

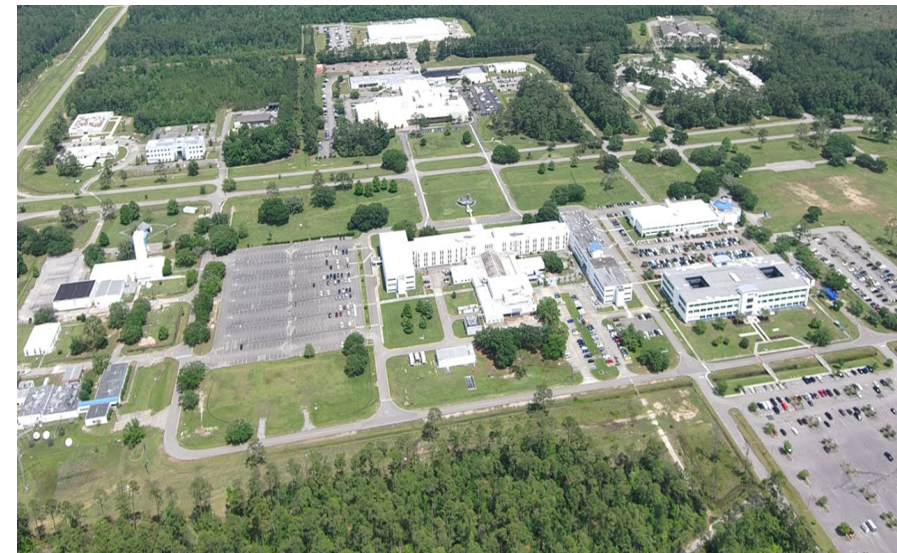


John C. Stennis Space Center



Stennis Space Center

Operations Brief





Agenda



Stennis Space Center

- Overview
- Airspace and Ranges
- Facilities
- Spectrum Management
- Contact Information





Stennis Overview



In addition to the NASA work, NASA SSC enables a wider array of missions than any other field center.

Federal Tenant Agencies

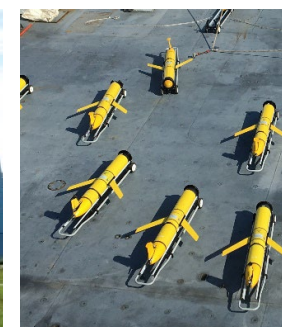
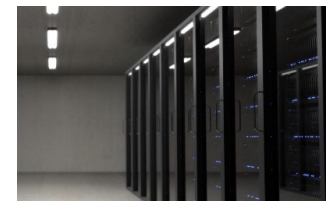
- NASA Shared Services Center (NSSC)
- National Center for Critical Information Processing and Storage (NCCIPS)
- Department of War (DOW)
 - Naval Special Warfare Command (NSW)
 - Naval Meteorology and Oceanography Command (CNMOC/NAVO)
 - Naval Research Laboratory (NRL)
 - Special Operations Command (SOCOM)
- Department of Commerce/NOAA/NWS - National Data Buoy Center
- Department of Homeland Security (DHS)
 - Customs & Border Patrol (CBP)
 - Immigration & Customs Enforcement (ICE)
- U.S. Government Publishing Office (GPO)

State/Academic Institutions

- Mississippi Enterprise for Technology (MSET)
- University of Southern Mississippi (USM)
- Mississippi State University (MSU)
- Louisiana Economic Development (LED)

Commercial Aerospace Companies

- Relativity Space
- Rocket Lab
- Rolls-Royce
- L3 Harris/Aerojet Rocketdyne
- Lockheed Martin

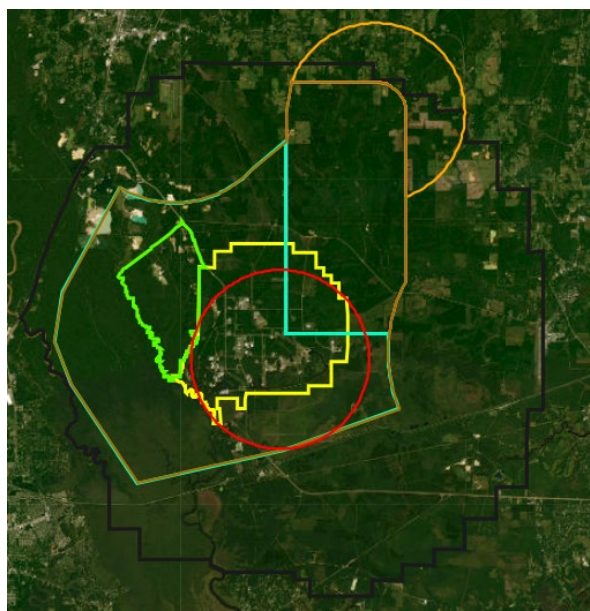




Stennis Overview

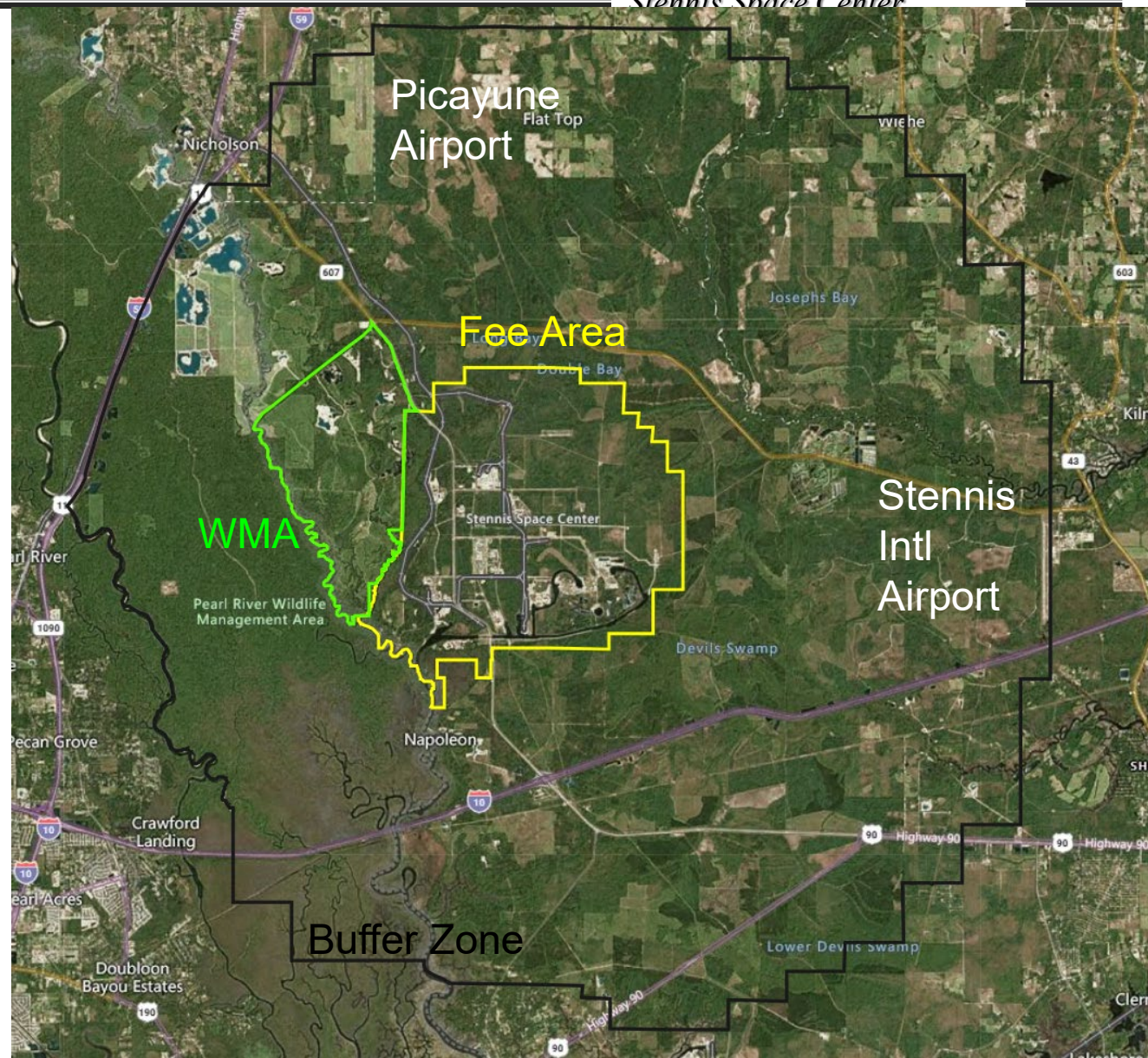


- Buffer Zone 125,000 Acres
- Fee Area 13,800 Acres
- Western Maneuver Area (WMA)
- Picayune Airport
- Stennis International Airport



Map
overview
with SUA

Map overview





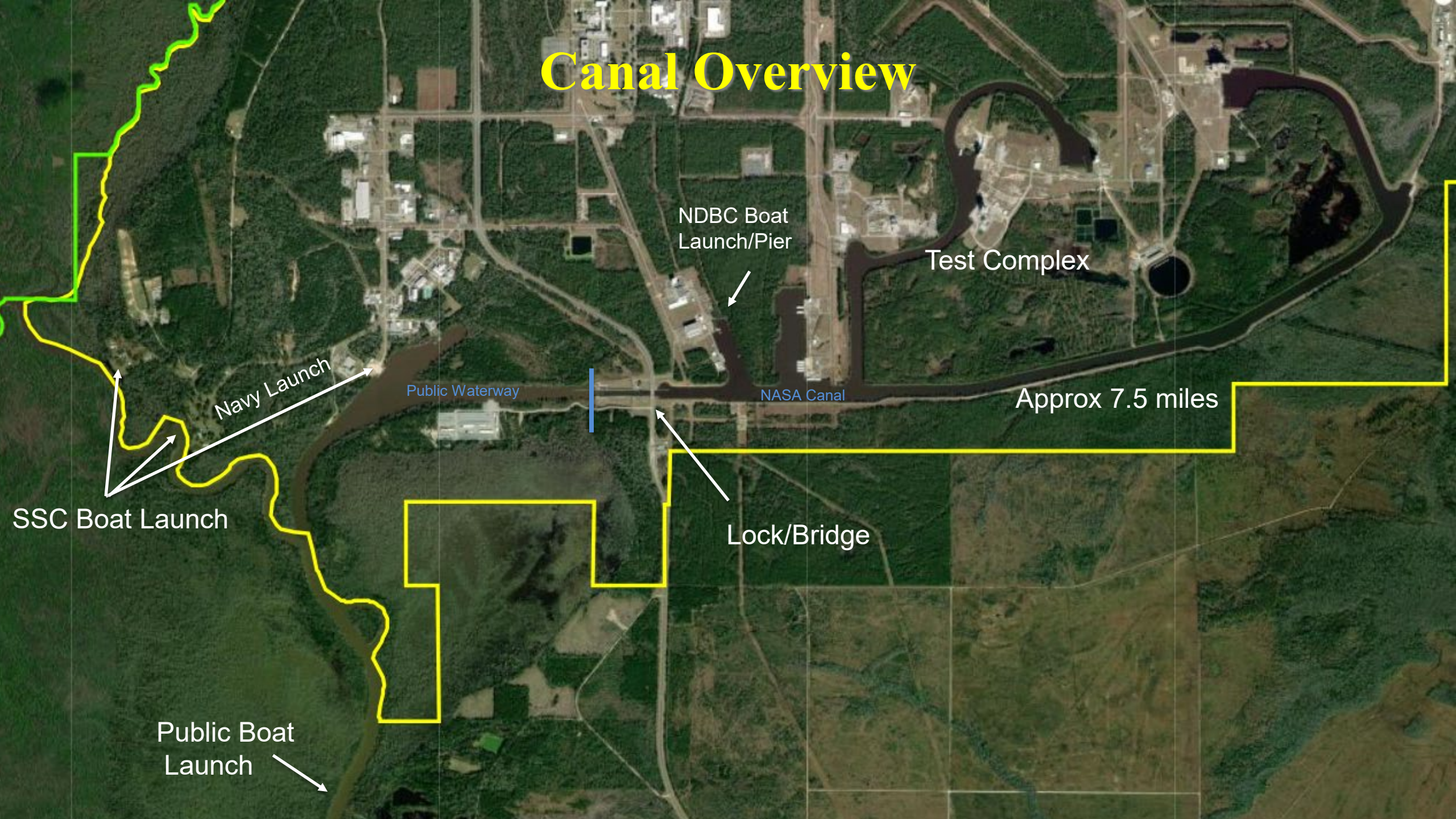
South Mississippi Regional Airspace



- **Shelby Range Complex**
 - R-4401 – Army controlled
 - ANG Airspace
 - ✓ Rattlesnake Range – Impact area
 - ✓ Bullseye MOAs
- **WHODAT Complex**
 - W-453, W-148 and Snake MOAs
 - ANG airspace – Gulfport CRTC
- **Stennis Space Center**
 - R-4403
 - AC130 impact area
 - UAS and manned aircraft



Canal Overview



NDBC Boat
Launch/Pier

Test Complex

Navy Launch

Public Waterway

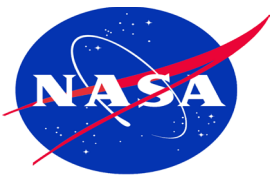
NASA Canal

Approx 7.5 miles

SSC Boat Launch

Lock/Bridge

Public Boat
Launch



NASA Operations

R-4403 A/B

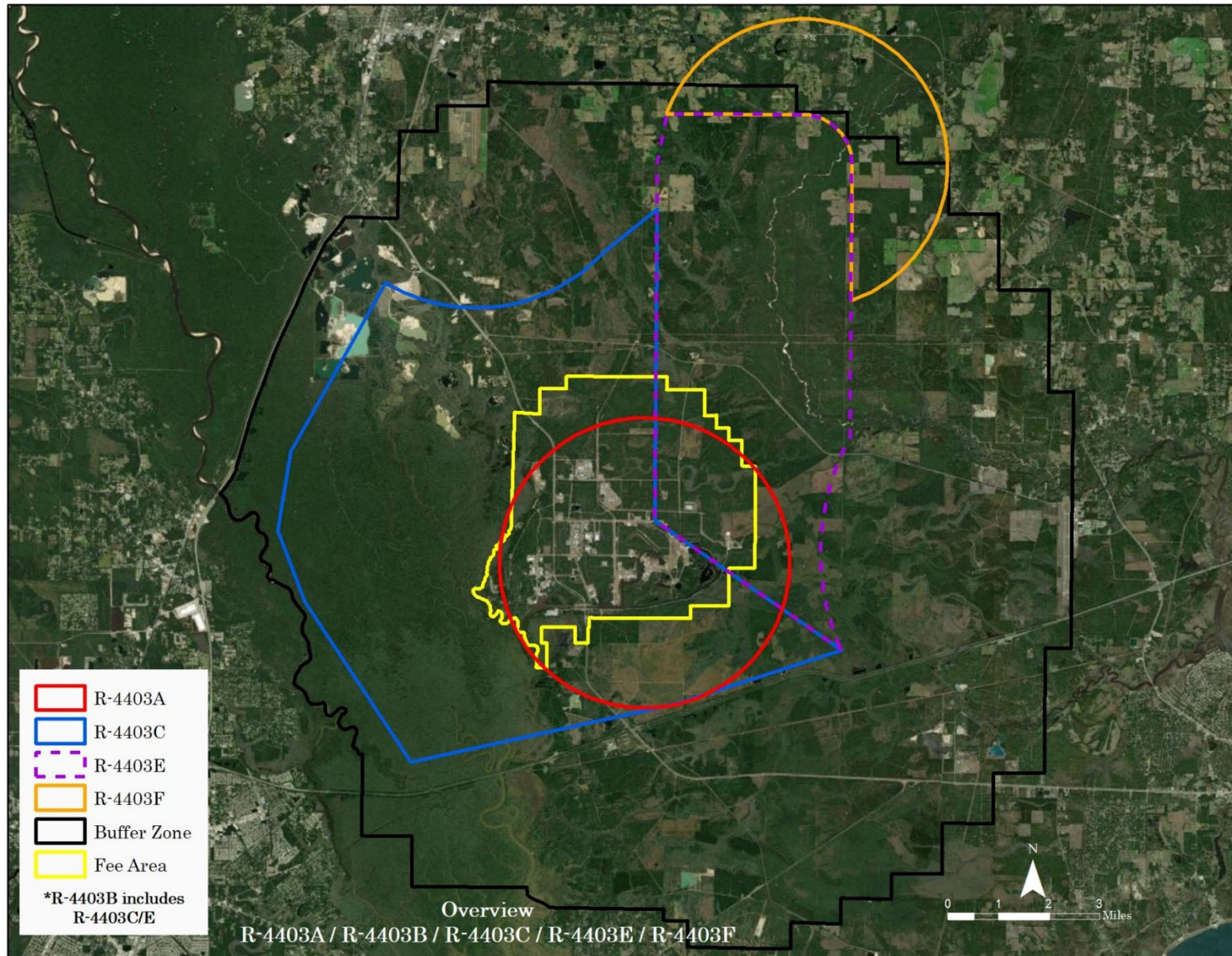


Stennis Space Center

- R-4403A – Large scale engine propulsion testing
- R-4403B – small Unmanned Systems (sUAS)
 - Group 1-2
 - ✓ Naval Special Warfare Command (NSWC)
 - ✓ Navy Research Laboratory – Air and Marine Ops
 - ✓ Commercial Tenants
 - ✓ Testing, training and operational
 - Groups 3-5 pending mission type
 - Approx. 100 sq miles
- Airspace Management – Scheduling requirements, range control requirements, range safety oversight and airspace de-confliction (COA, Class G Ops)

UA Category	Maximum Gross Takeoff Weight (lbs)	Normal Operating Altitude (ft)	Speed (KIAS)	Representative UAS
Group 1	0-20	< 1200 AGL	100 kts	WASP III, TACMAV RQ-14A/B, Buster, Nighthawk, RQ-11B, FPASS, RQ16A, Pointer, Aqua/Terra Puma
Group 2	21-55	< 3500 AGL	< 250	ScanEagle, Silver Fox, Aerosonde
Group 3	< 1320	< 18,000 MSL	< 250	RQ-7B Shadow, RQ-15 Neptune, XPV-1 Tern, XPV-2 Mako
Group 4	> 1320		Any Airspeed	MQ-5B Hunter, MQ-8B Fire Scout, MQ-1C Gray Eagle, MQ-1A/B/C Predator
Group 5	> 1320	> 18,000 MSL	Any Airspeed	MQ-9 Reaper, RQ-4 Global Hawk, RQ-4N Triton

R4403 Airspace Overview





Restricted Airspace R-4403

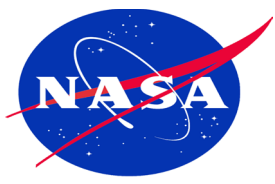
Snapshot



Stennis Space Center

Designation	Times	Altitudes	Purpose	Usage (Annual)	Scheduler/User
R-4403A	Intermittent by NOTAM	Surface – 12,000' MSL 2.5 NM radius	Engine Propulsion Testing	20-40 Days	NASA/NASA
R-4403B	Intermittent 1000-0300L	Surface – 6,000' MSL	Autonomous/ UAS	63 Days	NASA/NASA
R-4403C	Intermittent 2000-0500L *	Surface – 10,000' MSL Surface – 6,000'	AC-130/ UAS	120 Days	NASA/Navy
R-4403E	Intermittent 2000-0500L *	Surface – 10,000' MSL	AC-130	20 Days	NASA/Navy
R-4403F	Intermittent 2000-0500L *	4,000' – 10,000' MSL	AC-130	20 Days	NASA/Navy

* Nov 1 – March 1: 1800 - 2000L



Range Control Identifying and Reporting



Stennis Space Center

➤ Monitor airspace

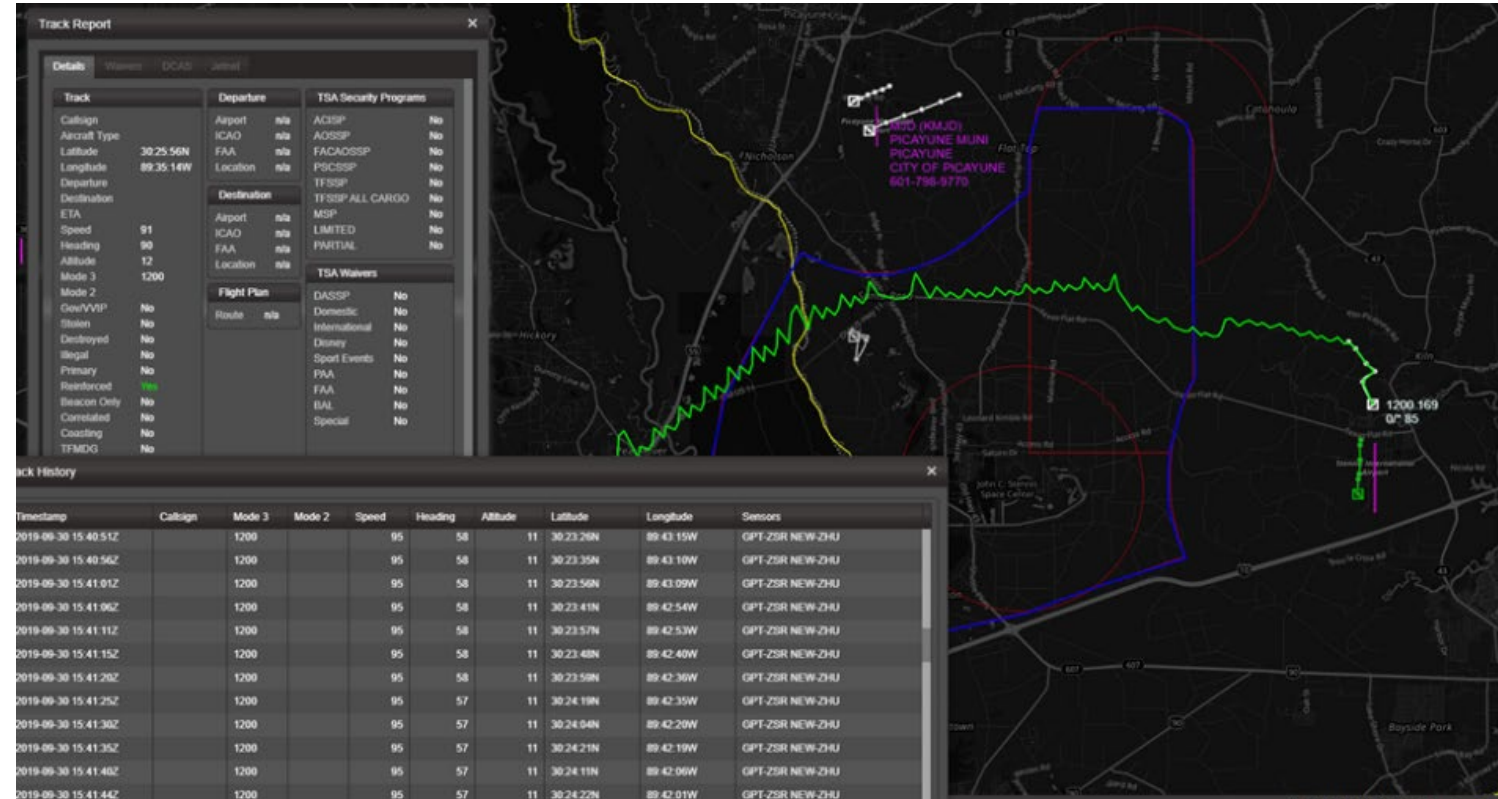
➤ Identifying spill-ins

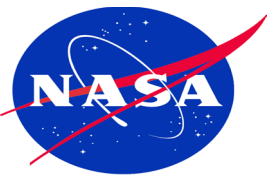
➤ Communications

- With Pilot - 123.000
- With ATC
- With Crew/Range Safety Officer

➤ Reporting

- If ATC is working aircraft, ATC will file report.
- If ATC is not working aircraft, SSC Range Control will file report through the Flight Standards District Office in Jackson, MS.





Procedures, Processes and Approvals



Stennis Space Center

- Regulations – NASA/NSW operations/safety guidance, FAA LOP
- Questionnaire – sUAS vs. research and development flights
- Radio Frequency (RF) Approvals – RF Spectrum Manager
- Reimbursable Agreements with NASA
- Review Boards
- Scheduling – Monthly/weekly/daily
- 60-day Average Lead Time - Agreements



NASA

UAS Launch and Recovery Sites



Stennis Space Center

- Laydown Yard
 - Open graveled area
 - 1,600' x 550'
 - 14 acres
- Northeast Section
 - Grass, trees and shrubs
 - Unimproved roads
 - Restrictions on digging
- Building 2204
 - Direct access to WMA
 - Approx. 90 acres
 - Areas to expand
 - Two small ballfields
- Quay Wall – Direct access to water
- Navy's WMA



Laydown Yard



Quay Wall



Building 2204



Bunkers



Stennis Space Center

Each bunker is approx. 2675 sq ft





Naval Special Warfare Center Ranges East Stennis Brief



Stennis Space Center Range Complex

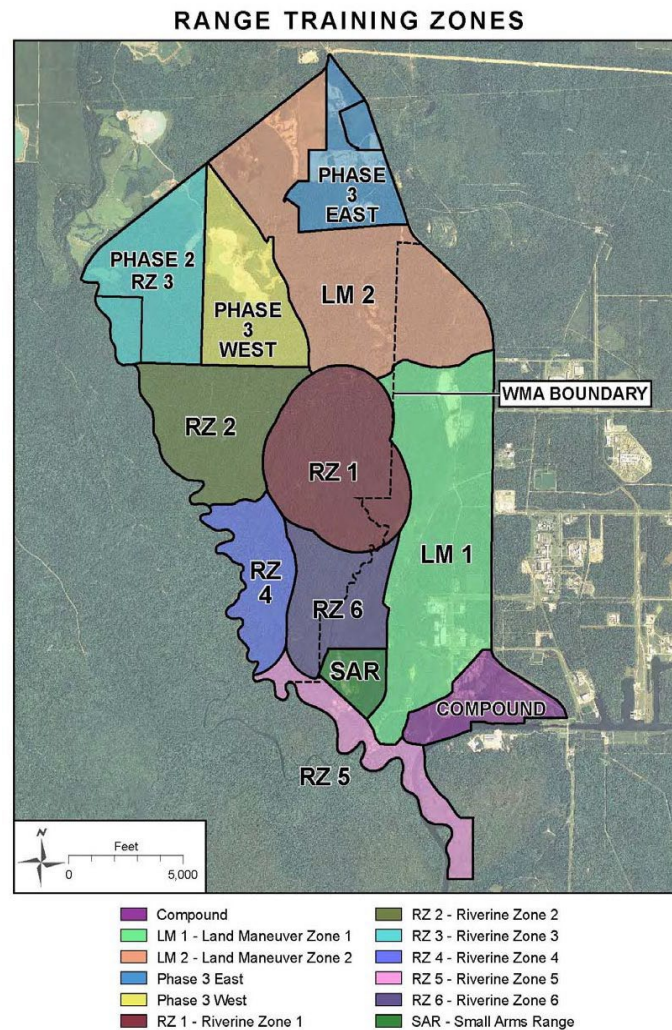


Western Maneuvering Area (WMA)

- 8 Range Training Areas
 - 5000 acres
 - 8 Ranges Training Areas
 - Target Villages
 - River Ranges
 - Restricted Airspace
 - 4 x FOB sites
 - 2 x Air to Ground Target Locations

Small Arms Range Complex

- 6 Ranges
 - 500 YD Unknown Distance (UKD)
 - 200 YD UKD
 - 50 YD Pistol
 - 2 x SIM House
 - Rappel/Fast Rope Tower (65ft)

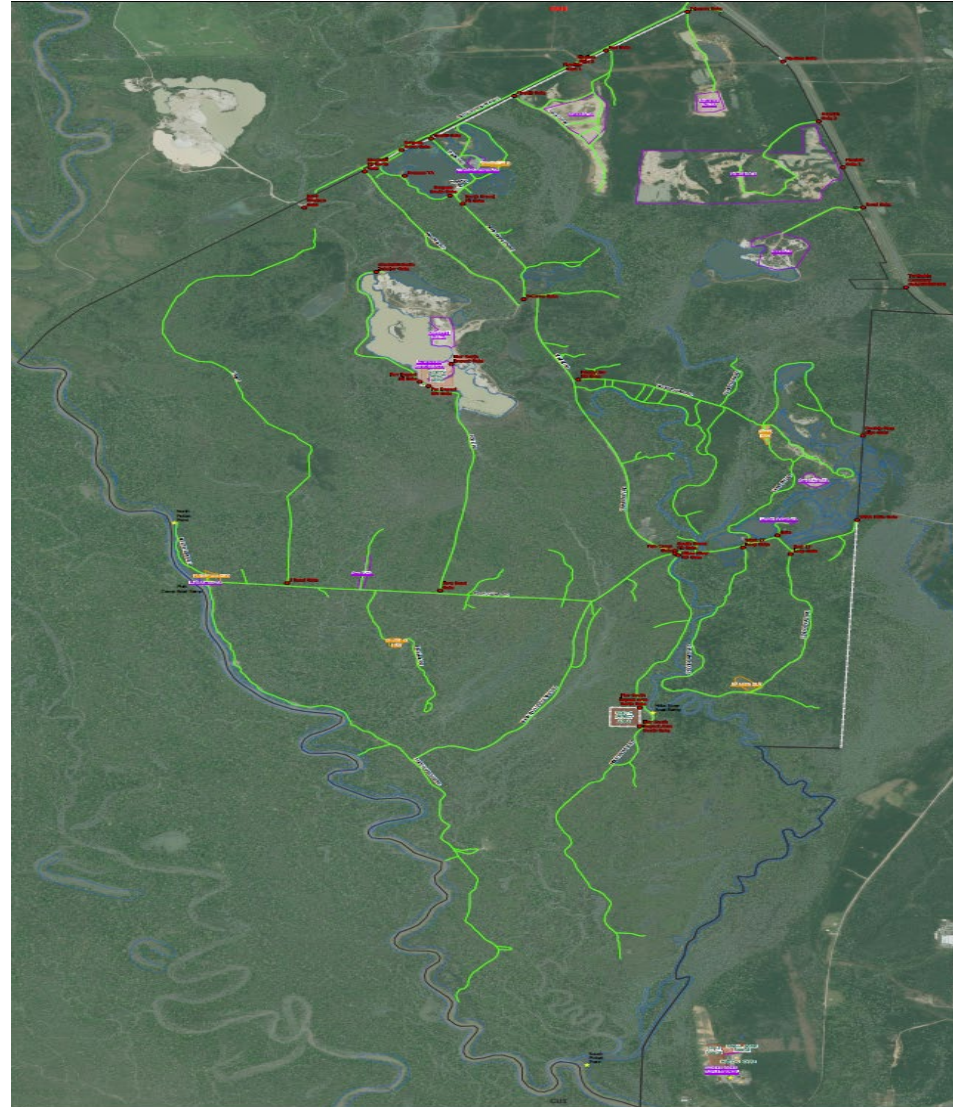




Stennis Range Complex WMA



- 8 NM of water-to-land ranges
- 1.6 NM of 360 degree fire zones
- Short Range Training Ammo
- Blank fire
- Jungle Warfare training
- Land Navigation training
- Riverine/Maritime Interdiction Ops (RIO/MIO)
- FOB (SRTA and SIM)
- Convoy Training
- 2 x Air to Ground Target Sites (30mm TP/HE)





Stennis Complex Small Arms Range



1 – 500yd

2 – 200yd

3 – 50yd

4 – Sim House 1

5 – Sim House 2

6 – Range Control

7 – Rappel/Fast
Rope Tower





Class G and Restricted Airspace

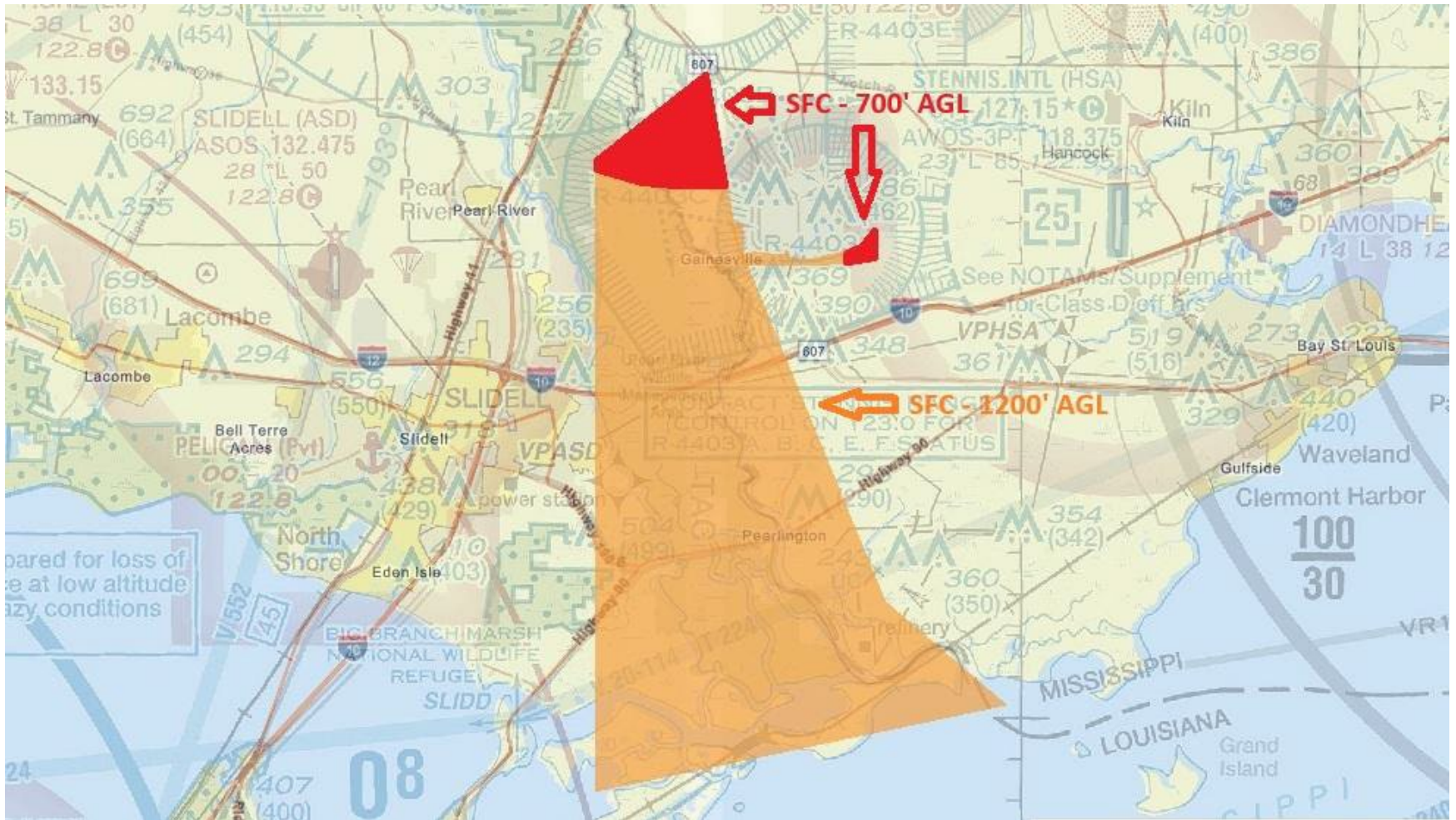
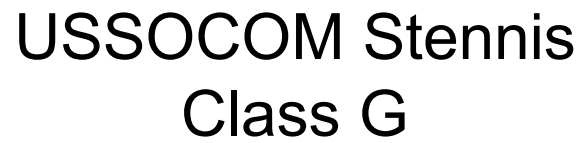


UAS Operations

- COA – Group 1&2 sUAS in Class G airspace
Unit must file NOTAM IAW Class G Airspace Approval
Flight Service Station 1-877-487-6867 (72-24 hrs prior)
- UAS must have Airworthiness Safety Release (ASR), Initial Flight Clearance (IFR) or Airworthiness Release (AWR)
- JF-12 or FCC ID # must be provided for transmitter to Stennis Frequency Manager through Range Complex Manager (RCM)
RCM will coordinate with Stennis for approval
- Notify Range Control when 1st bird in the air and last bird on the ground
Flight log

Restricted Airspace

- Must have been requested 30 days out
- 30-minute call prior to activating
- Range Control will activate Restricted Airspace and call with HOT time
Notify Range Control (**WATER DRAGON**) when airspace is no longer required





Restricted Airspace Configuration: R4403C/E/F



FAA has granted control of 3 Special Use Airspace Areas within NASA's SSC to NSW. These can be used for UAS operations; air-to-ground AC-130 live fire range.

R-4403C (turquoise).

Altitudes: Surface to 10,000-ft MSL

Area: 70 miles²

R-4403E (pink).

Altitudes: Surface to 10,000-ft MSL

Area: 30 miles²

R-4403F (gold).

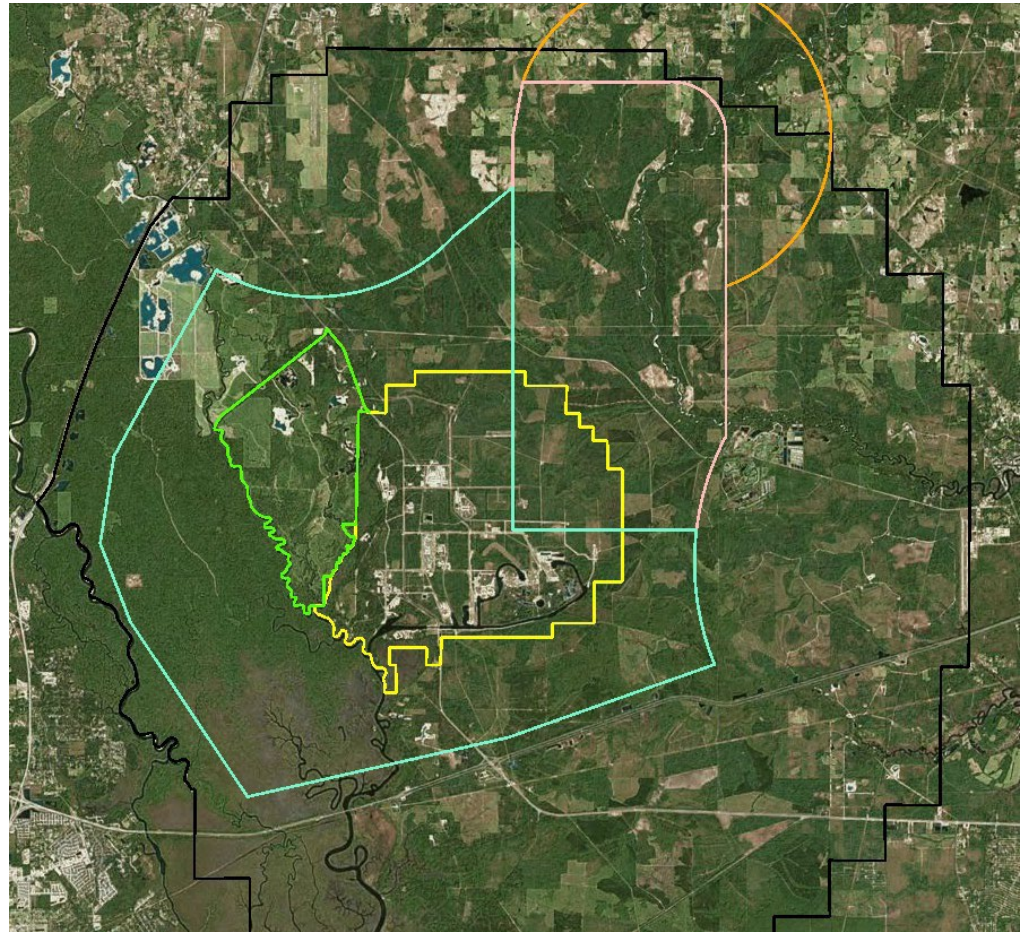
Altitudes: 4,000-ft to 10,000-ft MSL

Area: 13 miles²

Times of use. 2 Mar - 31 Oct 2000-0500 local time; and 1 Nov - 1 Mar 1800-0500, activated by NOTAM

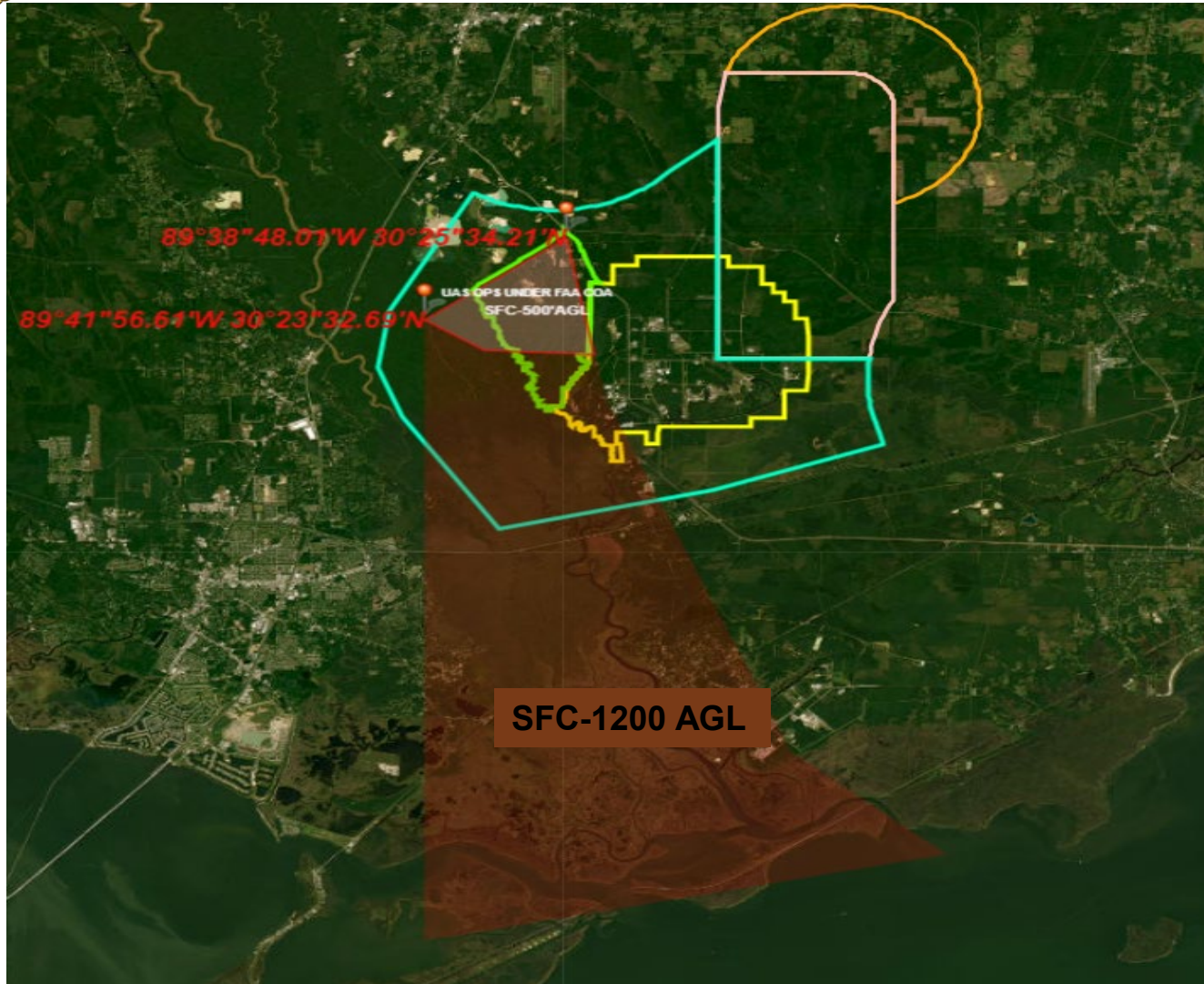
Using Agency. U.S. Navy, Commander Naval Special Warfare Command

These sectors shall only be used by NSWC or NSWC-sponsored US military users.



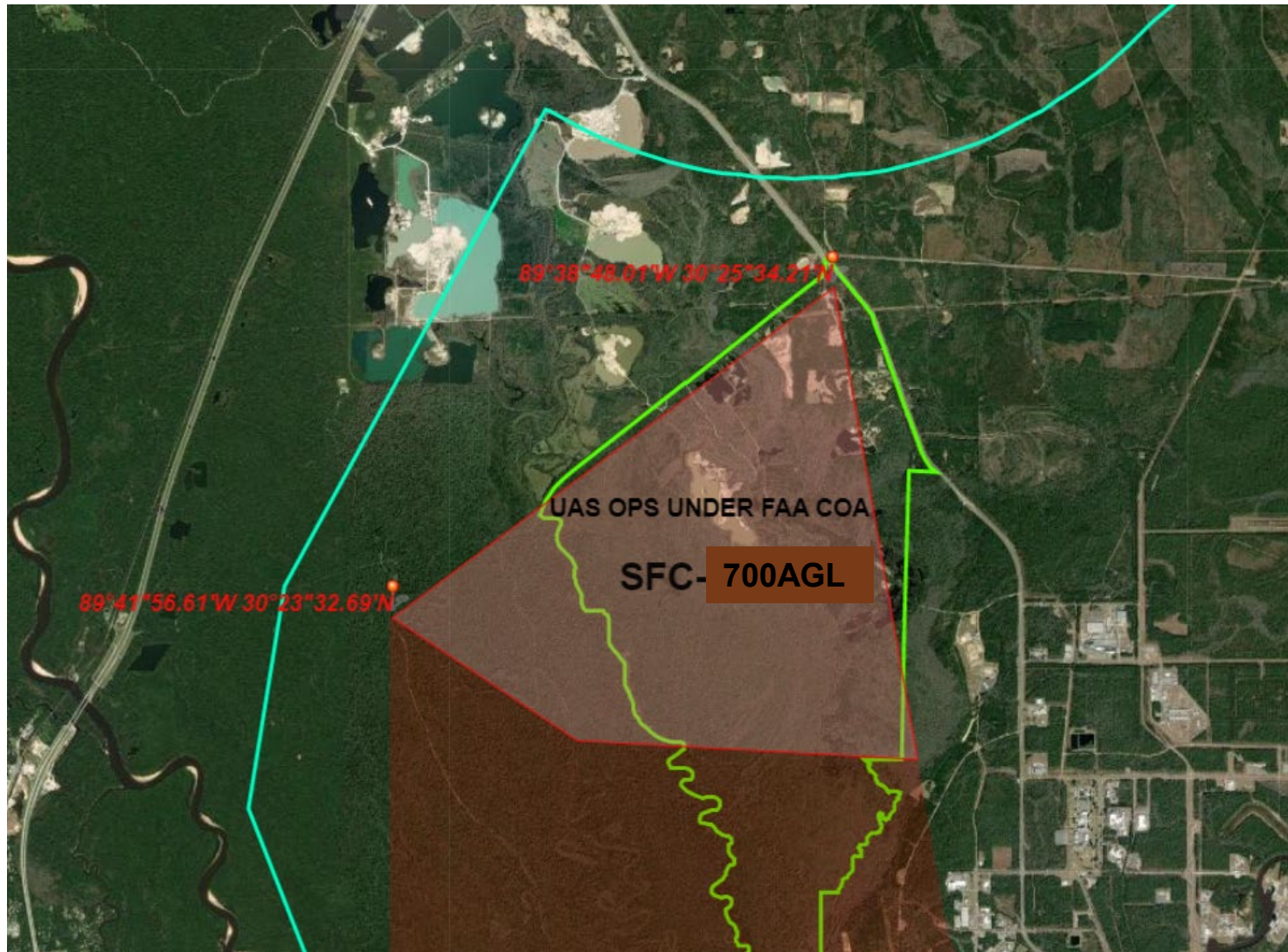


USSOCOM Stennis Class G





USSOCOM Stennis Class G

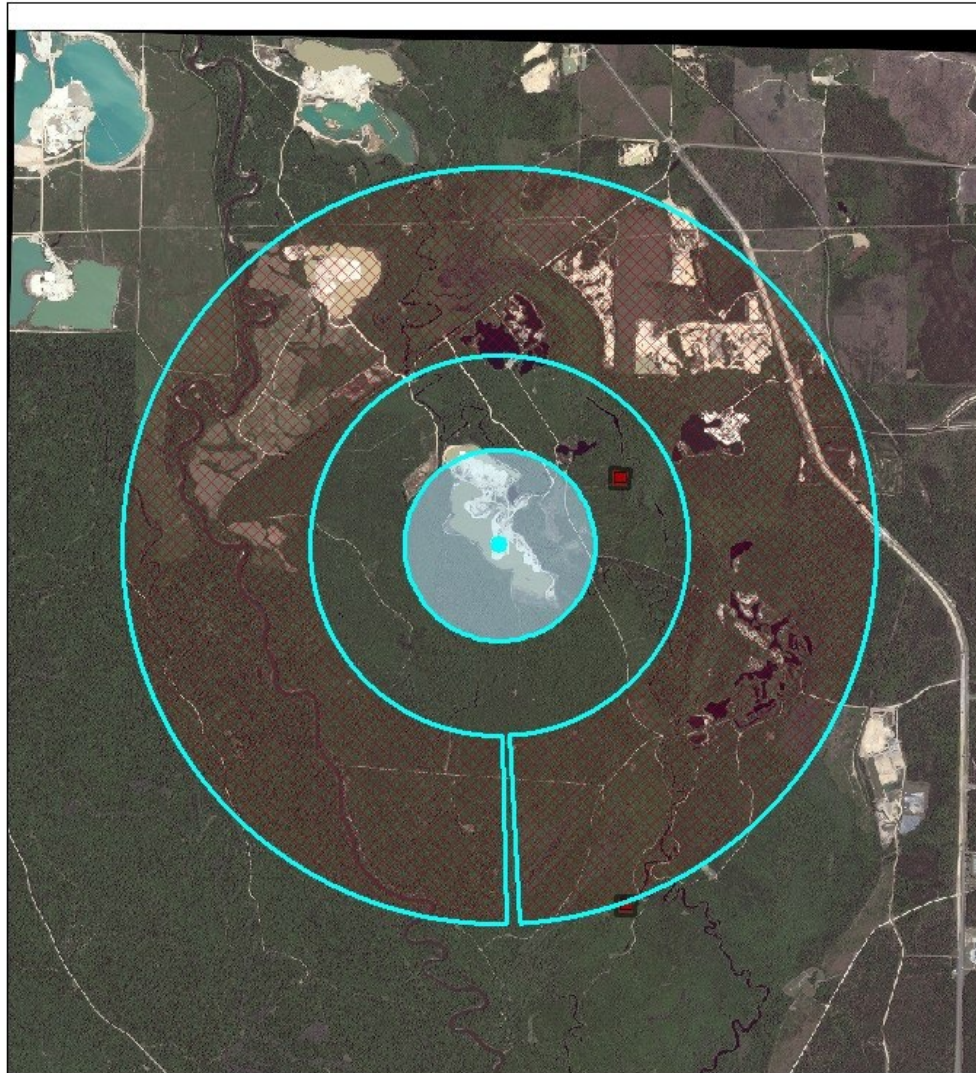




Map Scale: 1:40,000
Layout Date: 04/19/2019

Weapon Danger Zone New North Target 105mm

RMTK Build: 10.3.0.0.2
RMTK Build Date: 08/26/2015





NSW Ranges Stennis



Check-in Procedures

In-Brief

- Required for all ROIC and RSO's signing for ranges

Required documentation

- CONOP – What are your training objectives?
- Letter of Designation (LOD) for all ROIC and RSO's running ranges
 - Sign off Range Cards for training areas being used
- Emergency Action Plan (EAP)/MEDEVAC Plan
- Risk Assessment
- Hazard Control Brief



Checking Out/In Range



At Range Control:

- **Complete Range Control Checklist**
- **Sign Hazard Control Brief**
- **Gate key(s)**
- **Radios - Procedures**
 - When entering WMA
 - When occupying TA
 - Request Hot Time
 - Hourly radio checks top or bottom of hour
 - When going Cold/Check Fire
 - When departing TA
 - Exiting the WMA
 - Red button on top of radio for emergencies
 - Do NOT turn off radio until told to do so by Range Control or Stennis Dispatch
- **Training Complete – Clean up TA and call for range inspection**
 - No MPPEH left on the range when you depart
- **Return Radios, Key(s), UAS sortie count round count/expenditures to Range Control**

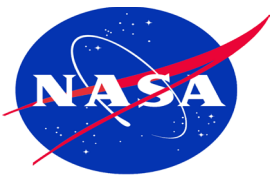


Personal Firearms



As per CNSWCINST 3591.6: Active duty, contractor, and civilian personnel are NOT authorized to store personal weapons and ammunition on any NSW managed ranges, range training areas, and range complexes. Shooting personal weapons and ammunitions on NSW ranges is prohibited.

As per CNSWCENINST 3550.4C: Personal weapon storage is not permitted at COMNAVSPECWARCEN range complexes unless permitted by installation policy, coordinated with the RCM, and specifically authorized by the Commander, COMNAVSPECWARCEN per reference (e). When permitted, personally owned weapons and ammunition must be stored separately from military arms ammunitions and explosives.



Facilities

Building 2204 Approx. 181,800 ft²



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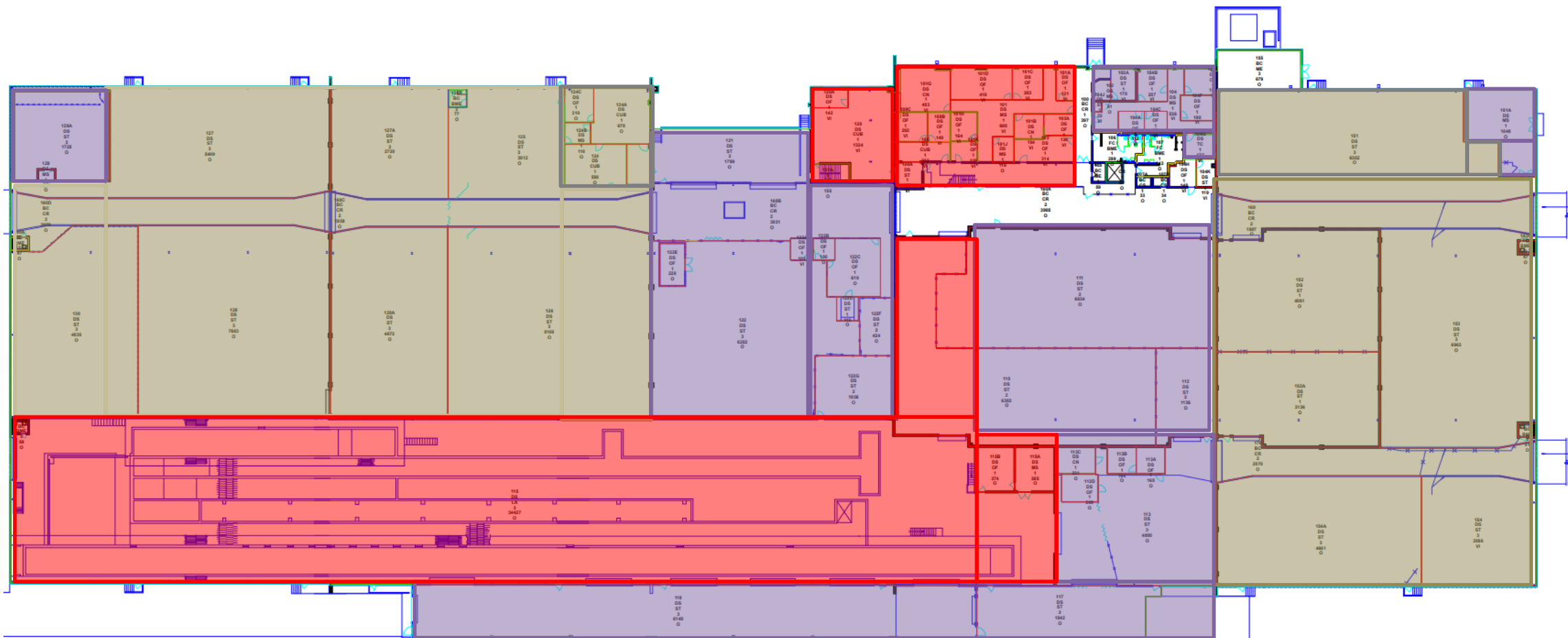




Facilities

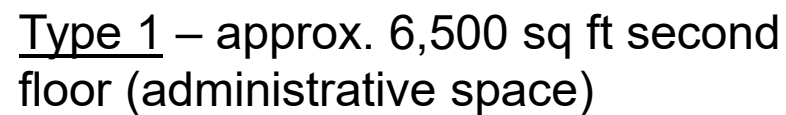
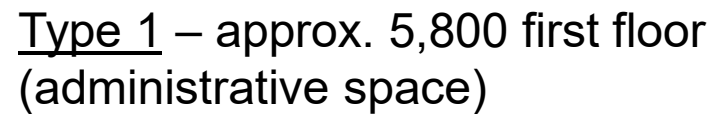


Stennis Space Center



B2204 1st Floor Layout

- SOCOM [Approx. 51,400 ft²] per the pending agreement
- NASA&NSS [Approx. 42,500 ft²]
- Others [Approx. 87,900 ft²]





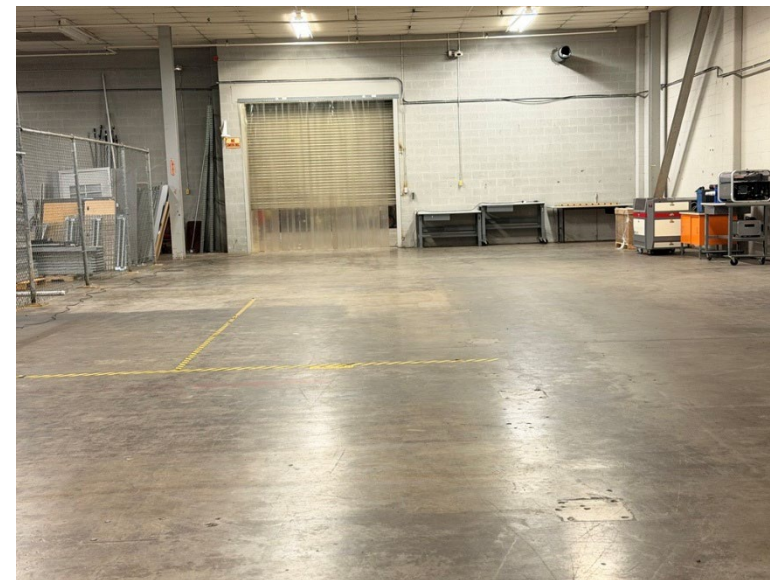
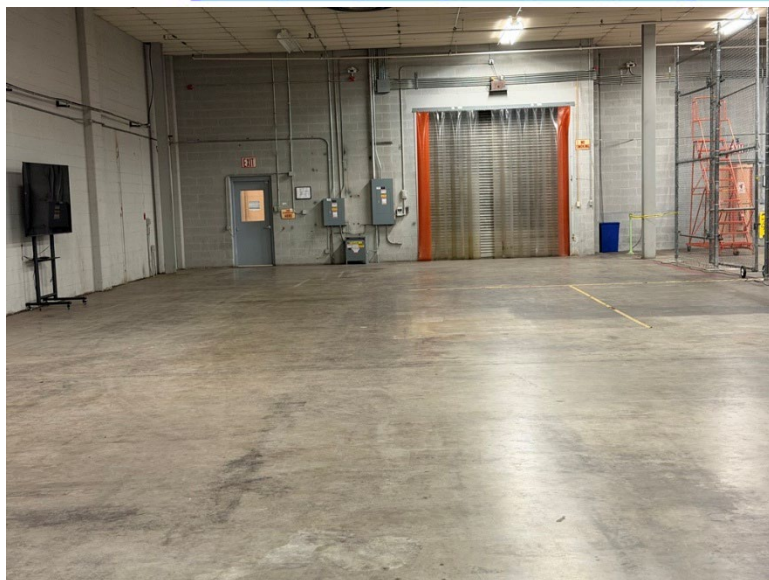
Facilities



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Type 2 - approx. 4,100 sq ft
(conditioned storage)





Facilities



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Type 3 - approx.
35,000 sq ft
(warehouse)

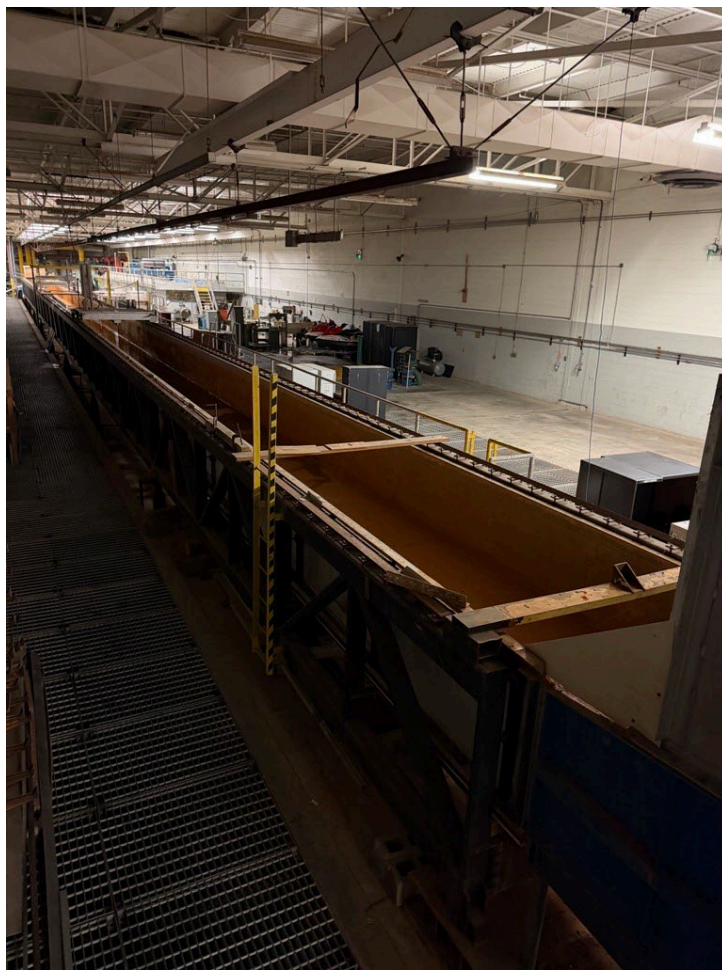


Facilities

Type 3



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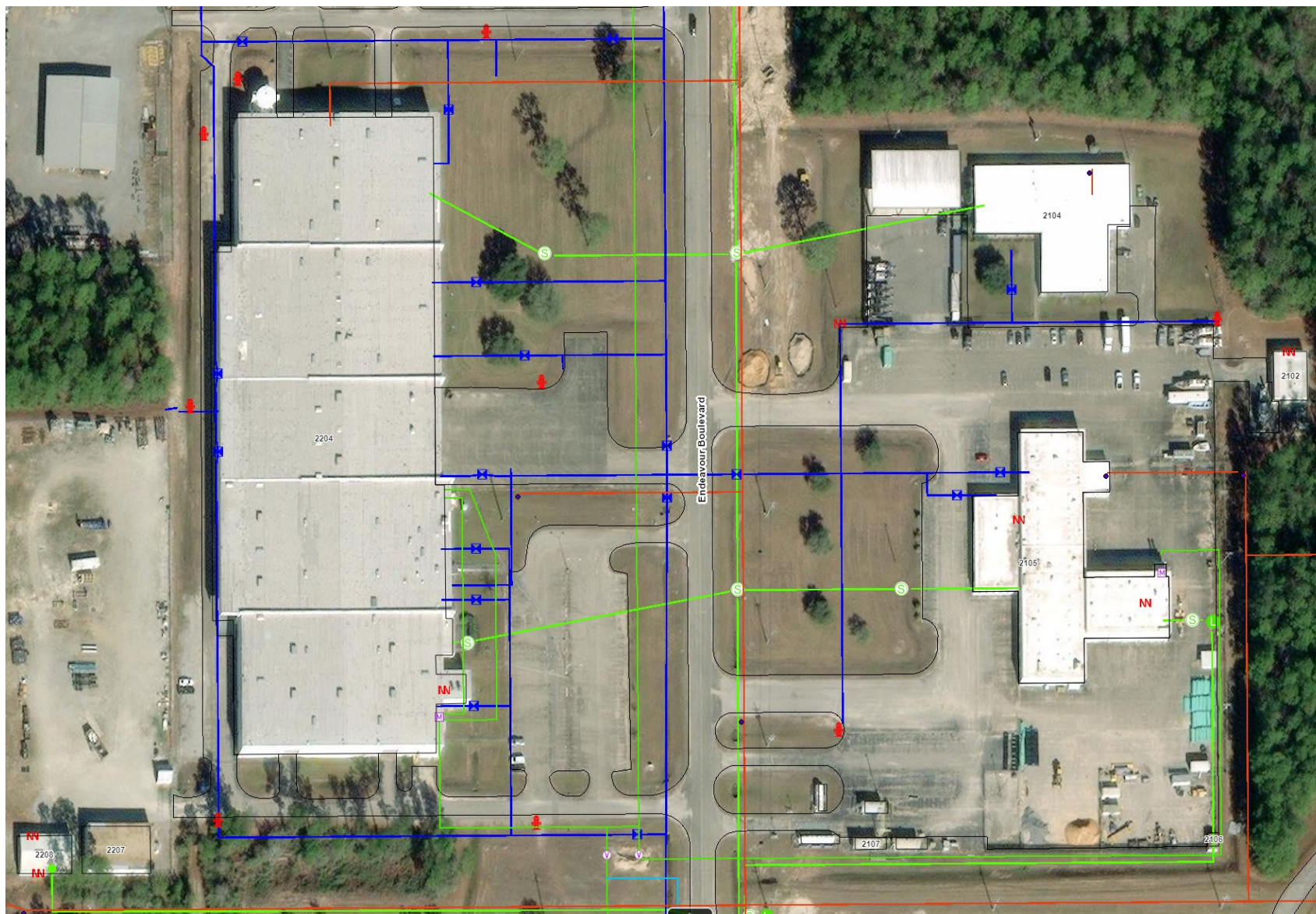




Facilities Utilities



Stennis Space Center



Electrical two main feeds:

North – 1500 KVA 1200A

East – 750 KVA 1800A

Natural Gas feed - East

Potable Water multiple
feeds - East and West

Sanitary Sewer two
discharges - East

300 Ton Chiller

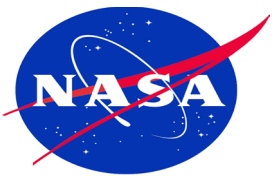
(2) 4,400 MBH Boilers

(1) 1,200 MBH Boiler

Building Controls

Siemens Design Management
System

(6) PXCMS

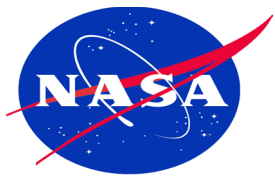


Radio Frequency Authorization



Stennis Space Center

- New Frequency Approval – Done for one-time or short-time use devices. Typically covers a 30 day window.
- Annual Approval – 1 year approval for devices that will be frequently used at SSC.
- Methods of Approval:
 - SSC Form 946 – SSC RF Authorization Request
 - RF Auth Application
- Operations Outside of Part 15 – Devices certified as part of FCC Part 15 do NOT require a license to operate. Devices not certified as part of FCC Part 15 will require either a NTIA STA or JF-12 that list Stennis Space Center as an approved location.
- Timeline – At least 30 days prior to operations. 60 days for GPS/GNSS jamming.
- Additional information – The only HARD NOs for SSC Spectrum use is 144/147MHZ, 700/800MHz, 2.235/2.378GHz.



NASA/NSW

Contact Information



Stennis Space Center

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John C. Stennis Space Center

Range Operations Brief



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Questions