Salt Lake City Mosquito Abatement District

Phase 2 – Hangar, Helipad, Pesticide Lab

PROJECT OVERVIEW & DESIGN GUIDELINES

SALT LAKE CITY, UTAH

MOCA

FEBRUARY 2023

PROJECT NUMBER ######

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Guidelines

INTRODUCTION

The Salt Lake City Mosquito Abatement District (SLCMAD) Design Guidelines are to be used in conjunction with the Master Plan document and shall be adhered to by the architects and the design contractor, as the owner's directive for the Phase 2 site development and construction of the new hangar, helipad, pesticide lab building, and other buildings.

The Design Guidelines is a tool to be used by the owner and stakeholders to describe the elements of the new construction that are of the most importance to the owner. These are the critical expectations that the owner has for the project. The Guidelines are not intended to cover every element of the project, only those items that are of most important to the owner and will be critical for the architect, engineer and contractor to consider and/or include in the design to assure that the new construction is a success.

Salt Lake City Mosquito Abatement District (SLCMAD) may intensify the message to the Project Team by creating a Design Imperative for the ideas. This designation gives little latitude to the design team for implementation of the concepts.

Guidelines are just that; guidelines. They provide suggested concepts, principles, elements and recommendations to the Project Design Team that are consistent with the desires and expectations of the Owner.

The format of the Guidelines are organized as follows:

General Statement - each section contains a general statement regarding the ideas or issues associated with the Guideline. The owner has determined what principles are critical to the project. Each Guideline builds upon those principles and may address multiple elements within the Guideline.

REQUIREMENT: The Designer is required to make sure that their design documents meet all local zoning and permitting requirements required by the appropriate authorities having jurisdiction.

SITE INFORMATION

Site Zoning:
This site is currently zoned for Business Park.
The purpose of the BP business park district is to provide an attractive environment for modern once, light assembly and warehouse development and to create employment and economic development opportunities within the city in a campus like setting.

Conditional Use Permit:
This site for Heliport use will require a conditional use permit from need to submit to the zoning ordinance

Phase 2 site use:
Heliport - A facility or structure that is intended or used for the landing and takeoff of rotary wing aircraft, but not including the regular repair or maintenance of such aircraft or the sale of goods or materials to users of such aircraft.

Environmental Site Assessment Report:
Owner to provide Environmental assessment report to the design team. The owner has the original report from the development of phase 1 (Administration Project) and intends to update the report for the development of phase 2.

Current Phase 2 property is fenced along all boundaries and consists approximately of 550ft x 550ft or 7-acres of land.
The site slopes gently from the sides to the east property line and spoil mound.

Land Use - Adjoining Properties and Roads:
- North property is under commercial development
- South property is an undeveloped property, historically used for livestock grazing.
- East property is public road
- West property is an undeveloped property, historically used for livestock grazing.

Geotechnical Report:
Review geotechnical report for soil conditions and ground water elevation.

PHASE I ENVIRONMENTAL SITE ASSESSMENT
IN CONFORMANCE WITH ASTM STANDARD E1527-13
14.87-ACRE UNDEVELOPED PROPERTY
2210 WEST 2100 NORTH
SALT LAKE CITY, UTAH 84116
NOVEMBER 23, 2016

Prepared for:

ARY FARAJI
SLC MOSQUITO ABATEMENT DISTRICT
2020 NORTH REDWOOD ROAD
SALT LAKE CITY, UT 84116

Prepared by:

SAGE environmental
807 East South Temple, Suite 100
Salt Lake City, Utah 84102
Phone: (801) 322-2050
Fax: (801) 322-2052
www.sage-env.com

SITE HISTORY

Site History:
Site was purchased by Salt Lake City Mosquito Abatement (SLCMAD) in 2015, and consists of 14.87-acres of undeveloped property located at 2210 west 2100 North, Salt Lake City, Utah.
Parcel number: 08164000140000
Parcel Legal Description: BEG 759 FT N & 165 FT E FR S 1/4 COR OF SEC 16, T 1N, R 1W, S L M; N 561 FT; E 533.8 FT; S 561 FT; W 533.8 FT TO BEG. 6.87 AC M OR L. 5539-625 5540-227 5539-0624 7352-223,226

Property use:
Property's historical use was for livestock grazing.

Previous owner:
Property was owned by Mr. Romney who purchased the property in 1995 and leased use of the property to Gillmor Livestock for grazing during his time of ownership. Mr. Romney stated that there are no wells, septic systems, underground or above-ground storage tanks on the Property. To his knowledge, there have been no tanks on the Property in the past and no petroleum products or hazardous substances have been used or stored on the Property. An existing dirt road and associated fill material present on the Property where present when he purchased it and he doesn't know the source of the fill material.

Existing spoil mound material:
Spoil heaps located on the east side of Phase 2 site were deposited from the excavation of Phase 1 construction project. This material will need to be addressed and removed, prior to the construction of Phase 2 development. The new survey will include this information.

Site waste and hazardous materials:
It was determined from the Phase1 Environmental Assessment report that the site appears to not have any solid waste or hazardous material and no petroleum produce containers.

DEVELOPED AREA

SLCMAD developed the east half of the property in 2019 indicated in these design guidelines as Phase-1, which consists of an Administrative building, Dormitory building, two (2) Vehicle Storage Garages, Fish Hatchery building and Chemical Storage building.

Phase 1 Site:
Phase 1 site is approximately 620ft x 550ft or 7.87-acres.

Phase 2 Site:
Phase 2 site is approximately 550ft x 550ft or 7 acres.

Detention ponds:
Phase 1 currently has (2) water detention ponds located on the north and south ends of the properties east side. SLCMAD noticed both detention ponds retain water practically year round. SLCMAD would like to address the standing water issue during Phase-2 development.

SURVEY

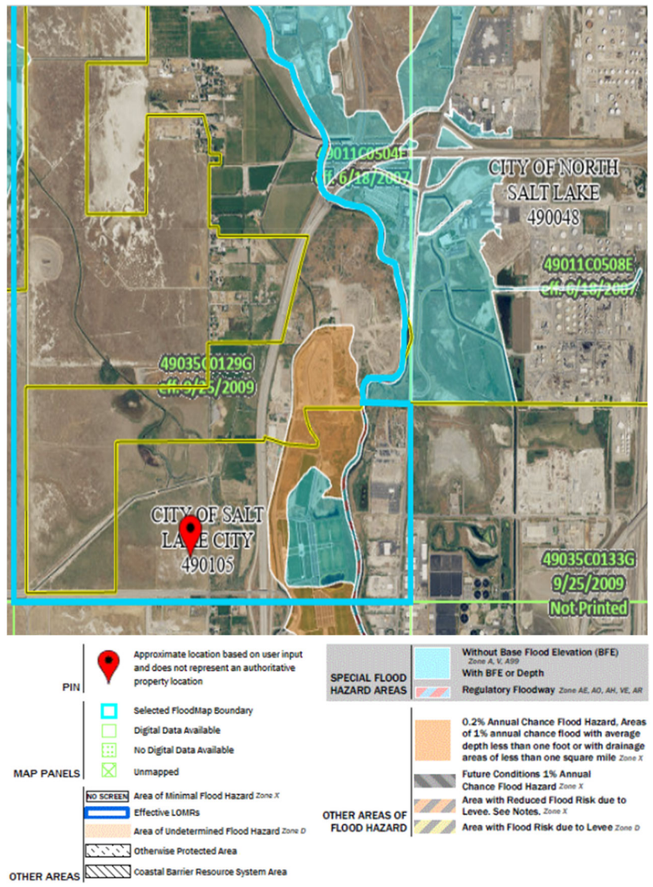
Owner to provide updated survey report to design team.

GEOTECH REPORT

Owner to provide updated geotechnical survey report to design team.

FLOOD PLAIN

Architect shall confirm flood plain location in correspondence to project site.



PHASE-2

Phase-2 Site:
Site location is directly west of Salt Lake City Mosquito Abatement (SLCMAD) administration facility, located at 2210 west 2100 North, Salt Lake City, Utah. Phase-2 site consists approximately of 550ft x 550ft or 7-acres of flat land. Phase-2 has wat appears to be dirt spoil heaps on the east side of the site, these spoil deposits were likely left from the development of Phase-1 development. The spoil deposits will need to be investigated for used and or stripped and removed from the site before construction can begin.

Phase-2 Development:
Development of the site to include Helicopter Hangar, Helipad, Pesticide Lab Building, Adult Bio Cages (ABC), and Larvae Bio Vaults (LBV) and an access drive lane, landscaping and detention basin.

Site Zoning:
This site is currently zoned for Business Park.
The purpose of the BP business park district is to provide an attractive environment for modern once, light assembly and warehouse development and to create employment and economic development opportunities within the city in a campus like setting.

Conditional Use Permit (CUP):
This site will require a conditional use permit for the use of a Heliport. Designer will need to work with the local Authority Having Jurisdiction (AHJ) to obtain the conditional use permit. CUP review and approval process may take 90-days or longer. CUP approval is contingent on the approval of the FAA and local air port authority and air traffic control.

Federal Aviation Administration (FAA), local Airport Authority/Air Traffic Control:
Designer will coordinate and submit all required documentations and forms to the FAA and local airport authority for their review and approval of the Phase-2 development proposal.

PRINCIPLES:

To initiate the planning process MOCA held a vision session with SLCMAD and their board members. The goal of the vision session was to facilitate a discussion and identification of the guiding principles by which the comprehensive SLCAD Phase 2 development Project overview and guidelines would develop. These guiding principles will provide a framework for managing the design and construction during the development of SLCMAD Phase 2 and any other facilities associated with the plan.

The vision session was organized into two phases. The first phase was focused on discovery. SLCMAD was asked to consider what was of most importance in the development of this project. The second phase was to identify the guiding principles and to connect all of the discussed ideas to a principle.

During the vision session there were four guiding principals that were identified as critical to the success of this project. These guiding principals will be the measurements for all future and ongoing decisions for this project. The design recommendations and or decision for this project should be based upon its ability to fulfill or complete one or more of the guiding principles.

These four guiding principles are:
1. Functional
2. Cost
3. Safety
4. Sustainability & Environmental Impact

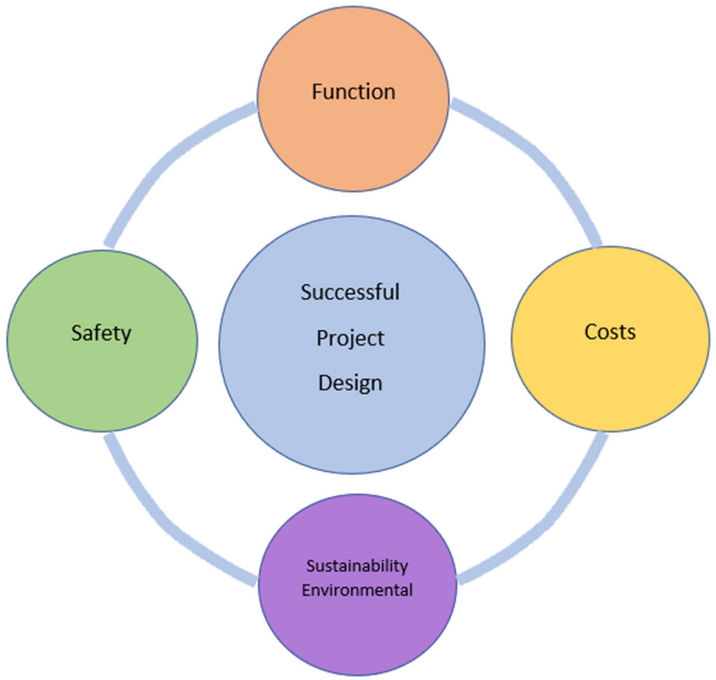
PRINCIPLES:

1. Functional:
- The facilitation of SLCMAD operation
- Locate all operations at 1 place
- Maximize impact of treatments
- Allow for expansion of operations and services for future needs
- Flexibility to modify operations for future demands
- Introduce new level of service

2. Cost:
- Taxpayer funded project
- The design for the hangar, pesticide lab and ABC cages should be of a utilitarian / practical design that honours the functionality of the building, it's space and SLCMAD's operations.

3. Safety:
- Safe and secure storage of chemicals and flight equipment.
- Safe clearance for flight operation during takeoff and approaches.
- Landscape designed to minimize Foreign Object Debris (FOD) during flight operations.
- Building placement not imped or impact the flight operations.
- Building height to not imped FAA regulations for Airport operations.

4. Sustainability / Environmental Impact
- Construction made from durable material, that have a long performance
- Low maintenance.
- Allows for maximize treatment of application
- Allows for better operations control efforts
- Energy efficient buildings
- Possible solar photovoltaic system
- Reduce water usage / use water tolerant landscaping and plants



FUNCTION:

The functionality of the facility should be as such to meet and enhance the operational use and needs of SLCMAD. The facility should be of a useful and practical utilitarian industrial design for hangar and pesticide lab building, which allows SLCMAD to introduce a new level of their service. Enabling SLCMAD to bring all of their operations to one location, allowing them to conduct research and analysis to maximize their impact to treatment areas.

To do this, SLCMAD will need a facility to which they can house their aviation equipment, and has the ability for SLCMAD to expand their flight operations for future demands and future equipment needs. This new facility should also allow SLCMAD with the ability to store treatment chemicals on site in a safe and secured manner.

These facilities should make way for SLCMAD to introduce a new level of service in their testing and treatment methods, and flexible in it's design to allow SLCMAD to modify and change their operations and procedures for future testing needs and treatment methods.

The functionality of the hangar facility will need to be designed to be used and operated in emergency event if needed by authorities having jurisdictions.

COSTS:

Designers should be mindful of taxpayers funds in their design and material usage for this project. The design of this project should take into consideration the public's current demands from SLCMAD. Therefore the design should allow SLCMAD to meet their current requirements, while allowing them to expand for future public needs.

The design for this project needs to allow SLCMAD to bring their operations into 1 location and move away from renting a facility for their flight operations.

The design of the project needs to meet the functional requirements of SLCMAD without being overly expensive.

The design for this project should be practical and functional. These facilities should be cohesive in their design with the existing developed buildings. So all of the buildings on site flow together nicely to create one unified look throughout the whole property.

SAFETY:

Do to the type of operations performed on site by SLCMAD, safety is of most importance.

The layout and design for this project and all inclusive buildings need to be planned with the safety for SLCMAD employees and adjacent pedestrians and structures / developments.

Safe clearance for flight operation is critical, during taxing out to the helipad, takeoff and approach. Therefore the location of the helipad needs to be located with the required safety clearance for flight operations required by FAA and local authority having jurisdiction for operations of takeoffs and approaches. The placement of the hangar, pesticide lab and ABC's should not imped or impact the flight operations.

The hangar facility should be design to safely store and secure aviation operation equipment and chemicals form unauthorized personnel access.

The pesticide facilities should be design for safe operation use and testing of treatment chemicals.

SUSTAINABILITY & ENVIRONMENTAL IMPACT:

The design for the hangar and pesticide facilities should allow for operational growth and expansion of SLCMAD services. And constructed out of durable material for longevity and use with minimum maintenance requirements.

The environmental impact of this project and it's facilities should allow SLCMAD to maximize their treatment application, allow for better control efforts in applying their treatment.

The facilities should incorporate the use of solar panels to reduce SLCMAD reliance on the main power grid system.

The project site should be design to reduce water usage for irrigation. The use water tolerant landscaping and plants should be used.

GUIDELINES:

01 Site
02 Grading
03 Water Retention
04 Ground Cover
05 Impervious vs Pervious
06 Access to Helipad
07 Functional
08 Economical
09 Easy to maintain
10 Durable
11 Compatible material & colors
12 Architects Responsibility with zoning and permitting.
- Conditional use permits
- Zoning
- Federal Aviation Administration
- All other applicable

GUIDELINE:
Site should be reviewed by design team and any existing site conditions should be addressed to prepare site for construction and final use.

SITE:

Designer to do a site inspection to visually observe existing site conditions and review survey reports and geotechnical reports and environmental survey of the proposed location.

Spoil pill from phase 1 construction will need to be removed from site.

Tie-in to existing Phase-1 site utilities. Phase-1 construction documents show utilities for Phase-2 stubbed out to the west construction line of Phase-1. Contractor will need to verify location of existing lines to tie-in to.

Demolition of west property line curb and gutter and parking stalls and landscaping along Phase-1 west property line to make way for the new Pesticide Lab building and LBV's.

SITE PARKING:

Review number of parking stalls with owner. Designer will need to relocated the demolition parking stalls from Phase -1 into Phase 2 site. Necessitate the number of parking stalls owner requires and location.

GUIDELINE:
Grading of the site shall consists of sculpting of the project area land for the needs of the project

GRADING:

Grading of the site shall consists of sculpting of the project area land for the needs of the project. The goal of grading shall be to provide the desired aesthetics of the property. To ensure proper drainage. Grading of the site should comply with zoning and other regulatory restrictions and requirements. The site grading should establish allowable height and depth of cuts, fills, and swales and protect the environment with consideration for stormwater runoff, potential pollutants, and erosion.

SLCMAD is concerned with current site grade, as it appears to be lower than the neighboring developments. Designer to review grading requirements to see if the site will need to be raised up.

DRAINAGE:

Designer to follow all local building code requirements for site drainage and detention of surface and ground water.

Phase-1 retention ponds retain water throughout the year. Owner would like to find a solution that remedies the retention of the water and detain it onto Phase-2 site. Reducing the inhabitance of mosquitos from the stagnant water.

SLOPE:

Designer to slope finish grade away from any site structural improvements or assets, so any surface water drains safely away.

Slope of the helipad landing zone: Landing site should have no more than the maximum slope allowed by the aircraft and operators recommendations. Designer to review requirements with SLCMAD.

Helipad approach surface slope: Typical civilian helipad needs an eight-to-on sloped approach and departure flight path. Designer to review FAA Advisory Circular for regulations on approach slope and departure flight paths and work with SLCMAD on their required approach slope per aircraft manufacture recommendations.

Hangar: Site surface slope from hangar to helipad to be flat and level to reduce aviation equipment from falling off the tug-hauler.

Fuel Tank: to be placed on level surface close to the hangar and easy access for refueling vehicles.

ABC and LBV structures: to be placed on level surfaced and have a 5ft concrete walking surface around it's perimeter. The site grade to gentle slope away for these structures.

Parking Stalls: Parking stalls next to the site building structures to slope away from the structures so no water runoff from the ground surface flows back towards the buildings.

GUIDELINE:
Water to be retained on site per local authority having jurisdictions requirements. Site to retain all surface runoff water to detention ponds.

SITE WATER DETENTION:

Designer to work with Geotech and Civil engineer to determine if Phase-2 site requires any detention or retention ponds and how much area is required and best placement on site that doesn't impact SLCMAD operations.

Designer to review existing retention ponds conditions with owner and work with engineer to redirect standing water from phase-1 retention pond to phase-2 detention pond.

GUIDELINE:
Ground cover is to cover and protect the topsoil from erosion and drought.

SITE GROUND COVERING:

Ground Cover:
The main ground covering for this project should be low maintenance material. The selected ground cover material should not impact helipad operations and should minimize contributions of Foreign Object Debris (FOD) to flight operations in the take-off, approach and landing of the aviation equipment. The selected groundcover should be drought tolerant and require little to no irrigation.

Landscaping:
Low maintenance, drought tolerant plant materials shall be used on the project site.

SLCMAD would like to participate in the discussion and selection of plant materials used on site, so the selected landscapes doesn't affect or impact SLCMAD testing and analyzing mosquito population.

GUIDELINE:
Design to comply with local building code or sustainable ordinance in the limit of impervious surfaces.

IMPERVIOUS VS PERVIOUS:

Impervious surface cover:
Impervious ground over is the sum total of all hard surfaces within the project sites watershed including rooftops, parking lots, streets, sidewalks, driveways, and surfaces that are impermeable to infiltration of rainfall into underlying soils/groundwater.

Pervious surface cover:
Pervious coverage to include the sum total area of land within the project site that is occupied by trees, lawn, mulch or other materials that permit rainwater to permeate into the subsurface.

GUIDELINE:
Easy access to helipad from hangar and flight departure and approach.

ACCESSABILITY TO HELIPAD:

Hangar to Helipad:
Designer to verify that the design of the helipad meets all of the local and federal regulations and is designed with the appropriate slope for approach and departure flight paths.

The heliport should be directly across from the hangar for ease of transportation of aviation equipment from the hangar to the helipad via the taxi-way.

Taxi-way:
The taxi-way should be at the same grade elevation as the hangar and helipad to minimize the aviation equipment from bouncing and/or falling off the tug hauler. The taxi-way should be constructed out of the same building material as the hangar bay flooring.

The design of the helipad to meet all local and federal regulations and designed with the appropriate slope for approach and departure flight paths.

Helipad to Air:
Helipad to be clear of obstructions such as trees, poles, buildings and overhead wires. Placement to not impact other SLCMAD operations and nearby structures or facilities.

Area around helipad must be free of stumps, brush, posts, large objects or anything over 18-inches high.
Wind direction for flight to be considered in it's placement, as helicopters land and take-off into the wind.

Verify if water source near helipad is required by SLCMAD to wet down the landing area to prevent dusty conditions during flight departure and landing.

Air to Pad:
For flight approach, placement of helipad to clear of obstructions such as trees, poles/towers, buildings and overhead wires.

Vehicle access:
Easy access to the hangar, helipad and pesticide buildings for emergency vehicles, refueling vehicles and SLCMAD fleet vehicles.

GUIDELINE:
Functionalism is the principle that these buildings should be designed based solely on their purpose and function. Their design shall be of a practical utilitarian design that enables SLCMAD to perform their essential operations.

FUNCTIONAL:

The functionalism of this facility should be of a useful and practical utilitarian industrial design in their form, use and material for the hangar, pesticide lab and adult bio control cages.
The functionality of these buildings is foremost, over esthetics.

The development of these buildings should provide stability, weather resistance, fire resistance, thermal insulation, sound insulation, and security.

Structural:
Structural stability of the buildings to resist any sudden change or force, its ability to maintain equilibrium under any circumstances.

Weather resistant:
Weather resistance to varying climate elements. The buildings exterior envelope system to protect the interior space from exterior weather conditions penetrating into the building.

Thermal insulation:
Thermal insulation refers to the use of appropriate insulation materials and design for the building use and types to slow the transfer of heat through building enclosure to reduces energy costs from heat loss or gains.

Fire resistance materials:
Fire resistance materials and systems to be considered and used in the design and construction of the facilities building to safeguard against the spread of fire within the buildings and the spread of fire to or from building to building or building to land.

Sound Insulation:
Sound insulation in the design of each building to muffle the sound waves from permeating out into other rooms or spaces.

Security:
Security, the facility and structures shall be designed to protect equipment and SLCMAD operations from unauthorized personnel accessing and or infiltrating the premises.

GUIDELINE:
Designer to adhere to the project budget in the design for this project

ECONOMICAL:

The design for this project should be simple, economical and practical, giving good value and service to SLCMAD in relation to the amount of money and time. The designer should be careful not to waste money or resources on unnecessary architectural elements. However, these facilities should be cohesive in their design with the existing developed buildings to create one unified look throughout the property.

GUIDELINE:
Design that ensures SLCMAD is getting the maximum benefit from their new buildings.

EASY TO MAINTAIN:

Maintainability is essential in the design, function and longevity of the facility and landscape for this project. The design and material selection should be from durable products that require little maintenance and/ or care by SLCMAD. This project and it's facilities should require maintain in good working condition, minimum and attention for upkeep by SLCMAD.

Long-term maintenance and operational efficiency to be include in the building designs. It is important that design promote longevity and long-term maintenance accessibility.

Selected material to remain serviceable in the surrounding environment during the useful life without damage or unexpected maintenance.

Hangar:
Hangar facility to be constructed out of durable, sustainable material, such as metal or concrete. The hangar bay door and gantry crane to be of good quality equipment with low maintenance requirements, sourced by local vendor for quick servicing.

Pesticide Lab:
Pesticide Laboratory building to be constructed out of durable material, such as metal or concrete. Building components to be resistance to high temperatures and humidity levels. Mechanical system to be able to handle and maintain varying conditions.

ABC:
Adult Bio Control cages to be constructed out or durable material such as metal and or concrete. The screen material should be sturdy and rugged and accessible for easy repair and replacement.

LBV:
Larvae Bio Vaults should be constructed out of precast concrete material for easy maintenance.

GUIDELINE:
Durability of the buildings to maintain, over its lifetime, the performance for which they are designed for and meet the operational needs for SLCMAD.

DURABILITY:

Durability in the design and selection of products and material for this project and its assets should be resistant to degradation and allow the assets to achieve their life expectance for this type of facility. The durability of these structures is a vital part of sustainable construction, as insufficient durability components can result in additional unexpected costs to SLCMAD due to repair or reconstruction, as well as environmental and social impacts.

Hangar:

Hangar structure to be built from material that allow for easy maintenance over its lifetime and constructed out of durable material that will holdup to the day-to-day operational use by SLCMAD.

Pesticide Lab:
Pesticide lab to be constructed out of material that will withstand and the wear and tear and/or damage due to the testing operations by SLCMAD.

ABC:
Adult Bio Control cages should be constructed out of lightweight steel materials to resist local wind loads and have a strong and durable roof structure to withstand local seasonal snow loads.

LBV:
Larvae Bio Vaults to be constructed out of prefabricated reinforced concrete material. Vaults to hold up against local seasonal changes in precipitation and temperatures.

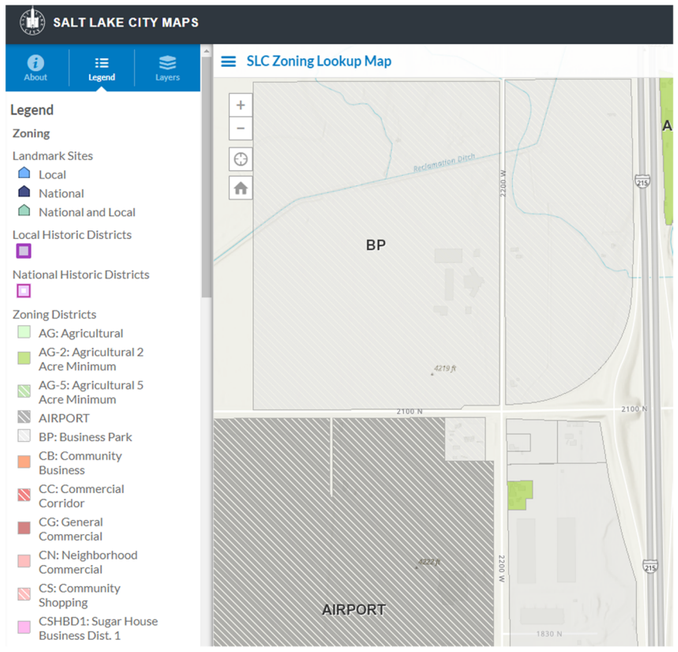
GUIDELINE:
Bring Phase-1 and phase-2 developments together as one.

COMPATIBLE MATERIAL & COLOR:

The design for this project should be of a practical and functional one, that provides cohesiveness with the existing Phase 1 development. So all of the buildings on site seamlessly compliment each other and creates one unified look throughout the whole property.

Design should use selective material and color scheme that complements the existing buildings.
temperatures.

GUIDELINE:
AOR to provide all architectural and engineering services that are consistent, sensitive, thought development and technical execution of the project overview and guidelines, structural, mechanical, electrical, and architectural construction documents, as well as other consulting services reasonably necessary to fulfill their scope of service.



ARCHETECTS RESPONSIBILITY:
The AOR will:

- Collaborate with owner in all areas of the project design development and implementation.
- Participate fully in all design scoping workshops
- Complete design documents.
- Provide design documents that comply with applicable laws, codes, rules, regulations and quality requirements.
- Review documents with owner and SLCMAD board of representatives.
- Review and provide comments to owner on project overview and design guidelines.
- Provide outline specifications supportive of the project overview and design guidelines
- Provide services for zoning and permitting requirements
- Provide services for conditional use permit application submittal to authority having jurisdiction for hangar and helipad use.
- Verify site zoning ordinance and use.
- Provide design documents that comply with all Federal Aviation Administration (FAA) regulations
- Complete scope documents
- Provide services to submit design documents to FAA and any / all other local applicable authorities having jurisdiction for review and approval.
- Participate in all construction related processes.

PROGRAM

Pesticide Lab:_____approx. 3,600sq.ft.
Larvae Bio Vaults:_____approx. 4,000sq.ft.
Adult Bio Control Cages:_(qty. 4) approx. 900sq.ft. ea.
Hangar:_____approx. 19,000sq.ft.
Helipad:_____approx. 8,100sq.ft.
Helipad Approach:_____approx. 180sq.ft.

OVERALL Sq.Ft._____approx. 38,480sq.ft.

SECTION FOUR:
PROGRAM - PESTICIDE LAB 1

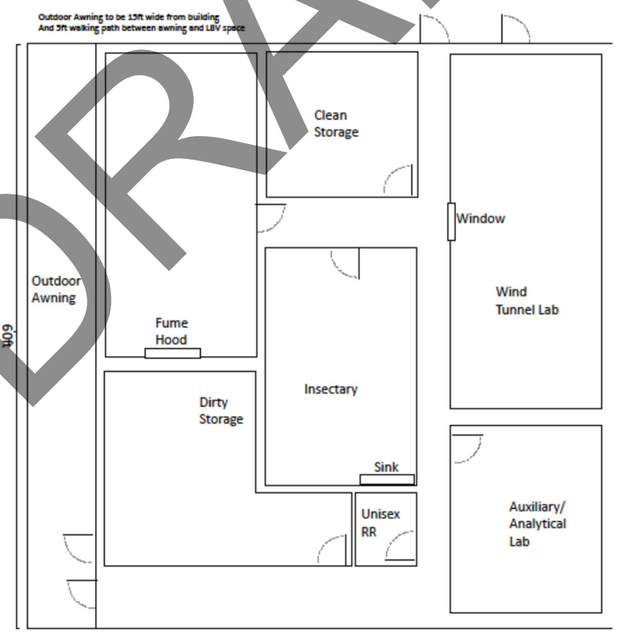
PESTICIDE LAB PROGRAM:

Building to include:

- Dirty Storage Lab _____approx. 300sq.ft.
- Fume Hood room _____approx. 480sq.ft.
- Insectary_____approx. 380sq.ft.
- Clean storage room_____approx. 230sq.ft.
- Wind tunnel lab_____approx. 550sq.ft
- Auxiliary / Analytical Lab_____approx. 300sq.ft.
- Restroom_____approx. 50sq.ft.
- Fire Riser room_____approx. 100sq.ft.
- Mechanical room (sized by designer)_____sq.ft.
- Exterior - 5-foot walking path around building perimeter
- **Total Sq.Ft. 3,600sq.ft.**

Building Construction material: 3,600sqft

- Pre-Fab Metal Building
- Concrete slab floor with gravel base underneath it
- Sealed concrete flooring
- Metal stud framing with drywall finishes
- Exposed ceilings
- Drop ceilings
- Hard lid in restroom
- Lighting throughout building



Auxiliary Lab Room: 300sq.ft.

- To consist of natural and artificial lighting
- Consist of workstations and laboratory countertops
- Power supply along back wall of countertops for laboratory equipment
- Designer to work with owner on requirements for laboratory equipment and mechanical and electrical needs.
- Flooring to be a product that is easy to maintain and resistant to chemical products.
- Std. metal frame with gypsum wall board

PESTICIDE LAB PROGRAM:

Wind Tunnel Lab Room: 550sq.ft.
- Large rectangular room. Large enough to accommodate for the wind tunnel equipment and allow for work space
- Flexible table top for wind tunnel
- Flooring to be a product that is easy to maintain and resistant to chemical products.
- Overhead lighting
- Located near exterior wall of building, to bring in outside airflow through the wind tunnel equipment
- Work with owner on specific equipment needs and parameters in this room. Flexible duct line to exterior for air intake and or exhaust to wind tunnel chamber. Air hoses connection and Air Filters. Wind tunnel set on top of movable tabletop.

Dirty Storage Lab: 300sq.ft.
- Flooring to be a product that is easy to maintain and resistant to chemical products.
- Overhead lighting
- Industrial shelving for storage of chemical products
- Proper ventilation system.

Fume Hood Lab: 480sq.ft.
- Flooring to be a product that is easy to maintain and resistant to chemical products.
- Overhead lighting
- Fume hood system
- Laboratory quality workstations with countertop
- Central Island in center of room
- Acid resistance material on work surfaces
    - Phenolic countertop

Insectary: 380sq.ft.
- Room should be located near the center of the building
- Entry/exit vestibule sealed off room from other areas within the building
- Flooring to be a product that is easy to maintain and resistant to high humidity, high temperatures and chemical products, with a floor drain
- Room ceiling and wall finish to be resistant to high humidity, mold and high temperatures.
- Room should include lavatory sink basin
- Room to be climate controlled
    - Climate controlled system may need to be separate for buildings system.
    - Climate controlled system to allow for high temperatures and high humidity.
- Room to have lighting control system. Work with owner to verify the light requirements for testing purposes.

ADA Unisex Restroom: approx. 50sq.ft.
- Design to meet all local code requirements for the design and use of an ADA restroom
- Flooring to be a product that is easy to maintain
- Grab bars
- Tile walls
- Hard lid ceiling

Mechanical Room: undefended square footage
- Overhead duct lines
- Heating and cooling systems
- High humidity and warm air heating system for insectary room

SECTION FOUR:
PROGRAM - ADULT BIO CONTROL CAGES
1

ADULT BIO CONTROL (ABC) PROGRAM:

Structure square footage: (Qty. 4)

- Total Sq.Ft. 900sq.ft. each
- **Gross Total Sq.Ft.** **3,600sq.ft.**

ABC cage placement:

- Minimum 300' separation between each ABC cage
- Places cages along Phase 2 property line corners
- Placement of cages should not impact flight approach and take-offs.

ABC Construction:_____Qty. (4), 900sq.ft

- 30'x30'x20'height, steel/aluminum frame system with screen perimeter
- Roof structure to follow local code requirements to withstand snow load.
- Paved parking stall next to ABC cage for loading and unloading
- 5'-0" Concrete walking path around perimeter of cage exterior for outside observation
- Exterior screen walls set on top of concrete curb/ mow strip
- Exterior screened vestibule area from main cage area with concrete flooring and screen wall between vestibule and main cage area
- Vestibule / entrance should face main drive lane and near parking stall
- Vestibule is needed to prevent / minimize the mosquito test samples for leaving the cage.
- Vestibule should be large enough to allow personnel and equipment to enter space and close main entrance door before entering main room.
- Screen for ABC should be small enough to prevent test samples from flying through.
- Double Doors in the back or side of ABC main cage.

ABC Interior Requirements:

- Ground covering in main area
- Grass and plants (landscape architect to work with SLCMAD on plants)
- Water spigot inside cage area
- Irrigation system inside cage area
- Concrete pad with pergola in center of main area
  - Pad to be within 2'-0" from sides of structure to the inside
- Weatherproof electrical outlets around inside perimeter of main area and at center concrete pad / pergola
- Outdoor lighting inside and outside ABC cage structure
- Interior water faucet/spigot and sprinkler/irrigation system

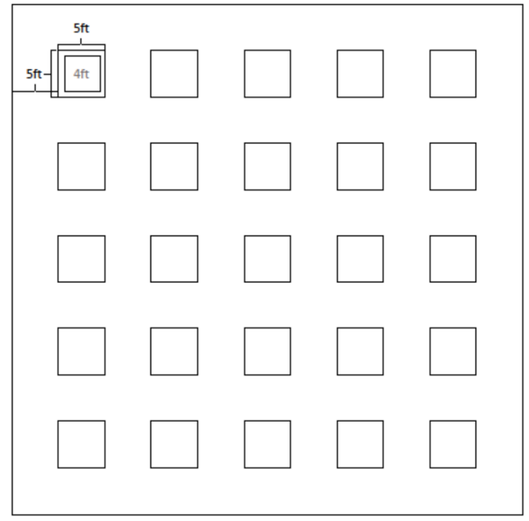
LARVAE BIO VAULTS PROGRAM:

Structure square footage:

- **Total Sq.Ft.** **4,000sq.ft.**

Larvae Bio Vaults (LBV):

- 20’ from west side of Pesticide Lab
- 5x5 grid pattern with 25 vaults
  - 5’-0” work space between each vault and around perimeter vaults
  - Roughly 60’x60’ square foot concrete pad
- Concrete Vaults
  - 5’x5’x3’ height with drain in center
    - Look into the use of Pre-fabricated vault (storm water manhole vault system)
  - Each vault should holds aprox. 250 gallons of water
  - Each vault should be designed to allow for a string to be strung down the center of the vault to hold larvae samples
  - Each vault row should have a water valve in front of it.
  - Each vault should have a water spicket ran and into it, along with a drain line and vent stack.



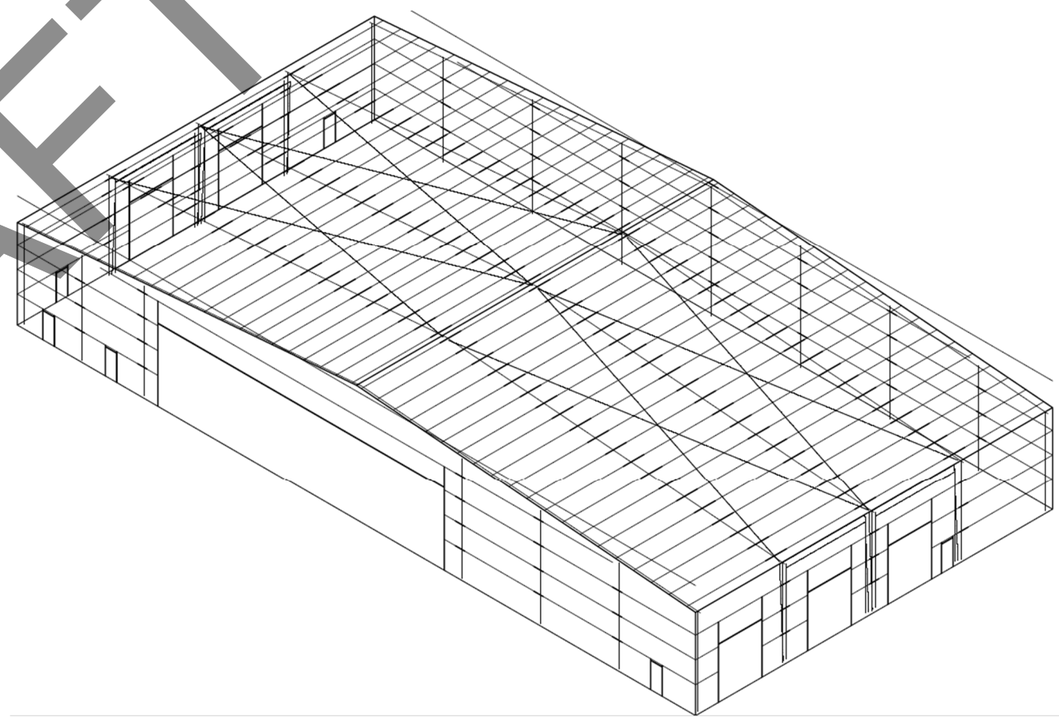
SECTION FOUR:
PROGRAM - HANGAR 1

HANGAR PROGRAM:

Building to include:

- Apparatus Bay _____approx. 12,400sq.ft.
- Apparatus Bay Mezzanine___approx. 3,100sq.ft.
- Parts Storage Room_____approx. 700sq.ft.
- Offices (qty 2)_____approx. 300sq.ft.
- Restrooms (qty 2)_____approx. 50sq.ft. ea.
- Breakroom/Training Rm____approx. 700sq.ft.
- UAS Drone Storage Rm_____approx. 700sq.ft.
- Dry Chemical Storage _____approx. 1,750sq.ft.
- Liquid Chemical Storage____approx. 1,260sq.ft.
- Mechanical/Janitor Closet__approx. 336sq.ft.
- Fire Riser Room_____approx. 84sq.ft.
- **Total Sq.Ft. 19,000sq.ft.**

  *Designer to work with owner on each room size requirement.

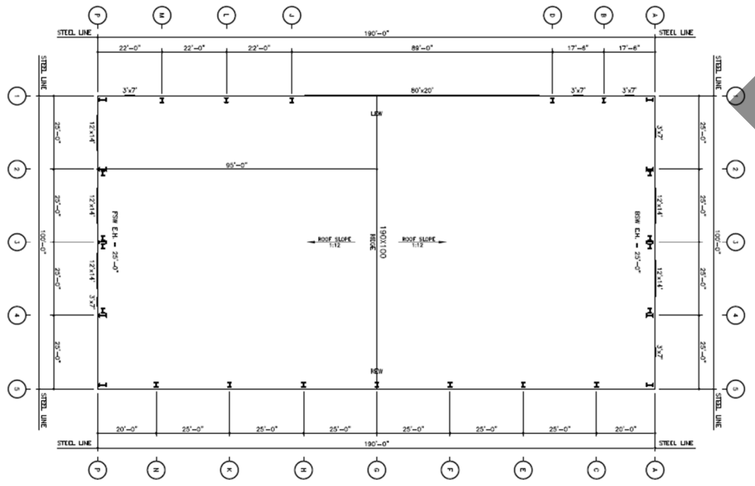


SECTION FOUR: PROGRAM - HANGAR 2

HANGAR PROGRAM:

Apparatus Bay: 12,400sq.ft.

- App Bay should be large enough to support
  - 2 aircrafts with 2 tugs and 2 dollies
  - 3 bay garage w/ bay doors for fleet vehicle and trailers
- Hangar bay door should be a low maintenance, durable horizontal bi-folding door.
- Bay should include a long work bench along one of the interior walls.
- Bay should include man entry door
- Natural light into bay area from either skylights or exterior wall windows
- Bay to include 2nd floor storage area above back offices, & training room area.
- Include staircase in bay area to access 2nd floor
- Include floor drains in bay floor with code required separators.



- Concrete bay flooring to have protective coating over it.
- Mechanical system – offices, parts room, training room, restrooms & UAS room to have some form of forced air heating & cooling
- Mechanical system for chemical storage rooms to consist of forced air heating & cooling
- Mechanical system - apparatus bay area to have some form of heating system such as gas-fired overhead infrared heaters and BAF fan system or cooling system for summer operations

Apparatus Bay 2nd Floor / Mezzanine: 3,100sq.ft.

- 2nd floor or mezzanine is for storage purposes and should be construction to storge various equipment required for SLCMAD operations.
- Metal staircase inside apparatus bay for access.
- Second floor to be opened to bay area with guardrail and gate.

Parts Storage Room: 700sq.ft.

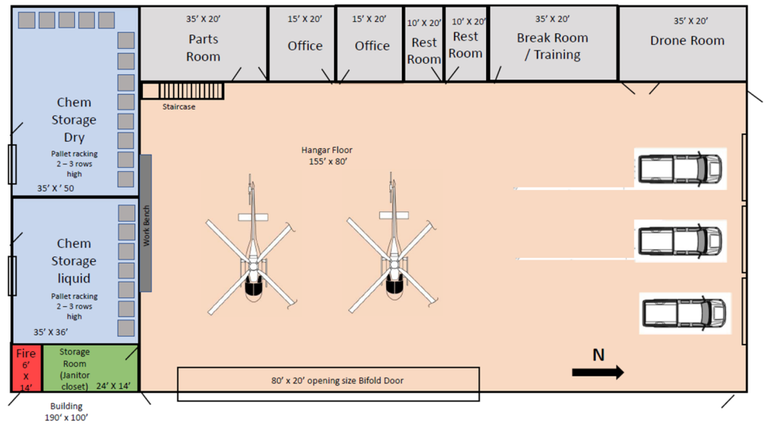
- Double door entry
- No windows
- Concrete flooring
- Heavy duty shelving throughout room
- Overhead lighting
- Exposed ceiling

Offices: 300sq.ft each

- Metal stud framing w/ drywall finish
- Drop ceiling
- Overhead lights
- Door w/ window side light to hangar
- Window on exterior wall
- Carpet tile flooring
- Office furniture and chairs

Restrooms: shall meet code requirements

- Metal stud framing w/ drywall finish
- Hard lid ceiling
- ADA / Unisex restrooms with showers, sink & water-closet, grab bars
- Water resistance wall finish
- Sealed Concrete flooring



HANGAR PROGRAM:

Breakroom / Training room: 700sq.ft.
- Room should be designed to function as both the breakroom and Training room when needed.
- Room finishes to include but not limited to, metal stud framing w/ drywall finish, drop ceiling and lighting, carpet tile with LVT flooring by breakroom area
- Breakroom area to consist of kitchen style cabinetry with countertops, wall cabinets a refrigerator, microwave, sink and wall outlet above countertop for equipment.
- Flexible folding and movable tables and chairs for breakroom and training needs.
- Window to hangar
- Window at exterior wall for natural light

UAS – Drone room: 700sq.ft.
- Double door entry or Overhead coiling door with man door
- Sealed concrete floor finish
- Standing working tables center of room
- Shelving and bench along perimeter wall

Gantry Crane:
- Gantry crane in hangar to move parts stored above office to hangar floor
- Weight to support (verify with owner on weight requirements)
- Metal Staircase for access to 2nd floor
- Second floor above back offices/training room/ parts room location
- Concrete floor over structural framing

Dry Chemical Storage Room: 1,750sq.ft.
- Single overhead coiling door and man door
- Concrete floor finish with floor drain and exposed ceiling with lighting.
- Abrasive resistant wall finish
- Pallet rack storage shelving, 2 to 3 rows high along interior wall perimeter

Liquid Chemical Storage Room: 1,260sq.ft.
- Single overhead coiling door and man door
- Concrete floor finish with floor drain and exposed ceiling with lighting.
- Abrasive resistant wall finish
- Pallet rack storage shelving, 2 to 3 rows high along interior wall

Mechanical Room and Janitor Closet: 336sq.ft.
- Space large enough to support the mechanical needs for hangar building.
- Room to also function as the hangar's janitor closet and should have mop sink and tool storage rack.

HANGAR PROGRAM:

Fire Riser Room:
- Room size to meet code requirement and fit all necessary equipment within for fire protection.

Backup Generator System:
- Hangar should be supported by a backup generator system to would allow for flight operations in the event that main power to the building and helipad were lost.

Aircraft Fuel Tank program:
Design for the aircraft fueling tank should include but not limited to:
- Located near hangar and helipad (south or north end of the hangar building).
- Easy accessible for fueling service vehicle to fuel tank
- Easy access for SLCMAD operational refueling vehicles to tank.
- Tank should be designed specifically for aircraft fuel and use.
- Tank should have a minimum fuel capacity of 2,000 to 3,000 gallons.
- Fuel tank should meet all FAA regulations for aviation fuel tank system and storage.
- Tank should include but not limited to, having it's own pump and pumping system, fueling cabinet and fuel management system.
- Tank should still be operational if main power is lost, either from it's own generator system of tied into the hangars generator system.

HELIPAD PROGRAM:

Helipad should be constructed of low maintenance impervious construction material, and large enough to support 2 helicopters on it at the same time. Minimum construction size to be 90’ x 60’.

Design for helipad should be in conformance with local and federal requirements, and meet all of FAA regulations. Designer should also include but not limited to required helipad lighting, striping, wind directional indicator socks and wind speed indicators and have proper drainage off helipad surface and grading sloped away from helipad.

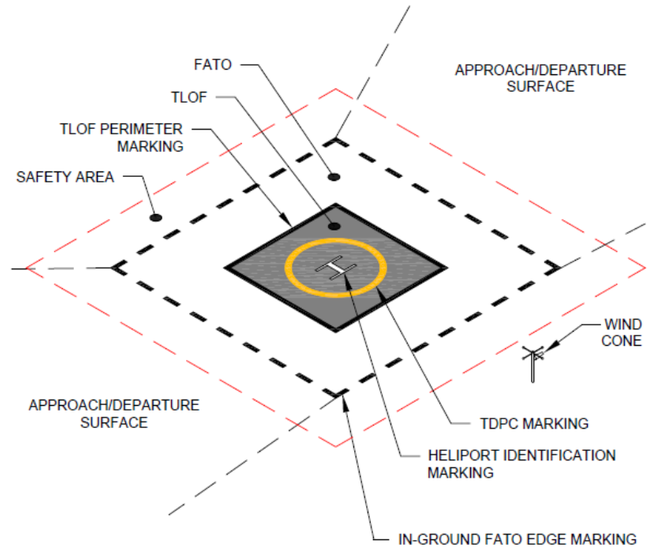
Helipad should be placed directly out form the hangars apparatus doors. For direct taxing in and out of the hangar.

Helipad approach should be constructed of the same material as the hangar bay to keep a smooth transition and transportation of the air crafts to the helipad.

Helipad should be placed on the site that allows for optimum flight pattern take-off and landing for SLCMAD operations and not impact surrounding facilities. When placing the helipad consider wind direction as Helicopters land and take off into the wind.

Helipad to meet local tower regulations for directional flight take-offs and landings.

Design to follow FAA regulations and include any lighting and striping as required.



SEQUENCING

This project has three Elements to it's development.

- **Element 1** - Construction of the Hangar and Helipad and required site work and underground infrastructure.
- **Element 2** - Construction of the Pesticide Lab
- **Element 3** - Construction of the Adult Bio Control cages and Larvae Bio Vaults.

The design team to develop a full funding estimate for each of these three elements. The owner will verify the funding for each of these phases prior to the commencement of each particular phase.

The final sequencing of this development will be determined in consultation with the owner.

Element 1 - Hangar, Helipad and Site
The Hangar will consists of an approximate 19,000sq.ft. facility, and the Helipad consist of roughly 8,100sq.ft. large enough to allow for 2 helicopters to be on the helipad at the same time. Site work shall include but not limited to any and all required site abatement of the entire site, installation of underground utilities systems to support the hangar and helipad and any other future phase construction and any site drive lanes and parking stalls. Site work shall also include the formation and installation of any site detentions ponds.

Element 2 - Pesticide Laboratory
The Pesticide Lab will consist of an approximate 3,600sq.ft. laboratory space for SLCMAD testing and research.

Element 3 - ABC and LBV
Element 3 is the construction of both the Adult Bio Control cages and Larvae Bio Vaults. There are (4) ABC cages spaced out around the property site. Each cage is roughly 900sq.ft. These cages should be places to not impede on SLCMAD flight operations. Parking stalls will be required by each ABC structure. The LBV is made up of 25 vaults with a walking path between each of them and around the perimeter for access. The approximate area for the LBV is 4,000sq.ft. and it should be located adjacent to and near the Pesticide Lab building.

SECTION SIX: DELIVERY METHOD 1

DELIVERY METHOD

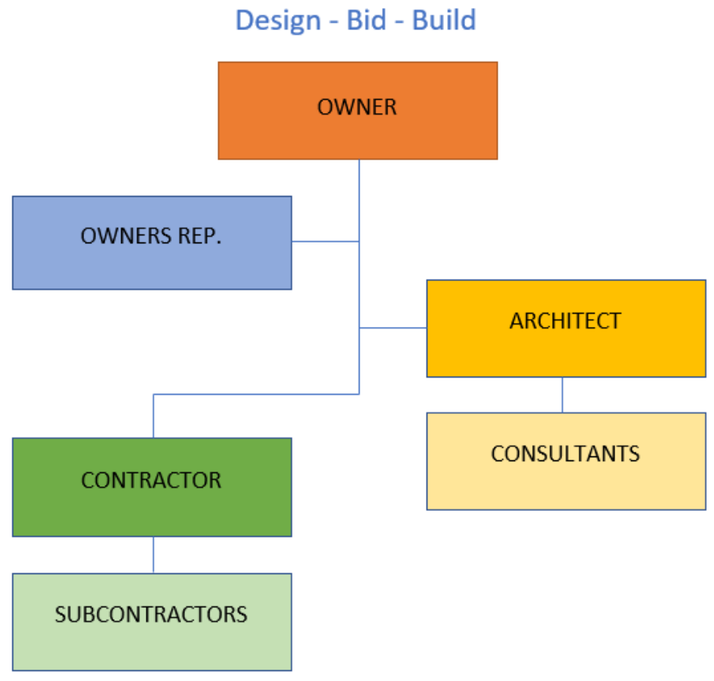
The delivery method for this project will follow the traditional method of Design - Bid - Build process.

This delivery method consists of three distinct phases: the design phase, the bid phase and the build phase. The owner will contract separately with the designer and general contractor. Once the owner has selected a designer, they will work in tandem with them to produce a program and design of the project to get the best price for this project. During this design phase, the designer will prepare any and all necessary drawings and specifications required for the general contractor to bid and complete the construction work of this project.

Once the designer has finished the construction documents, they will be solicited for bids by contractors to perform the work. Once a general contractor has been selected the building phase will begin. During construction the designer and contractor will be required to work collaboratively, to insure the project is successfully completed and meets the owners program requirements.

1. Owner hires Architect for design services.
2. Architect to hire Design Consultants.
3. Architect and Owner to Develop Design Objectives.
4. Architects provide option of probable design options.
5. Architect design development.
    a. Schematic Design Documents.
    b. Design Development Documents.
    c. Construction Documents and Specifications.
6. When CD & Spec's are completed, owner to post documents for contractors bid.
7. Contractor bid submittal review.
8. Owner retain most responsible Contractor.
9. Owner & Contractor contract finalization.
10. Contractor construct project.
11. Owner Accepts building when completed.
12. Owner take occupancy.

Lab building.



GENERAL

General Construction Costs

The budget for this project has not been defined by the owner. The owner has established a rough order of magnitude cost estimate for this project through a series of analysis that include:

- Benchmarking
- Investigation of Specialty Items
- Quantity Take Off of Specific Items
- Pre-design cost estimate.

The design team will assist in developing the final budget for this project based on cost estimates provided from the designers schematic design phase.

Owner Costs

The Owner Cost include all costs above the beyond the cost of the hard construction work. These are sometimes referred to as soft costs.

These costs include professional services such as:

- Owner program manager fees
- Architect and Engineering fees
- Inspection Service fees
- Commissioning Authority fees
- Third Party Quality inspections Service fees
- Geotechnical and Survey Service fees
- Communication Design Service fees

Other typical non-profession service items include:

- Contingencies
- General Expenses
- Relocation and moving costs of existing equipment
- Furniture, Fixtures and Equipment Service fees

Total Project Construction Costs: $17,803,257.93

HANGAR / HELIPAD		19,000
Cost Estimate	Cost/sqft	Total cost
Concrete	$ 87.59	$ 1,664,151.76
Metal	$ 62.03	$ 1,178,515.43
Wood, Plastic, and Composites	$ 0.46	$ 8,659.63
Thermal and Moisture Protection	$ 51.91	$ 986,369.78
Openings	$ 21.68	$ 411,977.68
Finishes	$ 10.74	$ 204,035.06
Specialties	$ 2.43	$ 46,162.11
Special Construction	$ 2.31	$ 43,883.86
Fire Suppression System	$ 23.47	$ 445,888.75
Plumbing	$ 52.60	$ 999,338.89
Mechanical	$ 45.65	$ 867,439.03
Electrical / Commun. Safety & Security	$ 37.11	$ 705,106.02
Earthwork	$ 1.08	$ 20,484.62
Utility Tie-in	$ 0.98	$ 18,579.07
Landscaping	$ 4.40	$ 83,523.40
Site Clearing, Excavation, Cut and Fill	$ 7.94	$ 150,792.91
Utility Gas Distribution	$ 3.26	$ 61,952.97
Asphalt Area	$ 23.97	$ 455,514.56
Helipad	$ 3.84	$ 72,941.25
Fuel Tank	$ 5.43	$ 103,233.35
Storm Sewer	$ 14.26	$ 270,980.49
Undergrond Electrical Distribution	$ 22.40	$ 425,641.93
Waste Water Collection	$ 26.10	$ 495,903.12
Potable Water	$ 3.07	$ 58,252.55
Fire Water	$ 1.37	$ 26,114.88
Hangar / Helipad Total		**$ 9,805,443.08**

PEST LAB		3,600
Cost Estimate	Cost/sqft	Total cost
Concrete	$ 40.94	$ 147,366.53
Metal	$ 84.75	$ 305,090.84
Wood, Plastic, and Composites	$ 2.05	$ 7,387.13
Thermal and Moisture Protection	$ 28.67	$ 103,226.40
Openings	$ 70.69	$ 254,483.64
Finishes	$ 54.51	$ 196,243.37
Specialties	$ 8.12	$ 29,247.56
Equipment	$ 0.50	$ 1,791.63
Furnishings	$ 16.76	$ 60,351.45
Special Construction	$ 0.30	$ 1,071.63
Fire Suppression System	$ 14.82	$ 53,369.06
Plumbing	$ 97.42	$ 350,703.34
Mechanical	$ 119.59	$ 430,508.93
Electrical / Commun. Safety & Security	$ 93.14	$ 335,299.89
Earthwork	$ 1.73	$ 6,214.38
Utility Tie-in	$ 3.37	$ 12,123.25
Landscaping	$ 6.19	$ 22,272.91
Demolition	$ 2.76	$ 9,929.48
Site Clearing, Excavation, Cut and Fill	$ 13.96	$ 50,264.30
Utility Gas Distribution	$ 5.74	$ 20,650.99
Asphalt Area	$ 33.74	$ 121,470.55
Larvae Vaults	$ 79.48	$ 286,129.04
Storm Sewer	$ 20.07	$ 72,261.46
Undergrond Electrical Distribution	$ 31.53	$ 113,504.51
Waste Water Collection	$ 70.96	$ 255,465.24
Potable Water	$ 4.32	$ 15,534.01
Fire Water	$ 5.94	$ 21,366.72
Pest Lab Total		**$ 2,294,479.02**

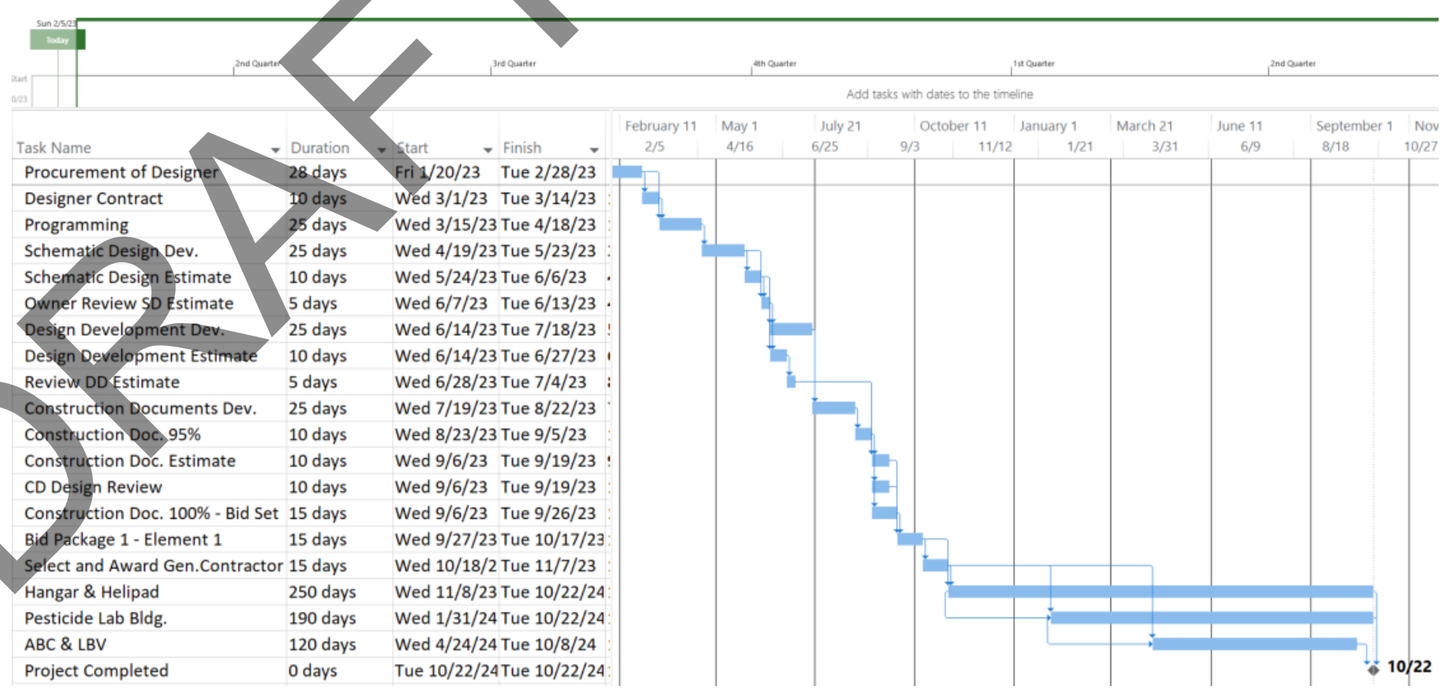
ADULT BIO CAGES (ABC)		800
Cost Estimate	Cost/sqft	Total cost
Concrete	$ 35.50	$ 28,396.52
Screen Enclosure with Roof	$ 54.18	$ 43,346.79
Thermal and Moisture Protection	$ 19.45	$ 15,559.32
Openings	$ 8.59	$ 6,870.25
Plumbing	$ 11.66	$ 9,330.58
Electrical	$ 54.94	$ 43,949.40
Earthwork	$ 1.06	$ 848.00
Exterior Improvements	$ 0.64	$ 512.70
Landscaping	$ 1.74	$ 1,392.06
Asphalt Area	$ 9.49	$ 7,591.91
Storm Sewer	$ 5.65	$ 4,516.34
Undergrond Electrical Distribution	$ 8.87	$ 7,094.03
Potable Water	$ 1.21	$ 970.88
Total per cage		$ 148,814.17
QTY (4) Cages Total		**$ 595,256.67**

SCHEDULE

The schedule for this project is based around using the traditional (Design / Bid / Building) procurement method. The duration of each bid package phase of construction shall be determined at the recommendation of the General Contractor, based on current industry . This process will allow for multiple bid packages. MOCA has proposed the following packages:

The proposed schedule suggests that all three phases of construction bid packages will be completed at or near the same time. If all three phases are accepted by SLCMAD for construction and should be constructed concurrently, the construction of all three phases should be completed by the end of the year 2024.

Project to be completed at the owners convenience.



Task Name	Duration	Start	Finish
Procurement of Designer	28 days	Fri 1/20/23	Tue 2/28/23
Designer Contract	10 days	Wed 3/1/23	Tue 3/14/23
Programming	25 days	Wed 3/15/23	Tue 4/18/23
Schematic Design Dev.	25 days	Wed 4/19/23	Tue 5/23/23
Schematic Design Estimate	10 days	Wed 5/24/23	Tue 6/6/23
Owner Review SD Estimate	5 days	Wed 6/7/23	Tue 6/13/23
Design Development Dev.	25 days	Wed 6/14/23	Tue 7/18/23
Design Development Estimate	10 days	Wed 6/14/23	Tue 6/27/23
Review DD Estimate	5 days	Wed 6/28/23	Tue 7/4/23
Construction Documents Dev.	25 days	Wed 7/19/23	Tue 8/22/23
Construction Doc. 95%	10 days	Wed 8/23/23	Tue 9/5/23
Construction Doc. Estimate	10 days	Wed 9/6/23	Tue 9/19/23
CD Design Review	10 days	Wed 9/6/23	Tue 9/19/23
Construction Doc. 100% - Bid Set	15 days	Wed 9/6/23	Tue 9/26/23
Bid Package 1 - Element 1	15 days	Wed 9/27/23	Tue 10/17/23
Select and Award Gen.Contractor	15 days	Wed 10/18/2	Tue 11/7/23
Hangar & Helipad	250 days	Wed 11/8/23	Tue 10/22/24
Pesticide Lab Bldg.	190 days	Wed 1/31/24	Tue 10/22/24
ABC & LBV	120 days	Wed 4/24/24	Tue 10/8/24
Project Completed	0 days	Tue 10/22/24	Tue 10/22/24