

GROUP 1 SMALL UNMANNED AIRCRAFT SYSTEMS (SUAS)
STANDARD OPERATING PROCEDURES (SOP)
FOR
SILVER STRAND TRAINING COMPLEX, CALIFORNIA

1. **INTRODUCTION.** This document covers SUAS operations at the Silver Strand Training Complex (SSTC), CA. The SUAS addressed in this SOP are the Group 1 UAS Category as defined by the Joint Concept of Operations for Unmanned Aircraft Systems (JUAS CONOPS) dated November 2008. This SOP will be used in conjunction with an approved Federal Aviation Administration (FAA) Certificate of Waiver or Authorization (COA) for operations at SSTC.

One Pilot in Command (PIC) must be designated at all times and is responsible for the safety of the Unmanned Aircraft (UA) and persons and property along the UAS flight path. The PIC may be a Vehicle Operator (VO) or Mission Operator (MO). The PIC will be held accountable for controlling their aircraft to the same standards as the pilot of a manned aircraft. The provisions of 14 CFR 91.13, Careless and Reckless Operation, apply to UAS pilots.

2. **DEFINED AREA.** Small Unmanned Aircraft System (SUAS) operations at SSTC will be conducted within the area defined by the following coordinates:

N32° 36.4337'/W117 ° 7.9802'

N32° 36.2487'/W117 ° 7.5542'

N32° 35.8716'/W117 ° 7.3891'

N32° 35.3354'/W117 ° 7.3652'

N32° 35.1525'/W117 ° 7.9388'

(See figure 1 below)

Operations will be conducted at a maximum of 5 days a week, 6 hours per session in VMC during the hours of sunrise to sunset and at altitudes from the surface up to 400 feet AGL. Visual observers will remain in contact with the PIC and will be positioned so that they remain within .5 nautical miles horizontally and 500 feet vertically of the UAS during all operations.

3. **FLIGHT SCHEDULING.** SUAS operations at SSTC will be conducted in Class D airspace and will be scheduled a minimum of 24 hours prior with Naval Air Station North Island (NASNI) Air Traffic Control Facility (ATCF). At the same time, the PIC will coordinate with NASNI ATCF to request a NOTAM be issued detailing UAS activity at SSTC to include mission dates and times. NASNI ATCF contact number is: (619) 545-8238/8239.

The schedule shall include, at a minimum, the following for each flight:

A. Takeoff time (all times local)

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- B. Estimated land time
- C. FM Net call sign of observer: (_____)
- D. Observer name or initials
- E. Observer cell phone number (back-up comm)

4. **FREQUENCY AUTHORIZATION AND DECONFLICTION.** A list of frequencies that will be utilized will be provided to the NASNI ATCF for deconfliction and approval.

5. **SILVER STRAND TRAINING COMPLEX PROCEDURES.** One hour prior to UAS operations the PIC, Observer, or designated team lead will establish communications with the NASNI ATCF via FM Net radio. Communications will be maintained throughout the operation. The same individual will verify that NASNI ATCF personnel have the flight schedule for that day's SUAS operations and that a NOTAM has been issued. SUAS operators shall comply with all instructions and restrictions given. The operator shall maintain all SUAS operations within the confines of the SSTC as previously defined. Operations are not allowed over populated areas, beaches or State Route 75. Operations are not allowed within 100 feet of the south fence of SSTC. All operations will be conducted between sunrise and sunset in VMC; the UAS will remain clear of clouds and other weather obstructions. The operators and observers shall maintain visual contact with the UAS at all times.

6. **PRE-FLIGHT BRIEFINGS.** Prior to any SUAS operations, the PIC will conduct a crew and safety briefing. The briefing will include, at a minimum, the following:

- A. **Mission overview.**
- B. **Weather.** (current and forecasted)
- C. **Flight route/area.** Ensure SSTC operations area is loaded in Falcon View.
- D. **Airspace surveillance procedures.**
 - 1) Pilots responsibilities.
 - 2) Observer's responsibilities.
 - 3) Pilot responsibilities in the event of ATC notification of observed aircraft in vicinity of UA operations not in two-way communication.
 - 4) Pilot/Observer responsibilities when they observe an aircraft in vicinity of UA operations.
- E. **Required items, mission equipment, and personnel.**
- F. **Crew actions, duties, and responsibilities.** (Modes of flight, who will make radio calls, identification of recovery team, etc.)
 - 1) Emergency actions.
 - 2) Mission considerations and actions to be performed by VO/MO.
- G. **General crew duties.**

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- 1) Vehicle Operator (VO).
 - a. Fly the air vehicle.
 - b. Avoid traffic and obstacles.
 - c. Cross check display symbology, messages, wind velocity/ direction.
 - 2) Mission Operator (MO)
 - a. Assist in traffic and obstacle avoidance.
 - b. Manage radios.
 - c. Navigate.
 - d. Cross check display symbology, messages, wind velocity/direction
 - e. Read and complete checklist items as required.
 - f. Set/adjust pages/switches and systems as required.
 - g. Note takeoff time.
 - h. Log events
 - i. Calculate and monitor times for holding and approaches. When on approach, watch for the air vehicle. Be prepared to direct the VO for a missed approach procedure, if required.
 - j. When visual is acquired direct VO to the ground if needed.
 - 3) Observer
 - a. Must remain within .5 nautical miles horizontally and 500 feet vertically of the UAS during all operations.
 - b. Must keep the UAS in sight at all times.
 - c. Maintain two-way contact with the VO/MO to warn of potential hazards.
 - d. Provide VO/MO with instructions to steer clear of any potential collisions.
- H. **Analysis of the aircraft.** Logbook and preflight deficiencies.
- I. **Risk assessment considerations.**
- J. **Comments:** Instructor, Mission commander, Crew member, Observer questions, comments, and acknowledgment of the mission briefing.

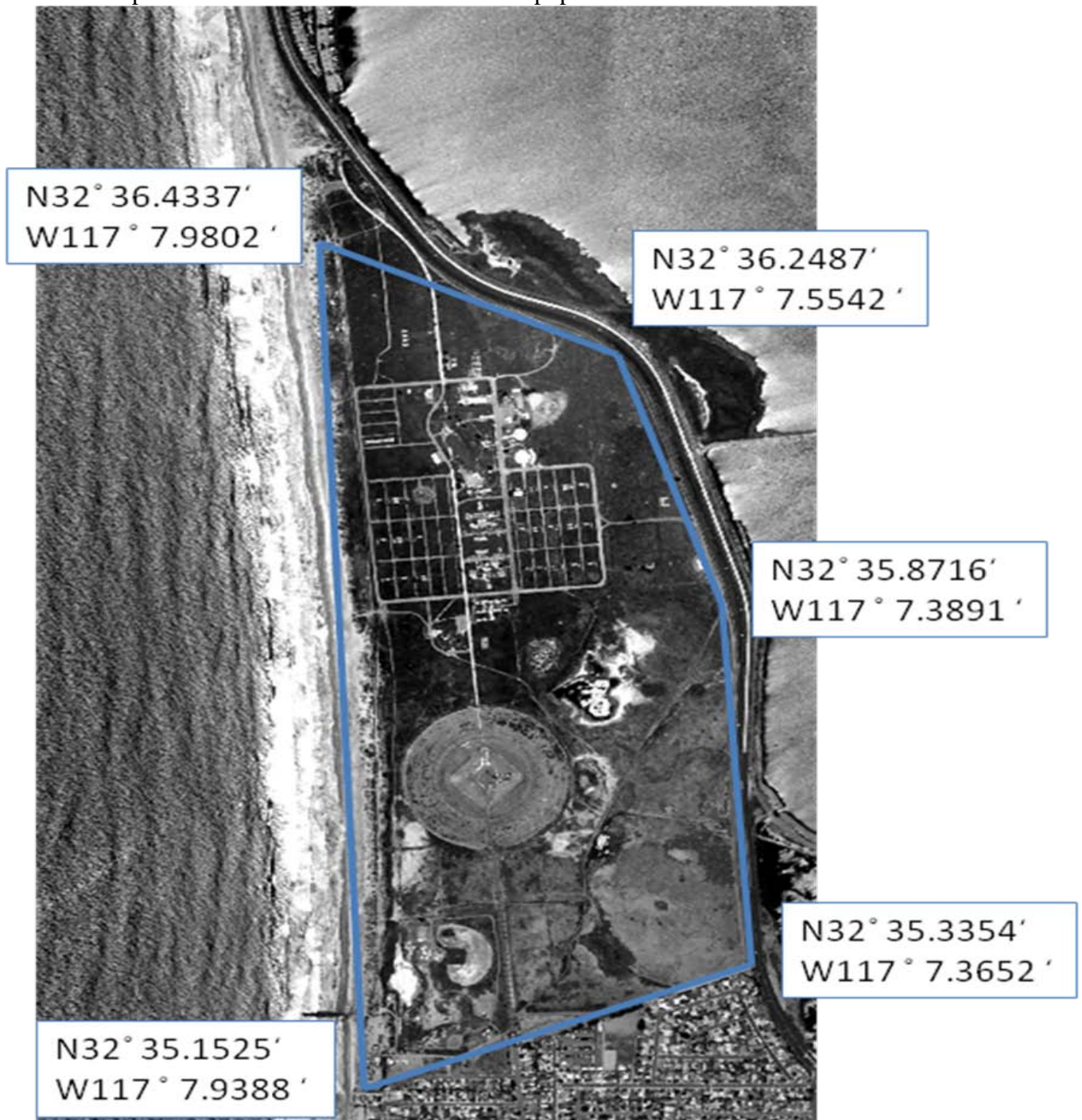
7. **PRE-FLIGHT PROCEDURES.** SUAS are particularly sensitive to adverse weather conditions such as moderate to blowing sand and dust, rain, severe turbulence, storms and lightening, and wind gusts. SUAS operators will be responsible to routinely check current and forecasted conditions. It will be the responsibility of the PIC to ensure weather conditions do not exceed system limitations as described in Operator's Manual. All flight operations will be conducted in Visual Meteorological Conditions (VMC) under Visual Flight Rules (VFR). The PIC will complete the Preflight checklist in Operator's Manual.

8. **LAUNCH and FLIGHT.** The PIC will complete, at a minimum, the following:

- A. Follow procedures outlined in the Operator's Manual.
- B. Inform NASNI ATCF via FM Net that the SUAS is airborne.

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- C. SUAS shall remain within COA airspace of the SSTC (fig 1).
D. Operations will be conducted over a non-populated area.



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Figure 1. SUAS operation area / Silver Strand Training Complex, CA

9. **POST FLIGHT PROCEDURES.** The PIC will complete, at a minimum, the following:

- A. Notify NASNI ATCF upon completion of each sortie
- B. Inventory and account for all equipment
- C. Report any discrepancies
- D. Conduct a visual and functional equipment inspection
- E. Complete an entry to the flight log
- F. Last flight of day. Notify NASNI ATCF upon completion of daily activities.

10. **EMERGENCY PROCEDURES.** Preventing a mishap or SUAS loss or damage depends on early recognition of dangerous flight conditions or malfunctions followed by appropriate corrective action. Both the VO and MO will memorize the immediate action items of each emergency procedure outlined in the Operator's Manual. Mission planning must include alternative courses of action available for each phase of the proposed flight. To the extent possible, planned courses of actions for emergencies should be made before the flight begins to include ensuring the Rally waypoint (in the event of loss-of-link) and waypoint "E" (for routine landings) are within the designated COA airspace. During flight, both operators must maintain situational awareness and VO should always know which direction to fly to escape hazard. MO: Should always know UA position relative to hazards and be ready to give VO headings and altitudes to fly to safety. Those steps that must be performed immediately in an emergency are underlined and in bold print in the Operator's Manual. The operators must be able to perform these steps without referencing the checklist or manual. Non-underlined steps can be accomplished with use of the checklist. During an emergency, the PIC will complete, at a minimum, the following:

- A. Follow procedures outlined in Operator's Manual.
- B. Immediately notify NASNI ATCF and advise them of the nature of the emergency situation and/or any other pertinent information.

11. **LOST LINK PROCEDURES.** The UA will be programmed "go-to rally" and autoland. The "rally" point will be located over the Ground Control Station (GCS) within approved COA airspace. A secondary option is available to the UA operator to program the UA to "End Flight" upon lost-link which will cause the immediate termination of the flight. All lost link procedure must be contained within the approved COA airspace and remain below 400' AGL.

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12. LOST COMMUNICATIONS. In the event that two-way communications are lost or become unavailable, the operator will execute “go-to rally” and autoland or “end flight” within the approved COA airspace, below 400’ AGL. (Note: Use of telephones as a primary means of two-way communication is at the sole discretion of NASNI ATCF)

13. MISCELLANEOUS.

- A. The United States Special Operations Command and/or its representatives are responsible at all times for collision avoidance with non-participating aircraft and the safety of persons or property on the surface with respect to the UAS.
- B. Incident / Accident Reporting: The following information is required to document unusual occurrences associated with UAS activities in the National Air Space System.
 - 1. The proponent for the COA shall provide the following information to Donald.E.Grampp@faa.gov on a monthly/annual basis (Note: reporting is not required until the first flight occurs. Then reporting must continue on a monthly/annual basis even when no flights are executed):
 - Number of flights conducted under this COA.
 - Pilot duty time per flight.
 - Unusual equipment malfunctions (hardware/software).
 - Deviations from ATC instructions.
 - Operational/coordination issues.
 - All periods of Loss of Communications.
 - All spill outs from Class D airspace.
 - 2. The following shall be submitted to Donald.E.Grampp@faa.gov within 24 hours:
 - Deviations from the “Special Provisions” contained in the COA.
 - All periods of Loss Link, including duration.
 - All incidents involving the UAS as defined in 49 CFR 830.
 - All accidents involving the UAS as defined in 49 CFR 830.