

Statement of Objectives

Architect-Engineer Design Services for
Aircraft Shelter (AXQD239019)
Project Site at the 104th FW
Barnes Air National Guard Base, Westfield, MA

1. REFERENCES.

- 1.1. Indefinite Delivery Contract (IDC). Not applicable.
- 1.2. Federal, State/Commonwealth, and Industry Standards. A list of applicable Federal, State/Commonwealth, and industry standards are referenced below and on the following page, other references may be required, this list is not all inclusive. The latest revision for all applicable standards, including those that are not referenced or listed specifically in this document, constitute criteria for the completion of this work. AE firm is responsible for using the most current guidance should the ones listed below be outdated. Majority of references can be found on wbdg.org
- 1.3. ICC International Building Code - 2018 Edition (IBC 2018).
- 1.4. UFC 3-501-01 Electrical Engineering
- 1.5. UFC 3-520-01 Interior Electrical Systems
- 1.6. UFC 3-560-02 Electrical Safety
- 1.7. UFC 3-250-01 Pavement Design for Roads and Parking Areas
- 1.8. Air National Guard Handbook 32-1084 Facility Space Standards
- 1.9. F-35 Lightning II Facilities Requirements Document, Section 3: Operational Facility Requirements
- 1.10. ANGETL 24-02, ANG Design Objectives and Procedures (TAB C)
- 1.11. UFC 1-200-02 High Performance and Sustainable Building Requirements
- 1.12. Unified Facilities Criteria (UFC) 1-200-01 DoD Building Code
- 1.13. UFC 3-101-01 Architecture
- 1.14. UFC 3-110-03 Roofing
- 1.15. UFC 3-120-10 Interior Design
- 1.16. UFC 3-190-06 Protective Coatings and Paints
- 1.17. UFC 3-201-01 Civil Engineering
- 1.18. UFC 3-250-01 Pavement Design for Roads and Parking Areas
- 1.19. UFC 3-410-01 Heating, Ventilating, and Air Conditioning Systems
- 1.20. UFC 3-600-01 Fire Protection Engineering for Facilities
- 1.21. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings
- 1.22. UFC 4-020-01 DoD Security Engineering Facilities Planning Manual

- 1.23. Architectural Barriers Act (ABA) Standards
 - 1.24. ANSI/ASCE Minimum Design Loads for Buildings and Other Structures
 - 1.25. ACI 318 Building Code Requirements for Reinforced Concrete
 - 1.26. AISC Manual of Steel Construction
 - 1.27. American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE)
 - 1.28. Handbooks and Standards: HVAC Systems and Equipment
 - 1.29. National Fire Protection Association (NFPA70) National Electrical Code
 - 1.30. NFPA 72 International Fire Alarm Code
 - 1.31. NFPA 101 Life Safety Code
 - 1.32. NFPA 780 Standard for the Installation of Lightning Protection Systems
 - 1.33. Air National Guard (ANG) Engineering Technical Letters (ETL) Tab C ANG Design Objectives and Procedures
 - 1.34. ANG ETL 12-05 Design and Construction Handbook
 - 1.35. ANG ETL 15-01 ANG Design Policy
 - 1.36. ANG ETL 24-01-03 Fire Protection Design Guidance
 - 1.37. ANG ETL 15-01-04 Mechanical Engineering
 - 1.38. ANG ETL 24-01-05 Electrical & Communications Engineering
2. PRECEDENCE. This Statement of Objectives (SOO) and the accompanying appendices provide specific instructions for the completion of this work.
 3. OVERVIEW. The 104th FW is converting from F-15C to F-35A fighter jets. This mission change will require the renovation, repair and construction of numerous facilities on Barnes Air National Guard Base (Barnes ANGB). Currently the base only has covered parking for a handful of their newly assigned aircraft. This project is for the design of four flow through shelters, providing parking for eight aircraft. The 104 FW Civil Engineering Squadron (104 CES) is in need of architect/engineer design services that will result in the creation of design drawings and requirements project package, which will ultimately lead to the construction of the shelters to support the new mission.
 4. DESCRIPTION OF WORK. The 104 CES is soliciting vendors to develop the design, specifications, and requirements package for flow through shelters. This work will involve designing a fully functional facility constructed in accordance with the latest regulations and requirements. The design shall allow for mission execution in an efficient manner by properly designing the needed infrastructure thus providing a facility that is properly configured for the F-35A mission. Additionally, it should make provisions for the building to be energy efficient and environmentally conscious whenever possible.

These are new facilities to be located on the current concrete ramp. Utilities will need to be trenched and run from nearby facilities. A new transformer may be required, electrical conduit and lines as well as communications lines and water/sewer will need to be installed. Provisions for an intrusion detection system for each shelter is required. The location of the shelters is Barnes ANGB and current facility layout is going to be West of the Alert Shelters and East of B25, Squadron Operations. The buildings will be steel beamed with metal skin. Sprinkler system and lightning protection are required, metal doors for aircraft entrance and exiting are desired. Each facility will hold two F35 aircraft. Shelters will be required to have enough room for parking of both aircraft, standoff distance from wing tips, nose and rear of aircraft as well as room for support equipment.

It is the intent of this work to produce a 100% design package to include associated documents, specifications and requirements that shall be provided to a construction contractor so that they may perform the construction of the aircraft shelters on Barnes ANGB. This design work will include all A and B services in accordance with ANGETL 24-02, ANG Design Objectives and Procedures. Included in the previously mentioned Type A and Type B design services are an initial design charrette held in-person at Barnes ANGB. The design drawings and specifications at the milestone progress stages must provide an opportunity for the 104FW members and other Air Force subject matter experts to review the design and provide feedback at these milestone marks as needed. The 65% design review will be accomplished in-person at Barnes ANGB, with the ability to establish a conference call/teams type call between 104 FW subject matter experts, F35 contractors, and representatives from the architecture and engineering firm. All as-builts, surveys, existing conditions, and pertinent plans shall be made available to the A/E immediately after contract award. There is precedence for the design of the shelters from the base (Alert Hangars) and other military facilities around the United States that have the required shelters to use as a basis of design or example. The base has as-built drawings from 2006 that could be used as a basis of design.

4.1. General Requirements. The architecture and engineering contractor shall provide all personnel, equipment, tools, materials, supervision, and quality control necessary to meet the requirements specified in this document.

4.1.1. Intent. It is the intent of this contract to produce 100% design contract documents that can be used to perform the construction of four flow through shelters, that will accommodate eight F35 aircraft at Barnes ANGB. Each stage of the design has certain criteria submittal expectations. ANGETL 24-02, ANG Design Objectives and Procedure, provides the expectations for Design Services Submittal requirements.

4.1.2. Description. The nature of the design work for the shelters will include various engineering facility design trades. The work shall include provisions for the following work to be accomplished:

- 4.1.2.1. The design shall include provisions for the trenching and installation of electrical conduit and wires from nearby facilities to each of the four flow through shelters.
- 4.1.2.2. The design shall include provisions for trenching and installation of communications conduit and lines from nearby facilities to each of the four flow through shelters.
- 4.1.2.3. The design shall include provisions for the installation of a heating system for each facility. The Heating system shall have the capability to be connected to the direct digital controls (DDC) infrastructure that manages all building HVAC systems on Barnes ANGB. Additionally, special consideration should be taken for the design of the HVAC system to adequately provide heating and cooling according to specifications and requirements for both the shelter itself and any communications closets that will be in the facility.
- 4.1.2.4. The design shall include provisions for the trenching and installation of water and sewer. Water will be for eye wash stations, sprinkler system and sinks. Sewer will be for any bathrooms incorporated into the design.
- 4.1.2.5. The design shall include provisions for the installation of a new transformer to support the electrical loads for each shelter and systems within the facilities as well as cannon plugs at each facility for generator connections.
- 4.1.2.6. The design shall include provisions for the installation of a new fire detection and suppression system in the facility so that it adequately accounts for the building and aircraft and is in accordance with local, state and national requirements. The design shall include provisions for the connection of the newly installed fire detection and suppression system to the existing fire detection and suppression infrastructure currently in place on Barnes ANGB.
- 4.1.2.7. The design shall include provisions for the installation of interior communications infrastructure in the facility that supports the requirements of the new F-35A mission and end user needs. The design shall include provisions for the connection to the backbone communications infrastructure located at Barnes ANGB.
- 4.1.2.8. The design shall include provisions for the installation of a lightning protection system for each flow through shelter in accordance with F 35 lightning protection requirements.
- 4.1.2.9. The design shall include provisions for the concrete or asphalt trenching and repair as part of the utility installation.

4.1.3. Responsibility. Registered Professional Engineers (Registered Design Professionals) shall be directly responsible for the proper execution of the work to be performed, and shall be individuals knowledgeable and licensed to practice engineering in the various project areas. The Registered Engineers shall advise the Contracting Officer (KO) and Contracting Officer's Representative (COR) what additional tasks and investigation (beyond what is identified herein) are required to adequately provide the required services mentioned in this document.

4.1.4. Point of Contact. During the course of the contract, the principal engineer and project manager designated with executing the design services associated with the contract shall seek clarification and technical guidance from and follow such instructions as may be issued by the 104th Civil Engineering Squadron.

4.1.4.1. The Contracting Officer's Representative for this contract will be Lt. Col. Sarah Sinclair. Lt Col Sinclair can be reached via email at sarah.sinclair@us.af.mil

4.1.5. Dig Permits. Dig Permits shall be coordinated through the 104th CES. A minimum of 7 workdays is required for any dig permits. This shall be used for any investigative groundwork as part of the design services required to determine concrete ramp and soil suitability for the flow through shelters. This also applies to any investigative work required for the trenching of utilities.

4.1.6. Environmental Protection. During the performance of this work, the Contractor shall take the necessary steps and precautions to protect the environment and especially any environmentally sensitive sites, such as Cultural/Archeological sites and Installation Restoration sites. The Contractor shall notify the COR of any unusual material, odors, or liquids encountered during the investigation immediately.

4.1.7. Cultural/Archaeological Sites. The Contractor is advised to immediately report the discovery of any archaeological resources that are inadvertently identified in the course of the survey to the KO and COR.

4.2. Applicable Publications. Publications applicable to this Statement of Objectives (SOO) are listed below.

4.2.1. Reference Material. The Contractor shall maintain copies of applicable drawings, specifications, etc. for use in inspection, preventive maintenance and/or repair, and provide copies to the COR, upon request.

Table 1 - Publications and references applicable to this Statement Of Objectives

| Publication (Chapter/Page) | Date of Publication | Website |
|--------------------------------|------------------------|---|
| Federal Acquisition Regulation | Most recent | https://www.acquisitio |

| | | |
|--|---|---|
| | | n.gov/?q=browsefar |
| Defense Federal Acquisition Regulation Supplement | Most recent | http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html |
| DoDM 1000.13-M-V1 DoD Identification (ID) Cards (Enclosure 2, paragraph 3.b) | 01/23/2014 | http://www.esd.whs.mil/Directives/issuances/dodm/ |
| Federal Information Processing Standards (FIPS) Publication 201-2 Personal Identity Verification (PIV) of Federal Employees and Contractors (paragraph 9) | August 2013 | http://nvlpubs.nist.gov/nistpubs/FIPS/NIST.FIPS.201-2.pdf |
| DoDM 5200.2 Regulation 5200.02 Procedures for the DoD Personnel Security Program (PSP) | 04/03/2017 | http://www.dtic.mil/whs/directives/correspublishing/htmlpubs/DTIC%205200.2%20Regulation%205200.02%20Procedures%20for%20the%20DoD%20Personnel%20Security%20Program%20(PSP).html |
| DoD 5220.22-M National Industrial Security Program Operating Manual | 02/28/2006 (Change 2. 05/18/2016) | http://www.dtic.mil/whs/directives/correspublishing/htmlpubs/DTIC%205220.22-M%20National%20Industrial%20Security%20Program%20Operating%20Manual.html |

5. REQUIRED SERVICES. The Contractor shall perform the services indicated in this SOO. The drawings, specifications, and all other submittal items for this task order will be prepared using standard American units of measurement.

5.1. Quality Control.

5.1.1. Quality Control Plan (QCP). The A-E shall prepare a Quality Control Plan (QCP) which includes the following as a minimum:

- 5.1.1.1. Identification and discussion of all organizational and technical interfaces.
- 5.1.1.2. Design team members and their areas of responsibility.
- 5.1.1.3. At a minimum it shall include how the Design Team will conduct Design Reviews, Control of Design Corrections and Nonconformances, and coordination sheet for reviews.

5.1.2. Quality Assurance. The 104th FW CES will perform a quality assurance review of all A/E work to ensure that proper criteria, regulations, laws, codes, principles and professional procedures have been used. This review will assess the utilization of clearly justified and valid assumptions that are in accordance with policy. It will also consider resolution of legal, technical and policy reviews.

5.1.3. Quality Control Manager (QCM). The Contractor's QCM shall lead the Contractor's quality control efforts in establishing and implementing the QCP. The Contractor shall train personnel in effective methods and techniques for inspecting the Contractor's conformance to requirements. The Contractor shall act as the focal point for inspections, analysis of inspection results and corrective actions and reports.

5.2. Site Requirements, Meetings/Conferences, and Discussions.

5.2.1. Site Requirements.

- 5.2.1.1. Gate. Unscheduled gate closures by the Security Police may occur at any time causing all personnel entering or exiting a closed installation to experience a delay. This cannot be predicted or prevented. Contractors are not compensated for unexpected closures or delays. Vehicles operated by Contractor personnel are subject to search pursuant to applicable regulations. Any moving violation of any applicable motor vehicle regulation may result in the termination of the Contractor employee's installation driving privileges.
- 5.2.1.2. Entry Access List. The contractor must contact the COR to request information related to gaining base access for their employees via the entry access list (EAL). The form/s must be filled and returned to the COR NLT 5 days prior to when the work is expected to be complete.
- 5.2.1.3. Regulations. The Contractor's employees shall become familiar with and obey the regulations of the installation; including fire, traffic, safety and security regulations while on the installation. Contractor employees should only enter restricted areas when required to do so and only upon prior approval. All Contractor employees shall carry proper identification with them at all times, and shall be subject to such checks as may be deemed necessary. The Contractor shall ensure compliance with all regulations and orders of the installation, which may affect performance. The Government reserves the right to direct the removal of an employee from Government property or revoke access to Government systems for misconduct, security reasons, or any overt evidence of communicable disease. Removal of Contractor employees for reasons stated above does not relieve the Contractor from responsibility for total performance of this contract.
- 5.2.1.4. Access and General Protection/Security Policy and Procedures. The Contractor shall comply with all applicable installation/facility access and local security policies and procedures, which may be obtained from the COR. The Contractor shall also provide all information required for background checks to meet installation access requirements to be accomplished by the local installation's Security Forces, Director of Emergency Services or local Security Office. The Contractor shall ensure compliance with all personal identity verification requirements as directed by DoD, HAF and/or local policy. Should the Force Protection Condition (FPCON)

change, the Government may require changes in Contractor security matters or processes. The Contractor shall safeguard all Government property provided for Contractor use. At the close of each work period, Government facilities, equipment, and materials shall be secured.

5.2.1.5. Adjudication Standards and Procedures. Contractor and all associated sub-Contractors employees shall comply with adjudication standards and procedures using the National Crime Information Center Interstate Identification Index (NCIC-III) and Terrorist Screening Database (TSDB) (AFI 31-101 and AFI 10-245), applicable installation, facility and area commander installation/facility access and local security policies and procedures (provided by government representative).

5.2.1.6. Communications Security/Information Technology (COMSEC/IT) Security. All communications with DoD organizations are subject to COMSEC review. All telephone communications networks are continually subject to intercept by unfriendly intelligence organizations. DoD has authorized the military departments to conduct COMSEC monitoring and recording of telephone calls originating from, or terminating at, DoD organizations. Therefore, the Contractor is advised that any time Contractor personnel place or receive a call they are subject to COMSEC procedures. The Contractor shall ensure wide and frequent dissemination of the above information to all employees dealing with DoD information. The Contractor shall abide by all Government regulations concerning the authorized use of the Government's computer network, including the restriction against using the network to recruit Government personnel or advertise job openings.

5.2.1.7. Meetings. The AE staff shall attend an initial design charrette meeting and participate in design review meetings for each design progress milestone in person or virtually. The A-E shall take notes and prepare minutes for all meetings attended during this contract. Minutes will be prepared in typed form, signed by the A-E Project Manager, and furnished to the COR within seven calendar days after the meeting/conference for concurrence and distribution to attendees. Copies of all meeting minutes will be included in the final report.

The A-E shall provide a written record of all significant discussions and telephone conversations that the firm's representatives participate in, on matters relative to this project.

5.2.2. Property. Not applicable.

5.2.3. Materials. The A-E shall be provided with base with all design documents, digital and printed copy, to include drawings, maps, specifications, cost estimates, material lists, etc.

5.2.4. Utilities. All utilities in the facility will be available for the Contractor's use in the performance of this contract.

6. SUBMITTALS AND PERFORMANCE.

6.1. Submittal Requirements.

6.1.1. Submittal Content and Format. Provide a detailed and comprehensive submittal document that clearly lists the submittal number, title, location, contractor's name, and the date submitted. Additionally, it should state options available related to the submittal subject and specify the desired format the required submittal decision should follow.

6.1.2. Submittal List. Maintain a list of all submittals that is available to 104 FW government personnel. This list should contain but is not limited to submittal title, number, issue date, response date and summary of response.

6.1.3. Submittal Submission and Processing. Submittals should be sent via email or other approved electronic means to respective 104 FW KO and COR assigned to the project.

6.1.4. Submittal Review. All submittals identified under this task order will be reviewed by the government. The status of submittals are to be reviewed at each design milestone. The government has 30 days to review each submittal.

6.1.5. Government Review and Comment Resolution. Both parties will discuss these comments, if necessary, and attempt to resolve any unsettled issues that may arise from the review.

6.1.6. Milestone Submittal Packages. All design milestone submittal packages shall consist of a hard copy and one electronic copy of design documents, to include drawings and specifications, as the deliverables for this project.

6.2. Performance Requirements.

6.2.1. Period of Performance. The Period of Performance shall be no more than one year contract award or notice to proceed.

6.2.2. Place of Performance. In-person meetings are to be held at Barnes ANGB.

6.2.3. Performance of Services. The Contractor shall provide services between the hours of 0730 - 1630 on Monday through Friday, except on recognized US holidays or when the Government facility/installation is closed due to local or national emergencies, administrative closings, or

similar Government-directed facility/installation closings. Performance shall be pre-selected sites. The Contractor shall at all times maintain an adequate work force for the uninterrupted performance of all tasks defined within this SOW when the Government facility/installation is not closed for the above reasons.

- 6.2.4. Restricted Areas. If a member of the architecture engineering design team requires access to a restricted area and requires 104 FW escorts, coordination will need to be completed ahead of time to ensure proper escort and ability to get to the facilities within the restricted area. A schedule will be submitted in order to properly coordinate areas ahead of time.
- 6.2.5. Performance Periods and Submission Schedules. The performance periods and submission schedules for each phase of design are indicated below. Time for reproduction and mailing is inclusive to the stated durations. The government review and comment period for milestone design submittals will be 30 days at which time the formal comments from the 104 FW will be presented to the architecture engineering design contractor.
 - 6.2.5.1. The design charrette shall be held within 30 days after contract award. This shall be an in-person conference that takes place at Barnes ANGB. The purpose of this event is to familiarize the architecture engineering design personnel with the project requirements and develop an initial concept, A-1 submittal, for the design.
 - 6.2.5.2. The A-2 design documents shall be made available to the 104 FW for review. After the review period all comments will be provided to the A&E who will then schedule a virtual meeting.
 - 6.2.5.3. The B-1 design documents shall be made available to the 104 FW for review. After the review period an in-person conference combined with a virtual for F35 contractors will be conducted to review the design, associated comments and go over any unresolved issues.
 - 6.2.5.4. The B-2 design documents shall be made available to the 104 FW for review. After the review period a virtual meeting shall be conducted to review the design and comments.
 - 6.2.5.5. The B-3 final contract design documents shall be made available to the 104 FW as the final deliverable for the project. A review period shall be completed to ensure all comments have been addressed, prior to final acceptance of the design.

7. AUTHORIZED CHANGES. The A-E shall accept changes only from the Contracting Officer. Coordination of routine technical matters with National Guard personnel will be accomplished through the COR.

Exhibit 1 - Performance Requirements Summary

| Performance Objective | Performance Standard | Acceptable Quality Levels (AQL) | Surveillance Method / By Whom |
|---|--|---|--|
| Contract Design Submittal Documents | Received agreed timeline | On Time Delivery = 100% | 104 th FW COR – 100% inspection |
| Contract Design Submittal Documents Design Errors | Design specifics and callouts are accurate and in accordance with specifications | 98% - Contract documents accurate and incorporate comments as agreed during previous design review. | 104 th FW COR and Technical Experts – 100% design review based upon comments and answer for each design submittal |

TECHNICAL EXHIBIT 2

Deliverables Schedule

| PWS Reference / Deliverable Title | Frequency | Number of Copies | Medium/Format | Submit To |
|--|--|-----------------------|--|-----------|
| 5.2.1.2 Entry Access List | Within 5 calendar days prior to site visit | 1 | Electronic Submission | COR |
| 6.2.5.1 A1 Documentation | Provide within 15 calendar days after A1 design meeting. | 1 | Electronic Submission | COR |
| 6.2.5.2 A2 Design Documents and Specifications | Per approved schedule | 1 Paper, 1 Electronic | Paper "D" size or larger, Electronic | COR |
| 6.2.5.2 A2 Design Review Meeting Minutes | Provide within 7 calendar days after A2 design review meeting. | 1 | Electronic Submission | COR |
| 6.2.5.3 B1 Design Documents and Specifications | Per approved schedule | 1 Paper, 1 Electronic | Paper "D" size or larger, Electronic | COR |
| 6.2.5.3 B1 Design Review Meeting Minutes | Provide within 7 calendar days after B1 design review meeting. | 1 | Electronic Submission | COR |
| 6.2.5.4 B2 Design Documents and Specifications | Per approved schedule | 1 Paper, 1 Electronic | Paper "D" size or larger, Electronic | COR |
| 6.2.5.4 B2 Design Review Meeting Minutes | Provide within 7 calendar days after B2 design review meeting | 1 | Electronic Submission | COR |
| 6.2.5.4 B3 Design Documents | Within 1 year of contract award | 2 Paper, 1 Electronic | 1 paper "B" size, 1 paper "D" size or larger, Electronic Submission, | COR |

Appendix A
Aircraft Shelters



Figure 1 - Ramp (Zoomed Out)

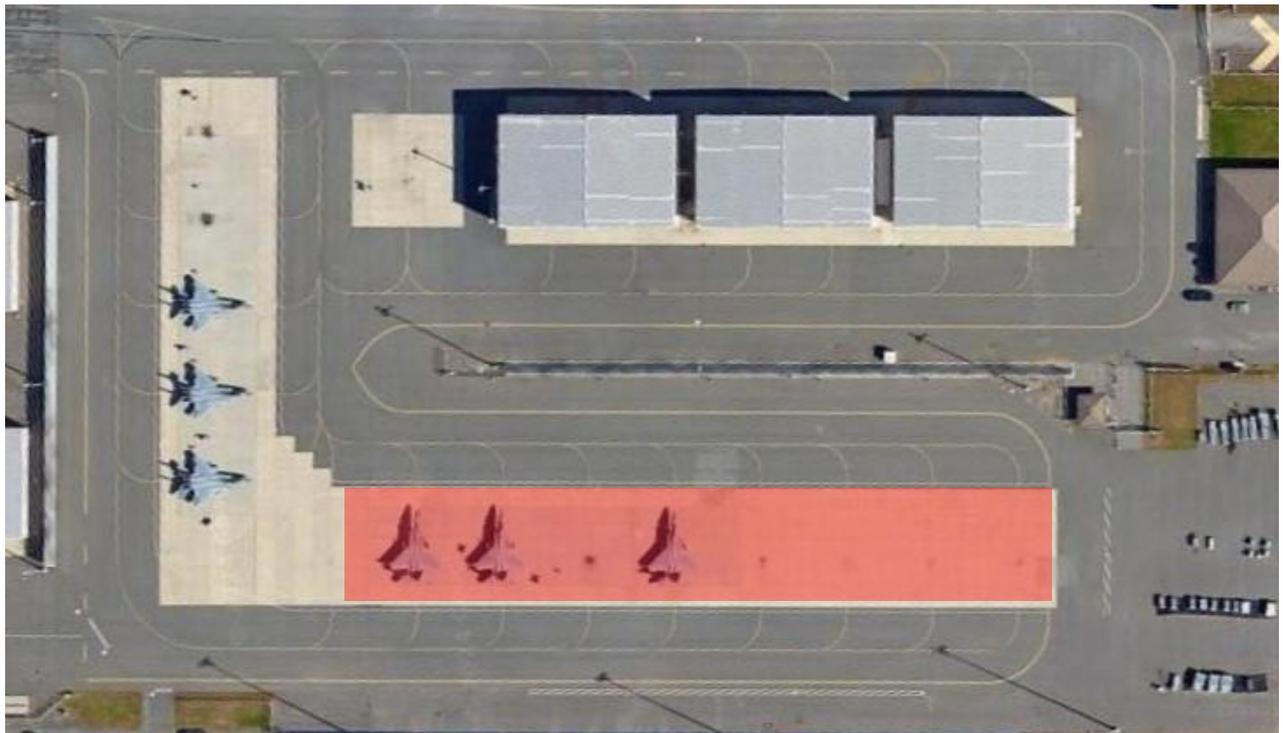


Figure 2 – New Shelter Location (Zoomed In)

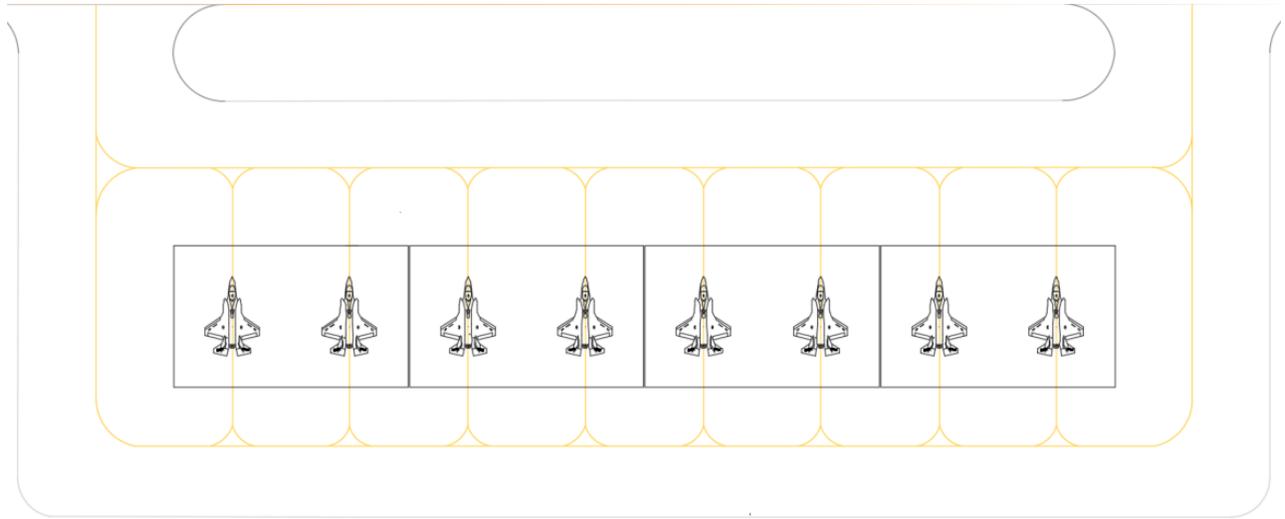


Figure 3 - Proposed Facility Layout