6 monthly routine check</i>
<i>Gloves x 12</i>	<i>In the Otira station</i>	<i>6 monthly routine check</i>
<i>KiwiRail incident report forms</i>	<i>In the Otira station</i>	<i>3 monthly</i>
Site Safety board:	<i>In the Otira station</i>	6 monthly routine check
<i>Book for recording routine checks</i>	<i>In the Otira station</i>	<i>6 monthly routine check</i>
<i>Gas Monitors Dragger Xam 2500 x 5</i>	<i>In the Otira station</i>	<i>6 monthly routine check</i>
<i>Head lamps 5 (spare) x 5 LE issued</i>	<i>In the Otira station</i>	<i>6 monthly routine check</i>
Medical		
First aid kit: Trauma Kit	In the Otira Station	6 monthly routine check
Oxygen x 2 bottles	In the Otira Station	6 monthly routine check
Foil survival blankets x 200	In the Otira Station	6 monthly routine check
Extinguishers:		6 monthly routine check, maintenance
1 x Co2 and 1 x Water	Otira Station Building	6 monthly routine check, maintenance
- 1 x 30 m and 1 x 15m fire hose	On Otira Station Platform	6 monthly routine check, maintenance
Emergency Equipment		
<i>Office supplies (paper, pens, whiteboard markers)</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Spare Sitrep, Action Plan and JSA documents</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Site map (large scale)</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
UHF radio portables x 2 Tait 8100	In the Otira <i>Station</i>	6 monthly as per Network Services code S005, 3 monthly functional check by Network Services comms team
1 Emergency Board	In the Otira ICP	6 monthly routine check
3 White boards	In the Otira ICP	6 monthly routine check

Otira ICP Equipment & Facilities Register		
<i>CIMS resource folders for: Incident Controller; Logistics; Intelligence/Planning; Operations, Administration; Portal Controller; Passenger Escort (2 sets), Traffic Marshall</i> <i>Each folder contains;</i> <i>Hi vis vests and Duty Card, pen and documents for each role.</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Emergency phone list</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Level 1, 2, 3 emergency triggers</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Traffic management plan for Otira ICP area</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Sign in/Sign out attendance book</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Tally counter (for counting passengers exiting tunnel) x 2</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Stop/Go sign for Traffic Marshall x 1</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Danger tape 200m</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>“Pig tail stands” for setting out Danger tape x 30</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
<i>Orange road cones x 10</i>	<i>In the Otira ICP</i>	<i>6 monthly routine check</i>
Fire		
Extinguishers:		
- 1 x Co2 and 1 x 30m fire hose	<i>At Otira ICP</i>	6 monthly routine check, maintenance
Facilities	Location	Inspection/Maintenance
ICP facilities		
Otira <i>Network Services</i> Building	Otira <i>Network Services</i>	6 monthly routine check, maintenance

Western Portal Equipment Register		
Equipment	Location	Inspection/Maintenance
Emergency Equipment	<i>Western Portal Project Office</i>	<i>3 monthly</i>
<i>First aid kit: Trauma Kit</i>	<i>Western Portal</i>	<i>3 monthly</i>
First aid kit: Trauma Kit	Western Portal	3 monthly
Oxygen x 1 bottles	Western Portal	3 monthly
Power Substation Building	Western Portal	6 monthly
Muster point for evacuated passengers exiting tunnel	As shown on site plan	6 monthly routine check, maintenance
Emergency services vehicle parking	As shown on site plan	6 monthly routine check, maintenance
Parking area signage require	As shown on site plan	6 monthly routine check, maintenance

In Tunnel Equipment Register		
Equipment	Location	Inspection/Maintenance
Emergency Equipment		
Tunnel phones <i>and location lighting</i>	In tunnel refuges	3 monthly as per Network Services Code S005
<i>See 3.13 for details of Emergency Station</i>	<i>6 Locations</i>	

Tranz Alpine Passenger Train Equipment Register

Equipment	Location	Inspection/Maintenance
Passenger Car Emergency Bag Equipment		
Foil emergency blankets x 63	On train	12 monthly routine check, maintenance
Light sticks 100.	On train	12 monthly routine check, maintenance
Torches 63	On train	12 monthly routine check, maintenance
2 Fire Extinguisher in carriage	On train	12 monthly routine check, maintenance
Café Car Emergency Equipment		
Gas masks x 2 and canisters x 4	On Train	12 monthly routine check, maintenance
Torches x 1 large, x 10 small for issue to passengers	On train	12 monthly routine check, maintenance
Light sticks 50.	On train	12 monthly routine check, maintenance
Foil emergency blankets x 10	On train	12 monthly routine check, maintenance
Passenger counter	On train	12 monthly routine check, maintenance
Hi-viz vest	On train	12 monthly routine check, maintenance
Small tool box	On train	12 monthly routine check, maintenance
Full size First Aid Kit	On train	12monthly routine check, maintenance
Backpack First Aid Kit	On train	12monthly routine check, maintenance
AED unit	On train	12 monthly routine check, maintenance
2 Fire Extinguishers	On train	12 monthly routine check, maintenance
Axe	On train	12 monthly routine check, maintenance
Whistle	On train	12 monthly routine check, maintenance
Gas monitor x 1 (NO ₂ , CO and O ₂)	On Board Service Manger	6 monthly recalibration
Pre-departure daily checks recorded on running/passenger count sheet all expiry dates under 12 months replaced		

Arthurs Pass Station (ICP) Equipment & Facilities Register

Equipment	Location	Inspection/Maintenance
General		
Train control radio	In the Arthurs Pass Station	12 monthly as per Network Services code S005, 3 monthly functional check by Network Services comms team
<ul style="list-style-type: none"> UHF radio portables x 2 	DOC HQ Arthurs Pass	6 monthly as per Network Services code S005, 3 monthly functional check by Network Services comms team
1 Emergency Board	In the Arthurs Pass Station	6 monthly routine check
2 White boards	<i>In the Arthurs Pass Station</i>	<i>6 monthly routine check</i>
CIMS resource <i>folders</i> for: Incident Controller; Logistics; Intelligence/Planning; Operations, <i>Administration; Portal Controller; Passenger Escort (2 sets), Traffic Marshall</i> <i>Each folder contains;</i> <i>Hi vis vests and Duty Card, pen and documents for each role</i>	In the Arthurs Pass Station	6 monthly routine check
Emergency phone list	In the Arthurs Pass Station	6 monthly routine check
Printed copy of EMP and TARPs	In the Arthurs Pass Station	6 monthly routine check
Level 1, 2, 3 emergency triggers	In the Arthurs Pass Station	6 monthly routine check
Site map (large scale)	In the Arthurs Pass Station	6 monthly routine check
Traffic management plan for Arthurs Pass Forward Staging point area	In the Arthurs Pass Station	6 monthly routine check
Office supplies (paper, pens, whiteboard markers)	In Arthurs Pass Station	6 monthly routine check
<i>Spare Sitrep, Action Plan and JSA documents</i>	<i>In Arthurs Pass Station</i>	<i>6 monthly routine check</i>
Emergency Equipment	In the Arthurs Pass Station	6 monthly routine check
Orange road cones x 10	In the Arthurs Pass Station	6 monthly routine check
Stop/Go sign for Traffic Marshall x 1	In the Arthurs Pass Station	6 monthly routine check
Danger tape 200m	In the Arthurs Pass Station	6 monthly routine check
“Pig tail stands” for setting out Danger tape x 30	In the Arthurs Pass Station	6 monthly routine check
Torches x 5, spare batteries	In the Arthurs Pass Station	6 monthly routine check

Arthurs Pass Station (ICP) Equipment & Facilities Register		
Tally counter (for counting passengers exiting tunnel) x 2	In the Arthurs Pass Station	6 monthly routine check
First aid kit x 1 Trauma kit	In the Arthurs Pass Station	3 monthly
Foil survival blankets x 200	In the Arthurs Pass Station	6 monthly routine check
Fire		
Extinguisher x 1 CO2 and two 30m fire reels	In the Arthurs Pass Station	6 monthly routine check
1 x Foam branch 1 x Steel basket 4 x High Expansion foam 4 x Low Expansion foam	Green containers (2) in Arthurs Pass Yard	6 monthly routine check, maintenance
ICP facility	As shown on site plan	6 monthly routine check, maintenance
Muster point for evacuated passengers exiting tunnel	As shown on site plan	6 monthly routine check, maintenance
Helicopter landing point	As shown on site plan	6 monthly routine check, maintenance
Medical triage and first aid location	As shown on site plan	6 monthly routine check, maintenance
Emergency services vehicle parking GPS	As shown on site plan	6 monthly routine check, maintenance
Bus parking area	As shown on site plan	6 monthly routine check, maintenance

4. Emergency Contact Information

Otira Tunnel Emergency Contact List

Organisation	Function	Phone
KiwiRail Network Control	Network Control Manager	04 498 2066 021 440112
Train Control West Desk (Otira)		04 498 3352
<i>Train Control</i> Midland <i>Desk</i> (A.Pass)		<i>04 498 3367</i>
Train Control Emergency		0800 808 400
<i>Arthurs Pass Station ICP Radio selcall</i>		<i>42154</i>
Arthurs Pass Station <i>ICP</i>		03 769 8274 03 769 8275 03 769 8276 03 769 8277
Arthurs Pass Station fax		03 378 3220
Arthurs Pass Station		03 3189044
Tunnel Telephones		03 3783221
Western Portal		03 769 8273
<i>Otira ICP</i>		<i>03 769 8278</i> <i>03 769 8279</i> <i>03 769 8280</i> <i>03 769 8281</i>
<i>Otira Network Services</i>		<i>03 769 8256</i>
Otira <i>Signals</i> Workshop		03 769 8282
Otira Signals fax		03 769 8270
Otira Station		03 769 8250
Otira fax		03 769 8251

Organisation	Function	Phone
DOC	Arthurs Pass	03 318 9211
All Emergency Services	Emergency	111
Police	Southern Comms Room	
Fire Service	Fire Comms	
Ambulance		
NZ Mines Rescue Service	Rapahoe Mines Rescue	037627828
	Mobile(Trevor Watts)	021366500
Civil Defence Emergency Management		033395532

5. Site Maps

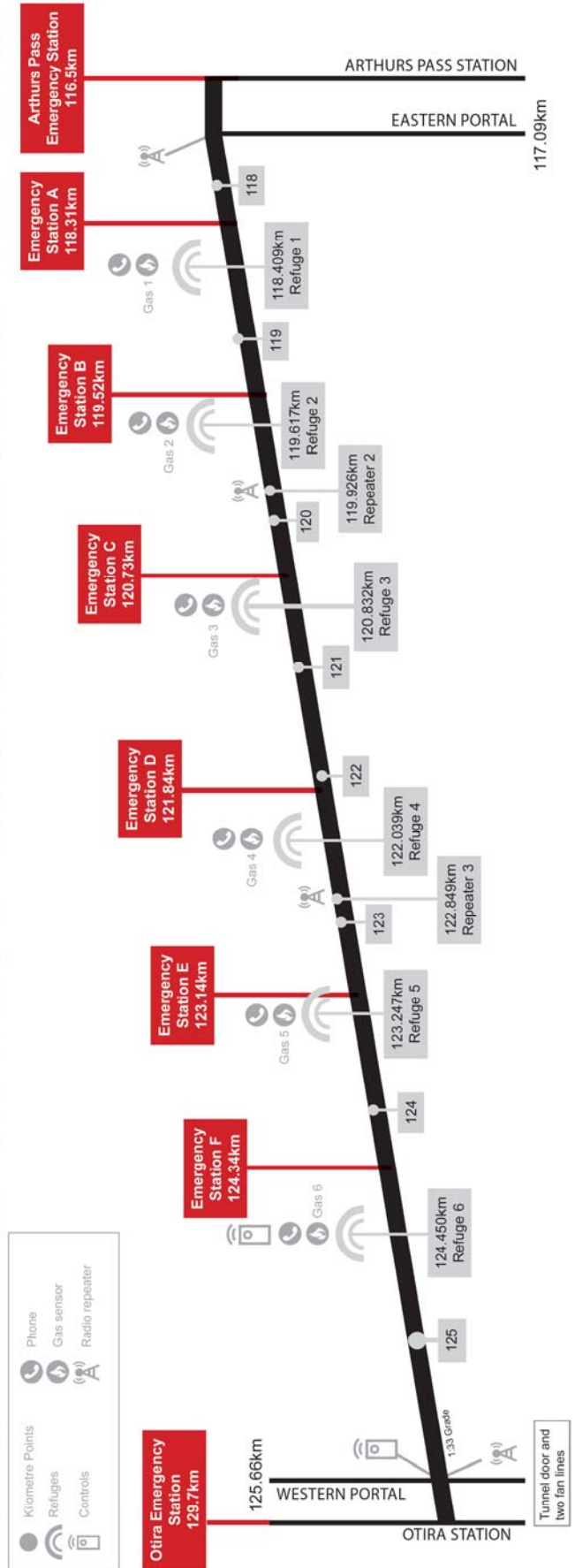
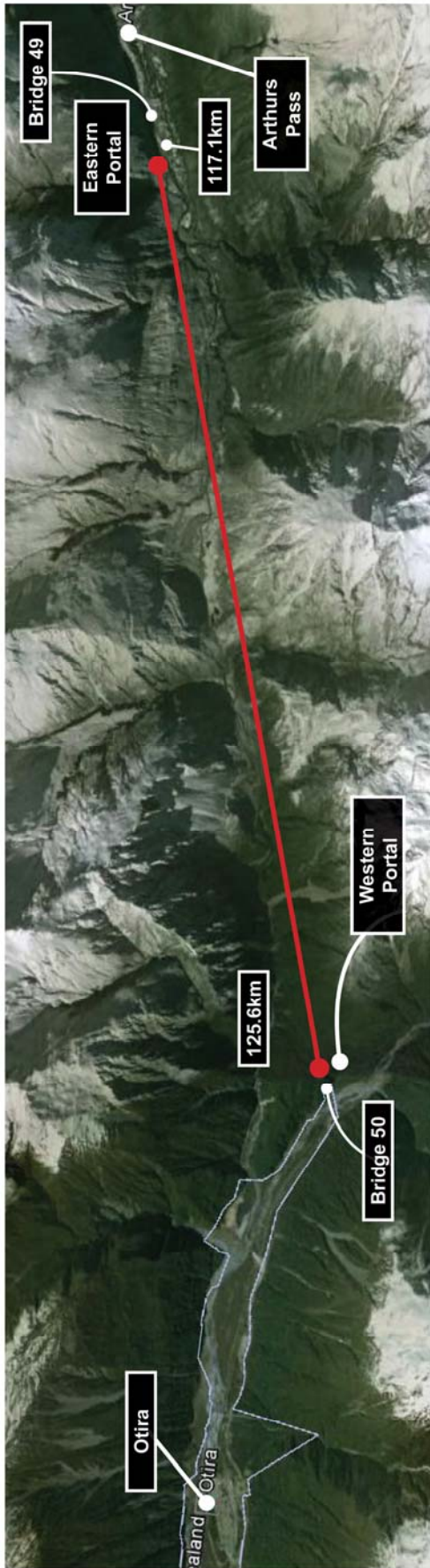
Electronic copies of the site maps are held by Zero Harm Systems Manager that is part of this Appendix.

They show site layout and location of emergency resources and facilities for:

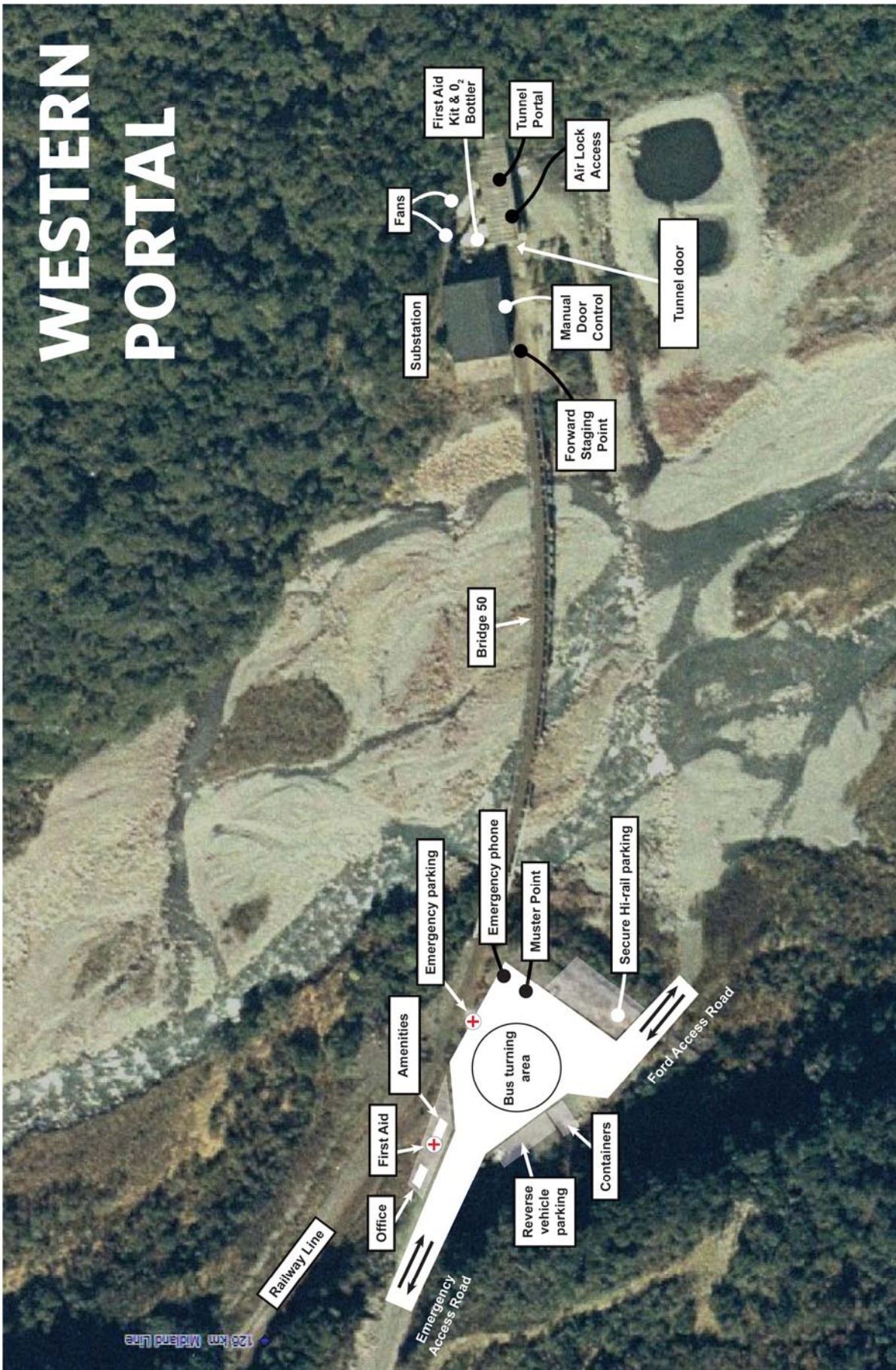
- a) Tunnel overall (including “in tunnel” emergency resources).
- b) Otira area.
- c) Western Portal area
- d) Arthurs Pass area.

A large size, laminated, site map has been provided in the ICP's to facilitate marking up during events and exercises.

OTIRA TUNNEL

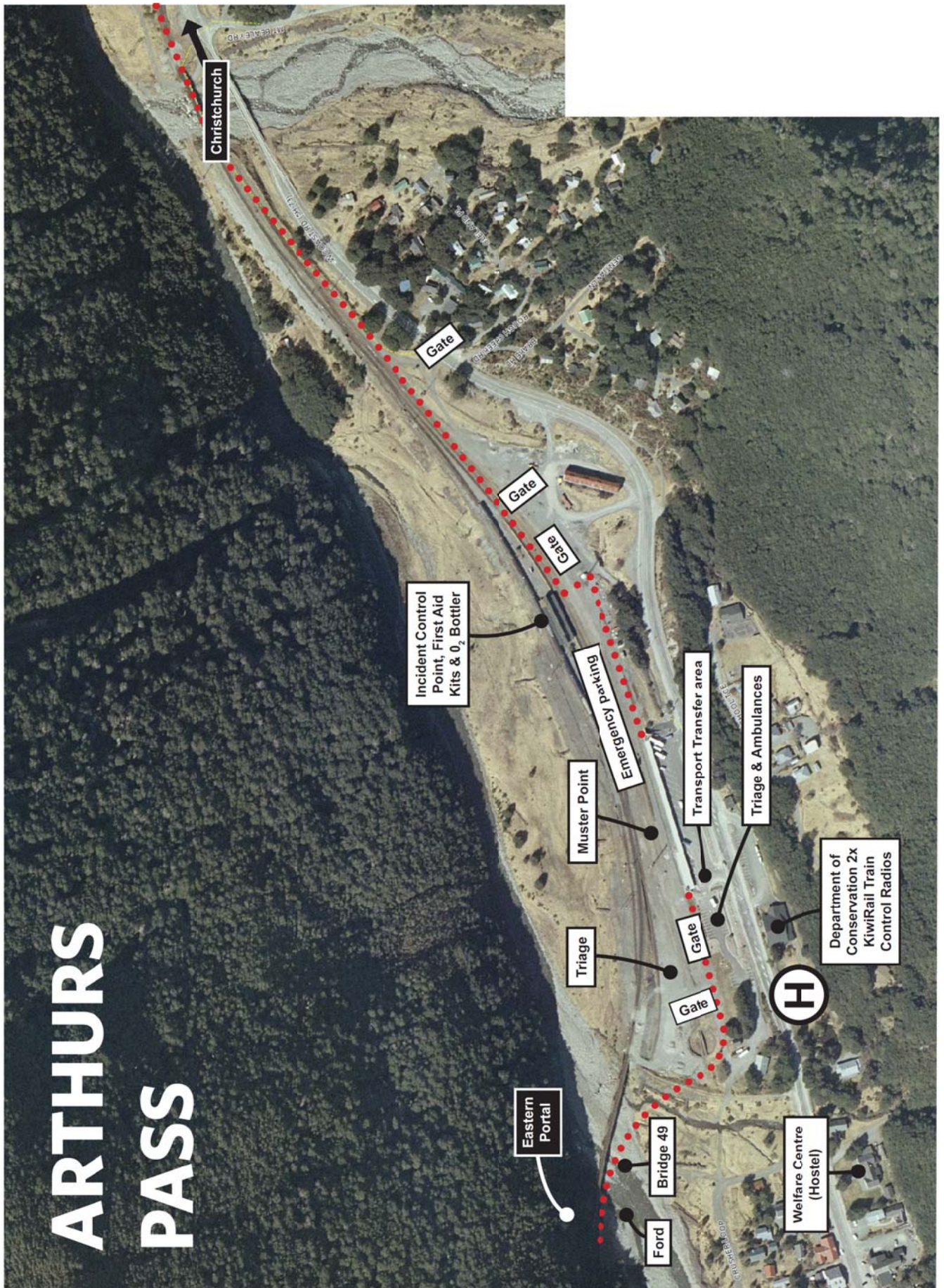


WESTERN PORTAL



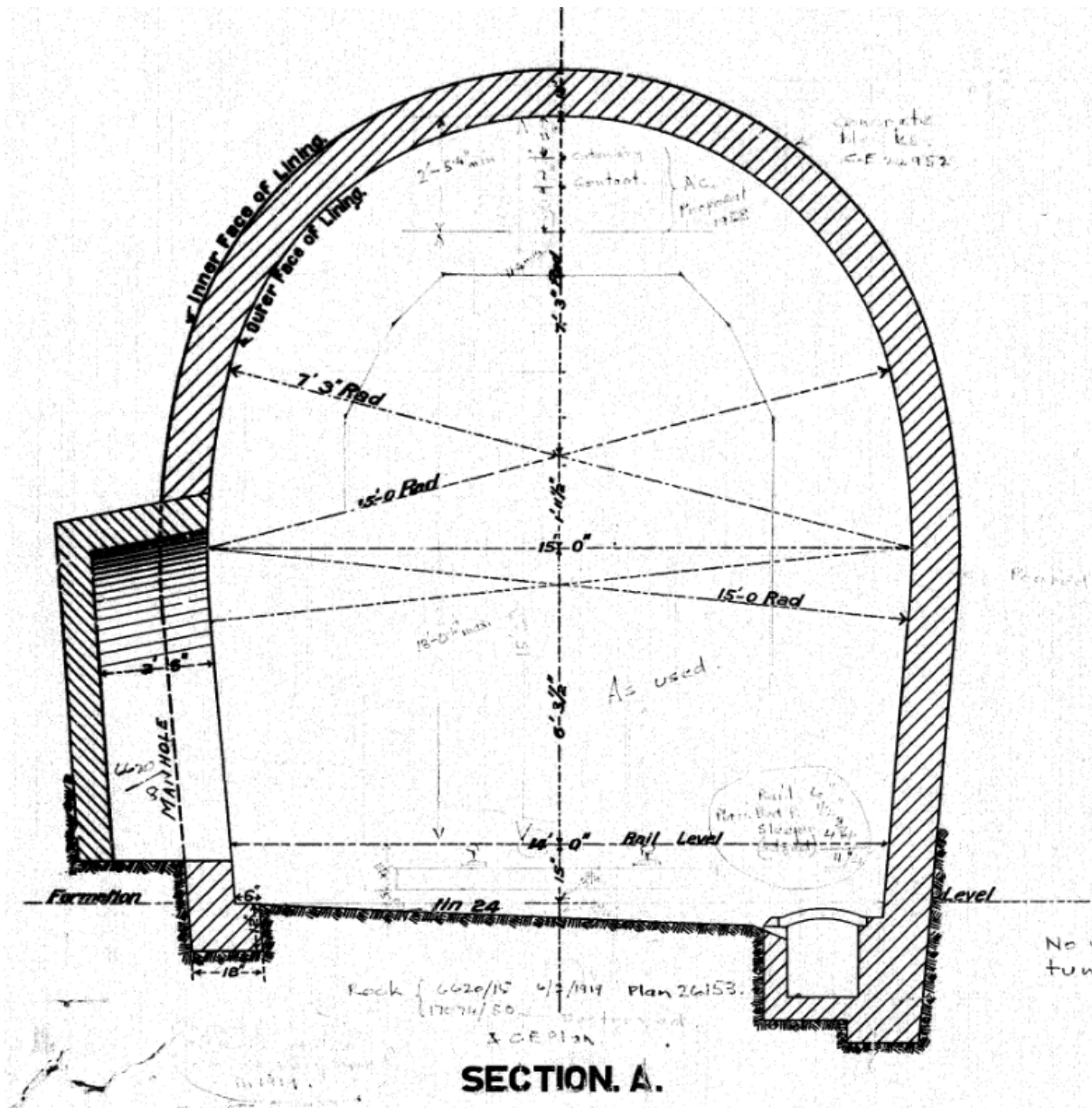
Hazard – Risk to Helicopters - Several overhead power lines in area not marked

ARTHURS PASS



6. Otira Tunnel Information

6.1. Tunnel Profile



6.2. Manual operation of tunnel door