Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

October 31, 2012

TO: DISTRIBUTION LIST

SUBJECT: NOTICE OF PUBLIC SCOPING – SITE-WIDE ENVIRONMENTAL ASSESSMENT OF THE NATIONAL RENEWABLE ENERGY LABORATORY'S NATIONAL WIND TECHNOLOGY CENTER, GOLDEN, CO (DOE/EA-1914)

The U.S. Department of Energy (DOE) is proposing to complete a Site-Wide Environmental Assessment (EA) of the National Wind Technology Center (NWTC) to include analysis of potential environmental impacts due to proposed site activities and operations. Details of the proposed project and its location are contained below.

Pursuant to the requirements of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations for implementing the procedural provisions of NEPA (40 CFR Parts 1500-1508), and DOE's implementing procedures for compliance with NEPA (10 CFR Part 1021), DOE is preparing an Environmental Assessment (EA) to:

- Identify potential adverse environmental effects as well as ways to avoid, minimize or mitigate such effects should these proposed site activities and operations be implemented;
- Evaluate viable alternatives to the proposed action, including a no action alternative;
- Describe the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and,
- Characterize any irreversible and irretrievable commitments of resources that would be involved should these proposed site activities and operations be implemented.

PROBABLE ENVIRONMENTAL EFFECTS/ISSUES SCOPED FOR THE ENVIRONMENTAL ASSESSMENT

The Site-Wide EA will describe and analyze any primary, direct, induced, indirect and cumulative impacts of the Proposed Action and alternatives, and will identify possible mitigation measures to reduce or eliminate those impacts. Beneficial and adverse, on-site and off-site, construction, operation, and maintenance impacts will be discussed, as appropriate. The Site-Wide EA will discuss impacts that may result to:

- Land Use
- Traffic and Transportation
- Noise (Acoustics)
- Visual Quality/Aesthetics
- Historic and Cultural Resources
- Water Resources
- Geology and Soils
- Air Quality, Greenhouse Gases and Climate Change

- Biological Resources
- Hazardous Materials and Waste Management
- Utilities, Infrastructure and Energy
- Energy Efficiency, Renewable Energy and Sustainability
- Human Health and Safety
- Socioeconomics and Environmental Justice
- Intentional Destructive Acts

PROPOSED ACTION AND ALTERNATIVES

The following presents a summary of the Proposed Action and No Action alternative descriptions.

Proposed Action

Proposed new construction projects include additional wind turbine test sites as well as permanent physical improvements to the site, such as buildings, equipment, utilities and other infrastructure. Other activities not requiring permanent facilities or infrastructure include facility operations, management practices and maintenance activities. Specifics of the proposed actions are provided in **Attachment I**.

Development of a Reasonable Range Of Alternatives

DOE is required to consider a reasonable range of alternatives to the proposed action during an environmental review. The definition of alternatives is governed by the "rule of reason". Reasonable alternatives are those that may be feasibly carried out based on environmental, technical, and economic factors.

Under the No Action Alternative, NREL would continue current activities and operations at NWTC.

PUBLIC SCOPING

The DOE Golden Field Office will make this letter available to all interested federal, state, and local agencies to provide input on issues to be addressed in the Site-Wide EA. Agencies are invited to identify the issues, within their statutory responsibilities that should be considered in the Site-Wide EA. The general public is also invited to submit comments on the scope of the Site-Wide EA.

This letter will be available at Standley Lake Public Library and posted in the DOE Golden Field Office online public reading room and the NREL website:

http://www.eere.energy.gov/golden/Reading_Room.aspx, and;
http://www.nrel.gov/ehsq/environmental_protection.html

Please submit your written comments regarding this scoping document on or before November 30, 2012 to:

NREL NEPA Comments
National Renewable Energy Laboratory
EHS Office, M.S. RSF 103
15013 Denver West Parkway
Golden, CO 80401
(303) 275-4002 (fax)
email: NREL.NEPA.Comments@nrel.gov

The DOE Golden Field Office welcomes your input throughout our NEPA Process.

Sincerely,

Lori Gray

Lori Gray, NEPA Compliance Officer
U.S. Department of Energy, Golden Field Office

Attachment I: Project Description
Attachment II: Figures
Figure 1-1. NWTC Regional Map
Figure 2-1. Proposed Project Locations at the NWTC

Attachment 1: Project Description

SITE BACKGROUND AND DESCRIPTION

The National Renewable Energy Laboratory (NREL) is the premier DOE national laboratory dedicated to the research, development, and deployment of renewable energy and energy efficiency technologies. As depicted in **Attachment II**, **Figure 1-1**, NREL is comprised of two main sites: South Table Mountain (STM) and the National Wind Technology Center (NWTC). Details regarding NREL's mission and research programs are available on the NREL website at: http://www.nrel.gov.

The 305-acre NWTC is located in northwest Jefferson County, Colorado, approximately 16 miles northwest of Denver. The site is south of Colorado State Highway 128 and directly east of aggregate mining and processing facilities on the east side of Colorado State Highway 93 between Golden and Boulder, Colorado.

There are currently seven major buildings located on the NWTC site that house research and administrative functions including:

- Administration Building, Building 251;
- Structural Testing Laboratory (STL), Building 254;
- Test Preparation Building (Quonset Hut), Building 260;
- 2.5 MW Dynamometer Test Facility, Building 255;
- 5.0 MW Dynamometer Test Facility and Controllable Grid Interface, Building 258;
- Distributed Energy Resources Test Facility (DERTF), Building H-1; and,
- Blade Test Facility, Building 252.

All seven major buildings are located in the Research and Support Facilities area on the northern portion of the site along the main east-west road (West 119th Ave).

Several smaller access control, support, and testing facilities are also located on the NWTC site. These include the Site Entrance Building (SEB) or Guard Post, the electrical switchgear buildings, several trailers, and several data sheds. Currently, the total area of all buildings at the NWTC is approximately 1.3 acres.

The NWTC's existing turbine test sites currently support four megawatt (MW)-scale turbines ranging in output from 1.5 to 3 MW, three mid-scale turbines, ranging from 100 kilowatt (kW) to 600 kW, and nine small wind turbines ranging in size from 1 kW to 8 kW.

In 2002, DOE released a final Site-Wide EA for the NWTC (DOE/EA-1378) evaluating the potential impacts of site operations and short-term and long-term improvements. A Finding of No Significant Impact (FONSI) was signed by DOE on May 31, 2002.

The subject of this Site-Wide EA includes the proposed action discussed below which would support DOE's mission in the R&D of energy efficiency and renewable energy technologies by providing enhanced research and support capabilities to adequately continue state-of-the-art wind energy research.

PROPOSED ACTION AND ALTERNATIVES

The following presents a summary of the Proposed Action and No Action alternative descriptions.

Proposed Action

Under the Proposed Action, DOE proposes to expand operations within the current 305-acre NWTC site. Several new buildings and additions to existing buildings are proposed at the NWTC site, as well as infrastructure upgrades to roads, electrical power, water supply, and sewer lines (NREL 2011c). This would include adding multiple turbines with associated meteorological towers, access roads, data sheds, and infrastructure. New wind turbines would vary in size from small generating capacity (up to 100 kW), to mid-range (up to 1 MW), to large MW-scale turbine installations. Future facility construction, research, development and testing proposed for the NWTC is dependent on changing federal budgets and priorities. The details provided in this assessment are the best estimates that can be made at this time. **Attachment II, Figure 2-1** presents proposed improvements at the site.

Increasing and Enhancing Research and Support Capabilities

The Proposed Action for new construction would provide for additional facilities at the NWTC, as described below.

Wind Turbine Component Research and Testing Facility. DOE would construct a 40,000 square foot facility that would be located west of Building 251. The facility is envisioned as a comprehensive R&D laboratory that would address advanced capabilities in the wind industry.

Energy Storage Test Facilities. DOE would construct one or two MW-Scale Energy Storage Test Platform areas, each approximately 200 feet x 220 feet, either south of 119th Avenue and at the north end of Row 3, or on the south end of the site between Rows 2 and 3. Both mobile and permanent energy storage test facilities would be developed to house and test innovative energy storage devices interconnected to variable renewable energy generation sources.

Staging and Maintenance Warehouse. DOE would construct a warehouse up to 40,000 square feet, west of the DERTF (Building H-1) in the northwest corner of the site. This facility would be used to support indoor staging of test projects and maintenance of equipment.

Conference and Learning Facility. DOE would also build a new Conference and Learning Facility up to 25,000 square feet, located near the NWTC site entrance.

Modifications of Existing Buildings. Modification of existing infrastructure includes upgrades to the Administration Building 251, STL Building 254, DERTF Building H-1, and 2.5 MW Dynamometer Building 255. Other modifications such as adding a cool roof to an existing building and expansion of buildings to accommodate new research and operations may be required.

The Proposed Action for infrastructure upgrades would provide for additional capabilities at the NWTC, as described below.

Other Infrastructure Upgrades. Other upgrades to the facility would include drinking water system upgrades, fire suppression system upgrades, sanitary waste upgrades, road improvements, data/telecommunications improvements.

Routine Technical Tasks for Research and Site Maintenance Activities. These tasks include loading equipment, preparing for tests, moving parts, installing and removing turbines, monitoring, cleaning facilities and equipment, maintaining landscape features, snowplowing, performing pest management, and maintaining buildings and infrastructure.

Increasing Site Use and Density

The Proposed Action provides for additional wind turbines and expansion of the number of field test sites and associated infrastructure to potentially include any combination of up to 10 large MW-scale wind turbines (each rated between 1 MW to 7 MW), up to 10 mid-scale turbines (each rated between 100 kW to 1 MW), and up to 40 small wind turbines (each rated between 300 W to 100 kW). Up to 30 meteorological towers would be installed for testing turbine operations and wind conditions. Some of the meteorological towers would be erected to support upwind and downwind turbulence inflow R&D studies, plus associated infrastructure. These numbers would be considered totals, which include the existing turbines and meteorological towers.

Expanding Power Capacity

The Proposed Action would provide for additional power capacity at the NWTC, as described below.

The current NWTC electrical generation capacity is 11.2 MW. Turbine operations are being curtailed to stay below an existing 10 MW limit in accordance with Xcel Energy requirements. The maximum combined rated electrical generation capacity for the NWTC site over the next 5 years is estimated to be up to 30 MW. Assuming wind technology development continues its current trend toward larger turbines, the projected maximum NWTC electrical generation capacity for the 5- to 10-year timeframe is estimated to increase up to a site total of 50 MW as additional turbines are added and smaller MW-scale turbines are replaced with larger units.

To accommodate an increase to 50 MW, the existing site electrical infrastructure would need to be upgraded to add an additional 40 MW of generation capacity. DOE and NREL would work with a transmission provider for the design and installation of an on-site substation to increase the site-generated power from distribution voltage (13.2kV) to transmission voltage (115kV) along with a short run of transmission line to interconnect with the transmission provider.

Development of a Reasonable Range Of Alternatives

Under the No Action Alternative, current activities and operations would continue at NWTC.

Attachment II: Figures

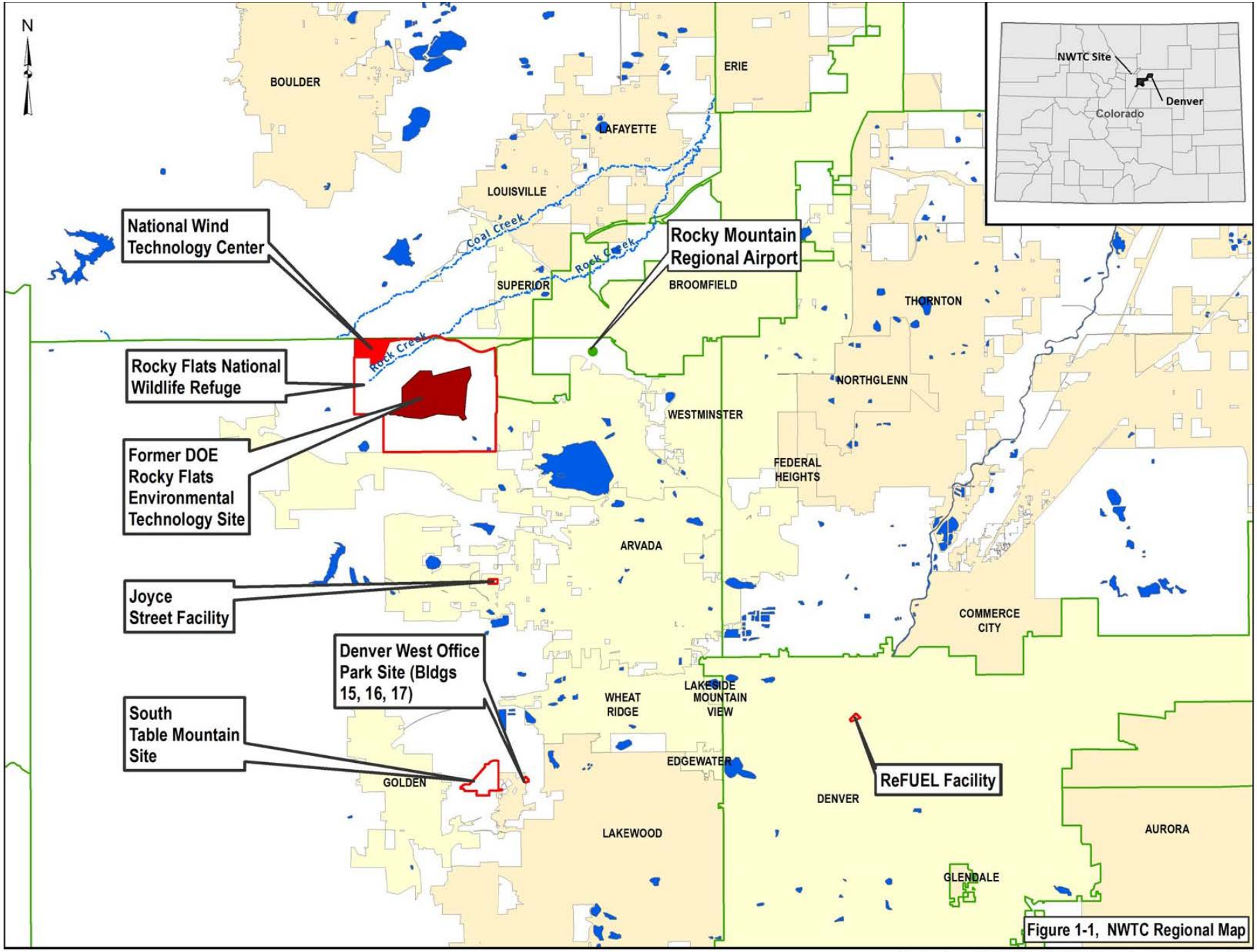
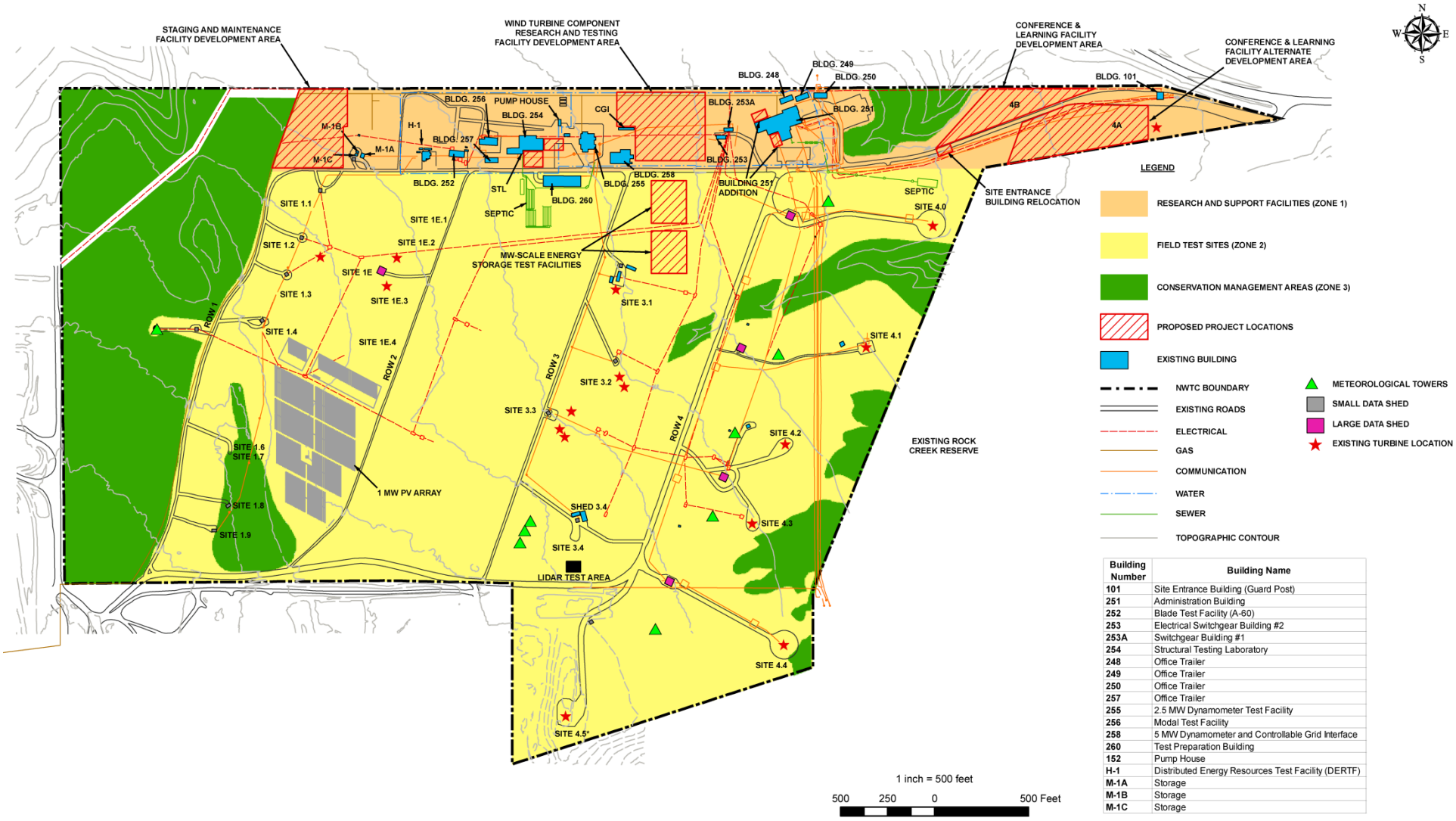


Figure 1-1, NWTC Regional Map



Building Number	Building Name
101	Site Entrance Building (Guard Post)
251	Administration Building
252	Blade Test Facility (A-60)
253	Electrical Switchgear Building #2
253A	Switchgear Building #1
254	Structural Testing Laboratory
248	Office Trailer
249	Office Trailer
250	Office Trailer
257	Office Trailer
255	2.5 MW Dynamometer Test Facility
256	Modal Test Facility
258	5 MW Dynamometer and Controllable Grid Interface
260	Test Preparation Building
152	Pump House
H-1	Distributed Energy Resources Test Facility (DERTF)
M-1A	Storage
M-1B	Storage
M-1C	Storage

*TO DATE NWTC HAS NOT CONDUCTED A SURVEY TO DEFINITELY LOCATE SITE 4.5.

Figure 2-1.
Proposed Project Locations at the National Wind Technology Center