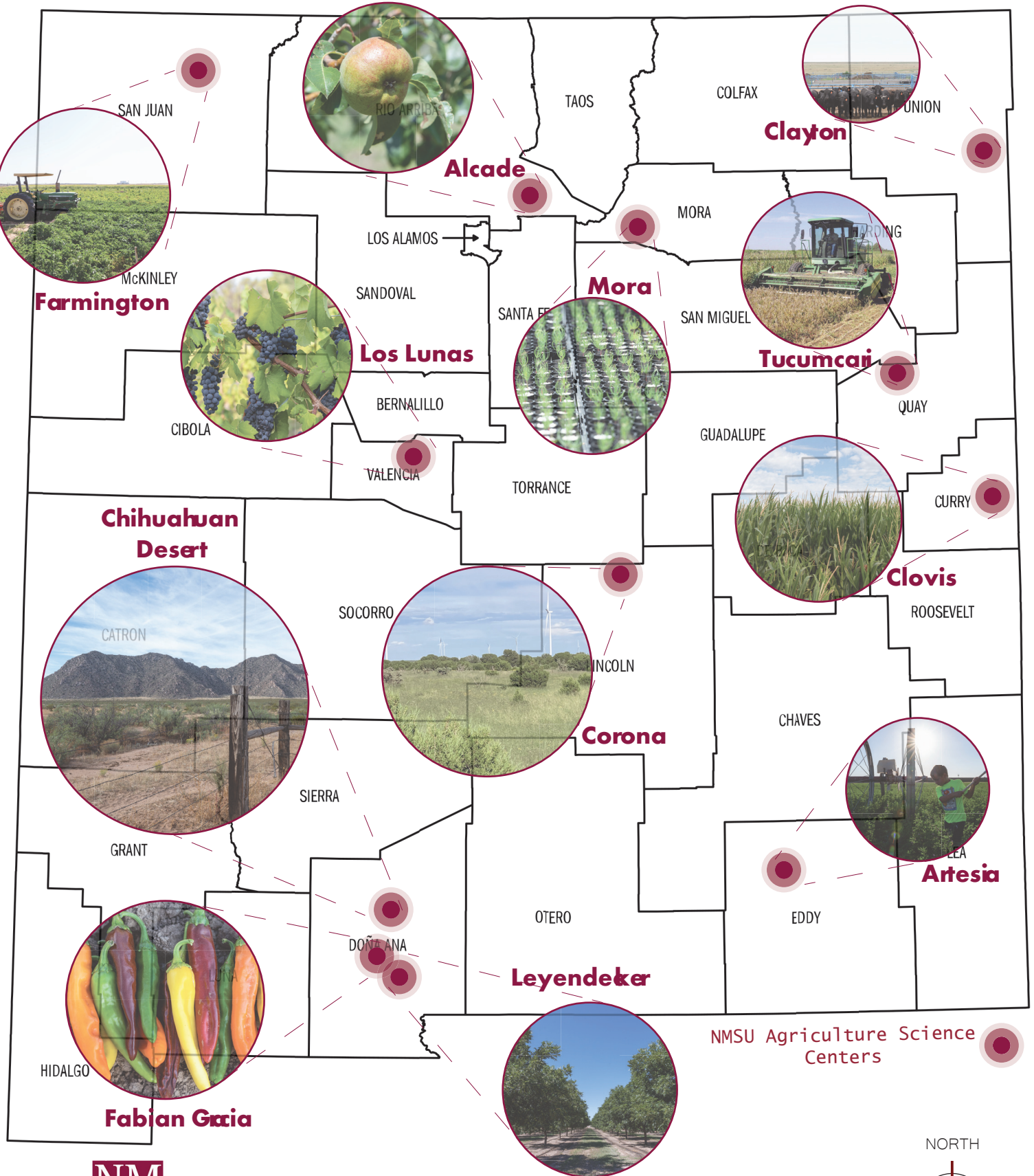


New Mexico State University

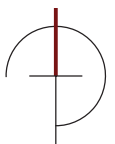
College of Agricultural, Consumer, and Environmental Sciences



BE BOLD. Shape the Future.
College of Agricultural, Consumer,
and Environmental Sciences

Agricultural Science Center
at Los Lunas

NORTH



BOOK 10 OF 12

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ACKNOWLEDGMENTS

*Dr. Rolando A. Flores Dean & Chief Administrative Officer College of Agricultural,
Consumer and Environmental Sciences*

*Dr. Leslie Edgar Associate Dean and Director of Agricultural Experiment Station
Brooke Boren AES Director of Land and Assets
Shad Cox AES Livestock Operations Director
Dave Lowry AES Farm Operations Director*

*Heather Watenpaugh University Architect Facilities and Services
Robert Herrera Executive Director Facilities and Services
Jose Loera Assistant Director Facilities and Services
Gary Martinez Project Manager Facilities and Services*

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Lara Pihodko- Alcalde Agricultural Science Center*

Planning Consultant

*Staff of NINE DEGREES ARCHITECTURE AND DESIGN, INC.
NMSU- ACES IT DEPARTMENT- Information Technology*

FACILITIES MASTER PLAN REPORT

Executive Summary | July 2023

OVERVIEW

New Mexico State University Facilities Group (NMSU) commissioned Nine Degrees Architecture and Design, Inc. (NDA&D) in the Fall of 2021 to perform a facility assessment study and master plan of the institution's agricultural research centers that are located throughout the State of New Mexico. As identified in this report, this consortium of twelve agricultural research facilities locations is an integral part of the **College of Agricultural, Consumer, and Environmental Sciences (ACES) academic, research, and public service program** for the New Mexico State University System. These assessment efforts required NDA&D to complete this evaluation plan under an open and transparent methodology to ensure a fair data-driven **Facility Master Plan (FMP)** effort. The Facilities Master Plan is intended to inform NMSU of the College of ACES agricultural research facility's building conditions for operations, use, and future capital investment decisions that may be needed for these agricultural centers' next five years of operations. Together with the College of ACES administration, NMSU Facilities and Services Department Staff, and ACES research centers' staff, our architectural staff members undertook an assessment effort and outreach process that included extensive field visits and data gathering at all twelve research center locations.

The Facilities Master Plan (FMP) findings that informed our team of the specific recommendations are summarized in this document, thus providing NMSU with an outsider's snapshot of the state of operations, facilities conditions, and functional suitability to maintain the center's successful operations. Our team's expectations are that, as this plan is implemented, it will assist the staff at NMSU College of ACES to continue its educational and research vision and mission by having their centers equipped and capable of meeting the needs of their academic endeavors for upcoming research grants, being able to achieve a balance of their existing needs, increase capacity utilization, and by being able to improve their research programs – all crucial and beneficial issues to all **New Mexico State University College of Agricultural Consumer Environmental Sciences** students today and in the future.

FINDINGS

After a series of on-site visits and through a visual assessment of each facility, the findings included in this Facility Master Plan (FMP) begin to illustrate that many of the College of ACES research center facilities appear to be in relatively poor condition and/or declining conditions. These conditions can be attributed to the historically low level of state funding for critical maintenance and capital investment for basic building maintenance, structural repairs, facility erosion control, mechanical systems repairs, and roof replacement, conditions experienced throughout the entire Higher Education System in New Mexico, a condition not limited to NMSU and the Agricultural Centers. In addition, based on the data that was discovered during our assessment process, it appears that all research centers, in some form or another, have suffered from issues such as a shortage of maintenance personnel, staff attrition, and financial cutback, which has exacerbated their conditions. The annual maintenance and operation budget awarded to each of the agricultural centers has directly impacted the number of repair projects required to improve

and maintain each of the centers to perform to their optimal capabilities.

After evaluating demographic information for the State of New Mexico from 1990 to 2010, as reported in the annual assessment by the State of New Mexico Economic Development Department, the state increased its population by an average of 240,000 citizens per decade since the 1990s. It leveled off in 2020 for a total of 2.1 million citizens. Over the past three years since the population has continued to grow but at a slower and smaller pace, based on this current assessment predicts a smaller but steady increase in population, with a projected student enrollment for the next 2 to 3 years that will continue to remain relatively level with smaller incremental growth. It also describes that there will be growth and/or decline in specific geographic areas as the state experiences regional population immigration or interstate migration.

FINDINGS

<i>NMSU ACES</i>	
FACILITY DEFICIENCY COST	\$17,604,854.00
5-YEAR LIFE CYCLE FORECAST	\$6,402,251.14
TOTAL 5-YEAR NEEDED	\$24,007,105.46

This facilities assessment has identified the need for a minimum expenditure of around \$24,007,105.46 million in projected Operations & Maintenance funding for facility-related needs within the next five years (in 2022 dollars), comprised of \$13,843,194.00 million for the repair of current deficiencies, an additional \$3,761,660.00 million for instructional technology infrastructure improvements. With an anticipated over the next five years end of life-cycle repairs

of \$6,402,251.14 premium to the O&M Budget. This budget does not include any additional funding that may be required to transition each center to a renewable energy system as currently being studied by NMSU Facilities Team. Each agricultural center's physical condition and functional adequacy were determined by thoroughly inventorying all buildings and accessory structures against their current scheduled use. By comparing the operational capacity of each center against current and projected enrollment predictions based on existing utilization capacity, utilization percentages were developed to inform our assessment team on how to develop individual strategies for facility repair and replacement efforts. These strategies created the best use and value for all college of ACES research facilities. Continued degradation of the research facilities will financially strain NMSU College of ACES's academic and research mission. The operational expenditures, such as utilities, annual maintenance, and growing extensive repairs caused by buildings and operational systems reaching the end of their life-cycle, will become overwhelming and difficult to repair the existing building.

RECOMMENDATIONS

To determine whether an asset is critical to the continuation of the mission of the University, a needs assessment must be scheduled and performed every five-year and, in some facilities, even sooner, when regulations, curriculum shift, or just a change in the facilities conditions, it warrants a new assessment. Our recommendations are based on a mixture of both basic general building systems performance and institutional priorities. Institutional priorities are based on academic necessities as they are balanced against the maintenance and maintenance budgets provided within the annual systems expenditure strategy. Our observations of the building performance were based on assessing the life expectancy of the building systems as they are collectively beginning to reach their end of the life cycle or by just analyzing the systems' age.

Based on the field conditions and facility historical data, Nine Degrees Architecture and Design, Inc., recommends to the NMSU College of Agricultural, Consumer, and Environmental Sciences and NMSU Facilities Planning Team to begin taking additional operational and capital funding steps that will continue to provide opportunities for improving each Ag Center and to create the opportunity for a more balanced utilization program for each of their research centers. To determine which campus is a critical asset with significant importance to the institution's mission, a needs assessment program should be performed after every five-year cycle or sooner if regulations, program mission shift, or a change in the facilities conditions warrant a new assessment.

These recommendations are detailed below.

OPTION ONE: Divest Surplus Landholdings.

Divesting surplus landholdings with strategic time-to-market transactions will replenish the NMSU College of Agricultural, Consumer, and Environmental Sciences funding budget and create additional resources for potential reinvestment into their current research center facilities. This recommendation is in direct alignment with research center staff recommendations towards the enhancement of the centers mission and vision.



OPTION TWO: Review Land Use for the Surplus Landholdings.

Rethinking and reallocating surplus landholdings with strategic lease transactions to the private sector to create wind farm, grazing farms, solar farm, or any other public-minded use that will allow for a cash flow increase while still retain land ownership that should replenish NMSU College of Agricultural, Consumer, and Environmental Sciences fund balance and create financial resources for additional reinvestment into each research center facilities and infrastructure. This recommendation is in direct alignment with each research center mission and vision.



OPTION THREE: Explore Public Bond Support.

The evaluation team advises the institution to potentially consider the use of non-state funding sources and develop a plan for a multi-million bond referendum to fund facility improvements at each of the twelve research centers. If approved by the voters, these funds would optimize the immediate safety concerns and modernization of the research centers, while addressing top priority facility repair and infrastructure needs in the near term, deferring the remaining \$6,402,251.40 million in lower priorities for future implementation due to construction escalation over the next 5-year cycle. In an effort to assist the bond steering committee, the planning team defined a list of recommended high-importance/high-impact enhancements for each research center focusing on critical facility replacements, repairs, and high technology needs.



OPTION FOUR: Explore Public-Private Partnership.

The evaluation team also recommends that the NMSU College of Agricultural, Consumer, and Environmental Sciences team and that the institution should consider the identification and development of specific strategic public partnerships align with their 5-year cycle to secure targeted sponsorship and ventures with key industry leaders that each center serves. This proposed association have the possibility to work with donors or sponsors that have a vested interest in the success of the research agenda of each center. This option will require a more detailed analysis to engage the private sector in identifying suitable candidates for each research station.



INTRODUCTION AND METHODOLOGY

In concurrence with the academic offering by New Mexico State University, the College of Agricultural, Consumer, and Environmental, the expected outcome for this assessment effort is to provide the New Mexico State University Planning and Design team with a snapshot assessment of the “present day” state of their existing facilities with the expectations of developing a sound strategy for the maintenance, upgrades, and/or replacement of their agricultural center’s building facilities. This assessment also serves as an inventory of the building conditions of each center intended to inform the College of Agricultural, Consumer, and Environmental Science leadership as they continue to prioritize their needs for academic, research, and public service. For the system to help fulfill the NMSU College of ACES educational and research vision, the NMSU Board of Regents and Administration determined the necessity to develop the Facility Master Plan (FMP) and assessment that will inform and guide the potential of needed facility rehabilitation and capital investment decisions for the next 5-year cycle. Entrusted with first putting College of ACES research excellence in the forefront and then emphasizing the effective stewardship of the university’s assets, NDA&D engaged and undertook an all-inclusive assessment of every research center facility, evaluated demographic studies, and facilitated a transparent assessment and planning process. This process included the participation of staff members from the NMSU team and members of each agricultural center.

The Facility Master Plan findings and recommendations from our assessments and reviews are summarized within this document, providing the NMSU Board of Regents with an independent, unbiased snapshot and near-term forecast of all ACES facilities’ condition, suitability, and utilization. This document summarizes the results of a comprehensive assessment performed in the Fall of 2022 through the Summer of 2023, culminating in this Facility Master Plan with recommendations for NMSU College of ACES that identifies options for future investments in the enhancement and maintenance of its agricultural center. We have included a review of the entire facility portfolio, an educational/ research adequacy assessment, a facility condition assessment, a five (5) year life cycle forecast, and a review of College of ACES’s current enrollment statistics.

NMSU ACES RESEARCH AT EACH SITE

AGRICULTURAL SCIENCE CENTER AT LOS LUNAS

1036 Miller Road Los Lunas, New Mexico 87031

The research mission of the Agricultural Science Center (ASC) at Los Lunas conducts research and extension programs on various types of crops and plant-based systems important to the Middle Rio Grande Valley (MRGV) farmers. Significant improvements in species and variety selection, plant and water management, and integrated pest control have resulted from the multi-faceted research conducted at the Los Lunas ASC. Research and extension programs address the needs of new Mexican farmers located on the 50,000+ irrigated acres of the Middle Rio Grande Valley, but also the urban gardeners and homeowners in the largest urban region of the state, reaching thousands of people each year.

Future research efforts – continuation of current research efforts on Forage Crops (alfalfa and grass), Urban Horticulture, Viticulture (wine and table grapes), Integrated Pest Management (entomology and weeds), Pollinators and Beneficial Insects, Chile Production and New Varieties, Carbon Sequestration and Cover/Smother Crops & Soil Health, Alternative Crops (hemp, guar, etc.). The center management is committed to increasing their research base pursuant to the faculty continuous expressed interest in leading new areas of research at the Los Lunas ASC, we'll accommodate their needs.

Agricultural Science Center **at Los Lunas -** **WAYFINDING**



Agricultural Science Center at Los Lunas - WAYFINDING



Agricultural Science Center at Los Lunas

1

1

2

2

3

4

1
G007
WAYFINDING AT LOS LUNAS SCIENCE CENTER MAP
12" = 1'-0"

4-26-22

A PROJECT FOR :

NMSU AG SCIENCE CENTER & USDA NRCS PLANT MATERIALS CENTER

1036 MILLER ROAD
LOS LUNAS, NM 87031

DATE

SHEET	OF
G007	

DRAWING COORDINATION - ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS ARE INTERRELATED. DRIVING CENTER ORIGINALLY SUBMITTED AND SPAN, OCCUPANCY, DESIGN, AND INTERPRETATION OF DRAWINGS.

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NMSU Agriculture Centers Facilities Master Plan

July 2023
Page 10

Agricultural Science Center **at Los Lunas -** **LOCATIONS**



Agricultural Science Center **at Los Lunas** - PROPERTY BOUNDARY



Agricultural Science Center
at Los Lunas



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Agricultural Science Center at Los Lunas - LOCATIONS



Agricultural Science Center at Los Lunas

1. Pesticide Storage 403R
2. New Headhouse 403S
3. Greenhouse 403Q
4. Temporary Greenhouse 403T
5. New Shop 403N
6. Vehicle Storage 403K
7. Pump House 403P
8. Wash Rack 403A
9. Machinery Storage 403I
10. Office Building 403C
11. Seed Barn 403B
12. "Old" Shop 403J
13. Storage Building 403M
14. Headhouse/Greenhouse 403G
15. Fertilizer Storage 403F
16. Tissue Culture Lab 403H
17. Garage 403E
18. Foreman's Residence 403D



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Agricultural Science Center **at Los Lunas-** **DEFICIENCIES LIST**



Agricultural Science Center at Los Lunas - Deficiencies **LIST**



HEADHOUSE-GREENHOUSE 403G

The site needs regrading along greenhouse walls for positive drainage away from walls. Existing stucco is de-laminating and needs to be re-applied and painted. Replace damaged glass panels, existing space heater in not connected inside green house and need requires reconnection. The top operable pane of the windows are not working, multiple frozen movable mechanisms need repairs, office / headhouse needs complete renovation (strip all down to steel structure and rebuild). Anew new roof with gutters and downleaders is needed. The building meeds an ADA accessible route and concrete landing.



TISSUE CULTURE LAB 403H

the building needs an ADA accessible route and ramp to entry doors, add ADA lockset, and repaint entry doors. Interior doors need ADA lockset, and the building needs ADA restroom upgrades. Need to re-compact soil around septic tank, add erosion control and concrete apron all around, and regrade to provide positive flow away from building. . Demolish wood storage addition due to rotted wood, uneven floor, and trip hazards. The building needs gutters and downleaders,

Agricultural Science Center **at Los Lunas** - Deficiencies **LIST**



OLD SHOP 403J

Need gutter and downleaders, replace damaged exterior wall metal panels, repaint front door and frame, and repaint entry canopy. Add a new ADA lockset at entry door, replace the weatherstrip fat th front door, and replace sliding door hardware. Add a new a concrete apron and regrade for positive flow away from building.



PUMPHOUSE 403P

Replace entry door and rotted wood trim, repaint the outside walls, replace and add new fascia board and paint, add gutter and downleaders, Needs erosion control fill dirt, a concrete apron and regrade for positive flow away from building.

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



MACHINERY STORAGE 403I

Perform necessary roof repairs, add gutters and downleaders, and repair damaged metal wall panels. Add appropriate ADA lockset at storage - tool-room, sliding door needs repairs, and replace all loose wall panel screws throughout. Add a new concrete apron and regrade around the building for positive flow away from building.



SEED BARN 403B

Replace all windows with double pane units, repair roof leaks, sliding doors need new sliding hardware, and repair damaged exterior wall panels. Need to seal all wall penetrations, and replace door inside sliding door. Install ADA accessible route to side main door via ramp from main building, need to add ADA lockset, and ADA restroom upgrades are needed. Need to repaint doors and frames. Remove landscaping along edge of building and add a new concrete apron and regrade around the building for positive flow away from building.

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



FERTILIZER STORAGE 403F

Repair or replace rusted lower edges at exterior wall panels, repair damaged panel corners throughout, and repair broken overhead door, and install new weatherstrip at all overhead doors. Replace damaged door panels at one overhead door and add appropriate ADA lockset at main doors. Add a new concrete apron and regrade for positive flow away from building.



STORAGE BUILDING 403M

Need to add an ADA accessible route and landing to the main door and installed with ADA lockset,. Repaint door and frame and install new weatherstripping at main door. Repair roof leaks, sliding doors need new sliding hardware, repair damaged exterior wall panels, and seal all wall penetrations. The building needs new gutters and downleaders. Add a new concrete apron and regrade for positive flow away from building.

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



NEW SHOP 403N

Replace windows and screens, and add ADA lockset at doors. Add a concrete apron around the building and regrade for positive flow away from foundation. Replace one interior space heater that is not working. Clean all roof gutters, reseal and weatherstrip the overhead doors, refasten all loose metal wall panel screws, replace damaged overhead door panels, repair roof leaks.



VEHICLE STORAGE 403K

Need steel pipe bollards filled with concrete at each overhead door, add concrete apron around three sides and regrade for positive flow away from foundation. Repaint all overhead doors and new install seals at all doors, and repair 3 existing damaged overhead doors. Roof leaks needs repairs, clean gutters, repaint main doors and provide ADA lockset. Regrade for positive flow away from foundation.

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



WASH RACK 403A

Need gutters and downleaders, replace eyewash station, repair roof leaking and repair damaged ceiling and wall panels. Add a concrete apron around the sides and regrade for positive flow away from foundation.



FORMANS RESIDENCE 403D

Needs to add a new single single-ply TPO roof, existing soffit needs repairs and repaint. Repoint cracks in mortar joints, and then new exterior wall paint job. Add gutters and downleaders to manage roof drainage, add a concrete apron around three sides and regrade for positive flow away from foundation. Need repair of cracked/spalling edge of slab, and replace rotted wood and repaint wood siding and boards,. The facility needs an ADA access ramp to utility room entry door and need to install ADA lockset at entry doors.

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



GARAGE 403E

Needs to add a new single single-ply TPO roof, existing soffit needs repairs and repaint. The fascia needs replacement of rotted wood, repoint cracks in mortar joints, and then new exterior wall paint job. Add gutters and downleaders to manage roof drainage, add needs concrete apron around three sides and regrade for positive flow away from foundation. Replace all rotted wood and repaint wood siding and board throughout.



PESTICIDE STORAGE 403R

Need erosion control and add a concrete apron, add gutter and downleader, repaint entry door and overhead door, and remove vegetation from back of the building. The doors need an ADA lockset, while the overhead door gasket and weatherstripping at main door need replacing.

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



GREENHOUSE 403Q

Concrete landing and sidewalk at South entry needs replacing, needs downleaders, regrade site away from building, repair gutter ends, ADA lockset at the doors.



OFFICE BUILDING 403C

Exterior wall EIFS repairs are needed, then repaint all exterior walls. Replace rotted fascia board and paint, replace rotted soffit and repaint, and add need gutters and downleaders. The building needs concrete apron all around and the removal of all landscaping next to building. Replace west entry door-trims and provide ADA ramp and landing at this door. Replace all window screens, re-weatherstrip all exterior doors, and repaint east entry door and jambs-trims. The building needs new exterior light fixture at south entry. Replace interior carpet, repair roof leaks, replace stained ceiling tiles, doors need ADA lockset inside, and replace all lights to LED. The restroom needs a drain and water line insulation jacket, men's restroom missing ADA door clearance, kitchenette counter not ADA height and missing wire pulls, server room no ADA clearances, braille signs missing throughout, conference room counter height not ADA

Agricultural Science Center at Los Lunas - Deficiencies **LIST**



NEW HEADHOUSE 403S

Repaint all exterior doors both sides, add a concrete apron all around to improve drainage and regrade site to create positive drainage from building. Repair damaged exterior wall panels, and add new weatherstripping on all exterior doors, building insulation cover fabric repairs inside. , Needs an ADA hi-lo drinking fountain.

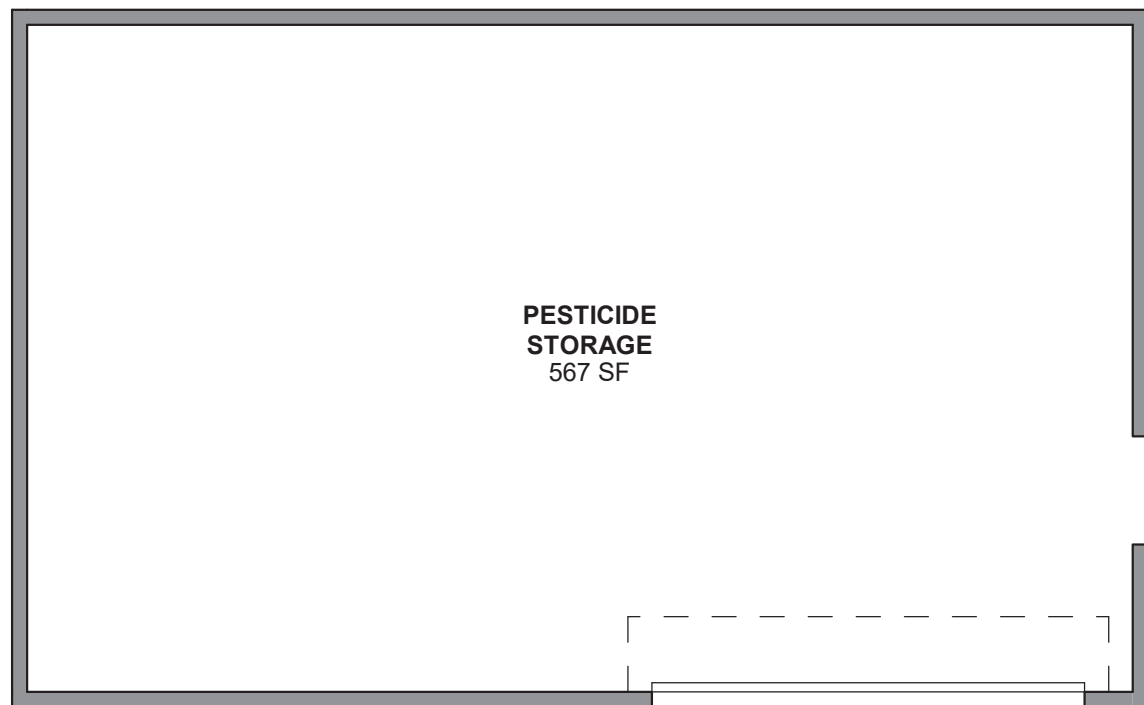


TEMPORARY GREENHOUSE 403T

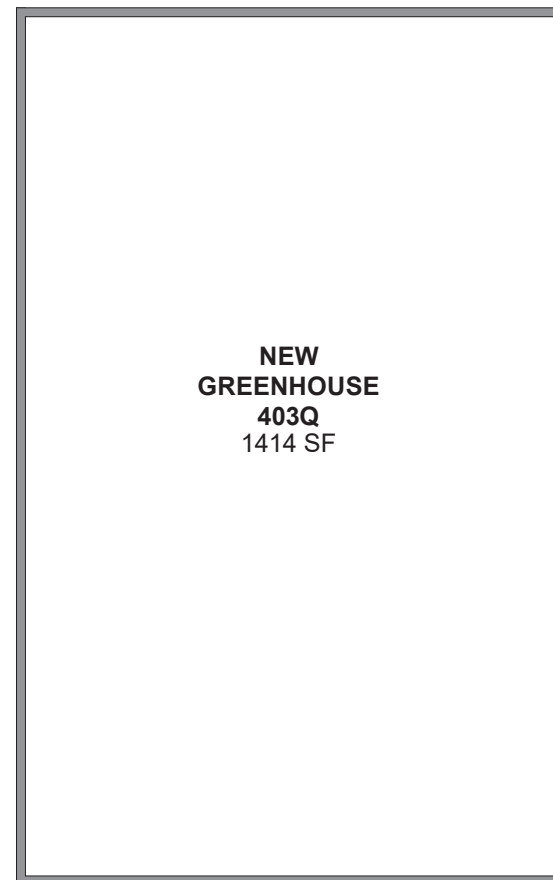
The site need regrading for positive flow away from building, need ADA landing and hardware at entry door, and a concrete apron all around to improve site drainage. Replace rotted wood at air manifold, seal edge between Lexan and corrugated metal panels.

Agricultural Science Center **at Los Lunas-** **FLOOR PLANS**

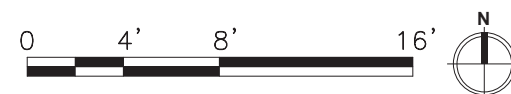




403R PESTICIDE STORAGE
SCALE 3/16" = 1'-0"



403Q NEW GREENHOUSE
SCALE 3/32" = 1'-0"



Agricultural Science Center at Los Lunas

1- Pesticide Storage 403R

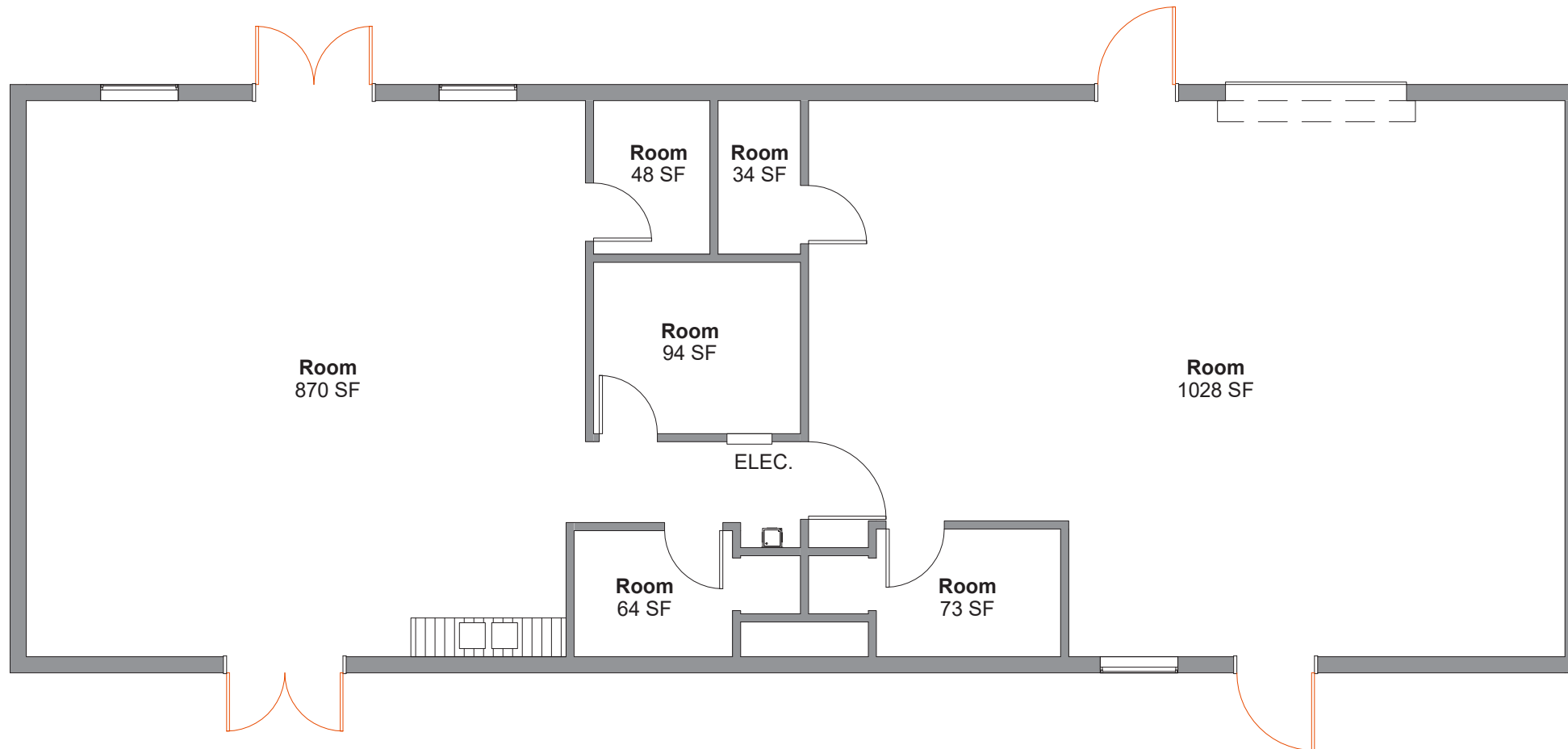
3- Greenhouse 403Q



Key Map



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403S TEACHING LAB

SCALE 1/8" = 1'-0"



Agricultural Science Center at Los Lunas

2- New Headhouse 403S



Key Map



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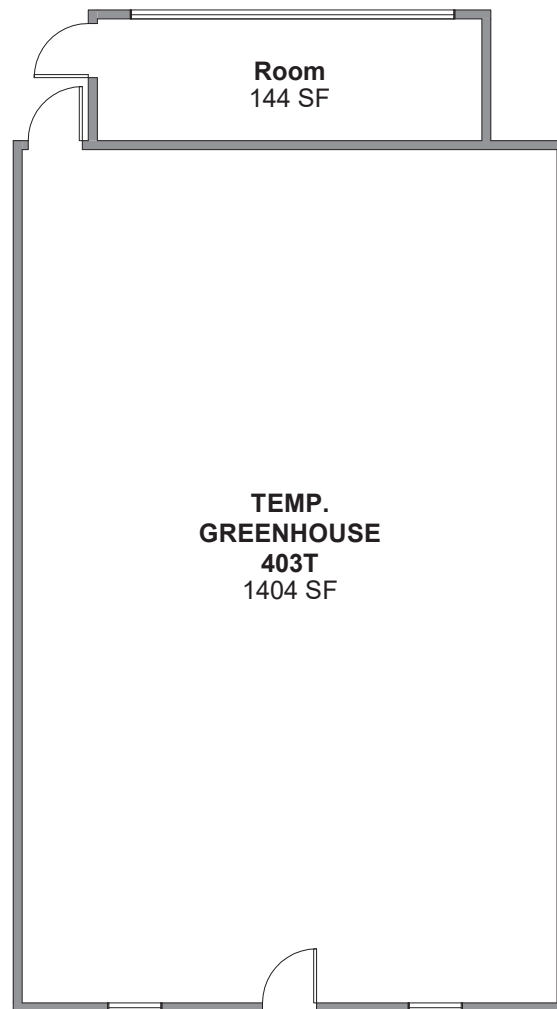


Agricultural Science Center at Los Lunas

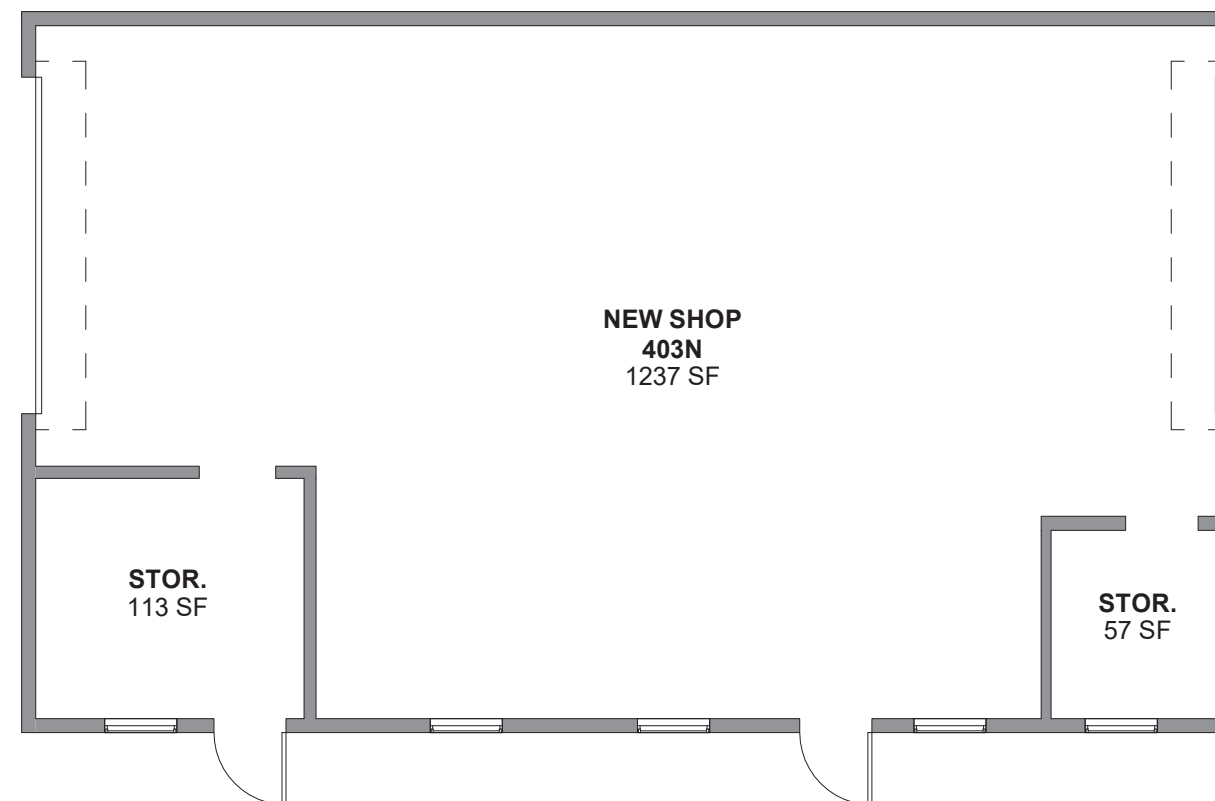
- 4- Temporary Greenhouse 403T
- 5- New Shop 403N
- 7- Pump House 403P



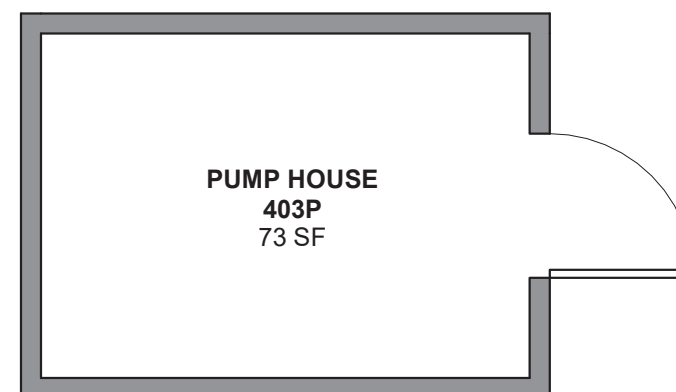
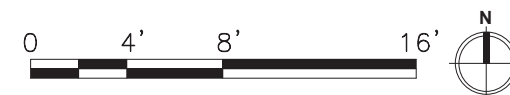
Key Map



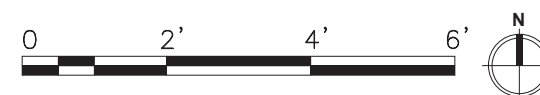
403T TEMPORARY GREENHOUSE
SCALE 3/32" = 1'-0"



403N NEW SHOP
SCALE 1/8" = 1'-0"



403P PUMP HOUSE
SCALE 1/4" = 1'-0"





Agricultural Science Center at Los Lunas

6- Vehicle Storage 403K

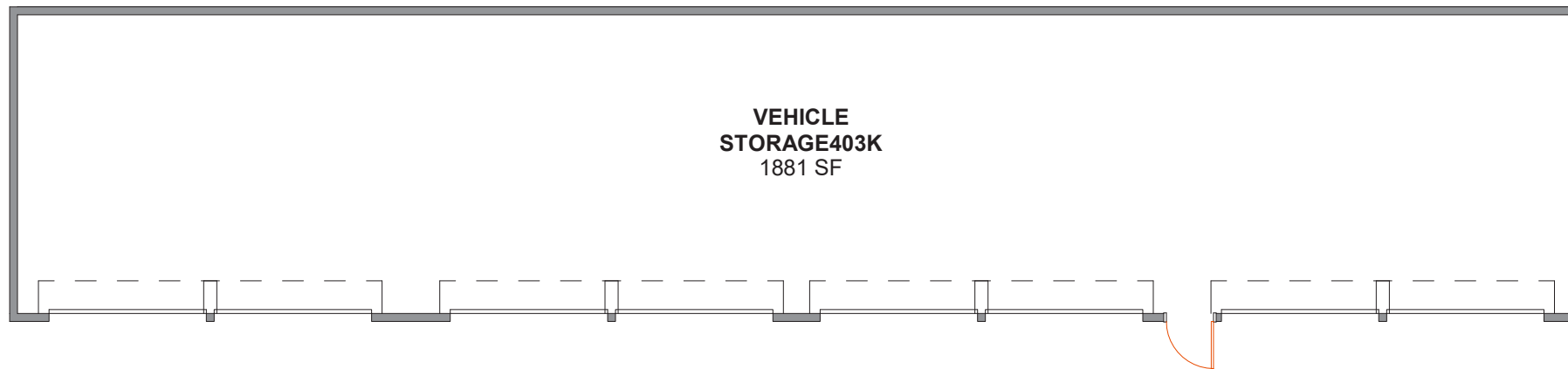
8- Wash Rack 403A



Key Map

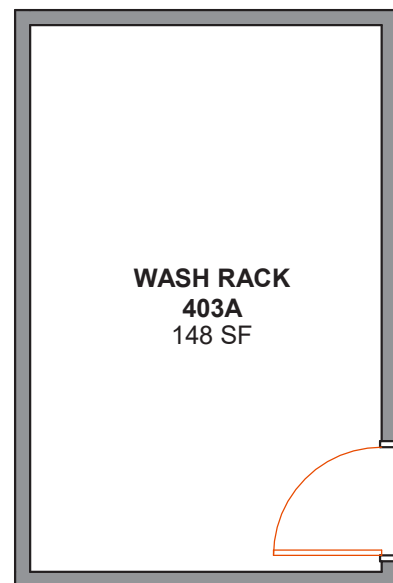


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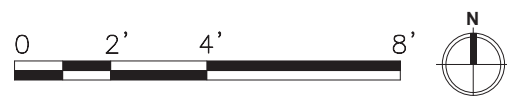
403K VEHICLE STORAGE

SCALE 3/32" = 1'-0"



403A WASHRACK

SCALE 3/16" = 1'-0"



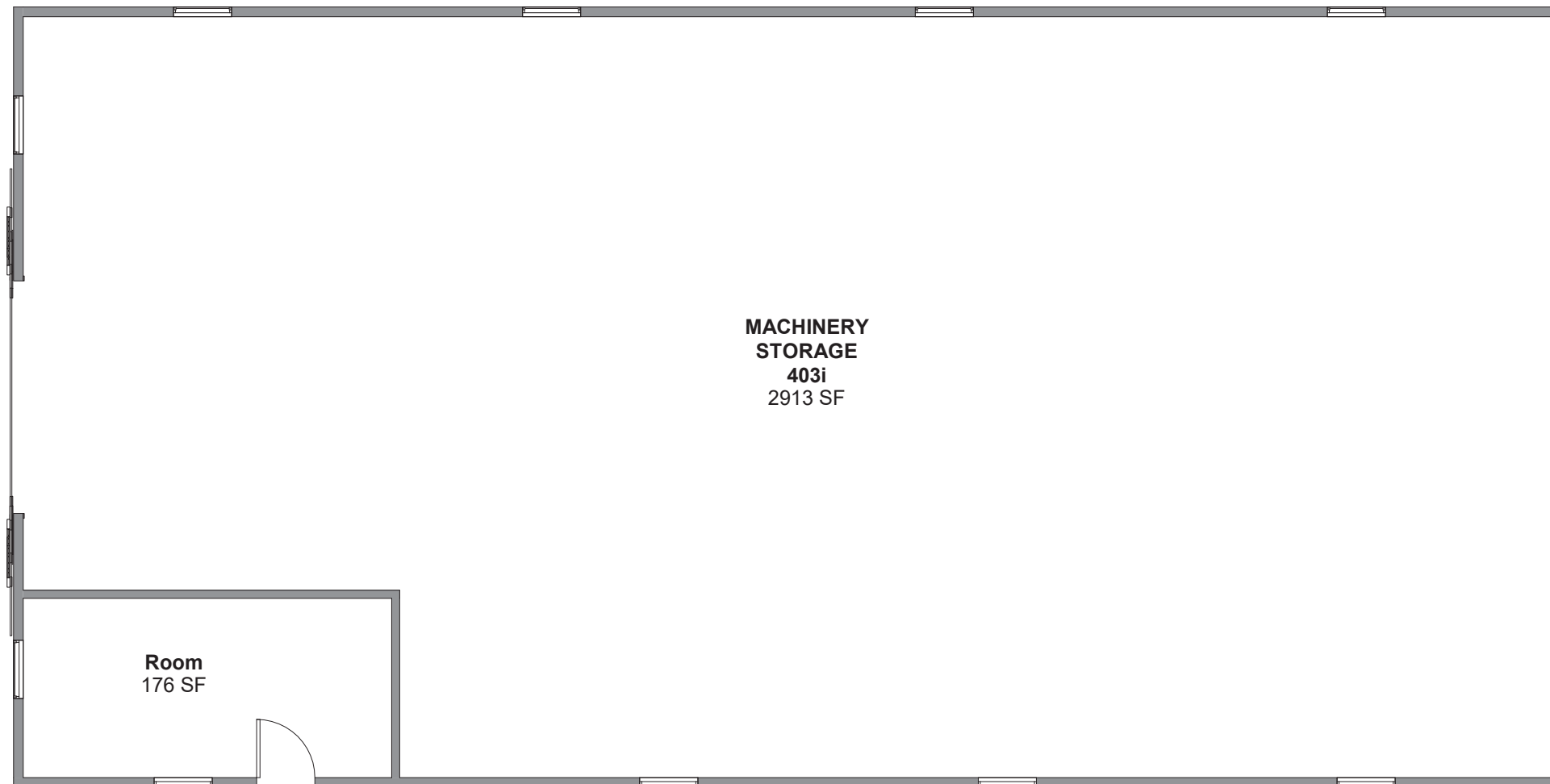


Agricultural Science Center at Los Lunas

9- Machenire Storage 403I



Key Map



403i MACHINERY STORAGE

SCALE 1/8" = 1'-0"





Agricultural Science Center at Los Lunas

10- Office Building 403C

13- Storage Building 403M



Key Map



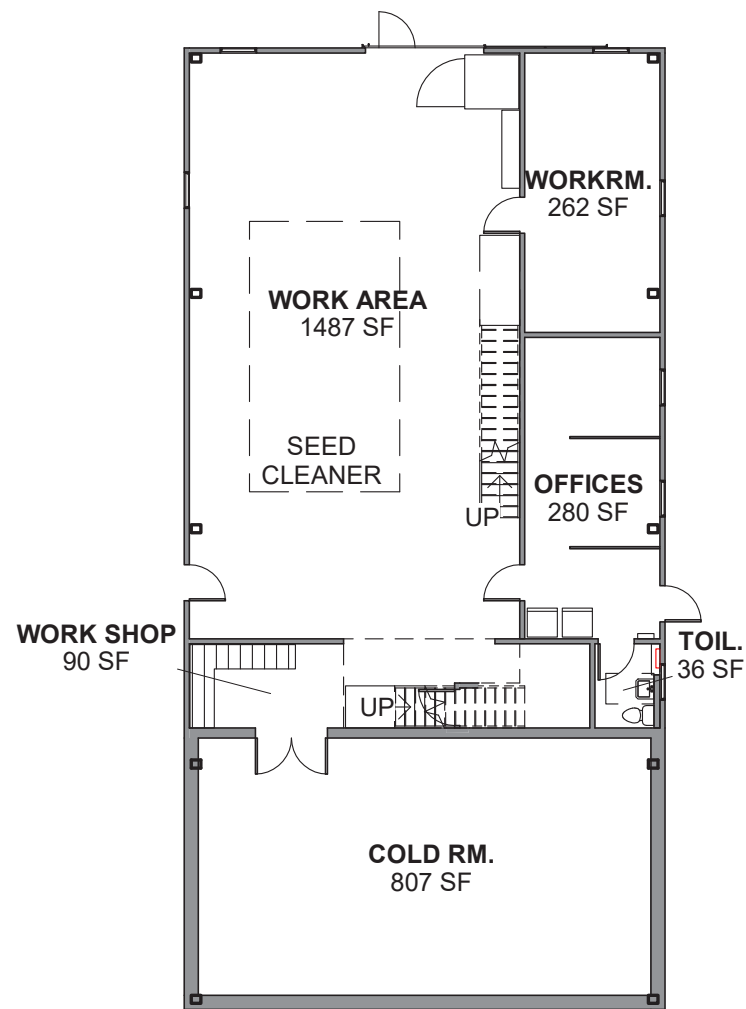
403C OFFICE BUILDING
SCALE 3/32" = 1'-0"
0 8' 16' 24' N



403M STORAGE BUILDING
SCALE 1/8" = 1'-0"
0 4' 8' 16' N

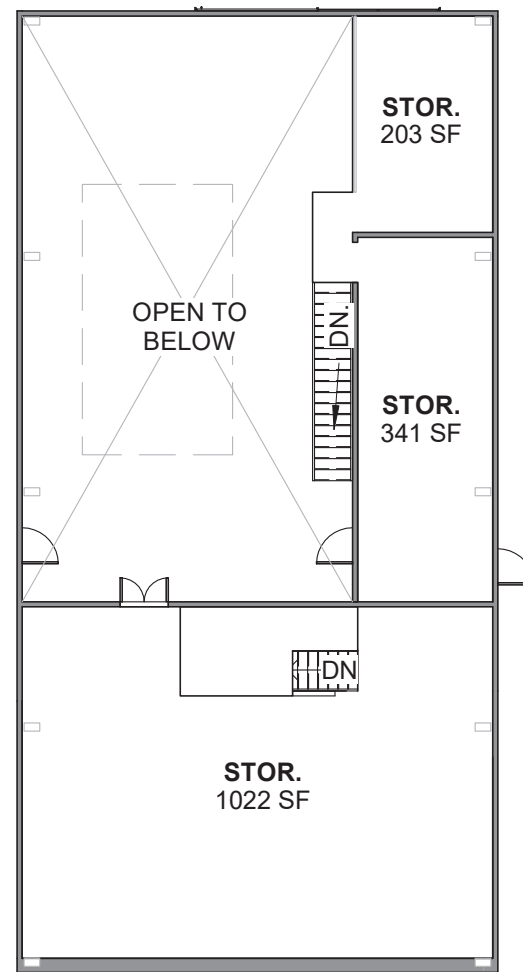
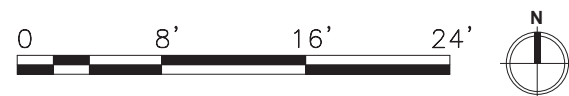


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FIRST FLOOR

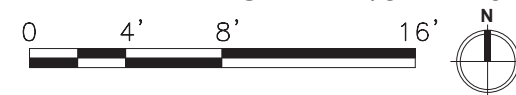
403B SEED BARN
SCALE 1/16" = 1'-0"



SECOND FLOOR



403J OLD SHOP
SCALE 1/8" = 1'-0"



Agricultural Science Center at Los Lunas

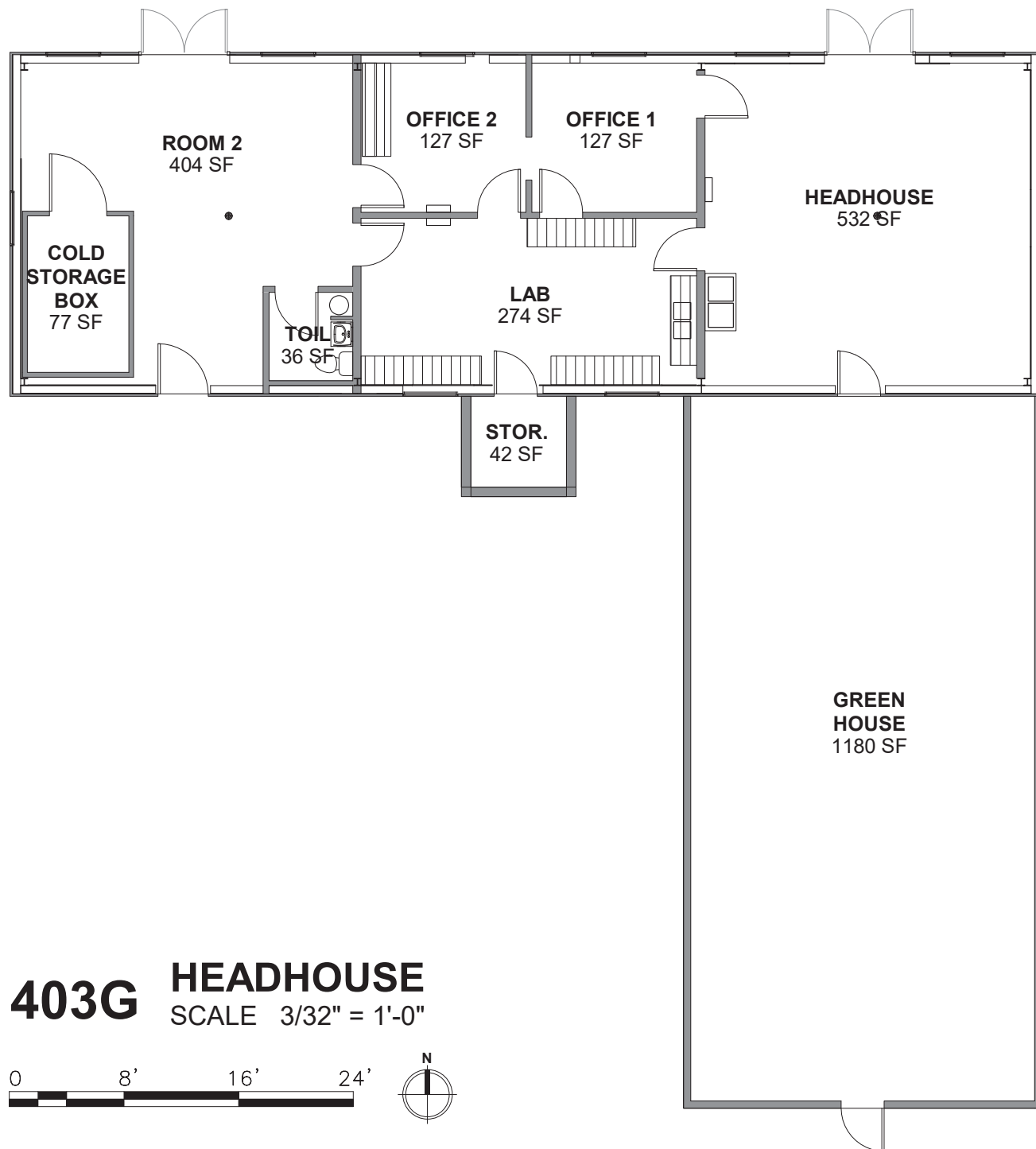
- 11- Seed Barn 403B
- 12- "Old" Shop 403N



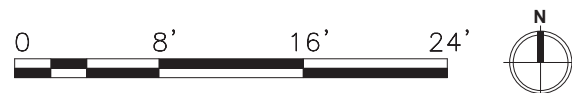
Key Map



NINE DEGREES
Architecture + Design, Inc.



403G HEADHOUSE
SCALE 3/32" = 1'-0"



Agricultural Science Center at Los Lunas

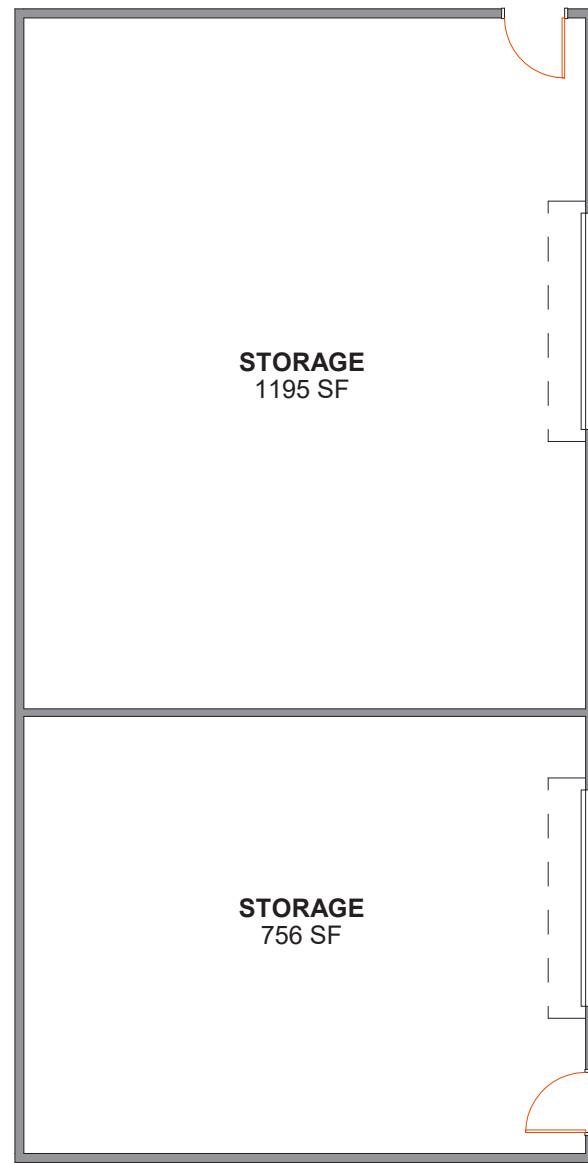
14- headhouse/Greenhouse 403G



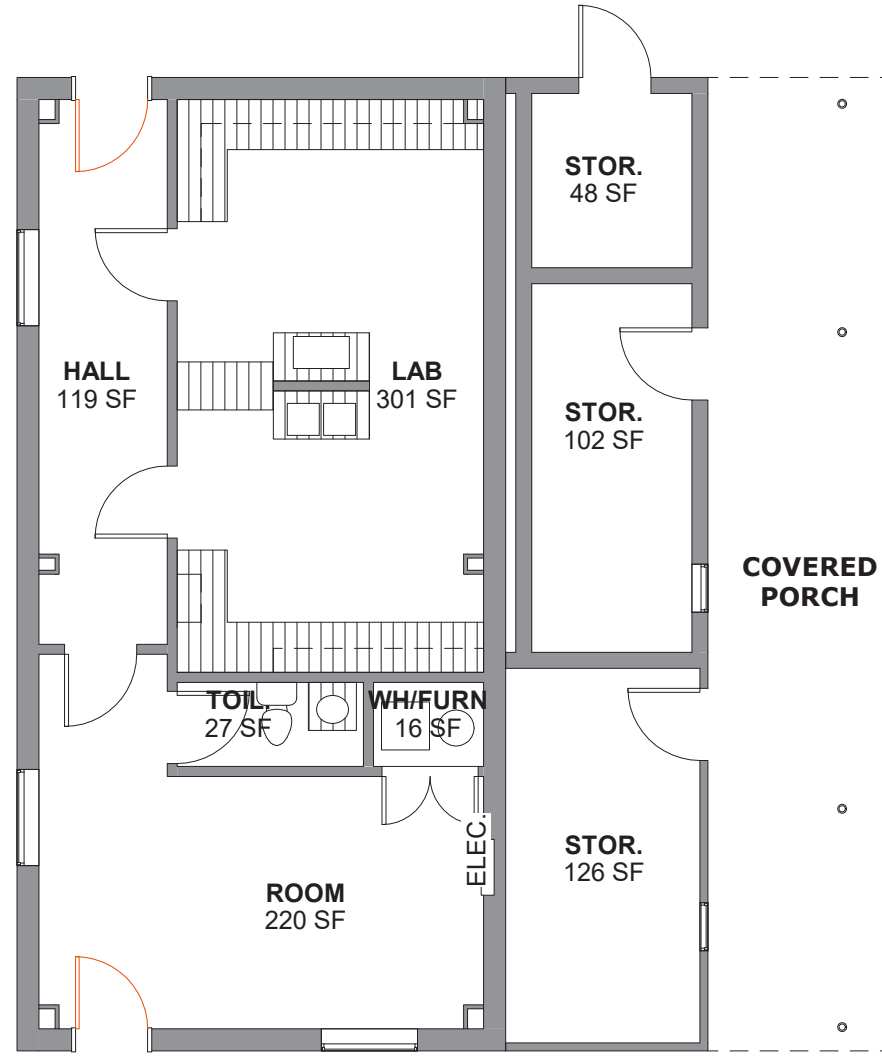
Key Map



NINE DEGREES
Architecture + Design, Inc.



403F FERTILIZER STORAGE
SCALE 3/32" = 1'-0"

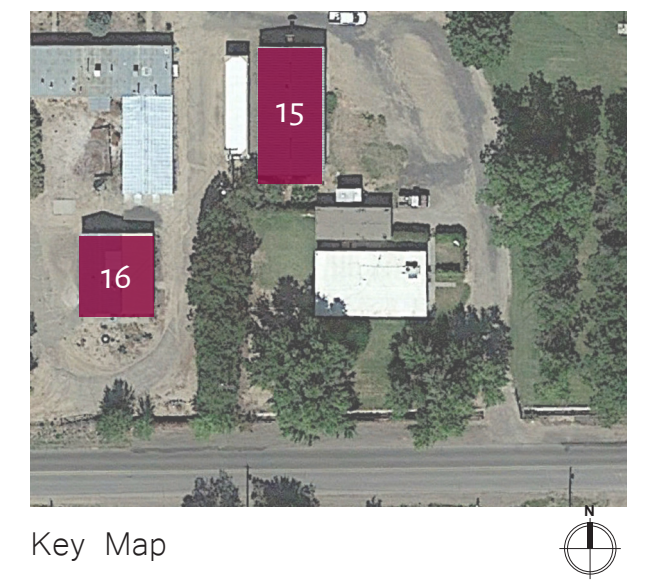


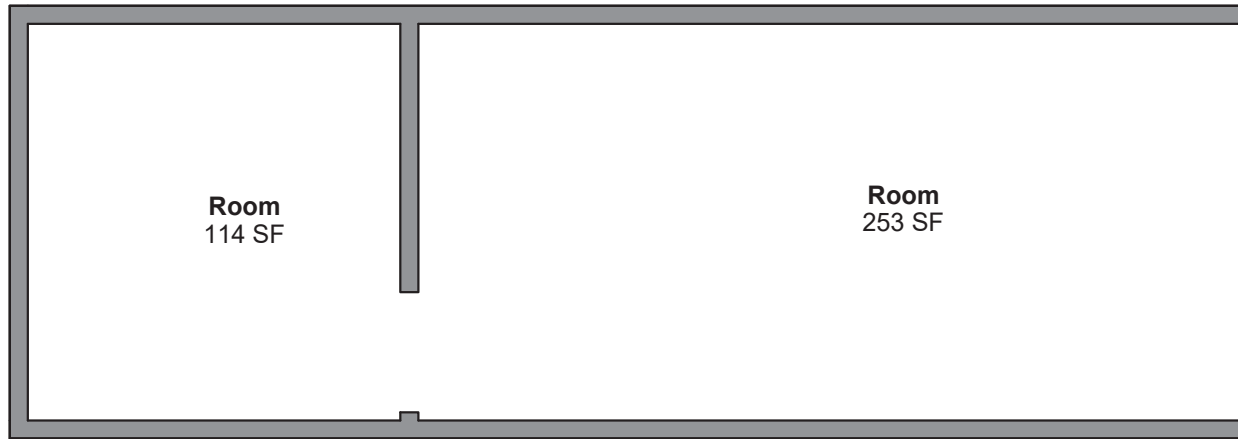
403H TISSUE CULTURE LAB
SCALE 1/8" = 1'-0"



Agricultural Science Center
at Los Lunas

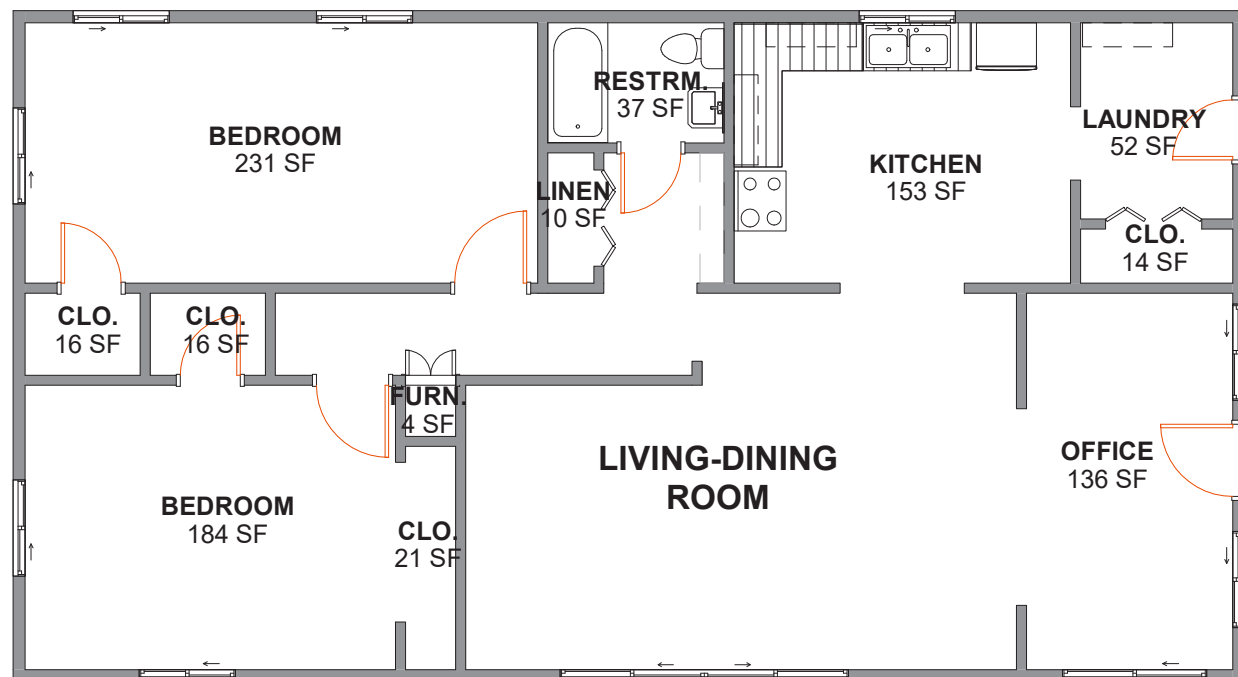
- 15- Fertilizer Storage 403F
- 16- Tissue Culture Lab 403H





403E LOS LUNAS GARAGE

SCALE 3/16" = 1'-0"



403D FOREMAN'S RESIDENCE

SCALE 1/8" = 1'-0"



Agricultural Science Center at Los Lunas

16- Garage 403E

18- Foreman's Residence 403D



Key Map



NINE DEGREES
Architecture + Design, Inc.

Agricultural Science Center **at Los Lunas** - **CANDIDATES FOR DEMOLITION**



LOS LUNAS

The following buildings are candidates for replacement:



- Storage next to tissue culture lab. Rotted wood structure, multi-level floors, tripping hazards, new doors needed, etc. Building is beyond feasible repair.





Head house remodel, reusing skeleton (very low ceiling along North side). Worth the savings vs flexibility for current and future?



Green house plenum building, rotted wood. Building is beyond feasible repair if planning to continue use.

Agricultural Science Center at Los Lunas - **INVENTORY COMPARISON**



LOS LUNAS

The following structures are not included in the current inventory for this site:



Chemical storage wood shed:

Needs: Repair rotted siding and trim, repaint all exterior surfaces, rain gutters and down leaders, regrade 3 sides.



Cold storage:

Needs: Bollards around electrical disconnect.



Hay shade:

Needs: Paint all exposed steel columns and moment frames, concrete bollards around columns.



Hoop House:

Needs: Replace rotted wood at ends, repair plastic sheathing.



Tool storage wood shed:

Needs: Refasten and reseal wood entry stoop, rain gutters and down leaders, regrade 3 sides.



Tractor shade:

Needs: Clean rain gutter and down leaders, regrade all back side, paint all exposed steel columns and moment frames, concrete bollards around front columns.

Agricultural Science Center at Los Lunas- **UTILITY OVERVIEW**



Los Lunas Agricultural Science Center

Address: 1036 Miller Road, Los Lunas, New Mexico, 87031

Contact: Mark Marsalis, Superintendent – (505) 65-7340
marsalis@nmsu.edu



Description:

As described by the NMSU System, the Agricultural Science Center at Los Lunas was established in 1957. The center primarily serves the Middle Rio Grande area and portions of central New Mexico. Research programs are as diverse as the landscape and strive to meet the needs of both large and small farming operations and urban horticulture. The station is uniquely situated to address a wide array of urban and rural issues associated with crop and home garden production. Current entomology research programs are focused on improving the understanding of an integrated pest management approach to insect control while maintaining beneficial insect populations. Viticulture research focuses on maximizing grape production across the state through variety, rootstock testing, and proper vineyard management techniques. In addition, forage research conducted at the center aims to find the most efficient and cost-effective ways to produce alfalfa and other hay and pastures for the diverse animal industries in the region. Other programs include chile breeding and production, weed control in vegetables, pollinator insect collections, and fruit and nut tree research.

Findings

Water System:

Based on the information provided, the Los Lunas Facility utilizes and services its water needs by using several (three) existing wells. The wells are used as follows one well for domestic water use, and the remaining three (3) are primarily used to irrigate their crops. All wells are registered with the office of the NM Office of the State Engineer. The campus has access to registration information for three of the four wells. Wells no. RG00180 and RG00181 are listed as irrigation wells, and Well no. RG00337 is registered for domestic use. The campus does not have a direct individual as contact with the NM Office of the State Engineer that oversees their wells.

In addition, the facility also receives water in the form of surface water from a diversion irrigation ditch that is managed by the Middle Rio Grande Conservancy District (MRGCD). This water is typically available for the use of the center between the months of March through October if and when it is available. MRGCD controls when Los Lunas Agricultural Science Center will receive the water. When they cannot use this surface water, Los Lunas Agricultural Science Center will pump from their existing wells. Currently, this campus appears to have no plans to either expand the water requirements or drill a new well since they are not planning to expand the facility at this time.

Electrical System:

Based on the information provided, the Los Lunas Facility is connected to the PNM Electric Grid. The facility had two repairs to its electrical system, one completed in 2017 and a second in 2018, and both events were under the supervision of the NMSU OFS. The campus is not planning any additions to its facilities that may require an increase in its electrical system and or demands.

Waste Water System:

Based on the information provided, the Los Lunas Facility manages its waste and sewer requirements through five (5) existing septic systems. As reported, there are no apparent proposals to enlarge or increase the number of septic tanks or the capacity of the existing tanks that serve the facility.

Los Lunas Agricultural Science Center				
Well Number 1	RG 00337	House Domestic	34°46'02.6"N	106°45'43.1"W
Well Number 2	RG 00180	Well A West	34°46'09.3"N	106°45'50.9"W
Well Number 3	RG 00181	Well B East	34°46'15.6"N	106°45'27.4"W
Well Number 4	No Information	Campus has no access and or description and we were unable to find any additional information at the NMOSE site		

Agricultural Science Center at Los Lunas - **INFORMATION TECHNOLOGY**



Agricultural Science Center at Los Lunas

Information Technology

Network and Wireless LAN

Wireless Network Coverage	Main Building and Aux Buildings
Condition of Physical Cabling	Good Condition
Distribution Closet	Yes
Central Tower	No
Monthly Estimates	
Registered Devices	67
Upload	160.42 GB
Download	218.79 GB

The DMARC comes in from the north side of the Main Office to the center of the building into a distribution closet. A federal agency shares the closet, but it's secure and cooled. Wireless coverage is good in the main office and requested Auxiliary buildings.



IT Spaces/Network Closets

Recommended:

Network space is needed at this ASC and needs to meet standards. It is our recommendation to build out an IT/network space for this ASC. If there is no room that can be modified into this space, it is our recommendation to build a separate IT/network space outside, close to the existing DMARC, that is cooled, isolated only for IT needs, has proper lighting, floor loading, power, network racks and equipment, airflow, and meets standards.

UPS

Recommended:

Multiple, 2 minimum, network UPS's are needed for the network equipment at the Los Lunas ASC.

Network Tower

Recommended:

70 – 80 ft network tower erected to provide broadband INTERNET to different parts of the center. This network tower would also need to be installed with power to provide power to the network devices on the tower.

The location of the tower can be close to the main building on the site where the DMARC is to allow the easier network access to be broadcast. If that is not possible, another location can be determined by the availability of line of site from the main building to the tower.

Agricultural Science Center at Los Lunas

Information Technology

POP/PtMP

Recommended:

Corona ASC needs one PtMP, point to multi point, and at the minimum seven POPs, point of presence, to help saturate different parts of the center with wireless. The POPs are mobile and can be moved and adjusted as needed. This center covers a lot of land which is why multiple POPs are needed to expand and broadcast wireless into different parts of the center.

Cable Plan

Recommended:

Existing cabling, jacks, ports, patch cables and patch panels be upgraded to Category 6, at minimum. Connectivity between buildings can be accomplished by trenching and laying conduit, or to create wireless bridges through line of sight wireless broadband devices.

VoIP

Recommended:

It is recommended replacing antiquated phone systems and currently, the standard is VoIP. VoIP phones will tie into the network infrastructure and allow us to control the phones off of one system, and gives us the availability to manage the phone systems from each ASC remotely.

Conference Room/Collaboration Spaces

Recommended:

Smart screens, interactive touch displays, conference room cameras, speakers and mics, etc. can all be implemented to help bring these conference room spaces into the modern era and allow them to be utilized on a moments notice.

This conference room should include one smart interactive display, either Dell or Samsung, laptop or mini computer to be mounted on the display, a wall mount or portable mount, at least one Stem wall speaker/mic and Stem Hub, one Huddly camera, a Logitech Swytch for BYOD (bring your own device), a PoE Ethernet switch, and an AV station/equipment rack.

Security & Surveillance Systems

Recommended:

This ASC should have a minimum of four cameras, one showing the entrance/exit when vehicles arrive, and one on the main office building. This ASC would benefit from multiple cameras across the center to deter theft and increase visibility. Different locations at the center would allow for cameras to be installed and configured.

Agricultural Science Center at Los Lunas

Information Technology



UBIQUITI ROCKET 5AC P1MP (2)
INSTALLATION HEIGHT: 8 M (26 FT)
OUTPUT POWER: 28 dBm
CHANNEL WIDTH: 40 MHz
ANTENNA GAIN: 22 dBi

UBIQUITI ROCKET 5AC



- SPECS:**
- 50MHz WIDE BAND OPERATING FREQUENCY
 - POINT-TO-MULTIPOINT LINKS (PTMP)
 - DEDICATED MANAGEMENT RADIO



UBIQUITI ISOSTATION 5AC
INSTALLATION HEIGHT: 3 M (10 FT)
OUTPUT POWER: 25 dBm
CHANNEL WIDTH: 40 MHz
ANTENNA GAIN: 15.5 dBi

UBIQUITI ISOSTATION 5AC



- SPECS:**
- 45° ISOLATION ANTENNA
 - SUPERIOR THROUGHPUT UP TO 450 MBPS
 - HIGH CAPACITY AND SCALABILITY
 - CAPABLE OF HIGH-SPEEDS



UBIQUITI MESH PRO
INSTALLATION HEIGHT: 2 M (6 FT)
MAXIMUM POWER: 20 dBm
POWER SUPPLY: 24 V, 0.5A
ANTENNAS: 2.4 GHz, 5 GHz

UBIQUITI MESH PRO ACCESS POINT



- SPECS:**
- OMNIDIRECTIONAL 360° COVERAGE
 - LONG RANGE SYMMETRICAL TRANSMISSION UP TO 183 METERS
 - 802.11AC WAVE 1 WIFI
 - 2.4 GHz (802.11N) BAND WITH A 450 MBPS THROUGHPUT RATE
 - 5 GHz (3X3 MIMO) BAND WITH A 1.3 GBPS THROUGHPUT RATE



NMSU Los Lunas **Range and Livestock Research Center** **Energy Report**



NMSU Los Lunas Range and Livestock Research Center Energy Report

Energy Audit:

For detail information regarding conservation strategies for the Los Lunas Agricultural Center please refer and review the AAE Energy Master Plan study.