

ENVIRONMENTAL EVALUATION NOTIFICATION FORM

Grantee/Contractor Laboratory: Princeton University/Princeton Plasma Physics Laboratory (PPPL)

Project/Activity Title: Critical Infrastructure Recovery and Renewal (CIRR)

CH NEPA Tracking No.: _____ Type of Funding SC

B&R Code: _____ Total Estimated Cost: \$ 63 million

DOE Cognizant Secretarial Officer (CSO): Marc Jones

Contractor Project Manager: _____ Signature: _____

Date: _____

Contractor NEPA Reviewer: Dorothy M. Strauss

Signature: Dorothy

Date: M. Strauss

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Dorothy M. Strauss
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I. **Description of Proposed Action:**

The Princeton Plasma Physics Laboratory's (PPPL) proposed Critical Infrastructure Recovery and Renewal (CIRR) project would replace old, degraded systems and make critical repairs, replacements, and modernizations to several critical infrastructure systems as noted below. This project, which would be phased and performed by multiple subcontractors, would improve operational efficiencies, minimize the potential for future disruptions, and lay the foundation for programmatic growth. The systems and their proposed improvements would include:

- **Electrical Distribution and Standby Generation**
 - Renew the main electrical yard and distribution system with key transformer and switchgear replacements and upgrades. Three 30 MVA transformers would be replaced with (2) 10 MVA, (1) 15 MVA and (1) 30 MVA transformers to provide better efficiency and redundancy. The 30 MVA transformer would also have new switchgear at 4,160V, which is the current capacity. The equipment loading would be reconfigured to optimize the new equipment. Several distribution stations (approx. 8 at 1 MVA, 480V) would be upgraded with modernized equipment including remote racking load breakers and space for a future distribution cubicle.
 - Upgrade the standby electrical generating system and install additional capacity as needed. This would include the replacement of the old and failing 2,600 kW generator with a new 2,600 kW generator and upgraded controls, and upgrade of the 900 kW generator to 1,750 kW.
- **Chilled Water Generation**
 - Replace two of three existing chillers, which are aging and inefficient, with new chillers of the same capacity (530T); upgrade controls. These would improve energy- and water-efficiency. The chillers would use current EPA-approved refrigerants.
 - Upgrade the chiller system by repairing (as required) and replacing failed valving and components to maximize cooling capacity in the central plant, and reducing the number of small, localized, high-maintenance cooling units throughout the site.
 - Assess potential heat exchange options (such as a 500-ton plate-and-frame heat exchanger to provide winter economizing capabilities) to

Critical Infrastructure Recovery and Renewal (CIRR)

reduce operating costs based on the Energy Performance Assessment conducted in 2019, which guides project prioritization.

- Underground Distribution Network
 - Characterize and replace or upgrade existing underground distribution piping across the site, including chilled water and building connection lines, electrical feeders to key site transformers, storm water catch basins and associated storm water lines, sanitary waste, condenser water lines, and building connections. Condition assessment reports would identify the system and scope of the replacement/upgrade.
- HVAC
 - Replace the obsolete, inefficient, and ineffective ‘hot deck/cold deck’ design units that are 40-60 years old. Additional HVAC units would be evaluated for replacement, and adding HVAC capabilities such as dehumidification, controls, etc., in both office and research buildings would be considered. Approximately 12 air handling units (AHUs) of varying sizes (from 5,000 CFM to 36,000 CFM) would be replaced.
- Communications Distribution Network
 - Upgrade the communications distribution to enable use of higher speed communications capabilities that are provided to PPPL by Princeton University. All work activities are expected to be within the existing building(s) or existing conduits and would not necessitate any soil disturbance.

II. **Description of Affected Environment:** Various locations on C-Site (see attached map).

PPPL is located on Princeton University’s James Forrestal Campus in Plainsboro Township, Middlesex County (central New Jersey), adjacent to the municipalities of Princeton, Kingston, East and West Windsor, and Cranbury, NJ. It occupies approximately 90.83 acres in the areas known as “C- and D-Sites.” PPPL has operated on the current site since 1959. The closest urban centers are New Brunswick, 14 miles (22.5 km) to the northeast, and Trenton, 12 miles (19 km) to the southwest. Within a 50-mile (80 km) radius are the major urban centers of New York City, Philadelphia, and Newark. Princeton University’s main campus is approximately three miles west of the site, primarily located within the borough of Princeton.

The estimated resident population within 10 miles (16 km) of PPPL is approximately 500,000. The total estimated population within a 50-mile radius (80km) of PPPL is approximately 17,735,164.

Surrounding the site are lands of preserved and undisturbed areas including upland forest, wetlands, open grassy areas, and a minor stream, Bee Brook, which flows along PPPL’s eastern boundary. These areas are designated as open space in the James Forrestal Campus (JFC) site development plan.

The climate of central New Jersey is classified as mid-latitude, rainy climate with mild winters, hot summers, and no dry season. Temperatures may range from below zero to

above 100 degrees Fahrenheit (°F) (-17.8° Celsius (C) to 37.8° C); extreme temperatures typically occur once every five years. Approximately half the year, from late April until mid-October, the days are freeze-free. Normally the climate is moderately humid with a total average precipitation of about 46 inches (116 cm) evenly distributed throughout the year.

III. **Potential Environmental Effects:** (Attach explanation for each "yes" response, and "no" responses if additional information is available and could be significant in the decision-making process.)

A. Sensitive Resources: Will the proposed action result in changes and/or disturbances to any of the following resources?

	<u>Yes/No</u>
1. Threatened/Endangered Species and/or Critical Habitats	1. No
2. Other Protected Species (e.g. Burros, Migratory Birds)	2. No
3. Wetlands	3. No
4. Archaeological/Historic Resources	4. No
5. Prime, Unique or Important Farmland	5. No
6. Non-Attainment Areas	6. No
7. Class I Air Quality Control Region	7. No
8. Special Sources of Groundwater (e.g. Sole Source Aquifer)	8. No
9. Navigable Air Space	9. No
10. Coastal Zones	10. No
11. Areas w/ Special National Designation (e.g. National Forests, Parks, Trails)	11. No
12. Floodplain	12. No

B. Regulated Substances/Activities: Will the proposed action involve any of the following regulated substances or activities?

	<u>Yes/No</u>
13. Clearing or Excavation (indicate if greater than 1 acre [43,560 sq. ft.]; if more than 5,000 sq. ft., a Soil Erosion / Sediment Control Permit may be required from Freehold Soil Conservation District.) <i>Note: Soil disturbance includes clearing, grading, excavation, storage, and filling. Soil erosion and sediment control permits required if ≥ 5,000 sq. ft.</i> <i>Note: Excavations expected to encounter ground water may require a permit. Approximately 4,800 sq. ft. of ground would be disturbed, including excavation, soil stockpiles, etc. All soils would be managed according to current procedure, with excess soils (estimated at <150 CY) being characterized prior to off-site disposal. Work would be monitored regarding the need to obtain a permit from the Freehold Soil Conservation District.</i>	13. Yes
14. Dredge or Fill (under Clean Water Act section 404; indicate if greater than 1 acre)	14. No
15. Noise (in excess of regulations) <i>Power tools may generate hazardous noise levels and would be monitored as necessary.</i>	15. Yes
16. Asbestos Removal <i>Testing would be performed in advance of work to determine if asbestos or asbestos-</i>	16. Yes

containing materials are present. If so, these would be removed in advance of work by an asbestos-certified contractor. Anticipated amount is <1,000 sq. ft.

- | | | |
|-----|--|---------|
| 17. | PCBs | 17. No |
| | <i>Though not anticipated, reclaimed oils would be tested to determine if PCBs are present. If so, the oils would be disposed of according to current procedure.</i> | |
| 18. | Import, Manufacture or Processing of Toxic Substances | 18. No |
| 19. | Chemical Storage/Use | 19. Yes |
| | <i>Standard construction chemicals would be used with SDSs provided to Industrial Hygiene at least 24 hours prior to first use.</i> | |
| 20. | Pesticide Use | 20. No |
| 21. | Hazardous, Toxic, or Criteria Pollutant Air Emissions | 21. No |
| 22. | Liquid Effluent | 22. Yes |
| | <i>Approximately <500 gallons of raw sewage and liquid effluent would be collected and disposed of at a publicly owned treatment works (POTW).</i> | |
| 23. | Underground Injection | 23. No |
| 24. | Hazardous Waste | 24. Yes |
| | <i>Refrigerant gasses and oil from HVAC/chiller systems would be characterized and recycled according to current procedure.</i> | |
| 25. | Underground Storage Tanks | 25. No |
| 26. | Radioactive (AEA) Mixed Waste | 26. No |
| 27. | Radioactive Waste | 27. No |
| 28. | Radiation Exposures | 28. No |

C. Other Relevant Disclosures. Will the proposed action involve the following?

- | | <u>Yes/No</u> |
|---|---------------|
| 29. A threatened violation of ES&H regulations/permit requirements | 29. No |
| <i>The requirements of 10CFR851 (as implemented under the DOE-approved PPPL Worker Safety and Health Program) would be applied to work at PPPL under this proposed action. The subcontractor(s) would be required to provide Health and Safety Plan(s) and Waste Management Plan(s) for PPPL review and approval.</i> | |
| 30. Siting/Construction/Major Modification of Waste Recovery, or TSD Facilities | 30. No |
| 31. Disturbance of Pre-existing Contamination | 31. No |
| <i>Note: Excavations that encounter contaminated ground water require a permit.</i> | |
| 32. New or Modified Federal/State Permits | 32. No |
| 33. Public controversy | 33. No |
| 34. Action/involvement of Another Federal Agency (e.g. license, funding, approval) | 34. No |
| 35. Action of a State Agency in a State with NEPA-type law. (Does the State Environmental Quality Review Act Apply?) | 35. No |
| 36. Public Utilities/Services | 36. No |
| 37. Depletion of a Non-Renewable Resource | 37. No |

IV. **Section D Determination:** Is the project/activity appropriate for a determination under Subpart D of the DOE NEPA Regulations for compliance with NEPA?

DOE-PSO NEPA Compliance Officer (NCO) Review:

Concurrence with Proposed Class of Action Recommended

CX EA EIS

Categories: B1.16 (Asbestos removal), B1.17 (Polychlorinated biphenyl removal), B1.31 (Installation or relocation of machinery and equipment), B2.1 (Workplace enhancements), B2.5 (Facility safety and environmental improvements), B5.4 (Repair or replacement of pipelines)

For Categorical Exclusions (CXs):

A. The proposed action fits within a class of actions that is listed in Appendix A or B to Subpart D.

For classes of actions listed in Appendix B, the following conditions are integral elements; i.e., to fit within a class, the proposal must not:

- 1) Threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including DOE and/or Executive Orders;
- 2) Require siting, construction, or major expansion of waste storage, disposal, recovery, or treatment facilities, but may include such categorically excluded facilities;
- 3) Disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; or
- 4) Adversely affect environmentally sensitive resources.
- 5) Involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those of the Department of Agriculture, the Environmental Protection Agency, and the National Institutes of Health.

B. There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal; and

C. The proposal is not "connected" to other actions with potentially significant impacts, is not related to other proposed actions with cumulatively significant impacts, and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

V. DOE Recommendation Approval:

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PSO Staff: Tracy Estes

Signature: _____

Date: _____

SC GLD: Michael M. McCann

Signature: _____

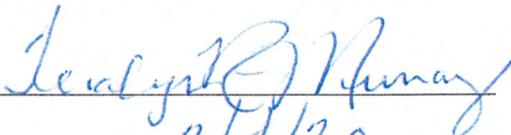
Michael M. McCann
2/12/20

Date: _____

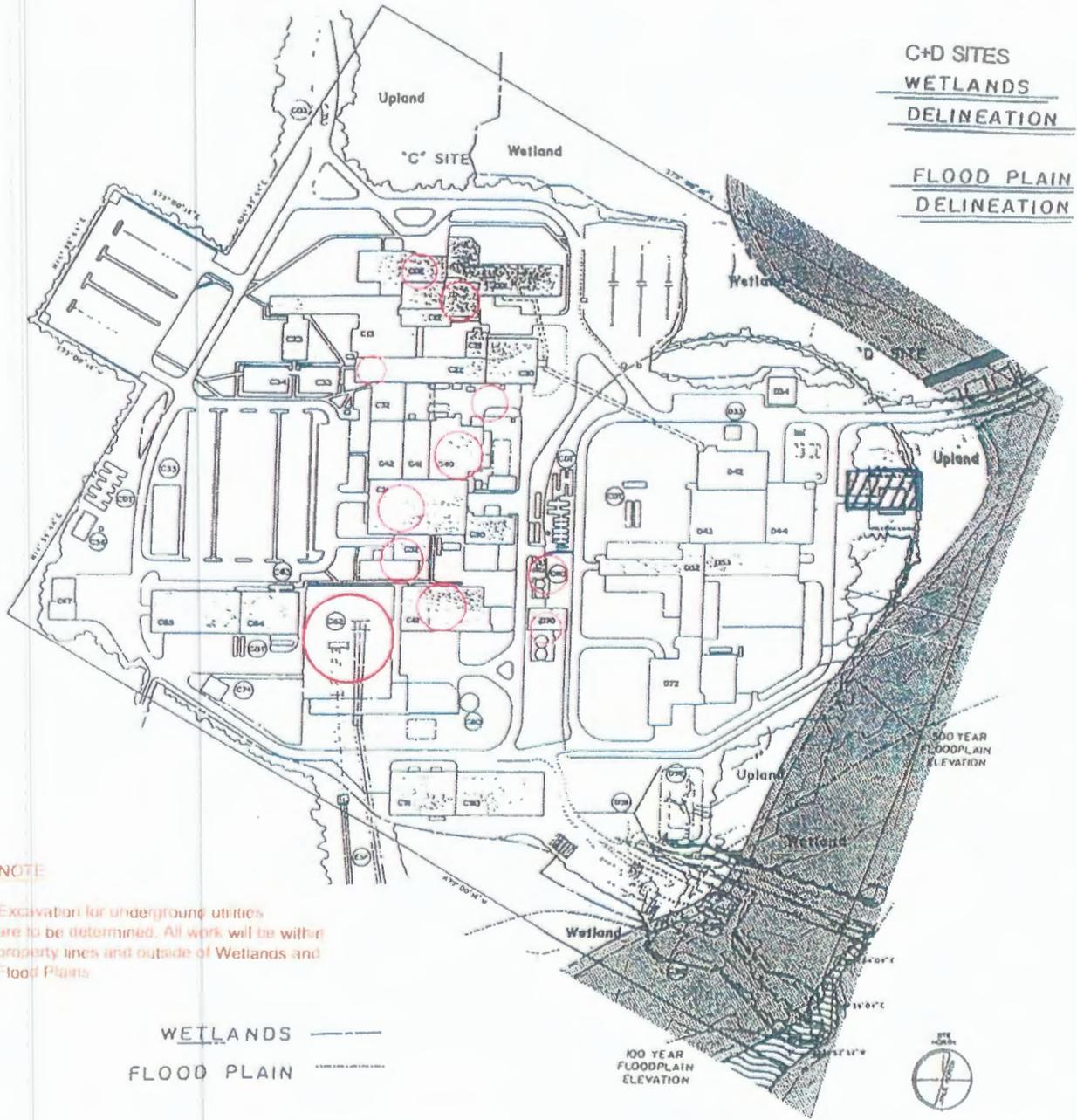
VI. NEPA Compliance Officer Subpart D CX Determination and Approval:

Based on my review of information conveyed to me and in my possession (or attached) concerning the proposed action, as NEPA Compliance Officer, I have determined that the proposed action fits within the specified class of actions, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

PSO NCO: Teralyn Murray

Signature: 

Date: 2/4/20



C+D SITES
WETLANDS
DELINEATION

FLOOD PLAIN
DELINEATION

NOTE

Excavation for underground utilities are to be determined. All work will be within property lines and outside of Wetlands and Flood Plains

WETLANDS ———
FLOOD PLAIN - - - - -

SHADE INDICATES STREAM PROTECTION CORRIDOR PER PRINCETON FORRESTAL CENTER STORMWATER MANAGEMENT PLAN, 1980

0 100 300 600 FT.

SITE PLAN
PRINCETON UNIVERSITY
PLASMA PHYSICS LABORATORY

Critical Infrastructure Recovery & Renewal (CIRR)