



Service Standard 3.1.15

Bush Fire Building Impact Analysis

Date of Issue 13 June 2012

Version Number 1.0

1. Purpose

- 1.1 This Service Standard outlines the NSW Rural Fire Service (NSW RFS) process and procedures for undertaking a bush fire building impact analysis (BIA).
- 1.2 A BIA aims to collect and analyse data when a habitable structure has been destroyed or damaged due to a bush fire event. This enables the NSW RFS to examine and refine existing bush fire risk management treatments.
- 1.3 A BIA will provide a timely and accurate report on losses to the Incident Controller, State Operations and others.
- 1.4 The data collected in this process may be shared with external agencies and/or research bodies to facilitate ongoing reform of policies, regulations and education initiatives.

2. Policy

- 2.1 The NSW RFS may conduct a BIA when a habitable structure has been damaged or destroyed due to a bush fire event. A BIA may also be conducted when structures have been threatened by a bush fire and there has been no fire authority present.
- 2.2 The structures to be surveyed include buildings of classes 1, 2, 3, 4 and 9 of the Building Code of Australia.
- 2.3 For the purposes of this survey a building is considered habitable if it has a roof, floors, walls, windows and doors, and is currently occupied or could be lived in.
- 2.4 Generally, a BIA will not be undertaken for isolated losses of structures such as sheds (unless they are habitable) and caravans, but may be undertaken for industrial/commercial and community structures at the discretion of the Director, Operational Services.
- 2.5 A BIA can only commence once the site has been declared accessible by the NSW Police Force or the Authorised Fire Investigator (AFI).

- 2.6 BIA teams will not be deployed to areas until the relevant Incident Controller has declared the area safe to undertake the survey.
- 2.7 The NSW RFS will plan, conduct and report on BIA surveys in accordance with the Standard Operating Procedures (SOPs) that form part of this Service Standard.

3. Links

- Service Standard 5.1.5 Protective Clothing and Accessories
- Service Standard 1.1.28 Injury/Accident Reporting and Investigation
- Service Standard 1.1.6 Media Relations
- Service Standard 1.1.7 NSW RFS Code of Conduct and Ethics
- Service Standard 1.1.41 Photographic Identification Cards for NSW RFS Volunteer Members
- Service Standard 7.1.2 Critical Incident Support Services (CISS)
- Operational Protocol for the Management of Asbestos Incidents
- Planning for Bush Fire Protection
- AS 3959 Construction in Bush Fire Prone Areas
- Building Code of Australia

4. Who is responsible for implementing the Service Standard/Policy?

Director Operational Services

5. Amendments

Initial release

13 June 2012



SOP 3.1.15 - 1

BIA Participant List

This SOP forms part of	Service Standard 3.1.15 Bush Fire Building Impact Analysis
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Related form(s)	▪ BIA Survey Team Questionnaire
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1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the criteria for NSW RFS members to meet BIA Team suitability and subsequent inclusion on the BIA Staff Suitability Register.

2. Procedures

- 2.1 The Manager Community Planning (MCP) is responsible for compiling and maintaining the BIA Participant Suitability Register. This function may be delegated by the MCP to other staff as required.
- 2.2 Applicants are required to complete an Expression of Interest for participation during major fires or incidents in the State Operations Centre and include a preference for the BIA team.
- 2.3 Interested applicants will then be asked to complete the BIA Survey Team Questionnaire.
- 2.4 Data from the questionnaires is held in the BIA Participant Suitability Register for use by MCP when required.



SOP 3.1.15 - 2

BIA Equipment

This SOP forms part of Service standard 3.1.15 Bush Fire Building Impact Analysis

Related Form(s) ▪ BIA Equipment register

1. Purpose

1.1 This Standard Operating Procedure (SOP) details the responsibilities, process and procedures for the issue and return of BIA equipment.

2. Procedures

- 2.1 The Manager Community Planning (MCP) is responsible for compiling and maintaining the BIA Equipment Register.
- 2.2 The BIA Equipment Register details:
- (a) all equipment used for surveys;
 - (b) assigned officer;
 - (c) date assigned;
 - (d) date returned; and
 - (e) maintenance comments.
- 2.3 MCP will ensure that BIA team members are trained in the use and care of BIA equipment.
- 2.4 The officer issuing the equipment must complete the relevant sections of the register before the equipment is issued. It is the responsibility of the officer issuing the equipment to ensure that the equipment is properly assigned, in good working condition and complete.
- 2.5 It is the responsibility of the BIA team members using the BIA equipment to understand the correct use and maintenance of any equipment. BIA team members should notify the BIA Coordinator if any training is required prior to use.
- 2.6 BIA team members must notify the BIA Coordinator of any damage or maintenance required on return of the equipment.
- 2.7 In the event that any equipment is lost or stolen, BIA team members must report this immediately to the BIA Coordinator.
- 2.8 Any request for additional equipment is to be sent through to the BIA Coordinator.

- 2.9** The BIA Coordinator should ensure that all data collected during the surveys is appropriately stored and removed from the survey equipment. Returned equipment should be ready to be used again with all batteries recharged. The BIA Equipment Register should be completed when the equipment has been returned.



SOP 3.1.15 - 3

BIA Personal Protective Equipment

This SOP forms part of Service Standard 3.1.15 Bush Fire Building Impact Analysis

Related Form(s) ▪ None

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the personal protective clothing (PPC/PPE) and accessories to be worn by BIA survey team members.
- 1.2 It must be emphasised that protective clothing and accessories should always be utilised in conjunction with safe working practices.

2. Procedures

- 2.1 BIA survey teams on the fireground must comply with SS 5.1.5 Protective Clothing and Accessories.
- 2.2 While undertaking the surveys, BIA survey teams are to wear Fire Research Tabards in order to clearly identify their role.
- 2.3 NSW RFS members are to carry their RFS photographic ID cards at all times while performing BIA tasks.
- 2.4 From time to time, additional protection may be required ie disposable coveralls.



SOP 3.1.15 - 4

External Agency BIA Liaison

This SOP forms part of Service Standard 3.1.15 Bush Fire Building Impact Analysis

Related Form(s) ▪ None

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines procedures for including external agency staff in BIA survey teams.
- 1.2 This SOP will be enacted when external agencies are invited to assist the NSW RFS or when an external agency requests to be involved in a BIA.

2. Procedures

- 2.1 When a major incident occurs, the Manager Community Planning or BIA Coordinator will contact representatives from other agencies and invite their involvement and input.
- 2.2 External agencies which have staff with the capacity to undertake BIA surveys to NSW RFS requirements will be invited to nominate suitable staff for inclusion on BIA survey teams.
- 2.3 The BIA Coordinator shall brief nominated external agency staff on the incident and inform them of Service Standard 3.1.15 Bush Fire Building Impact Analysis and relevant associated SOPs. External agency representatives will sign off on the NSW RFS process to ensure that they are aware of this Service Standard and SOPs.
- 2.4 All BIA survey data collected by external agencies must be submitted to the BIA Coordinator.
- 2.5 While every effort will be made to share information with agencies participating in data collection, the NSW RFS is required to comply with relevant legislation and ensure privacy is respected.



SOP 3.1.15 - 5

BIA Preliminary Survey

This SOP forms part of Service Standard 3.1.15 Bush Fire Building Impact Analysis

Related form(s) ▪ NSW RFS BIA Preliminary Survey form

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the procedures to be followed when undertaking a BIA preliminary survey.
- 1.2 The BIA preliminary survey is designed to capture data on the location of habitable structures damaged and their degree of damage.
- 1.3 Outcomes of the preliminary survey may identify the need for a comprehensive survey in accordance with SOP 3.1.15-6 of this Service Standard.
- 1.4 Preliminary survey details are to be returned to the Manager Community Planning and the Incident Controller as quickly as possible.

2. Procedures

- 2.1 The BIA survey team will obtain details of impacted areas from the Incident Controller or delegate, prior to attending the site.
- 2.2 Following consultation with the Incident Controller or delegate, the BIA survey team will decide if data capture is to be by aerial or ground survey.
- 2.3 If the area is within an active fireground, the BIA survey team must have approval from the Incident Controller before deployment.
- 2.4 A minimum of two team members will attend the affected area to conduct the survey.
- 2.5 The team may not require entry into premises in order to conduct a preliminary survey ie, may be conducted from the road or air.
- 2.6 For each property surveyed, the address of the property, the degree of damage as observed from the road or air, and any other relevant comments are to be recorded on the NSW RFS BIA Preliminary Survey form.
- 2.7 On completion of the preliminary survey, the BIA team is to notify the Manager Community Planning and the Incident Controller that the preliminary survey has been completed and provide the interim survey results.

- 2.8** The data collected from the survey is to be submitted to the BIA Coordinator for analysis.
- 2.9** All requests for media comment in relation to BIA surveys and teams are to be referred to the Manager Community Planning in accordance with SS 1.1.6 Media.



SOP 3.1.15 - 6

BIA Comprehensive Survey

This SOP forms part of	Service Standard 3.1.15 Bush Fire Building Impact Analysis
Attached Form(s)	<ul style="list-style-type: none">▪ Occupant Action Survey Form▪ BIA Building Survey form

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the procedures to be followed when undertaking a BIA comprehensive survey.
- 1.2 A BIA comprehensive survey may only be conducted following a preliminary BIA survey in accordance with SOP 3.1.15-5 of this Service Standard.
- 1.3 The BIA comprehensive survey collects detailed information on the structure and immediate surrounds, and occupant preparations and actions, to enable the NSW RFS to examine and refine existing bush fire risk management treatments.

2. Procedures

- 2.1 A minimum of two team members are to attend the affected area to conduct the survey.
- 2.2 Before commencing any survey, the team is to ensure a dynamic risk assessment has been completed and that the site is safe to enter.
- 2.3 If a resident or occupant is present at the site, ask permission before commencing the survey. If permission is not granted record in the comments field that the survey was not undertaken and do not continue with the survey.

Media

- 2.4 All requests for media comment in relation to BIA surveys and teams are to be referred to the Manager Community Planning in accordance with SS 1.1.6 Media.

Building Survey

- 2.5 The building survey involves completing a series of questions on the structure and its immediate surrounds, taking photographs of the site and recording of any other relevant information, for each habitable structure impacted by bush fire.
- 2.6 A digital camera with an integrated GPS is used to record images of the site and its surrounds. Photographs should be taken of the building

and its surrounds, the ignition point(s), the extent of burnt area and the damage sustained by the structure(s).

Occupant Action Survey

- 2.7** The occupant action survey involves completing a short structured interview with the occupants of the habitable structure. The survey is voluntary for the occupants.

Completion of Surveys

- 2.8** The BIA team is to notify the Manager Community Planning and the Incident Controller immediately when the comprehensive survey is completed.
- 2.9** The data collected from the survey is to be submitted to the BIA Coordinator for analysis.



SOP 3.1.15 - 7

BIA Surveys Health, Safety and Welfare

This SOP forms part of Service Standard 3.1.15 Bush Fire Building Impact Analysis

Related form(s) ▪ None

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the health, safety and welfare issues when BIA surveys are being conducted.

2. Procedures

Safety

- 2.1 The Manager Community Planning (MCP) is responsible for ensuring participants on the BIA Suitability Register receive a pre-season briefing prior to the commencement of each fire season.
- 2.2 Members of a BIA survey team are required to act in accordance with SS 1.1.7 NSW RFS Code of Conduct and Ethics at all times.
- 2.3 BIA survey team members are not to undertake activities while they are suffering the effects of any injury, illness, fatigue, medication, alcohol or other drugs to an extent which could affect their health or safety, or that of others.
- 2.4 BIA survey team members should be aware of the condition of other team members and arrange for rest, rotation, refreshment and welfare of team members when needed.
- 2.5 BIA team members are not to work alone on a fireground unless they have reliable two-way communication with another team member and maintain regular contact with them (at least once every 30 minutes).
- 2.6 Sufficient potable water is to be carried in vehicles. As a minimum, 2 litres is to be carried for each team member in the vehicle.
- 2.7 All safety incidents/accidents are to be reported to the Manager Community Planning and managed in accordance with SS 1.1.28 Injury/Accident Reporting and Investigation.
- 2.8 Before commencing the site surveys, ensure a dynamic risk assessment of each site has been completed.
- 2.9 While undertaking the surveys, BIA survey teams are to wear the following:
 - (a) approved wildland (bushfire) trousers;
 - (b) approved bush firefighting boots and helmet;

(c) fire research tabards.

In addition, BIA survey teams are to have the following equipment readily available to them and correctly use it when required:

- (a) approved wildland (bushfire) jacket;
- (b) approved bush fire gloves and goggles;
- (c) approved bush fire protective respiratory mask, and;
- (d) disposable coveralls.

Note, see clause 2.18 below regarding the suspected presence of asbestos.

- 2.10** No BIA team member is to enter burnt out bushland without risk assessing the dangers of falling trees.
- 2.11** Be aware of electrical hazards and fallen power lines. Treat all fallen power lines as live.
- 2.12** There is a possibility of biological (sewerage) and putrid (rotting food) waste on these sites. Avoid contact with these wastes. If you are exposed to these, ensure that all PPC/PPE is maintained and decontaminated if necessary.
- 2.13** Avoid coming into physical contact with burnt treated pine and treated pine ash (green coloured ash) as they are toxic and the chemical constituents are transferable through the skin. Wear gloves at all times if there is a need to move damaged building materials.
- 2.14** A P2 rated mask is to be worn at all times in dusty atmospheres.
- 2.15** Team Leaders have the flexibility to withdraw their teams if they deem the area unsafe for any reason. In such instances they are to notify the Manager Community Planning immediately.
- 2.16** In the event that a team member is approached by an agitated/aggressive member of the community, they are to withdraw from the area and notify the team leader.

Asbestos hazards

- 2.17** A hazard of particular significance to BIA survey teams is the potential for damaged or destroyed structures to contain loose and friable asbestos particulate. This material is extremely hazardous to health if inhaled and mitigating strategies must be utilised to control the hazard. Refer to Operational Protocol for the Management of Asbestos Incidents for further information.
- 2.18** Survey work in and around damaged or destroyed structures must be undertaken with an assumption that an asbestos hazard is present unless valid information is available to the contrary.
- 2.19** Prior to commencing work in and around a damaged or destroyed structure where it is suspected asbestos may be present, all members of the BIA survey team shall dress in full cover disposable overalls and don a P2 rated mask. Coveralls and mask are to be worn for the duration of the work at the location.

- 2.20** Team members should avoid disturbing damaged building materials and unnecessarily moving through the structure.
- 2.21** Prior to re-entering the vehicle and leaving the location, coveralls must be removed and placed in a labelled asbestos contamination waste bag. Hands must be thoroughly washed. The P2 mask should remain on until ready to re-enter vehicle and depart location. Used masks must be placed in a contaminated waste bag.
- 2.22** To avoid potential contamination of vehicle interiors teams must not remain in disposable coveralls whilst transiting from one location to another. Disposable coveralls and masks must be one location/one use only.

Notification of injuries

- 2.23** If a team member is injured and requires an ambulance dial triple zero (000) immediately and apply first aid triage. Contact the Manager Community Planning in accordance with 2.7 of this SOP.
- 2.24** If a team member is injured and does not require an ambulance, administer first aid. The team leader must withdraw the team member from the field if deemed necessary and contact the Manager Community Planning to report the incident.

Victim identification/discovery

- 2.25** If a team member discovers, or believes there may be a fire victim at the site, they are to immediately:
 - (a)** withdraw and do not disturb the site;
 - (b)** tape off the immediate area;
 - (c)** keep all persons away from the scene;
 - (d)** do not handle or touch any victim remains;
 - (e)** do not photograph or film the victim;
 - (f)** notify all other team members of location of victim; and,
 - (g)** contact the Manager Community Planning immediately.

Communication

- 2.26** Each team must have access to a mobile phone and NSW RFS fireground radios.
- 2.27** Each team must consult with the Incident Management Team to ensure that they know which radio channels are being used on the fireground and if applicable, arrange a suitable call sign with FIRECOM.
- 2.28** Each team is to confirm arrival at and departure from the designated survey area with Manager Community Planning and the Incident Controller where applicable.
- 2.29** Each team is to ensure that they have contact details for:
 - (a)** each team member;
 - (b)** the relevant emergency operations centre;
 - (c)** Manager Community Planning;
 - (d)** NSW RFS Headquarters.

Logistics

- 2.30** Where no catering arrangements exist, each team is responsible for supplying their own refreshments and food whilst in the field.
- 2.31** When and if overnight accommodation of teams is required whilst in the field, this is to be coordinated through the Incident Management Team or Community Planning Section.
- 2.32** All costs/expenditure incurred by survey teams are to be documented and receipted to ensure all costs are captured so as to facilitate timely reimbursement.
- 2.33** Team Leaders must ensure that teams have adequate supplies of disposable PPC/PPE prior to departing for the survey.

Critical Incident Support Services

- 2.34** Critical Incident Support Services are available if required and can, be contacted on 1800 049 933. Refer SS 7.1.2 CISS for further information.



SOP 3.1.15 - 8

BIA Review of Risk Management Treatments

This SOP forms part of Service Standard 3.1.15 Bush Fire Building Impact Analysis

Related form(s) ▪ None

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the procedures to be followed to review the bush fire risk management treatments proposed and completed for the area impacted by the bush fire.
- 1.2 A review of the bush fire risk management treatments will allow the NSW RFS to evaluate the effectiveness of the treatments.

2. Procedures

- 2.1 The BIA Coordinator will form a risk management team from suitably skilled NSW RFS members and/or from external agencies.
- 2.2 The BIA Coordinator will provide details of the affected areas from the BIA preliminary survey to the risk management team members.
- 2.3 Risk management team members will search the relevant Bush Fire Risk Management Plan for the following:
 - (a) was the affected area identified as an asset?
 - (b) what was the likelihood, consequence and risk assigned to the asset?
 - (c) what treatments were proposed for the assets?
- 2.4 Risk management team members will search BRIMS and/or other NSW RFS databases for the following:
 - (a) referred development applications;
 - (b) bush fire hazard complaints;
 - (c) hazard reduction treatments, proposed and completed;
 - (d) hazard reduction certificates;
 - (e) state mitigation support programmes;
 - (f) AIDER programmes;
 - (g) community protection plans;
 - (h) community education programmes, and
 - (i) any other relevant plans, programs or other documents which may be issued from time to time.
- 2.5 Information collected will be compiled by the BIA Coordinator and included in the report prepared for the Director Operational Services.



SOP 3.1.15 - 9

BIA Reporting

This SOP forms part of Service Standard 3.1.15 Bush Fire Building Impact Analysis

Related form(s) ▪ None

1. Purpose

- 1.1 This Standard Operating Procedure (SOP) outlines the reports to be prepared following a BIA survey.

2. Procedures

- 2.1 The BIA Coordinator is responsible for preparing the BIA reports.
- 2.2 There are two BIA reports to be prepared:
- (a) a report to be prepared for the Incident Controller and Group Manager Response and Coordination
 - (b) a report to be prepared for the Director Operational Services.
- 2.3 The report prepared for the Incident Controller and Group Manager Response and Coordination will include the following:
- (a) time and date when the BIA survey was completed;
 - (b) names of BIA survey team;
 - (c) number of residential structures surveyed, location and degree of damage;
 - (d) number of special fire protection structures surveyed, location and degree of damage;
 - (e) number of industrial structures surveyed, location and degree of damage;
 - (f) location and number of vehicles damaged and degree of damage;
 - (g) location and number of boats damaged and degree of damage;
 - (h) location and number of caravans damaged and degree of damage;
 - (i) location and number of outbuildings damaged and degree of damage;
 - (j) map of affected area with surveyed structures identified and degree of damage;
 - (k) any other relevant information.
- 2.4 The report prepared for the Director Operational Services will include the following:
- (a) the information included in 2.3 above;

- (b)** whether the affected area was identified as an asset in the relevant bush fire risk management plan and its identified risk level;
- (c)** what treatments were proposed for the affected area;
- (d)** were any of the proposed treatments completed, and if so when;
- (e)** the location of any referred development applications in the affected area;
- (f)** the location of any bush fire hazard complaints;
- (g)** the location of any hazard reduction certificates;
- (h)** the location of any AIDER works;
- (i)** the location of any State Mitigation Support works;
- (j)** the location of any community education programmes;
- (k)** a summary of the building and occupant action survey findings, and;
- (l)** any other relevant information.



SOP 3.1.15 - 10

Bush Fire Building Impact Analysis Process

This SOP forms part of	Service Standard 3.1.15 Bush Fire Building Impact Analysis
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Related form(s)	▪ None
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1. Purpose

- 1.1 This Standard Operating Procedure (SOP) details the responsibilities, process and procedures for undertaking a BIA.

2. Procedures

- 2.1 The procedures for the conduct and management of a BIA are outlined in the following flowcharts.
- 2.2 The flowcharts depict the following:
- (a) Chart 1 BIA Activation
 - (b) Chart 2 BIA Survey Initiation
 - (c) Chart 3 BIA Survey Completion
 - (d) Chart 4 BIA Survey Reporting
 - (e) Chart 5 BIA Survey Debrief

Chart 1 BIA Activation

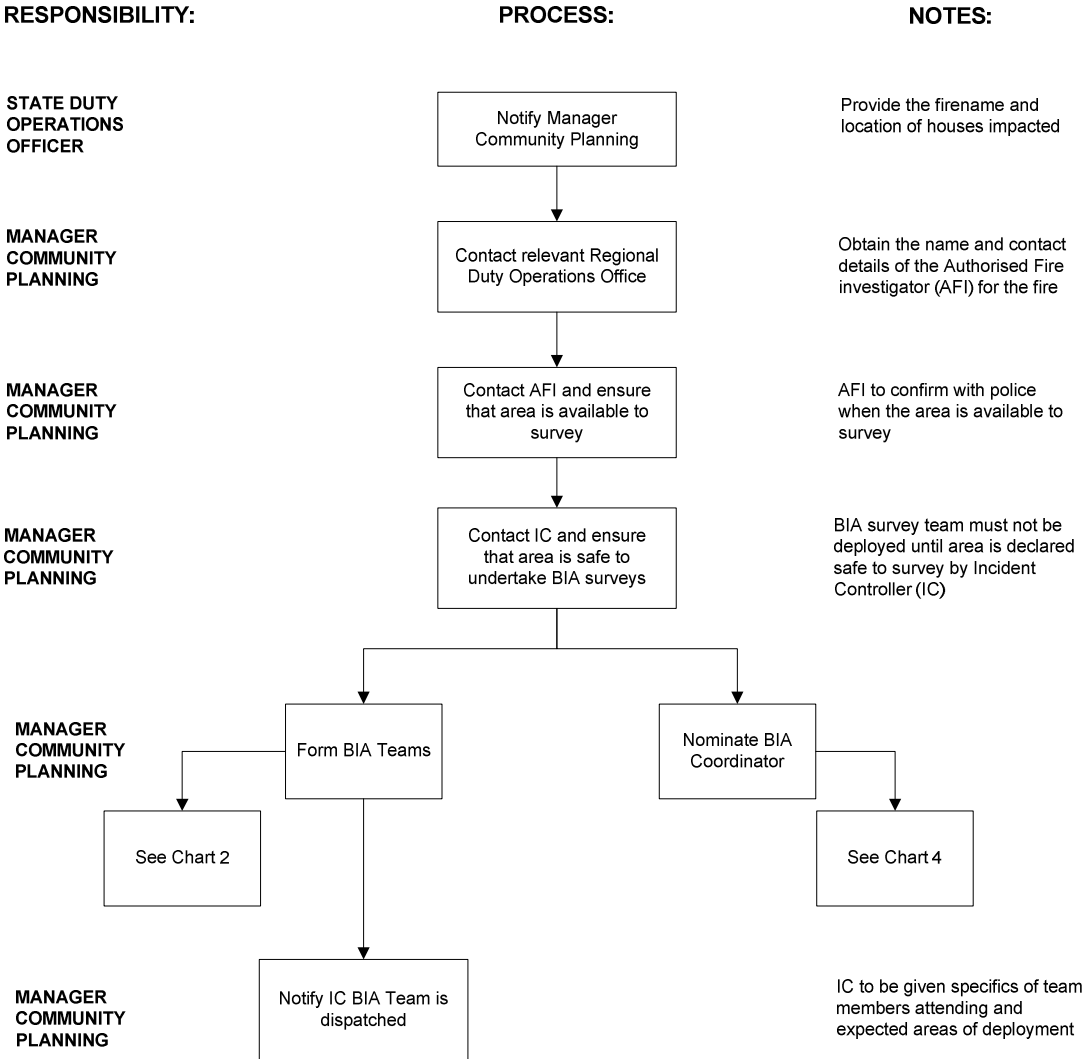


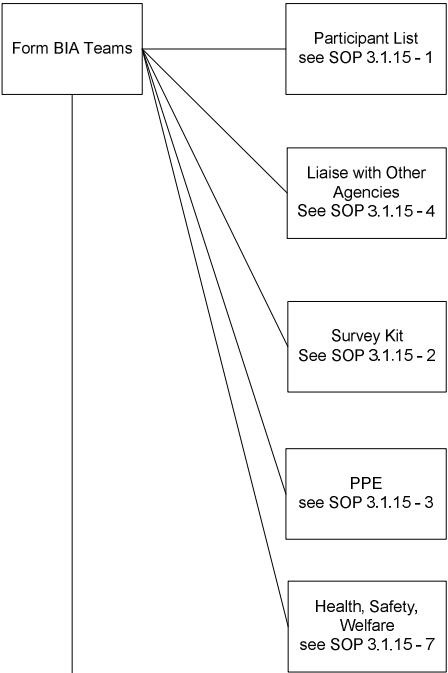
Chart 2 BIA Survey Initiation

RESPONSIBILITY:

PROCESS:

NOTES:

MANAGER COMMUNITY PLANNING



Staff availability list details individuals suitability and availability for deployment. Where possible, the team will include a person from the local area

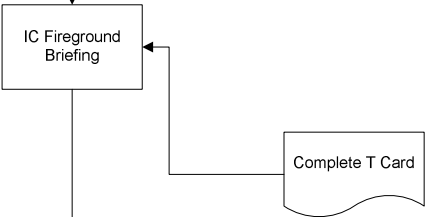
Other agencies may provide survey staff.

BIA teams are allocated survey kits

Team members are required to use appropriate Personal Protective Equipment (PPE)

Team members are required to comply with OHS procedures

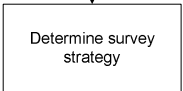
BIA TEAM



BIA Team to seek permission from IC to enter fireground and obtain incident briefing before being deployed to the fireground

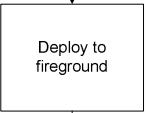
T Card is used by IC to track movement of personnel on the fireground

IC and BIA TEAM



Aerial or ground survey IC to arrange aerial survey, if required

BIA TEAM



BIA Team to notify MCP that they are deploying to the fireground.

While on the fireground, the BIA Team must contact the MCP and the ICC at the start and finish of each day.

3

Chart 3 BIA Survey Completion

RESPONSIBILITY:

NOTES:

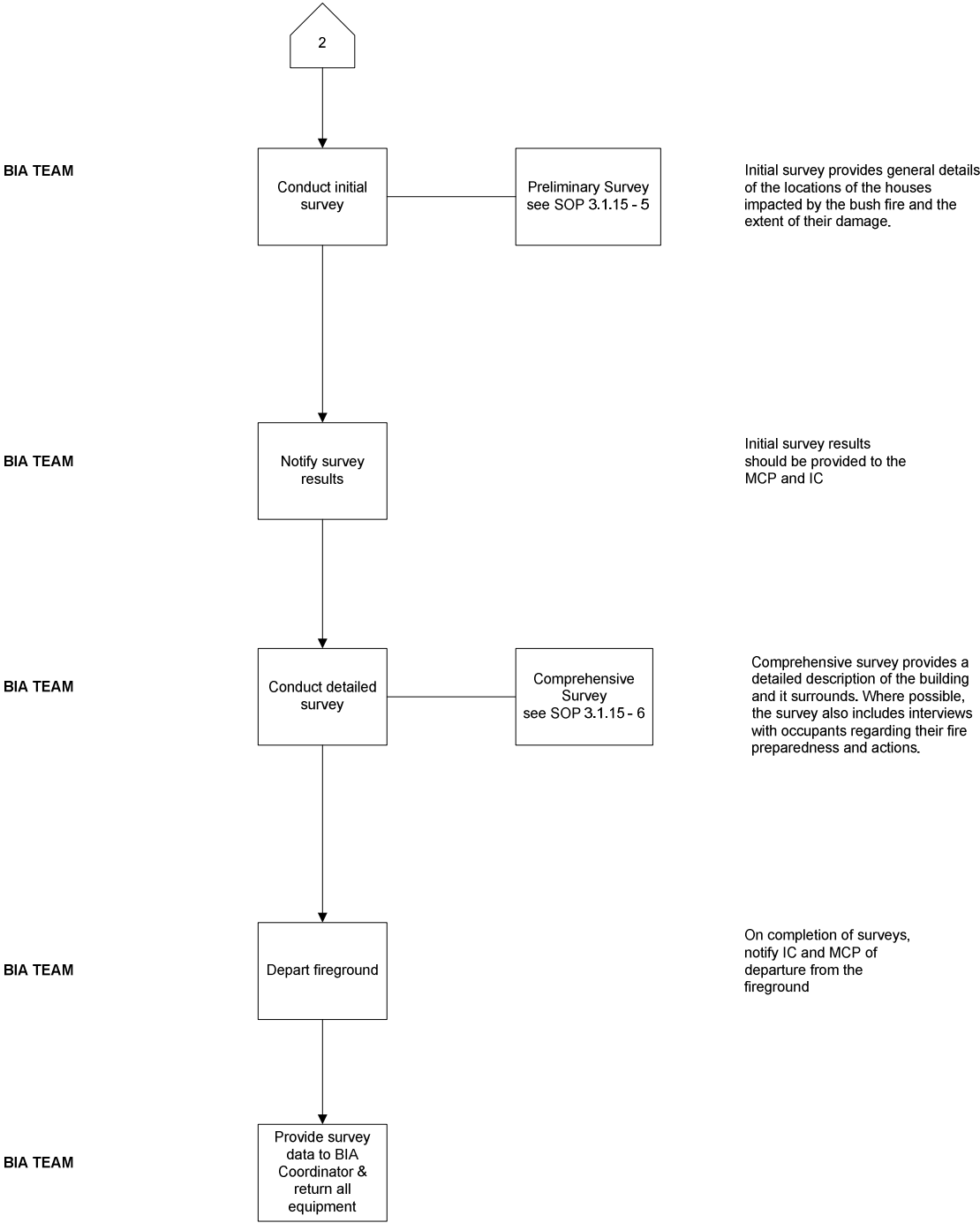


Chart 4 BIA Survey Reporting

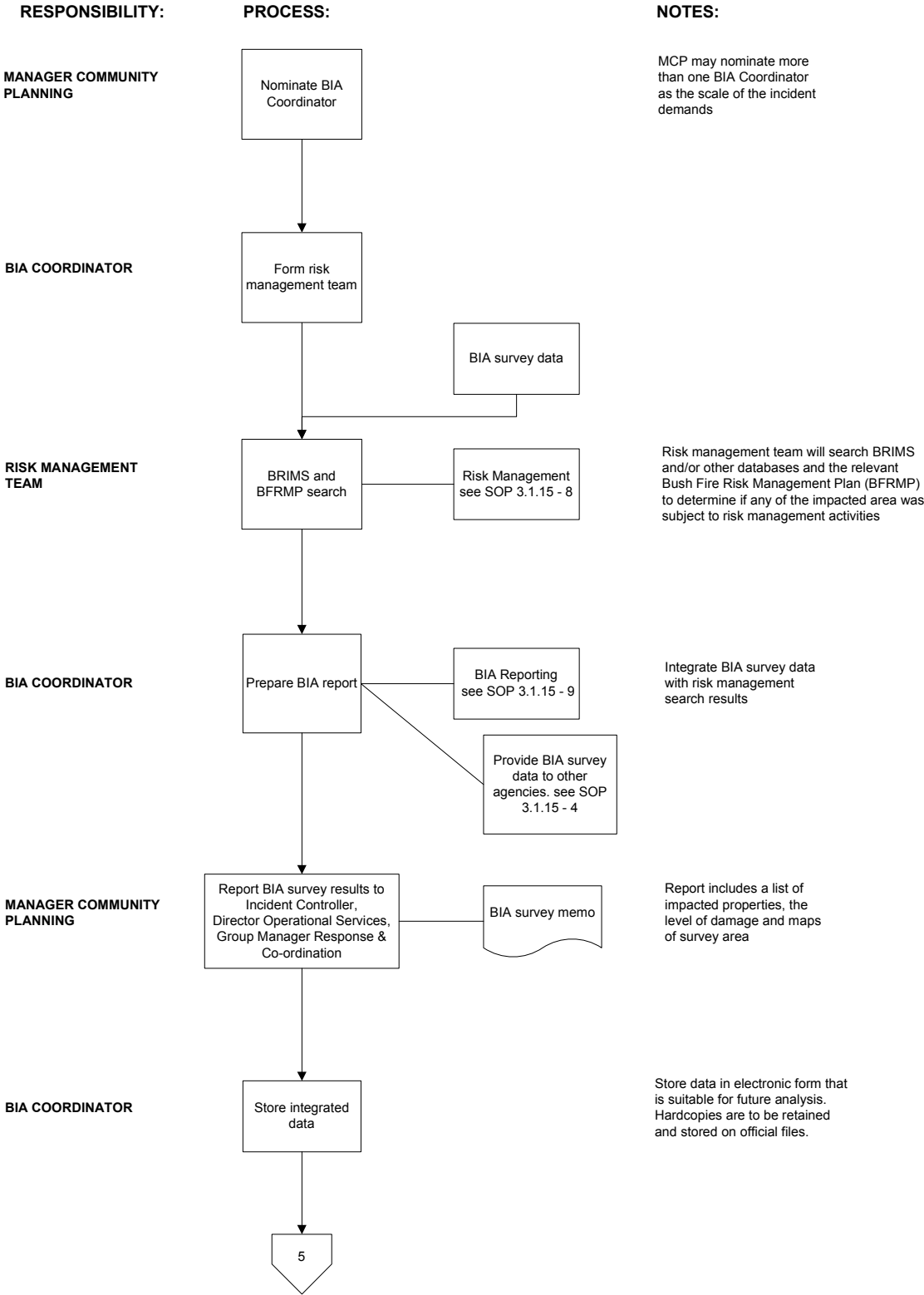


Chart 5 BIA Survey Debrief

RESPONSIBILITY:

NOTES:

