



# INTEGRATED PEST MANAGEMENT (IPM), EROSION CONTROL, AND LANDSCAPE MANAGEMENT PLAN

The Environmental Building Operation Plans are intended for use by property managers to streamline environmental procedures within existing building operations. The plan provided herein covers integrated pest management, erosion control and landscape maintenance. This plan is a requirement for LEED for Existing Buildings: Operations and Maintenance (LEED-EBOM). LEED-EBOM is a green building rating system developed and administered by the U.S. Green Building Council (USGBC). All policies and plans must meet the LEED-EBOM prerequisite and credit requirements

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## 1. INTRODUCTION

This plan establishes the best management practices for outdoor integrated pest management (IPM), erosion control and landscape management. These best management practices mitigate the negative environmental impacts that operations and maintenance have on the buildings environs while simultaneously ensuring that the exterior is well-maintained and managed, and that an optimal environment is provided for employees, tenants and visitors.

Through the Exterior Integrated Pest Management, Erosion Control and Landscape Management Plan, 2500 City West ensures that pest management; erosion control and landscape management practices support the following key concerns:

- *Energy Efficiency* – Minimizing the environmental impact by choosing energy-efficient equipment, products, services, and practices
- *Water Conservation* – Reducing the use of potable water and contributing to the preservation of natural water supplies
- *Outdoor Air Quality* – Eliminating or managing volatile organic compounds and toxic off-gassing to maintain a healthy work environment
- *Waste Management* – Reducing amount of landscape waste generated
- *Improved Live/Work Environment* – Providing a safe, comfortable, and accessible live/work



environment for employees and building occupants

- *Bottom Line Improvements* – Environmentally responsible practices will cut operational costs by minimizing energy and water usage

The plan is based on the requirements of the LEED-EB O&M Reference Guide as excerpted from the August, 2008 Edition:

LEED-EB O&M Requirements:

**SS Credit 3 Integrated Pest Management, Erosion Control and Landscape Management Plan (1 point)**

*Have in place an environmentally-sensitive management plan for the site's natural components. The plan must employ best management practices that significantly reduce the use of harmful chemicals, energy waste, water waste, air pollution, solid waste, and/or chemical runoff (e.g., gasoline, oil, antifreeze, salts) compared to standard practices.*

*The plan must address the following operational elements at a minimum:*

1. *Outdoor Integrated Pest Management (IPM), defined as managing outdoor pests (plants, insects, and/or animals) in a way that protects human health and the surrounding environment and that improves economic returns through the most effective, least risk option. IPM calls for using least-toxic chemical pesticides and herbicides, minimum use of the chemicals, using them only in targeted locations, and only for targeted species. IPM requires routine inspection and monitoring. The outdoor IPM plan must address all of the specific IPM requirements listed in IEQ credit 3.9 – Green Cleaning: Indoor Integrated Pest Management, including preferred use of non-chemical methods, definition of emergency conditions, and universal notification (advance notice of not less than 72 hours under normal conditions and 24 hours in emergencies before a pesticide, other than a least-toxic pesticide, is applied in a building or on surrounding grounds that the building management maintains). The outdoor IPM plan must also integrate with any indoor IPM plan used for the building as appropriate.*
2. *Erosion and sedimentation control for ongoing landscape operations (where applicable) and future construction activities. The plan must address both site soil and potential construction materials. The plan must also include measures that prevent erosion and sedimentation, prevent air pollution from dust or particulate matter and restore eroded areas.*
3. *Further, the plan must address the following operational elements if they apply to the building and grounds:*
  - a. *Landscape waste – diversion from the waste stream via mulching, composting, or other low-impact means.*
  - b. *Chemical fertilizer use – minimize the use of artificial chemicals on landscaping by using locally adapted plants that need no fertilizer, less-polluting alternatives to artificial chemicals, or other low-impact maintenance*

## 2. SCOPE AND GOALS

### SCOPE

This plan provides guidelines for protecting and enhancing the natural diversity of the 2500 City West's site, while also supporting high-performance building operations and developing synergies between the building and its environmental context. The project is located at 2500 City West, Houston Texas. The Integrated Pest Management (IPM), Erosion Control, and Landscape Management Plan cover the entire building and associated grounds.



## GOALS

Goals include minimizing the impact of site management practices on the local ecosystem and reducing exposure of occupants, staff, and maintenance personnel to potentially hazardous chemical, biological, and particle contaminants. If any or all of these plan elements are contracted to a service provider, that provider is responsible for carrying out their services in accordance with this plan without exception.

The Plan addresses environmental best practices for:

- Outdoor IPM
- Erosion and sedimentation control
- Landscape waste
- Fertilizer use

Thomas Properties Group expects 100% implementation of the plan immediately. Non compliant activities need to be justified on annual report and shall be phased out as soon as economically feasible with a 5 year deadline. All new activities shall comply with requirements outlined on this plan.

## 3. RESPONSIBLE PARTIES

Brandi Stacy, the Property Manager, with support from Fernando, Olivares, Chief Engineer, is responsible for developing and managing the implementation of the IPM, Erosion Control, and Landscape Management Plan on behalf of Thomas Properties Group (TPG). Contracts with pest and landscape management vendors shall include a copy of this policy and language requiring them to comply with the requirements described on this Plan. Contractors involved with various elements of the Plan shall carry out their tasks according to their contracts, and report all relevant activities to the aforementioned parties. On occasion, several contractors may be engaged simultaneously in various elements of the Plan at the building and grounds. To ensure an effective and coordinated effort, the Property Manager responsible for overseeing the Plan shall review all proposed activities before implementation. The Property Manager may delegate certain duties relating to exterior maintenance to staffers but will bear ultimate responsibility for the procedure's effective implementation.

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## 4. GUIDANCE FOR RESOURCES AND IMPLEMENTATION

### A. OUTDOOR IPM

To minimize the impact of site management practices on the local ecosystem, and to reduce exposure of occupants, staff and maintenance personnel to potentially hazardous chemical, biological and particle contaminants.

Conventional pest control techniques have relied extensively on the use of spray-applied chemical that



contribute to ground and surface water contamination and create the potential for exposure to building occupants and visitors. Integrated pest management programs seek to minimize the spray application of pesticides by focusing on long-term, mechanical and administrative measures to control pests, thereby reducing the use of pesticides and toxicity. This IPM program uses information on the life cycles of pests and their interaction with the environment to eliminate them through the least toxic means possible.

In lieu of using poisons, toxins and other harmful chemicals, the property will employ natural pesticides, herbicides, fungicides and trapping strategies. These natural treatments will be applied based on bimonthly vegetation inspections. Such inspections entail identifying and generating an approximate count of pests, both animal and vegetative. The team will establish a threshold for pest control – a point beyond which pest control action will be taken – and if the inspection determines that the quantity of pests exceed tolerable numbers, natural pesticides, herbicides, fungicides or trapping strategies will be utilized.

The Plan addresses environmental best practices for:

- Outdoor integrated pest management

#### PERFORMANCE METRIC

This IPM Plan shall govern all components of pest management at the project building and site. The practices identified in this Plan shall be wholly adopted and used in 100 percent of the pest management scenarios at 2500 City West.

#### IPM STRATEGIES AND PRACTICES

##### **Integrated Methods**

Integrated methods that make use of monitoring and non-toxic preventative measures (e.g., site inspection and maintenance, cultural controls, pest inspection and population monitoring) will be used to proactively manage and minimize pest issues. In the event that monitoring activities reveal a need for the use of pest controls, appropriate control options will be evaluated, and the least-toxic option likely to be effective will be employed.

##### **Least-Toxic Pesticides**

Least-toxic pesticides are defined by the City of San Francisco's Hazard Tier III criteria (least hazardous): [www.sfenvironment.org/downloads/library/2009\\_rrpl\\_checklist\\_12309.pdf](http://www.sfenvironment.org/downloads/library/2009_rrpl_checklist_12309.pdf)

Least toxic pesticide status also applies to any pesticide product, other than rodent bait, which is applied in a self-contained, enclosed bait station placed in an inaccessible location, or applied in a gel that is neither visible nor accessible.

##### **Emergency Conditions**

In the event of an emergency, pesticides may be applied on the grounds without complying with the earlier stipulations for use of integrated and least-toxic methods.

Emergencies are defined as an emergency application of pesticides without proper notification can be performed, in the event of an emergency such as: (1) Killer Bees incident, (2) Large amount of pest infestation (cockroaches, rats), but prior to performing the application the following steps must be taken:

1. The Property Manager must be contacted.
2. The Property Manager will gather MSDS and label information of products being used and review with pest control contractor the application areas and methodology for application before the application is made.
3. After obtaining all required documentation the Property Manager will notify via email all tenant contacts and provide them with electronic copies of MSDS, label information and application areas.
4. After all parties have been informed of the emergency and have affirmed the products and method of



the application, the application can be performed.

### **Universal Notification**

2500 City West has adopted a universal notification system if a pesticide, other than a least-toxic pesticide as defined below, must be applied on site. This strategy requires 2500 City West and its vendors to notify building occupants at least 72 hours in advance of a pesticide application under normal circumstances and no more than 24 hours after an emergency application (where employee and/or occupant safety is threatened) through email notification, posted signs or other means of reaching 100 percent of occupants. This notification system enables occupants and staff, and especially high-risk occupants such as children, pregnant women and the elderly, to modify their plans based on pesticide use at the building.

Notification must include the following:

- Pesticide product name
- Active ingredient
- Product label signal word (e.g., “caution”, “danger”)
- Time and location of application
- Contact information for persons seeking more information

### **Recordkeeping**

Recordkeeping is required to demonstrate ongoing compliance with the IPM plan. All applications of pesticides (include least-toxic options) shall be logged. The pesticide application log shall include the following information:

- Universal Notification to Occupants
  - Date
  - Time
  - Method
- Pesticide Application Date and Time
- Application Manager
- Location
- Target Pest
- Pesticide Trade Name
- Pesticide Active Ingredient
- EPA Registration Number
- Least-toxic status (Y/N)

### **Cleaning Practices**

In the event that cleaning products are used as a component of IPM, they shall meet LEED-EBOM criteria for sustainable cleaning products.

### **Cautionary Labeling for Pesticides**

Law requires that precautionary statements and signal words be used on all pesticide labels. DANGER. WARNING. CAUTION. These statements will include the hazards associated with the ingestion or handling of some pesticides. The warning label is the most important piece of information available to the physician in the event of an emergency.

Any cleaning product used in the IPM must meet the requirements of IEQ: Purchase of Sustainable Cleaning Products and Materials. Standards include Green Seal GS-37, 40, 9, 1, and 41, Environmental Choice CCD-110, 146, 148, 112, 113, 115, 147, 82, 86, and 104, California Code of Regulations maximum allowable VOC levels, and the U.S. EPA Comprehensive Procurement Guidelines. Documentation of all purchases related to the applicable categories must be maintained on an annual basis.



## ANIMAL & VEGETATION PEST CONTROL IPM BEST PRACTICES

Environmental best practices described below are incorporated into vendor contracts / SOP language as appropriate.

<b>CHEMICAL STORAGE PRACTICES</b>	
<b>Storage Areas</b>	<ul style="list-style-type: none"> <li>▪ Storage areas must be dry, frost-free, well-ventilated and secure.</li> <li>▪ Storage areas must be situated away from other buildings, especially residential buildings or areas where food or flammable materials are stored.</li> <li>▪ Storage must be built to resist foreseeable accidents, including leakage and spillage, fires and the weather. Ensure there is no risk of spills polluting ground water and local bodies of water. Floors must be impervious to liquids, anti-slip, chemical-resistant, washable and with a means of diverting spills. Drains must lead to sumps or tanks large enough to contain any foreseeable leaks.</li> <li>▪ Shelving must be appropriate for the size of the containers stored in them. Flammable pesticides must be separated from other pesticides. Consideration must be given to possible reactions between chemicals coming in contact with each other.</li> </ul>
<b>Labels</b>	<ul style="list-style-type: none"> <li>▪ Make sure all pest control chemicals are clearly labeled and that the manufacturer's instructions for use are kept with them.</li> <li>▪ Chemicals must never be placed in unmarked containers.</li> </ul>
<b>Product Information</b>	<ul style="list-style-type: none"> <li>▪ Effective first-aid provisions must be available together with data sheets on all the products in the storage room and the chemical safety precautions.</li> <li>▪ Emergency telephone numbers must be listed in a key location in the storage facility. These numbers and other emergency facilities must be checked and updated as necessary.</li> </ul>
<b>Signage</b>	<ul style="list-style-type: none"> <li>▪ Display warning signs without attracting unwanted attention.</li> </ul>

<b>CHEMICAL PREPARATION &amp; HANDLING PRACTICES</b>	
<b>Choosing Chemicals</b>	<ul style="list-style-type: none"> <li>▪ Identify which pesticides and herbicides are being used and the exact problems they are intended to resolve. The more that is known about the problem, the less chance there is of making a mistake. The words organic, natural and biodegradable in this context do not guarantee that they are safe.</li> </ul>
<b>Mixing Chemicals</b>	<ul style="list-style-type: none"> <li>▪ Accurate measurements must be made during both mixing and application phases. Use the most suitable chemical, in the minimum necessary amount, to achieve the desired results.</li> <li>▪ A safe area must be available for mixing pesticides. This must be done on a concrete pad, with a separate sump or tank to contain any leakage.</li> </ul>
<b>Health Precautions</b>	<ul style="list-style-type: none"> <li>▪ Operators must be provided with and adequately trained in the use of the necessary equipment and protective clothing.</li> <li>▪ Proper health surveillance must be available to all those working with pesticides and herbicides.</li> <li>▪ Neighbors and others in the area must be warned of the spraying program in advance of and during applications.</li> </ul>
<b>Chemical Transport</b>	<ul style="list-style-type: none"> <li>▪ Only the appropriate quantity of pesticide and herbicide must be removed from the pesticide store for immediate use.</li> <li>▪ Do not transport chemicals in vehicles used for carrying people or food.</li> </ul>



<b>CHEMICAL APPLICATION PRACTICES</b>	
<b>User Qualifications</b>	<ul style="list-style-type: none"> <li>▪ In many instances it will be necessary to call on outside expertise to advice on pest-management problems, particularly in the creation of customized integrated pest management problems, which may require detailed knowledge of the biology and ecology of a particular species.</li> <li>▪ If pesticides are required, the IPM specialist shall communicate with the Property Manager to determine the best product and application in accordance with approval requirements.</li> <li>▪ A specialist must supervise and control the preparation and use of chemical applications.</li> </ul>
<b>Species Considerations</b>	<ul style="list-style-type: none"> <li>▪ Time the treatment to coincide with the presence of the pest.</li> <li>▪ Use a selective chemical that has the least effect on non-target species and treat only the area affected.</li> </ul>
<b>User Safety</b>	<ul style="list-style-type: none"> <li>▪ Users must wear protective clothing and headgear, and change clothing and wash thoroughly with soap and water after applying pest control chemicals.</li> <li>▪ Ensure that anyone handling toxic chemicals never works alone and that the work area is well-ventilated.</li> <li>▪ Wear a respirator for outdoor spraying or dusting of organic phosphorus compounds</li> <li>▪ Eating, drinking and smoking must be prohibited when using or handling chemicals</li> <li>▪ Users must be familiar with the effects on the body of the chemicals they are likely to be using, and how the chemicals may enter the body.</li> <li>▪ Users must be aware of the signs and symptoms of acute poisoning related to chemicals they are using. They must stop work if they are feeling ill and seek medical advice.</li> </ul>
<b>Limited Access</b>	<ul style="list-style-type: none"> <li>▪ The area of application must be clearly marked, and unnecessary access prevented while spraying is in progress.</li> <li>▪ Building occupants must be informed of any pest-control management systems. When application or spraying is in progress, they must be warned of this activity and kept away from the area in which it is taking place.</li> <li>▪ Control the reentry of people into the treated area.</li> </ul>
<b>Equipment</b>	<ul style="list-style-type: none"> <li>▪ Equipment must be frequently checked and properly maintained, both for health and safety reasons and to minimize spray drift.</li> </ul>
<b>Weather/Time Restrictions</b>	<ul style="list-style-type: none"> <li>▪ Spraying must not be carried out in unsuitable weather. Anyone operating sprayers must have access to a wind-speed meter and only spray when the wind speed is negligible.</li> <li>▪ Hours of work must be controlled so that building occupants are not exposed.</li> </ul>





<b>CHEMICAL DISPOSAL PRACTICES</b>	
<b>Conditions of Disposal</b>	<p>As most pesticides and herbicides are extremely toxic, proper disposal of unused chemicals is paramount to maintaining the health of building occupants and the safety of the environment. Disposal methods will depend on:</p> <ul style="list-style-type: none"> <li>▪ Quantity of waste for disposal</li> <li>▪ Chemical and biological degradability of the active ingredients</li> <li>▪ Toxic properties</li> <li>▪ Concentration</li> <li>▪ Physical form of the waste</li> <li>▪ Disposal options available</li> </ul>
<b>General Guidelines</b>	<ul style="list-style-type: none"> <li>▪ Always follow the manufacturer's and/or supplier's instructions even when disposing of empty containers.</li> <li>▪ Landfilling or incinerating pesticides and herbicides is not an environmentally sound option.</li> <li>▪ Segregate pesticide/herbicide wastes from general building wastes.</li> </ul>
<b>Containers/ Labels</b>	<ul style="list-style-type: none"> <li>▪ Never transfer pesticides to unlabelled or mislabeled containers. Keep the chemicals in clearly labeled containers even when disposing of them.</li> <li>▪ Do not reuse pesticide/herbicide containers.</li> <li>▪ Puncture containers after they have been used to prevent reuse.</li> </ul>
<b>Authorization</b>	<ul style="list-style-type: none"> <li>▪ Use an authorized waste-disposal contractor.</li> <li>▪ Use an authorized disposal site.</li> </ul>

<b>BASIC VEGETATION PEST CONTROL PRACTICES</b>	
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>▪ Keep the building grounds well-maintained at all times.</li> <li>▪ Maintenance personnel shall apply mulch to plant beds, warding off weeds and other pests.</li> </ul>
<b>Plantings</b>	<ul style="list-style-type: none"> <li>▪ Plant at the right time and in the right places. Seedlings must not be planted too early, nor located in unsuitable conditions.</li> <li>▪ Avoid monocultures by mixing plant species in planters and gardens.</li> </ul>
<b>Manual Controls</b>	<ul style="list-style-type: none"> <li>▪ Landscaping shall be hand weeded and chemical control shall be kept to a minimum. This measure prevents human and environmental exposure to hazardous chemicals.</li> </ul>
<b>Chemical Controls</b>	<ul style="list-style-type: none"> <li>▪ When chemical use is necessary, replace hazardous substances with least-toxic chemicals as defined by the 2007 San Francisco Reduced-Risk Pesticide List</li> </ul>
<b>Inspection Schedule and Location</b>	<ul style="list-style-type: none"> <li>▪ The landscape contractor shall visit the site at regular intervals to monitor and apply pest controls operations.</li> </ul>

<b>BASIC ANIMAL PEST CONTROL PRACTICES</b>	
<b>Site/Building Cleanliness</b>	<ul style="list-style-type: none"> <li>▪ Keep garbage containers clean, free of odors and covered at all times. Sanitation measures reduce habitat and food sources for pests.</li> <li>▪ Keep areas around garbage containers free of spillage or garbage to prevent the collection of trash or debris on the ground around or underneath the containers.</li> <li>▪ Keep grounds free of high weeds, trash, old equipment and debris, as these conditions create ideal harborage for rodents.</li> </ul>





<b>Structural Integrity</b>	<ul style="list-style-type: none"> <li>▪ Maintain the building exterior in good repair with no holes or openings larger than ¼ inch including, but is not limited to, windows, doors, fans, vents, etc. Structural repairs prevent pests from entering the building.</li> <li>▪ Address any deficiencies in the building exterior with corrective measures, i.e., cementing, screening, caulking, installing stripping on door bases, etc.</li> <li>▪ Maintain door sweeps on all applicable doors to produce a good seal to the ground.</li> <li>▪ &lt;Include site-specific information&gt;</li> </ul>
<b>Inspection Schedule and Location</b>	<ul style="list-style-type: none"> <li>▪ Visual inspections shall be performed at least 2 times per month, with treatment if necessary. After each visit, the pest contractor shall provide a printed service report that includes written observations, recommendations and details of IPM activities.</li> </ul>

<b>SPECIES-SPECIFIC ANIMAL CONTROL STRATEGIES</b>	
<b>Ants</b>	<ul style="list-style-type: none"> <li>▪ In areas where ants are present, wipe the areas down with soapy water in order to prevent the formation of major scent trails. If there already is an established trail, wipe backwards from the food source to the entrance of the trail.</li> <li>▪ Block all entry points to the building – ants will give up trying to find a way through after 1-2 days. Temporary blockades can be made using sticky substances such as petroleum jelly or chili powder, cinnamon, and boric acid.</li> <li>▪ Always keep opened foodstuffs in sealed containers or store them in the refrigerator or freezer. Clean out kitchen cabinets, drawers and shelves to remove crumbs and stains. Keep sinks and worktops clean and dry.</li> <li>▪ Baits are best put in the path of an ant trail and then removed after the ant activity stops, before they lure ants from another colony to the area.</li> <li>▪ Prune branches close to the building and removed fences or anything that might create a bridge for the ants to cross.</li> <li>▪ Low toxicity compounds to control ants include boric acid and diatomaceous earth (DE), a chalk-like powder consisting of the fossilized remains of diatoms, a type of hard-shelled algae.</li> </ul>
<b>Aphids</b>	<ul style="list-style-type: none"> <li>▪ Manage sap-sucking pest mites and whiteflies by releasing predatory mites, ladybugs and lacewings onto the grounds several times over a period of weeks.</li> <li>▪ Consider using parasitic wasps to control scales on trees, shrubs and flowers</li> <li>▪ If it is difficult to obtain supplies of beneficial insects for release into the garden, then it is possible to purchase a branded lure that simulates the scent of aphids and attracts ladybugs and lacewings to the area</li> </ul>
<b>Bed Bugs</b>	<ul style="list-style-type: none"> <li>▪ If a bed bug infestation is detected, the most effective course of action is to enlist professional help to inspect the entire building for the presence of bed bugs and treat the affected areas.</li> </ul>
<b>Caterpillars</b>	<ul style="list-style-type: none"> <li>▪ Bacterial insecticides derived from natural ingredients are available to control caterpillars.</li> </ul>



<p><b>Cockroaches</b></p>	<ul style="list-style-type: none"> <li>▪ Cockroaches contaminate food with their excrement and secrete and unpleasant odor that can permeate the indoor environment.</li> <li>▪ There are five main species of cockroaches and effective control depends on identifying them correctly.</li> <li>▪ Integrated pest management measures for controlling cockroaches include effective hygiene and exclusion practices, sticky traps lined with pheromones, boric acid, and insect growth regulators.</li> <li>▪ All food handling areas should be cleaned frequently.</li> <li>▪ Cockroach control is best done by a professional on a contract basis, through the application of least-toxic pesticides.</li> <li>▪ Control is necessary on a regular basis because of the mobility, reproduction, longevity, and behavior of cockroaches.</li> <li>▪ Ensure that you know what pesticides are being used by the professional contractor and do not assume they are using an environmentally appropriate chemical.</li> </ul>
<p><b>Dust Mites</b></p>	<ul style="list-style-type: none"> <li>▪ Fabrics, bedding and carpets attract and generate dust and dust mites. To keep dust mites at bay, keep building well-ventilated and dry.</li> </ul>
<p><b>Flies</b></p>	<ul style="list-style-type: none"> <li>▪ Flies reproduce more readily in waste and manure, which is where control should begin. In warm weather conditions, the reproduction cycle – from egg, to larva, to pupa, to adult winged fly – requires approximately one week.</li> <li>▪ Collection of waste and residues should be carried out at least twice a week.</li> <li>▪ Keep refuse areas clean to avoid providing flies with breeding grounds</li> <li>▪ Ensure dustbin lids fit tightly and the interiors of bins are cleaned regularly to keep surfaces free of food material.</li> <li>▪ Use fine mesh window and door screens as a barrier against entry by any flying insect.</li> <li>▪ Ultra-violet (UV) fly killing equipment is very effective so long as it is situated correctly.</li> <li>▪ UV equipment disguised as uplighters in dining and lobby areas are discreet and highly effective because they attract and eliminate flies quickly and silently.</li> <li>▪ In food preparation areas, UV equipment should only be used once all possible precautions have been taken to keep flying insects out.</li> <li>▪ Position the UV equipment close to an entry point, at right angles to the nearest competing light source such as a window. In many catering establishments, poorly-situated UV equipment poses a greater food hygiene hazard than lacking pest repellants altogether. This is because when placed next to the food preparation area, they draw flies to the food which they are likely to contaminate before being killed.</li> <li>▪ Natural chemical treatments include pyrethrum extracted from the Chrysanthemum cinerariaefolium plant that can be used in kitchens and restaurants.</li> </ul>
<p><b>Mosquitoes</b></p>	<ul style="list-style-type: none"> <li>▪ The best control method for mosquitoes is to eradicate their habitat.</li> <li>▪ Because they like moisture and lay their eggs in standing water, it is important not to leave flower pots, buckets, plastic sheeting or other open containers outside collecting water. Ensure that any rainwater collectors are fitted with lids.</li> <li>▪ Clear debris from gutters and drains to ensure there is no standing water after rain and drain unused pools or fountains so that the water cannot become stagnant.</li> <li>▪ Drain or fill depressions, mud flats, and other areas that might hold water.</li> <li>▪ Repair leaking taps and air-conditioning units so that puddles cannot form and ensure that septic tanks and sewage systems are properly maintained and in good working order.</li> <li>▪ Avoid over-irrigating lawns and gardens, and keep weeds and grass (where the insects rest) well-clipped.</li> <li>▪ If you have a pond or lake on the building grounds, fill it with mosquito-eating fish such as top-feeding minnows or goldfish – they will eat the mosquito larvae before</li> </ul>



	<p>they mature into adults.</p> <ul style="list-style-type: none"> <li>▪ Some buildings have successfully reduced the number of mosquitoes and other insects by attracting bats to their property. A simply-built bat house will usually accommodate up to 100 bats.</li> <li>▪ To prevent mosquitoes from coming indoors, fit fine-mesh screens to porches, doors and windows.</li> <li>▪ If these measures are insufficient, area repellents such as citronella candles, coils or sprays will repel mosquitoes from porches, patios and other unscreened outdoor areas, although they only work well when the air is still.</li> </ul>
<p><b>Fabric/Clothing Moths</b></p>	<ul style="list-style-type: none"> <li>▪ Moth larvae feed on a wide variety of natural and synthetic materials. They can be found in kitchens, food storage areas, clothing, carpets, blankets and upholstery.</li> <li>▪ Fabrics should be washed and then put in bags and placed in a freezer. When taken out to thaw, shake the fabrics vigorously to remove dead larvae.</li> <li>▪ Clean the areas where fabrics have been stored with vinegar and water.</li> <li>▪ Store fabrics in cedar chests or closets. Place cedar chips or blocks or lavender sachets in drawers.</li> <li>▪ For acute moth problems, re-usable traps can be baited with a controlled-release pheromone system to lure moths into the trap and disrupt their mating cycle.</li> <li>▪ Mothballs not only have an unpleasant odor, but they are also poisonous; avoid them if possible. Insect foggers are not recommended as they can pose a health threat and are not always effective.</li> </ul>
<p><b>Pantry Moths</b></p>	<ul style="list-style-type: none"> <li>▪ Clean affected areas by vacuuming all surfaces, walls, shelves, cabinets and floors. Scrub hard surfaces rigorously with hot water and detergent, especially in corners and around the edges of removable shelves. Clean all surfaces that come into contact with food.</li> <li>▪ Rinse the affected areas with white vinegar, either in a spray or by wiping with a cloth.</li> <li>▪ Throw away all grain-based food items as well as nuts, raisins, flour and tea, even if it is in sealed containers.</li> <li>▪ Remaining food items and containers should be thoroughly cleaned with a detergent and water solution and wiped down with a vinegar rinse before being put back. Use air-tight containers made of hard plastic, glass or metal and not plastic bags.</li> <li>▪ Kill any moths with a fly swatter or moth traps.</li> <li>▪ After a severe infestation, freezing any new grain products and storing grain products in refrigerators or freezers can prevent reinfestation.</li> <li>▪ Peppermint gum, bay leaves, peppercorns and cloves may also help deter pantry moths.</li> </ul>



<p><b>Rodents</b></p>	<ul style="list-style-type: none"> <li>▪ Rodent control should start with a survey to determine the source of the problem and the conditions that encourage the infestation. Following the survey, implement a program to kill the rodents, removing their sources of food and water, eliminating their place of refuge and making it rodent-proof, and educating and obtaining the cooperation of employees. If the food supply is removed before you eradicate them, the rodents will migrate to other areas, making elimination more difficult.</li> <li>▪ Openings in building foundations and walls should be closed or screened with wire mesh that has holes not more than 1.25 cm (0.5 in) wide. Where pipes enter masonry, force heavy hardware cloth or steel wool into the opening, then fill it with concrete.</li> <li>▪ Continuous surveillance is necessary, and places where rodents have been gnawing to gain entry to a building should be sealed with metal flashing.</li> <li>▪ Doors are particularly vulnerable to rodent entry so ensure that external doors and windows close tightly with no gaps at the bottom.</li> <li>▪ Materials stored in the open, in sheds or in building should be stacked at least 30 cm (1 ft.) above the ground.</li> <li>▪ Stringent waste disposal practices should be observed – secure all waste in closed containers and not just plastic bags.</li> <li>▪ Wash dustbin areas regularly. Make sure composting bins are designed to prevent rodents from entering.</li> <li>▪ Traditional mouse and rat traps, or snap traps, kill instantly. If trapping efforts fail, it is usually due to too few traps being used.</li> <li>▪ Bait should be sticky to ensure that the mouse triggers the trap mechanism even if it only lightly touches the bait. Mice prefer peanut butter or chocolate to cheese. Bacon, oatmeal or apples can also be used as bait.</li> <li>▪ An alternative to snap traps is a battery-operated trap that generates a high-voltage once the rat or mouse is inside. The design is relative safe and can be used in areas where children, pets or wildlife may be present.</li> </ul>
<p><b>Slugs and Snails</b></p>	<ul style="list-style-type: none"> <li>▪ There are various non-chemical solutions to eliminated slugs and snails, including putting salt or sharp shingle around vulnerable plants, drowning them in beer or simply throwing them over a fence. Elemental copper bands also repel snails and slugs.</li> </ul>
<p><b>Wasps and Hornets</b></p>	<ul style="list-style-type: none"> <li>▪ A simple trap can be made by putting beer or a solution of jam or honey and water in an open jar around the grounds. If this does not work, there are branded traps available containing specially formulated attractant baits.</li> </ul>

**9. INTEGRATED PEST MANAGEMENT: STANDARD PRACTICE VS. BMPS**

Issue	Standard Practice	Best Management Practice	Optimal Practice
<p>General use of pesticides</p>	<p>Pesticide use as first strategy in combating pests</p>	<p>Use management practices that reduce pesticide applications. If pesticide use is needed, use pesticides with low mobility and persistence. Reference the 2007 San Francisco Reduced-Risk Pesticide List. Perform Universal Notification as appropriate.</p>	<p>Do not utilize chemical pesticides</p>



	Use of pesticide dusts, wettable powders, and fine liquid sprays	Use management practices that reduce pesticide applications. If pesticide use is needed, use pesticide formulations that reduce drift losses, such as granules and pellets. Reference the 2007 San Francisco Reduced-Risk Pesticide List. Perform Universal Notification as appropriate.	Do not utilize chemical pesticides
General use of spray pesticides	No consideration given to application method	Avoid use of pesticides that require spray application. If non-spray alternatives do not exist, adjust spray equipment to give the range in droplet size for optimum coverage of the target.	Do not utilize chemical pesticides
	Blanket application of spray pesticide	Avoid use of pesticides that require spray application. If non-spray alternatives do not exist, release pesticide spray as close to the target as possible.	Do not utilize chemical pesticides
	No consideration given to weather when applying spray pesticide	Avoid use of pesticides that require spray application. If spray pesticides must be used, never apply prior to intense rainfall events or during weather conditions that may cause small droplets to significantly drift away from the spray target.	Do not utilize chemical pesticides
	No consideration given to reduction in potency	Avoid use of pesticides that require spray application. Add modified vegetable oil adjuvant to herbicide mixes, when recommended, to increase the effectiveness of the herbicides and reduce the total active product.	Do not utilize chemical pesticides
Chemical herbicides	Reliance on chemical herbicides used in accordance with their EPA-approved label directions	Biological control of pests can supplant chemical herbicide applications (e.g. goats, sheep, several species of flea beetles, etc). Use native and adaptive plantings that are able to out-compete unwanted species.	Do not use chemical pesticides
Action Thresholds	Premature determination of pest problem	Set a point at which pest populations or environmental conditions indicate that pest control action must be taken. Sighting a single pest doesn't necessarily mean control is needed.	
Monitor and Identify Pests	Pesticides applied without consideration to real threat	Not all insects, weeds, and other living organisms require control; innocuous species should be dealt with via non-chemical means.	Identify beneficial organisms



Animal controls	Lethal traps	Utilize live traps, animal handling gloves, or hand-operated devices such as catchpoles and vise-grips	Same as BMP
Disposing of Capture animals	Extermination	Release or relocation	Same as BMP
Repellents	Rodenticides, Fumigants, Immobilizing Agents	Non-toxic or physically invasive visual, auditory, or olfactory repellants	Same as BMP
General preventive pest management	Reactive strategies	Proactive strategies: one-way doors allow an animal to exit but not re-enter a building	Same as BMP
Pest control: Ants	Spray insecticides	Caulk actual and potential entryways with a low-VOC, caulking compound. Apply weather-stripping around doors and windows	Same as BMP
Pest control: Cockroaches	Chemical insecticides in accordance with their EPA-approved label directions	Utilize physical controls such as screening vents and windows, sealing runways, vacuuming, and trapping	Same as BMP
Pest Control: Mice and Rats	Poisonous rodenticides used in accordance with their EPA-approved label directions	Seal all holes in building, ac units, sewer pipes, drains. Install ratproof barrier between landscaping and building. When trapping is required, use snap traps.	Same as BMP
Pest Control: Yellowjackets and Hornets	Chemical insecticides in accordance with their EPA-approved label directions	Trapping with a sturdy trap and an attractive bait can significantly reduce yellowjacket numbers if a sufficient number of traps are used.	Same as BMP
Pest Control: Yellowjackets and Hornets	Chemical insecticides in accordance with their EPA-approved label directions	A nest can be destroyed through physical removal (vacuuming).	Same as BMP



Pest Control: Mosquitoes	Chemical insecticides in accordance with their EPA-approved label directions	Eliminate hidden water; stumps, pipes, gutters, and equipment exposed to the environment should be filled, capped, plugged, or covered.	Utilize natural alliances: several types of birds, bats, dragonflies, frogs, and toads can help keep the mosquito population in check.
	Chemical insecticides in accordance with their EPA-approved label directions	Dispose of any litter that could hold water for a day or more. Trash receptacles should be water-tight and vermin-proof.	Perform and record weekly dipping for mosquito larvae
Lawns: Weed Control	Chemical controls in accordance with their EPA-approved label directions	Utilize biological controls or botanical insecticides, such as neem oil and pyrethrin.	Reducing stress on lawns will decrease need for chemical fertilizers and herbicides. Maintain healthy soils, plant appropriate grass species, reduce soil compaction, use aeration, keep thatch to a minimum, and raise mowing heights.
General landscape maintenance	Excessive focus on problems encountered in landscapes or gardens that are attributable to insects, mites, or disease rather than emphasizing plant health and proper horticultural practices	Focus on determining soil health, appropriate watering, etc, and study your landscape ecosystem both prior to and after planting or transplanting.	Same as BMP
		Use proper planting techniques when installing vegetation. Improve the soil with organic matter and mulches.	Same as BMP
		Plant a diversity of species so that a single pest problem does not devastate your landscape.	Same as BMP
		Include insectary plants in your landscapes. These are plants that attract and feed beneficial insects with their nectar and pollen.	Same as BMP
	Only use pesticides in accordance with EPA approved label directions	When using pesticides, only use pesticides on the 2007 San Francisco Reduced-Risk Pesticide List.	Do not use chemical pesticides
Landscape weed reduction	Chemical controls: Herbicides used in accordance with their EPA-approved	Utilize plant selection, planting techniques, and cultural practices so that desired vegetation grows densely and vigorously enough to crowd out weeds.	Same as BMP





	label directions	Use of string trimmers and mowers are very effective weed control techniques.	Non-mechanized weed reduction tools, including hand-pulling
		Utilize competitive inter-planting. When shrubs or groundcovers are installed, the spaces between individual plants are often colonized by weeds before the ornamentals can spread and shade them out. These weed habitats can be eliminated by overseeding newly planted areas with fast-growing annual flowers.	Same as BMP
		Eliminating weed habitat by creating a "mow strip" under and immediately adjacent to fence lines can solve a common weed problem.	Same as BMP
		Extensive mulching to exclude light from the soil limits weed seed germination. Mulches can be composed of organic materials (compost, woodchips, etc), stones, or gravel.	Same as BMP
Wood Damaging Pests	Contractor Provides chemical treatment services	If hiring a contracting service, choose a company that is willing to provide monitoring services for a fee that is separate and distinct from any treatments.	Utilize termitetecting dogs
	Chemical pesticides used in accordance with their EPA approved label directions	Use non-chemical treatments, including heat (drywood termites, powderpost and wood-boring beetles), electricity (drywood termites), and extreme cold/liquid nitrogen (drywood termites).	Reduce the moisture level of the wood by ensuring proper drainage under buildings, improving irrigation or landscape practices to decrease water collection near buildings, and eliminating direct contact between wood and soil.

**B. EROSION AND SEDIMENTATION CONTROL**

2500 City West's goal is to protect water and air quality through prevention of soil erosion and sedimentation. Meeting erosion and sedimentation (E&S) objectives includes the establishment of E&S control plans during any infrastructure repairs or other construction activities that result in ground disturbance, as well as ongoing maintenance of the facility's site to prevent soil erosion and sediment transfer.

**PERFORMANCE METRIC**

This plan shall govern all components of E&S control at the project building and site. The practices identified in this plan shall be wholly adopted and used in 100% of the construction and routine site maintenance/operations scenarios at 2500 City West



## PRACTICES TO OPTIMIZE EROSION AND SEDIMENTATION CONTROL

### **During Construction Activities**

The prevention and control of E&S during construction is based on the Site Erosion and Sedimentation Control component of the construction specifications. This requires a plan with work methods and devices in compliance with the 2003 EPA Construction General Permit (<http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>), or another local jurisdiction, if more stringent. The specification shall be included in construction documents for all projects involving site work or grading.

For Future Construction Activity, a number of erosion and sedimentation control measures will be employed as follows:

- Meet codes. The existing building and landscape should meet the EPA's stormwater pollution plan (<http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>), or another local jurisdiction, if more stringent. The specification shall be included in construction documents for all projects involving site work or grading.
- Erect structural controls. Measures to reduce water runoff and control sedimentation include: earth dikes, sedimentation traps, silt fences, sediment basins, etc.
- Slow the runoff across a site. Slope stabilization
- Minimize loss of soil. During a major excavation, mist impacted areas with water to curtail wind erosion and particulate air pollution when there is significant disturbance.
- Temporary seeding, permanent seeding, mulching, earth dikes, hay bales and silt fencing.

### **During Routine Site Maintenance and Operations**

When deteriorated conditions compromise the efficacy of the existing controls, the methods listed in the construction specification apply to the operations and maintenance work.

During significant weather events or due to seasonal detritus, soil and organic debris can build up in stormwater drainage systems; routine inspections and maintenance facilitate a fast response to erosion issues and limit the harmful environmental impacts of erosion and sedimentation. A regular inspection of existing controls shall be performed and logged to ensure that deficiencies are identified and remedied.

The site has existing controls for erosion and sedimentation control and stormwater management consisting of:

- Assessment of slope stability after major rainfall events for site areas with steep slopes
- Inspection of storm sewers during major rainfall for evidence of sedimentation
- Existing landscaping operations will be reviewed to determine if excessive erosion and/or sedimentation is occurring. If this is the case, the possibility of installing more appropriate plantings and/or erosion and sedimentation control measures will be investigated. Landscape staff will check the conditions of the planter beds each visit for drainage problems and the general condition of the beds. If problems exist, Property Manager will be notified and corrective action will commence.
- Routinely inspect for proper function of drainage, infrastructure and stormwater diversion systems. This includes drainage ditches, roof drains, gutters, downspouts and stormwater collection systems like detention ponds. Hardscape drains throughout the project are inspected periodically and debris is removed if necessary. The building plumbing vendor will be called if drains are plugged and cannot be cleared by maintenance staff. Maintenance personnel also checks daily for standing water and addresses if necessary.
- Check for standing water and lose soil on slopes after rain events. This can be evidence of poor drainage or possible sensitive erosion areas.
- Monitor soil conditions. Observe compaction, lack of drainage, over watering, depletion of organic matter.
- Maintain ground cover. Apply a minimum of 2 inches of mulch over bare landscape areas especially around trees and shrubs. The cover allows the soil to stay in place and retain more moisture.
- Restore eroded areas. Contract with a vendor to find the most substantial solution engineering landscape, or architectural solutions.



### C. LANDSCAPE WASTE

2500 City West retains the majority of landscape waste onsite, both to minimize the amount of waste sent to landfills and to create soil-enriching compost. Landscaping debris that cannot be recycled/composted onsite shall be directed to offsite composting facilities.

#### PERFORMANCE METRIC

This plan shall govern all components of landscape waste at the project building and site. The practices identified in this plan shall be wholly adopted and used in 100% of landscape management activities at 2500 City West

#### PRACTICES TO MINIMIZE/DIVERT LANDSCAPE WASTE

- The Landscape Contractor shall collect landscape waste, including, but not limited to, leaves, cut vines, and pruned branches for composting piles and shall use the compost to mulch existing plantings to reduce watering and fertilizing.
- Mulching mowers shall be used on turf areas, returning clippings back into the lawn to recycle nutrients.
- Landscaping personnel, whether employees of a service provider or in-house staff, will compost all landscape waste. Service provider will take the collected landscape waste to be composted on site or sent to a composting facility. Incinerating landscape waste is not a valid diversion method unless the waste is burned as biofuel for energy production.
- To reduce the probability of vegetative pest occurrence, the landscape crew will aerate the soil while simultaneously removing diseased or infested plants and portions of plants. The diseased or infested landscape waste will be disposed of with the building waste instead of being composted.

### D. FERTILIZER USE

Fertilizer use shall be kept to a minimum to prevent eutrophication of local ponds and streams. Only organic fertilizers shall be applied on the grounds. Silversand Services shall assume responsibility for administering organic fertilizer on the building grounds.

#### PERFORMANCE METRIC

The practices listed below shall be implemented to the extent noted in the following table. Where less-than-complete adoption occurs, the performance metrics indicated will be used to gauge performance against the implementation target. The performance metrics and implementation targets for each element are listed in the following table.

Site Management Products/Materials	Performance Metric	Implementation Target
Organic Fertilizer	Percent of Applicable Chemicals	20%>
Manual Weekly Weeding	n/a	Complete Adoption
Tree Wrapping	n/a	Complete Adoption
Soil and Ground Cover Testing	n/a	Complete Adoption
Native and Adaptive Plantings	Percent of Applicable Landscape Areas	20%>
Organic Mulching	n/a	Complete Adoption



## PRACTICES TO OPTIMIZE FERTILIZER USE

As a general rule of thumb, fertilizer use depends on the level of nutrients and nitrogen that are found in the soil. This is determined by soil testing and other indicators and not by the calendar. Selecting native or adapted plants that need no fertilizer is preferable, and when fertilizer must be applied, alternative products that are less pollutant than artificial chemicals will be used. When chemical fertilizer must be applied, landscape personnel will abide by the following guidelines:

Apply chemical fertilizer on an as needed basis determined by soil testing and other indicators.

- Target fertilizers around rooting zones or at the base of plants. Use fertilizers specific to certain plants rather than a general plant fertilizer.
- Specify chemical fertilizers specific to certain plants rather than a general plant fertilizer. Develop targeted fertilizer treatments.
- Time fertilizers when there is no inclement weather expected and only during times of plant uptake. Do not apply fertilizers when heavy rainfall is expected.
- If composting on-site, reapply compost to the site as an alternative to chemical fertilizer.
- Do not apply more than 250 lbs/acre of nitrogen fertilizer during one application, or as directed by landscape staff horticulturist.
- Do not apply nitrogen fertilizer more than three times per year, or as directed by landscape staff horticulturist.
- Do not apply fertilizers within 25 feet of a waterway/water body.
- Avoid over-application by targeting fertilizers around the rooting zone or base of specific plants, or as directed by landscape staff horticulturist.
- Use fertilizers with a nitrogen-phosphorous-potassium (N-P-K) ratio of 4:1:2 (or any other mathematical combination, so long as said fertilizer contains approximately four times as much nitrogen as phosphorous, and approximately two times as much nitrogen as potassium), or as directed by landscape staff horticulturist.
- Use organic fertilizers and nutrients to the greatest extent possible.
- Select a pesticide with at least 50 percent controlled-release nitrogen, or as directed by landscape staff horticulturist. Such a product may be labeled as water-soluble or slow release. Do not use “weed and feed” products.

### **Organic Fertilizer – Turf**

- The soil in turf areas shall be tested using the REAM water soluble method which indicates what elements are in the soil and available to plants.
- Once in September, May and late-June, the turf areas shall receive applications of 4-4-2 OMRI (Organic Materials Review Institute: [www.omri.org](http://www.omri.org)) listed organic fertilizer at a rate of 15lbs. per 1000 sq. ft.
- In February, “Hummamend,” an organic fertilizer, shall be applied once at a rate of 5lbs. per 1000 sq. ft.
- Compost tea, a brew of beneficial microorganisms, humic acid, and molasses shall be applied to turf grass three times per year to increase the microbiological activity in the soil.
- Recycling grass clippings back into the soil by way of mulching mowers shall return nearly two pounds of nitrogen to every thousand square feet of lawn annually.

### **Organic Fertilizer – Planting Beds**

- The soil and ground cover in shrub and ornamental tree beds shall be tested for available nutrients.
- The landscaping contractor shall apply “Nature Safe” 8-5-5 OMRI (Organic Materials Review Institute: [www.omri.org](http://www.omri.org)) listed organic fertilizer to all shrubs and trees once in the spring or fall.
- Soil surfaces shall be treated with fish hydrolysate, a liquid organic fertilizer, and additional liquid organic compounds to promote tree health and vigor.
- Shrub and tree beds shall be treated with 80cy of “shredded bark mulch” once annually.
- Flower beds shall be fertilized with 14-14-14 once per month during the growing season.



## Plantings

Whenever practical, native or adaptive plant species that are well-suited for the local climate and require minimal irrigation, fertilization, and maintenance, shall be integrated into the site landscape when new plantings are installed or reseeded occurs. The table below identifies site appropriate native/adaptive species approved for installation onsite during re-landscaping projects.

### *Resources for Location Climate Appropriate Plant Species*

- Lady Bird Johnson Wildflower Center Native Plant Database: <http://www.wildflower.org/plants/>
- Plant Native: <http://www.plantnative.org>

## 5. PERFORMANCE MEASUREMENT

All documentation relating to the tasks required by this Exterior Integrated Pest Management, Erosion Control and Landscape Management Plan will be kept on file for purposes of LEED-EBOM (re)certification. A detailed log of actions (quantitative performance measurements where applicable) taken in compliance with this plan will be maintained. This log will include:

- A. Identification and quantity of pests. Type and amount of pesticides used. Least toxic pesticides/methods (as defined by the SF 2007 Reduced Risk Pesticide list) shall be used at least 100% of the time. This will be quantified through number of applications.
- B. Erosion control for landscape operations shall be implemented. Erosion control for future construction activity will be implemented 100% of the time.
- C. Amounts of landscape waste composted. Quantify and estimate the amount of waste diverted from landfill in weight or volume. At least 20% of landscaping waste must be diverted from landfill.
- D. Type and amount of fertilizer used. Quantify and estimate the extent to which chemical fertilizer use is reduced measured by weight, volume or cost. At least 20% of fertilizer used shall be environmentally preferred fertilizer.

Property managers are required to identify on the log description if the activity being described does not comply with policy and an explanation of measures being taken to achieve compliance. The compliance report shown in Section 9 of this plan shall be filled out on an annual basis for verification against the established compliance targets.

## 6. QUALITY ASSURANCE PROCESSES

The party(s) responsible shall periodically evaluate the success of the Plan. This evaluation may include producing and providing a report on an annual basis to senior management. Whenever possible, the annual reports shall include an evaluation of the performance, safety, cost and environmental/public health benefits achieved as a result of its implementation.

Prior to implementation, service providers involved in the building's Plan shall submit all proposed pest management activities to the responsible parties, listed in this plan. Upon reviewing proposed activities, the responsible parties shall determine if they meet the criteria of the Plan and approve or deny action.

The responsible parties, listed in this plan, shall regularly communicate with all service providers, and conduct regular site inspections and evaluations to ensure that the Plan is in place and functioning as intended. In addition to ongoing quality control measures, Silversand Services will review all practices and products prior to contract renewal (typically annually) to identify opportunities for improvement and expansion of environmentally-friendly practices.

The Property Manager is to provide an annual Environmental Sustainability Report to the Vice President of Property Operations (Wayne Hendrickson) at the end of the first quarter detailing the previous year's environmental achievements. This annual document is to be saved on the SharePoint Sustainability Site



under the respective property and credit folder. Since LEED-EBOM requires ongoing monitoring, it is important to include subcontractor specifications and reports, photographs, and a written description of any findings concerning any of the activities found herein.

## 7. PLAN APPROVAL

This plan has been developed for Thomas Properties Group portfolio and was approved on November of 2008 by Wayne Hendrickson, TPG's Vice President of Property Operations as a part of the company's corporate sustainability initiatives. This plan was implemented on January of 2009 and it is in effect for all TPG's properties. Those in charge of drafting purchase orders and contracts should ensure that new plan language is included and requirements are met. This plan will be reviewed annually.

## 8. REFERENCES

- **EPA IPM Principles:** Background information on what Integrated Pest Management involves, the approach and techniques utilized and the benefits of using such procedures.  
<http://www.epa.gov/opp00001/factsheets/ipm.htm>
- **Green Landscaping:** The EPA provides supporting information on how and why to landscape with native plants. For more information and additional resources, visit:  
<http://www.epa.gov/greenacres>
- **Organic Materials Review Institute's (OMRI) list of crop products for 2009**  
<http://www.omri.org/simple-opl-search/results/fertilizer>
- **2003 EPA Construction General Permit** <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>
- **2007 San Francisco Reduced-Risk Pesticide List:**  
[http://www.sfenvironment.org/our\\_programs/interests.html?ssi=2&ti=1&ii=117](http://www.sfenvironment.org/our_programs/interests.html?ssi=2&ti=1&ii=117)
- **Bio-Integral:** [www.birc.org](http://www.birc.org)
- **CPESC Inc:** <http://www.cpesc.net>
- **Green Shield Certified:** <http://www.greenshieldcertified.org>
- **LEEDUser:** [www.leeduser.com](http://www.leeduser.com)



9. SAMPLE PLAN LOG / REPORT

**INTEGRATED PEST MANAGEMENT, EROSION CONTROL, AND LANDSCAPE MANAGEMENT LOG**

A OUTDOOR IPM								
Notification to Occupants: Date & Time	Date, Time	Application Manager	Target Pest / Location	Pesticide Trade Name, Active Ingredient	EPA Registration Number	Least Toxic? (Yes or No)	Percentage by cost of total pest control practices used	
* Plan requires 100% compliancy.							TOTAL	

B EROSION AND SEDIMENTATION CONTROL								
#	Date	Performing Party	Activity or Action	Compliance Metric	Compliant (Yes or No)	Comments	Percentages	
* Plan requires 100% compliancy.							TOTAL	

C LANDSCAPE WASTE								
#	Date	Performing Party	Activity or Action	Compliance Metric	Compliant (Yes or No)	Comments	Percentages	
* Plan requires minimum 20% compliancy. Track Performance							TOTAL	

D FERTILIZER USE								
#	Date	Performing Party	Activity or Action	Compliance Metric	Compliant (Yes or No)	Comments	Percentages	
			Organic Fertilizer				Percent of Applicable Chemicals	
			Manual Weekly Weeding				n/a	
			Tree Wrapping				n/a	
			Soil and Ground Cover Testing				n/a	
			Native and Adaptive Plantings				Percent of Applicable Landscape Areas	
			Organic Mulching				n/a	
* Plan requires minimum 20% compliancy. Track Performance							TOTAL	