Point Henry Bushfire Safety 10 Year Plan

QUT

Point Henry Bushfire Safety
10 year plan

Prepared by Dr Ian Weir

Head of Landscape Architecture
Research Architect
Centre for Disaster and Emergency Management
Queensland University of Technology

Chair, Bremer Bay Design Coordination Group

For Public Presentation at the Bremer Bay
Town Hall
7th April 2014

QUT

This presentation has not been commissioned – it is an in-kind contribution to the discussion on Bushfire Safety on Point Henry, produced by Dr Ian Weir, in his capacity as Head of Landscape Architecture and Research Architect at Queensland University of Technology and as Chair of Bremer Bay Design Coordination Group.

It has been devised in consultation with the individuals and organisations listed on the next page.

These individuals and organizations do not however endorse this presentation.

QUT/Ian Weir Consultation

Residents/landowners, Point Henry

R & J Ford
C & G Purcell
S Atkinson
M Atkinson
N Oakey
I Hollingworth

G Harris
S Lawrence
D Simon
N McQuoid
M & R Haymont
G Barr
J & J McAleer
W Flietmann
G Siero
G Mair
P & K Broadbent
M Wellstead
B Hunter

Other

Downie Family, (BAL40 house, Denmark)
Wormald Family, Murrindindi (post Black Saturday)
McLean Family, Steel Creek (post Black Saturday)
Magee Family, Yallingup Hill, WA
DFES Fire Station Captain

Klaus Braun, Bushfire Risk Consultant, WA
Geoffrey Lush TME, Bushfire/planning consultant
Eldon Bottcher, FPA Accredited Bushfire Risk Consultant, QLD
Greg Penney, FPA Accredited Bushfire Risk Consultant, WA
John Iffla, Volunteer Fire Brigade, Bremer Bay
Bernard Trembath, Queensland Fire & Rescue
Ralph Smith, DFES Perth
Murray Haddon, DFES. Albany
Michael Ausma, DFES Albany
Peter Thurkle, SoJ/DFES
Justin Leonard, CSIRO Bushfire Research
City of Busselton planners
Shire of Denmark planners
Shire of Denmark building surveyor
Shire of Augusta Margaret River planners

*Blue indicates Clients of Ian Weir/QUT

Contents

BACKGROUND
PART 1
QUT 10 YEAR PLAN
PART 2
COMMENTARY OF TME/SoJ DRAFT STRATEGY
CASE STUDIES - EXISTING HOUSES
PART 3
SHIRE OF JERRAMUNGUP TOWN PLANNING SCHEME PROCESS
THE TME/SOJ DARFT STRATEGY IN DETAIL
PART 4
PRINCIPLES AND INTENT OF BUSHFIRE RISK MITIGATION
WAPC PLANNING FOR BUSHFIRE PROTECTION
FUEL LOAD AND BUSHFIRE ATTACK LEVELS (BAL) ASSESMENT
PERFORMANCE BASED SOLUTIONS
INDIVIDUAL LOT PLANS
BAL SELF ASSESSMENT METHOD
EXAMPLES
CONCLUSION
QUESTIONS

Apologies

Bill Parker CEO

Robert Lester, Shire President

Julie Leenhouwers, Councillor

Carolyn Daniel, Councillor

Geoffrey Lush, TME Consulting

Dr Ian Weir

Research Architect
Head of Landscape Architecture
Fellow, Centre for Emergency and Disaster Management
Queensland University of Technology

Experience:

- Registered practicing architect (WA)
- Photographic Artist
- Industrial Designer
- Land surveyor (topography)

Bushfire Research

- Adviser to Kelvin Thompson, Vic MP for Black Saturday Royal Commission
- Adviser to survivors of Black Saturday
- Invited appearances on ABC New Inventors, SBS Insight
- Invited exhibitor 2012 Venice Architecture Biennal

QUT

Bushfire Responsive Architecture

Aim:
Reconciliation of (the otherwise) opposing management goals of biodiversity conservation and bushfire safety.

Approach:
Through holistic design (landscape with architecture) unify these two objectives within daily life.

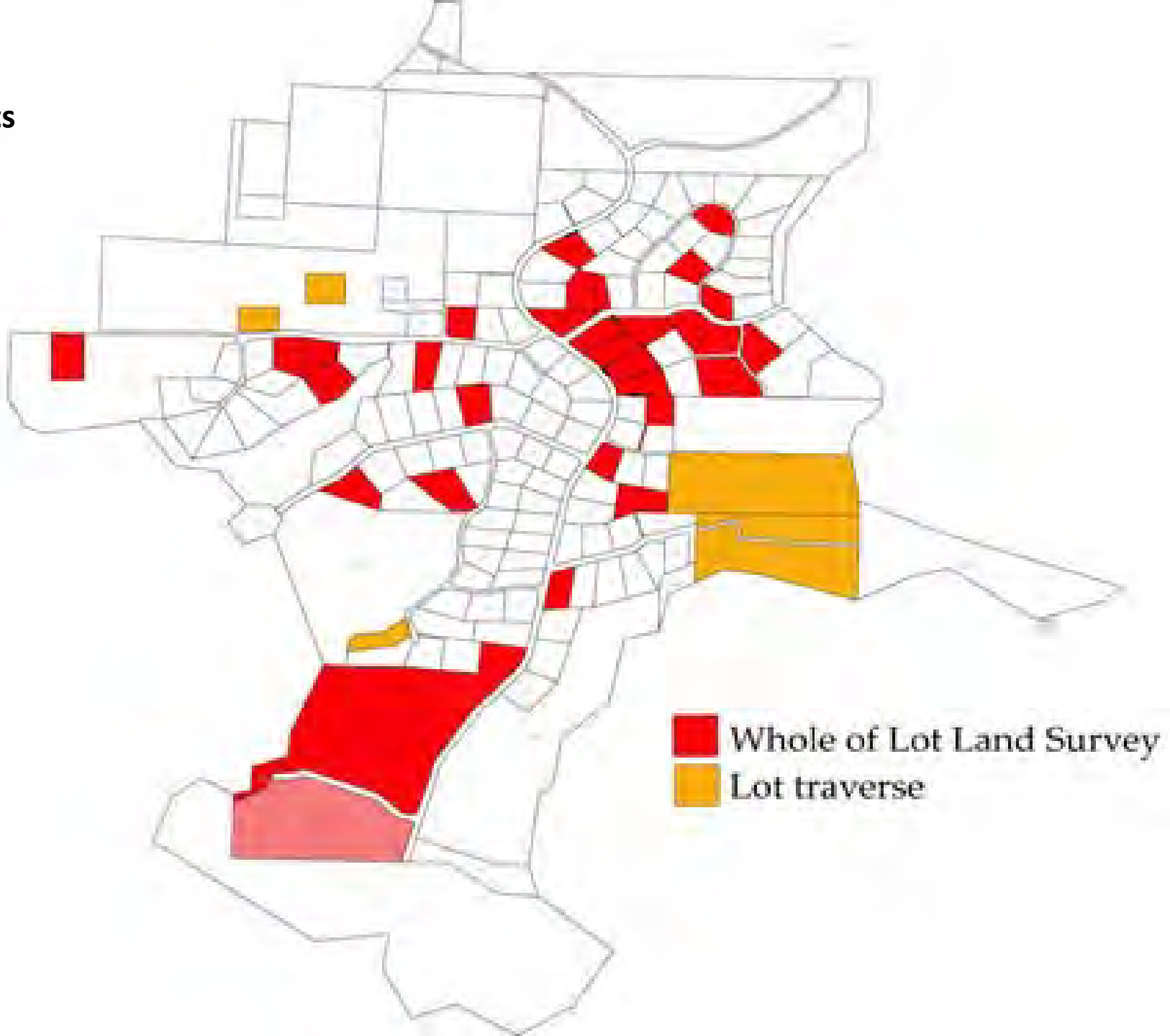
QUT

Gairdner River farm 1961

Gairdner River clearing 1960's

Background:

The Point Henry lots that Dr. Ian Weir, QUT has fully surveyed since 1994.



‘Strategy’ (def):

‘a plan of action designed to achieve a long-term or overall aim’.

‘a pattern in a stream of decisions’


WHY?
QUT

“Undefendable”

Perception (hype promoted by the media), that Point Henry isundefendable (sic)
Volunteer Fire Fighter declaration of Point Henry being undefendable during the 2012 fire in FRNP.
<u>We need an objective assessment of hazard, risk and capability.</u>

‘One road and one road out’ – this is the primary characteristic of Pt Henry that fire and emergency services contribute to it being ‘undefendable’.

But is this a really an objective assessment, and if so, how might this constraint be overcome to improve the safety of Point Henry residents?

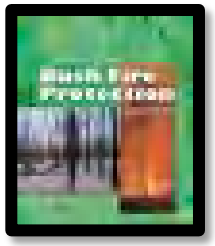

This photo taken from Tooleburrup Hill during the 2002 fires shows the Intensity of bushfire – threatening a house on Native Dog Beach Rd.
QUT


Bushfire is a reality
we have to adapt to
QUT

Key documents referred to herein

TME Draft Point Henry Fire Management Strategy ***"Draft Strategy"***

Shire of Jerramungup Town Planning Scheme 2 ***"Town Planning Scheme"***



WAPC/FESA Planning for Bushfire Protection - ***"WAPC Conditions"***

AS3959:2009 Construction of Buildings in bushfire-prone areas ***"The Bushfire Standard"***

Key terms

Passive fire protection

Active fire protection

Hazard

Fuel load

Risk

Lot Fire Plan

Building Protection Zone

PART 1
QUT POINT HENRY BUSHFIRE SAFETY – 10 YEAR PLAN

QUT Point Henry Bushfire Safety
10 year plan

AIM: **Continual improvement towards reducing the risk to humans, property and the environment presented by bushfire on Point Henry.**

3 STEPS IN A 10 YEAR PLAN

1. Immediate actions and within first year
2. Within 5 years
3. Within 10 years

1

QUT'S 10 YEAR PLAN
STEP 1 (IMMEDIATE)

- Hazard Assessment (Pt Henry vegetation survey)
- Risk Assessment (Pt Henry Scale)
- Clarification of fire fighting response policy
- Asset Register (Present Fire Fighting capabilities)
- Liabilities Register (Vulnerable Assets And Aged, Infirm & Mobility Impaired Residents).

QUT

1

HAZARD ASSESSMENT
POINT HENRY SCALE

1

Background:

We commonly think of Point Henry as being mostly Peppermint woodland.

1

But a significant portion of private land is heath and shrubland with very few trees.

1

Vegetation/landscape types

1. Wind-pruned heath (<1m) on gravels and clays
2. Coastal Heath on steep limestone ridges
3. Banksia-dominated “kwongkan” (1-2m) on light sandy soils: dieback and weed infestation susceptible
4. Fire-coppiced Mallee, *Eu. angulosa etc* (1-2 m) on limestone soils and ridges
5. Fire-coppiced Peppermints (4-8m) fire behavior would be like v-high heath.
6. Mature mallee woodlands/scrub (2-4m)
7. Mature Peppermint woodlands in low lying sandy soils (4-10 m)

Each has a different fire behaviour – need a vegetation/hazard survey

1

Vegetation/landscape types

1. Wind-pruned heath (<1m) on gravels and clays
2. Coastal Heath on steep limestone ridges
3. Banksia-dominated "kwongkan" (1-2m) on light sandy soils: dieback and weed infestation susceptible
4. Fire-coppiced Mallee, *Eu. angulosa etc* (1-2 m) on limestone soils and ridges
5. Fire-coppiced Peppermints (4-8m) fire behavior would be like v-high heath.
6. Mature mallee woodlands/scrub (2-4m)
7. Mature Peppermint woodlands in low lying sandy soils (4-10 m)

Highlighted are the most fuel-laden vegetation types on Point Henry – which have been 'cultivated' by the intense bushfire of 2002.

WAPC definition of “Moderate Hazard”

- areas containing pasture or cropping areas with slopes in excess of 10°
- open woodlands
- open shrublands
- **low shrubs with slopes of less than 10° or flat land**
- suburban areas with some native tree cover.

*Highlighted is a vegetation type which is common on Point Henry

Page 18

WAPC definition of “Extreme Hazard”

- Forests
- **Woodlands**
- **Tall scrubs**

*Highlighted are vegetation types common of Point Henry.

We need an objective hazard assessment that maps the vegetation types and there fuel loads on Point Henry (private, Shire and and DPAW lands)

Page 18

1

QUT HAZARD ASSESSMENT example: Woodlands and Tall Shrubs

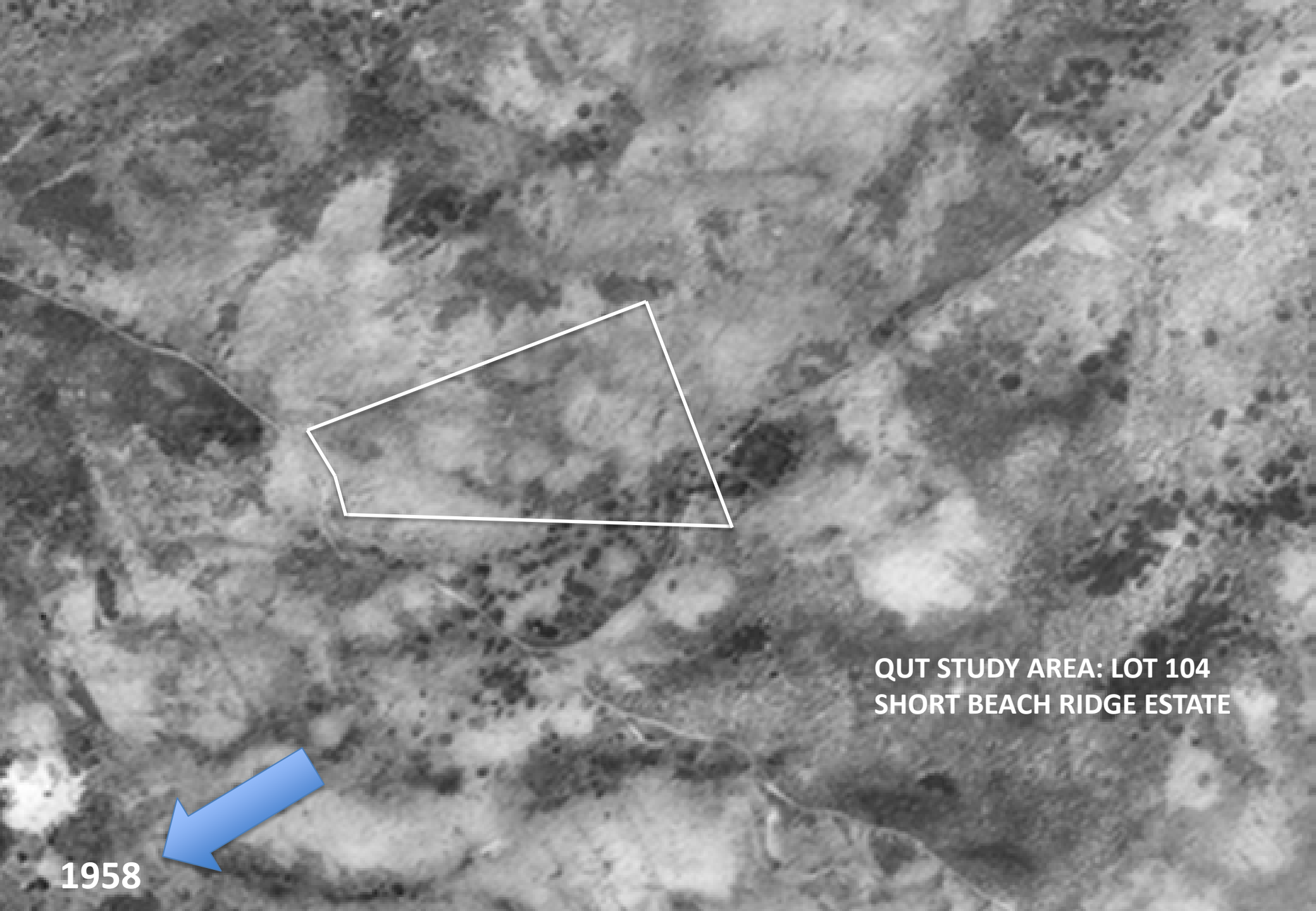
PEPPERMINT TREE (*Agonis flexuosa*)

INVASIVE DISTRIBUTION

1958-2013 AERIAL PHOTOGRAPHY RECORDS


QUT STUDY AREA:
SHORT BEACH RIDGE ESTATE
QUT


QUT STUDY AREA: LOT 104
SHORT BEACH RIDGE ESTATE


QUT STUDY AREA: LOT 104
SHORT BEACH RIDGE ESTATE
1958


1976


1983


1993


1998


2013


1976

Unmanaged 2002 Fire-coppiced Peppermint Tree

Recently thinned fire-coppiced tree (50% of trunks removed)

1 Landscape and bushfire management

QUT SUGGESTION: Peppermints coppice (sprout multiple trunks) after bushfire – so land owners and managers should be encouraged to protect mature Peppermints from extreme fires.

1

QUT RISK ASSESSMENT
POINT HENRY SCALE

1

Risk Assessment

Risk to Fire fighters and their equipment

- If the policy is that Point Henry is 'undefendable' then there is little risk to fire-fighters. If the policy is that they are coming in after the fire front then there is some risk. Risk is reduced by not responding at all.
- Risk reduced by being prepared and knowing terrain, were safer places are, and local road network.
- Risk reduced by knowing the capability of residents, and assets.
- Risk reduced by having good access to Point Henry's (public roads) and liabilities (vulnerable properties).

1

Risk Assessment

Risk to Fire fighters and their equipment

- If the policy is that Point Henry is 'undefendable' then there is little risk to fire-fighters. If the policy is that they are coming in after the fire front then there is some risk. Risk is reduced by not responding at all.
- Risk reduced by being prepared and knowing terrain, were safer places are, and local road network.
- Risk reduced by knowing the capability of residents, and assets.
- Risk reduced by having good access to Point Henry's (public roads) and liabilities (vulnerable properties).

Risk to resident/occupiers (human life)

- Higher than fire fighters especially if the policy is that the Point Henry will not be defended by fire-fighters.
- Risk contingent on early warning system
- Risk contingent on preparedness, fire fighting equip.
- Risk reduced by timely evacuation to safer place
- Risk reduced by having place to retreat to: such as bunkers, AS3959 houses, and safer places (eg clearing) on site.

1

Risk Assessment

Risk to Fire fighters and their equipment

- If the policy is that Point Henry is 'undefendable' then there is little risk to fire-fighters. If the policy is that they are coming in after the fire front then there is some risk. Risk is reduced by not responding at all.
- Risk reduced by being prepared and knowing terrain, were safer places are, and local road network.
- Risk reduced by knowing the capability of residents, and assets.
- Risk reduced by having good access to Point Henry's (public roads) and liabilities (vulnerable properties).

Risk to resident/occupiers (human life)

- Higher than fire fighters especially if the policy is that the Point Henry will not be 'defended' by fire-fighters.
- Risk contingent on early warning system
- Risk contingent on preparedness, fire fighting equip.
- Risk reduced by timely evacuation to safer place
- Risk reduced by having place to retreat to: such as bunkers, AS3959 houses, and safer places (eg clearing) on site.

Risk to property

- Risk reduced by AS3959 and features such as sprinklers
- Risk reduced by hazard reduction
- Risk reduced by attendance of home owner before and immediately after the fire front passes.
- Risk reduced by attendance of fire crews during and after the fire.

1

Risk Assessment

Risk to Fire fighters and their equipment

- If the policy is that Point Henry is 'undefendable' then there is little risk to fire-fighters. If the policy is that they are coming in after the fire front then there is some risk. Risk is reduced by not responding at all.
- Risk reduced by being prepared and knowing terrain, were safer places are, and local road network.
- Risk reduced by knowing the capability of residents, and assets.
- Risk reduced by having good access to Point Henry's (public roads) and liabilities (vulnerable properties).

Risk to resident/occupiers (human life)

- Higher than fire fighters especially if the policy is that the Point Henry will not be 'defended' by fire-fighters.
- Risk contingent on early warning system
- Risk contingent on preparedness, fire fighting equip.
- Risk reduced by timely evacuation to safer place
- Risk reduced by having place to retreat to: such as bunkers, AS3959 houses, and safer places (eg clearing) on site.

Risk to property

- Risk reduced by AS3959 and features such as sprinklers
- Risk reduced by hazard reduction
- Risk reduced by attendance of home owner before and immediately after the fire front passes.
- Risk reduced by attendance of fire crews during and after the fire.

Risk to environment

- Hot fires increase fuel load by changing character of peppermint woodlands, further increasing fuel loads into the future.
- Minimal risk to heath and shrublands, except when fires are followed by heavy rains – risk of soil erosion as in 2002.

1

If you apply the DFES risk matrix on Page 42 of the Shire's Draft Strategy then this is the Risk Result:

LIKELIHOOD	CONSEQUENCES				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost Certain	High Risk	High Risk	Extreme	Extreme	Extreme
Likely	Moderate	High Risk	High Risk	Extreme	Extreme
Possible	Low Risk	Moderate	High Risk	Extreme	Extreme
Unlikely	Low Risk	Low Risk	Moderate	High Risk	Extreme
Rare	Low Risk	Low Risk	Moderate	High Risk	High Risk

Page 42

1

1

There is a (flawed) assumption that Because there is one road in to Point Henry then there is only one way out to escape from fire.

1

But Point Henry is not a mountain community
It is a Peninsular surrounded by beaches.

2

QUT's Landscape Architecture Students visited Bremer Bay In April 2004 to develop designs for 'safer places' on Point Henry's beaches.

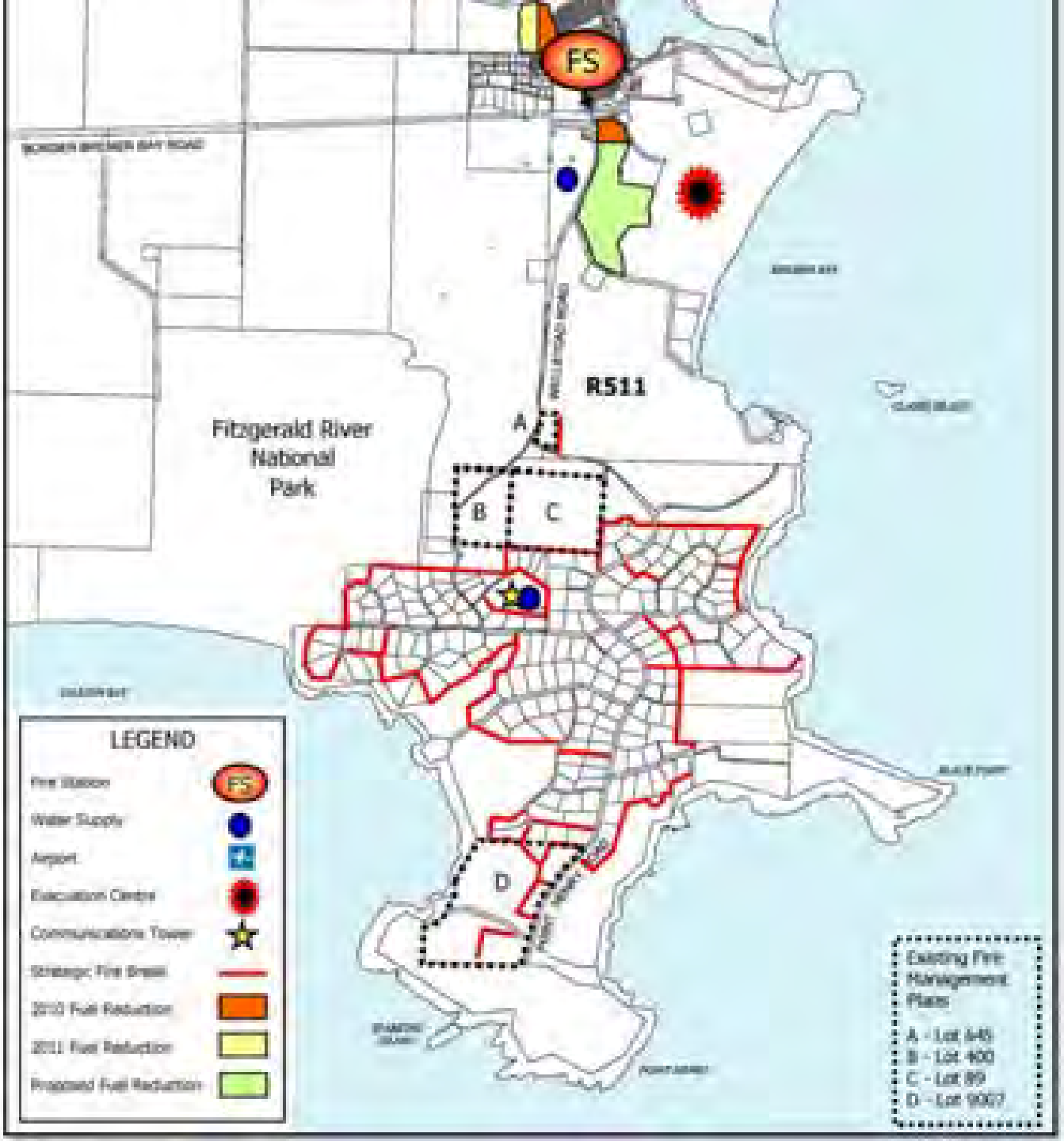
We identified two prime locations: Short beach and Blossoms Beach.

This is based on the idea that in 'high season' there is a likelihood of many people being on these beaches if a fire breaks out.

1

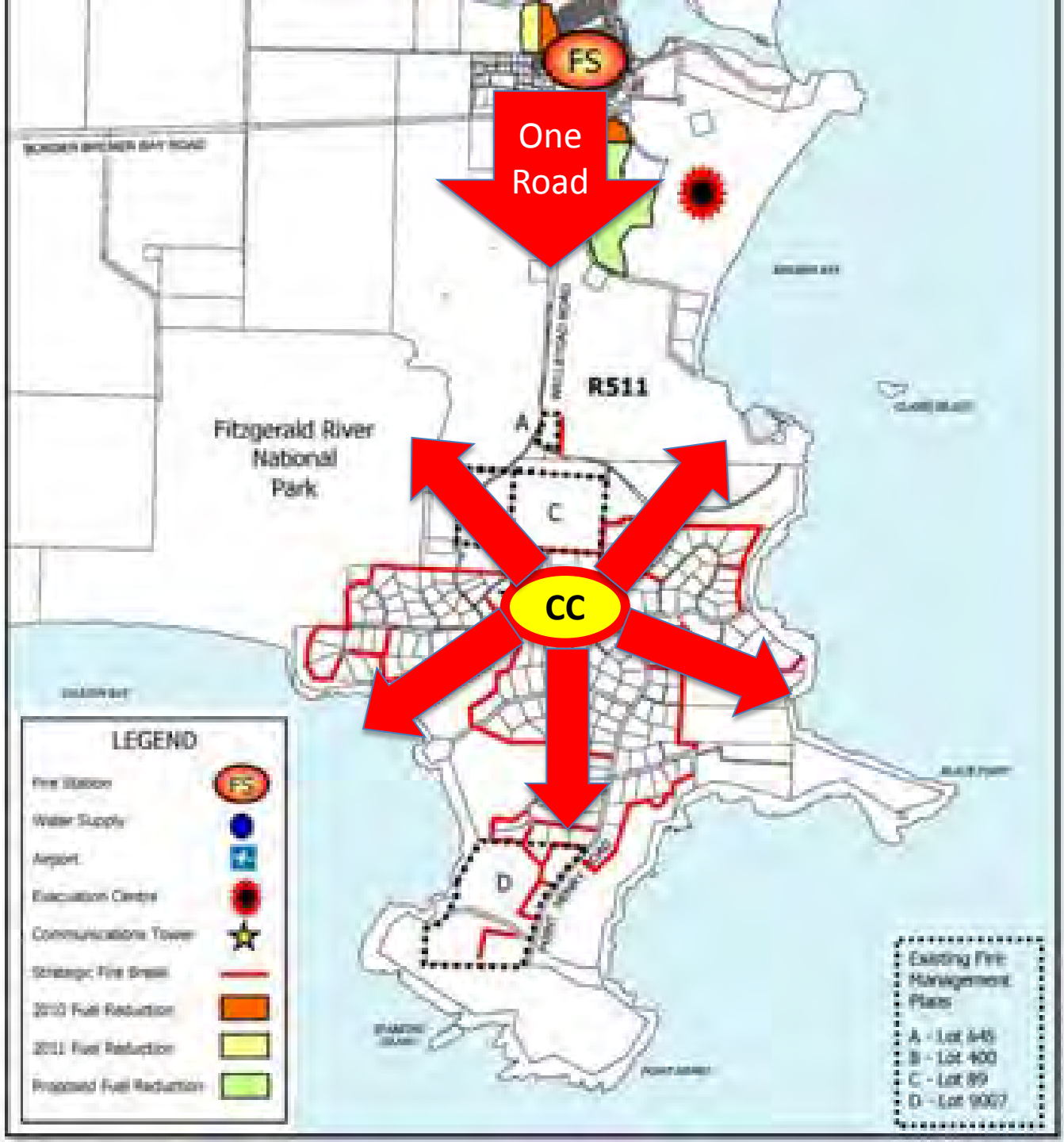
This map of Point Henry reveals one of the fundamental weaknesses in the fire risk management of Point Henry – that there is no Point Henry fire brigade or fire fighting facilities.

This is a problem given that Point Henry is the <u>third most populace area</u> in the Shire of Jerramungup.



3

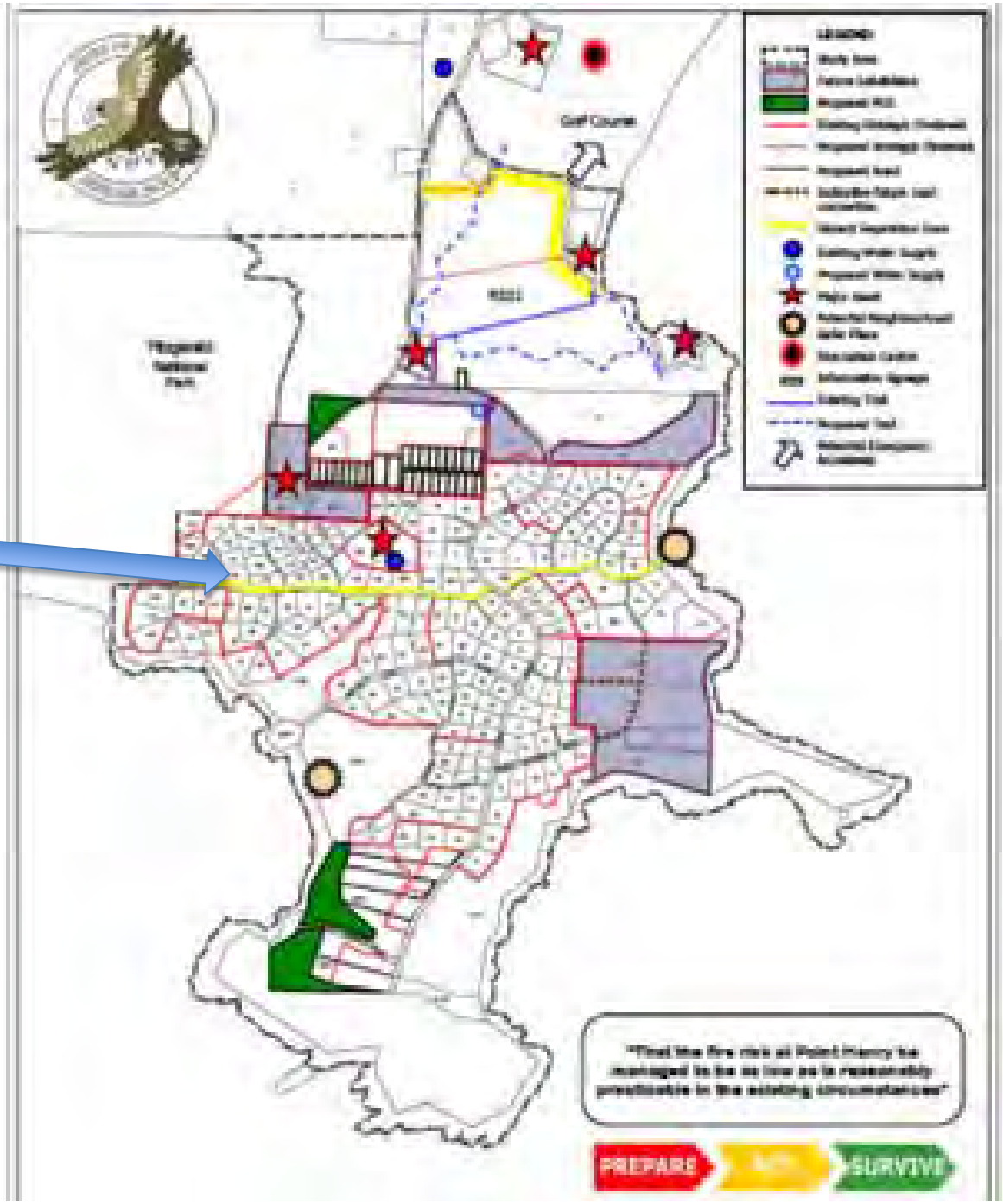
QUT SUGGESTION:
Witihin 10 years (step 3) Point Henry needs a fire command centre and/or volunteer fire fighting facility. One possible site is the standpipe at the foot of Tooleburrup Hill.

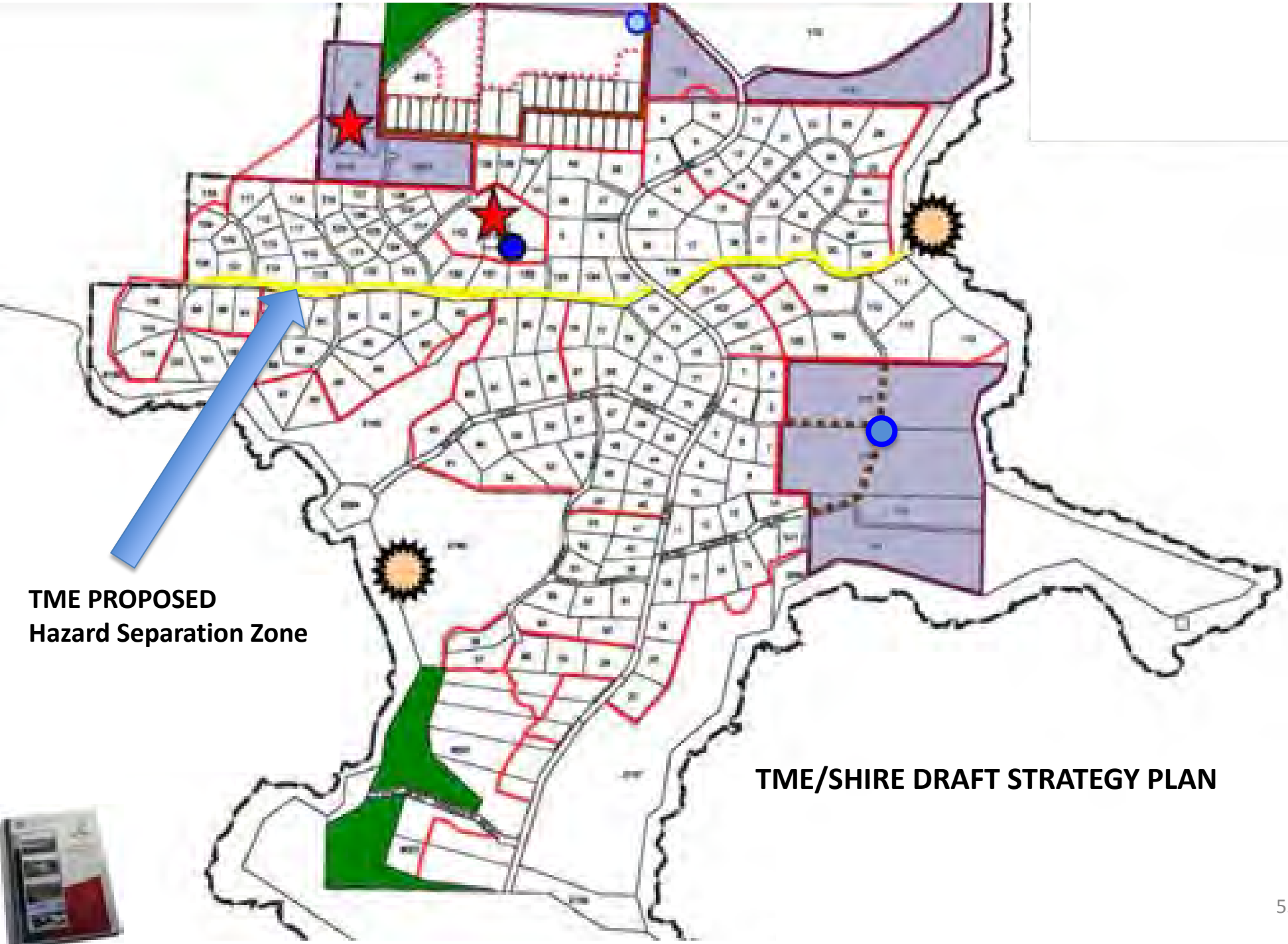


The TME/SoJ Draft Strategy Map – showing strategic firebreak network – with Native Dog beach Road and Short Beach Rd highlighted in yellow as being a potential 'Hazard Separation Zone" indicating that the entire road reserve could be slashed.

This would increase visual impact of houses on these roads, and that result would contravene the visual amenity objectives of Point Henry Planning Conditions.

Aren't there other ways of improving the effectiveness of the road network and strategic fire breaks?




TME PROPOSED
Hazard Separation Zone
TME/SHIRE DRAFT STRATEGY PLAN

EXISTING STRATEGIC FIRE BREAK NETWORK (TME MAP)

2

Strategic Firebreaks

Vehicle Access Overgrown: eg Lot 61 Native Dog Beach Road

QUT SUGGESTION: Vehicle Access needs improving

2 Point Henry Roads - Strategic Firebreaks

Horse Hill Rd – extension of road reserve

QUT SUGGESTION: Need to exercise care here to manage Tea Tree eradication on Horse Hill Rd.

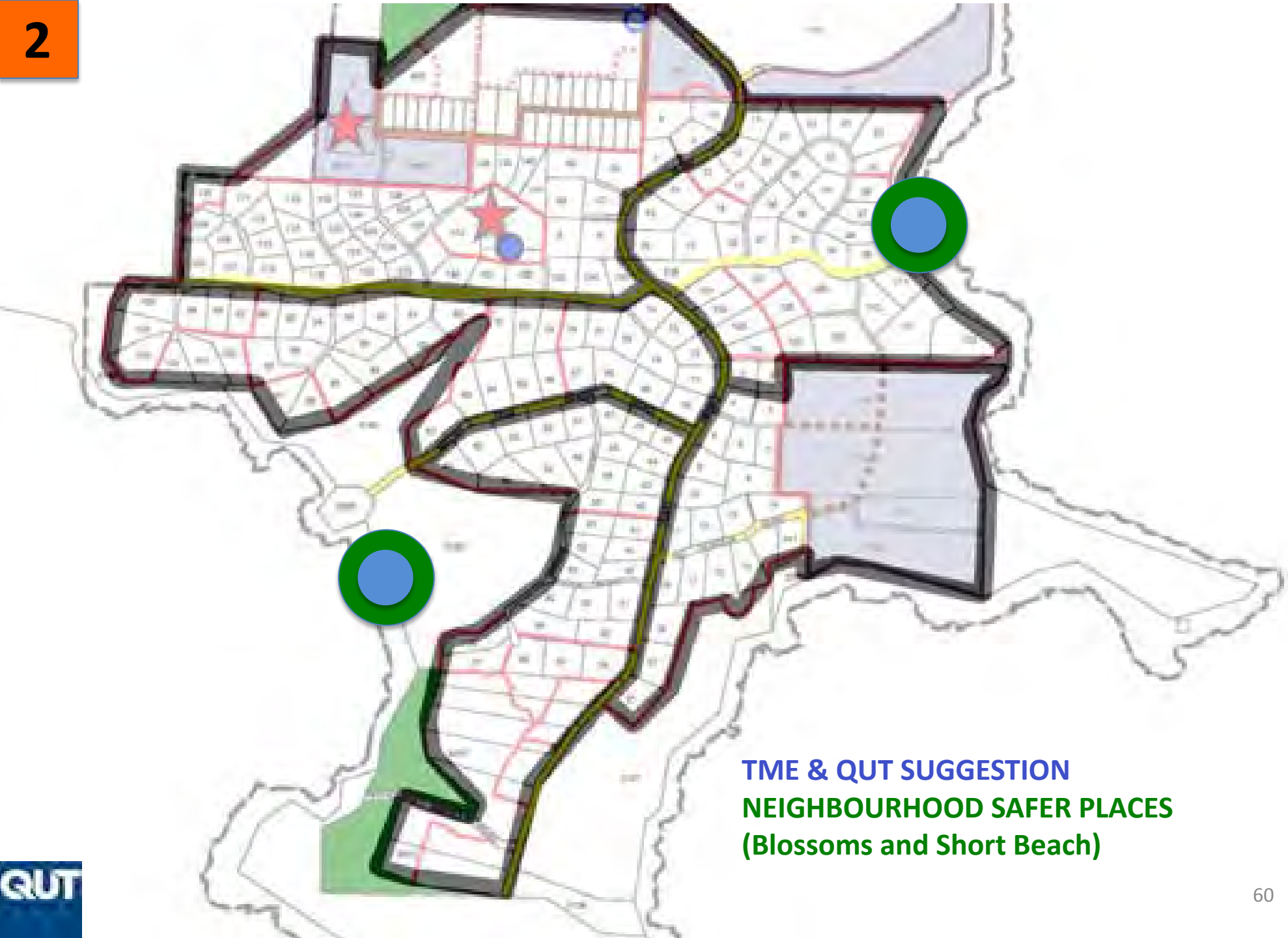
2

QUT SUGGESTION: FIRE MANAGEMENT CELLS

BUSHFIRE READY PRECINCTS

COORDINATING FIRE BREAKS WITH PUBLIC ROADS

2


TME & QUT SUGGESTION
NEIGHBOURHOOD SAFER PLACES
(Blossoms and Short Beach)

WAPC Conditions – water supply

There is a requirement in the WAPC conditions that in 'Non Reticulated Areas' like Point Henry there should be community fire fighting water tanks with:

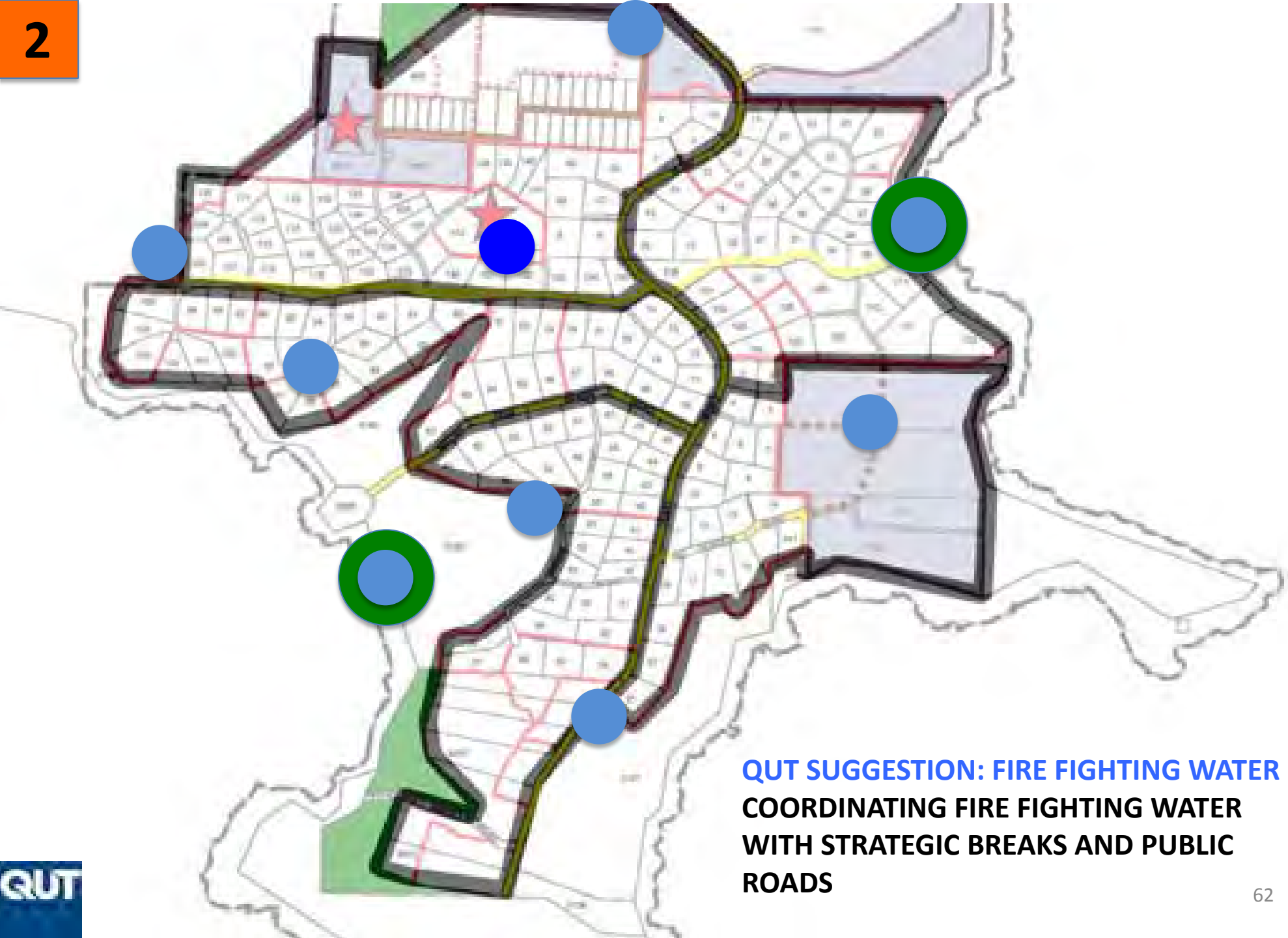
- Volume 50,000 litres
- **1 tank per 25 lots**
- **Allow a 2.4 fire appliance a 20 min turnaround time**
- Concrete or steel

Point Henry doesn't have this – in fact the number of water tanks has been reduced: QUT BELIEVES IT IS IMPORTANT TO HAVE A DISTRIBUTED 'NETWORK' OF COMMUNITY FIRE FIGHTING WATER TANKS BECAUSE THERE ARE ONLY 25% OF PRIVATE LOTS DEVELOPED AND THAT MEANS FIRE FIGHTING WATER SUPPLY IS RANDOMLY DISTRIBUTED ON POINT HENRY.

*Note: a '2.4 fire appliance' is a 2000 litre capacity four wheel drive truck.

Page 38

2



QUT SUGGESTION: FIRE FIGHTING WATER

COORDINATING FIRE FIGHTING WATER WITH STRATEGIC BREAKS AND PUBLIC ROADS

2

QUT SUGGESTION:

50,000 LITRE COMMUNITY FIRE FIGHTING TANK IN ROAD RESERVE OR ON STRATEGIC BREAKS

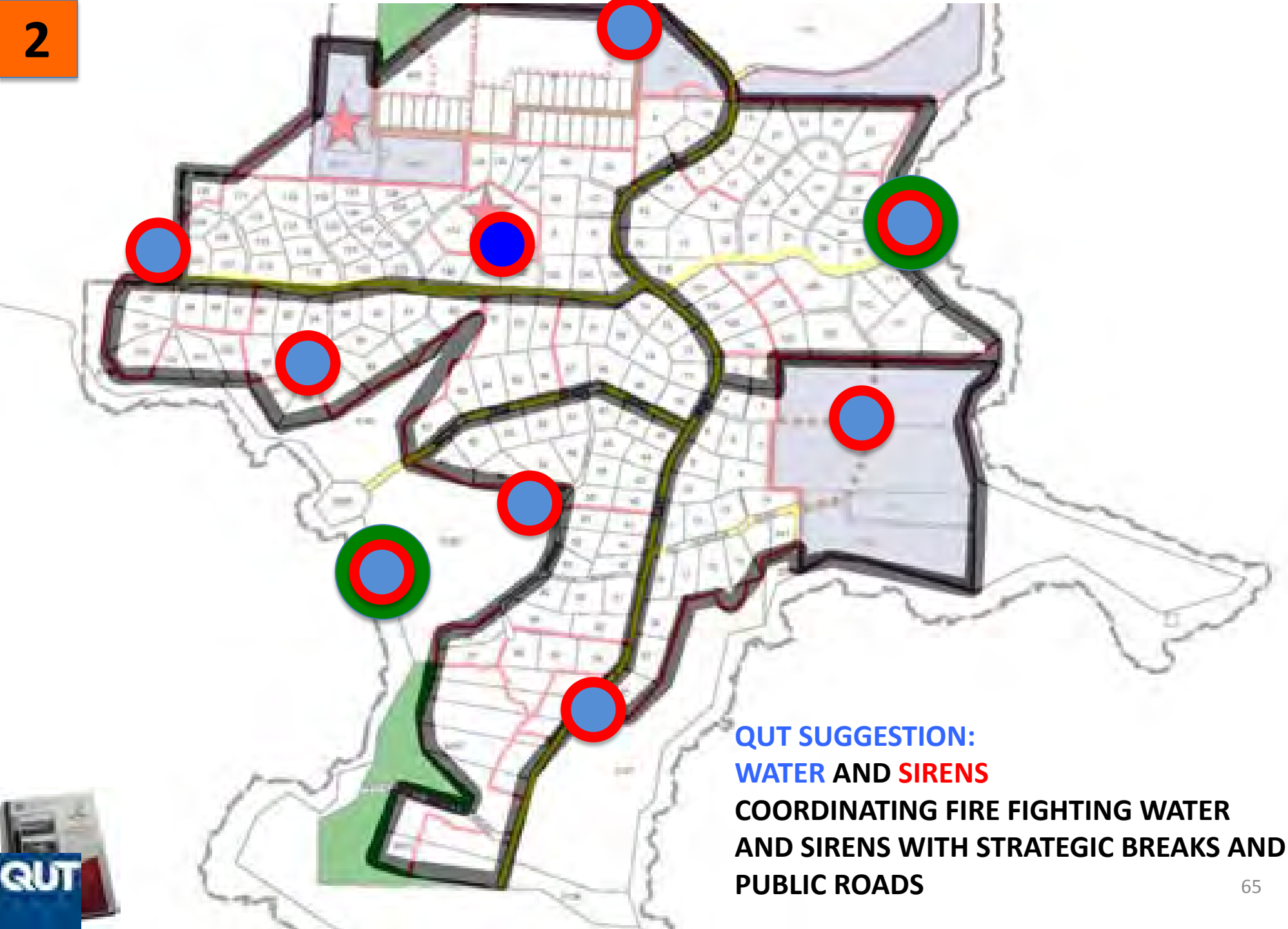
2

QUT Suggestion
Early warning sirens

Solar powered, pylon-mounted sirens

- 5-10 locations throughout Pt Henry precincts
  - Private Land
  - At fire water standpipes
  - At safer places (Fisheries, Blossom Beach)
  - At popular tourist spots
- Manual hand override on/off switch
- Smoke Sensor
- Transmitter/receiver - to other sirens (& DFES, Volunteers, and bushfire ready members).
- 'Bushfire Ready' signage
- Possibly incorporating platform for Osprey nests.
- Managed by Bushfire Ready Group.
- Funded by (?). First prototype by I Weir and G Mair.

2



QUT SUGGESTION:
WATER AND SIRENS
COORDINATING FIRE FIGHTING WATER AND SIRENS WITH STRATEGIC BREAKS AND PUBLIC ROADS

2

QUT SUGGESTION

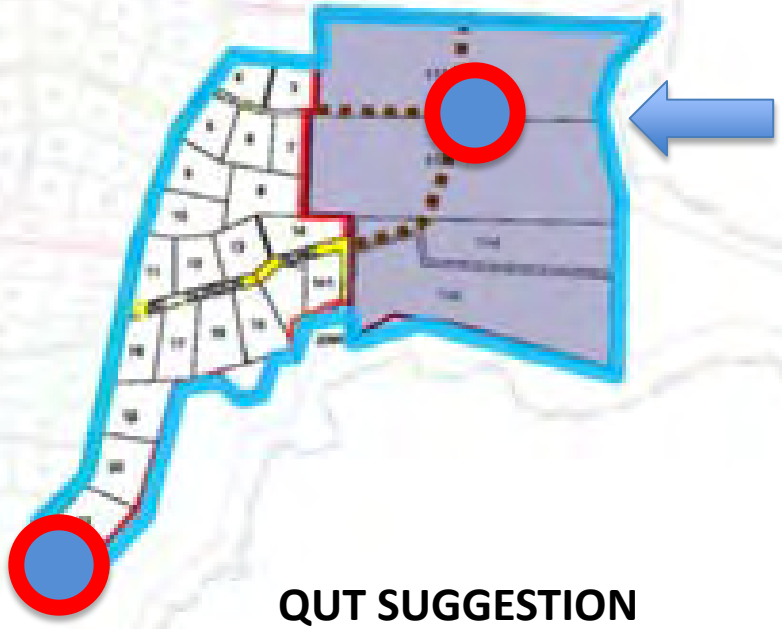
SHORT BEACH CELL

BUSHFIRE READY GROUP

FIRE FIGHTING PRECINCT

NEIGHBOURHOOD SAFER PLACE

2



Future subdivisions?

QUT SUGGESTION
BANKY BEACH CELL
BUSHFIRE READY GROUP
FIRE FIGHTING PRECINCT

?

Page 81 of TME Strategy: Conflates risk with hazard.
Not all Point Henry is extreme hazard – nor is risk at a constant level as this sign infers.

Hazard is variable not fixed

Engagement/communication

QUT RECOMMENDATION: Signage communicating fire hazard and risk needs to be objective and also express the communities values – eg Shire of Plantagenet

1

Risk mitigation – QUT suggestion

WEAK LINK

The Fire Danger Warning Sign should be immediately relocated to a more prominent location

1

QUT RECOMMENDATION
FIRE FIGHTING RESPONSE POLICY

1

Fire Fighting Response Policy?

Is the policy that Point Henry is 'undefendable'? (DFES, Dec 2012) and 'to come in after the fire front passes' (CEO Jerramungup Shire, Dec 2012)?

Does this apply to all types of fires on Point Henry? If so then the risk to fire-fighters is lessened and for homeowners it is heightened. There are a great variety of fires, in scale, location and volatility and we need clarity on what the modus operandi for the full spectrum of fires is - including:

- Road side accidents on Point Henry
- Attendance at private homeowner winter burn offs
- Accidental fires on private land.
- Lighting ignited fires while Fire fighters are on high alert
- Fires like one in 2002
- A fire starting at public recreational spots such as Fisheries Beach, Short Beach and Little Boat Harbour
- Winter prescribed burns in DPAW, Shire and Private properties.

1

Fire Fighting Response Policy?

A policy should define what the fire fighting response is:

1. Before a fire (preparedness)
2. During a fire
3. After a fire (recovery)

It should communicate clearly to the Point Henry Residents what the responsibilities are for the various responders:

- Volunteer Fire Fighting Brigade
- DFES
- DPAW
- Police
- Emergency/ambulance

?

During fire response examples:

Activate crossover onto Short Beach Rd – at time of emergency?

Strategic Firebreak not constructed – but option to construct During a fire?

1

QUT RECOMMENDATION:
ASSETT REGISTER
POINT HENRY AND BREMER BAY

1

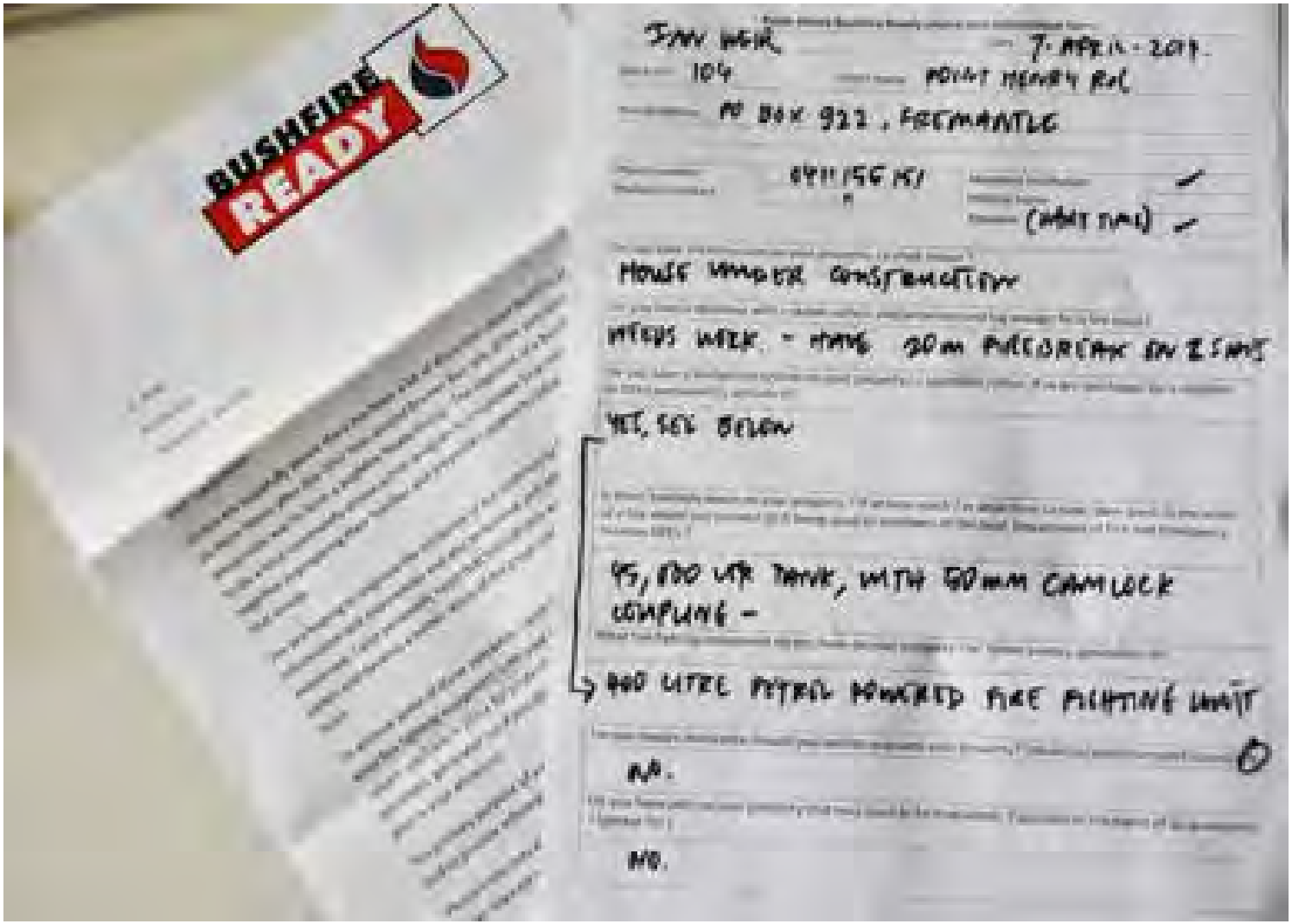
Asset Register

Those physical and human assets that exist at present that can be deployed in fire fighting and post fire operations. The asset register should be done for both Bremer Bay townsite and Point Henry residents.

- Private fire fighting units (eg at right)
- Private water storage tanks assessable to fire crews
- Strategic fire water storage faculties
- Water pumps, hoses and couplings
- Residents with fire training and fire fighting capabilities
- Residents who are present members of the volunteer fire brigade.

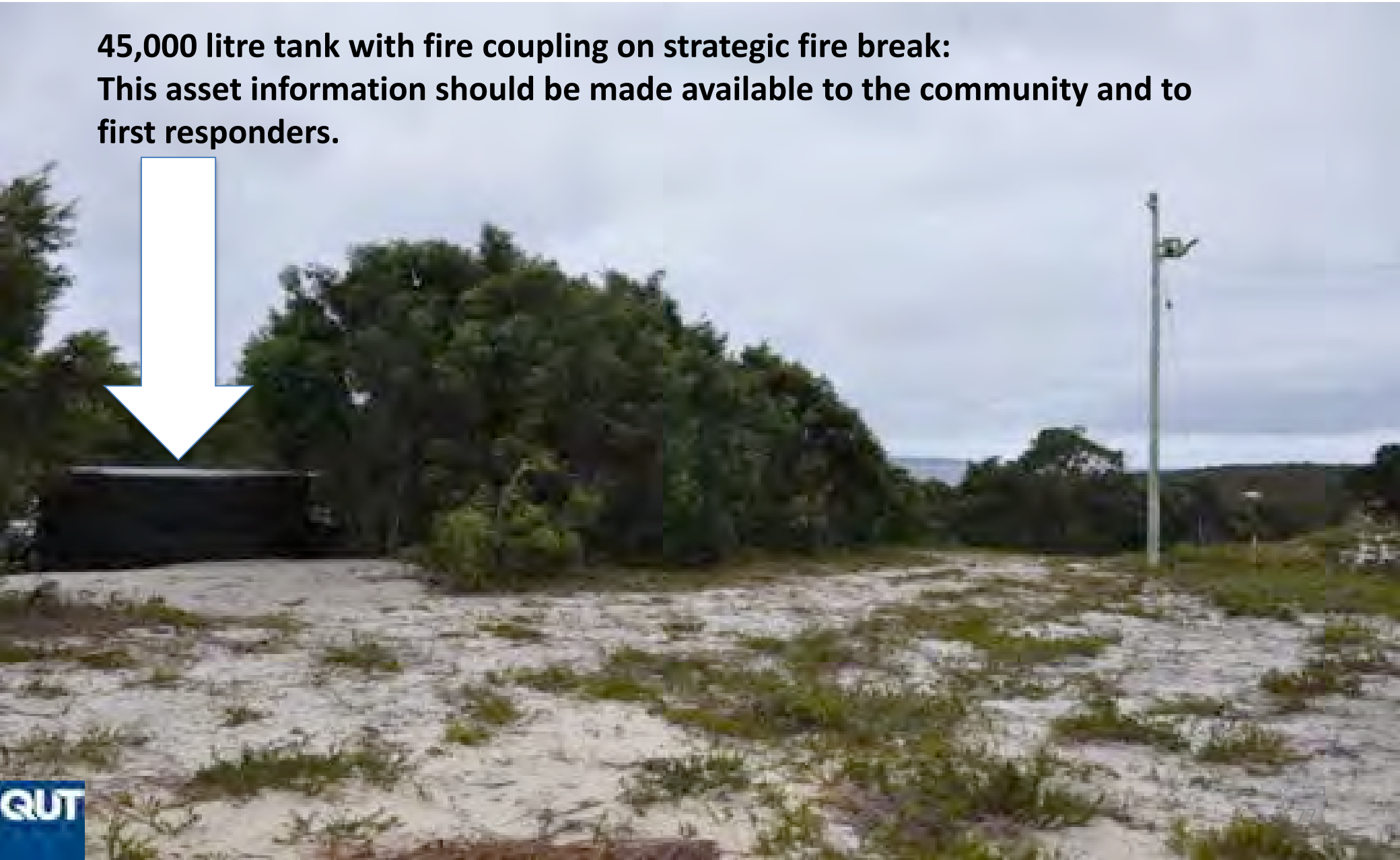
This register should be recorded and stored for easy access in the event of fire. It should be updated annually. (This has been suggested for many years by volunteers at Bremer Bay and it still hasn't been done).

1



BUSHFIRE READY DATA BASE OF POINT HENRY LAND OWNER ASSETS

1 Asset register: Contribution to community Safety



1

QUT RECOMENDATION
LIABILITIES REGISTER
POINT HENRY AND BREMER BAY

WEAK LINK

The Fire Danger Warning Sign should be immediately relocated to a more prominent location

1

Liabilities Register

Infirm, elderly and mobility impaired residents and vulnerable property assets. Particularly vulnerable people are those in single-person households without limited communication or neighborly support. Determining the vulnerability of Fire communications and fire fighting infrastructure should be of primary importance.

WEAK LINK: During the 2002 fire, the radio and telephone communications facility at Tooreburrup Hill was destroyed, seriously compromising the fire fighting response. This could happen again – as the facility has simply been rebuilt to pre-2002 specifications.

1

During-Fire Communications

RURAL LOT NUMBERS

WEAK LINK: The actual installation of Rural Lot Signs on Point Henry follows no logic:

Some vacant lots like '382' Point Henry Rd (above) are vacant land, while many occupied houses do NOT have rural lot signs.

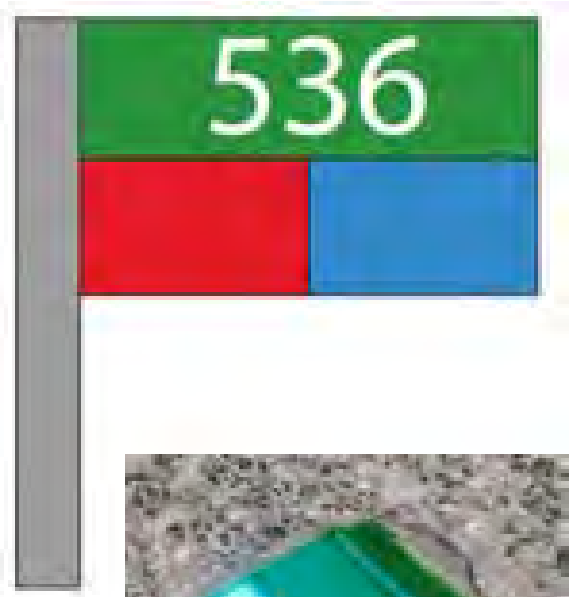
QUT SUGGESTION: These signs need reviewing/registering and updating before the next fire season for them to be utilized to most effect: Either all lots have them or just those with houses.

2

During-Fire Communications

Rural Lot Sign Utilization

Standard practice in WA is: the numeral represents the distance from the trunk road in tens of metres, with odd numbers on the left and even on the right hand side of the road. For example, if the sign below, was on Point Henry Road, it would be on the East side and 5.36 kilometres from the intersection with Wellstead Rd.



QUT SUGGESTION:

These signs should be augmented to communicate to fire fighters the assets and liabilities during a fire.
The sign at right indicates that the residents have a house with an approved fire plan and have a surplus of water available for Fire fighting (20,000 litres minimum).
This could be implemented in the first 12 months.

Green Cat's Eyes

An alternative solution suggested by John Iffla (Head of Bremer Bay's Volunteer Bushfire Fighters) is to install green cat's eyes on the roadside in front of properties 'approved' by (?) for attendance/defense/evacuation during a fire.

The problem with this idea is that many roads on Point Henry are gravel.

Preparedness of Fire Fighters

- **'The First 2 hours' –** even in a big fire the first two hours would be the local brigade. (Surely we don't wait for other teams to come before fighting a fire – it would be too late).

- As recommended in the State Conference of DFES volunteer fire fighters are to visit properties on Point Henry to ascertain the risk of attending fires.

- This awareness is essential so that regional crews can be briefed on the lay of the land – assets and liabilities.

- Conduct fire fighting asset register – both public and private assets (water pumps, tanks, domestic units).

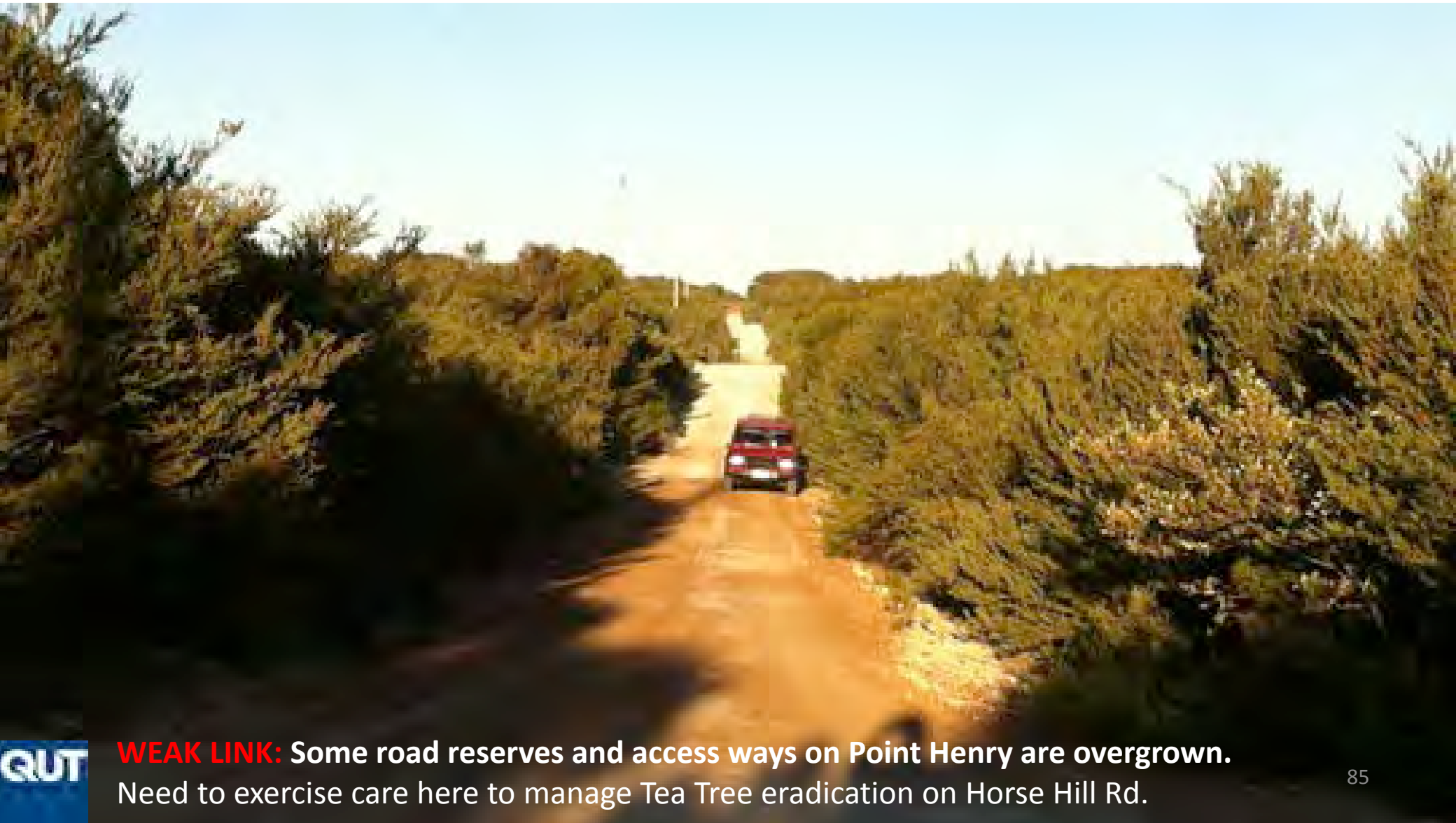
Preparedness of Volunteer Fire Brigade

This slide shows the difference between the plan and the actual constructed firebreaks
QUT RECOMMENDATION: Local fire fighters should regularly familiarize themselves with local features and conditions.

2

Point Henry Roads - Strategic Firebreaks

Horse Hill Rd – extension of road reserve



WEAK LINK: Some road reserves and access ways on Point Henry are overgrown.
Need to exercise care here to manage Tea Tree eradication on Horse Hill Rd.

2

Blossoms Beach 'Safer Place'

Track to Blossoms Beach carpark needs upgrading to two wheel drive.

WEAK LINK: In 2012 Point Henry residents evacuated early to Blossom Beach, but two wheel drive access is restricted.

2

What we need: Centerlines on
Bremer Bay-Borden Rd at Caravan Park

WEAK LINK: Point Henry Rd needs centreline road marking for guidance during fires.
WEAK LINK: Trees burnt in 2002 fire need clearing and road verge needs slashing.

2

Preparedness of Home Owners

QUT Suggestions:

- Bushfire Ready group to visit Pt Henry residents to see how each is prepared, share notes and list those residents that may need help in a fire.
- Bushfire Ready group to work with Sarah Matthews (DFES Bushfire Ready coordinator , Albany) to run Pilot desktop project on evacuation times on Point Henry.
- Point Henry land owners to become more active in Bremer Bay Volunteer Fire Fighters.
- **Point Henry homeowners to construct fire truck accessible driveway and circular turnarounds (where possible). 10 kl Water storage and fire unit couplings from 1-5 year plan.**
- Landowners to ensure Rural Lot numbers are installed - contact Peter Thurkle, CESM (Community Emergency Services manager) Shire of Jerramungup.

2

Early warning: QUT suggestions

- ‘Telephone tree’ – to be established by Bushfire Ready facilitations
- Implement National Emergency Phone system (landlines and mobiles)
- **Improve on 30 minutes plus response time (for radio warnings) revealed by Murray Haddon DFES at Fire Strategy meeting 23rd Feb 2014.**
- Relocate the Fire Hazard Warning sign to a more prominent place – possibly one also at Point Henry.
- Install weather station on Pt Henry to begin recording actual weather conditions specific to this distinct climatic region.
- Provide warnings (radio and other) to residents of lightning/dry thunderstorm conditions.
- Implement trial solar powered audible sirens (Gavin Mair, Wellstead Road to prototype first pylon – with Osprey nest capabilities) – see next page.

2

QUT Suggestion
Early warning sirens

Solar powered, pylon-mounted sirens

- 5-10 locations throughout Pt Henry precincts
  - Private Land
  - At fire water standpipes
  - At safer places (Fisheries, Blossom Beach)
  - At popular tourist spots
- Manual hand override on/off switch
- Smoke Sensor
- Transmitter/receiver - to other sirens (& DFES, Volunteers, and bushfire ready members).
- 'Bushfire Ready' signage
- Possibly incorporating platform for Osprey nests.
- Managed by Bushfire Ready Group.
- Funded by (?). First prototype by I Weir and G Mair.

2

Access for Fire Fighters

- Construct trafficable driveways with circular turnarounds for fire unit access.

2

Within 1 year (Summary)

A. Improve (early) warning systems

B. Improve during-fire communications

C. Improve preparedness of homeowners

D. Improve infrastructure

- Strategic Fire Breaks
- Improve road reserve functionality

E. Improve preparedness of fire fighters

F. Improve access for fire fighters on private land.

3

Point Henry 5 - 10 years (summary)

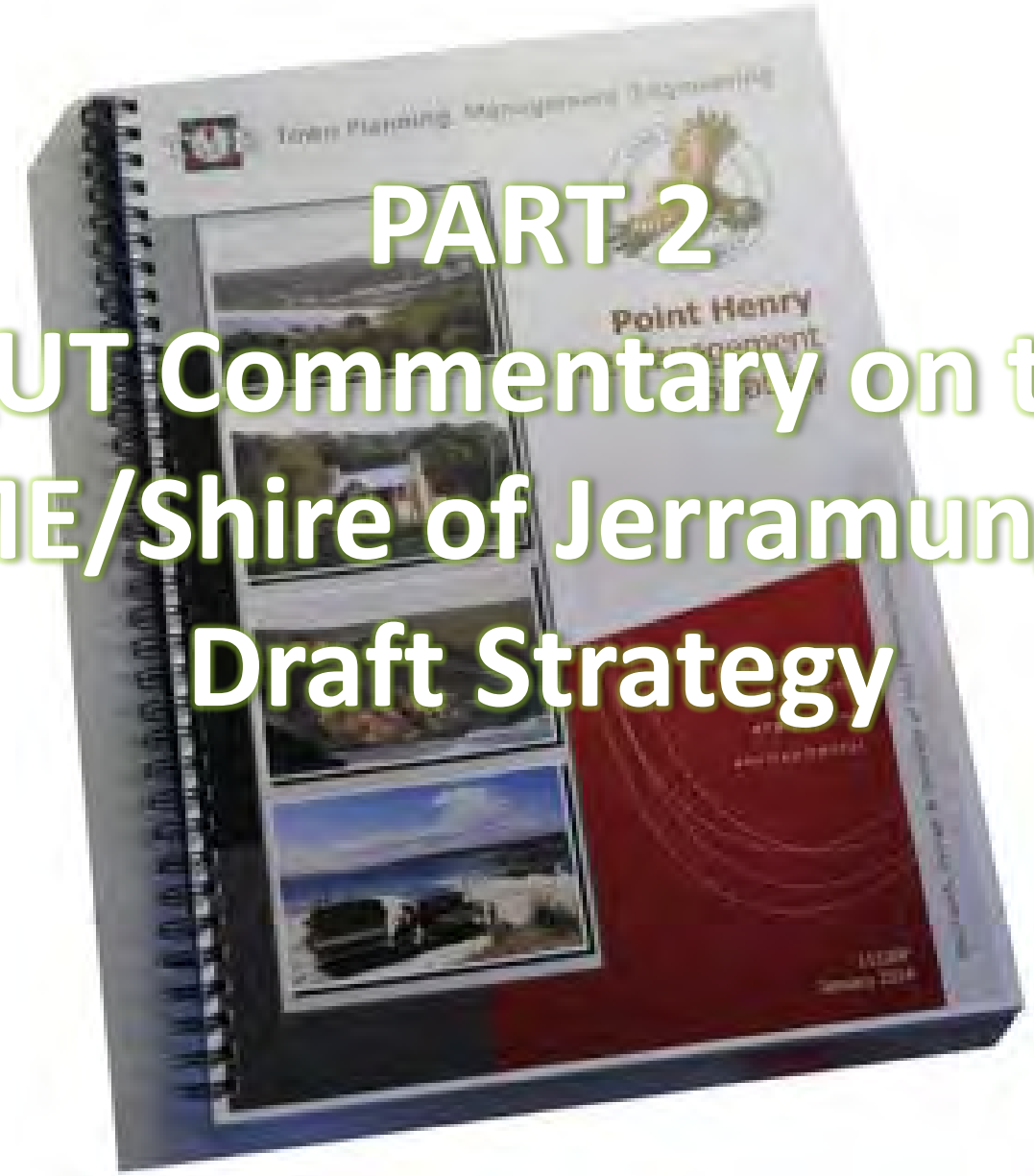
If we don't have the following in 10 years then the strategy has failed:

1. A low to moderate bushfire risk on Point Henry
2. More actual development – not stagnation from fear.
3. Up to date digital database of assets and liabilities
4. A variety of Innovative and practical solutions to site – specific conditions on Point Henry
5. A within two-minute warning/communication system.
6. Fast fire response rates
   - A Point Henry Fire tanker and/or fast attack 4x4 and volunteer sub brigade.
7. A series of safer places (eg Blossom Beach) for community, visitors and fire fighters
8. An Australian (if not world) best exemplar on community driven fire risk management.

QUT Point Henry Bushfire Safety – 10 Year Plan

Timeline: building capability = reducing risk

Action	Bushfire Ready Group	Landowners	Shire of Jerramungup	Volunteers/DEFS
STEP 1 Year 1	1. Telephone Tree 2. Prototype Siren Pylons 3. Join Volunteer Fire Brigade 4. Co-coordinate asset register 5. Vegetation Assessment 6. Participate in Desktop simulation with DFES 7. Visit members properties and assess liabilities.	1. Driveway and Turnarounds at established homes. 2. Individual lot fire plans 3. Participate in asset register.	1. Risk Assessment 2. Clarify Fire Response 'Policy' 3. Clarify Fire Levy expenses. 4. Audit Rural Lot Numbers 5. Upgrade road to Blossom's Beach 6. Seek funding for Blossom Beach safer place. 7. Produce BAL self-assessment guidelines for homeowner. 8. Manage road reserves, as strategic breaks + centre-line down Pt Henry Rd.	1. Visit properties 2. Asset Register 3. Manage fire hazard warning signs. 4. Reassess strategic fire breaks for accessibility. 6. Participate in Desktop simulation with DFES and Pt Henry residents
STEP 2 Years 2-5	1. UHF/VHF radio's for key permanent members. 2. Expand Siren Pylon network. 3. Visit members properties 4. Lobby for Point Henry Volunteer Fire Brigade.	1. Conduct Bushfire Attack Level (BAL) Assessments 2. Produce Individual Lot Fire Plans 3. Retrofit houses to AS 3959:2009 where necessary. 4. Pay (additional?) fire levy for tanks and siren installation.	1. Install rural lot numbers. 2. Add water tanks on Pt. Henry 3. Upgrade Blossom's to safer place. 4. Fire unit (fast attack) on Point Henry. 5. Install one 50 kl tank/25 lots as per WAPC-DFES Guidelines.	1. Upate Data base of assets. 2. Continue familiarization exercise. 3. Lobby for Point Henry Fire Brigade and Command Centre
STEP 3 -10				1. Point Henry Volunteer Fire Brigade



PART 2
QUT Commentary on the TME/Shire of Jerramungup Draft Strategy

Problems with the SoJ draft strategy

- It has a poor aim: it doesn't deal with changing conditions
- It is not a strategy: it doesn't have planned roll out over time
- It doesn't clarify or aim to clarify the biggest curiosities of landowners? The fire fighting response policy.
- There is no hazard or risk assessment – is assumes risk is extreme based on an assumption that hazard is extreme.

Problems with the SoJ's draft strategy

AIM

'Existing circumstances'. Infers that the scope is this year – not say 10 years.

It is well understood that the most effective bushfire risk management strategy is community engagement, this takes time.

Furthermore, Point Henry is dynamic: it's population, climate and landscape are ever changing. Of 207 properties there are only around 40 houses at present, as well number of semi-occupied 'residences', making up a total of around 70 developments.

An effective strategy is one that makes forward projections – say in 10 years – on the population on Point Henry.

Problems with the Shire's draft strategy

<u>There is no risk assessment</u>.

The strategy infers that one has been done and the determination is that the risk on Point Henry is "Extreme". This is a nonsense. Using DFES's own risk management 'calculator' Point Henry is moderate to high.

Using the 2002 fire as a scenario, while the fire was extreme (in parts) risk was actually low as there were very few houses and residents/holiday makers. Running that same scenario today the risk would be moderate to high.

It was acknowledged by DFES (Public Meeting Bremer bay Town Hall 23rd Feb) that bushfire risk is actually higher in Bremer Bay townsite.

Problems with the Shire's draft strategy

- It doesn't achieve what it purports to achieve. That is, the reconciliation and clarification of conflicting regulations.
- It only discusses the native vegetation and landscape protection regulations (set by DpAW and the Point Henry planning regulations) – and how these are in conflict with the principal aim of the strategy: vegetation/fuel removal.
- The strategy doesn't address the lack of a clear fire-fighting policy, the need for better communications and warnings. It just says the Point Henry community should sort all this out and meanwhile the shire will just use an act of parliament to clear the land.

‘Strategy’ (def):

‘a plan of action designed to achieve a long-term or overall aim’.

‘a pattern in a stream of decisions’

Shire's Draft Strategy: **Commentary**

Mandated 20 m Building Protection Zones

A. What are they?

B. Fire Break Notices
   - An act of parliament giving the shire permission to clear 20 m around your house even if you don't.
   - Administered through annual inspections and issue of 'Fire Break Notice'

C. Case Studies
   - Why this blanket rule can't be implemented on Point Henry.
   - Site–specific conditions
   - Regulations restricting clearing

D. Why this blanket rule shouldn't be implemented on Point Henry
   - Not in alignment with landscape values
   - Clears assets necessary for habitation (wind protection, glare, ember screens, soil stabilization, sun shading).

Information Note

November 2013 Version 4

Key Points

- Fuel loads influence bushfire intensity
- The lower the fire intensity the less impact on the building
- Creating a minimum 20 metre reduced fuel load area (building protection zone) will increase the protection of the building
- Ember protection is important to protect the building

Definitions

- Scrub crown is the green, leaf material on the scrub plants
- Surface fire is the fire burning the leaves and scrub on the top of the ground
- Mineral earth firebreak is a firebreak without vegetation
- Ember attack is where fire brands and embers will alight and forward

Managing and reducing fuel loads for a minimum of 20 metres around a building will increase its likely survival from a bushfire.

Known as the Building Protection Zone (BPZ), the aim of this area is to ensure that there will be no direct flame contact on the building from a bushfire. By utilising fuel management options it will also be possible to reduce the potential radiant heat impact on the building.

If there is little or nothing to burn then the fire's impact will be reduced. This can be achieved by:

- Maintaining a minimum 2-metre gap between trees and the building. Make sure that no trees overhang the house.
- Shrubs should be planted at a distance of at least three times their height at maturity from buildings.
- Do not clump shrubs or trees, ensure that there is a gap.
- Keeping the grass short and prune the scrub so that it is not dense, nor does it have fine, dead aerated material in the crown of the scrub
- Raking up leaf litter and twigs under trees and remove trailing bark.
- Pruning lower branches (up to 2 metres off the ground) to stop a surface fire spreading to the canopy of the trees.
- Creating a mineral earth firebreak.
- Having your paths adjacent to the building and have your driveway placed so that it maximises the protection to the house.
- Storing firewood away from the building
- Ensuring fences of combustible material will not burn down and break the integrity of the building by breaking windows allowing fire to enter.
- Keeping your gutters free of leaves and other combustible material
- Ensuring gas bottles are secured and positioned so that they will vent away from the building if subject to flame contact or radiant heat.

Most homes that are unattended during a bushfire are lost to ember attack from the bushfire. These burning embers get into gaps within the building, such as into the roof cavity, and ignite the material within the cavity. It can take a number of hours before the burning can be observed and by that time the building may not be able to be saved. It is recommended that all homes that may be affected by embers be made ember proof. If a bush fire occurs in the general area then the roof cavity and other crevices should be inspected to ensure that no embers have caused a fire. Be aware that there are electricity cables in the roof area and the introduction of water will be a safety issue.

A well prepared Building Protection Z ne with reduced fuel.

Reduced fuel in the Building Protection Zone contributeli t the survival o t is home in a bushfire.

A h me destroyed by b shfire, notethe tree ba nches overhanging the house.

WAPC/Bushfire Strategy Terms you should know

BUILDING PROTECTION ZONE

- 20 m minimum BPZ measured from the external walls
- BPZ within the boundaries of the lot
- Fuel load maintained to less than 2 t/ha
- Tree crowns separated (WAPC says crowns should be a minimum of 10m apart)
- Shrubs no closer than 3 x their height to a building (DFES). WAPC says shrubs more than 3 m from buildings
- Prune lower branches of tree a minimum of 2 m above ground (DFES)

Page 42

Page 67

Fire Break Notices

How they work

Firstly, these notices aren't just for breaks *around* properties – they can also be used to enforce clearing *within* properties – such as building protection zones. The one at right is one of 72 notices issued in late 2013 to Bremer Bay townsite residents.

The Shire (in this case the CESM) inspects properties annually and if not compliant a 'Category 1 Offence' notice is issued (as at right). If the clearing is not carried out within 14 days a 'Catergory 2 Offence' notice is issued, wherein the land owner is prosecuted, and penalised with a $250 fine and has to cover the costs of the shire's contractors conducting the clearing works.

This is an instrument of the Bushfire's Act 1954 and can be employed by local governments on future and <u>retrospectively on existing properties</u>. This is a key component of the draft bushfire strategy. <u>That is – it will happen if the strategy is adopted by Council.</u>

SHIRE OF JERRAMUNGUP

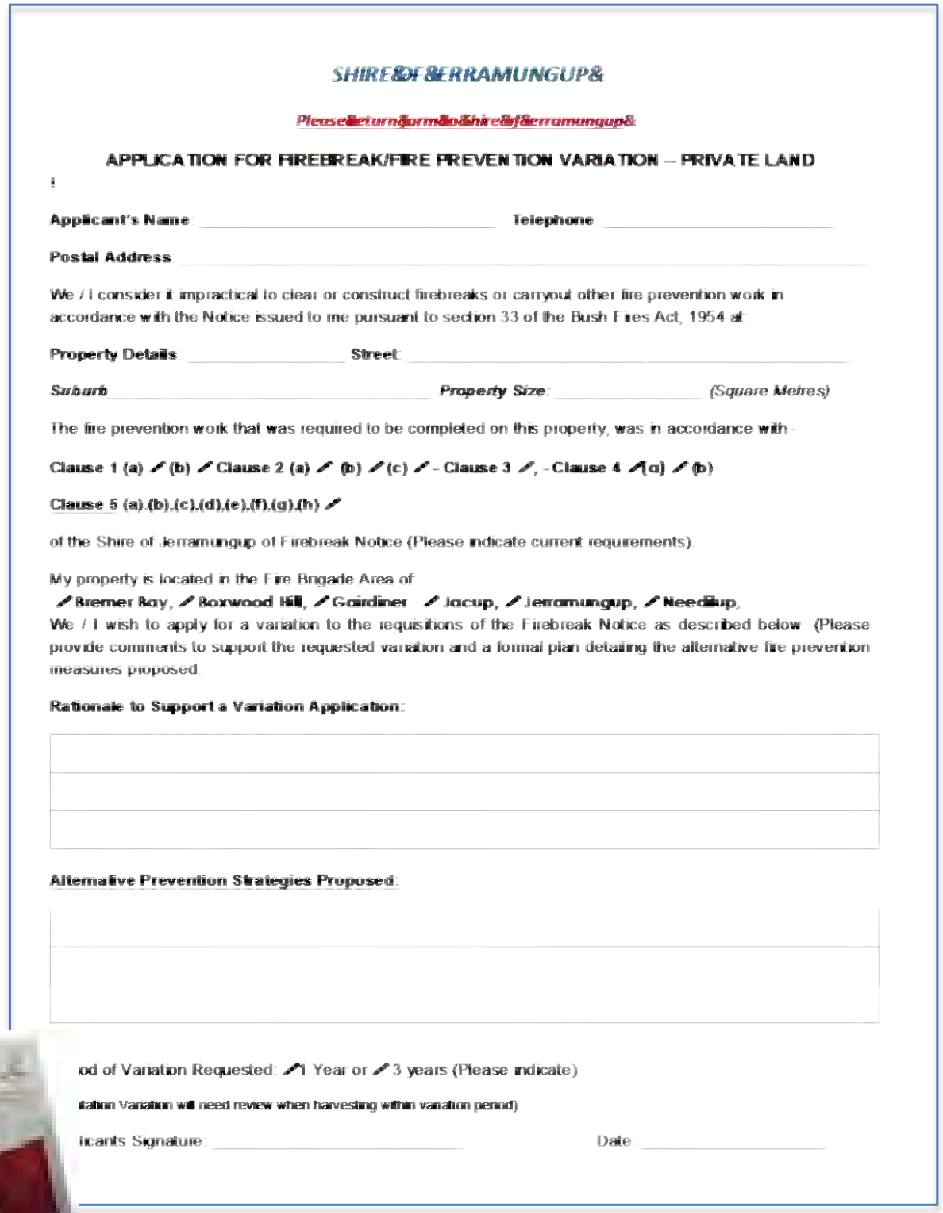
8 CASEY STREET, JERRAMUNGUP

RE: SECTION 33 BUSHFIRE ACT 1954 - CATEGORY 1 OFFENCE

Category 1 offence	14 days to comply with the notice, no fine applied
Category 2 offence	Category 1 offender automatically becomes Category 2, penalty immediate prosecution, $250.00 fine plus cost of Council putting breaks in

PETER TIGWELL
COMMUNITY EMERGENCY SERVICES MANAGER

Fire Break Notice – **approved 'variations'**



SHIRE OF JERRAMUNGUP

Please return form to Shire of Jerramungup

APPLICATION FOR FIREBREAK/FIRE PREVENTION VARIATION – PRIVATE LAND

Applicant's Name _____ Telephone _____

Postal Address _____

We / I consider it impractical to clear or construct firebreaks or carryout other fire prevention work in accordance with the Notice issued to me pursuant to section 33 of the Bush Fires Act, 1954 at:

Property Details _____ Street: _____

Suburb _____ Property Size: _____ (Square Metres)

The fire prevention work that was required to be completed on this property, was in accordance with:

Clause 1 (a) ✓ (b) ✓ Clause 2 (a) ✓ (b) ✓ (c) ✓ - Clause 3 ✓, - Clause 4 ✓ (a) ✓ (b)

Clause 5 (a),(b),(c),(d),(e),(f),(g),(h) ✓

of the Shire of Jerramungup of Firebreak Notice (Please indicate current requirements).

My property is located in the Fire Brigade Area of
✓ Bremer Bay, ✓ Boxwood Hill, ✓ Gairdner ✓ Jacup, ✓ Jerramungup, ✓ Needilup,
We / I wish to apply for a variation to the requisitions of the Firebreak Notice as described below. (Please provide comments to support the requested variation and a formal plan detailing the alternative fire prevention measures proposed.

Rationale to Support a Variation Application:

Alternative Prevention Strategies Proposed:

od of Variation Requested: ✓ 1 Year or ✓ 3 years (Please indicate)

ation Variation will need review when harvesting within variation period)

licants Signature: _____ Date: _____

How these 'work'

These are referred to on 'Must do's' page. They last for 12 months to three years (which is a major problem in itself as they do not provide certainty that your variation to change the BPZ is locked in into the future).

Variations might include:

- House is closer than 20m to boundary
- Landscape features such as rivers, steep drop-offs, rock outcrops prevent the construction of the BPZ.
- Clearing will exacerbate wind erosion.

Note: these grounds for Variation may <u>not be available to future developments</u> as the shire is likely to force houses to be built on alternative sites. That is unless your building envelope is already approved you may not be able to construct your house on your favorite spot (see page XXXX)

Point Henry and the impracticality of a uniform 20m Building Protection Zone (BPZ) approach.

The Present Point Henry Bushfire Strategy BPZ rule is a minimum 20m BPZ – this distance increases with slope (see page 68, recommendation #16).

If we assess Lots on Point Henry with regard to the application of a uniform 20m Building protection Zone we find that for many properties this rule is either:

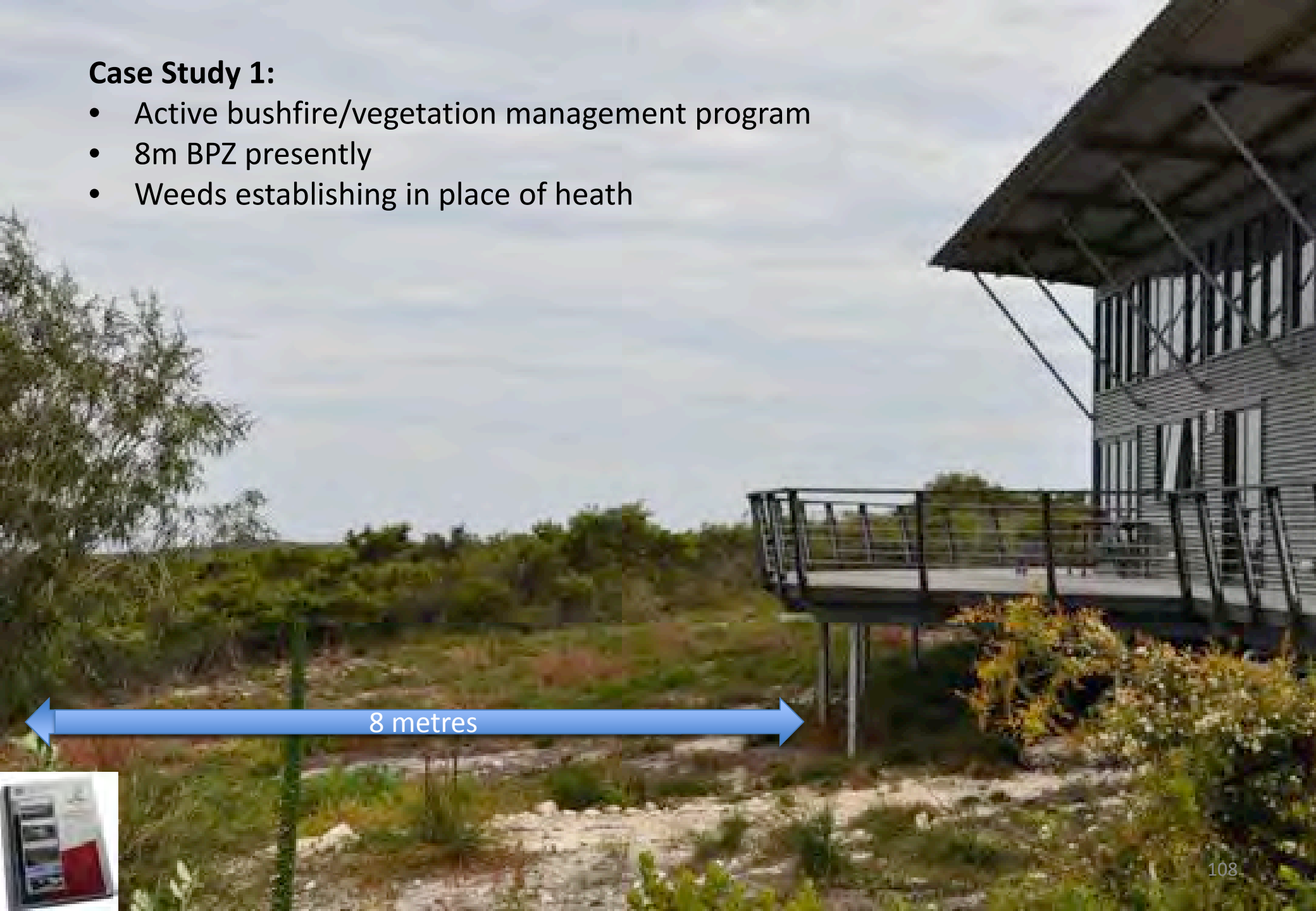
- **Not achievable (eg some houses are 15 m from the lot boundary).**
- **Not safe (some envelopes have very steep and eroded 'drop offs' and ridges).**
- **Not practical from a management standpoint (will cause severe wind and water erosion)**
- **Counterproductive (some houses are already built to above Australian Standards specifications and have practical fire plans inplace).**
- **Contravene visual impact requirements (eg imposed conditions of planning approval for vegetation protection)**

Point Henry Case Study 1:

- Bought block shortly after 2002 fire.
- Site predominantly heath (95%)
- Visual privacy from neighbour comes from heath.
- Neighbour's house 45 metres away.
- House is 15 metres from boundary
- <u>20m BPZ cannot be applied.</u>

Case Study 1:

- Active bushfire/vegetation management program
- 8m BPZ presently
- Weeds establishing in place of heath



Point Henry Case Study 2:

- A condition of planning approval was to retain and restore vegetation between House and road (photo at left) to lessen visual impact to public.
- Site is subject to water erosion, has exposed rock and shallow topsoils.
- House designed with fire proof glass (Viridian 'Frontine').
- Remote controlled bushfire shutters
- Solar powered water/sprinkler supply
- Driveway designed as circular fire break.

Justifiable case for variation to 20m BPZ rule

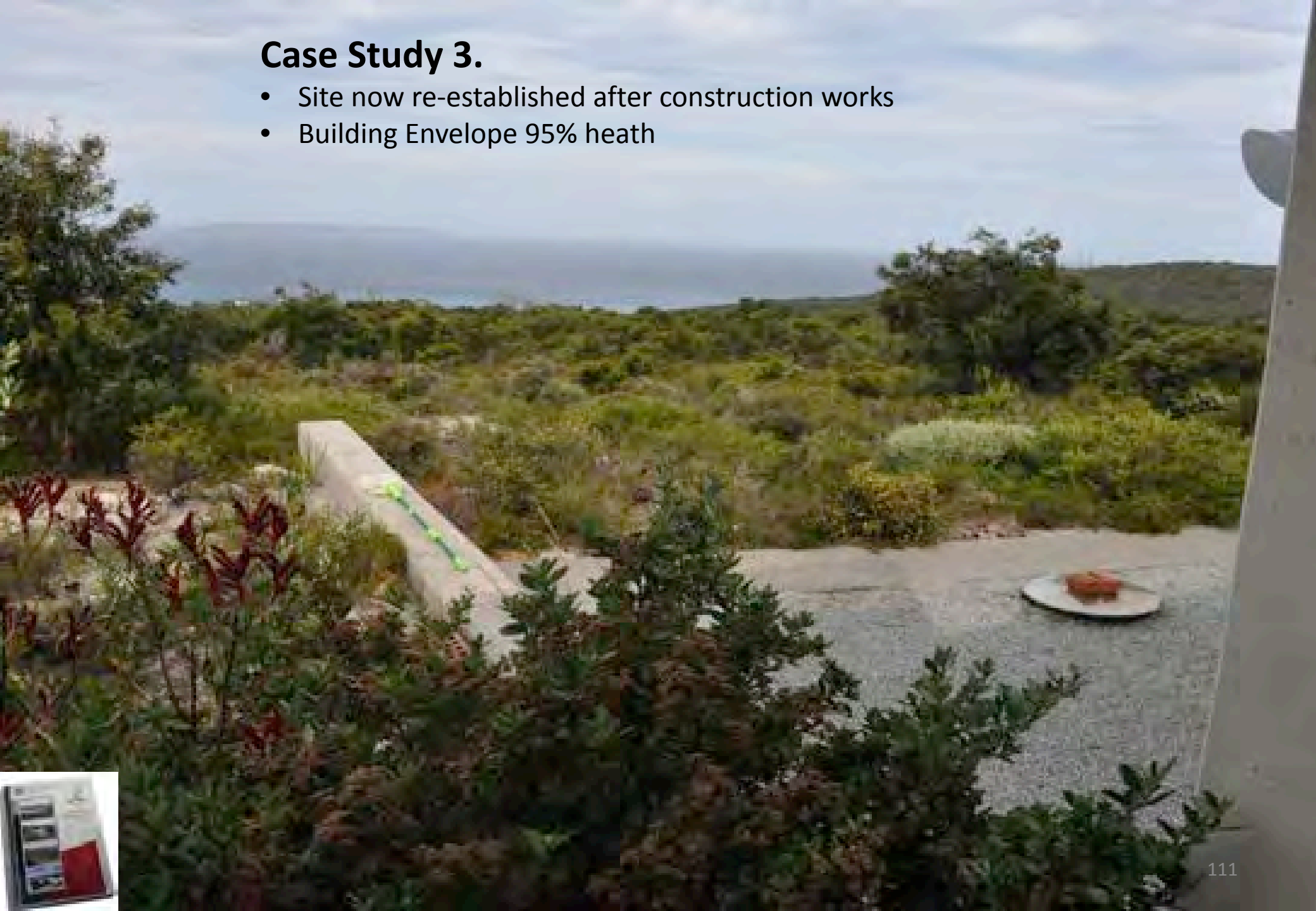
Case Study 3:

- Designed straight after 2002 fire
- 3mm solid sheet steel wall offset from seasoned Jarrah wall frame.
- 300 mm Rammed Earth external walls elsewhere.
- 9 metres offset from heath vegetation.
- Accessible perimeter.

Justifiable variation to 20m BPZ rule

Case Study 3.

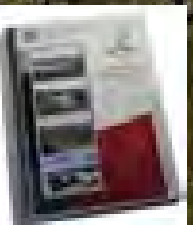
- Site now re-established after construction works
- Building Envelope 95% heath



Case Study 4: House redesigned after 2002 Fire

- 300 mm rammed earth
- Steel shutters over all windows
- Courtyard design
- BAL level BAL40 – BALFZ (although predates AS3959:2009)

<u>Justifiable variation to 20m BPZ rule</u>




Case Study 4
20m BPZ

Visual Impact Minimization Objectives: a key component of existing Point Henry planning regulations. What impact will a mandated 20m BPZ have on existing properties?

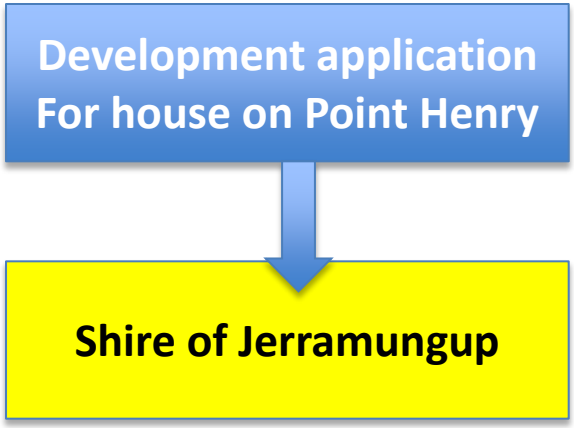
Case Study 5: Cottage at Short Beach before proposed Bushfire Strategy

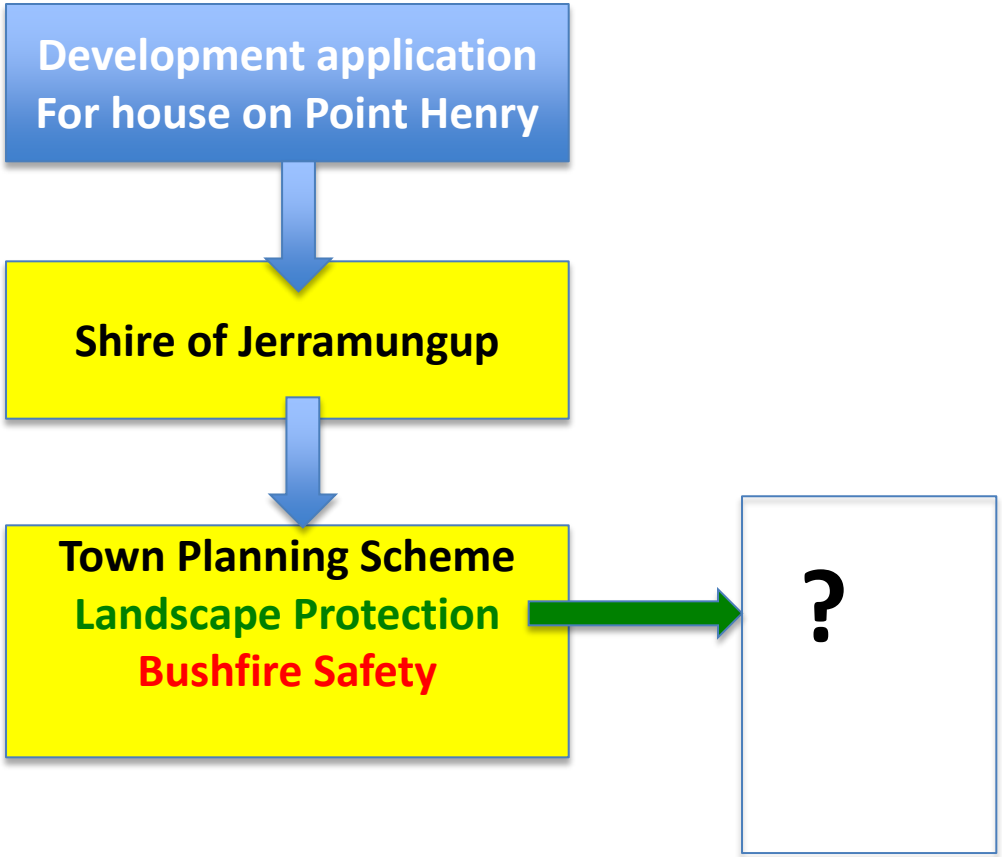
This is what will 20m BPZ look like?

… and After! (photomontage)

PART 3
SHIRE OF JERRAMUNGUP
PLANNING PROCESS
FOR NEW POINT HENRY DEVELOPMENT:
HOUSES ON EXISTING SUBDIVISIONS

Development application
For house on Point Henry


Development application
For house on Point Henry
Shire of Jerramungup


Development application
For house on Point Henry
Shire of Jerramungup
Town Planning Scheme
Landscape Protection
Bushfire Safety
?

Development application
For house on Point Henry

Shire of Jerramungup

Town Planning Scheme
Landscape Protection
Bushfire Safety

?

Development application
For house on Point Henry

Shire of Jerramungup

Town Planning Scheme
Landscape Protection
Bushfire Safety

?

Acceptable Solution

20 m BPZ
Draft Strategy

WAPC Conditions you should know

ELEMENT 4: SITING AND DEVELOPMENT

ACCEPTABLE SOLUTION

- 20 m minimum BPZ measured from the external walls
- BPZ within the boundaries of the lot
- Fuel load maintained to less than 2 t/ha
- Tree crowns separated (WAPC says crowns should be a minimum of 10m apart)
- Shrubs no closer than 3 x their height to a building (DFES). WAPC says shrubs more than 3 m from buildings
- Prune lower branches of tree a minimum of 2 m above ground (DFES)

Page 42

Page 67

Development application For house on Point Henry

Shire of Jerramungup

Town Planning Scheme
Landscape Protection
Bushfire Safety

?

Acceptable Solution

20 m BPZ
Draft Strategy

Performance Based Solution

Eg Bushfire
Standard
BAL29-40-FZ

WAPC Conditions you should know

ELEMENT 4: SITING AND DEVELOPMENT

PERFORMANCE-BASED SOLUTION (alternative to 20m BPZ)

The WAPC guidelines state that:

"The minimum distances of 100 metres and 20 metres … may be reduced using a performance criterion assessment. One way for residential development to meet this performance criterion would be compliance with AS3959. Under AS3959, as the distance from the vegetation is reduced, the construction standard must be increased".

Page 41

Development application
For house on Point Henry

Shire of Jerramungup

Town Planning Scheme
Landscape Protection
Bushfire Safety

?

Acceptable Solution

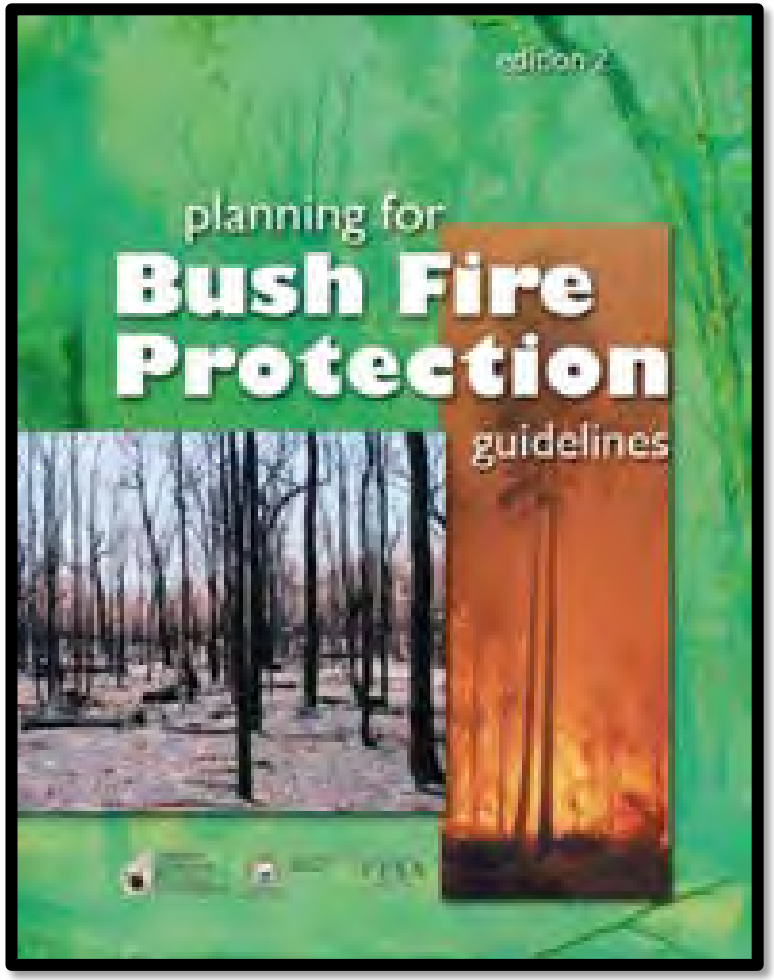
20 m BPZ
Draft Strategy

Performance Based Solution

Eg Bushfire
Standard
BAL29-40-FZ

DFES

WAPC/FESA (DFES)



Download from: http://www.planning.wa.gov.au/publications/1125.asp

WAPC performance criteria and acceptable solution approach

The management issues are:

1. location
2. vehicular access
3. water
4. siting of development
5. design of development.

Page 26

WAPC Terms you need to know

"Applicants have a choice to select either:

1. A performance approach for assessment
2. An acceptable solutions approach
3. Or a combination of the two."

Page 26

WAPC performance criteria and acceptable solution approach

'Performance criteria are general statements of the means of achieving the intent. They are not meant to be limiting in nature. Instead, they provide applicants with an opportunity to develop a variety of design responses to address each bush fire hazard management issue.

Acceptable solutions illustrate one example of satisfactorily meeting the corresponding performance criterion, and are provided as examples of acceptable design outcomes…. compliance with an acceptable solution automatically means compliance with the corresponding performance criterion, and thus fulfillment of the intent of each bush fire hazard management issue.'

Page 26

Measure	Description	Comment
Prohibit development	Would be based on the extreme hazard rating of the Study Area constitutes an unacceptable risk.	Unlikely to be acceptable politically or by the community.
Oppose any further zonings or subdivision	Would be based on development being an unacceptable risk.	Contrary to the approved planning strategy
Large scale clearing	Creation of 100m wide low fuel zones in selected areas.	Contrary to stated planning objectives, unlikely to be environmentally acceptable.
Require general hazard reduction works	Require all lots to reduce fuel loads to less than 8tph.	May not be environmentally acceptable and difficult to implement or enforce.
Status Quo	The "do nothing" option as existing measures would remain i.e. multiple fire management plans and provisions.	Community and Council concern in relation to this has been the basis for preparing this Strategy.
Only apply AS3959	Declaration of bush fire prone would apply AS3959 through the Building Regulations for all new dwellings.	Other fire management measures in the Bush Fire Protection Guidelines would not be addressed leading only to partial protection.
No building protection zone.	Vegetation setbacks as required under AS3959.	Reduces any active defence of the dwelling and potentially endangers lives of fire fighters.
Increased building protection zone.	Provides for increased physical separation between the dwelling and hazard vegetation. Important on sloping land.	Will make dwellings more visible in the landscape and require greater management and alteration to remnant vegetation.

Individual fire management plans	A fire management plan could be prepared for a single property especially if there is need to vary any standard provision due to the special circumstances.	This would allow for a more detailed consideration of the characteristics and features of the lot and could include various management zones.
Restrict non residential development.	Vulnerable land uses which have large numbers of customers may be greater risk.	This may have implications for the tourist industry.
Use of Fire Break Notice	Any changes apply retrospectively to all properties and existing dwellings.	Compliance with the fire break notice is clearly understood by land owners. Variations can also be sought by a landowner to a specific provision.
Use of Planning Scheme and permit conditions	Any changes to the Scheme only apply to new buildings / planning approvals.	While it is an offence under the Planning and Development Act to contravene the provisions of the Scheme and or the conditions of a planning approval, there is a less rigorous level of inspections than compared to the fire break notice.

Individual fire management plans	A fire management plan could be prepared for a single property especially if there is need to vary any standard provision due to the special circumstances.	This would allow for a more detailed consideration of the characteristics and features of the lot and could include various management zones.
Restrict non residential development.	Vulnerable land uses which have large numbers of customers may be greater risk.	This may have implications for the tourist industry.
Use of Fire Break Notice	Any changes apply retrospectively to all properties and existing dwellings.	Compliance with the fire break notice is clearly understood by land owners. Variations can also be sought by a landowner to a specific provision.
Use of Planning Scheme and permit conditions	Any changes to the Scheme only apply to new buildings / planning approvals.	While it is an offence under the Planning and Development Act to contravene the provisions of the Scheme and or the conditions of a planning approval, there is a less rigorous level of inspections than compared to the fire break notice.

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
Have a 20m building protection zone (R15)	Plant of local native species in the BPZ so that this area becomes a "managed" landscape (R17).	Retro fit AS3959 construction standards.
Be responsible for the vegetation within their property.	Contain the building protection zone within the defined building envelope (R19).	Can install a private bunker in conjunction with other fire measures (R23).
Must comply with the conditions of any approved fire management plan.	Provide suitable driveway access with vegetation clearing and turning areas (R21).	Can install sprinklers in conjunction with other fire measures (R24).
Contribute to the maintenance of strategic firebreaks.	Provide a 10,000L water tank for fire fighting (R20).	Join the local bush fire brigade.
Must comply with the Firebreak Notice and prepare their property.	Have a bushfire survival plan and a survival kit.	Undertake additional fuel management outside of the building envelope.
Must provide justification for any variation to recommendations (R37).	Prepare for no power supply during a fire.	Can inform adjoining absentee owners of any issues.
	Know what the Fire Danger Ratings mean.	Prepare an individual fire management plan for their lot.
	Be alert on high fire danger days	

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
Have a 20m building protection zone (R15)		
Be responsib[illegible] the vegetation within their pr[illegible]ty.		
Must co[illegible]nditions of any app[illegible]ement plan.		
Contribute t[illegible]aintenance of strategic fireb[illegible]s.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

Act of Parliament

Unlike new houses the council cant enforce 20 m BPZ through planning conditions. **The easiest and cheapest way** for Council to implement 20m BPZ is to include them in the "Firebreak Notice" – using an act of parliament (Bushfires Act) to clear the BPZ - if you don't do it – and then send you the bill.

The problems with this are:

- Doesn't encourage shared responsibility
- Doesn't enhance awareness of hazards or risks.
- Creates 'us and them' between authorities and land owners

Fire Break Notices

How they work

Firstly, these notices aren't just for breaks *around* properties – they can also be used to enforce clearing *within* properties – such as building protection zones. The one at right is one of 72 notices issued in late 2013 to Bremer Bay townsite residents.

The Shire (the CESM or ranger) inspects properties annually and if they are not compliant a 'Category 1 Offence' notice is issued (as at right). If the clearing is not carried out within 14 days a 'Catergory 2 Offence' notice is issued, wherein the land owner is prosecuted, and penalised with a $250 fine and has to cover the costs of the shire's contractors conducting the clearing works.

This is an instrument of the Bushfire's Act 1954 and can be employed by local governments on future and <u>retrospectively on existing properties</u>. This is a key component of the draft bushfire strategy. <u>That is – it will happen if the strategy is adopted by Council.</u>

SHIRE OF JERRAMUNGUP

8 CASEY STREET, JERRAMUNGUP

RE: SECTION 33 BUSHFIRE ACT 1954 - CATEGORY 1 OFFENCE

Category 1 offence	14 days to comply with the notice, no fine applied
Category 2 offence	Category 1 offender automatically becomes Category 2, penalty immediate prosecution, $250.00 fine plus cost of Council putting breaks in

PETER TIGWELL
COMMUNITY EMERGENCY SERVICES MANAGER

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
Have a 20m building protection zone (R15)		
Be responsible for the vegetation within their property.		
Must comply with the conditions of any approved fire management plan.		
Contribute to the maintenance of strategic firebreaks.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

You can vary the 20 m BPZ but these proposed (in draft form) agreements only last between 12 months and 3 years.
That's not enough certainty for homeowners.

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
Must comply with the conditions of any approved fire management plan.		
Must provide justification for any variation to recommendations (R37).		

Directly related

This relates specifically to subdivision fire plans.
We need to develop a **LOT FIRE MANAGEMENT PLAN** Template for individual lots – none is presented in the strategy.

The Variation Justification would be redundant with a annually maintained fire management plan.

The reason the variation option is in here is because many existing houses and sites simply cant comply with the 20 m BPZ and other WAPC Conditions.

Variations are most often used for when the is an environmental constraint such as a water course

Draft Bushfire Strategy EXISTING DWELLINGS

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		

These three are all related – or should be.
To get a variation to the firebreak notice you would need a good sound argument – the best one is a detailed and **practical fire management plan.**

	Have a bushfire survival plan and a survival kit.	
Must provide justification for any variation to recommendations (R37).		
		Prepare an individual fire management plan for their lot.

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
	Plant of local native species in the BPZ so that this area becomes a "managed" landscape (R17).	

Very subjective assessment – what is before and what is after?

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
	Plant of local native species in the BPZ so that this area becomes a "managed" landscape (R17).	

Very subjective assessment – what is before and what is after?
Another reason for a verified
LOT FIRE PLAN

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
	Plant of local native species in the BPZ so that this area becomes a "managed" landscape (R17).	
	Contain the building protection zone within the defined building envelope (R19).	

Many buildings are 15 m from boundary – yet another reason for **LOT FIRE PLAN**

Point Henry Case Study 1

- Bought block shortly after 2002 fire.
- Site predominantly heath (95%)
- Visual privacy from neighbour comes from heath.
- Neighbour's house 45 metres away.
- House is 15 metres from boundary
- <u>20m BPZ cannot be applied.</u>

Draft Bushfire Strategy Things you should know

MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
	Plant of local native species in the BPZ so that this area becomes a "managed" landscape (R17).	
	Contain the building protection zone within the defined building envelope (R19).	
	Provide suitable driveway access with vegetation clearing and turning areas (R21).	

MUST DO

WAPC has this as a higher priority – as do local volunteers.
It should be in the "Must Do" category.
How do we implement this?

Draft Bushfire Strategy Things you should know

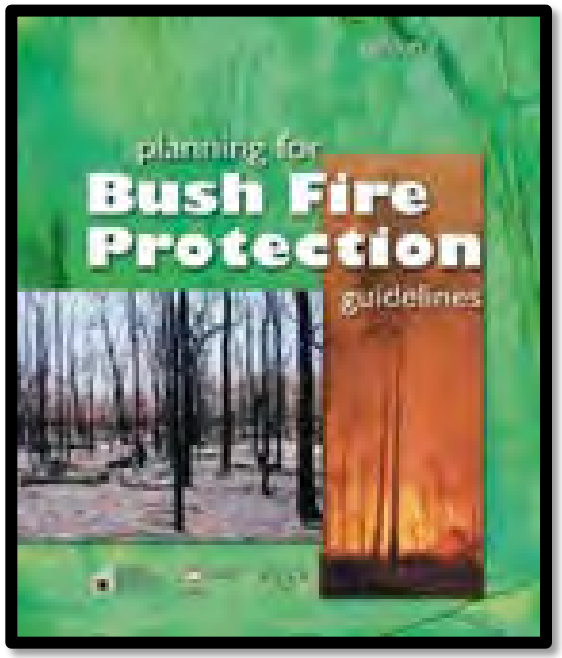
MUST DO	SHOULD DO	CAN DO
Existing Dwellings		
	Plant of local native species in the BPZ so that this area becomes a "managed" landscape (R17).	
	Contain the building protection zone within the defined building envelope (R19).	
	Provide suitable driveway access with vegetation clearing and turning areas (R21).	
	Provide a 10,000L water tank for fire fighting (R20).	

MUST DO?

Easily done – but this should be in the 'Must Do' category unless Local Government increases water supply throughout the peninsular.
Volunteer fire fighters need water.

Lot Fire Management Plan

- A really good guide to the content of a lot management plan in the WAPC Planning for Bushfire Protection – pages 56-60.



Proposed dwellings

MUST DO	SHOULD DO	CAN DO
Recognise that the Study Area has a high bush fire risk.		
Comply with AS3959 construction standards.		
e responsible for the vegetation ithin their property.		
Submit a BAL assessment is to be part of any application for planning approval (14)		
Have a 20m building protection zone (R15)		

Must do both – but strategy doesn't provide the opportunity to balance less veg clearing with more building performance.

This approach is **not in accord** WAPC Guidelines which allow for practical 'Performance-based' solutions.

Proposed dwellings

MUST DO	SHOULD DO	CAN DO
Recognise that the Study Area has a high bush fire risk.		
Comply with AS3959 construction standards.		
Be responsible for the vegetation within their property.		
Submit a BAL assessment is to be part of any application for planning approval (14)		
Have a 20m building protection zone (R15)		
As part of the application for a dwelling, define the building envelope and have it endorsed by Council (R18).		
Provide a 10,000L water tank for fire fighting (R20).		
Provide suitable driveway access with vegetation clearing and turning areas (R21).		
Contribute to the maintenance of strategic firebreaks.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

So existing building envelopes (and therefore house sites) may be moved by Council if you cant achieve the 20m BPZ even if you want to use AS3959 to lessen the BPZ as per WAPC "performance-based" solutions.
(see Recommendation 19 page 71)

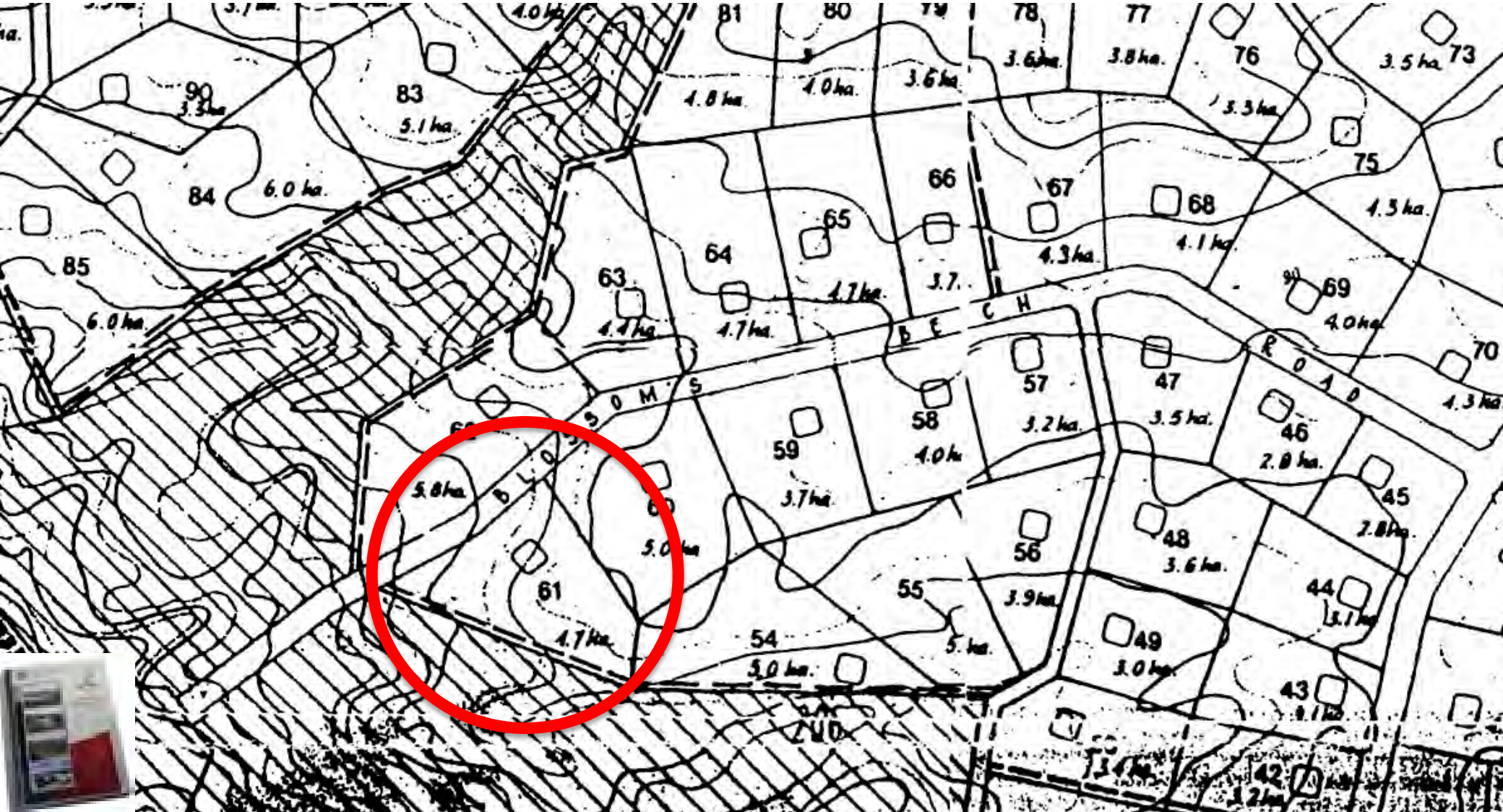
Building Envelopes ??

If you have one of these lots - then your envelope may be moved by Council to create a 20 m min BPZ.

This applies to some other Subdivisions as well – eg Short Beach Ridge Estate.

It is not clear that this applies even if you have planning approval for your Envelope.

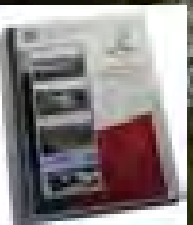
Building Envelopes ??



Point Henry case Study

Bought block before 2002 fire.

- IWA Designing house for bushfire for last two years
- Site highly susceptible to wind and water erosion.
- BPZ 20m not achievable – topography too steep/too much erosion
- Only visual privacy comes from heath and mallee.
- No other site to build house on.
- Value of land based on pre-constructed building envelope/site
- **Not practical to apply 20 m BPZ**
- **Needs a WAPC performance-based solution**

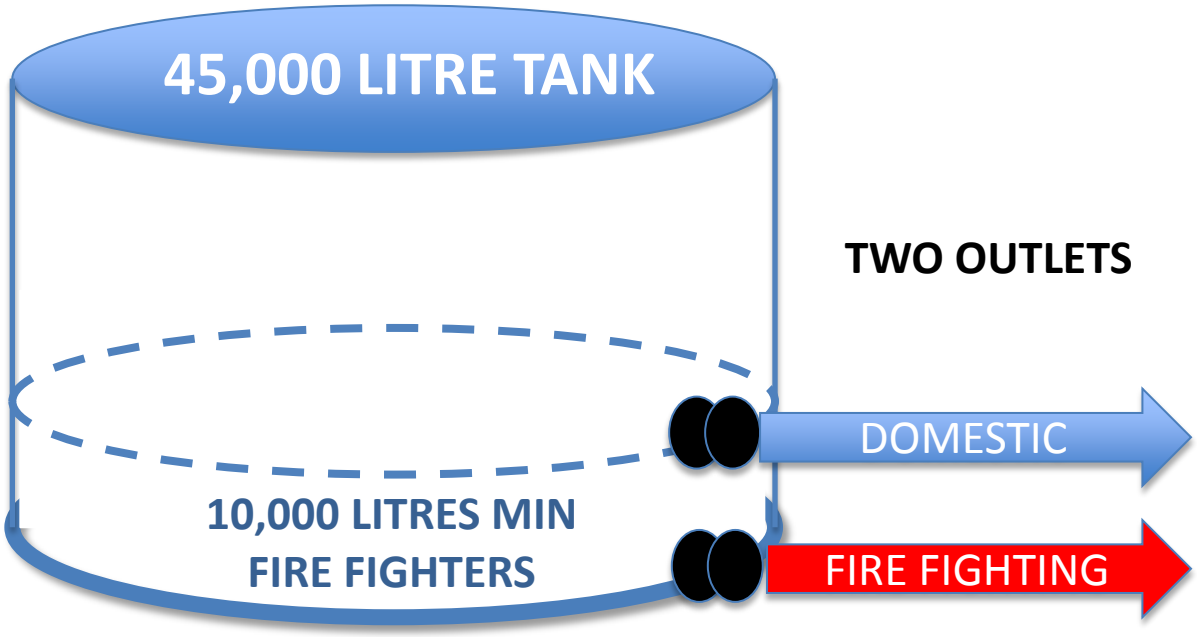


Proposed dwellings

MUST DO	SHOULD DO	CAN DO
Recognise that the Study Area has a high bush fire risk.		
Comply with AS3959 construction standards.		
Be responsible for the vegetation within their property.		
Submit a BAL assessment is to be part of any application for planning approval (14)		
Have a 20m building protection zone (R15)		
As part of the application for a dwelling, define the building envelope and have it endorsed by Council (R18).		
Provide a 10,000L water tank for fire fighting (R20).		
Provide suitable driveway access with vegetation clearing and turning areas (R21).		
Contribute to the maintenance of strategic firebreaks.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

This makes sense – doesn't have to be an additional tank.

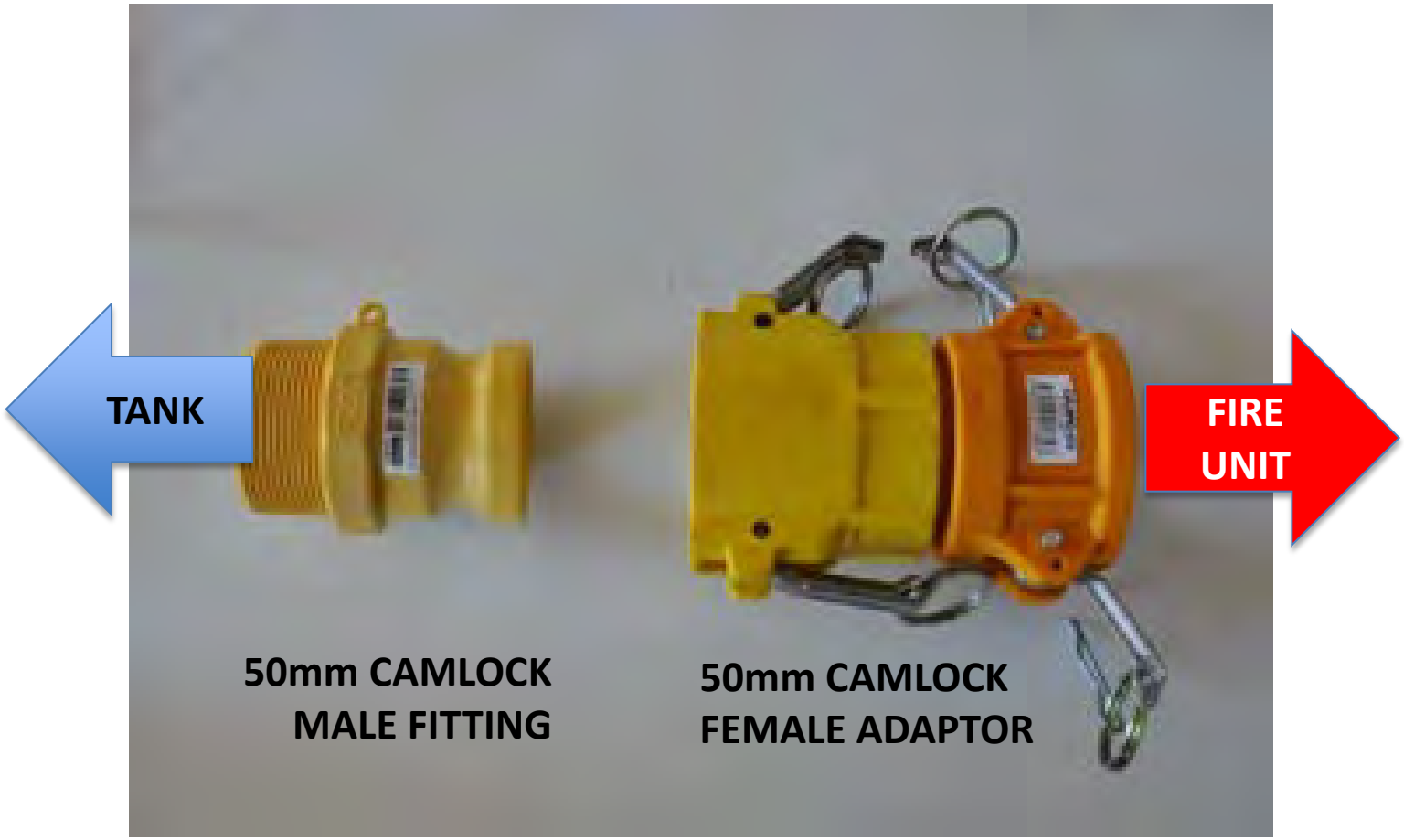
Tanks and fittings



Tanks and fittings

50 mm CAMLOCK
(please note this diametre is still to be confirmed)
PLASTIC OR BRASS

FIRE FIGHTING fittings

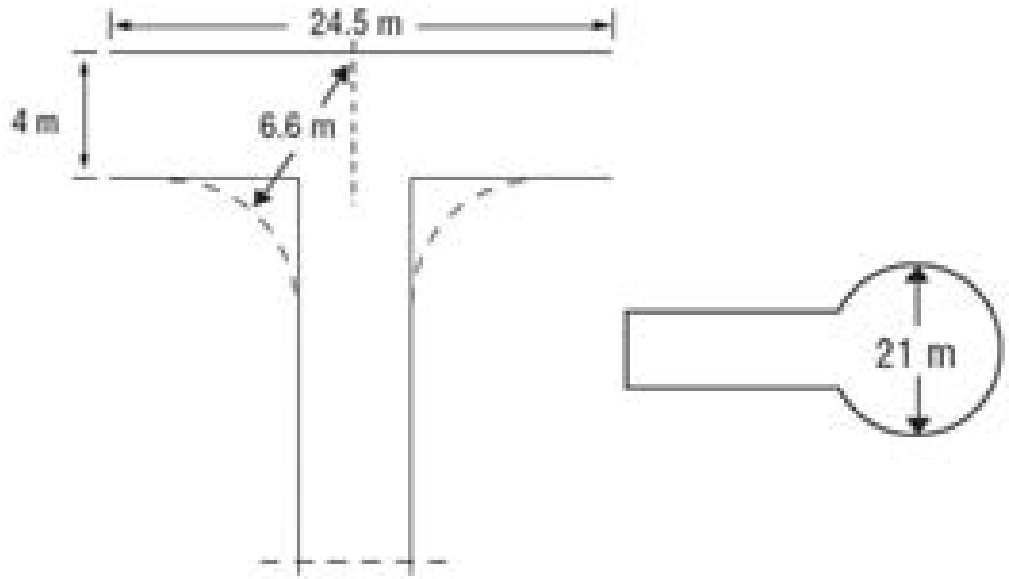


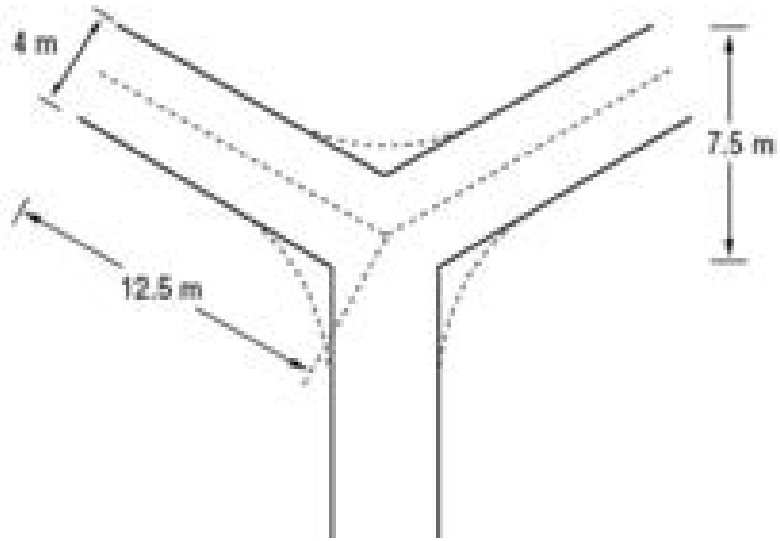
Proposed dwellings

MUST DO	SHOULD DO	CAN DO
Recognise that the Study Area has a high bush fire risk.		
Comply with AS3959 construction standards.		
Be responsible for the vegetation within their property.		
Submit a BAL assessment is to be part of any application for planning approval (14)		
Have a 20m building protection zone (R15)		
As part of the application for a dwelling, define the building envelope and have it endorsed by Council (R18).		
Provide a 10,000L water tank for fire fighting (R20).		
Provide suitable driveway access with vegetation clearing and turning areas (R21).		
Contribute to the maintenance of strategic firebreaks.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

This all makes sense – and is a level of uniformity that can be provided on most lots. It relies to a certain extent on existing lots having the same.

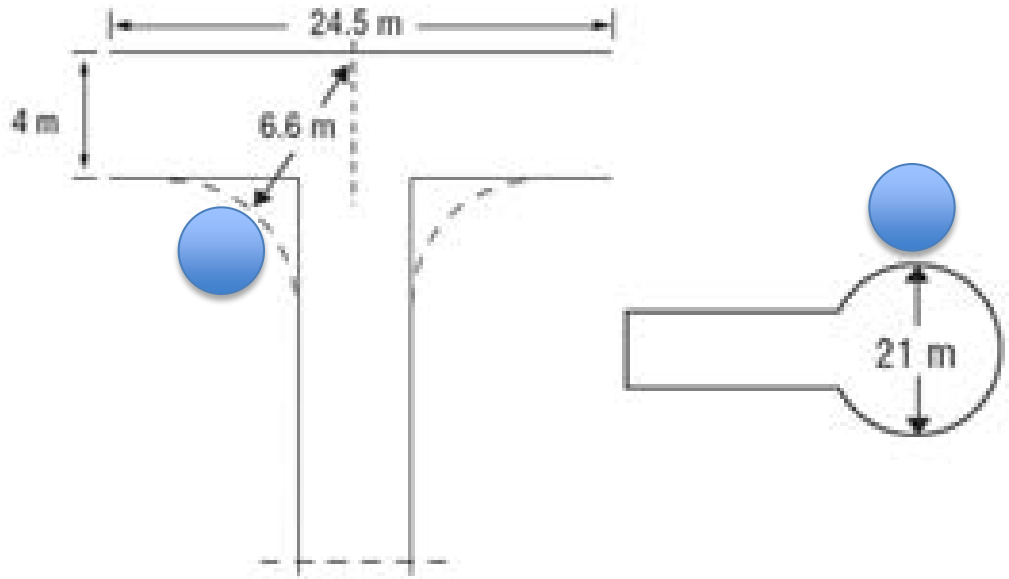
WAPC Fire Unit turnarounds

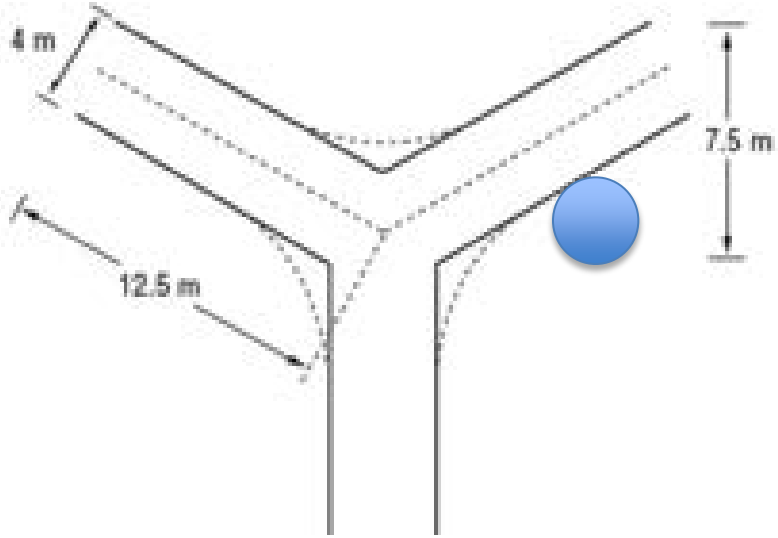




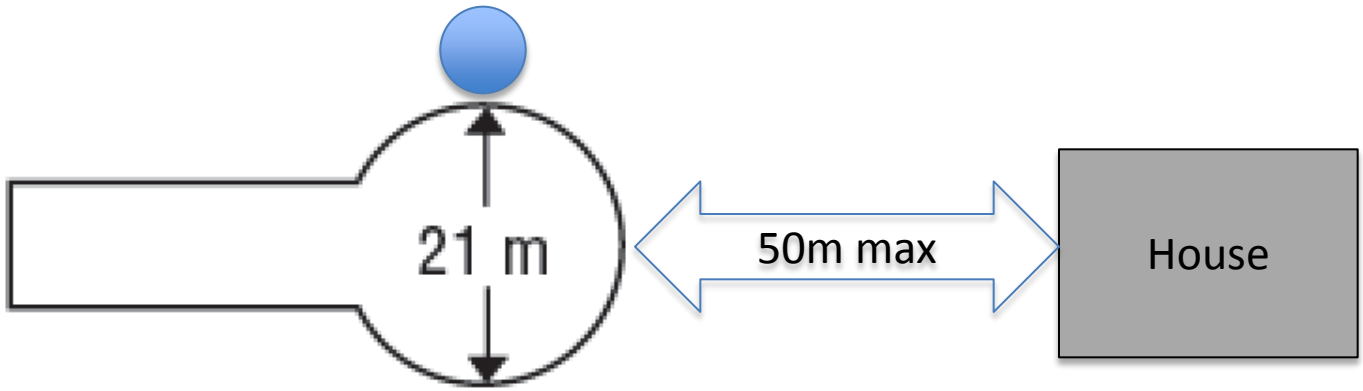
Page 35

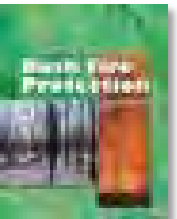
Turnarounds and tanks



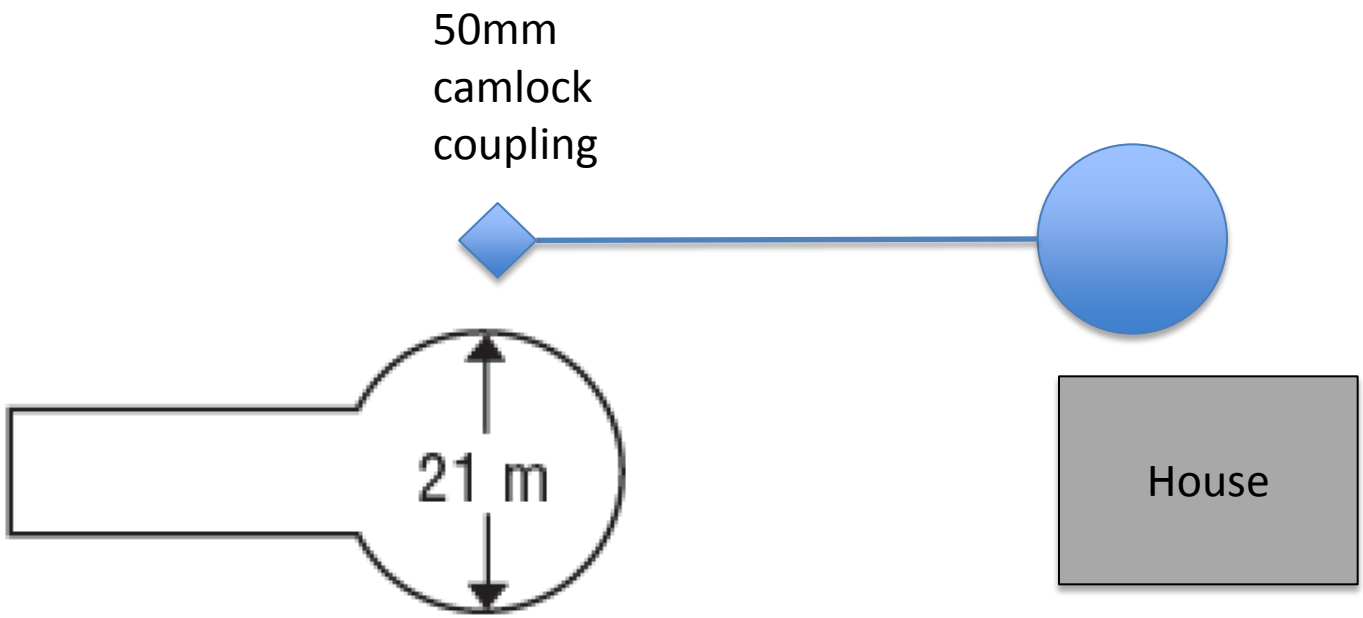


Turnarounds, tanks & houses





Performance-based solution



Proposed dwellings

MUST DO	SHOULD DO	CAN DO
Recognise that the Study Area has a high bush fire risk.		
Comply with AS3959 construction standards.		
Be responsible for the vegetation within their property.		
Submit a BAL assessment is to be part of any application for planning approval (14)		
Have a 20m building protection zone (R15)		
As part of the application for a dwelling, define the building envelope and have it endorsed by Council (R18).		
Provide a 10,000L water tank for fire fighting (R20).		
Provide suitable driveway access with vegetation clearing and turning areas (R21).		
Contribute to the maintenance of strategic firebreaks.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

Uses an act of parliament to clear 20m around your house (and send you the bill) - even if you have built a rammed earth courtyard house with fire shutters.

Case Study: House redesigned after 2002 Fire

- 300 mm rammed earth
- Steel shutters over all windows
- Courtyard design
- BAL level BAL40 – BALFZ (although predates AS3959:2009)

<u>Justifiable variation to 20m BPZ rule</u>

Proposed dwellings

MUST DO	SHOULD DO	CAN DO
Recognise that the Study Area has a high bush fire risk.		
Comply with AS3959 construction standards.		
Be responsible for the vegetation within their property.		
Submit a BAL assessment is to be part of any application for planning approval (14)		
Have a 20m building protection zone (R15)		
As part of the application for a dwelling, define the building envelope and have it endorsed by Council (R18).		
Provide a 10,000L water tank for fire fighting (R20).		
Provide suitable driveway access with vegetation clearing and turning areas (R21).		
Contribute to the maintenance of strategic firebreaks.		
Must comply with the Firebreak Notice and prepare their property.		
Must provide justification for any variation to recommendations (R37).		

You can vary the 20 m BPZ but these proposed (in draft form) agreements only last between 12 months and 3 years.
That's not enough certainty for homeowners.
NEED LOT FIRE PLAN METHODOLOGY

Proposed dwellings

MUST DO **SHOULD DO** **CAN DO**

Have a bushfire survival plan and a survival kit.

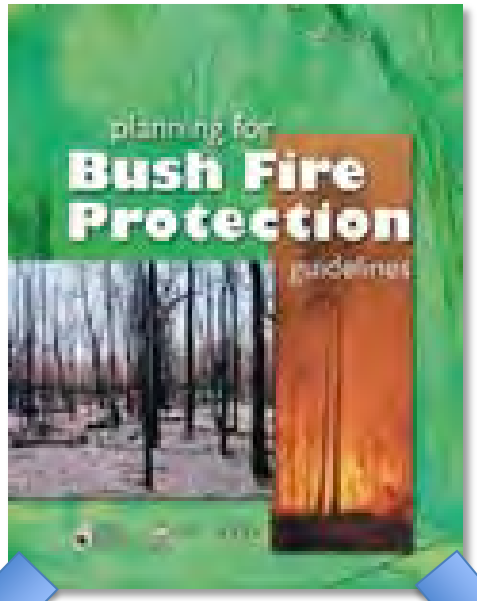
Prepare an individual fire management plan for their lot.

These can all be addressed with a single

LOT FIRE MANAGEMENT PLAN

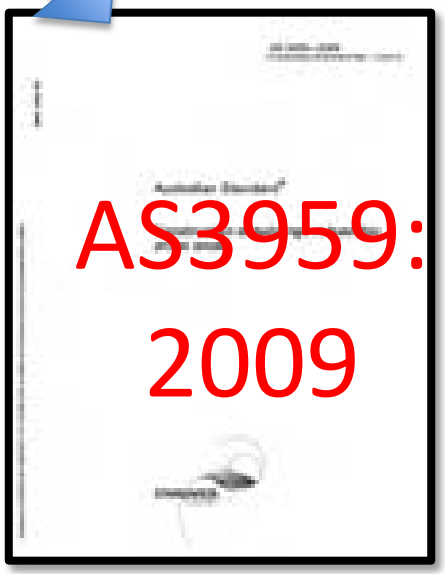
Must provide justification for any variation to recommendations (R37).

PART 4
THE PRINCIPLES AND INTENT OF BUSHFIRE RISK MITIGATION



Acceptable Solution: 20m minimum BPZ

OR

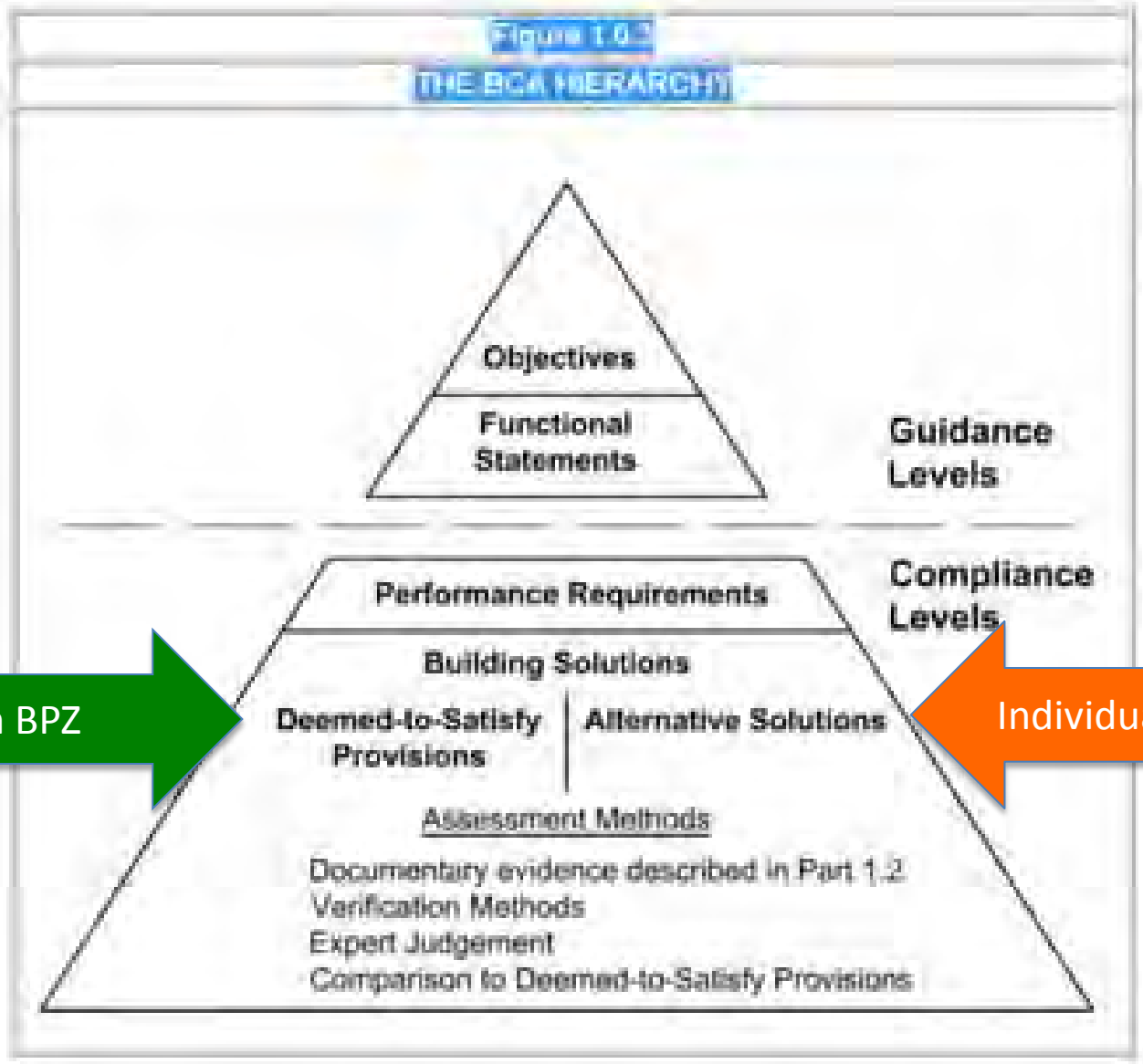


AS3959: 2009

BushFire Risk Mitigation/Protection

- Active – actual fire fighting
- Passive – permanent measures (houses)
- Partially active – annual maintenance of vegetation

Building Code of Australia



20 m BPZ

Individual Fire plans

WAPC Terms you need to know

- 100 m Hazard Separation Zone
- 20 m Building Protection Zone

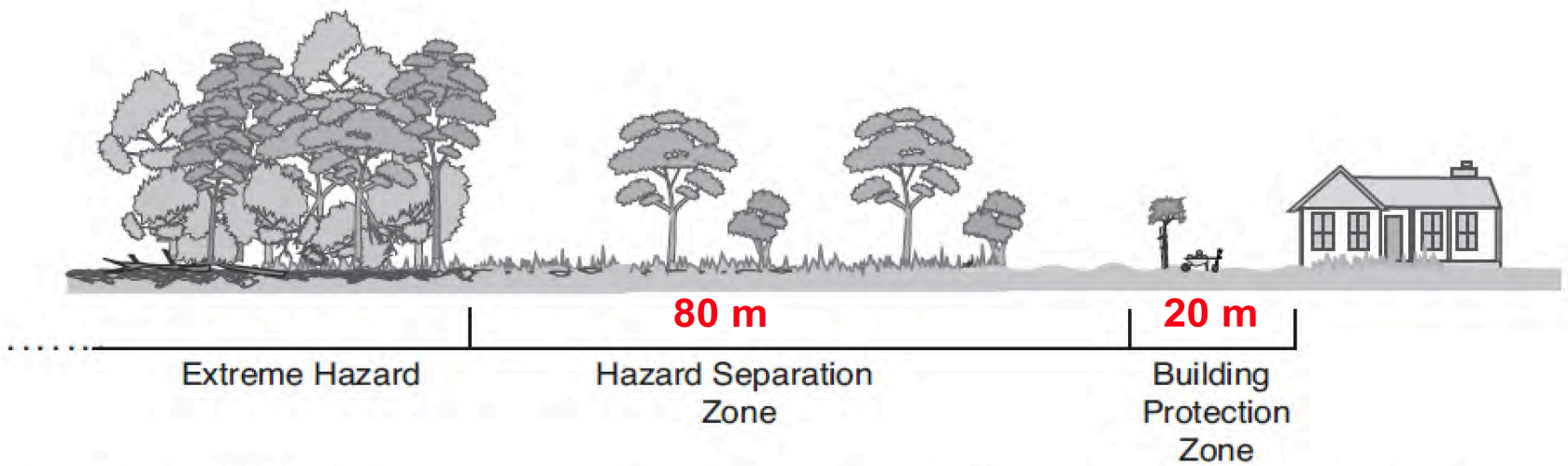


Diagram E4.1b and E4.2b Hazard separation zones within subdivisions, including the building protection zone, to consider for development. (Ref. P4, A4.1, A4.2)

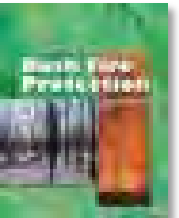
WAPC Terms you need to know

"Fuel Load"

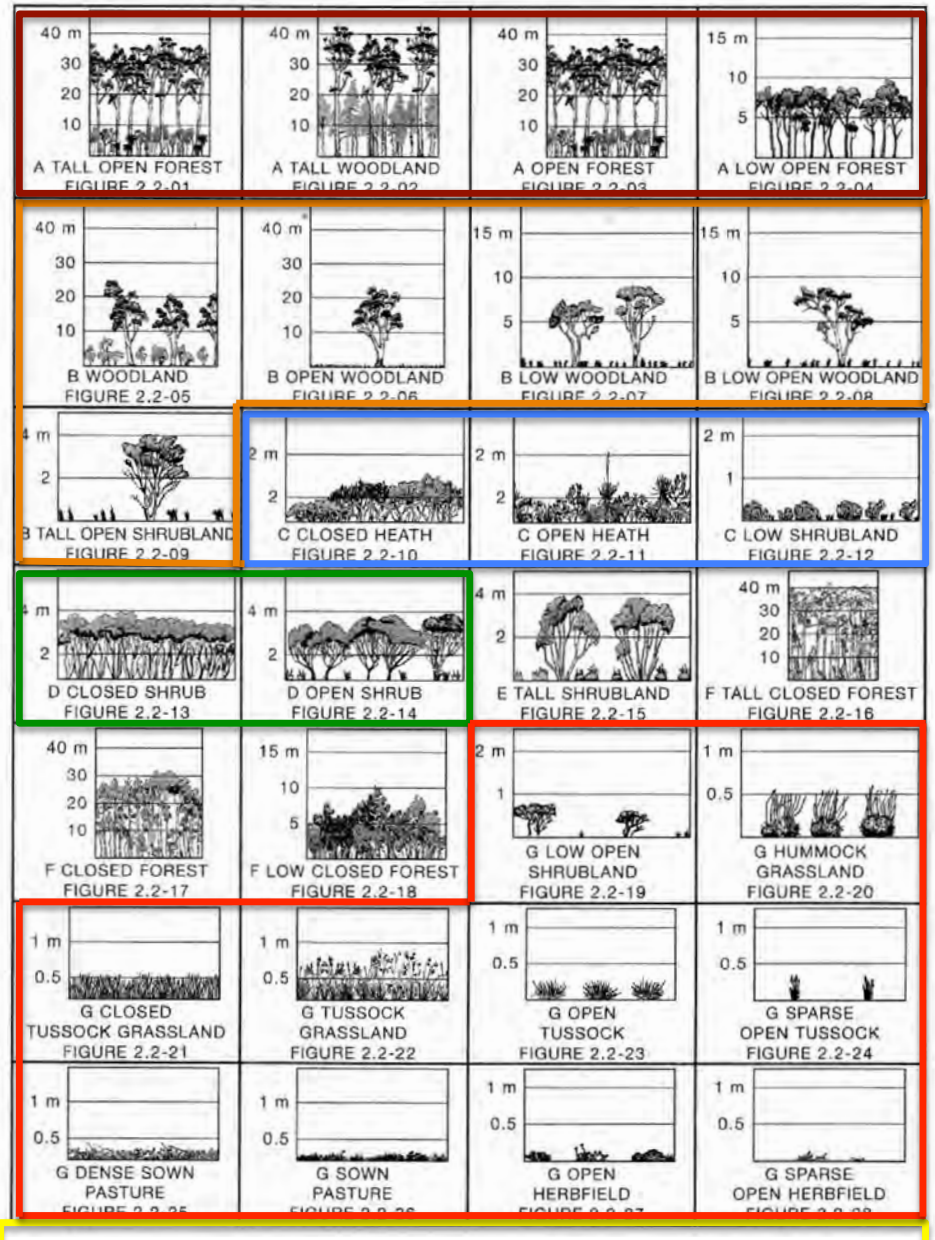
- WAPC says fuel load should be 2 tonnes per hectare (t/ha) in the 20m BPZ
- Manual suppression of fires (fire fighters and tankers) is considered achievable at 7-8 t/ha (depends on info source).

NSW Rural Fire Service Says

"The risk to your property increases with the amount of fuel present. Bushland areas include leaves, bark, twigs and other vegetative matter. A rule of thumb is that 1cm depth of fuel on the ground represents 5 tonnes per hectare. This is considered light fuel loading and could carry a mild fire. Thirty (30) tonnes per hectare, or a depth of 6cm is considered a heavy fuel loading. Fuels within 15 metres of a house should be kept to no more than 8 tonnes per hectare. Where the slope of the ground is greater than 5 degrees up to the house, a lesser amount of fuel is advisable". http://www.rfs.nsw.gov.au/dsp_content.cfm?cat_id=1033



WAPC Guidelines - fuel load classification



Source: "AS 3959 - 2009 Construction of buildings in bushfire-prone areas" published by Standards Australia, Sydney.

AS3959:2009 Surface Fuel	AS3959:2009 Overall Fuel
25 t/ha	35 t/ha
15 t/ha	25 t/ha
15 t/ha	15 t/ha
25 t/ha	25 t/ha
4.5 t/ha	4.5 t/ha

Page 22

Fuel Load Assessment – FESA visual method

http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/VisualFuelLoadsPublications/FESA-VFLG_EspPlains.pdf

FESA(DFES) **Visual** Fuel Load Assessment Method

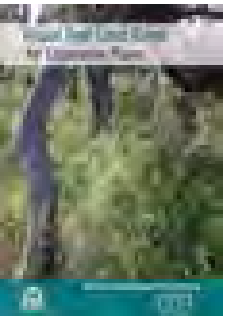
Methods of fuel sampling

The method used by FESA to calculate fuel loads and develop the guide is based on a representative fuel load sample.

A 1 m^2 quadrat is placed over an area of vegetation that is representative of the broader sample area. All vegetation from within the quadrat, that is less than 10 mm in diameter, is collected and dried in an oven. The dried weight of the sample is then converted into tonnes per hectare (t/ha). The white square displayed in each of the photos represents the area that was sampled.

Fuel load calculation

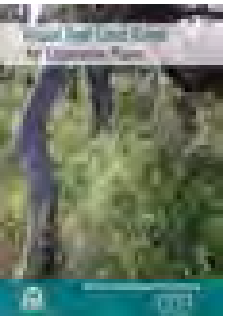
Dried weight (grams per metre^2) / 100 = fuel load (t/ha)



FESA(DFES) **Visual** Fuel Load Assessment example

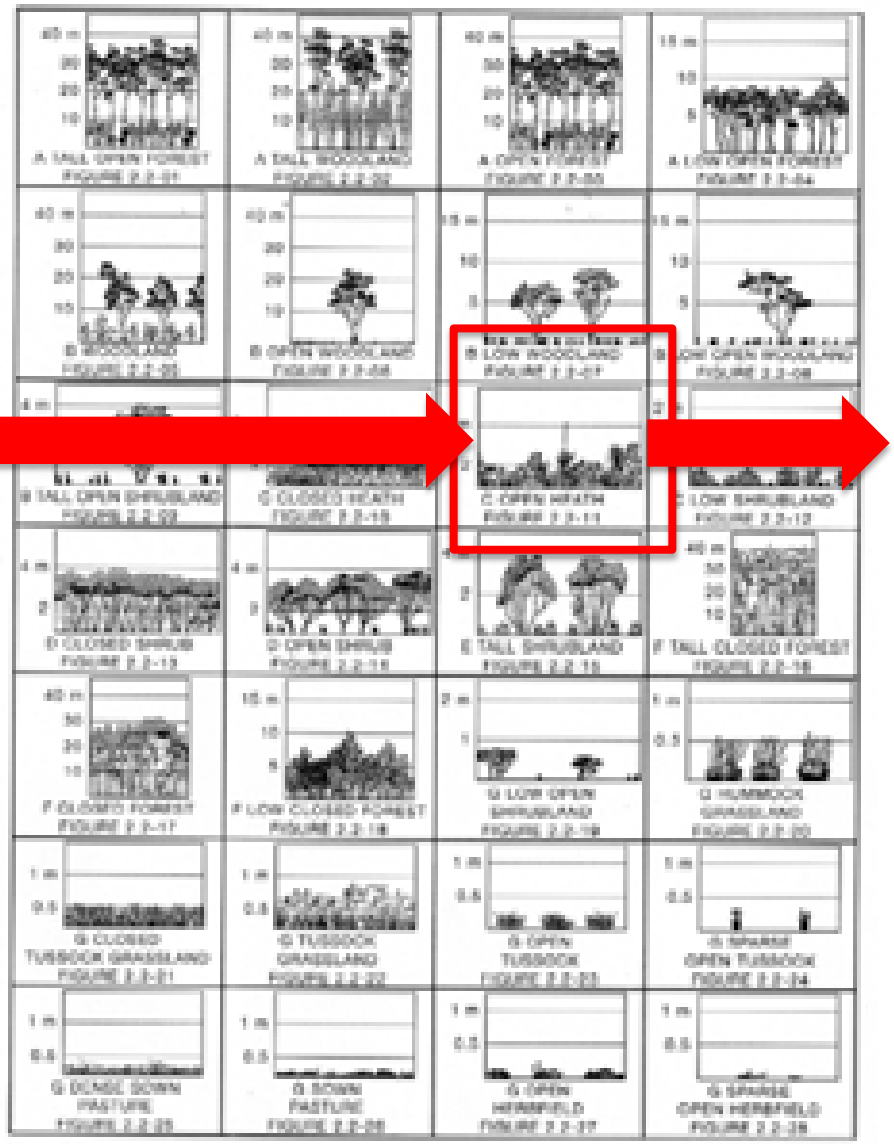
Fig 1. FESA Visual Guide **7 t/ha**

Heath East of Point Henry Rd **= 4-5 t/ha**



FESA/DFES Guidelines fuel load classification

Heath East of Point Henry Rd
Using FESA Visual Fuel Load Guide
= 4-5 t/ha



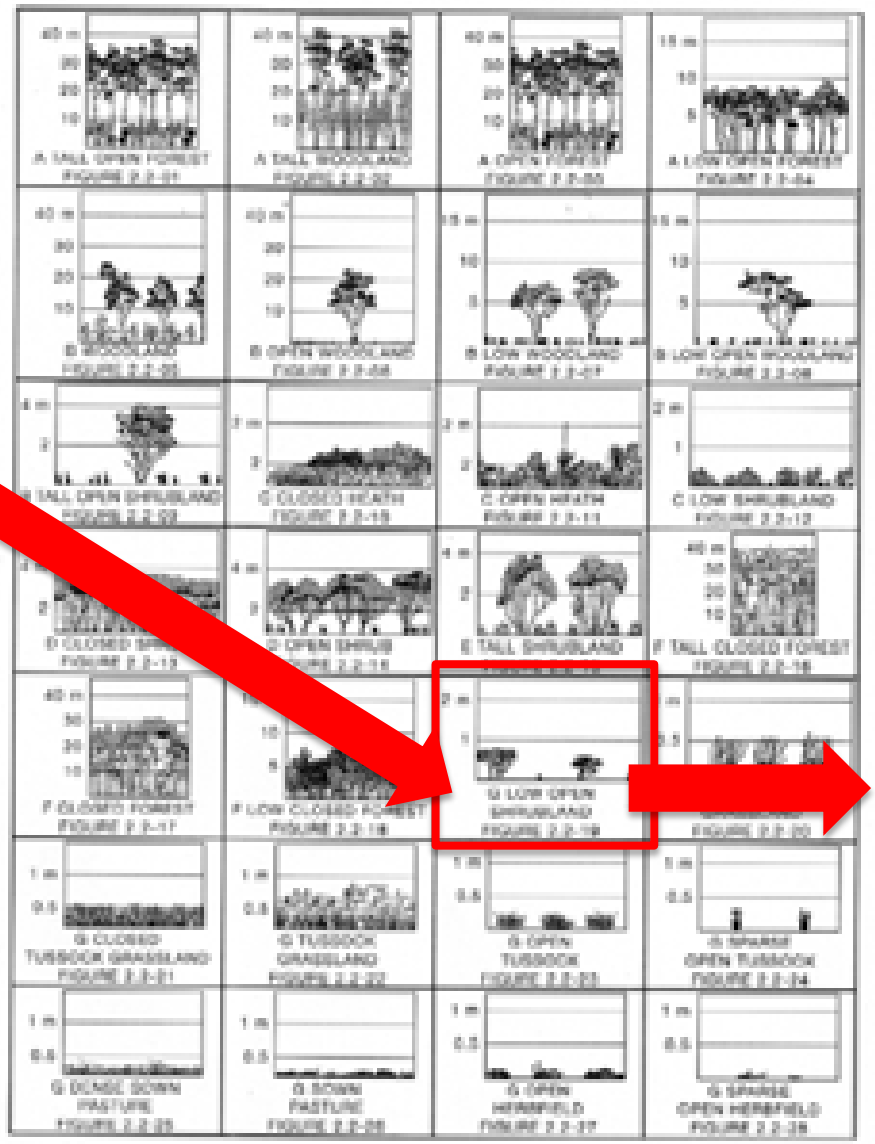
15 t/ha!

stralia, Sydney.

Page 22

FESA/DFES Guidelines fuel load classification

4-5 t/ha



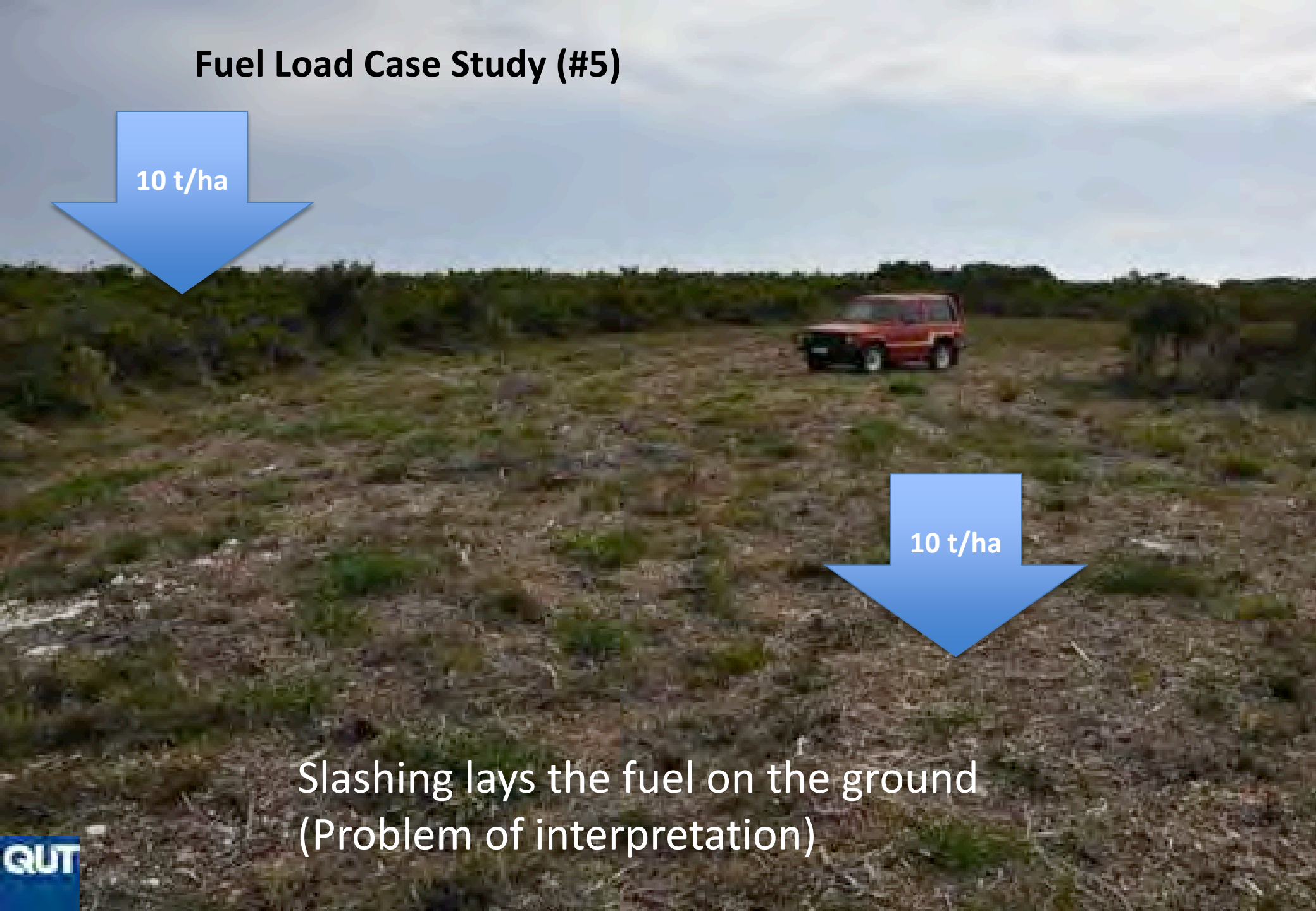
4.5 t/ha

Page 22

stralia, Sydney.

Fuel Load Case Study (#5)

Fuel Load Case Study (#5)

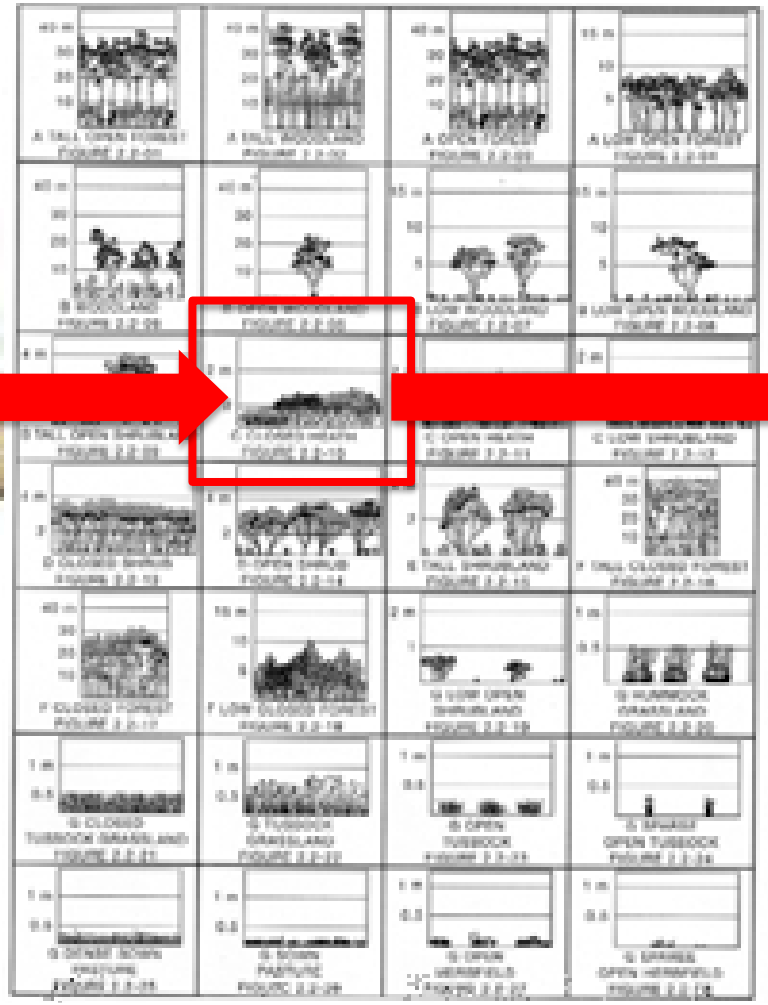


Slashing lays the fuel on the ground
(Problem of interpretation)

AS3959 – Determining the BAL Bushfire Attack Level

Step 1.
Vegetation Assessment

Options:
1. FESA Visual Guide,
2. Actually measure the fuel
3. Use the AS3959/WAPC classification sheet (right)

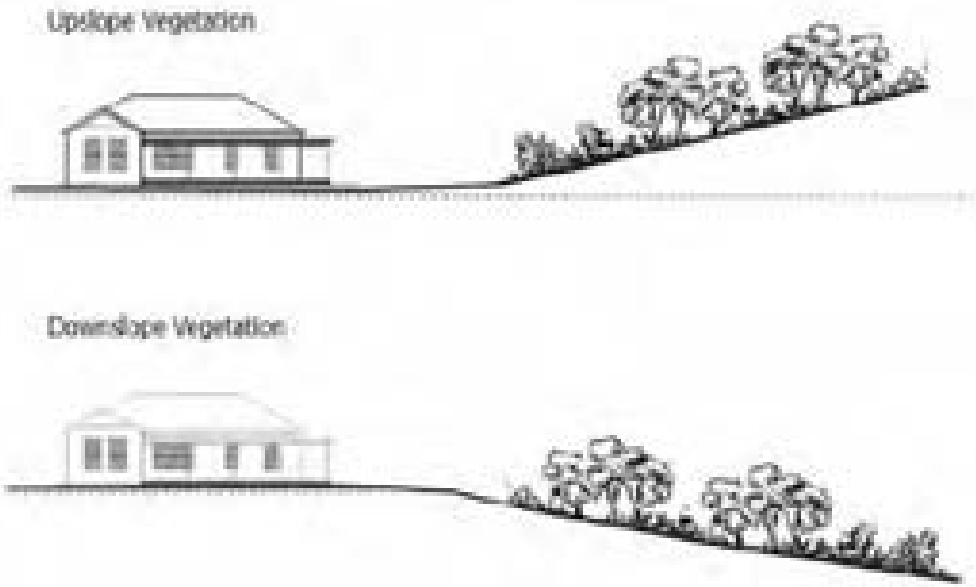


15 t/ha

stralia, Sydney.

AS3959 – Determining the BAL
Bushfire Attack Level

Step 2.
Slope Assessment



Determining the BAL

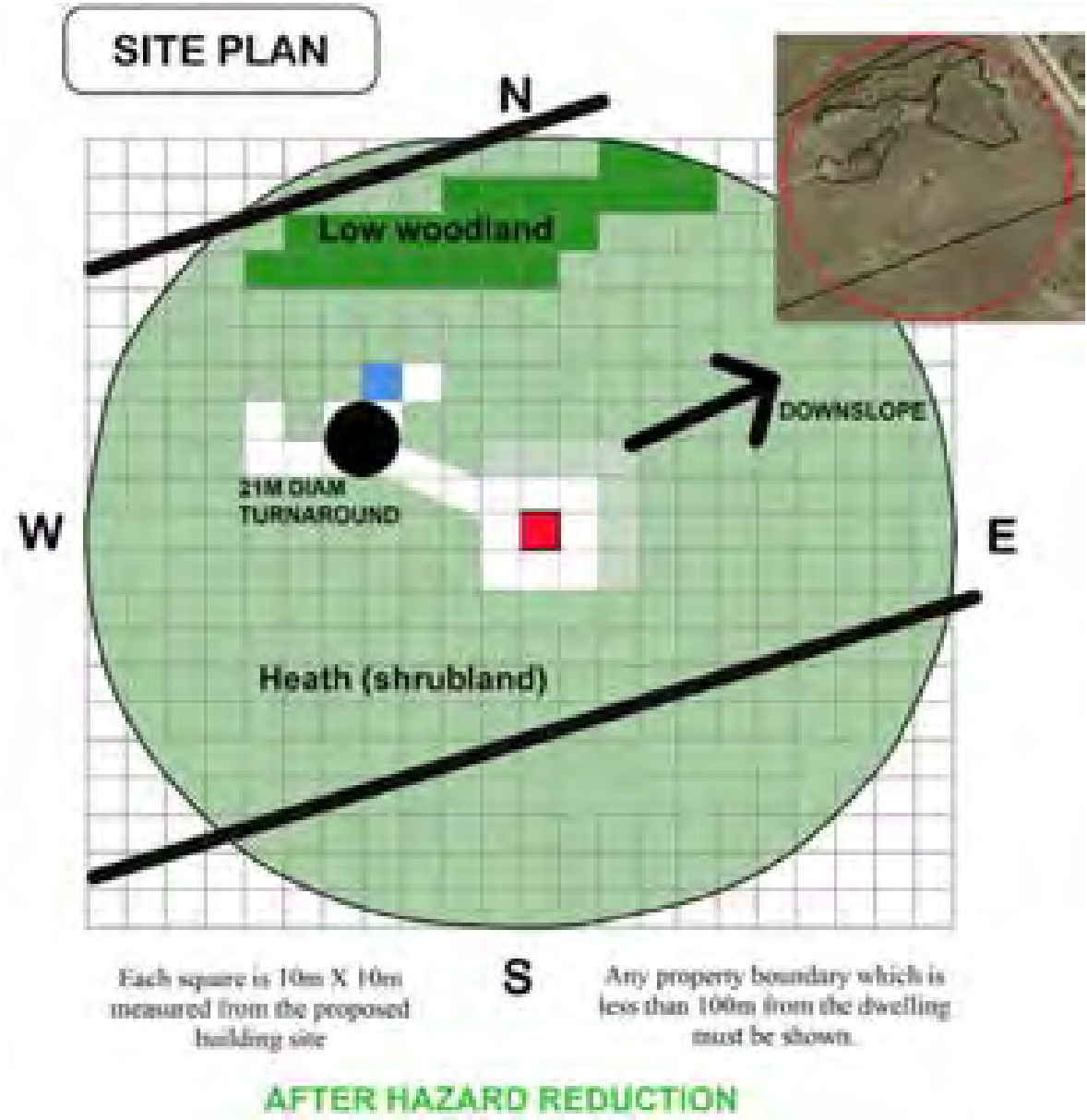
Step 3.
Map Vegetation types
For 100 m radius

- Include slope
- Include boundaries

(map from TME Draft Bushfire Strategy)

Determining the BAL

Step 4.
Apply proposed BAL and Hazard separation zone
(modified veg 100m radius)



AS3959 – Determining the BAL

Step 2.
Cross check setbacks

31 AS 3959—2009

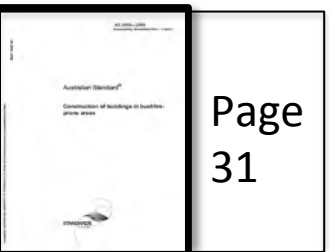
WA

TABLE 2.4.3

DETERMINATION OF BUSHFIRE ATTACK LEVEL (BAL)—FDI 80 (1090 K)

Vegetation classification	Bushfire Attack Levels (BALs)				
	BAL—FZ	BAL—40	BAL—29	BAL—19	BAL—12.5
	Distance (m) of the site from the predominant vegetation class				
	All upslopes and flat land (0 degrees)				
A. Forest	<16	16–<21	21–<31	31–<42	42–<100
B. Woodland	<10	10–<14	14–<20	20–<29	29–<100
C. Shrubland	<7	7–<9	9–<13	13–<19	19–<100
D. Scrub	<10	10–<13	13–<19	19–<27	27–<100
E. Mallee/Mulga	<6	6–<8	8–<12	12–<17	17–<100
F. Rainforest	<6	6–<9	9–<13	13–<19	19–<100
G. Grassland	<6	6–<8	8–<12	12–<17	17–<50
	Downslope >0 to 5 degrees				
A. Forest	<20	20–<27	27–<37	37–<50	50–<100
B. Woodland	<13	13–<17	17–<25	25–<35	35–<100
C. Shrubland	<7	7–<10	10–<15	15–<22	22–<100
D. Scrub	<11	11–<15	15–<22	22–<31	31–<100
E. Mallee/Mulga	<7	7–<9	9–<13	13–<20	20–<100
F. Rainforest	<8	8–<11	11–<17	17–<24	24–<100
G. Grassland	<7	7–<9	9–<14	14–<20	20–<50

Options:
1. AS3959:2009
2. WAPC
(they are not exactly the same)



Page 31

AS3959 – Determining the BAL

BAL-LOW **Very Low risk**

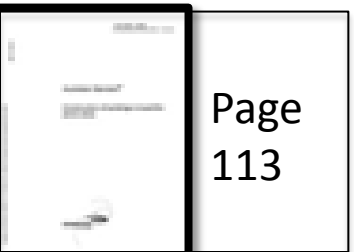
BAL-12.5 **Low Risk**
Ember attack & radiant heat up to an including 12.5 kW/m2

BAL-19 **Moderate**
12.5 – 19 kW/m^2

BAL-29 **High**
19 – 29 kW/m^2

BAL-40 **Very High**
Ember attack, increased likelihood of flame contact & radiant heat 29 – 40 kW/m^2

BAL-FZ **Extreme – Flame Zone**
40+ kW/m^2 - ember attack, burning debris, direct exposure of flames from the fire



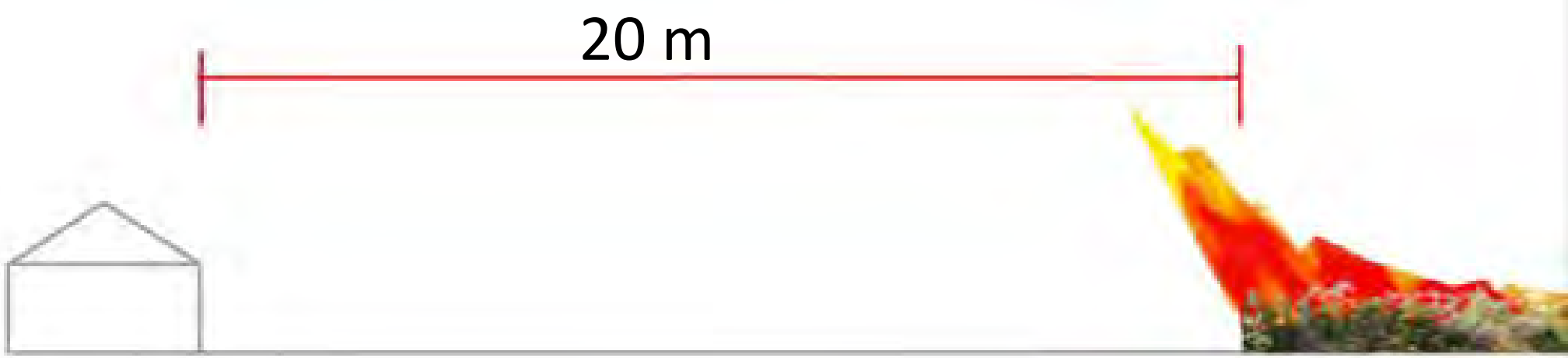
Page 113

AS3959/WAPC BAL Ratings

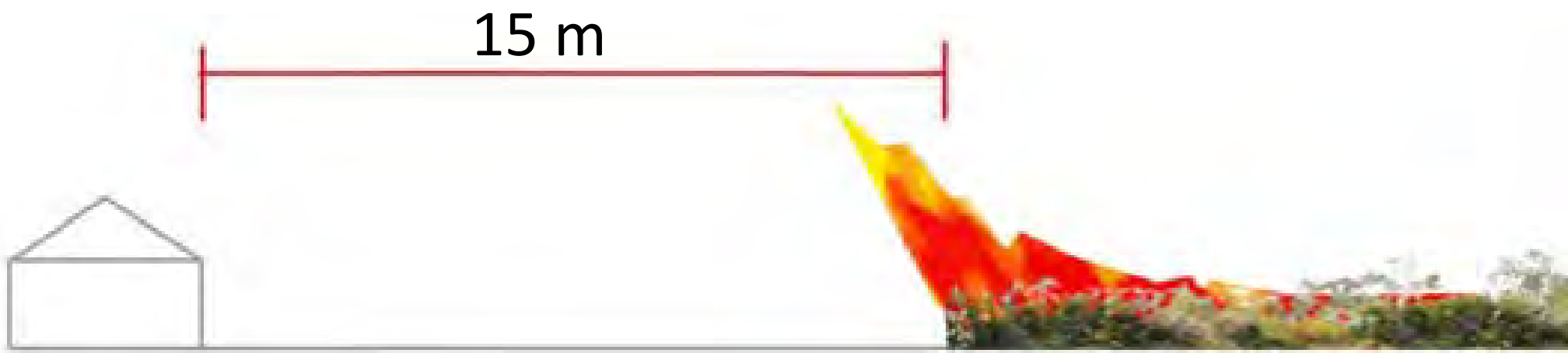
Bushfire Attack Level (BAL)	Classified vegetation within 100 m of the site and heat flux exposure thresholds	Description of predicted bush fire attack and levels of exposure	Construction Section as per AS 3959
BAL LOW		There is insufficient risk to warrant specific construction requirements. Despite this, FESA strongly recommends that ember protection features be incorporated in design where practicable.	4
BAL-12.5	≤12.5 kW/m²	Ember attack	3 and 5
BAL-19	>12.5 kW/m² ≤19 kW/m²	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux.	3 and 6
BAL-29	>19 kW/m² ≤29 kW/m²	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux.	3 and 7
BAL-40	>29 kW/m² ≤40 kW/m²	Increasing levels of ember attack and burning debris ignited by windborne embers together with increasing heat flux with the increased likelihood of exposure to flames.	3 and 8
BAL-FZ	>40 kW/m²	Direct exposure to flames from fire front in addition to heat flux and ember attack.	3 and 9

Page 24

BAL – 12.5 (@ 15 t/ha)



BAL – 19 (@ 15 t/ha)



BAL – 29 (@ 15 t/ha)

BAL – 40 @ 15 t/ha)

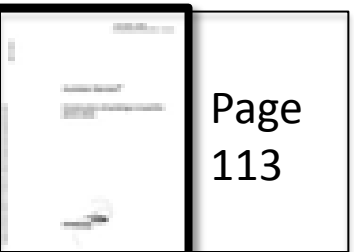
BAL – FZ (@ 15 t/ha)

AS3959 – Radiant heat

TABLE G1

TYPICAL RADIANT HEAT INTENSITIES FOR VARIOUS PHENOMENA

Phenomena	kW/m^2
Pain to humans after 10 s to 20 s	4
Pain to humans after 3 s	10
Ignition of cotton fabric after a long time (small flame required)	13
Ignition of timber after a long time 13 (small flame required)	13
Ignition of cotton fabric after a long time (non-piloted) (flame not required to ignite)	25
Ignition of timber after a long time (non-piloted) (flame not required to ignite)	25
Ignition of gaberdine fabric after a long time (non-piloted) (flame not required to ignite)	27
Ignition of black drill fabric after a long time (non-piloted) (flame not required to ignite)	38
Ignition of cotton fabric after 5 s (non-piloted) (flame not required to ignite)	42
Ignition of timber in 20 s (non-piloted) (flame not required to ignite)	45
Ignition of timber in 10 s (non-piloted) (flame not required to ignite)	55



Page 113

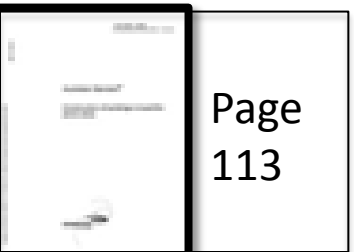
AS3959 – Radiant heat examples

TABLE G1

TYPICAL RADIANT HEAT INTENSITIES FOR VARIOUS PHENOMENA

Phenomena	kW/m^2
Pain to humans after 10 s to 20 s	4
Pain to humans after 3 s	10
Ignition of cotton fabric after a long time (small flame required)	13
Ignition of timber after a long time 13 (small flame required)	13
Ignition of cotton fabric after a long time (non-piloted) (flame not required to ignite)	25
Ignition of timber after a long time (non-piloted) (flame not required to ignite)	25
Ignition of gaberdine fabric after a long time (non-piloted) (flame not required to ignite)	27
Ignition of black drill fabric after a long time (non-piloted) (flame not required to ignite)	38
Ignition of cotton fabric after 5 s (non-piloted) (flame not required to ignite)	42
Ignition of timber in 20 s (non-piloted) (flame not required to ignite)	45
Ignition of timber in 10 s (non-piloted) (flame not required to ignite)	55

BAL-40



Page 113

INDIVIDUAL LOT FIRE MANAGEMENT PLANS: A SOLUTION TO THE PROBLEM OF VARIABILITY OF POINT HENRY LOTS (EXISTING AND FUTURE HOUSES)

KEY TERMS AND CONCEPTS

Passive fire protection

Active fire protection

Hazard

Fuel load

Risk

Lot Fire Plan

Building Protection Zone

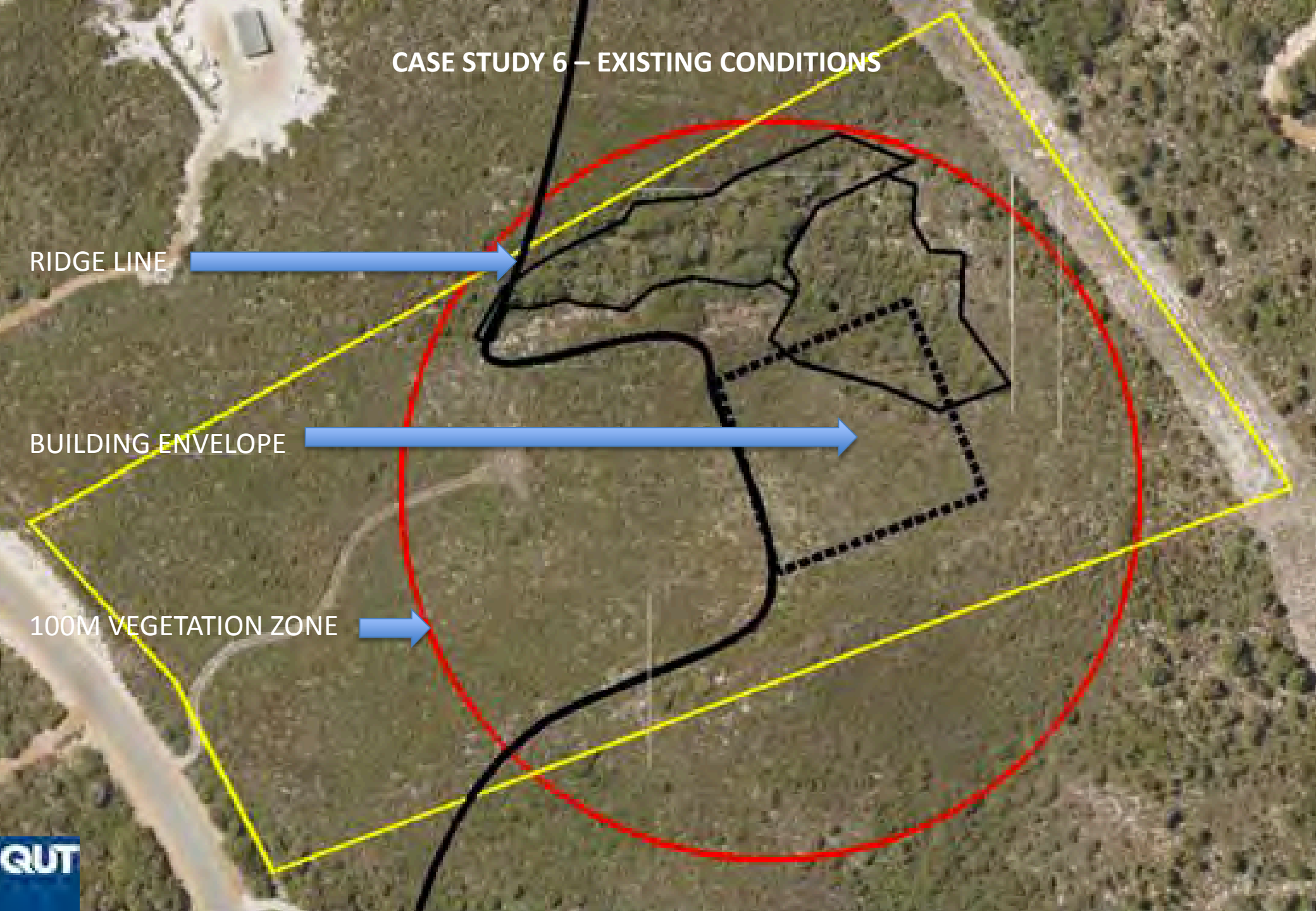
Case Study 6

Bought block immediately after 2002 fire.

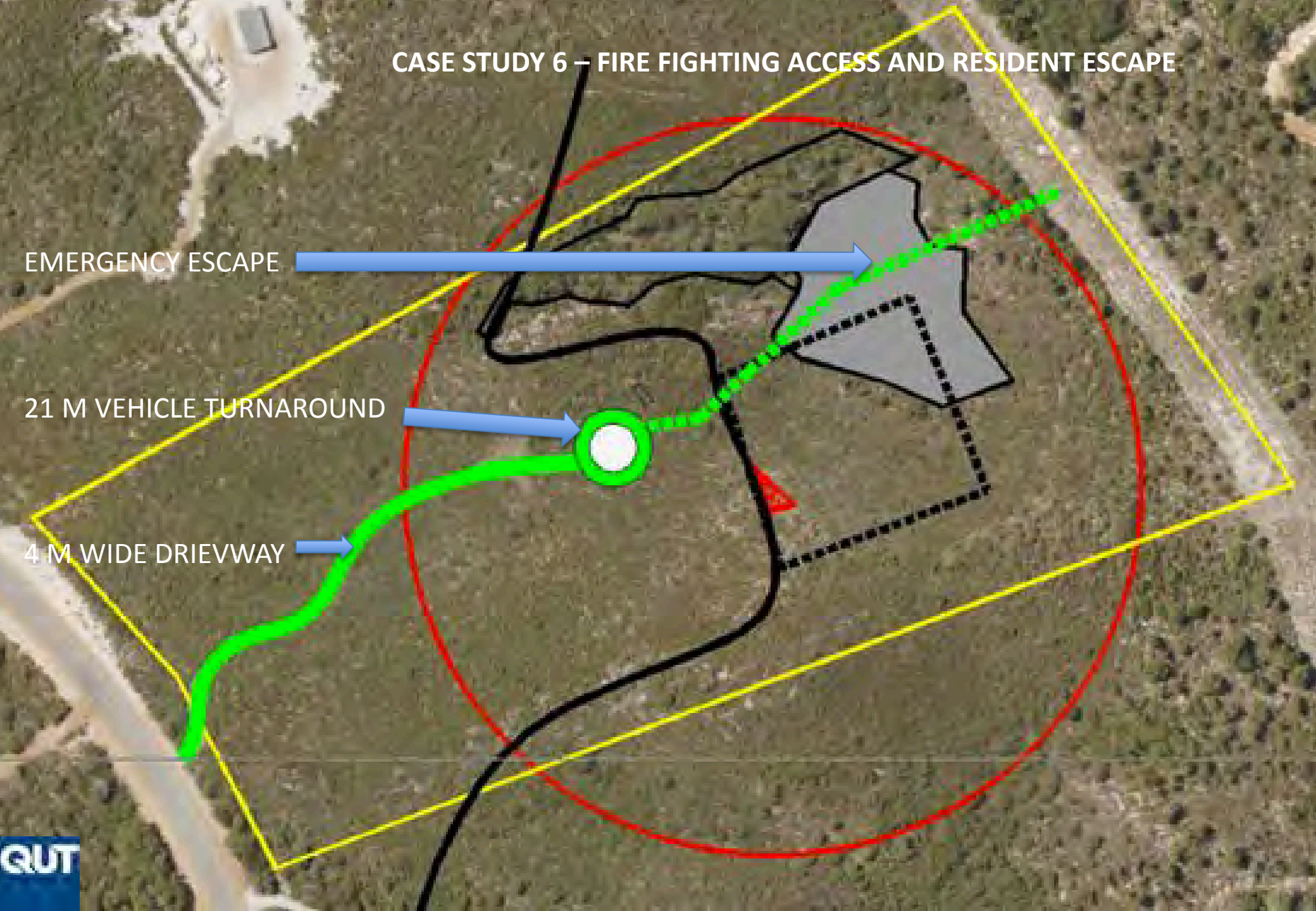
- Entire Building Envelope is 100% Threatened Ecological Community
- Elevated site is exposed to severe Easterly and SW winds
- **20m BPZ (slashing to 5cm) would generate significant wind and water erosion**

Building envelope

CASE STUDY 6 – EXISTING CONDITIONS



CASE STUDY 6 – FIRE FIGHTING ACCESS AND RESIDENT ESCAPE



WAPC CONDITIONS ASSUMES EXTREME HAZARD BYOND 20M HAZARD SEPERATION ZONE

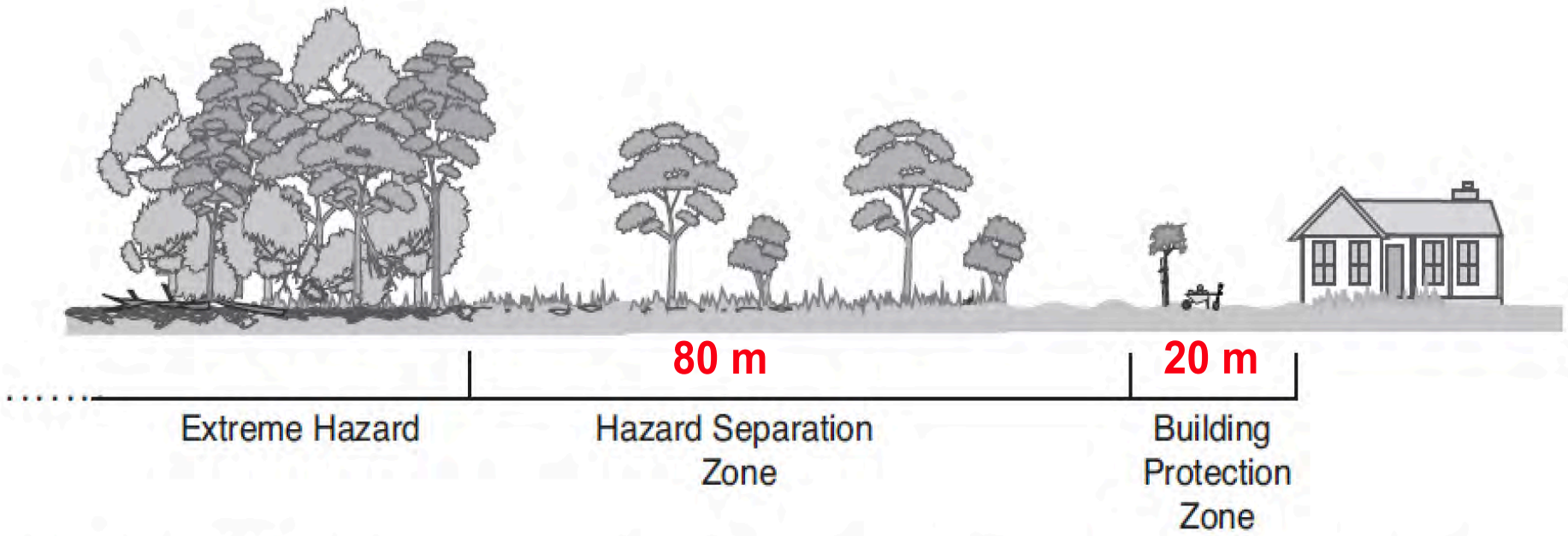
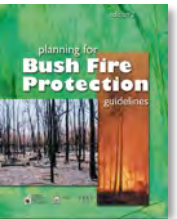


Diagram E4.1b and E4.2b Hazard separation zones within subdivisions, including the building protection zone, to consider for development. (Ref. P4, A4.1, A4.2)



WAPC PRESUMPTION OF EXTREME HAZARD

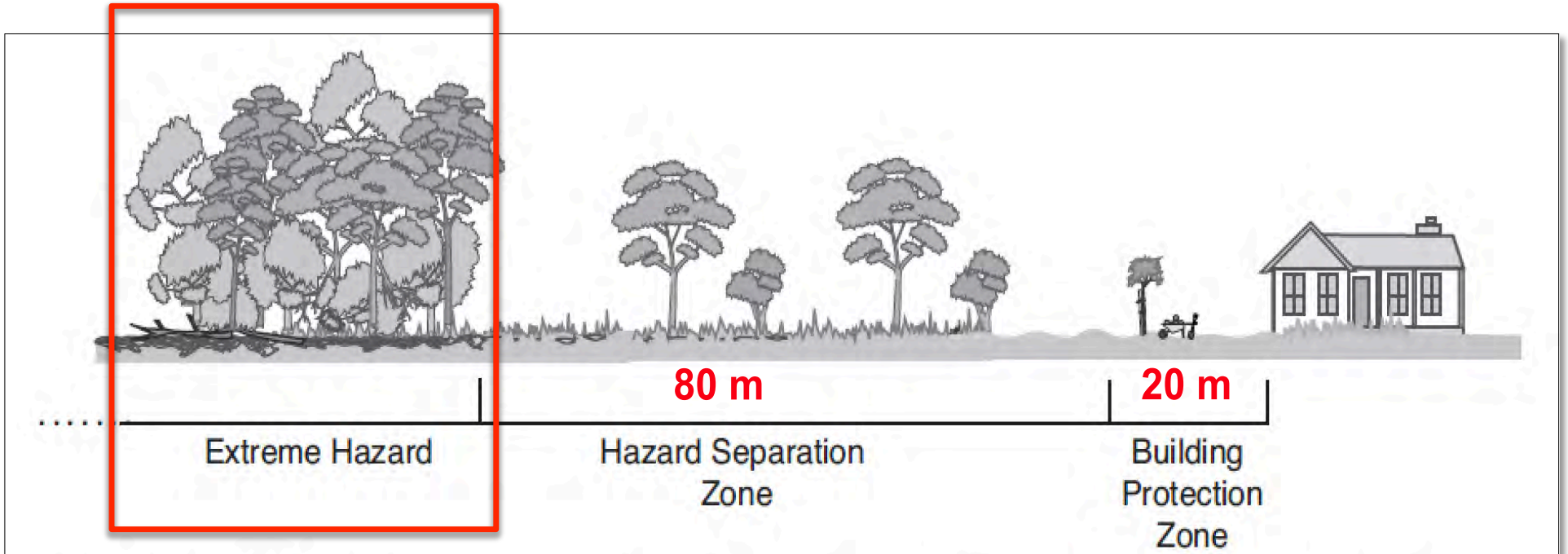
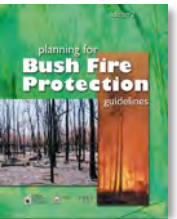
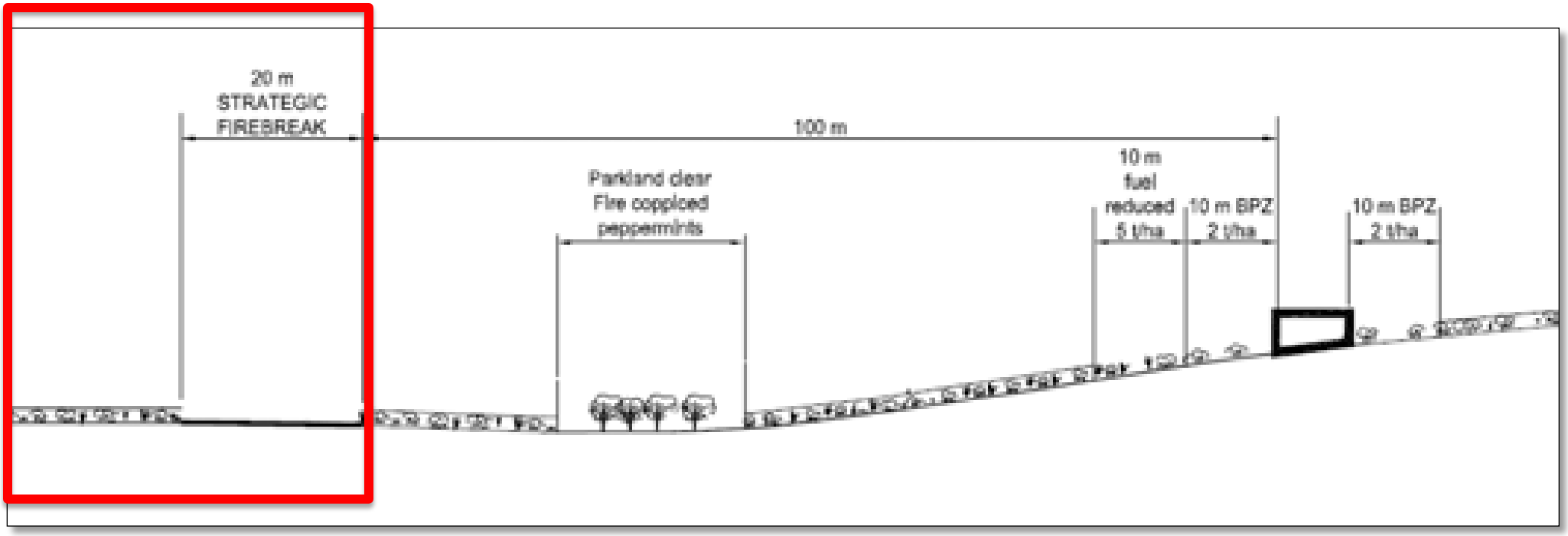


Diagram E4.1b and E4.2b Hazard separation zones within subdivisions, including the building protection zone, to consider for development. (Ref. P4, A4.1, A4.2)



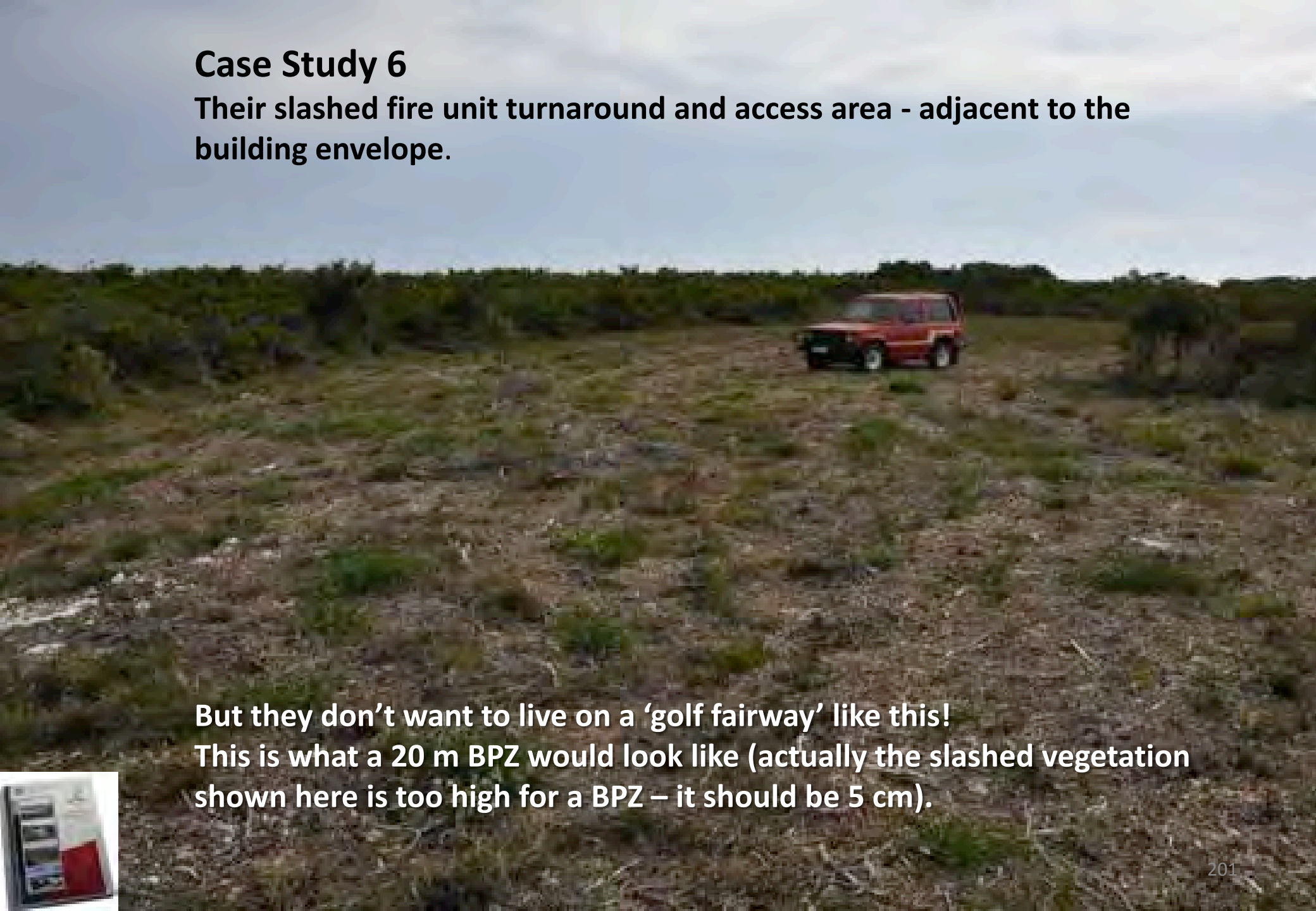
CASE STUDY SITE 6
ACTUALLY A MODERATE HAZARD BEYOND 100M FROM HOUSE SITE




PARKLAND CLEAR PEPPERMINTS
2 T/HA, 10 METRES AROUND HOUSE
5 T/HA 20 METRES AROUND HOUSE

Case Study 6

Their slashed fire unit turnaround and access area - adjacent to the building envelope.

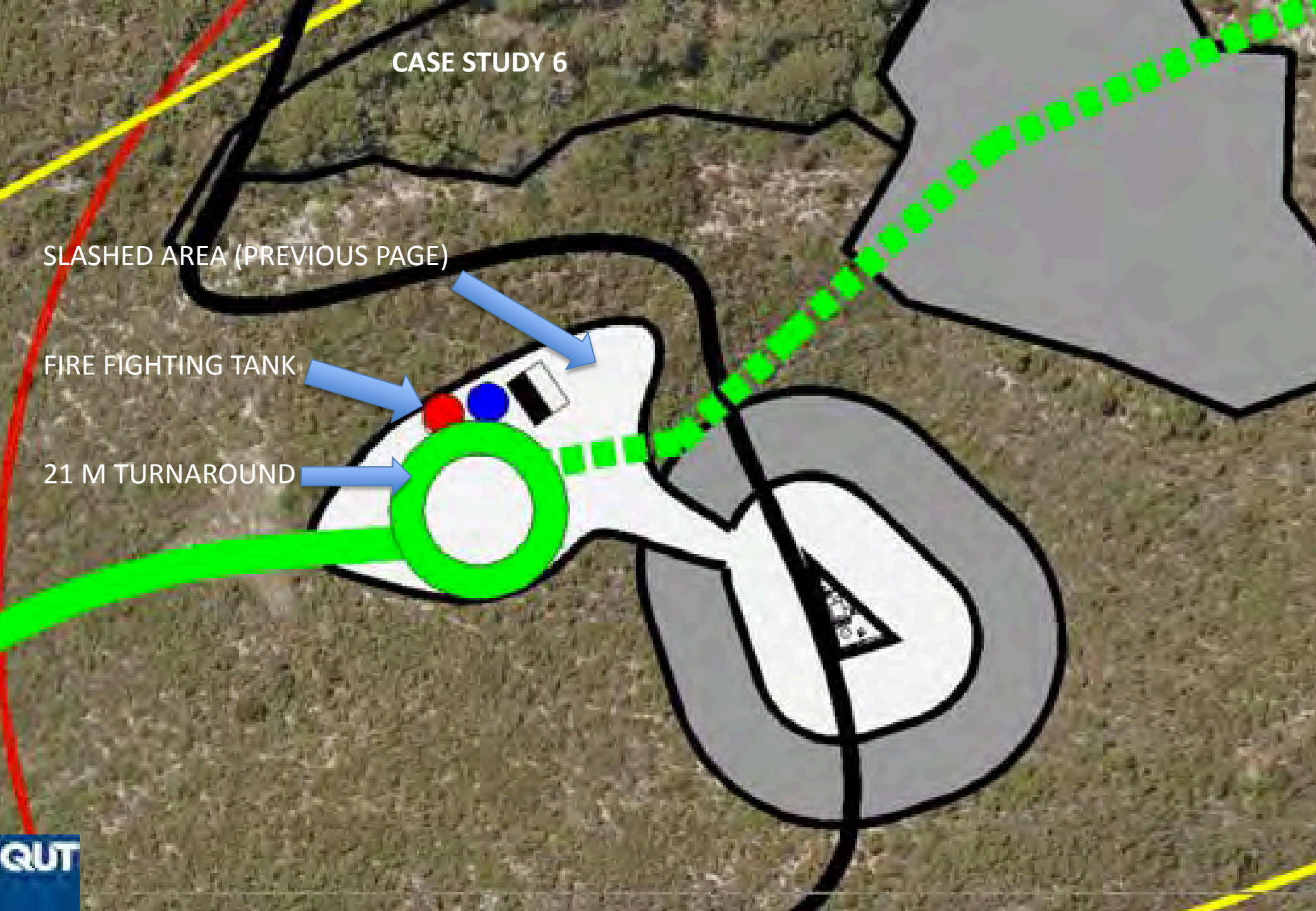


But they don't want to live on a 'golf fairway' like this!
This is what a 20 m BPZ would look like (actually the slashed vegetation shown here is too high for a BPZ – it should be 5 cm).

Case Study 6

Their slashed fire unit turnaround and access area - adjacent to the building envelope.

But they don't want to live on a 'golf fairway' like this!
This is what a 20 m BPZ would look like (actually the slashed vegetation shown here is too high for a BPZ – it should be 5 cm).

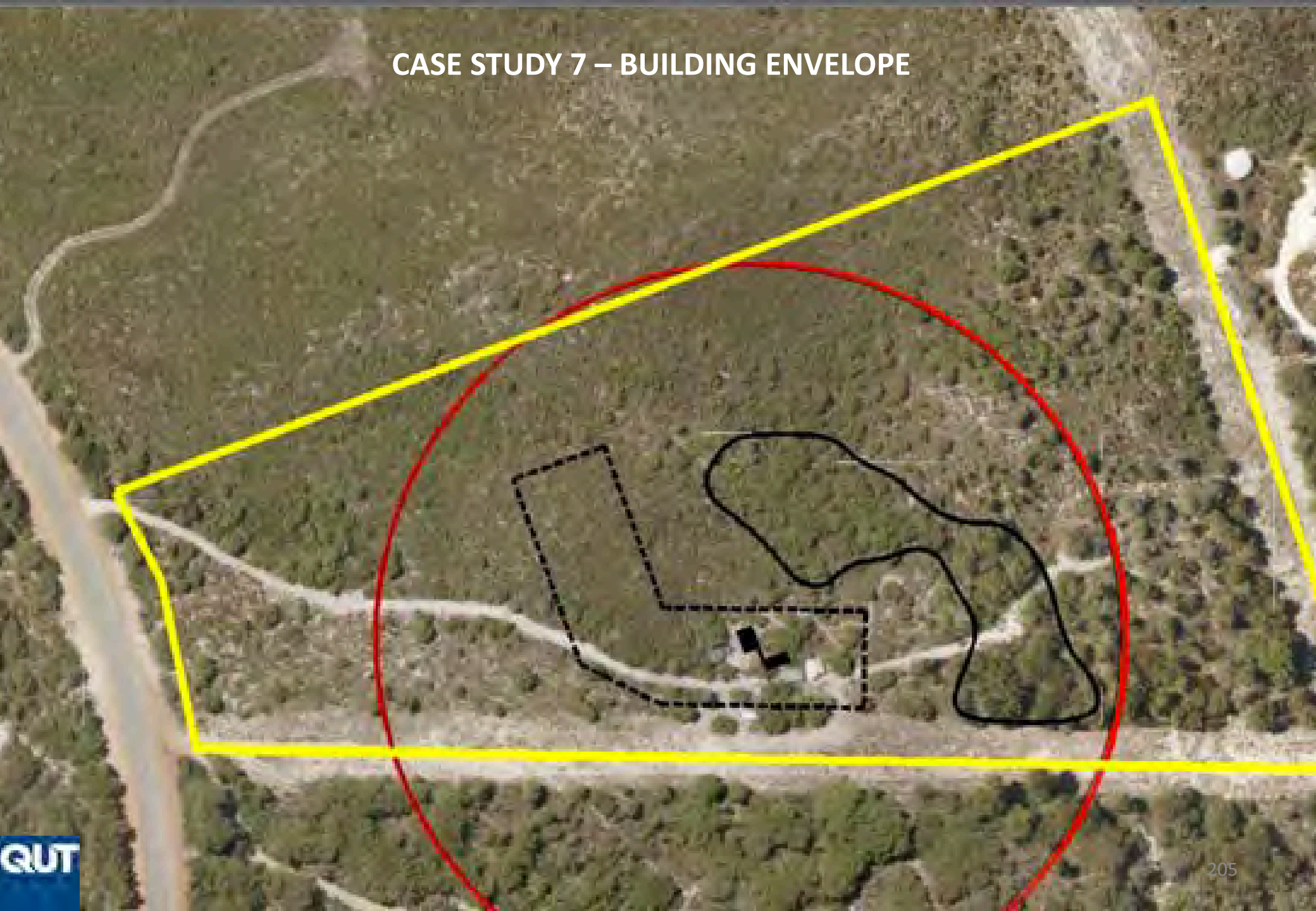

CASE STUDY 6
SLASHED AREA (PREVIOUS PAGE)
FIRE FIGHTING TANK
21 M TURNAROUND

Case Study 7 Private botanic garden

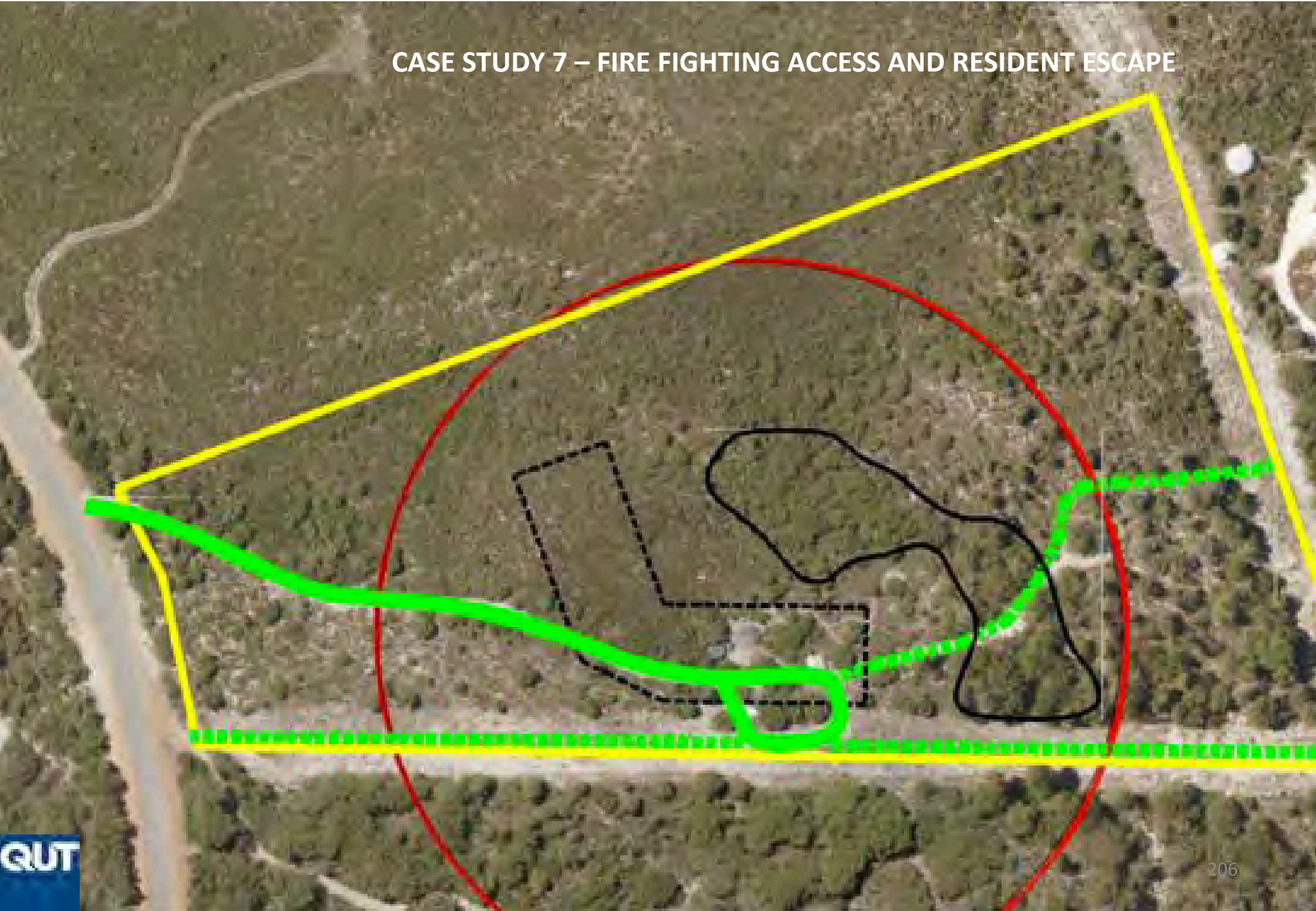
- House site is 100% Threatened Ecological
- Land value based on position of this building envelope
- 10 year program of weed control
- Three accessways onto Strategic Firebreak
- House being designed to BAL Flame Zone

Proposed 20 m BPZ applies to residences – so potentially the only way to use this site (and retain the botanic garden) will be to build a non-habitable viewing platform.

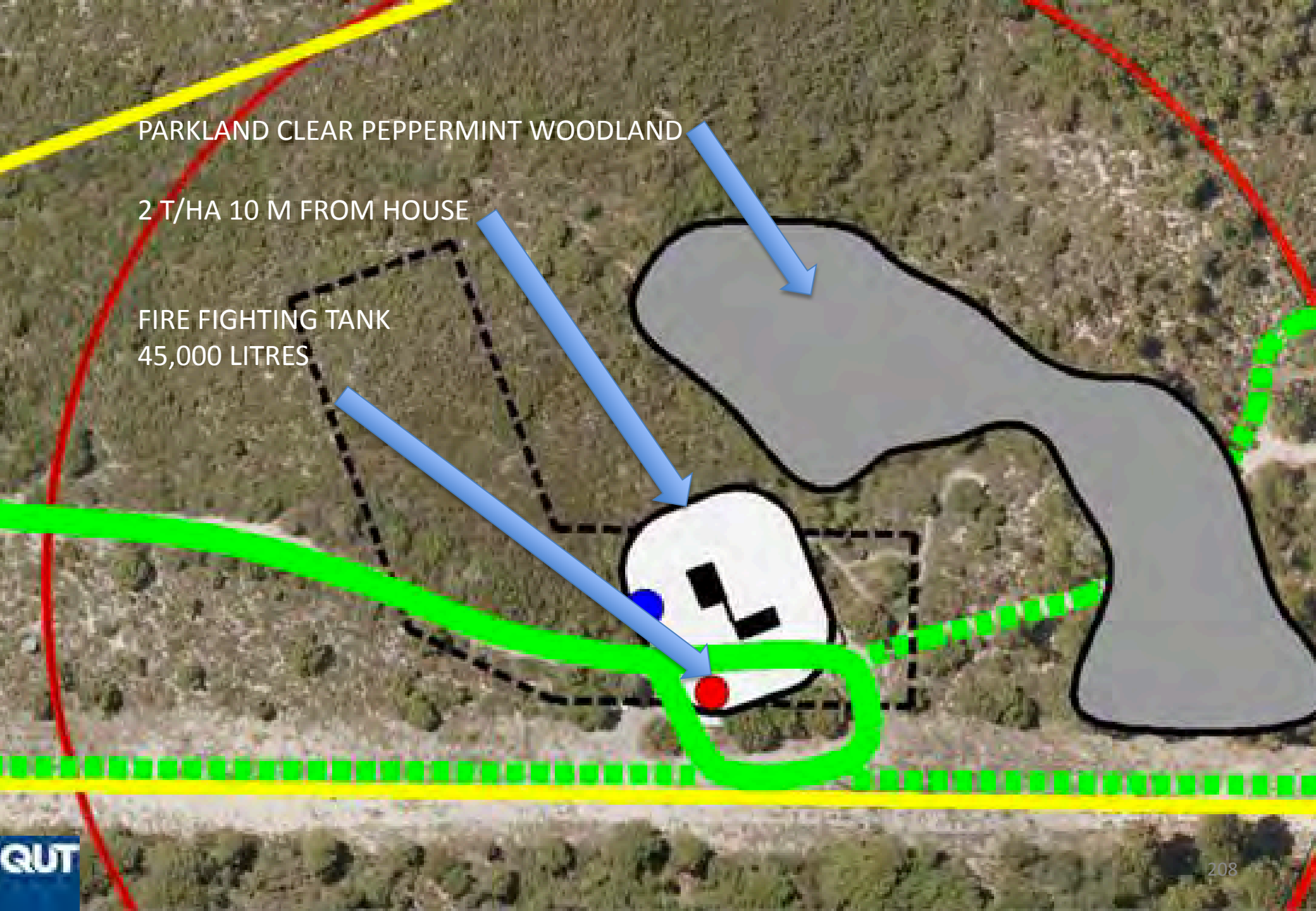
CASE STUDY 7 – BUILDING ENVELOPE

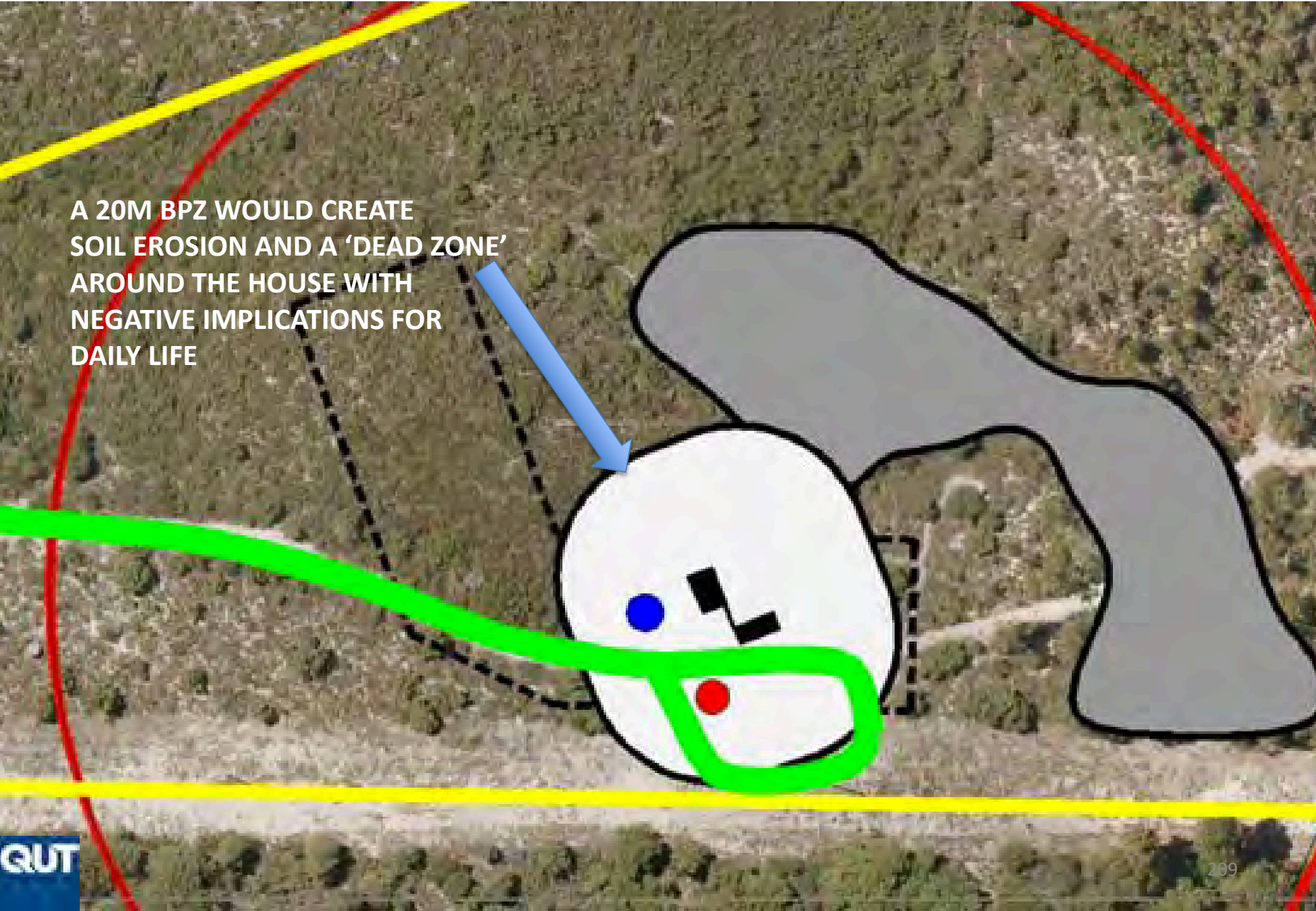


CASE STUDY 7 – FIRE FIGHTING ACCESS AND RESIDENT ESCAPE




PARKLAND CLEAR PEPPERMINT WOODLAND
ON DOWNSLOPE FROM HOUSE
21 M TURNAROUND
ACCESS AND EXCAPE
ALONG STRATEGIC FIREBREAK


PARKLAND CLEAR PEPPERMINT WOODLAND
2 T/HA 10 M FROM HOUSE
FIRE FIGHTING TANK
45,000 LITRES


A 20M BPZ WOULD CREATE SOIL EROSION AND A 'DEAD ZONE' AROUND THE HOUSE WITH NEGATIVE IMPLICATIONS FOR DAILY LIFE

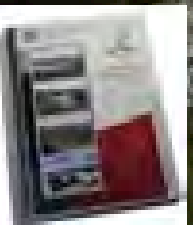
Case Study 7: Wind eroded heath landscape adjacent house site

This erosion is being caused by the act of slashing – not vehicle movement.

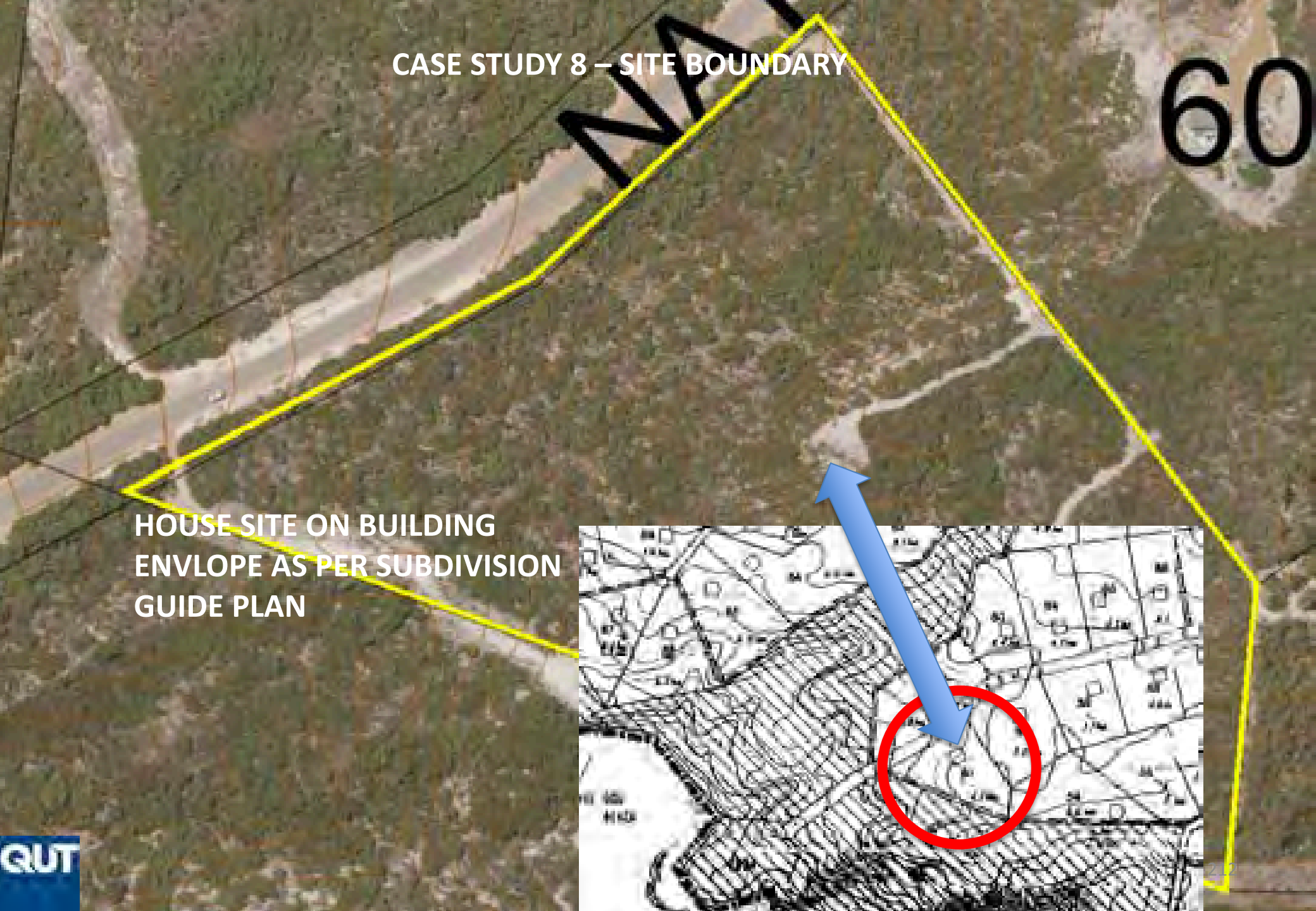
POINT HENRY CASE STUDY 8:

Bought block before 2002 fire.

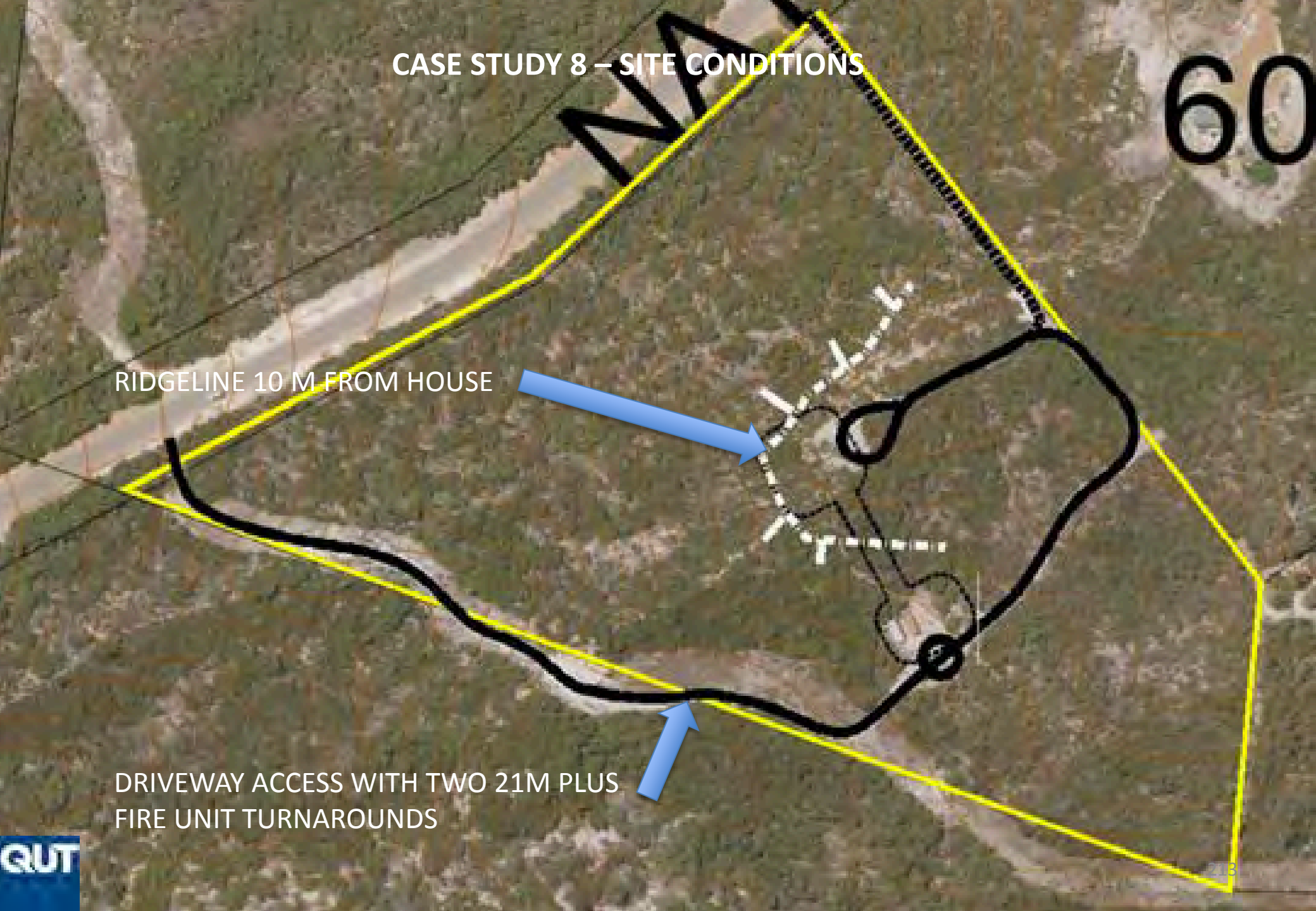
- IWA Designing house for bushfire for last two years - BAL40 – BALFZ
- Site highly susceptible to wind and water erosion.
- BPZ 20m not achievable – topography too steep/too much erosion
- Only visual privacy comes from heath and mallee.
- No other site to build house on.
- Value of land based on pre-constructed building envelope/site
- **Not practical to apply 20 m BPZ**



CASE STUDY 8 – SITE BOUNDARY



CASE STUDY 8 – SITE CONDITIONS




A 20M BPZ WOULD BE OVER THE RIDGELINE AND THE ASSOCIATED SLASHING WOULD HAVE SIGNIFICANT MANAGEMENT PROBLEMS
N
W
TOP
S

Wind eroded landform – Blossoms Beach

This is what happens in the mallee-dominated shrublands
On the exposed limestone soils of the south-western part of Point Henry

This is particularly a problem after fire.
The last thing we should be doing is clearing the stabilizing vegetation from these sites.

CASE STUDY SITE 8 – WIND EROSION

Wind erosion from disturbed site (shed site)

And this is what we will need to do to stabilise heathland sites

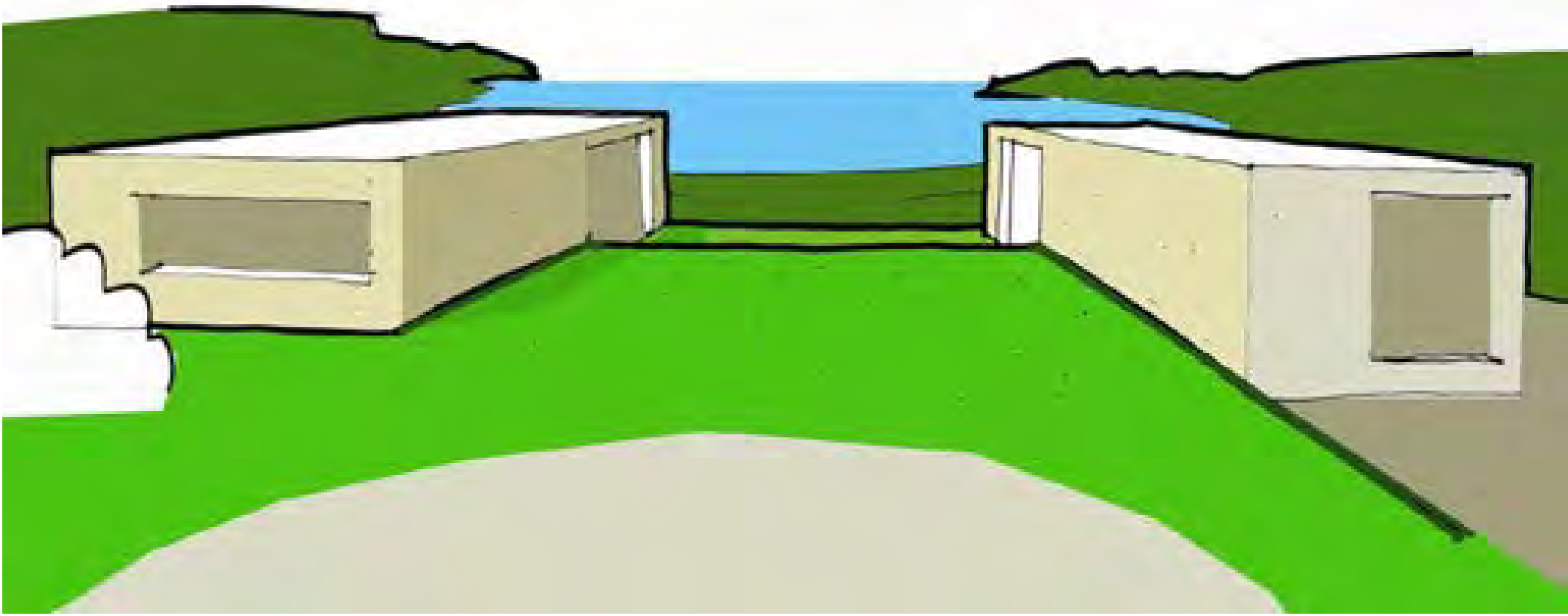
House on Blackrocks Road, Point Henry


A 10M BPZ WITH A HOUSES DESIGNED TO
AS3959 WOULD AVOID THESE PROBLEMS


RATHER THAN CLEARING THE RIDGELINE - PARKALND CLEARING AND SLASHING ON THE FLAT SLOPES WOULD BE MORE EFFECTIVE
N
W
S
TOP

CASE STUDY 8

HOUSE DESIGNED TO AS3959 (BAL 40)
PROTECTS THE ENVIRONMENT AND PROVIDES PROTECTION FOR HUMAN LIFE - BOTH RESIDENTS AND FIRE FIGHTERS



CASE STUDY 8

HOUSE DESIGNED TO AS3959 (BAL 40)
PROTECTS THE ENVIRONMENT AND PROVIDES PROTECTION FOR HUMAN LIFE - BOTH RESIDENTS AND FIRE FIGHTERS

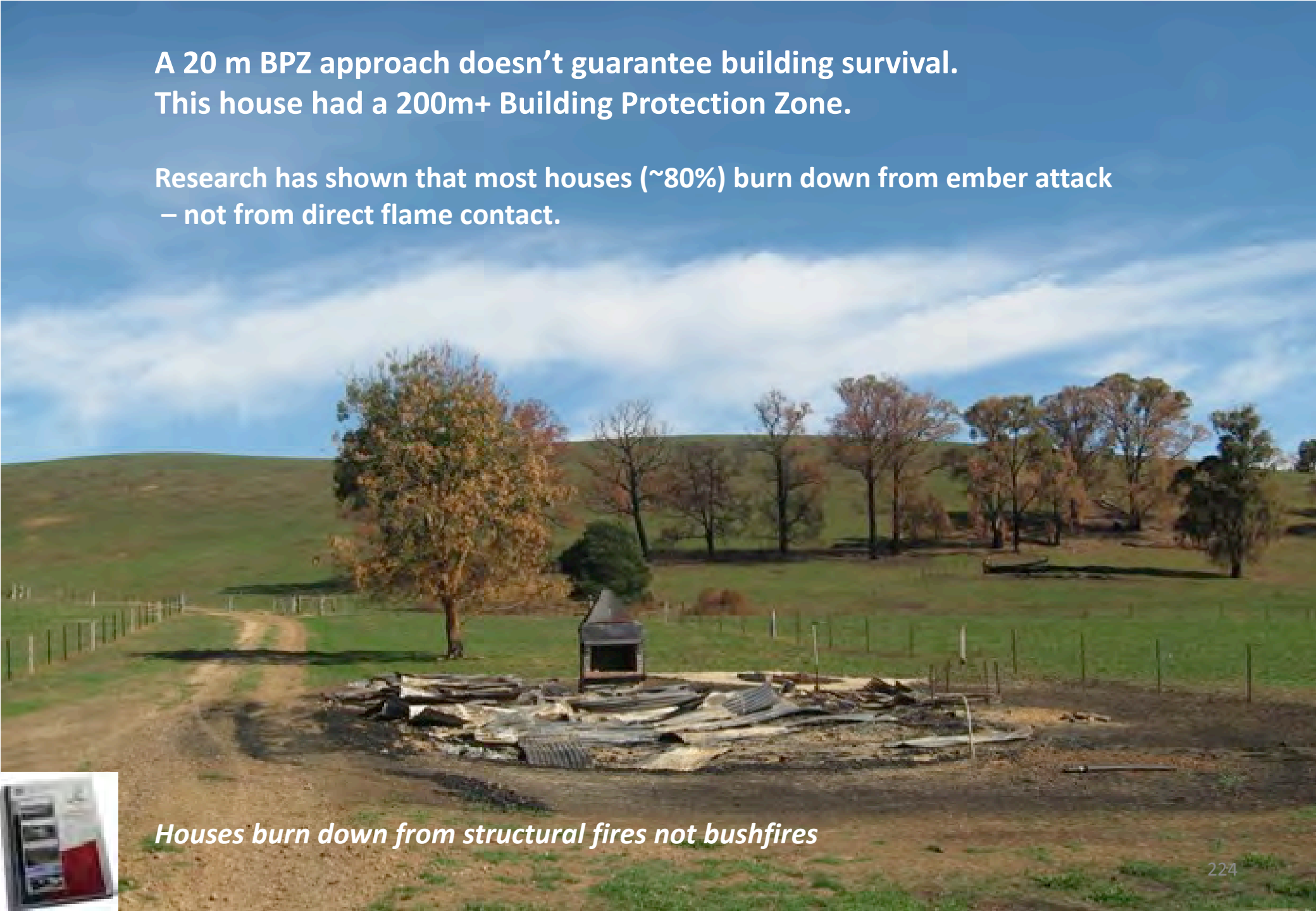
CASE STUDY 8

HOUSE DESIGNED TO AS3959 (BAL 40)
PROTECTS THE ENVIRONMENT AND PROVIDES PROTECTION FOR HUMAN LIFE - BOTH RESIDENTS AND FIRE FIGHTERS
NOTE – THE HOUSE WILL PROTECT ITSELF.

WHAT IS THE REAL PURPOSE OF THE 20 m BPZ?

A 20 m BPZ approach doesn't guarantee building survival.
This house had a 200m+ Building Protection Zone.

Research has shown that most houses (~80%) burn down from ember attack – not from direct flame contact.



Houses burn down from structural fires not bushfires


This house in Murrindindi – burnt these trees – not the other way around.
Source: Tweir

SO WHAT IS THE REAL PURPOSE
OF THE 20 m BPZ?
(This remains unclear and is not explained in the TME/SoJ Strategy)

TME/SoJ Draft Bushfire Strategy **Issues you should know**

So why doesn't the Draft Bushfire Strategy use the WAPC Planning for Bushfire Protection Guidelines?
Why does it mandate a 20m BPZ via the Bushfire's Act (new and existing houses) and not allow flexibility under performance-based approach – as recommended by the WAPC?

1. WAPC conditions can only be implemented on future development
2. Too hard to administer for local governments - they need to just send rangers out not fire risk/hazard assessors.
3. There is no template/checklist kit for individual fire plan
4. There aren't enough trained assessors for land owners to hire.
5. Too hard to map and signal the variations
6. Volunteer Fire fighters want 20 m BPZ anyway so they can drive vehicles around houses and take shelter in/around house if they are trapped
7. Big fires require fire crews from outside Bremer Bay and they wont know the individual features of a lot therefore they need uniformity.
8. BAL40 and FZ are 'prohibited' – 'presumption against, or to expensive
9. Need a 'defendable space' between house and hazard.

20m BPZ mandate - V – WAPC performance

1. WAPC Conditions can only be implemented in future development (houses and subdivisions).

- Intent of WAPC conditions should be broadcast to existing homeowners through Bushfire Ready Seminars

20m BPZ mandate - V – WAPC performance

2. Too hard and costly for local governments to administer performance-based solutions - they need to just send rangers out not fire risk/hazard assessors and therefore local government needs **uniformity**.

- **Point Henry is not uniform!**
- There is a critical mass of properties (existing and new) that will require Fire Break Variations anyway.
- Can provide uniformity with Access and Turnarounds but not 20 m BPZ.
- Cost can be borne by landowner with independent certifier
- LOT FIRE MANAGEMENT PLAN could be verified by CESM.

20m BPZ mandate - V – WAPC performance

3. There is no template/checklist kit for individual fire plan

- **Well lets create Lot Fire Management Plan Template in 2014**
- We need to present one for planning approvals now anyway.
- Is a good way for homeowners to understand their risk and mitigation methods.
- Should be devised in consultation with Shire's CESM (Community Emergency Services Manager).

20m BPZ mandate - V – WAPC performance

4. There aren't enough trained assessors for land owners to hire.

- Presently the WAPC doesn't need an accredited assessor to do Bushfire Attack Level Assessments.
- Most states have a self assessment (BAL) checksheet
- Bushfire Ready group could host seminars on BAL assessment and Lot Fire Plan drafting.
- FPA Accredited assessors could be paid by landowners.

20m BPZ mandate - V – WAPC performance

5. Too hard to map and signal the variations

- Need to devise database for assetts and liabilties anyway (eg Bushfire Ready group)
- Could be coordinated by local brigade as part of their Poinr Henry fire preparedness
- Digital database (eg ipad) in five years

20m BPZ mandate - V – WAPC performance

6. Volunteer Fire fighters want 20 m BPZ anyway so they can drive vehicles around houses and take shelter in/around house if they are trapped

- You simply cant drive around houses – (plastic effluent systems, retaining walls, domestic infrastructure)
- The 21m turnaround provides this anyway because it is a substantial area (if it is slashed within), and is associated with water.
- Bremer Brigade Volunteers don't have training/equip for structural fires
- Can't be guaranteed as a uniform provision throughout Point Henry because it cant be retrofitted to e t

The house at right (Blackrocks Rd) cannot be driven around due to the retaining Walls, and water tanks - common features of properties on Point Henry.

20m BPZ mandate - V – WAPC performance

7. Big fires require fire crews from outside Bremer Bay and they wont know the individual features of a lot therefore they need uniformity.

- Fire response in the first two hours is critical. Simply can't wait for two hours – is too late.
- When regional crews arrive they will need to be briefed on the territory anyway.
- There is so much Site-specific variation in place – eg strategic fire breaks – **if this was the case the whole peninsular would need to be uniform-ised!**

20m BPZ mandate - V – WAPC performance

8. BAL40 and FZ are 'prohibited' – 'presumption against'.

- They are simply not prohibited!
- There is not a 'presumption against'
- In fact WAPC Conditions state (**Principle 3)**

*"Subdivision and development in areas with an **extreme bush fire hazard level** or a bush fire attack level between **BAL-40 and BAL-FZ**, is to be avoided unless certain fire protection requirements can be implemented to the satisfaction of the WAPC, FESA and/or the local government."*

***Many developable sites on Point Henry are 'extreme bushfire hazard level'.**

20m BPZ mandate - V – WAPC performance

8. BAL40 and FZ are too expensive anyway

- Surely this is a home owners choice to spend money on a practical passive solution rather than a high mainatence clearing regime that will reduce the amenity and value of their property.
- Through the BCA houses have to satisfy energy efficiency requirements anyway.
- BAL-40 is not significant additional cost when features are cross-purposed with insect, sun and wind control,

20m BPZ mandate - V – WAPC performance

9. Need a ‘defendable space’ between house and hazard

The intent of the bushfire standard AS3959:2009, is that it provides the ability for houses to defend themselves from bushfire attack. Passive protection measures such as window shutters, masonry construction – (eg rammed earth) would not require fire fighters to place themselves between dwellings and a burning landscape. The first principle should be to provide a safe passage from house to evacuation route.

The house at right (Short Beach) with its 10m BPZ in coastal heath, Fire shutters, rammed earth walls, and escape from courtyard to a 21m turnaround does not require fire fighters to defend its perimetre.

Building protection Zones
The problems in their implementation

1. Alike other local governments that have adopted a mandatory 20 m BPZ (see list Page 68 of the strategy), Point Henry is the only one in an internationally significant Biosphere Reserve.

2. It is not in alignment with the Bremer Bay Community's own Strategic Plan:

- Aspiration 1: 'a growing community that embraces well designed and sustainable development'
- Aspiration2: 'an environmentally astute community where human needs are met while conserving our natural environment'.

3. Clearing bush around houses by shire contractors is likely to bring in Dieback *Phytophera cinamonii.*

4. Clearing bush around houses by shire contractors is likely to create Tea Tree and other weed infestations.

5. For many residents, the endemic vegetation on their lot is as much their property as are the structures erected upon it.

Mandated building protection Zones
The problems in their implementation

Local Governments that have adopted 20m BPZ via the Fire Break Notice (eg City of Busselton), are not actually enforcing them dogmatically anyway.
Instead they allow flexibility – this is not a practical solution. Due to the inconsistency of interpretation and subjectively it does not offer certainty to home owners and future developers.

It is frustrating that the problems of administering 20m BPZ do not seem to be being reported 'upwards' to the state government and DFES.

LOT FIRE MMANEGMENT PLAN: COMPONENTS

	PASSIVE (PERMINANT)	PASSIVE/ACTIVE (ANNUAL MAINTANENCE)	ACTIVE
BEFORE	**BUILDING DESIGN** BUSHFIRE STANDARD	SHUTTERS IF FITTED	PREPARATION ON HIGH + FIRE DANGER DAYS
	VEHICLE ACCESS AND TURNAROUNDS	BPZ / PARKLAND CLEARING	**RECEIVE WARNINGS**
	TANKS, PUMPS, RETICULATION, SPRINKLER	WATER STORAGE	ACTIVATE 'TELEPHONE TREE'
			ACTIVATE SPRINKLERS THERMO GEL
			RELOCATION
DURING			ESCAPE TO SAFER PLACE OR STAY AND DEFEND?
			WATER MAY BE TAKEN BY FIRE FIGHTERS
AFTER/RECOVERY	BUILDING REPAIR	THIN COPPICED PEPPERMINT TREES ASAP	
	ACCESS REPAIR	MANAGE WATER EROSION AND WEED INFESTATION	
	WATER INFRASTRUCTURE OPERABILITY	WATER STORAGE	

QUT

QUT SUBDIVISION FIRE PLAN: COMPONENTS

	PASSIVE (PERMINANT)	PASSIVE/ACTIVE (ANNUAL MAINTANENCE)	ACTIVE
BEFORE	POINT HENRY COMMAND CENTRE	STRATEGIC FIRE BREAKS	MONITOR WEATHER FIRE HAZARD WARNING SIGNS
	ROAD MARKING (CENTRELINES)	WATER STORAGE	**SEND WARNINGS**
	COMMUNITY TANKS AND STANDPIPES	ROAD RESERVE (TEE TREE CONTROL – PARKLAND CLEAR)	ACTIVATE TELEPHONE TREE
	RURAL LOT NUMBERS/ VARIATION SIGNS	LOT INSPECTIONS FIRE BREAK NOTICES	
	PYLON SIRENS	TEST SIRENS	ACTIVATE SIRENS
	BLOSSOMS BEACH SAFER PLACE	PREPARE SAFER PLACE FOR FIRE AND TOURIST SEASON	
DURING			**WATER MAY BE TAKEN BY FIRE FIGHTERS**
			ACTIVATE SUPPLEMINTARY STRATEGIC BREAKS
AFTER/RECOVERY	RESTORE SIRENS	THIN COPPICED PEPPERMINT TREES ON RESERVES	
	RESTORE VEHICLE ACCES	WATER STORAGE	

QUT Point Henry Bushfire Safety – 10 Year Plan

Timeline: building capability = reducing risk

Action	Bushfire Ready Group	Landowners	Shire of Jerramungup	Volunteers/DEFS
STEP 1 Year 1	1. Telephone Tree 2. Prototype Siren Pylons 3. Join Volunteer Fire Brigade 4. Co-coordinate asset register 5. Vegetation Assessment 6. Participate in Desktop simulation with DFES 7. Visit members properties and assess liabilities.	1. Driveway and Turnarounds at established homes. 2. Individual lot fire plans 3. Participate in asset register.	1. Risk Assessment 2. Clarify Fire Response 'Policy' 3. Clarify Fire Levy expenses. 4. Audit Rural Lot Numbers 5. Upgrade road to Blossom's Beach 6. Seek funding for Blossom Beach safer place. 7. Produce BAL self-assessment guidelines for homeowner. 8. Manage road reserves, as strategic breaks + centre-line down Pt Henry Rd.	1. Visit properties 2. Asset Register 3. Manage fire hazard warning signs. 4. Reassess strategic fire breaks for accessibility. 6. Participate in Desktop simulation with DFES and Pt Henry residents
STEP 2 Years 2-5	1. UHF/VHF radio's for key permanent members. 2. Expand Siren Pylon network. 3. Visit members properties 4. Lobby for Point Henry Volunteer Fire Brigade.	1. Conduct Bushfire Attack Level (BAL) Assessments 2. Produce Individual Lot Fire Plans 3. Retrofit houses to AS 3959:2009 where necessary. 4. Pay (additional?) fire levy for tanks and siren installation.	1. Install rural lot numbers. 2. Add water tanks on Pt. Henry 3. Upgrade Blossom's to safer place. 4. Fire unit (fast attack) on Point Henry. 5. Install one 50 kl tank/25 lots as per WAPC-DFES Guidelines.	1. Upate Data base of assets. 2. Continue familiarization exercise. 3. Lobby for Point Henry Fire Brigade and Command Centre
STEP 3 Years 5-10				1. Point Henry Volunteer Fire Brigade

Individual fire management plans **WHY NOT THIS?**	A fire management plan could be prepared for a single property especially if there is need to vary any standard provision due to the special circumstances.	This would allow for a more detailed consideration of the characteristics and features of the lot and could include various management zones.
Restrict non residential development.	Vulnerable land uses which have large numbers of customers may be greater risk.	This may have implications for the tourist industry.
Use of Fire Break Notice	Any changes apply retrospectively to all properties and existing dwellings.	Compliance with the fire break notice is clearly understood by land owners. Variations can also be sought by a landowner to a specific provision.
Use of Planning Scheme and permit conditions	Any changes to the Scheme only apply to new buildings / planning approvals.	While it is an offence under the Planning and Development Act to contravene the provisions of the Scheme and or the conditions of a planning approval, there is a less rigorous level of inspections than compared to the fire break notice.

UNESCO Fitzgerald Biosphere Region – farms, towns, national parks, private land.
Point Henry is the third most populace area in the Shire of Jerramungup.


This?
QUT


Or world’s best practice?

PUBLIC COMMENT ON TME/SOJ DRAFT BUSHFIRE STRATEGY

QUT SUGGESTION: The following is what landowners should request of the Shire of Jerramungup – in writing by the 18th April 2014.

1. **A 10 year plan for bushfire safety (rather than a 1 year roll out of a 20m BPZ mandate like the TME/SoJ Strategy)** This should include:
   a. An objective hazard assessment of Point Henry
   b. An objective risk assessment for Point Henry
   c. Clarification on the Fire Fighting Policy on Point Henry – for before, during and after bushfire events.
   d. An asset register of fire fighting assets
   e. A liabilities register

2. **Early warning:** improvement on the 30min lag-time presently in place – and consideration for support for solar powered pilons sirens.

1. **Most importantly - An Individual Lot Fire Management Plan** approach to Landowner bushfire risk mitigation (existing and proposed dwellings). As opposed to a generic/uniform 20m BPZ mandate.
   a. Provide a template for landowners and a fast track for approvals.
   b. Allow landowners to use their own assessors at their cost if they chose this option.
   This will provide certainty to landowners, thus encouraging development.

Please send comments on this presentation back to Dr Ian Weir on ian.weir@qut.edu.au or 0411 155 151.

Please email your feedback on the TME/Shire of Jerramungup Strategy by 18th April 2014 – to Craig Pursey via email to: planning@jerramungup.wa.gov.au