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Grounds & Landscaping Maintenance Procedure for Schools & Universities

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1.0 PURPOSE

The purpose of this document is to provide guidance to the Entity in developing techniques and procedures for grounds and landscaped areas within schools and universities. These are minimum requirements for maintenance, inspection, and repair of these areas and their associated components, which the Entity should modify specific to its needs. Furthermore, this document seeks to improve and enhance the Entity's overall understanding of grounds and landscaping maintenance procedure development and convey best practice.

The document outlines the following:

- Requirements for maintenance of grounds and landscaped areas
- Guidelines for the procurement of a suitably qualified service provider/contractor
- Measurement criteria for the outcomes of services
- Continuous improvement techniques to ensure that highest standards of implementation are maintained

The principles of grounds and landscaping maintenance will have many similarities across various types of facilities captured in the National Manual of Assets and Facilities Management (NMA & FM)**.** This document will contain general principles along with sector specific recommendations and activities associated with their delivery in a learning environment.

Grounds and landscaping maintenance play a key role in the appearance and presentation of a facility. Delivering high standards of grounds and landscaping maintenance can add significantly to the strength of impression that facility's visitors, users, and employees have of their premises and surroundings. Furthermore, high quality grounds and landscaping services due to efficient maintenance works enhances reputation of the Entity.

The benefits of implementing a business specific Grounds and Landscaping Maintenance Procedure include, but are not limited to:

- An opportunity to deliver and maintain horticultural best practice
- A clearly defined frequency of measurement and reporting
- Optimized planting aligned with seasonal variations and plant lifecycle
- Positive social impact through aesthetically pleasing installations and features
- Reduction of debris, leaves, and litter
- Reduction of weeds, and uncontrolled pollination
- Diversity, health, and longevity of planted species
- Contribution towards the Entity's sustainability performance
- Promotion of cultural heritage and a positive attitude towards the environment from facility users and visitors

Maintenance procedures identify preconditions and precautions; provide clear instructions for work to be done; and are used to ensure that maintenance is performed in accordance with the maintenance strategy, contract requirements, and organization standards and processes.

The guidelines contained herein support the Entity to ensure that the area remains at a high visual standard and is perceived as a well-managed and friendly environment.

The information provided is specifically intended for use by Facility Management (FM) personnel but should also be read and understood by all management personnel such that it can be suitably applied at all levels of the organization.

2.0 SCOPE

For all the facilities, the objective of well presented, efficient, clean and well-managed grounds and landscaped areas is achieved by effective contract management of the services. The service provision shall be undertaken by well-trained and suitably qualified staff.

The scope of this Grounds and Landscaping Maintenance Procedure details the activities that the Entity should ensure that the Grounds and Landscaping Service provider considers as part of their maintenance.

The maintenance requirements provided herein, or cited by reference, are based on the Ministry of Municipal and Rural Affairs (MOMRA) and (Ministry of Environment, Water and Agriculture – MEWA) landscaping standards, international landscaping standards, and best practice to be embraced by the relevant Entity.

This document provides minimum requirements to be adopted by the Entity to enable safety, quality, and cost effectiveness in the development of a Grounds and Landscaping Maintenance Procedure. The Entity shall establish and develop set procedures for continuous maintenance and care of the landscape components within their Facility.

The Entity's Grounds and Landscaping Maintenance Procedure shall include, but not be limited to:

- Schematics or plans that identify the work areas
- Roles and responsibilities of staff
- Health and safety
- Training and competence
- Work Instructions
- Audit
- Resources required to deliver the plan (e.g. finances, time, equipment, personnel)
- Emergency actions

Grounds and landscaping maintenance services are undertaken to achieve outcomes that include, but are not limited to:

- Providing a planting schedule with details about all exterior planting to maintain the health of planted items and the aesthetic image of the site
- Nurturing plants within their final planting position and ensure that all planted areas are maintained in accordance with good horticultural practice
- Routinely cutting grass to an appropriate length where applicable, and maintain all grass areas so they remain green and healthy
- Ensuring all planted landscapes are kept weed free
- Ensuring that dead or dying plants are identified, removed and replaced
- Ensuring that all landscape waste is collected, removed and composted where possible
- Ensuring entrances, service areas, car parks, terraces, paving, paths, grounds, and the outside of buildings are maintained so that no debris, leaves, or litter is apparent
- Ensuring that all weeds and other plant elements are removed from paved areas and hard standing areas
- Ensuring that all areas are swept and maintained, at least weekly
- Ensuring that fixtures/fittings and street furniture are maintained as required

Types of facilities considered within the document are as follows:

- Universities
- Schools
- Smaller regional schools (nursery schools)

To be read in conjunction with "National Manual of Assets and Facilities Management, Volume 5 Chapter 18 – Housing" for campus accommodation.

3.0 DEFINITIONS

Term	Definition
Competence	The level of skill and understanding demonstrated by an operative in the execution of a task

Term	Definition
Dangerous Goods	Goods that have the potential to cause harm
Decibel (Db)	A measure of sound and used in noise risk assessments in relation to the workplace and especially work equipment
Duty of Care	The duty owed by the Entity to ensure a safe environment for employees and visitors
Engineered Wood Fiber (EWF)	Chippings used in children's playground facilities
Green Waste	Organic waste that is a byproduct of the landscaping activity. It is usually able to be composted and then reused as a mulch (see Mulch) It is most often made up of grass, hedge clippings or leaves and the likes
Hard Landscaping	The process of working with type of landscape elements that uses hard materials, like stone and metals, rather than 'soft' soil and planting
Hazardous Substances	These are dangerous goods that have the potential to cause harm. Examples in the context of this work activity are paint, lubricants, degreasers, preservatives. Hazardous substances can be solids, liquids or gases
Maintenance	The undertaking of preventative or corrective action, or both, including repairs, to ensure that the condition of the asset continues to meet the required duty over the service life of the asset
Mulch	A protective covering, such as of bark chips, straw, or plastic sheeting, placed on the ground around plants to suppress weed growth, retain soil moisture, or prevent freezing of roots
Point of Work Risk Assessment (POWRA)	Usually undertaken immediately prior to work stating. POWRA can be used to modify an existing RAMS if circumstances have changed or if no formal RAMS exists
Personal Protective Equipment (PPE)	Examples for this work activity are, hard hat, safety footwear, goggles or face protection, ear defenders, and gloves
Planned Maintenance	A planned strategy of cost effective treatments to an existing asset that preserves the asset, retards future deterioration, and maintains or improves the functional condition of the asset
Pruning	The process of removing the parts of tree, plant, grass which are not necessary for the growth and development and are no longer visually pleasant and may be injurious to plant health
Safety Data Sheet (SDS)	Describes the properties of a substance, how to handle and use safely and what steps to follow in the circumstances of an incident of misuse
Soft Landscaping	The landscaping elements such as turf, trees and shrubs used in a learning environment
Toolbox Talk	A face to face discussion for operatives that focuses on a particular safety issue, usually at the point of work
Waste	Any substance or object which the producer or the person in possession discards or intends to discard
Ultra Violet (UV)	Light radiation present in sunlight that can cause skin damage
Work Management Center (WMC)	The source of planned and reactive maintenance where task activities are issued, updated ad closed
Work Equipment	Tools or equipment used in the execution of work activities. In the case of grounds and landscaping maintenance these can be powered e.g. lawnmower, hedge trimmer, street sweeper or non-powered e.g. spade, trowel, step ladder
Acronyms	
ANLA	American Nursery & Landscape Association
AOSA	Association of Official Seed Analysts
ARAMCO	Arabian American Oil Company
COSHH	Control of Substances Hazardous to Health Regulations (2002)
FM	Facilities Management
HSSE	Health, Safety, Security, and Environment

Term	Definition
KSA	Kingdom of Saudi Arabia
KPI	Key Performance Indicator
MEWA	Ministry of Environment, Water and Agriculture
MEWP	Mobile Elevated Work Platform, e.g. Cherry Picker, Boom Lift
MOMRA	Ministry of Municipal and Rural Affairs
NMA&FM	National Manual of Assets and Facilities Management
PPM	Planned Preventative Maintenance
RAMS	Risk Assessments and Method Statements
SASO	Saudi Arabian Standard Organization
SLA	Service Level Agreement
SSOW	Safe System of Work
WMC	Work Management Center

Table 1: Definitions

4.0 REFERENCES

Schools and universities' grounds and landscaping maintenance shall be developed based on the requirements of this section and existing grounds and landscaping maintenance standards from MOMRA. A list of the adopted references are as follows:

- American Nursery & Landscape Association (ANLA)
- Association of Official Seed Analysts, Inc. (AOSA)
- Environmental Protection Act 1990 (Duty of Care) Regulations
- General Directorate of Operation and Maintenance – Ministry of Municipal and Rural Affairs (MOMRA), Kingdom of Saudi Arabia
- Landscape Maintenance Specifications Standards Manual – Nevada Landscape Association
- Landscape Plants for ArRiyadh Region – a Reference Manual by High Commission for the development of ArRiyadh
- Minimum Landscape Maintenance Specification of Services and Works – Guidelines for Urban Development, City of Whittlesea, Australia
- National Manual of Assets and Facilities Management, Volume 2 – Asset Management
- National Manual of Assets and Facilities Management, Volume 3 – Condition Management
- National Manual of Assets and Facilities Management, Volume 4 – Financial Planning
- National Manual of Assets and Facilities Management, Volume 5 – Operation Management
- National Manual of Assets and Facilities Management, Volume 6 – Maintenance Management
- National Manual of Assets and Facilities Management, Volume 7 – Work Control
- National Manual of Assets and Facilities Management, Volume 10 – Health, Safety, Security, and Environment (HSSE)
- National Manual of Assets and Facilities Management, Volume 6 Chapter 21 – Pest Control Plan for Schools & Universities
- National Manual of Assets and Facilities Management, Volume 5 Chapter 17 – Waste Management Procedure for Schools & Universities
- Saudi Arabian Standard Organization (SASO)
- Wildlife and Countryside Act 1981

5.0 RESPONSIBILITIES

5.1 Entity Facility Director

The Entity Facility Director at a school or university (Dean/Head Teacher) shall ensure that**:**

- A grounds and landscaping maintenance policy is established, understood and maintained

- All persons within the Entity (e.g., senior leadership team, facilities management, grounds and landscaping maintenance staff) comply with the policy, and any associated regulations or requirements
- There are systems in place to monitor compliance and report progress

5.2 The Entity Facility Manager

The Entity Facilities Manager at a school or university shall ensure that:

- The planned and reactive maintenance is undertaken effectively by the facilities management provider
- Audits of contractor performance take place at defined frequencies with reports provided to Entity senior management
- Regular liaison and communication with local community leaders takes place in order to measure and monitor feedback from the general public
- Regular liaison and communication with any users of the facility takes place in order to measure and monitor feedback from the facilities' users

5.3 Grounds and Landscaping Contract Manager

The Grounds and Landscaping Contract Manager at a school or university shall ensure the following:

- Compliance with the requirements of statutory legislation, facility and appointed contractor local policies and procedures
- Risk Assessments and Method Statements (RAMS) are in place for all work activities
- Staff are inducted and trained, whether directly employed or provided by subcontractor, including any site-specific training required by the Entity. This includes specific induction training
- Staff involved in delivering grounds and landscaping maintenance services have received the appropriate information, instruction and training for them to undertake their work safely
- Record all training activity and ensure that any refresher training needed is undertaken at the specified frequency
- Staff are monitored to confirm that policies, procedures and safe systems of work are strictly followed

5.4 Health & Safety Manager/Officer

The Health & Safety (H&S) Manager/Officer at a school or university shall ensure that:

- Compliance, review and assurance with the requirements of statutory legislation, facility and appointed contractor local policies
- Develop and implement suitable and sufficient Risk Assessments and Method Statements (RAMS) for all work activities being undertaken by operatives
- Undertake regular reviews regarding staff safety performance including use of Point of Work Risk Assessment (POWRA)
- Staff and contractors are operating in a safe manner in accordance with specified operating procedures
- Regular reviews of work equipment are undertaken to ensure the safe performance of all items of equipment
- PPE (Personal Protective Equipment) is issued to all operatives and is in serviceable and safe condition for use
- Regular toolbox talks are undertaken to reinforce the importance of working safely

5.5 Grounds and Landscaping Supervisors

Grounds and Landscaping Supervisors shall ensure that:

- Operatives' work activity is monitored to ensure that tasks are completed in the anticipated time

- Operatives' compliance to safe working procedures and adherence to the specified activities is compliant with the procedure
- Any deficiencies in safety performance are reported, reviewed, and investigated where necessary
- The allocation of resources to emergency reactive work requests is sufficient to ensure stakeholder satisfaction
- Resources are available to meet the needs of work schedules and to plan coverage in the event of planned or unscheduled absences

5.6 Operatives

Operatives shall ensure that:

- They cooperate with all reasonable instructions in relation to their work activity
- Follow precisely the steps in RAMS
- Wear the appropriate PPE at all times for each work activity
- Report completed work activity to the Work Management Center (WMC) to enable the rapid closure of both planned and reactive work tasks

5.7 Staff and Students

Staff and students shall ensure that:

- They give feedback to the Entity
- They cooperate with the Entity and its contractors by complying with any appropriate instructions
- Their use of the school or university facility is undertaken in such a way as not to cause detriment or harm to the facility

6.0 PROCESS

The key aspect of the procedure development is to ensure that there is agreement on the intended aims and outcomes on the purpose of the procedure (e.g., aims, key components, outcomes). A flow chart is a useful and simple means to define a procedure, work activity, and the steps that need to be taken and repeated in order to deliver the desired outcomes. This will drive the execution of the procedure on a 'step and repeat' basis and ensure that everyone involved understands the desired outcome and their role in its successful achievement.

The Entity's Grounds and Landscaping Procedure shall be written in a way that encompasses complete technical requirements of the work activity, means of operating the work in a safe manner, identifying roles and responsibilities, and in a language that is easily understandable by everyone consulting the document.

In developing a Grounds and Landscaping Maintenance Procedure the Entity needs to consider all stakeholders and how they may be affected by the grounds and landscaping activities.

Key criteria that need to be accounted in the development and implementation of a grounds and landscaping maintenance procedure include but are not limited to:

- Preparation
- Occupational Health and Safety
- Tools and materials
- Maintenance activities
- Work planning and control
- Resourcing skills and training
- Stakeholder and customer communication
- Audit and compliance reporting

6.1 Preparation

Developing a procedure for grounds and landscaping maintenance also requires the Entity to determine the standards and appearance that they wish to achieve at the facility and ensure that they have sufficient financial resources to achieve their desired objectives.

Competitive tendering and procurement processes shall enable the Entity to determine the expected costs for hiring a specialist provider who will carry out the planned and reactive maintenance for achieving the desired outcome.

The Landscaping Procedure for Schools and Universities entails the following critical steps. These steps are described in greater detail in the following sections.

6.1.1 Targets, Strategies and Objectives

Entity-specific targets, strategies and objectives should be identified in the creation of a maintenance procedure as a means of measuring their achievement, monitoring their progress, determining means of communicating performance, and delivering continuous improvement.

Targets might include:

- Reductions in safety incidents and near misses
- Improving facility user feedback
- Achieving and improving response times to reactive work requests
- Improved sustainability outcomes

Strategies might include:

- Budgetary planning and control to reduce forward maintenance costs
- Integration of sustainability into planned and reactive maintenance
- Development of a representative group with responsibility for community liasion

Objectives might include:

- Development of a periodic audit and review procedure to determine service outcomes
- Creation of a service user feedback mechanism to ensure that the Entity understands customer and community perception
- Reuse of a percentage of green waste by-products in mulching

Developing a strategic approach to the creation of a grounds and landscaping procedure should be done with reference to the design considerations of the site and resources available to the Entity for delivering the work activity. When the Entity has a new facility, the scope for design impact on maintenance procedures is significant.

It is probable that the aims and objectives of an existing facility will be similar to those of a new facility; e.g., reduction/removal of ‘annuals’ (plants that flower for one year only), maintaining the visual aspect of trees, hedges and borders in an appealing manner, removal of dead or dying plants, irrigating regularly to ensure appearance standards are maintained. However, the ability to influence the appearance of a facility is more challenging when it is in use and has already been planted.

The strategy to determine the balance between hard and soft landscaping will also determine the resource levels that are required to maintain the appearance of the facility. Different planting themes should be considered while developing a new facility , including plants, shrubs or trees that are fast growing and enable the facility to have a complete appearance more quickly. However, these fast-growing species may require more frequent periodic activity to maintain their appearance.

In order to develop a suitable maintenance procedure, the Entity should work collaboratively with the grounds and landscaping maintenance service provider to ensure that the objectives of the grounds and

landscaping maintenance procedure are achieved and to develop and agree the Service Level Agreement and standards to be achieved.

The following sections identifiy key considerations in the design, planting and resourcing of a facility together with other aspects that shall be taken into account in the development of a maintenance procedure, e.g. working safely, tools and equipment, resources etc.

6.1.2 Schematics and Plans

In order to develop the maintenance procedure for a particular site, it is essential to have schematic plans and designs in place to enable the procedure to be adequately developed. If the site is a new development, the Entity should collaborate with the maintenance provider to develop a planting schedule that minimizes the intensity of subsequent maintenance provision. If the site is an existing site, the design and arrangement of planting and landscaping is likely to be already set.

Plans should be made available to Grounds and Landscaping staff at all levels to ensure that there is a clarity about the expected outcomes.

6.1.3 Planting and Design Considerations – Soft Landscaping

Plant, shrub, grass and tree selection should be based not only on their hardiness to the local climate but also on the intensity of maintenance required once they are planted. The use of perennials in planting should be limited to providing contrast and accent. The selection of plants that only flower once should be avoided, to limit the wastage of resources on regular planting, removal and replanting.

Indigenous planting should be used wherever possible because the plants, shrubs and trees that are native to the area are easily maintainable and are used to the climatic conditions in which they are being planted. For the Kingdom of Saudi Arabia (KSA), plants should be selected on the basis of their tolerance to drought, low maintenance characteristics and resistance to pests. Consideration should be given to foliage and flower color to ensure that a year round appearance is maintained, regardless of the seasonality of the flowering season.

Mass planting is appropriate for large open spaces and beds of a significant size. However, it is important to strike a good balance between lawned areas and planted beds.

Ease and regularity of irrigation is a key factor when considering the long term viability of planting in KSA. The long, hot, dry weather in the summer can cause all but the hardiest plants to fail. A new facility should have irrigation built into the design. This has two advantages, firstly, irrigation is easily provided and secondly, as a consequence of ‘designing it in’, it can be provided without the intense use of manpower, which can deliver reductions in the cost of the operation.

For grassed areas, selection criteria for the type of grass used should include consideration of drought-tolerant varieties that maintain their lushness in conditions when others deteriorate due to climatic impacts.

Landscape design plans should aim to maximize the use of vegetation and green space, whether trees or lawn, shrub or plant, to create an appearance of a campus but minimize the requirement for intensive maintenance.
Flower beds can be positioned anywhere but adjacency to buildings can often set off the harshness of built structures and provide a soft and sometimes colourful display for facility users. However, due consideration should be given to the possibility that these locations may provide a habitat for pests and therefore close cooperation with the pest management service provider should take place to mitigate this issue.

6.1.4 Planting and Design Considerations – Hard Landscaping

The site plan should indicate those areas that are to be used as hard landscaping and soft landscaping. These will include roads, car parking, and paths. Consideration shall be given to the number of visitors and users of the facility at a given time to ensure safe movement of vehicles including, where required, traffic management features such as speed bumps or one way routes.

Consideration shall also be given to design the means of pedestrians moving safely around the facility. The strategic use of hedging can direct pedestrians walking unconsciously thereby improve road safety.

Where car parking facilities are to be provided in a school or university facility, use of small grassed areas, trees and flowers can be used to break up an area for car parking and improve the aesthetic appearance of the facility. Trees can also provide additional shading if covered parking is not available.

All of these considerations should be taken into account when designing the grounds and landscapes of a facility in order to streamline subsequent maintenance procedures, simplify workflows, and minimize costs. Where an Entity has an existing facility, the ability to 'design in' features that minimize maintenance activity and costs is less straightforward.

6.1.5 School and University Specific Considerations

The external area should be a blend of functionality and practicality, enabling ease of access for staff, students, visitors and suppliers.

The design of approach roads, consideration of traffic circulation, adequacy of parking spaces, and segregation of loading and delivery areas from areas where staff, students and visitors gain access to the facility should be considered.

Students and younger children could find themselves in danger, especially in car parking or on the roadway. Signage and wayfinding are of paramount importance and traffic calming or slowing measures, such as pedestrian crossings or speed bumps shall be planned. The availability of drop-off areas shall be planned to enable the safe discharge of passengers.

Soft landscaping provision at an educational facility is unlikely to be anything more than hedging, beds and trees, designed to provide a contrast to the buildings. It is not usually a general amenity space and will most likely only provide segregation between roadway and parking areas and pedestrian routes, although it can also cover the provision of grassed pitches for sports activity.

Street or path trees can provide shade, visual amenity, and act as a buffer between pedestrians and cyclists from motorized vehicles and/or large grounds and landscaping maintenance machinery, such as ride-on sweepers or mowers.

6.1.5.1 Fencing and Barriers

Fencing should be of an open, rather than solid construction. The use of spaced timber, steel, or mesh provides adequate levels of security but still enables open sight lines. Barriers (e.g., gates) shall be planned to ensure the safety of students both from unwanted ingress and to prevent them from leaving the facility without authorization in the case of younger children.

6.1.5.2 Paving, Paths and Roadways

Block or unit paving and general ground surface should be maintained to provide a level surface to protect children, disabled or wheelchair users from the hazards of an uneven surface.

All pathways, especially those bordered by grassed areas or beds, should be edged with a hard material to prevent encroachment of mulch from a bed and to discourage path users from leaving the pathway and damaging a bed. Car parks, parking areas and roadways shall be surfaced with bitumen.

6.1.5.3 Signage

Signage shall be of a standard and recognizable design and color, use icons that are same as that used on public roads and clearly indicate routes of entry, exit and permissible traffic routes. They shall be placed in such a way to maximize visibility for both pedestrians and drivers. They should be retroreflective to avoid unnecessary dazzling of drivers and pedestrians from headlights and general facility lighting.

6.1.5.4 Lighting

Lighting should be based on the functional and operational requirements of the site. Feature lighting should be used to illuminate building facades/landscape features for improving the appearance of a facility. Lighting is also provided for reasons of security for staff, students and visitors. For this reason, it is important that it is maintained in a clean and operating condition so that the original intended design lux level is provided to the Facility.

Lamp posts and light fittings shall provide easy access for maintenance. Where possible, posts shall be able to be lowered, in order to enable the maintenance to be undertaken at an intermediate or ground level to provide a safe working environment. This is especially important in maintaining sports pitch floodlighting, if the facility has such an asset, rather than a standard streetlight which is also accessible from a Mobile Elevated Work Platform (MEWP).

6.1.5.5 Street Furniture

Street furniture comprises assets that are distributed throughout the facility in public areas. These are generally fixed in a permanent or semi-permanent position. Signage is also often considered to be street furniture. Other examples can include:

- Seating and benches
- Waste or recycling bins
- Drinking water fountains
- Ornamental fountains
- Bicycle racks
- Bollards
- Individual planters for specimen shrubs or planting

These should be chosen for their durability, intrinsic safety and aesthetic appeal to help add value to the environment.

The provision of drinking water and/or ornamental fountains requires an appropriate treatment regime to be put in place to protect students, staff and visitors from water borne hazards. A specialist contractor shall be used to provide this service.

The provision of bicycle racks encourages staff and students to use bicycles as a healthy form of transport and promotes exercise.

Bollards shall be used to direct and restrict traffic movement and to provide protection to pedestrians and facility users. These can include both permanent and/or drop down to allow vehicle movements in controlled circumstances.

6.1.5.6 Waste Disposal and Recycling

Bins and bin surrounds should be robust and be provided with a top cover or cowl to prevent the ingress of birds or animals, and to restrict the size of objects people are able to throw away.

Recycling is becoming increasingly popular as KSA recognizes the impact and cost of waste disposal to landfill. Clearly designated recycling areas should be signed with instruction for the segregation of waste.

6.2 Occupational Health and Safety

Grounds and landscaping maintenance involves a number of hazards that can cause harm. These can include the use of substances such as pesticides, artificial fertilizers, petroleum, and the use of equipment and machinery, such as sharp-edged tools and mechanically-powered equipment e.g. mowers, hedge trimmers, street sweepers.

In compiling their procedure, the Grounds and Landscaping Contractor should refer to the NMA&FM, Volume 10.

6.2.1 Personal Protective Equipment (PPE)

PPE shall be worn by all operatives where the RAMS determine it as a requirement. If it is not provided, the operative shall not undertake the task until its availability.

The Facilities Contract Manager/H&S Manager shall be responsible for ensuring that a suitable and sufficient risk assessment is in place, and that resources are available to provide appropriate PPE for all operatives.

- **Goggles:** Operatives shall wear goggles when undertaking activities such as mowing, pruning, sweeping, opening/dispensing chemicals or pesticides or the likes, to prevent the hazard of sight damage
- **Safety Footwear:** Operatives shall wear safety footwear with a steel toecap, to prevent the hazard of impact to the foot by moving machinery or equipment
- **Arm and Leg Protection:** Appropriate clothing shall be worn to protect the arms and legs, especially to prevent the hazard of injuries while using power tools or sharp-edged equipment. Torn or damaged clothing shall not be allowed to be worn because there is a hazard of it being entangled in machinery
- **Gloves:** Operatives shall wear gloves to protect the hand and wrist, both to reduce the hazard of skin irritation and to minimize the risk of cuts and abrasions
- **Dust Masks or Respiratory Protection:** These shall be worn by operatives carrying out a range of activities including sweeping, mowing, tree cutting, or any activity likely to produce airborne debris
- **Ear Defenders:** These shall be provided to any operative using noisy, powered equipment that has the potential to cause hearing damage. Ear defenders shall be selected based on noise they exclude. Cheap ear defenders are available but shall be avoided because they frequently don't provide adequate, certified protection from noise
- **Anti-Vibration Gauntlet:** These shall be worn with machinery that is known to generate high levels of vibration if used. Operatives using this kind of equipment for extended periods, e.g. hedge trimmer, brushcutter shall be provided either with adequate protection or have their exposure limited

6.2.2 Exposure Limits

- **Chemicals and Fertilizers:** Chemicals and fertilizers are provided with a Safety Data Sheet (SDS). This provides guidance on the length of time and the concentration levels to which operatives can be exposed. The hazard of 'over-exposure' shall be avoided by following these instructions thereby minimizing harm to employees. The SDS will also identify guidance about how to deal with spillages or human contact or ingestion
- **Noise:** Noise at work can cause significant harm to operatives. Operatives exposed to consistently high levels of noise shall be routinely tested to ensure no lasting damage to their hearing, and shall be immediately removed from such tasks if their hearing is demonstrably damaged
- **Vibration:** Vibration at work can cause significant harm to Operatives. Operatives exposed to consistently high levels of vibration by the use of powered equipment shall be routinely tested to ensure no lasting damage to their bodies and shall be immediately removed from such tasks if they are demonstrably damaged
- **Temperature:** Working outside in KSA can expose grounds and landscaping operatives to extremes in temperature. In order to ensure that they work safely, it is of vital importance that safety considerations are accounted for, when designing work procedures.

    - Summer – The risk of dehydration when working, especially energetically in the summer heat, is high and the hazards associated with dehydration can be significant and, in some cases, severe.

      Care shall be taken by allowing regular rest and refreshment breaks to ensure that operatives working externally do not dehydrate. Water replenishes the water that has been sweated by the body as a result of physical outdoor activity

Staff shall also be monitored when they are working in extreme heat to ensure their safety. Suitable outdoor clothing shall be selected, including head and neck protection, wide-brimmed sunhats and Ultra Violet (UV) clothing that contains minerals like zinc and titanium that protect the wearer from the worst effects of the sun.

Operatives shall also be provided with high UV factor sunscreen to protect exposed areas of skin from the sun

- Winter – In areas of KSA where the winter temperatures can reduce significantly from their summer highs, operatives shall be provided with clothing to retain the heat and ward off the cold. These can be lightweight fabrics that do not constrict the wearer, which provide protection from the cold by trapping warm air in the fabric close to skin of the wearer

6.2.3 Pest Control

The Grounds and Landscaping Contractor should liaise with the Entity's Pest Control Contractor and in developing the Grounds and Landscaping Procedure should collaborate and understand the pest control activity on the site.

In compiling their procedure, the Grounds and Landscaping Contractor should refer to the following documents:

- EOM-ZO0-PR-000072 - Pest Control Procedure for Schools & Universities, and
- EOM-ZM0-PL-000075 - Pest Control Plan for Schools & Universities

6.2.4 Use of Hand Tools

The safe use of hand tools is a key aspect of grounds and landscaping maintenance. All tools shall be carefully checked before the use to ensure they are intrinsically safe and not damaged. This will prevent the possibility of the operative being harmed or from damage occurring to the Facility.

Damaged or defective tools shall not be used, reported to a Supervisor or Manager, and highlighted for disposal and replacement. Manual hand tools include e.g., picks, shovels, axes, secateurs, mallets. At the end of a shift, tools shall be safely and properly stored to prevent damage and extend their useful life.

When working at height, tools shall be placed in a tool belt for increased safety and any tool in use shall be secured by a lanyard or wrist strap to prevent it falling and injuring someone who may be below the work area.

6.2.5 Working with Mobile Plant and Machinery

Plant and machinery can present significant hazards to the user and to others who may come in contact with them in the workplace. All users of plant and machinery shall be trained, competent and, where required, licensed to use the equipment. PPE shall be used e.g., hard hat, safety footwear, goggles or face protection, ear defenders.

The work area shall always be segregated when work is taking place to restrict access, whether deliberate or accidental, to prevent harm to individuals. This segregation is especially important when working with mobile plant or machinery.

Special care shall be taken when working to adjust overhead power lines (pruning tall trees) or when digging in soil where services may be present. If in doubt, a service drawing or subsoil scan shall be taken to avoid a serious incident.

Vehicles such as dumper trucks shall be equipped with a reversing noise to alert pedestrians and other users of the facility and, if possible, the work area shall be segregated or cordoned using safety barricades to prevent the ingress of visitors or others. Special care shall be taken in an educational facility because of the likelihood of unsupervised children preset.

Traffic management plans shall be developed to ensure the safe use of vehicles. Warning beacons or hazard lights shall always be used when travelling in a space where members of the public may be present. It is essential to observe a maximum speed limit of 10kph in an area where pedestrians may be present. Speed violations should be strictly dealt with, to set expectations.

Where a MEWP is being used to gain high access, users shall be licensed, secured by the use of a safety harness, and be provided with a fall arrest. The outriggers for the MEWP shall be fully extended and placed on flat and stable ground.

6.2.6 Working with Vehicles

- All vehicles shall be maintained in good order and kept clean and tidy
- Drivers shall hold a current driver's license. Licenses should be checked annually
- Drivers shall not operate vehicles whilst impaired by prescribed medication, alcohol or drugs. Some medication such as that prescribed for cold of influenza can cause drowsiness and warns against the operation of vehicles or heavy machinery
- Vehicles shall never exceed 10kph on site (or other limit that suits the facility property), or damage turf, garden beds or other assets and keep to constructed paths and roadways when possible. Vehicles shall always use hazard/flashing lights when in motion on site (e.g., off roads)
- All items shall be placed and secured on vehicles to prevent:
    - Projecting from the vehicle, unless the item is designed to project, or unless the projection is minimal such as the long handle of a hand tool
    - Dislodging from the vehicle
    - Causing the vehicle to be less stable
- To restrain a load correctly, the driver shall:
    - Choose a vehicle that is of a size suitable for the load
    - Position the load correctly on the vehicle
    - Use suitable equipment for restraining the load, including using both lashing and attachments that are strong enough to take the load

6.2.7 Working with Electrical Tools

Defective or incorrectly used electrical equipment can cause serious injury or fatality. Operatives shall ensure that equipment is safe to use before commencing work and report any item that is damaged or unsafe.

The following are examples of safe use best practice:

- Keep all electrical equipment clean and dry
- Before connecting, check leads, plugs, power tools and others for damage or defect
- Defective equipment shall be taken out of service. Do not carry out temporary repairs
- Suspend leads above the ground where possible
- No double adaptors are to be used, use power boards
- Avoid kinking, twisting, binding or crushing cables
- Do not use portable tools near flammable vapors or gases
- All portable electrical equipment, such as generators, must be protected by an earth leakage circuit breaker

6.2.8 Working at Height

Working at Height is one of the most hazardous activities an operative can undertake. Reasonable care shall be taken when working from ladders or on roof tops. The risk of injury from falls is a significant one to operatives. Wherever possible, working from rooftops shall be avoided and wherever possible, working from ladders shall be replaced by a more appropriate method such as a MEWP, scissor lift or similar.

Working at height always requires a risk assessment and this shall be a formal one rather than just a POWRA. When power lines are in the vicinity, advice shall be obtained from the utility supplier.

Key observations in the safe execution of working at height are:

- Never work outside the handrails of access platforms, unless a written risk assessment has been conducted by a competent person, and adequate controls are used
- Individual fall protection systems (e.g. safety harness) shall be used when higher levels of control are not practicable
- Anyone supporting the activity at ground level shall wear a hard hat to protect from the hazard of falling items from the working height

6.2.9 General Safety

- The Entity and the contractor have a Duty of Care to ensure that their maintenance activities do not cause harm to others. This includes, safe access, and egress of premises users during these operations
- Only trained and authorized employees shall be permitted to operate vehicles and equipment. Staff shall be provided with suitable information, instruction and training in the use of all equipment they are expected to use
- First aid supplies shall be made available on site for injuries that may occur at the workplace and its location shall be known to all employees
- Incidents, accidents and near misses shall be recorded, investigated and reviewed for any 'lessons learned' to ensure recurrence is mitigated

Further guidance on HSSE and environmental protection may be obtained from NMA & FM Volume 10.

6.3 Maintenance Activities

When considering grounds and maintenance activity at their Facility, the Entity should also refer to two additional specific documents from NMA&FM Volume 6 Chapter 23 of (where appropriate) EOM-ZM0-PL-000087 Landscaping Maintenance Plan for Roadways EOM-ZM0-PL-000087 and EOM-ZM0-PL-000088 Landscaping & Grounds Maintenance Plan for Parks & Recreation.

6.4 Work Planning and Work Control

The contractor shall use a work order system whether computerized or paper-based, to track work activities. This should be based on the guidance provided in Volume 7 Chapter 2 EOM-ZW0-PR-000001 Requesting, Prioritizing, Planning and Scheduling Work Procedure.

This will include:

- Planned maintenance activity
- Corrective maintenance activity
- Emergency maintenance activity

Features of the Work Order System shall include, but not be limited to the following:

- **Asset locations/plans**: This shall include defined areas of the grounds together with any significant planting
- Operative details including training and competencies
- **Work order content**: Including order or reference number, start date time/close date/time and total man hours
- RAMS to be followed
- Subcontractor details, where used
- Confirmation of work activity completed

A computerized system of work order management and planning should always be the preferred option, since it provides the Entity and the grounds and landscaping maintenance contractor the option of a searchable system that can produce key reporting information.

These include, but not limited to:

- Accurate estimation of work time required for activities, assisting in resource management and stakeholder feedback
- Identifying increased usage of certain types of equipment that may indicate a need to amend the maintenance lifecycle of that equipment
- Calculating seasonal and total costs for maintaining each area of the facility
- Identifying variations in costs for maintaining same types of area or facility
- Identifying differences in labor productivity in a particular job classification
- Estimating the use of materials and supplies per week or per month for better planning, purchasing, and inventory management

6.5 Resourcing and Skills Training

The Entity and the grounds and landscaping contractor shall have an organizational structure with sufficient staff, having clear roles and responsibilities and the competency to oversee, monitor and deliver the maintenance activities at the facility.

- The contractor will be responsible for the provision of trained and competent staff, equipped with appropriate equipment, to deliver the grounds and landscaping maintenance for the Entity.
- The Entity should ensure that they regularly review and sample the training records of contractor's staff to ensure that all staff employed are suitably trained to carry out their work activity.
- The contractor shall be responsible for the provision of an adequate number of resources to undertake the totality of maintenance required at the Entity's facility. This will consider the seasonal variations for irregular tasks that will inevitably run concurrently with other, more regular, routine tasks. The Entity should satisfy themselves that the contractor has sufficient resources throughout the year
- The contractor should provide the Entity with information that demonstrates effective resource management and operative utilization. It is historically the case in the KSA that contracts frequently operated on a provision of labor, with no risk to the contractor about the effectiveness and the management of that labor. Increasingly Entities should expect the contractor to review the extent of the tasks and plan manpower accordingly

6.6 Stakeholder and Customer Communication

The Entity should ensure that there are clear rules of engagement and communication between themselves and their grounds and landscaping contractor to ensure minimal interruption in the facility utilization.

Users of the Facility will expect the maximum availability of the facility and so excellent communication standards are crucial in ensuring their understanding and cooperation if the facility is unavailable in part or completely for any period.

Best practice would see the implementation of a communications element to the procedure to identify roles, responsibilities and communication style to ensure uniformity of message and delivery.

6.7 Audit and Compliance Reporting

The Entity should undertake regular reviews and audit of the ground and landscaping contractor's work to satisfy themselves as to the effectiveness of the work.

This should include, but not ne limited to:

- **Weekly:** Inspect the site and review the general status, paying particular attention to the completion of daily/weekly frequency activity such as weeding, mowing and trimming. Visual inspection by the Entity and feedback on the adequacy of the performance is the quickest means of communicating any deficiencies in performance and correcting them. Good quality work should also be identified and praised.

- **Monthly:** Review reported performance and close out of work activity for timeliness and levels of satisfactory completion. A formal monthly review meeting is considered best practice for recording performance, noting actions, identifying benchmarks that need to be achieved, and measuring ongoing improvement strategies
- **Annual:** Review performance for the entire year and set strategy for the coming twelve month