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	OFFICE of THE CHIEF FIRE OFFICER PO BOX 20 HERMANUS 7200 Tel: 028 313 5041/2 Fax: 028 313 1493 Email: lestersmith@overstrand.gov.za	

Veld Management in the Urban Interface

Read in conjunction with Overstrand Fire Management Plan

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1. INTRODUCTION

Wildland fires have a range of social, economic, and environmental impacts – positive and negative – that are well researched. The practice of Integrated Fire Management arose from a need to ensure that wildland fires are able to serve a greater good than the harm they cause. Integrated Fire Management addresses the problems and issues posed by damaging and beneficial wildland fires within the context of the natural environment and the socio-economic systems in which they occur. It evaluates and balances the relative risks posed by wildland fire with the beneficial or necessary ecological and economic roles that fire may play in a given area, landscape, or region.

1.1. As a result, Integrated Fire Management Integrates the following:

1.1.1. The entire fire cycle and its different components of prevention, protection, suppression, and rehabilitation;
1.1.2. The fire management efforts of all land managers whether in respect of public or private land;
1.1.3. The actions of regulatory agencies with the management measures on the ground; and
1.1.4. The funding and resources allocation to optimise its benefits and impacts.

An integrated approach seeks to ensure that the maximum benefit from the available resources and to help communities find cost-effective approaches to maintain desirable wildland fire programmes while limiting fire damage.

1.2. When wildland fires do occur, Integrated Fire Management provides a framework for:

1.2.1. Weighing the relative benefits and risks of different wildfire scenario's;
1.2.2. Evaluating whether the effects of a wildfire will be detrimental, beneficial, or benign; and
1.2.3. Responding appropriately, based on stated objectives.

This plan will seek to find the balance between landscape management and responding to wildfires. Overstrand Municipality as a landowner have a responsibility to manage the

wildfire risk on their own properties and to assist other landowners to mitigate their risks. Overstrand Fire & Rescue is also responsible for enforcement of policies and by-laws in order to create and maintain a safe and healthy environment.

2. WILDLAND URBAN INTERFACE

Wildlands are places where there is enough vegetation to sustain a vegetation fire. These areas include nature reserves, vacant land often invaded by woody invasive alien plants, timber plantations, orchards, vineyards, and agricultural land. The Wildland-Urban Interface is the transition zone between open land that is generally unoccupied and contains flammable vegetation fuels and human settlements, the area where urban development meets wildlands (in town planning this area is sometimes referred to as the “urban edge”), where homes and structures are built among forests, shrubs or grasslands, or where there is a presence of people and permanent infrastructure in the proximity of flammable vegetation. This is where people live and earn their livelihoods, and it is here where people are exposed to the greatest risk of being injured or killed by wildfires, and property has the greatest potential to be damaged or destroyed by wildfires. As urbanization spreads and urban populations increase, the buffers between the urban edge and natural areas disappear. In addition, more residences are being built within the natural areas. As a result, the number of buildings and homes damaged by wildfires is increasing drastically. It is on this interface that wildfires can cause the greatest harm and communities living in the vicinity of it are at greater risk from wildfires.

The majority of wildfires start on the Wildland-Urban Interface and are mostly caused by humans. The risk of wildfires starting from human settlements is exacerbated in South Africa by the number of informal settlements located on the urban edge (in the Wildland-Urban interface). Integrated Fire Management strategies must proactively manage the interface and reduce the damage caused to it. In addition, it should limit the number of fires that emanate from human settlements abutting on the interface, or from homes and human infrastructure such as roads located within the natural areas.

3. RISK REDUCTION ACTIVITIES IN THE URBAN INTERFACE AREAS

Activities related to fuel and fire hazard reduction in the wildland urban interface are essential for mitigating the risk of wildfires spreading into residential areas. One such activity is prescribed burning, where controlled fires are deliberately set during periods of favourable weather conditions to reduce the buildup of combustible vegetation. By burning away excess fuel, prescribed burns help decrease the intensity and spread of wildfires, making it easier for firefighters to manage and contain them. Additionally, prescribed burns can promote the growth of fire-resistant plant species and create natural firebreaks, further reducing the risk of wildfires encroaching on urban areas.

Another important activity for fuel and fire hazard reduction in the veld fire urban interface is vegetation management. This involves thinning out dense vegetation, removing dead or diseased plants, and creating defensible spaces around homes and other structures. By reducing the amount of flammable vegetation near residential areas, vegetation management helps decrease the likelihood of wildfires igniting buildings and spreading rapidly through urban environments. Additionally, maintaining clear and well-maintained

firebreaks and access roads can improve firefighters' ability to respond quickly and effectively to wildfires, minimizing property damage and protecting lives.

4. THE IMPACT OF ALIEN INVASIVE SPECIES ON WILDFIRES

Alien invasive vegetation has the potential to increase wildfire risk due to the flammability and greater fuel load of the species. Alien invasive vegetation can increase the fire intensity exponentially in proportion to its density in a specific area. Within natural vegetation, age can be used to classify fire hazards as low, moderate, high, or extreme. A common calculation would be to adjust wildfire hazard one class upward if alien vegetation density is 20 – 50%, two classes upward if the density is 50 – 75%, and three classes upward if the density is 75 – 100%. According to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) it is the landowners’ responsibility to clear their land of alien invasive vegetation. This act is in this case very important because alien invasive vegetation is common across South Africa. The Overstrand municipal area is no different from the rest of South Africa in the fact that large parts of our natural areas have been invaded by woody invasive alien vegetation. Common woody alien invasive vegetation includes (but are not limited to):

4.1. Australian myrtle (Leptospermum laevigatum)
4.2. Port Jackson (Acacia saligna)
4.3. Rooikrans (Acacia cyclops)
4.4. Eucalyptus species
4.5. Hakea species

Bringing alien invasive vegetation under control is an important step towards preventing uncontrolled wildfires. Wildfires in areas that are invested with alien invasive species are difficult to control, especially under dry, hot, and windy conditions.

5. EDUCATION AND TRAINING

Education remains a strategy to reduce or stop the ignition of any run away veld fires. Educational program is built on the following Philosophy.

5.1. **Engineering** (the reserve management should manage the veld in such a manner that it has a resilience to with stand any uncontrolled veld fires, for example divide the reserve in blocks, fire breaks, do regular prescribed burns to manage the veld age etc)
5.2. **Education** (conduct regular education programs)
5.3. **Enforcement** (react immediately to any non-compliance and try to prosecute any offenders)
5.4. **Economic Incentive** (arrange outings to other reserves to children who participate in education programs)
5.5. **Emergency response** (this should be seen as the last resort, if we manage to ensure that we do engineering, education, enforcement and economic incentive then the opportunity for uncontrolled fire is reduced)

6. INTEGRATED FIRE MANAGEMENT

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Wherever possible, landowners are encouraged to have a written plan so that it is easier for them to consider fire risk issues on their property and to communicate these issues to others. As part of this process stakeholders need to:

6.1. Identify key assets and key fire safety risks, including those from adjacent properties and features;
6.2. consider other risks such as economic, environmental, and legal risks;
6.3. assess whether the risks identified are relevant and/or significant to the property, by considering the likelihood and consequences of these risks happening;
6.4. selected interventions that minimise the identified risks; and
6.5. consult and work with adjacent public and private landowners, managers, and land users to achieve fire safety benefits for all involved.

An integrated fire-risk reduction strategy encompasses environmental modifications, engineering, education, enforcement (including legislation), and evaluation.

Environmental modifications focus on modifying the physical environment, eg separating fire-prone areas with barriers such as firebreaks.

Engineering is directed at enhancing fire safety with equipment, eg sprinklers and smoke detectors.

Education involves the provision of training and information to improve fire safety.

Enforcement focuses on interventions that enforce safety legislation.

Evaluation provides information to determine fire-risk reduction priorities and which interventions work.

7. FIREWISE COMMUNITIES

The primary focus of FireWise is to create awareness of the dangers of uncontrolled fires by equipping homeowners, community leaders, planners, and developers with the knowledge about risk reduction so that they can find local solutions to veldfire safety. The protection of families, property, and the environment before a fire starts is a priority, as is the provision of an action plan for an emergency.

FireWise Community aims to:

7.1. Improve safety in the wildland-urban interface by learning to share responsibility;
7.2. Create and nurture local partnerships for improved decision-making in communities; and
7.3. Encourage the integration of FireWise concepts into community and disaster alleviation planning.

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8. FIRE DANGER INDEX

The Fire Danger Index (FDI) is provided daily by the Greater Overberg Fire Protection Association. Crew are on high alert during orange days and on red days they are placed at strategic points.

Colour	Description	Precaution
Blue	Safe	Low fire hazard. Controlled burn operations can normally be executed with a reasonable degree of safety.
Green	Moderate	Although controlled burning operations can be executed without creating a fire hazard, care must be taken when on exposed, dry slopes. Keep constant watch for unexpected wind speed and direction changes.
Yellow	Dangerous	Controlled burning not recommended when fire danger index exceeds 45. Aircraft should be called in at early stages of a fire.
Orange	Very Dangerous	No controlled burning of any nature should take place. Careful note should be taken of any sign of smoke anywhere, especially on the upwind side of any plantation. Any fire should be attacked with maximum force at hand, including all aircraft at the time.
Red	Extremely Dangerous	All personnel and equipment should be removed from the field. Fire teams, labour and equipment are to be placed on full standby. At first sign of smoke, every possible measure should be taken in order to bring the fire under control in the shortest possible time. All available aircraft are to be called for without delay.

9. MANUAL DETECTION SYSTEM

Active and informed citizens are the only detection system and provide the backbone of reporting any fires. We do not have any automated fire detection system.

10. WILDFIRE INFLUENCES

10.1. Absent Landowners,
10.2. Lack of integrated landscape management,
10.3. Religious Activities in wildland areas,
10.4. Sour fig pickers legal and illegal,
10.5. Wood harvesting (legal and illegal),
10.6. Flower pickers,
10.7. Malicious intent,

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11. FIREBREAKS

What is the purpose of a firebreak? Within the Fynbos Biome where wind-driven fires can spot up to a kilometer ahead of the fire line, it would appear that the principle purpose of a firebreak is to provide an area of reduced fuel load which will reduce the intensity of a fire and therefore allow for more effective combatting; and to serve as an anchor from which a back burn can be started. Landowners are legally obliged to create firebreaks.

Section 12(1) of the National Veld and Forest Fire Act provides that "*every owner on whose land a veldfire may start or burn or from whose land it may spread must prepare and maintain a firebreak on his or her side of the boundary between his or her land and any adjoining land".*

Section 13 provides further that "*an owner who is obliged to prepare and maintain a firebreak must ensure that, with due regard to the weather, climate, terrain and vegetation of the area-*

(a) It is wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land;
(b) It does not cause soil erosion;
(c) It is reasonably free of inflammable material capable of carrying a veldfire across it

In addition to the statutory duty to create a firebreak established by the NVFFA, landowners have a common-law duty to conduct themselves in such a way that they do not cause harm to others. Part of this duty, it is argued, requires landowners to reduce the fuel loads on their properties to reasonable levels and another part, regardless of the provisions of any legislation, is that they should take reasonable measures to prevent the spread of wildfires to adjoining properties.

12. WATER SUPPLY

Water supply for firefighting is fully depended on the municipal water network to supply water to fire hydrants. Open water sources can also be used to fill fire engines with the use of portable water pumps. Firefighter test and clean fire hydrants during the winter months. The engineering departments is responsible for the installation and maintenance of the water network and fire hydrants.

Proactive activities mitigation measures remain the most cost-effective measure to manage the wildfire risk in the Overstrand Municipal Jurisdiction. The following activities are done to reduce the impact of wildfires on our communities.

12.1. Fire and Life Safety Education session with children, adults and workers,
12.2. Advise Fire Management Units (FMU),
12.3. Meet with goFPA, ODM and other strategic partners,
12.4. Assist with prescribe burns on municipal and private properties,
12.5. Conduct risk assessments and map high risk areas,
12.6. Manage and issue fire permits, and
12.7. Issue notices and ensure overgrown plots are cleaned.

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13. RESPONSE PLAN TO WILDFIRE INCIDENTS

Wildfires is an integral part of the Overstrand Municipal Jurisdiction. When wildfires occur Overstrand Fire & Rescue is the primary responder to reports of wildfires. Firefighters will respond and commence with firefighting operations and can request additional resources if needed. All incidents will be managed with ICS principles. A code red can be declare when there is a immediate treat to life and damages to properties and additional resources can be requested from neighbouring Fire Brigades.

14. INCIDENT COMMAND SYSTEM (ICS)

ICS is a management system designed to enable effective and efficient domestic incident management by integrating a combination of equipment, resources, personnel, communication etc. operating within a common organizational structure, designed to enable effective and efficient domestic incident management. The ICS system is flexible and can expand easily from a very small organization for routine operations to a larger organization capable of handling major incidents. Unified command will be implemented were a representative of all the agencies that have jurisdictional authority will be part of the Incident Command Staff. Specific object shall be agreed upon and all the staff will try to achieve those objectives.

Command staff: Incident commander (IC), Public Information Officer, Safety Officer, Liaison Officer.

General staff: Chief Operation, Chief Logistics, Chief Planning, Chief Finance and Administration. They report directly to the IC.

Branch: Organizational level having functional, geographical, or jurisdictional responsibility for major parts of the incident operations. It's the organizational level between sections and division/group in a operational section and between section and units in the logistical section.

Division: Responsible for operations within a defined geographical area. It's the organizational level between the strike team and the branch.

Group: Groups are established to divide the incident into functional areas of operation.

Task Force: A group of resources with common communications and a leader that may be pre-established and to a incident or formed at an incident.

Strike team: Specified combinations of the same kind and type of resources. With common communications and a leader.

Single resource: A individual piece of equipment and its personnel complement, or an established crew or team of individuals with an identified work supervisor that can be used on an incident.

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15. TRANSFER OF COMMAND

The process of moving the responsibility for incident command from one incident commander to another is called "transfer of command". It should be recognized that transition of command on an expanding incident is to be expected. It does not reflect on the competency of the current Incident Commander.

16. INITIAL ATTACK

When a wildfire is reported the closed Fire Station will be activated and the on-duty crew will respond. They can request assistance from the neighbouring station. During the Western Cape Fire Season 1 December – 30 April aerial resources can also be activated through the Overberg District Municipality for all high-risk areas. Aerial resources can be requested for assistance with initial attack to prevent the incident from escalating.

The strategy in the Western Cape is "OVER KILL" in the First Hour and review your objectives from the second hour (extended attack).

Over kill include all available resources and aerial firefighting resources.

17. EXTENDED ATTACK

A fire incident are declared as a extended attack incident when the incident are not contained within the first hour, extended fires require more resources and a formal Incident Action Plan.

18. MOP-UP ACTIVITIES

Mop activities will start as soon as the fire is contained and fire crews can remain on scene for up to 24 hours after the fire has been extinguished. Mop up activities include walking the fire line to ensure that all hot spots are extinguished. Creating a break between the burn and unburned areas.

19. EMERGENCY EVACUATION PROCEDURES

Emergency evacuation is done after careful consideration, with life safety as the only objective when an instruction to evacuate is issued.

Emergency evacuation is two-fold:

19.1. <u>Self evacuation</u>

Any resident should leave their residence or any area when they feel unsafe due to any threatening danger, they do not have to wait for official evacuation instructions.

19.2. Evacuation under instruction of the Incident Commander

19.2.1. Instruction to evacuate area who are in danger and might suffer harm or death. They might receive a precautionary evacuation order, where they can leave the area or they should be ready to leave the area with short notice.

19.2.2. Mandatory evacuation instructions are given when there is an immediate danger that can cause harm or death.

19.2.3. All residents must have a GO BAG and individual evacuation plans per household.

19.2.4. Traffic, Law Enforcement and SAPS will assist with evacuation in the various areas.

19.2.5. Residents should leave the areas when instructed, move to safety and only return when it is safe to do so.

Legal and statutory powers of a member of service:

FIRE BRIGADE SERVICES ACT 99 OF 1987, section 8. Powers of members of service:

(1) A member of service of a controlling authority, including a chief fire officer, may, whenever he regards it necessary or expedient in order to perform his functions, perform any act, and may also-

(a) Close any road or street

(b) Enter or break and enter any premises

(c) Damage, destroy, or pull down any property

(d) Forcibly remove or cause to be removed from the scene any persons who is in danger or who obstructs that member in the performance of his duties.

20. FIRE INVESTIGATION

All extended fire is investigated by an independent Wildfire Investigator, SAPS are also consulted to explore the possibility for prosecution.

21. DEBRIEFING

A debriefing session should be conducted after every extended fire.