



AIMS: Antarctic Infrastructure Modernization for Science

Pre-Solicitation Conference

15 August 2017









Agenda



- Introduction
- Program Overview
- Scope
- Environmental and Waste Considerations
- Logistics
- Station Communications
- Schedule
- Subcontracts
- Q&A Open Forum
- Wrap up



Program Overview

Kevin Gibbons Project Manager





United States Antarctic Program (USAP)

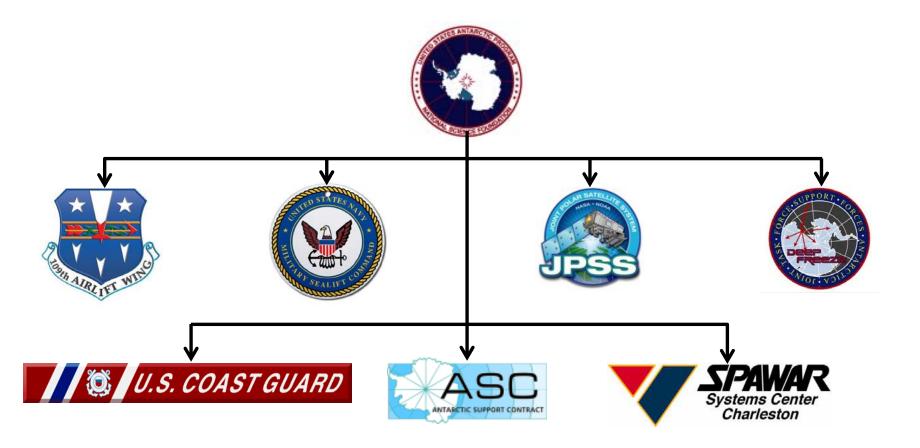
Funded by the National Science Foundation

Prime Contractor

- 1956-1968 U.S. Navy
- 1968-1980 Holmes & Narver
- 1980-1990 ITT Antarctic Services
- 1990-2000 Antarctic Support Associates (ASA)
- 2000-2012 Raytheon Polar Services Company (LLC)
- 2012-2023 Leidos

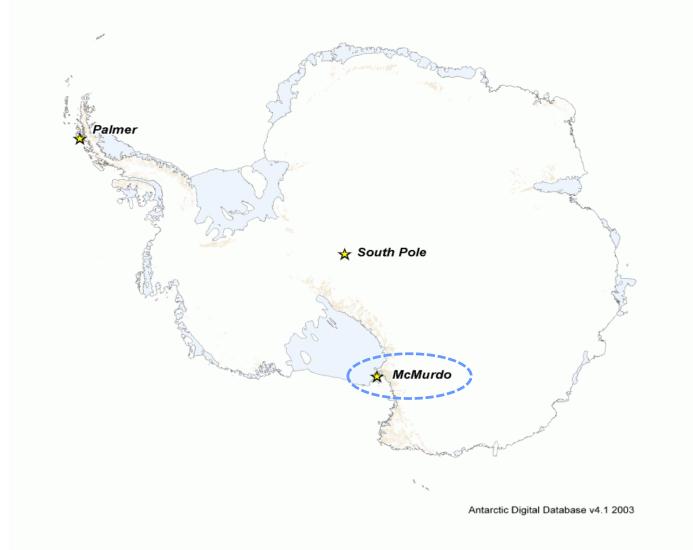
USAP Service Providers





Permanent Research Stations





USAP Locations – Research Sites





McMurdo Station (77° 50.88' S; 166° 40.10' E)

- Elevation: Sea level
- Mean annual temperature: 0 °F (-18 °C)
- Population: 1,100 (summer); 125-200 (winter)
- Science: Biology, geology, glaciology
- Gateway for South Pole and deep field research



Amundsen-Scott South Pole Station (90° S)

- Elevation: 9,306 feet (2,836 meters)
- Mean annual temperature: -56 °F (-49 °C)
- Population: 150 (summer); 50-75 (winter)
- Science: Astrophysics, climate monitoring, seismology
- Supplied almost exclusively by LC-130 aircraft



Palmer Station (64° 46.50' S; 64° 03.07' W)

- Elevation: Sea level
- Mean annual temperature: 27 °F (-3 °C)
- Population: 45 (summer); 18-25 (winter)
- Science: Biology, oceanography, climate monitoring
- Supplied almost exclusively by ASRV Laurence M. Gould

USAP Locations – Support Sites





National Science Foundation: Arlington, VA

- Program oversight
- Coordination of various USAP agencies

ASC Headquarters: Centennial, CO

- Program planning, management, and support
- IT architecture and security for usap.gov

Annex Offices

- Arlington, VA: Science Planning, Finance, Scheduling
- Galveston, TX: Medical (UTMB)

Logistics Hubs

- Port Hueneme, CA
 - Domestic cargo terminal with links to NZ and Chile
 - MOA between NSF and DoD for support from U.S. Navy
- Santiago and Punta Arenas, Chile
 - Warehouse, clothing issue, logistical support

Christchurch, New Zealand

- Responsible for all USAP activities in New Zealand
- Cargo processing, clothing issue, logistical support
- Liaison with Royal New Zealand Defense Forces
- Legal representation for USAP lease with Airport Authority





McMurdo Through The Years







1977

100+ structures, some over 50 years old, supporting local areas, the deep field, and the South Pole



McMurdo Station Future State



Fewer Buildings with Denser Occupancy

Current state 91 major buildings



Future end-state 21 major buildings



Questions?







Scope

Brandon Neahusan Project Manager

Pre-Design Studies





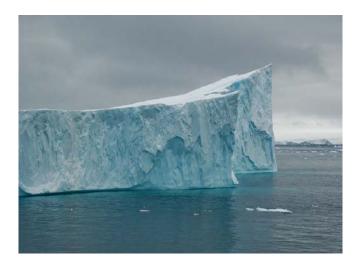
AIMS Scope



















Central Services

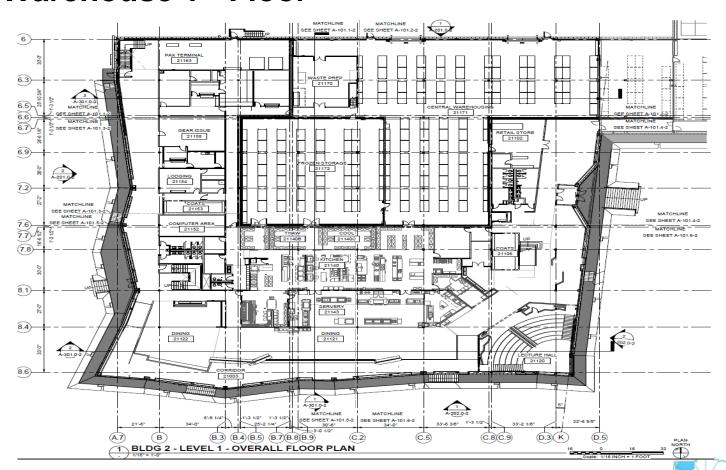
- Two-story, steel framed, elevated building supported on precast foundations.
- Approximately <u>110,000</u> square feet (including the CS warehouse)
- Connected by enclosed walkways to various other elements of the station, where possible.
- Houses administrative and station support functions including dining, food warehousing, and multi-purpose lecture space.
- Primary mission operations center for the station:
 - field and intercontinental communications,
 - the fixed-wing aircraft service provider,
 - air traffic control,
 - and fire department dispatch.

Central Services Warehouse

 High bay warehousing structure with accommodations for frozen food, dry goods storage, general commodity storage small waste processing area (>2K Sq Ft)



Building 2- Central Services and Central Services
 Warehouse 1st Floor



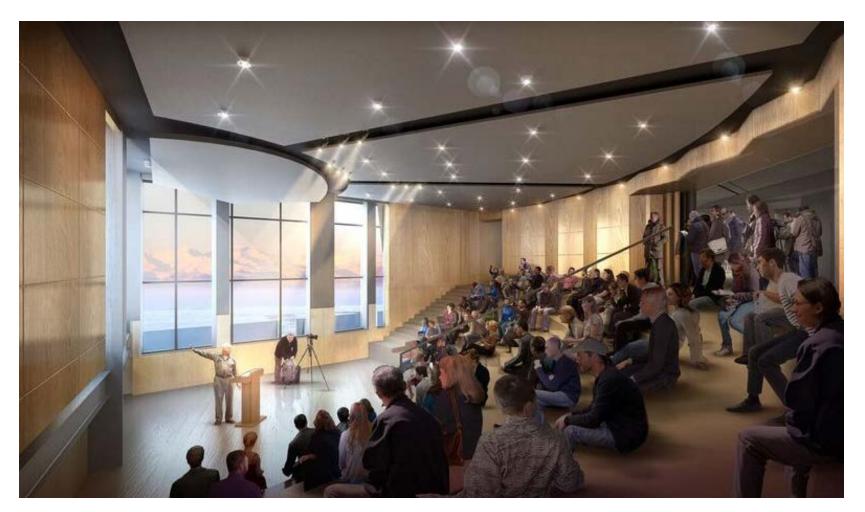
Dining Concept



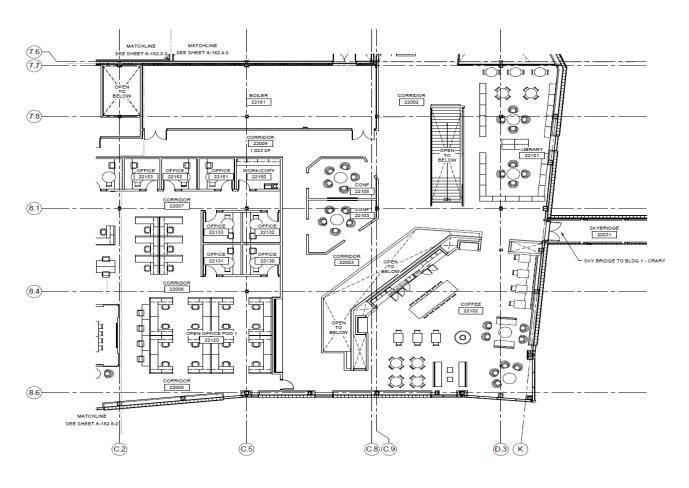


Lecture Hall Concept







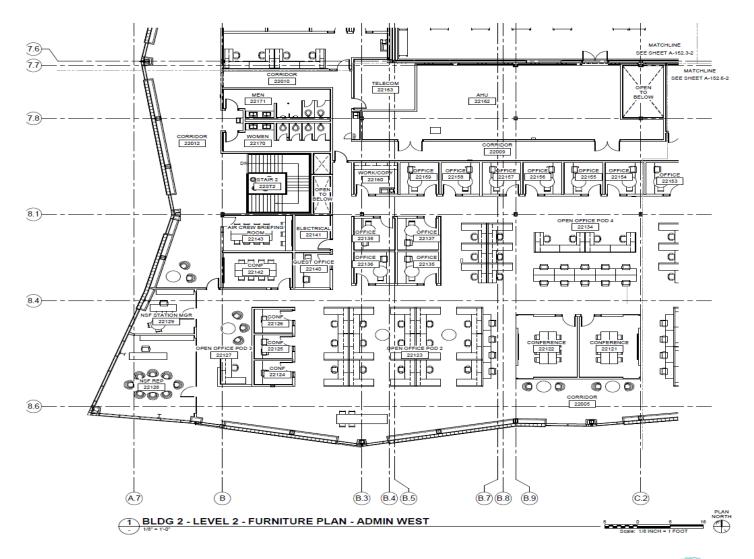


1 BLDG 2 - LEVEL 2 - FURNITURE PLAN - ADMIN EAST

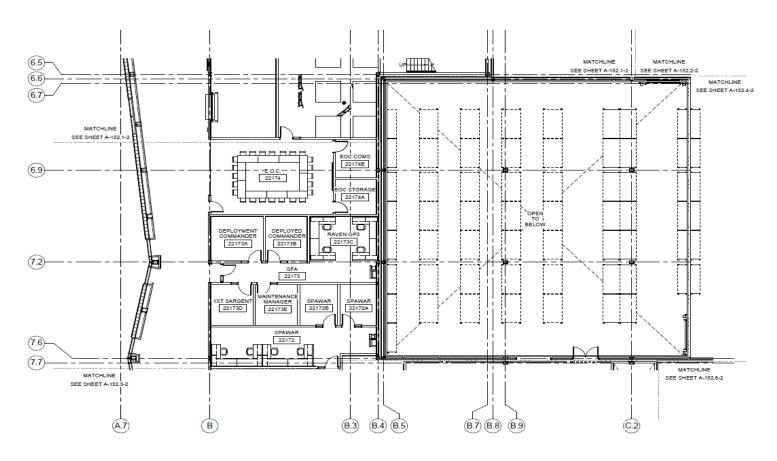












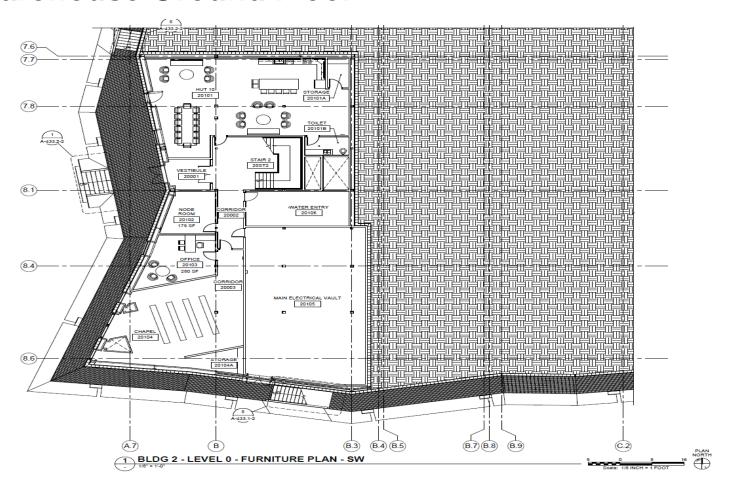
1 BLDG 2 - LEVEL 2 - FURNITURE PLAN - WAREHOUSE SW







Building 2- Central Services and Central Services
 Warehouse Ground Floor



Emergency Operations











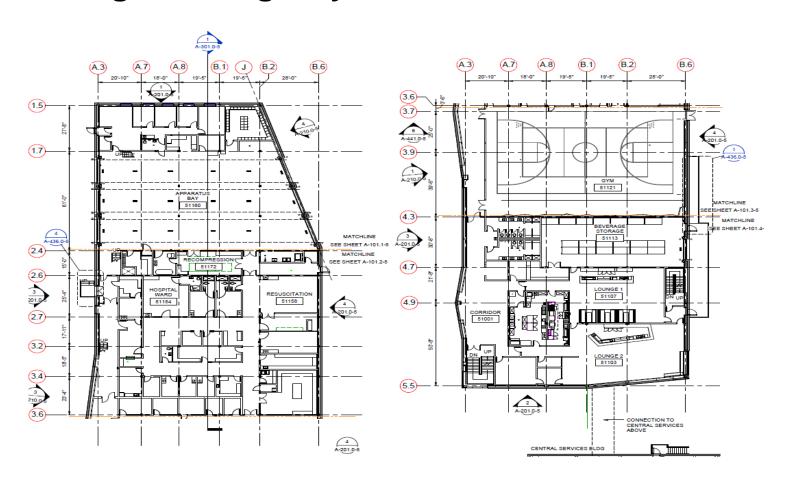
Emergency Operations





Emergency Operations

• Building 5- Emergency OPS 1st Floor









Fire House











Fire House Scope

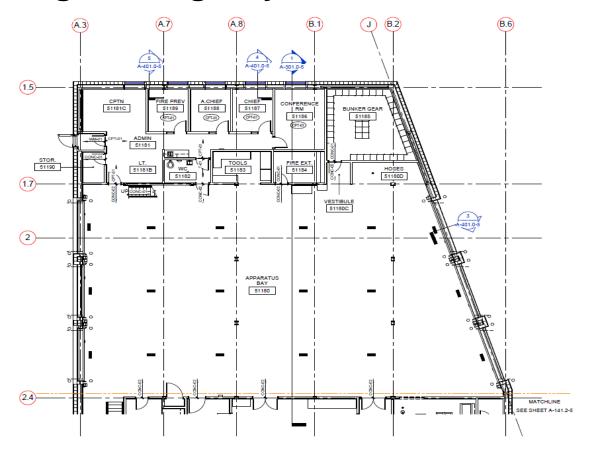


- Enclosed apparatus bays for fire trucks and ambulances,
- Day room and berthing for fire fighters on shift, administration areas, a training room,
- Specialized area for storing and servicing emergency breathing equipment, and storage space for campus fire extinguisher stock and bunker gear.
- The bays will be drive-through in order to increase safety, efficiency, and preparedness.





Building 5 Emergency OPS 1st Floor Firehouse



BLDG 5 - LEVEL 1 - FINISH PLAN - AREA 1

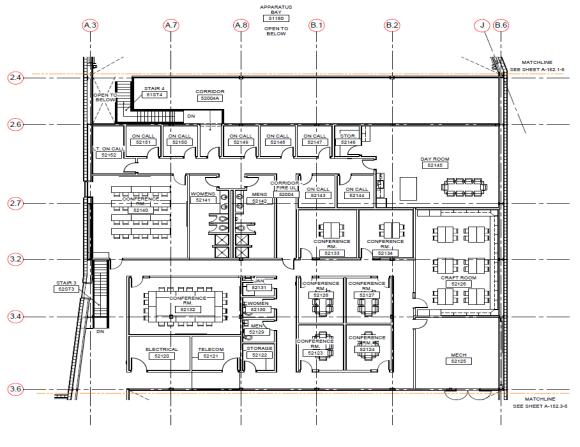


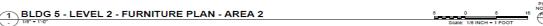




IMMAGO I

Building 5 Emergency OPS 2nd Floor Medical







Medical















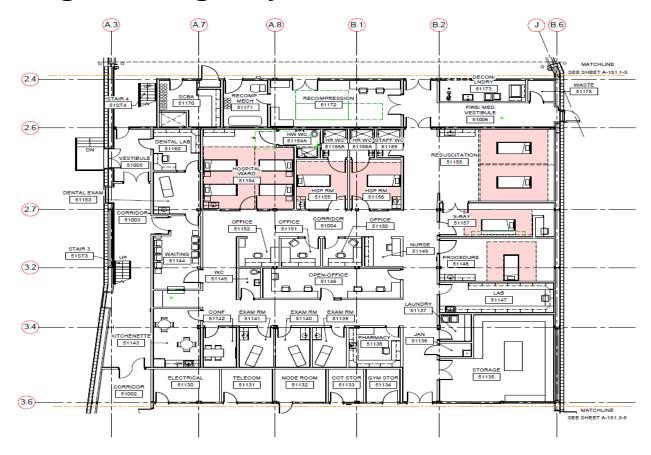
Medical Clinic

- co-located with the Fire station and based on military medical facilities designed to accommodate and treat a deployed population count similar to McMurdo.
- administrative space, exam rooms, a hyperbaric chamber for treating decompression sickness, dental exam and procedure space, and sick-bay berthing rooms for patients





Building 5 Emergency OPS 1st Floor Medical



BLDG 5 - LEVEL 1 - FURNITURE PLAN - AREA 2





Recreation















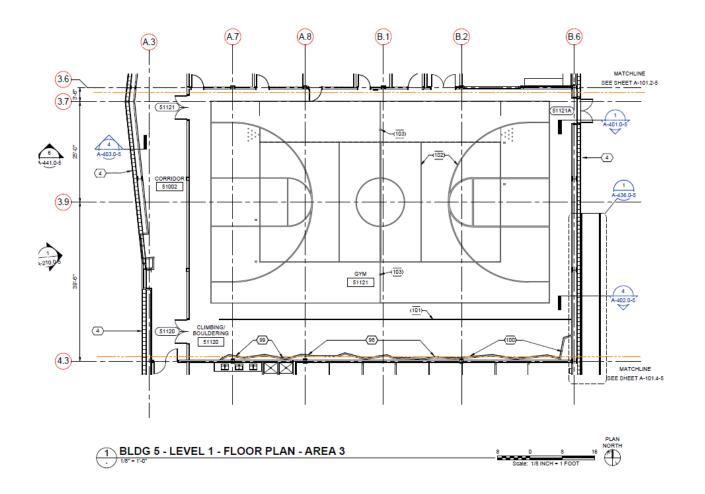
Recreation Center

- Multi-purpose rooms for which the primary functions will be skills development and music practice.
- Will also include a gymnasium, fitness center, lounges, and an auxiliary kitchen.
- The recreation center spaces will be available during emergency operations to serve in an emergency support capacity, as determined by management.





Building 5 Emergency OPS 1st Floor Recreation



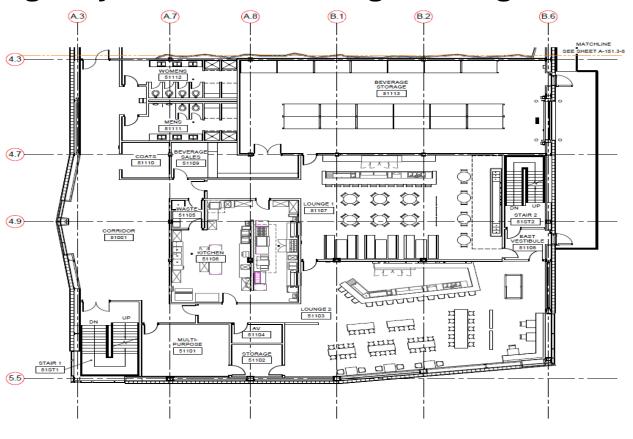




Recreation

• Building 5 Emergency OPS 1st Floor Clubs, Emergency Kitchen, Beverage Storage

BLDG 5 - LEVEL 1 - FURNITURE PLAN - AREA 4

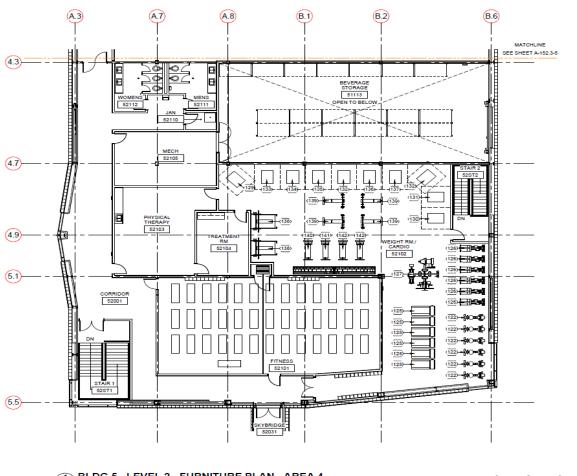








• Building 5 Emergency OPS 2nd Floor







Field Science Support/ Trades











Field Science Support / Trades





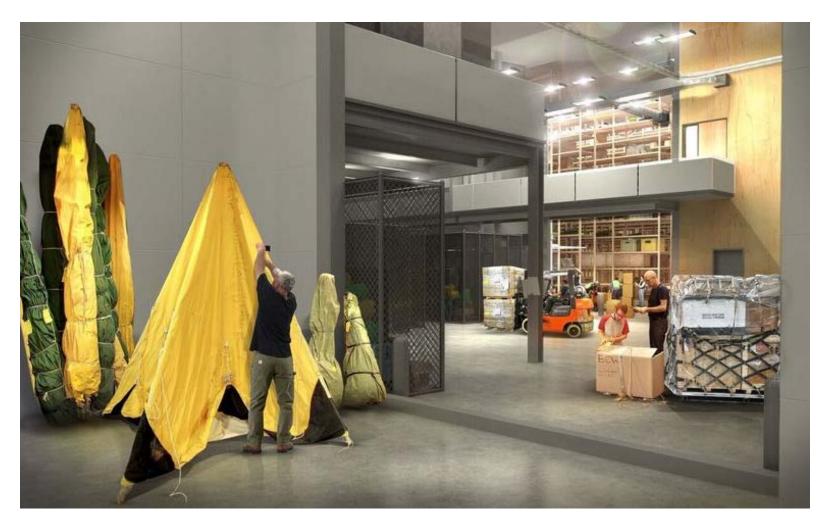




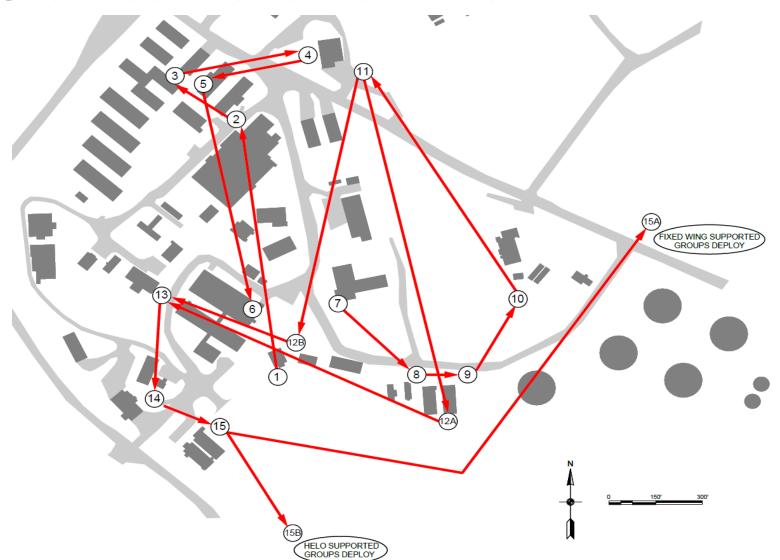
- Adjacent to the trades shop but separated by a concourse
- Approximately <u>69,000</u> square feet, connected to Central Services via an elevated enclosed walkway.
- Antarctic Terminal Operations, Cargo, and Science Cargo are co-located within this facility.
- Science field gear, field communications gear, and field mechanical gear will be housed in and issued from this facility.
- Training space, classrooms, administrative space, and staging space for scientific gear and other materials.

Field Science Support



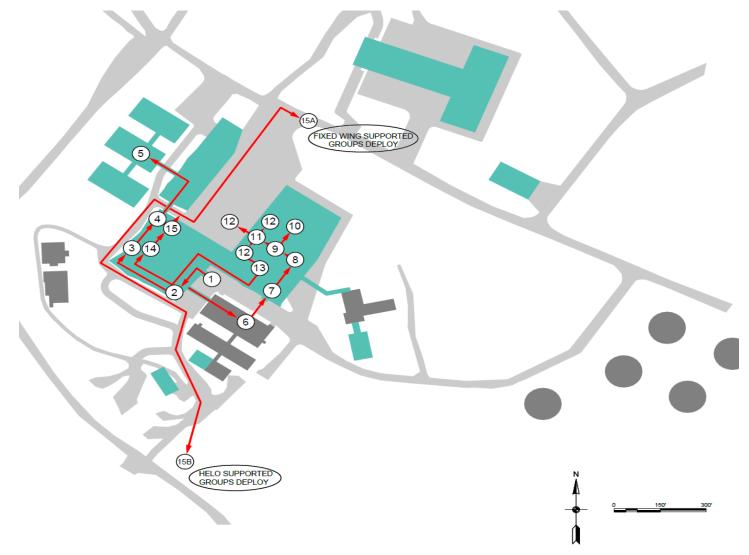


Grantee Movement Flow



Grantee Movement Flow

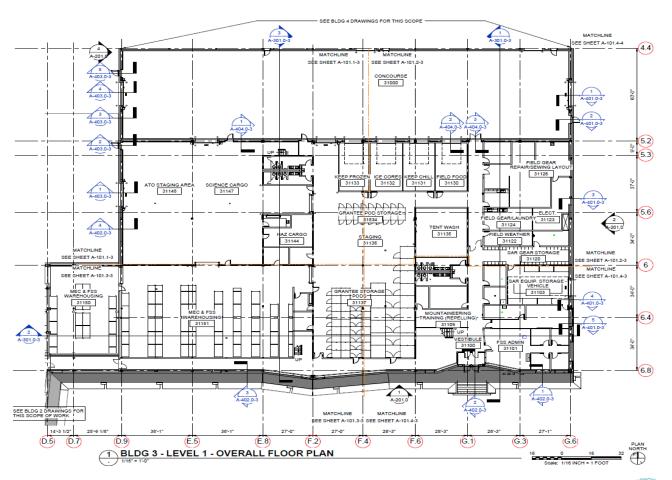






Field Science Support

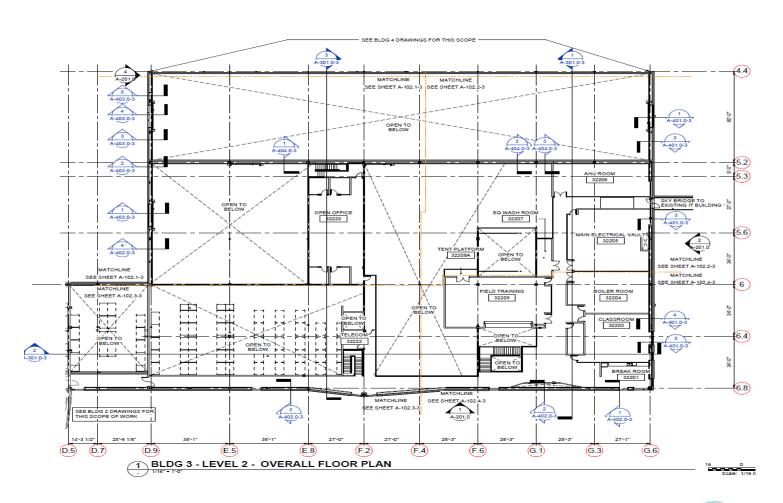
Building 3- Field Science Support 1st Floor





Field Science Support

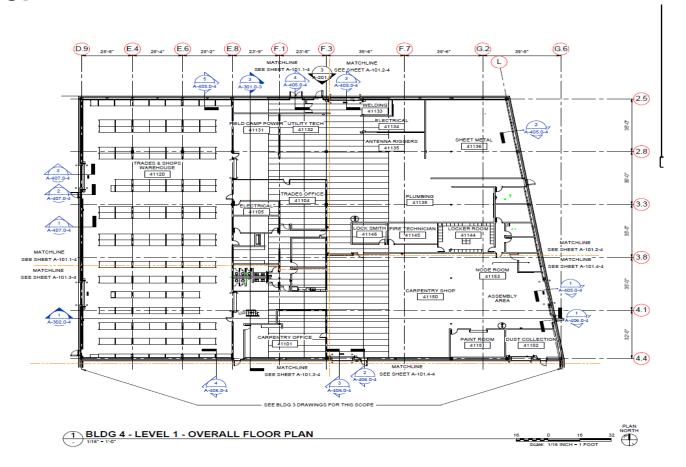
• Building 3- Field Science Support 2nd Floor







Building 4- Trades and Trades Warehouse 1st
 Floor





Vehicle Equipment Operations Center (VEOC)











VEOC









- Will centralize USAP maintenance and repair activities and replace multiple aging structures that are currently spread across the station
- Serve as the maintenance and operations facility supporting all USAP equipment and vehicles at McMurdo
- Will house a new Vehicle Maintenance function, a new Mechanical Equipment Center (MEC), an aerospace ground equipment (AGE) function, Traverse Operations, and Fleet Operations.

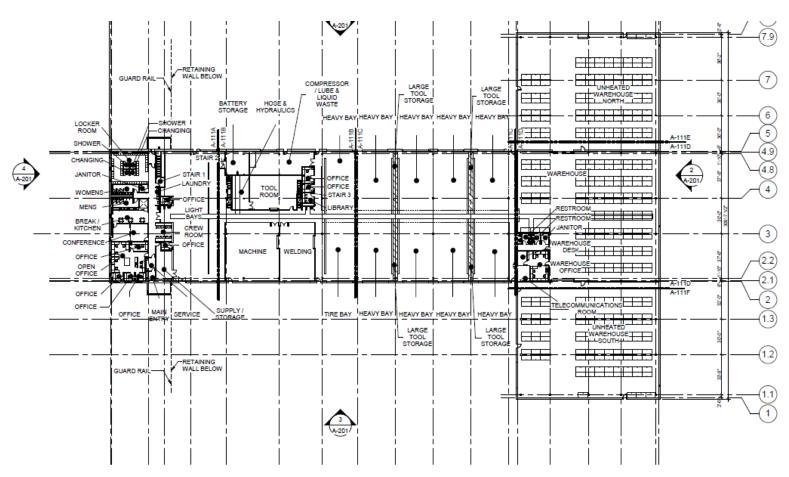


Vehicle Equipment Operations Center





Vehicle Equipment Operations Center

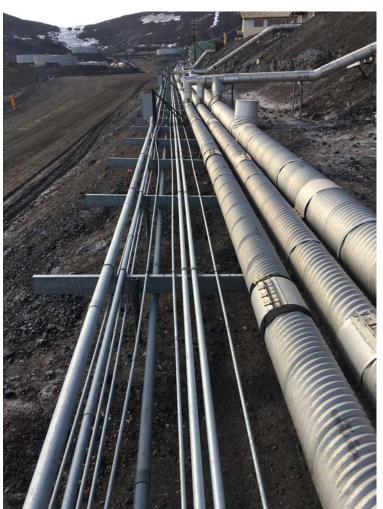


Utilities









Utilities





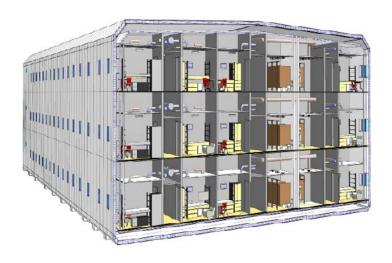
Utilities



- 65,000 gallon combined potable and fire-suppression water tank, a pump house, and equipment to both convey water and provide increased water flow to satisfy fire protection requirements
- New telecommunications, power, water, hydronic, fuel, and sewer lines will tie into existing station systems and will connect the core facilities and the VEOC.
- Small runs of new utilities have been designed as direct bury and will be placed underground; others are above ground. Wet utility piping (water and sewer) will use heavily insulated, metalsheathed, hydronic and electrically heat-traced, high-density polyethylene (HDPE) welded pipe to provide a continuous pipe route.









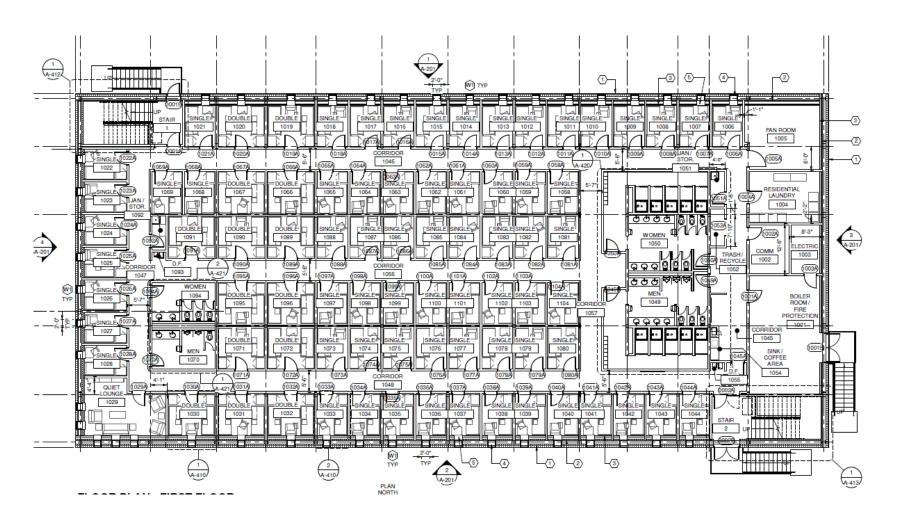




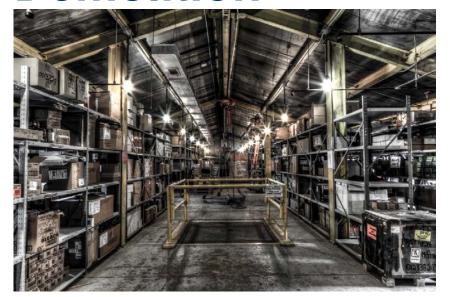


- Design and construction of a single three-story modular lodging facility to accommodate 285 personnel through a combination of 201 single rooms and 42 double rooms.
- Preliminary design is complete and will serve as the basis of the design.
- The three buildings will be connected via elevated enclosed walkways, and the middle building will have a skyway to the Core Facilities.





Demolition











Questions?







Kaneen Christensen Leidos Environmental Manager



International treaty
(signed/entered into force)

Antarctic Treaty (Treaty)
(1959/1961)

Protocol on Environmental
Protection/Committee on Environmental
Protection (CEP)
(1991/1998)

U.S. law implementing
the US-signed treaty

Antarctic Conservation Act (ACA)
(1978)

Antarctic Science and Tourism Conservation Act
(ASTCA)
(1996)

The International Antarctic Treaties and Committee on Environmental Protection (CEP) provide the overall governance document for Antarctica, as implemented through U.S. law as the ACA/ASTCA in 45 CFR 670 to 673



Environmental Review (45 CFR 641)

All activities within the U.S. Antarctic Program (USAP) undergo environmental review, must comply with Treaty-mandated Antarctic environmental standards, and are reported to the Treaty at large.

Conservation of Antarctic Animals and Plants (45 CFR 670)

The Treaty protects native Antarctic wildlife and habitats and has set aside Antarctic Specially Protected Areas (ASPAs) for conservation and scientific purposes.

Waste Regulation (45 CFR 671)

Provides definitions and waste regulations, which are separate and/or different from standard U.S. regulations.

Enforcement (45 CFR 672)



Ensure:

- Environmental impacts are minimized
- Gear, equipment, and materials brought to the Antarctic are thoroughly cleaned and free of dirt, debris, and non-native species
- Solid and hazardous waste protocols and regulations (ACA) are followed
- Spill prevention measures are always used (e.g., secondary containment) (see photos at right)
- Best management practices and reporting requirements unique to Antarctica are understood





Secondary Containment in use, photos by ASC Environmental



Avoid:

- Bringing banned substances to Antarctica
- Releasing materials to the environment
- Interacting with any wildlife (requires specific harassment permit from NSF Environmental)
- Bringing any natural and native materials home from the Antarctic
- Entering specially protected areas (also requires permit)





Commonly encountered Antarctic Wildlife in McMurdo, photos from NSF Antarctic Photo Library and Peter Rejeck



Questions?





Logistics

Mike Raabe Transportation, Logistics, Procurement Manager

Pete Cruser Logistics Ops Manager





- Receives materials entering the USAP cargo stream
 - Active naval base
 - Dedicated full time staff of 14
 - Over 100,000 ft² of indoor warehouse space in four buildings 220,000 ft² of outdoor staging area
- Coordinates domestic and international transport
 - Commercial surface vessel (COMSUR)
 - Commercial air (COMAIR)
 - Military air
 - Annual resupply vessel
- Uses Defense Logistics Agency (DLA) for shipment packing and crating
 - Certifies hazardous material to IMDG, IATA, and AFMAN standards





Leidos proforma

- Required for all commercially transported shipments
- Essentially details from a commercial invoice
- All shipments are reviewed and classified by ASC Export Compliance personnel

Hazardous materials

- Must be separate from general cargo
- Safety data sheets (SDS) required for processing
- Lithium batteries must be installed in equipment to be flown by air or will have to go by sea

Lumber certification

- Lumber must be heat treated and stamped with International Standards For Phytosanitary Measures No. 15 (ISPM15) stamp
- Plywood is not lumber; therefore a stamp is not required

PTH Receiving/Shipping Models



Prepackaged

 Shipment is delivered to PTH in ISO certified shipping containers

Onsite Port Hueneme

- AIMS Contractor has personnel on site in a dedicated facility provided by Leidos to receive and package material
- AIMS Contractor responsible for properly loading shipping containers provided by Leidos
- Leidos to provide ISO container movement

Offsite Port Hueneme

- AIMS Contractor performs receiving off site to consolidate shipments
- Cargo is delivered to PTH in a ready-to-ship standard

Leidos staff will verify proper blocking and bracing before applying container seals



Additional Details



Shipment Tracking

 Leidos to provide tracking at the container level for consolidated shipments and at the package level for expedited shipments

Resupply Vessel

 Leidos to provide all container movements to include stevedoring at the ports

Expedited Shipments

 Leidos to work with the contractor to process expedited shipments





Port Hueneme to/from Christchurch

Commercial vessel
Commercial airlift
Military airlift – C-17
Military sealift – container vessel





Christchurch to/from McMurdo

Military airlift – C-17, LC-130, C-130 Military sealift – container vessel



Annual Resupply Vessel





Cargo Airframes





Airlift: Christchurch to/from McMurdo









Deployment Travel



USAP Participant Guide

- Great details regarding the deployment process
- Online at USAP.gov and hard copies are available
- Medical PQ
- Travel Paperwork
 - Information required to ticket a traveler
 - Housing information
 - Clothing sizes

Departure

- Travelers must have an ice date before any ticketing transpires
- Ticketing deadline is 3 week prior to departure from CONUS
- Depart four calendar days before ice date
- Arrive in Christchurch two days before ice date
- Clothing, wellness check, orientation videos day after arrival
- Depart for McMurdo next day, weather dependent



Questions?







Communications

Joe Harrigan Communications Manager

Communications: Off-continent



Telephone

- Access to Station off-continent shared telephone service
- Calls local to Denver, CO. Long distance paid by caller.

Internet

- Access to Station shared internet service
- Very limited bandwidth (less than a Smartphone for entire site)
- Many activities restricted due to bandwidth consumption, legality or NSF Policy

Iridium Satellite Phone

Iridium satellite telephone service options

Communications: Local Station



Telephone

- Access to local station telephone service
- No cellular service

Network

- Access to local network (LAN) service
- Computers require screening prior to connection
- All users will receive USAP accounts
- Security awareness training required for all participants
- Wired connections only
- Mobile devices not allowed to connect

Email

USAP email accounts available, better performance

Communications: Local Station



Radio communications

Radio Service available, options

Entertainment

FM Radio, TV, Movies

Pagers

Communications: Recommendations



Internet

 Expect limited connectivity, make arrangements to accommodate (banking, file transfers etc.)

Computers

- All computers must have updated OS and virus protection
- Computers will be screened before allowed to connect
- Bring duplicate external storage for critical files

Outdoor Electronics

NiCad or NiMH batteries work best in cold

General

- Ergonomics
- No stores or parts suppliers; bring spares!
- More information found at: https://www.usap.gov/technology/index.cfm?m=4#participant-faqs

Questions?







Schedule

Michelle Tombre Program Planner

Schedule Expectations & Requirements

Detail plan and identify all work to the lowest level WBS

Resource work group (discipline)

Resource load activities in the schedule

Ability to provide headcount

Logically networked schedule using scheduling tool

Primavera P6, Microsoft Project 2013, other scheduling tools

Earned Value Support Requirements

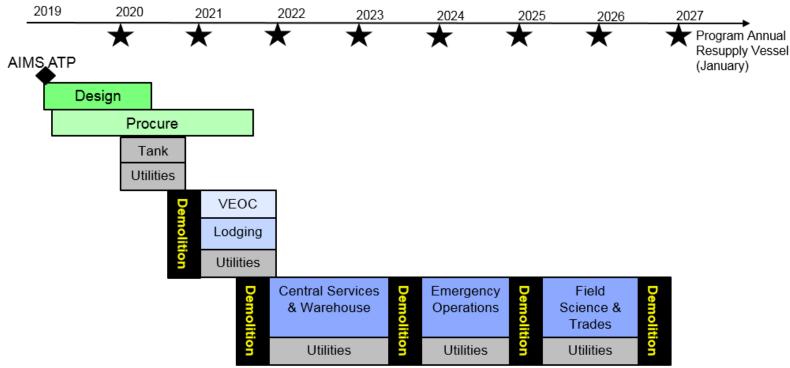


Leidos reports earned value monthly to the NSF

- Subcontractor schedule will supplement Leidos monthly earned value reporting requirements
 - Baseline schedule
 - Monthly status and reporting
 - Variance analysis

AIMS Summary Master Schedule





- Program logistical constraints (annual resupply vessel, headcount)
- Core Facility critical path through Demolition Phases
- Blasting and some site grading/pad prep performed by Leidos

Questions?







Subcontracts

Pamela Jondreau Subcontracts Program Manager

AIMS - Subcontract



Anticipated Construction Period of Performance

March 2019 – May 2026

Delivery Method

- Core facilities project design build
- Vehicle equipment operations center (VEOC) project design build
- Lodging project design build
- Utilities project design bid build
- Demolition

Applicable Requirements

- Defense Based Act insurance
- US firms/citizens & Buy American
 - Submit request for exception PRIOR to proposal submit

Not Applicable

Davis Bacon Act

Acquisition Strategy



Qualifications Phase – October 2017

- Criteria not yet finalized
- Not expected to deviate from typical industry approaches

Site Visit – February 2018

- Interested parties responsibility
 - Medical pre-qualification
 - Defense Based Act insurance
 - Air, lodging and food to/from Christchurch, NZ
- Leidos responsibility
 - Extreme cold weather (ECW) clothing
 - Safety training and laptop security screening
 - Air to/from Christchurch, NZ to McMurdo Station





RFP – January 2018

- Acquisition strategy not final Seeking inputs from industry
- Leidos is considering the following acquisition strategies:
 - Competitive single award all four projects
 - Competing each project individually
 - Multi-award IDIQ with competitive task orders
- Leidos is considering the following subcontract types:
 - Guaranteed Maximum Price
 - Cost Plus
 - Hybrid

Anticipated Award – March 2019





