

Florida Gulf Coast University

Integrated Pest Management, Erosion and Sedimentation Control, and Landscape Management Plan

Introduction

Conventional site and landscape management can have adverse impacts on the surrounding environment and human health. Erosion from developed sites removes topsoil with organic matter, plant nutrients, and biological activity. Loss of topsoil greatly reduces the soil's overall ability to support plant life, regulate water flow, and maintain the biodiversity of soil microbes and beneficial insects that control disease and pest outbreaks.¹ The loss of nutrients, soil compaction, and decreased biodiversity of soil organisms can severely limit the vitality of landscapes; this may necessitate the use of irrigation, increase the need for fertilizers and pesticides, worsen storm water runoff, and pollute groundwater, drinking water, and nearby lakes and streams. Pesticides and fertilizers also present hazards to workers during application.

Landscaping and other measures can halt erosion and sedimentation and reduce the size, complexity, and cost of storm water management measures. Although monitoring soil conditions entails a cost, the information gathered can help detect problems, such as unstable soils that could eventually lead to structural instability in the building's foundation.

Besides requiring initial expenditures, landscaping may require ongoing maintenance and additional operating costs. However, using native or adapted vegetation can minimize watering and maintenance.

Successful outdoor IPM programs assess the life-cycles of pests and their interaction with the environment to determine the most economical and least hazardous control methods. Preventive actions are often the most cost-effective because they eliminate the need to purchase costly pesticides or hire pest control services.

Site and Building Description

The building site for Academic Building 8 (AB8) covers approximately 33,000 square feet of property between two existing campus buildings; Lugert Hall to the West, which houses the Lugert College of Business, and Academic Building 5 (AB5) to the East, which houses the University's administrative offices. AB8 is inline and connected to AB5 via a covered walkway and will provide additional classroom and laboratory space for the College of Health Professions and Social Work. Approximately 150 feet to the South, beyond open green space, is Holmes Hall. The intention is for this area to remain open to students, with additional landscaping and

outdoor seating. To the north of the site there is a new parking garage and an area of dry detention which separates the site and garage from another building and parking area.

The major spaces in the building include:

- Two large lecture rooms that will each accommodate approximately (100) students.
- A wet lab shared by Anatomy and Physiology faculty and students.
- Lab space for each of the following:
 - Athletic Training
 - Human Performance (ground floor)
 - Nursing Simulation
 - Nursing Practice
 - Occupational Therapy
 - Physical Therapy with Specialty Areas
- Conference rooms to facilitate graduate class meetings and team projects.
- Sixty-five (65) faculty offices, plus a Dean's Suite of offices.
- Offices for Advising and support staff.
- Storage areas on each floor for record and equipment storage.

GOALS AND SCOPE

Integrated Pest Management (IPM)

IPM manages outdoor pests (plants, fungi, 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, minimum use of the chemicals, use only in targeted locations, and use only for targeted species. IPM applies to all exterior areas of the FGCU campus, directly surrounding buildings. Areas not adjacent to buildings and protected wetland areas are not managed for pests, but left in their natural state. Note: Lee County's Mosquito Control District sprays for adult mosquito outbreaks only on an as-needed basis and only if mosquito populations meet State guidelines for treatment. <http://www.lcmcd.org/faq.php#q1>.

Erosion and Sedimentation Control

To control erosion in order to reduce negative impacts on water and air quality, FGCU follows strict guidelines set forth by the South Florida Water Management District (SFWMD). The use of turbidity barriers and silt fencing is mandated by SFWMD, and inspections are routinely made to assure compliance. Erosion prevention is further enhanced by littoral shelf plantings in all campus lakes. This plan applies to ongoing landscape operations and future construction activity.

Landscape Management

Landscape waste is diverted from the waste stream via collection and transport to off-site landscape waste collection sites. Native and locally adapted plants are used in much of the planned landscape around the buildings and campus facilities, further reducing or eliminating the need for artificial fertilizers and fungicides/pesticides on site.

RESPONSIBLE PARTIES

The responsible party will complete the following tasks to ensure that Integrated Pest Management, Erosion and Sedimentation Control, And Landscape Management Plan is properly executed:

Integrated Pest Management (IPM) Tasks

Performed by: Terminix

In consultation with: Assistant Director, Physical Plant Department, FGCU

- Monitor pest populations, especially at Student Housing (located in a different portion of campus from AB-8)
- Manage pest populations through nontoxic and least toxic methods.
- Respond to treatment requests that are first approved by the supervising College Dean for associated offices and faculty spaces, and the supervising Housing Authority for associated student living areas.
- Notify building occupants of pesticide applications.
- As indicated in the State Contract with Terminix, and per Florida Statute XXXII, 482.021, IPM means the selection, integration, and implementation of multiple pest control techniques based on predictable economic, ecological, and sociological consequences, making maximum use of naturally occurring pest controls, such as weather, disease agents, and parasitoids, using various biological, physical, chemical, and habitat modification methods of control, and using artificial controls only as required to keep particular pests from surpassing intolerable population levels predetermined from an accurate assessment of the pest damage potential and the ecological, sociological, and economic cost of other control measures.

Erosion and Sedimentation Control Tasks

Performed by: General Contractor and/or Construction Management Firm

In consultation with:

- 1) *Civil Engineering Firm*
- 2) *Director, Facilities Planning Department, FGCU*

- Prevent loss of soil during construction by storm water runoff and/or wind erosion.
- Protect topsoil by stockpiling for reuse.

- Prevent sedimentation in storm sewer or receiving streams.
- Prevent pollution of the air with dust and particulate matter.
- Monitor and log building operations and maintenance activities.

Landscape Management Tasks

Performed by: Brickman Group and Terminix

In consultation with: Assistant Director, Physical Plant Department, FGCU

- Address landscaping features that might harbor pests.
- Trim or Remove vegetation close to structures.
- Maintain the exterior of the envelope.
- Manage pest attractants - e.g., trash receptacles.
- Monitor pest populations.
- Control noxious weeds and invasives.
- Maintain healthy landscapes.

GUIDANCE FOR RESOURCES AND IMPLEMENTATION

Integrated Pest Management

The Florida Gulf Coast University (FGCU) exterior pest management plan focuses on keeping the site's animal and insect pest populations under control and preventing their entry into the building. FGCU has addressed invasive plants and fungi as part of the scope of the plan. FGCU Physical Plant Department, contracting with Terminix, uses integrated methods to monitor pest populations and manage them through nontoxic and least toxic methods. FGCU Physical Plant Department has established appropriate site management operation practices including the following:

- Routine treatment, under normal circumstances, is done with least toxic pesticides and as a matter of policy, takes place only on weekends, when the general population is not present on campus.
- Emergency Treatments are those treatments needed after a specific problem is made known, and when campus is occupied. While extremely rare, such treatments have been made in the past specifically for fire ants in a path of travel or outdoor recreation areas, or for ants that are discovered indoors. Such problems must be verified by the supervising College Dean for associated offices and faculty spaces, or the supervising Housing Authority for associated student living areas, and subsequently approved and requested by the Assistant Director of Physical Plant.

- For emergency treatments, building occupants are alerted of pesticide applications. Such notification is made by email to the reporting Dean for relay to building occupants, and is *always* made through the use of signage. Signage must be put in place at the time of the emergency application of a pesticide that is not considered a least toxic pesticide.
- Scheduling of black ant treatments to occur on Fridays when foot traffic and occupancy numbers are low during the weekend. They only occur upon request only if preventative measures have been ineffective.
- Routine treatment for red ants is minimized to only include bi-annual treatments on site. Granular products are used to specifically target the ants. Treatments have been minimized to reduce need for pesticide application. Targeted treatments may occur only if the need arises.
- Weeds found in the more formal planting beds are generally hand pulled.
- Weeds, typically invasive species, found around the less formally landscaped areas of campus are hand pulled when possible. Herbicides are only used for targeted weeds when they exceed manual weeding limitations (i.e- have a long tap root or risk further germination through the act of weeding)
- Plants found on the Florida Invasive species list that are not eligible for hand weeding due to their growth pattern or quantities do receive pesticides in minimal doses to ensure removal in accordance with environmental objectives.
- No fungicides are used on campus landscape plants.

Erosion and Sedimentation Control

FGCU Physical Plant Department's erosion and sedimentation control plan addresses ongoing landscape operations (if applicable) and future construction activity.

FGCU Physical Plant Department has identified existing erosion and sedimentation problems and assessed areas at risk for future problems. FGCU Physical Plant Department's plan is aimed at resolving existing problems and establishes procedures for identifying and remedying future issues. FGCU Physical Plant Department is aware that erosion on existing sites typically results when foot or vehicle traffic on unpaved areas kills vegetation, or when water runoff and storm water sheet flow exceed vegetation's holding power on slopes. FGCU Physical Plant Department identified and eliminated these and other causes to minimize soil loss and prevent sedimentation of water bodies. FGCU Physical Plant Department's erosion and sedimentation control during ongoing operations focuses on maintaining slopes and drainage facilities.

FGCU Physical Plant Department has established appropriate site management operation practices including the following:

- Periodic checks and clearing of roof drains, gutters, downspouts, drainage ditches, and other drainage infrastructure.
- Periodic checks for loose soils on slopes, particularly during wet periods.
- Checks for standing water or other evidence of poor drainage after rain events.
- Maintenance of groundcover.
- Cleanup of major sedimentation sources, such as plant detritus on paved surfaces.

FGCU Facilities Planning Department has applied the erosion and sedimentation control plan to construction activities where site disturbance can create erosion and sedimentation problems. FGCU Facilities Planning Department has implemented the following measures during construction activities:

- Stabilization measures intended to stabilize the soil to prevent erosion and include placement of sod and plantings where necessary.
- Structural control measures intended to retain sediment after erosion has occurred and include earth dikes, silt fencing, sediment traps, and sediment basins.

Additionally, FGCU Facilities Planning Department has adopted the U.S. Environmental Protection Agency Document No. EPA 832/R-92-005 (September 2000), Storm water Management for Construction Activities, Chapter 3. All contractors overseeing construction on campus are required to develop and implement an erosion and sedimentation control plan in accordance with these requirements.

The following approaches will be included in the property Erosion and Sedimentation Control Plan:

- Mulching
 - Mulch will take place in areas where temporary seeding cannot be used because of the season or climate. Mulching provides immediate, effective, and inexpensive erosion control. On steep slopes and critical areas such as waterways, mulch matting will be used with netting or anchoring to hold it in place.
 - Mulch will take place in seeded and planted areas where slopes are steeper than 2:1, where runoff is flowing across the area, or when seeding need protection from bad weather.

- Permanent Seeding and Plantings
 - Permanent seeding and planting will occur where appropriate on any graded or cleared area where long-lived plant cover is desired. Some areas where permanent seeding is especially important are filter strips, buffer areas, vegetated swales, steep slopes, and stream banks. The property management team will employ this practice on areas where soils are unstable because of their texture, structure, a high water table exists, high winds may be present, or on steep slopes.
- Preservation of Natural Vegetation
 - Preserve natural vegetation in areas such as floodplains, wetlands, stream banks, steep slopes, and other areas where erosion controls would be difficult to establish, install, or maintain.
- Silt Fences
 - Install silt fences prior to major soil disturbances in the drainage area. The fences will be placed across the bottom of a slope along a line of uniform elevation (perpendicular to the direction of flow). They will be used at the outer boundary of the work area. Silt fences will not be constructed in streams or swales.
- Sediment Traps
 - Construct temporary sedimentation traps in conjunction with other temporary measures, such as gravel construction entrances, vehicle wash areas, slope drains, diversion dikes and swales, or diversion channels.
- Storm Drain Inlet Protection
 - Use storm drain inlet protection measures when permanent storm drain structure is being constructed on site. Straw bales are not recommended for this purpose. Filter fabric is used for inlet protection when storm water flows are relatively small with low velocities. This practice cannot be used where inlets are paved because the filter fabric should be staked. Block and gravel filters can be used where velocities are higher.

Landscape Management

Landscape Waste

- Lawns are mowed regularly using the mulching setting, making it unnecessary to collect clippings.
- Tree trimmings and woody debris are collected and taken off-site, where certain items, if valuable as mulched material can be processed. When possible, project teams should quantify and estimate the extent to which each practice used reduces the amount of landscape waste delivered to landfills.

Chemical Fertilizer

- Only athletic fields and grassy areas subject to heavy pedestrian traffic are fertilized on campus. The fertilized areas are only treated during the dry season (primarily fall and winter months) and are never fertilized when rain is expected. Treatments occur approximately monthly during the fertilization period to maintain the health of the vegetation.
- Soil testing occurs annually. If the tests indicate additional nutrients are needed to maintain healthy turf grass, sulfur is applied to improve the PH without the need for additional chemical fertilizers.
- The adapted and native species landscaped beds around the buildings and other pedestrian areas of campus and the surrounding protected or restored habitats are not fertilized at all.

Performance Measurement

The best management practices described in this plan will be evaluated for compliance routinely, as a matter of practice, by FGCU's Facilities Management.

Integrated Pest Management (IPM)

Pest Management, implemented by Terminix, is evaluated monthly and at each new contract period for the State of Florida. Effectiveness, cost containment, and environmental safety are all considerations. Product and application logs are maintained for review by FGCU and by the State.

Erosion and Sedimentation Control

Every construction management firm must implement training and log conditions of the controls put in place. Such written reporting is provided to the South Florida Water Management District, to ensure all regulations and being met and job site conditions are in compliance.

Landscape Management

Landscape Management, implemented by Brickman, is evaluated monthly and at each new contract period. Effectiveness, cost containment, and compatibility with pest control are all considered. FGCU credits rainwater with the most effective and natural fertilization of landscaping. Made-made fertilizers are not used anywhere on campus, other than athletic fields, where sod is subjected to non-stop activity. In those instances, minimum fertilization takes place and product and application logs are maintained for review by FGCU.

Responsible Party

This policy has been reviewed and implemented by: Florida Gulf Coast University Facilities Planning and by Florida Gulf Coast University Physical Plant, which provides planning and management of FGCU Facilities.

Successful Plan implementation is verified by the responsible parties through routine reviews of mandatory reports and service records. Each month, and with each invoice submitted by contracted service providers, FGCU's responsible parties review detailed information for service on each of the reports submitted. Furthermore, routine first-hand observation takes place to ensure that what is seen and experienced on campus accurately reflects the reported performance measurement. In addition, new proposals are considered each contracting period for the university. During this time, formal selection committees review proposals and interview service providers to make sure all FGCU requirements for IPM and Landscape Management will continue to be met during the upcoming contract period.

Time Period

This Policy has been in effect since the inception and construction of Florida Gulf Coast University and will be in effect for the duration of building operations and will be reviewed routinely, as a matter of practice, by FGCU's planning and facilities management departments.

Relevant Definitions

Erosion is the process by which the materials of Earth's surface are loosened, dissolved, or worn away and transported by natural agents.

Integrated pest management (IPM) is the coordinated use of knowledge about pests, the environment, and pest prevention and control methods to minimize pest infestation and damage by the most economical means while minimizing hazards to people, property, and the environment.

Native vegetation and **adapted vegetation** are plants indigenous to a locality (native) or plants that are adapted to the local climate and are not considered invasive species or noxious weeds (adapted); they require limited irrigation following planting, do not require active maintenance such as mowing, and provide habitat value.

Least toxic chemical pesticide is any pesticide product for which all active ingredients and known inert ingredients meet the least toxic Tier 3 hazard criteria under the City and County of San Francisco's hazard screening protocol. Least toxic also applies to any pesticide product, other than rodent bait, that 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.

Sedimentation is the addition of soil particles to waterbodies by natural and human-related activities. Sedimentation often decreases water quality and can accelerate the aging process of lakes, rivers and streams.

¹ U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Quality Institute. Erosion and Sedimentation on Construction Sites. Soil Quality. Urban Technical Note 1, March 2000. Retrieved May 2008. http://soils.usda.gov/sqi/management/files/sq_utn_1.pdf.