WARE MALCOMB

ARCHITECTURE
INTERIORS
BRANDING

PLANNING
CIVIL ENGINEERING
BUILDING MEASUREMENT

BIO 365 Project Statement

The submitted project is for a company to manufacture soil for specific users. It is classified as a manufacturing use with an office. The site is zone as PIP-2/cr AO SS, however all permitted principal uses allowed in the M-1 zone are allowed in the PIP-2 zone.

The building proposed is a fairly small structure of approx. 48,600sf on an almost 8 acre lot amounting to a lot coverage of only 14%. The building is designed to a 42' height at the top of the highest point. As an industrial/warehouse facility, it is consistent with the surrounding buildings, which are also of industrial-type nature. The site is located in between two existing roads (Vapor Trail and Aviation Way) and will have one point of egress access to each.

On-site parking is in excess of the requirements and more than sufficient for the approximate (12) number of employees anticipated at start up. Periodic semi traffic will access the dedicated truck dock areas for parking and storage.

A rather sizeable portion of the overall lot is dedicated to open space and a retainage pond, which borders a creek to the north, which allows plenty of room for the proposed trail along the creek.

Operational Statement

Bio365's production process involves two phases. The production of a nutrient rich "base" material this material is prepared in batches and aged in modules (approx. 2 cu yd for each module) stacked in a controlled environment and final product blending adds additional materials using a horticultural mix line and packaging equipment.

Throughout our operation the primary means for the mitigation of dust is the use of water sprays. This water is retained within our product and DOES NOT become waste water. Where use of sprays is not appropriate cyclone type dust collector/s are deployed.

Clean up uses wet clean-up methods, such as removing dust with wet rags or mops where possible and vacuum with a high-efficiency particulate air (HEPA) filter or use a shop vacuum cleaner with a HEPA filter are used where needed.

The manufacturing does not produce waste water other than through routine equipment wash-down.

Staffing

Day shift:	**Number**
Facility manager	1
Admin	1
Base Production	3
Mixline	2
Shipping & receiving	2

Night shift:	**Number**
Facility manager	0
Admin	0
Base Production	0
Mixline	2
Shipping & receiving	1

List of Ingredients handled in facility

Ingredient	**Packaging**
Coconut coir – compressed blocks	Palletized and wrapped
Sphagnum peat moss – compressed towers	Wrapped on pallets
Custom blended organic fertilizer (typical blend may include pasteurized poultry litter, feather meal, dolomitic lime, gypsum, animal protein meals, phosphate rock, diatomaceous earth, sulfate of potash, and humates)	Bulk bags with spout bottom to interface with conveying equipment

Dolomitic lime	40 lb packages or bulk bags
Moist biochar	Bulk bags with spout bottom to interface with conveying equipment
Horticultural perlite	Bulk bags with spout bottom to dispense into hopper

Base production

Base is manufactured in batches in 34 cubic yard batch mixer. The key steps for manufacturing are summarized below and outlined in more detail in the attached dust hazard analysis.

Manufacture of base using batch mixer	
	Dust mitigation
Step 1: Add coconut coir blocks using forklift with clamp	Water spray
Step 2: Add water to hydrate coir	N/A
Step 3: Add blended organic nutrients from bulk bag interfaced directly to a screw type conveyor	Water spray
Step 4: Add moistened biochar from bulk bag using screw type conveyor	Water spray
Step 5: Add wormcastings from a tote using a rotating	N/A
Step 6: Transfer to ventilated insulated room whilst it is biologically active. Fresh air is drawn into this area through HEPA type filters. Ventilation is controlled based on humidity and carbon dioxide levels. Humid air is vented from the building, with no noticeable odor.	N/A
Step 7: Base is transferred to storage totes for aging	N/A

Blending and packaging

This step of our manufacturing uses large batch mixers, a commercial horticultural mixline, form fill and seal packaging equipment, palletization and stretch hooding.

Mixline & packaging	Dust mitigation
Step 1: Add coconut coir blocks to batch mixer using forklift with clamp	Water spray
Step 2: Add water to hydrate coir	N/A
Step 3: Add base and mix – mix is move by conveyor to mix line hopper	N/A material is moist
Step 4: Add sphagnum peat to a peat bale breaker and move by conveyor into mix line hopper	Dust is mitigated by cover, water spray and ventilation as needed

Step 5: Add perlite to mixline hopper directly from spout of bulk bag suspended over hopper.	Dust is mitigated by ventilation as needed
Step 6: Dolomitic lime is added directly to small mix line hopper	Dust is mitigated by ventilation as needed
Step 7: Mixline dispenses material from hoppers on to a conveyor and through a mixing head. Moist material is then moved by overhead conveyor to packaging	N/A due to moist nature of blended material
Step 8: Material is packaged either using a form fill and seal equipment into small packages for palletization or through chutes into bulk bags.	Local dust control as needed.
Step 9: Packaged material is moved on rollers or by forklift to storage and shipping area	

Utilities:
Water consumption for 2 shift operation is approximately 10-15,000 gallons per day. Electricity consumption is not yet clear.

Our facility will operate with a 1200 amp service at 480V. All equipment operates with VFDs as appropriate to control motors and ensure efficient operation. Power consumption estimate is not available.