



DOE-ID-INL-19-134 R3

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Changing the World's Energy Future

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**Prepared for the
U.S. Department of Energy
Under DOE Idaho Operations Office
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DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

SECTION A. Project Title: Unmanned Aerial System Testing

SECTION B. Project Description and Purpose:

Revision 3:

The project proposes to gravel a large area near the northwest end of the runway and to pave (asphalt) a small gravel area near the steel building. The graveled area will be used for equipment storage during testing and program validation efforts. The expanded area will also be used for vehicle parking to relieve congestion. The paved area will help keep the area surrounding the metal shelter clean, and stop gravel from damaging the structure when certain types of aircraft land near the metal shelter.

To prepare the large gravel area, heavy equipment operators will mow and/or strip vegetation from an area (approximately 108,000 square feet) adjacent to the air strip, and transport, place, level, and compact approximately (8,000 cubic yards) of pit run gravel. See Figure 3-1 for the proposed location of the new gravel pad.

To pave the central gravel pad, a minimum of 3" of asphalt will be placed around B16-612 UAV Metal Shelter on top of existing crushed gravel. The area to be paved is approximately 17,000 square feet minus the footprint of the metal shelter (1500 sq ft). See Figure 3-2 for the proposed location of the area to be paved.



Figure 3-1. Proposed Location of Large Gravel Area

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Figure 3-2. Proposed Location to be Paved with Asphalt

Revision 2:

Currently, the Unmanned Aerial System UAS runway has no commercial power service. This severely limits operations and testing by placing reliance on portable power sources. As the UAS test range expands there is an ever-increasing need for reliable commercial power. This scope of the work entails extending the medium voltage power lines from the Experimental Field Station area to the UAS, and providing a 75Kva pole mount transformer, 400A 42 circuit panel board, disconnect, and various outlets mounted to a back board near the base of the last pole. Four (4) of the power poles will be installed in undisturbed ground and one (1) power pole in the UAS gravel parking lot. Poles will be 50ft class II poles and have a minimum setting depth of 10% of the length of the pole plus 2-feet. Figure 2-1 shows the location of the proposed poles and circuit panel.

Future power upgrades could include extending commercial power down the length of the runway either above or below ground with electric outlets installed at various distances. Power could also be extended to portable structures sited on the expansion pad covered in Revision 1 of the ECP.

There is currently a small tent at the UAV runway area used to store and assemble test equipment. The current tent has a foot print of approximately 20 ft. x 30 ft. It doesn't fare well in the weather conditions and leaks and has to be maintained regularly. A request has been made to replace the tent with a metal sided structure that is anchored to the ground (no foundation or footings). Figure 2-2 shows the location of the current tent at the UAS runway. There are no improvements inside the structure (it resembles a metal sided carport). The request is for a 30 ft. x 50 ft. structure with doors and windows. The design for wind and snow loading will need to be verified. Figure 2-3 shows an example of the steel structure.

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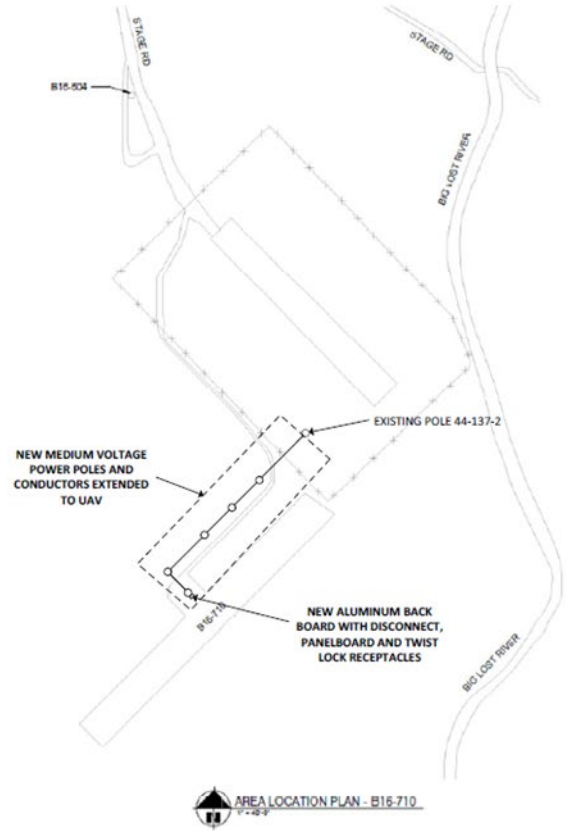
SCOPE:
EXTEND MEDIUM VOLTAGE POWER LINES TO THE UAV RUNWAY. NEW POLES WILL BE SET APPROXIMATELY AS SHOWN IN THE AREA LOCATION PLAN ON THIS SHEET. A POLE MOUNTED TRANSFORMER WILL BE PROVIDED TO FEED NEW ELECTRICAL EQUIPMENT MOUNTED TO AN ALUMINUM BACK BOARD INSTALLED ON THE FINAL POWER POLE. INSTALLATION DETAILS ARE SHOWN ON SHEET 2 AND WILL LOOK SIMILAR TO THE INSTALLATION AT PAD D SHOWN, PHOTO INCLUDED FOR REFERENCE.



SIMILAR INSTALLATION AT PAD D FOR REFERENCE

Panel Information												
		Voltage (LN/LL)		240/120								
		Main Bus Rating (A)		400								
Breaker	CT	Trips	CKT Description	Phase	Power Loading (VA)				Phase	CKT Description	Trips	CT
					A	B	C	D				
01	100		FUTURE	2	4800	4800			2	FUTURE	100	07
03												08
05												09
07	100		FUTURE	2	4800	4800			2	FUTURE	100	05
09												06
11	100		FUTURE	2	4800	4800			2	FUTURE	100	12
13	50		50A RV #1	2	2500	2500			2	50A RV #2	50	14
15												15
17	50		50A RV #3	2	2500	2000		0	1	50A RV	50	16
19									1	Spare	20	20
21	20		120VAC Receptacle #1	1	500	0			1	Spare	20	22
23	20		120VAC Receptacle #2	1		500	0		1	Spare	20	24
25	20		120VAC Receptacle #3	1	500	0			1	Spare	20	26
27	20		120VAC Receptacle #4	1		500	0		1	Spare	20	28
29	20		Space	1	0	0			1	Space	20	30
31	-		Space	-	0	0			-	Space	-	32
33	-		Space	-	0	0			-	Space	-	34
35	-		Space	-	0	0			-	Space	-	36
37	-		Space	-	0	0			-	Space	-	38
39	-		Space	-	0	0			-	Space	-	40
41	-		Space	-	0	0			-	Space	-	42
Sum Total (VA)					20400	18900	20400	11600				
Summed Power Per Phase (VA)					29200		22300					
Total (VA)					76600.00							
Amps Per Phase					327.50		310.83					
Total Amps					318.17							

LOAD CALCULATION



AREA LOCATION PLAN - B16-710
P-29

Figure 2-1. Information for Electrical Upgrade



Figure 2-2. Current Location of the Tent at UAS Runway



Figure 2-3. Example of the Steel Structure

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Revision 1:

This revision covers an addendum that was approved on March 2, 2021 that allowed for testing outside of the original specified testing period and also covers a proposed expansion of the support area adjacent to the runway. The proposed area of expansion is approximately 150' x 300'. See the figure below. The expansion is needed because of the proposed addition of three cargo containers (10' x 20' each) to the UAS Test Range for storage of equipment used during testing and validation of the program. The expanded area will also be used as parking as the current area becomes extremely crowded when the two large trailers and other vehicles needed for testing are parked there.

There will not be any structures built upon the newly expanded area. Again, there will be three cargo containers, 10'x20' each and then the remaining area will be additional parking or possibly more storage in the future.

Heavy equipment operators will remove vegetation from a 150' x 300' bare earth area adjacent to the air strip, and transport, place, level, and compact 12" (45,000 cubic feet) of pit run gravel. The project will also construct three (3) gravel approaches to egress the new area and the air strip.



Original EC:

Ascent Vision Technologies, LLC (AVT) is requesting the use of Idaho National Laboratory (INL) testing range to evaluate its signature Counter Unmanned Aerial System product, the Expeditionary Mobile Air Defense Integrated System (X-MADIS).

INL will provide test range assets and personnel for testing a suite of sensors and Unmanned Aircraft Systems (UAS) provided by Ascent Vision Technologies. The Class-2 UAS are under 20 lbs. and are commercially available. The UAS are battery powered by NiMH and Li-Ion batteries. These are the same batteries used and approved by our current Laboratory Instruction LI-786. The UAS Test Range has been used for several years to conduct the type of tests that will be performed during the proposed testing event. No new hazards or operating scenarios are being introduced.

Flight operations will be performed around the UAS runway at an altitude not to exceed 400 ft. The UAS will be within visual line of sight at all times. UAS may be operated under full remote control, supervised pilot in the loop control, and/or full autonomous control (autopilot controlled flight) during the testing event. UAS will be launched from a variety of locations in close proximity of the UAS Runway all of which have vehicular access.

Assorted sensors will be deployed and tested during UAS flight operations. Sensors to be tested include imagery collection (video), radar sensors for determining range and distances, and communication interference devices to determine their impact on command and control of the UAS. A variety of different flight patterns will be flown to quantify the effectiveness of the sensors being tested. Sensors will be deployed both from the UAS and on the hard deck of the UAS Runway.

Testing will occur over a four (4) day period during daylight hours starting June 18, 2019. Small portable generators will be used to provide power at the Runway. Procedures identified and approved in LI-786 will be implemented for operation and fueling of the generators. It is not anticipated that any waste will be generated during this activity.

There will be no off-road activity.

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SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Removal of vegetation may result in the generation of fugitive dust. Emissions will result from the use of heavy equipment and trucks. These emissions are not regulated.

Discharging to Surface-, Storm-, or Ground Water

The proposed area of construction is located within the stormwater corridor for the Big Lost River. Since the area of construction is approximately 2.5 acres in size, a Storm Water Pollution Prevention Plan is required for this activity.

Disturbing Cultural or Biological Resources

Vegetation will be removed which includes a small amount of sagebrush. A CRR was completed for this project. See BEA-21-28 R2 for cultural resource requirements.

Generating and Managing Waste

It is anticipated that the following types of waste could be generated: Industrial (non-hazardous, non-radioactive) waste includes typical grubbing material.

Releasing Contaminants

When fuel is used there is a potential to spill to air, water, or soil.

Using, Reusing, and Conserving Natural Resources

Material will be recycled to the extent practicable. All applicable material will be diverted from disposal in the landfill when possible. Project personnel will use every opportunity to recycle, reuse, and recover materials and divert material from the landfill when possible. The project will practice sustainable acquisition, as appropriate and practicable, by procuring construction materials that are energy efficient, water efficient, are bio-based in content, environmentally preferable, non-ozone depleting, have recycled content, and are non-toxic or less-toxic alternatives. New equipment will meet either the Energy Star or SNAP requirements as appropriate (see <http://www.sftool.gov/GreenProcurement>).

SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification: Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not "connected" to other action actions (40 CFR 1508.25(a)(1) and is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1608.27(b)(7)).

References:

10 CFR 1021 Categorical Exclusions B3.2 "Aviation Activities," B3.11 "Outdoor Tests and Experiments," B1.15 "Support Buildings" and B4.12 "Construction of Powerlines."

Justification:

Project activities are consistent with 10 CFR 1021, Appendix B, CX 3.2 "Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

CX B3.11 "Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training."

CX B1.15 "Siting, construction or modification, and operation of support buildings and support structures (including, but not limited to, trailers and prefabricated and modular buildings) within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible). Covered support buildings and structures include, but are not limited to, those for office purposes; parking; cafeteria services; education and training; visitor reception; computer and data processing services; health services or

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recreation activities; routine maintenance activities; storage of supplies and equipment for administrative services and routine maintenance activities; security (such as security posts); fire protection; small-scale fabrication (such as machine shop activities), assembly, and testing of non-nuclear equipment or components; and similar support purposes, but exclude facilities for nuclear weapons activities and waste storage activities, such as activities covered in B1.10, B1.29, B1.35, B2.6, B6.2, B6.4, B6.5, B6.6, and B6.10 of this appendix.”

And CX B4.12 “Construction of electric powerlines approximately 10 miles in length or less, or approximately 20 miles in length or less within previously disturbed or developed powerline or pipeline rights-of-way.”

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) Yes No

Approved by Jason L. Anderson, DOE-ID NEPA Compliance Officer on: 05/17/2022