ENVIRONMENTAL ASSESSMENT FOR THE INNOVATION TECHNOLOGY AND EXPLORATION CENTER, SMYRNA, KENT COUNTY, DELAWARE 19977

Lead Agency: National Aeronautics and Space Administration.

Proposed Action: Delaware Aerospace Education Foundation (DASEF) proposes the construction of a state-of-the-art aerospace technology and learning complex.

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Abstract: Delaware Aerospace Education Foundation (DASEF) proposes the construction of the Innovation Technology and Exploration Center (ITEC), a 53,000 square-foot state-of-the-art aerospace technology and learning complex on a farm property in Smyrna, Delaware. The complex would provide the opportunity for all visitors nationwide to experience new technologies, innovations, and scientific advances and how they impact the world. Further, the complex would be a significant support system to K-12 schools while serving as a training ground for teachers and an informal place of learning for students. The alternative examined was No Action; however, the construction of the complex has the potential to have a beneficial educational, tourism, and economic impact on the region. The complex has great public support and anticipation considering the State of Delaware does not currently have a technology and learning complex of this kind. The construction of the complex would add to the cultural attractions in the area without replacing any pre-existing operation. The complex would attract tourists, promoting visitor spending in Delaware, which will result in economic and quality of life benefits for Delaware residents.

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Delaware Aerospace Education Foundation (DASEF) proposes the construction of the Innovation Technology and Exploration Center (ITEC), a state-of-the-art aerospace technology and learning complex in Smyrna, Delaware. The complex would provide the opportunity for all visitors nationwide to experience new technologies, innovations, and scientific advances and how they impact the world. Further, the complex would be a significant support system to K-12 schools while serving as a training ground for teachers and an informal place of learning for students.

This Environmental Assessment evaluates environmental considerations including, but not limited to, natural features, land development, air quality, noise, historic preservation, environmental justice, socioeconomic issues, and community services. Accordingly, the planned stormwater management strategy for the proposed action would have a beneficial impact on the existing wetlands on the site, which have essentially dried up during the recent drought condition, by recharging them with stormwater. In turn, the stormwater management area for the complex will take the form of new and expanded existing wetlands that will become a part of the complex s teaching environment. Additionally, a nature trail to be developed jointly with Kent County will provide opportunities for experiencing and studying the various ecosystems of the site. A nature outpost/center planned as part of the ITEC complex will allow for recreational and educational programs as an adjunct to the trail. Furthermore large areas of the site will be planted with indigenous species and be allowed to naturalize.

The proposed action has great public support and anticipation and does not have the potential to generate public controversy. The State of Delaware does not currently have a state-of-the-art aerospace technology and learning complex. The proposed action would add to the cultural attractions in the area without replacing any pre-existing operation and would have a beneficial educational, tourism, and economic impact on the region. The proposed action would attract tourists, promoting visitor spending in Delaware, which will result in economic and quality of life benefits for Delaware residents. Additionally, the proposed action would have limited employment opportunities. The potential for additional jobs because of the proposed action could aid in lowering the current unemployment rate in Delaware.

The employment of mitigation and monitoring measures to reduce the magnitude of, or to avoid, the environmental impacts of the proposed action would not be required. Consequently, considering this site met all of the site selection criteria set forth by ITEC, no other possible alternatives, except for the alternative of No Action, were further explored.

1.0 Purpose and Need

Delaware Aerospace Education Foundation (DASEF) requests a $4.325-million National Aeronautics and Space Administration (NASA) grant to assist in the construction of the Innovation Technology and Exploration Center (ITEC), a state-of-the-art aerospace technology and learning complex. The complex would provide the opportunity for all visitors nationwide to experience new technologies, innovations, and scientific advances and how they impact the world. Further, the complex would be a significant support system to K-12 schools while serving as a training ground for teachers and an informal place of learning for students.

The alternative examined was No Action; however, the construction of the complex has the potential to have a beneficial educational, tourism, and economic impact on the region. The complex has great public support and anticipation considering the State of Delaware does not currently have technology and learning complex of this kind. The construction of the complex would add to the cultural attractions in the area without replacing any pre-existing operation. The complex would attract tourists, promoting visitor spending in Delaware, which will result in economic and quality of life benefits for Delaware residents.

2.0 Alternatives Including the Proposed Action

Delaware Aerospace Education Foundation proposes the construction of a 73,000 square-foot state-of-the-art aerospace technology and learning complex in Smyrna, Delaware. The complex would be located on a 40-acre site situated within the 85-acre Kent County Community Services Parks and Recreation site, and would house a museum, exploratorium, 360-degree planetarium, interactive instruction areas, nature trails, and a model rocket launching pad. Please refer to Appendix A for a site location map.

The alternative examined was No Action; however, the construction of the complex has the potential to have a beneficial educational, tourism, and economic impact on the region. At the present time, there is no other institution on the East Coast committed to educating people about the importance of integrating stewardship of the earth with technological advances.

The planned stormwater management strategy for the proposed action will have a beneficial impact on the existing wetlands on the site, which have essentially dried up during the recent drought condition, by recharging them with stormwater. The quantity and quality of stormwater runoff from the parking areas will be managed by several bio-swales immediately adjacent to the parking areas. The stormwater management area for the building will take the form of new and expanded existing wetlands that will become a part of the complex s teaching environment. Additionally, a nature trail to be developed jointly with Kent County will provide opportunities

for experiencing and studying the various ecosystems of the site. A nature outpost/center planned as part of the ITEC complex will allow for recreational and educational programs as an adjunct to the trail. Additionally, large areas of the site will be planted with indigenous species and be allowed to naturalize.

In order to support the stated mission of ITEC, the following site selection criteria for the proposed action was established:

1. Approximately 30-acres of land was considered as a minimum to provide the necessary area for the structure itself, associated roadways and parking, and sufficient space for the launching of student constructed rockets as well as other site related activities.

2. In order for the site to be used as a teaching environment, bio-diversity of the site was desired. This could range to open fields, field edges, wetlands and mature forest.

3. In order to support the use of the facility by the students of the State of Delaware and the surrounding region, the site needed to be in a central area served by major highway structure.

4. Visibility of the site was important in order to attract a clientele not otherwise familiar with the scope and mission of the DASEF program.

5. Because of planned night sky exploration programs, the site needed to be removed from unshielded light sources and from area creating high levels of sky glow .

Several locations that met part of the criteria were considered including sites in New Castle County and near Clayton, Delaware. Upon learning of the ITEC project, the Kent County Board of Commissioners and Executive Director offered the use of 40-acres located South of Smyrna, Delaware immediately adjacent to State Route 1. This site met all of the site selection criteria listed above, therefore, no other possible alternatives, except for the alternative of No Action, were further explored. This site met all of the site selection criteria listed above as follows:

1. The site, consisting of 40-acres, was sufficient for the planned building and supporting infrastructure.

2. The site is predominately open field, but also contains existing wetlands as well as upland and lowland forested areas.

3. The site is centrally located in Kent County, easily accessed from all Delaware school areas as well as adjoining Maryland, Pennsylvania, and New Jersey.

4. Visibility of the site from State Route 1 is excellent.

5. Portions of the site are sufficiently removed from light producing an area to provide an environment satisfactory for night-sky viewing without excessive sky glow.

3.0 Affected Environment

The project site consists of 40-acres of open farmland, approximately two miles south of Smyrna, Delaware. It is a part of a larger parcel of approximately 85-acres presently being developed by Kent County for a Community Park. The parcel is generally flat with a fall of approximately ten feet from its high point to its low point. The land had been formerly farmed with alternating crops of corn and soybeans.

The overlaying concept for development of the site centers on environmental concerns. Guidelines contained in the Leadership in Energy & Environmental Design (LEED) program serve as the outline for site planning decisions. Areas such as erosion and sedimentation control, reduced site disturbance and naturalized landscape and exterior design will all be incorporated into the site planning for the center.

The proposed action required an environmental assessment to be conducted based upon the responses indicated on the NEPA Environmental Checklist (Facilities Project) prepared by NASA, dated June 5, 2002. Please refer to the checklist provided in Appendix B.

Environmental issues and impacts regarding the proposed action are addressed as follows:

3.1 Natural Features.

3.1.1 Floodplains.

The site is not located within the 100-year floodplain as identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Panel 64 of 435, Map Number 10001C0064H, effective September 27, 2001.

3.1.2 Wetlands.

To the North of the site are non-tidal, freshwater wetlands with low-lying deciduous forest of a mix of hardwoods and softwoods such as oak, maple, and pine. The site also has various species of holly and wild flowers. There also is a second man-made non-tidal, freshwater wetland that was originally created as a drainage pond for the tilled

fields. These areas of wetland contain soil classified as Johnston Silt Loam and Fallsington Loam. The extent of the wetlands on the property was performed by Atlantic Hydrologic Inc., a consulting firm located in Dover, Delaware specializing in the determination and preservation of wetland areas. These areas of wetland are shown on a drawing prepared by Vandemark & Lynch Inc. included as Appendix C.

3.1.3 Endangered Species.

According to the State of Delaware, Department of Natural Resources and Environmental Control, Division of Fish and Wildlife-Natural Heritage Program (DNHP), a review of their Biological and Conservation Database revealed that there are currently no records of state-rare or federally listed plants, animals, or natural communities at or adjacent to the project site. As a result, DNHP indicated that, at the present time, the project site does not lie within a State Natural Heritage Site, nor within a Delaware National Estuarine Research Reserve. Please refer to Appendix D for a letter, dated October 3, 2002, from DNHP to Compliance Environmental, Inc.

3.1.4 Prime or Unique Farmland.

According to soil survey maps compiled for Kent County, Delaware in 1969 by the Soil Conservation Service, United States Department of Agriculture, and the Delaware Agricultural Experiment Station, the property contains the following types of soil classified as prime farmland: Fallsington Loam, Matapeake Silt Loam (0-2 and 2-5 percent slopes), Mattapex Silt Loam, Othello Silt Loam, Sassafras Sandy Loam (2-5 percent slopes), and Sassafras Loam (0-2 and 2-5 percent slopes).

3.1.5 Natural Resources.

To the North of the site are non-tidal, freshwater wetlands with low-lying deciduous forest of a mix of hardwoods and softwoods such as oak, maple, and pine. The site also has various species of holly and wild flowers.

The site serves as habitat to may species of wildlife. These species include white-tailed deer, red and gray fox, raccoon, skunk, opossum, cottontail rabbit, groundhog, gray squirrel, and woodchuck. Additionally, the forested areas of the site serve as a habitat for a variety of non-migratory species of birds.

3.2 Land Development.

3.2.1 Erosion.

The site generally slopes downward from the South to the North, with corresponding elevations ranging from approximately 28 ½ feet to 19 ½ feet, NGVD29. Additionally, the surrounding properties are relatively flat. There is no evidence of slope erosion or unstable conditions on or near the site.

3.2.2 Energy Consumption.

There are currently no utilities located on the site.

3.2.3 Water Supply and Sanitary Sewer Services.

Three are no water supply or sanitary sewer services currently being supplied to the site.

3.3 Air Quality.

The State of Delaware contains a level of Ozone in non-attainment with the National Ambient Air Quality Standards (NAAQS). The levels of all other criteria pollutants are below NAAQS. According to the Delaware Department of Natural Resources and Environmental Control - Air Quality Management Section, a General Conformity Analysis under the Clean Air Act is not required considering there are currently no air emissions at the site.

3.4 Noise.

Using U.S. Department of Housing and Urban Development guidance (HUD-953-CPD(1), September 1991) for existing residential receptors near the site, existing Noise Assessment Locations (NAL) were determined and existing outdoor day-night average sound level (DNL) in decibels (dBA) were calculated.

Two (2) residential receptors (NALs) closest to site include the SE Residence (Point B) and the NE Residence (Point C). Sources of existing noise include Roadway noise from SR 1, Road 325, and Road 12. The closest Railroad (Point A) is greater-than 3,000-ft (10,900-ft) and does not require assessment according to HUD methodology. The Smyrna Airport (Point D) is located approximately 10,000-ft from the site and has its only runway orientation West to East which keeps the flight path away from the two

NALs. Therefore, Smyrna Airport was not considered. The Dover Air Force Base (DAFB) Air Installation Compatible Use Zone (AICUZ) Study of March 1999 indicates that the northerly 65 dB contour from base operations is located Southeast of the site at the approximate latitude of Cheswold (located South of Smyrna). Therefore, the DAFB was not considered. Linear measurements from the site to roadway, aircraft, and railway locations were completed by CEI using DeLorme® XMap Software (release date of March 2000) to determine distances used in this noise assessment. Additionally, linear measurements from the site to residential receptors were reviewed in the field on July 1, 2002, by CEI using a Bushnell LYTESPEED 400[1"] rangefinder with a ranging accuracy of ± one yard. Worksheets, diagrams, and location maps are attached in Appendix E.

The DNL from roadway noise at the SE Residence (Point B) was calculated at 59 dBA and at the NE Residence (Point C) was below 55 dBA. These DNL values were considered as baseline values for each residential receptor.

3.5 Historic Preservation.

Historical archival research was conducted at the Delaware State Archives and the Library of Congress. Archaeological and historical site information, including previous investigation reports for the vicinity on file at the Delaware State Historic Preservation Office (SHPO), was reviewed.

The project is situated on a tract of land in the Duck Creek Hundred, which was originally known as Christiana . The land was owned by John Joy prior to 1786. John Joy conveyed the property in 1786, along with additional tracts to William and Edward Joy (who may have been John s sons). Tax records from 1804 indicate that the land was farmed by Pompey Denney, a Negro. Tax records from 1816 list James Dean as the tenant farmer. Both assessments state that a small log house in poor condition was on the property; the log house was apparently covered with wood siding by 1816.

Edward Joy owned the land until 1817, when the lands passed to Edward Joy Morris of Philadelphia. The property continued to be farmed by tenants. In 1836, Edward Joy Morris sold portions of the tract to Alexander Peterson and Robert Cook.

In 1833, the land adjacent to Christiana, which had been owned by Doctor Robert Jamison, was subdivided and sold at auction by the sheriff, William Binton. It appears that a portion of the tract may have been included in the Jamison estate, although no records were found indicating how Jamison obtained the land. At the auction, Enoch Spurance and Thomas A. Rees purchased Lots 5 and 7, which contained 194 acres of land

as well as a log and frame dwelling. Between 1833 and 1837, John Vangesel obtained all of these lands. Like the owners before him, John Vangesel lived elsewhere and operated the property as a tenant farm.

John Vangesel sold the combined tracts in 1838 to Gamaliel Garrison. Garrison was a farmer from New Jersey who moved to the area with his wife and three children. Tax records for Duck Creek Hundred show a spike in the value of Gamaliel Garrison s personal property in 1842, possibility indicating that a new dwelling had been built on the property. The Garrison house is indicated on the Byles map of 1859 and the Beers map of 1968. Upon his death, the land was inherited by his widow, Sarah and their six children. Sarah Garrison lived on the property until 1879, when she sold the land to Thomas W. Bleakley. The property exchanged hands several times during the 1880 s until it was acquired by Thomas Kirby in 1889.

Under Kirby s ownership, the existing buildings, including the Gamaliel Garrison house, were demolished to acquire more crops. By 1911, no buildings were located within the project area and the Kirby family lived in a house further to the east. The Kirby family owned the property until 1943, when they sold the land to Robert B. and Julia Slaughter.

3.6 Environmental Justice.

The site is not located in a predominantly minority or low income neighborhood. The site is currently bordered by farm and residential properties containing single family dwellings. According to the U.S. Census Bureau, there were 2,242 housing units located in Smyrna, Delaware in the year 2000, and the median value of owner occupied housing units located in Smyrna, Delaware in the year 2000 was $97,800.

3.7 Socioeconomic.

According to the U.S. Census Bureau, the total population of Smyrna, Delaware in the year 2000 was 5,679. As of the 2000 census, there are 2,114 households and 1,462 families residing in the town. The population density of the Town of Smyma is 1,541.9 persons per square mile. The population density of Kent County, Delaware is 214.8 persons per square mile.

The racial makeup of the town is 72.9 percent White, 22.4 percent African American, 0.5 percent Native American, 0.6 percent Asian, 0.1 percent Pacific Islander, 1.4 percent from some other race, and 2.1 percent from two or more races. Hispanics or Latinos (of any race) make up 3.4 percent of the population.

The median income for a household is $36,212, and their median income for a family is $42,355. The per capita income for the town is $17,443. Ten and one-half percent of the population and 7.9 percent of families are below the poverty level. Out of the total people living in poverty, 14.0 percent are under the age of 18 and 6.2 percent are 65 or older.

In 2000, the unemployment rate in Smyrna was 2.1 percent. According to the Delaware Department of Labor s Office of Occupational and Labor Market Information (OOLMI) the unemployment rate for Kent County, Delaware in October 2002 was 3.4 percent. This rate was below the national average of 5.7 percent.

3.8 Community Services.

3.8.1 Areas of Recreational, Ecological, Scenic, or Aesthetic Importance.

According to Natural Resources Conservation Service (NRCS), the site does not contain, nor is located within, any state or national parks, forests, conservation areas, or other areas of recreational, ecological, scenic, or aesthetic importance.

3.8.2 Transportation.

The site is located on Big Oak Road, a two-lane roadway located South of Smyrna, Delaware, approximately ½-mile East of U.S. Route 13, a major North-South four lane divided arterial highway. According to a traffic count conducted on Thursday, May 16, 2002 and Saturday, May 18, 2002, the weekday peak traffic, East and West bound on Big Oak Road at the intersection of Big Oak Road and U.S. Route 13, was a total of 24 vehicles per hour.

3.8.3 Police, Fire and Emergency Medical Services.

Existing and adequately equipped community police and fire department facilities, and emergency medical services, provide response to the site. Police services are provided by the Town of Smyrna Police Department and the Delaware State Police. Fire department services are provided by Citizens Hose Company No. 1, professionally trained volunteers who are responsible for providing fire, rescue, and industrial emergency services to the residents and travelers of the Town of Smyrna s 70 square mile fire district. Emergency medical services are provided by professionally certified emergency medical technicians from American Legion Ambulance Service, as well as county paramedics. Bayhealth Medical Center at Kent General, located approximately 12 ½ miles away in Dover,

Delaware, contains approximately 231 beds and provides emergency medical services.

4.0 Environmental Consequences

The employment of mitigation and monitoring measures to reduce the magnitude of, or to avoid, the environmental impacts of the proposed action would not be required. Consequently, considering this site met all of the site selection criteria set forth by ITEC, no other possible alternatives, except for the alternative of No Action, were further explored.

4.1 Natural Features.

4.1.1 Floodplains.

The proposed action would not be located within nor would impact the 100-year floodplain as identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Panel 64 of 435, Map Number 10001C0064H, effective September 27, 2001. Therefore, no impact to the 100-year floodplain is anticipated.

4.1.2 Wetlands.

Construction activities associated with the proposed action would only occur within open space or grassland areas adjacent to designated wetlands. Siting of the building structure and parking areas are such to allow the natural drainage patterns of the site to be uninterrupted. These areas of wetland, including land surface elevation contours, are shown on a drawing prepared by Vandemark & Lynch Inc. included as Appendix C.

The planned stormwater management strategy for the proposed action would have a beneficial impact on the existing wetlands on the site which have essentially dried up during the recent drought condition by recharging them with stormwater. The quantity and quality of stormwater runoff from the parking areas will be managed by several bio-swales immediately adjacent to the parking areas. The stormwater management area for the building will take the form of new and expanded existing wetlands that will become a part of the complex s teaching environment. Please refer to Appendix G for a report from Duffield Associates, Inc. summarizing their geotechnical evaluation for the proposed action.

4.1.3 Endangered Species.

The proposed action would not affect any rare or endangered species of plants or animals, or a critical habitat. Additionally, the proposed action would not introduce new species

or plants into the area, or impact normal replenishment of existing species. Therefore, no impact to any rare or endangered species of plants or animals, or a critical habitat is anticipated.

4.1.4 Prime or Unique Farmland.

The proposed action would involve the conversion of prime farmland to non-agricultural use. Accordingly, pursuant to Part 658 of the Farmland Protection Policy Act, a Farmland Conversion Impact Rating Form (Form AD-1006) was submitted to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Subsequent to completion by NRCS, the form was submitted to NASA to determine as to whether the proposed conversion is consistent with the Farmland Protection Policy Act and the agency s internal policies. The completed Farmland Conversion Impact Rating Form indicates that the site was assigned a total score of 155.4 points. According to § 658.4 (c) (2), Sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated. Therefore, NASA has determined that since construction of the proposed facility will not negatively impact prime farmland, construction of the proposed facility can proceed as planned. Please refer to Appendix H for the completed Farmland Conversion Impact Rating Form.

4.1.5 Natural Resources.

According to Mr. Olin Allen, Acting Environmental Review Coordinator, DNHP, the proposed action will have no affect on migratory birds, and will have a minimal affect, if any, on existing wildlife at the site. Furthermore, the proposed action would not affect any bodies of surface water except the recharging of existing wetlands via stormwater from on-site bio-swales. Therefore, no impact to any natural resources on the site is anticipated.

4.2 Land Development.

4.2.1 Erosion.

During the course of the site and building construction, temporary sediment and erosion control structures will be put in place. Silt fences will be erected around the perimeter of all areas that will be disturbed to eliminate the possibility of silt entering any of the adjacent wetlands or other drainage ways. The primary stormwater retention pond will be utilized as a sediment catch basin. Any silt caught by this structure will be cleaned out

after the site has been stabilized with the basin then utilized for stormwater retention and controlled release as outlined in Section 3.0 - B (Wetlands) of this report. Therefore, no impact to the site from erosion is anticipated.

4.2.2 Energy Consumption.

Regarding energy requirements and conservation potential of the proposed action, the use of natural daylight insofar as possible will be incorporated into the basic design of the building. Furthermore, a geothermal water source heat pump system will be utilized as the principal energy source for the heating and cooling of the building. Ground temperature water will be circulated thru a closed loop system to a series of heat pump units throughout the building. The heat in the water will be either extracted for heating the building or transferred to the water for cooling of the building. The highest efficiency mechanical system equipment and lighting fixtures will further reduce the energy budget of the building.

The use of sustainable and renewable materials will be incorporated into the building. Materials such as engineered wood products using young growth forest products, bamboo flooring, recycled carpet tiles will be utilized insofar as possible.

A minor impact is anticipated to energy consumption at the site considering the new facility will require energy not previously necessitated. However, regarding energy requirements and conservation potential of the proposed action, the use of natural daylighting insofar as possible will be incorporated into the basic design of the building. Furthermore, a geothermal water source heat pump system will be utilized as the principal energy source for the heating and cooling of the building. The highest efficiency mechanical system equipment and lighting fixtures will further reduce the energy budget of the building.

4.2.3 Water Supply and Sanitary Sewer Services.

It is anticipated that the proposed action will receive its water supply from the Artesian Water Company (Artesian). According to Artesian, a permanent pumping station is currently being constructed adjacent to the subject property on Big Oak Road. Reportedly, the station is designed to service the existing neighborhoods in the region, and has enough capacity to provide anticipated daily demand requirements for the proposed action plus fire suppression. Therefore, the proposed action will have no negative impact on Artesian water supply in the region, and will not require any modifications to the water pumping station being constructed.

It is anticipated that the proposed action will have sanitary sewer services supplied by Kent County, Delaware. According to Kent County Public Works Department, the Burtonwood Village pumping station is located adjacent to the subject property. Reportedly, the pumping station has enough capacity to provide anticipated daily demand requirements for a fully populated Burtonwood Village subdivision plus the proposed action. Therefore, the proposed action will have no negative impact on Kent County sanitary sewer services, and will not require any modifications to the existing pumping station.

4.3 Air Quality.

During the construction phase of the proposed action, small equipment such as welders and air compressors containing electric motors, and driven by fossil fuel engines would be used by various contractors. Some of the equipment would be utilized indoors, while other equipment would be used outdoors. Additionally, fugitive dust will be kept to a minimum. Measures will be taken that include, but are not limited to, application of water to suppress fugitive dust. No major construction activities such as major building demolition using cranes or dynamite are planned for the site which would generate and contribute to considerable community pollution levels.

Based on ITEC annual attendance projections, it is anticipated that an average of 81 cars per day will visit the site. Therefore, no increased community pollution levels from automobiles involved with patron parking and/or roadways are anticipated.

The proposed action would not contain any stationary equipment that has the potential to discharge air contaminants into the atmosphere that requires permitting. According to the Paragon Engineering Corporation, the project s mechanical engineering firm, the geothermal water source heat pump system to be used at the site operates on electric power and would not generate any on-site air emissions. Consequently, it was determined, as per the State of Delaware Department of Natural Resources and Environmental Control - Division of Air and Waste Management, Air Quality Management Section (DNREC-AQMS), that the geothermal water source heat pump system to be used at the site is exempted from requirements contained in 7 Delaware Code Chapter 60 Regulations Governing the Control of Air Pollution, Regulation No. 2, and thus does not require a permit for installation, alteration, and operation. Furthermore, according to DNREC-AQMS, a General Conformity Analysis under the Clean Air Act is not required considering there are currently no air emissions at the site.

The proposed action would not contain any stationary equipment that has the potential to

discharge substantial air emissions into the atmosphere, cause deterioration of ambient air quality, create objectionable odors outside of the facility, or alter air movement moisture, temperature, or any changes in climate, locally or regionally. Furthermore, considering the construction of the building would not require demolition, air quality would not be affected. Therefore, no impact to air quality and community pollution levels is anticipated.

4.4 Noise.

As required by the NEPA Environmental Checklist, it was determined if the proposed action would cause exposure of people to severe noise levels (above 80 dBA). The A scale is the Occupational Safety and Health Administration (OSHA) recommended scale which includes the hearing range.

The approach was to first determine existing Noise Assessment Locations (NAL) and calculate existing outdoor day-night average sound level (DNL) in decibels (dBA) using U.S. Department of Housing and Urban Development guidance (HUD-953-CPD(1), September 1991) for existing residential receptors near the site. Subsequently, the approach was to determine the increased level of noise from site activities including construction/development of the site, use of the facility, and model rocketry.

Two (2) residential receptors (NALs) closest to site include the SE Residence (Point B) and the NE Residence (Point C). Linear measurements from the site to residential receptors were reviewed in the field on July 1, 2002, by CEI using a Bushnell LYTESPEED 400™ rangefinder with a ranging accuracy of ± one yard. Worksheets, diagrams, and location maps are attached in Appendix E.

The DNL from roadway noise at the SE Residence (Point B) was calculated at 59 dBA and at the NE Residence (Point C) was below 55 dBA. These DNL values were considered as baseline values for each residential receptor.

Construction and Site Development: During the construction phase of the project, small equipment such as welders and air compressors containing electric motors, and driven by fossil fuel engines will be used by various contractors. Some of the equipment will be utilized indoors, while other equipment will be used outdoors. No major construction activities are planned for the site which would generate considerable community noise loading such as pile driving activities and major building demolition using cranes or dynamite. It is anticipated that the proposed building will be supported on a structural mat foundation. Noise generated by equipment used by contractors inside of the building

will be attenuated by the building shell, thus reducing noise exposure to the community. However, noise generated by equipment used by contractors outside of the building could affect community noise levels.

To determine the potential noise impact from contractor equipment outside of the building, we have assumed the placement of equipment located in the work zone at the NE corner of site near NE Residence NAL. The distance from the NE Residence NAL to the edge of the site is 145 feet. The distance from the SE Residence NAL to the edge of the site is 660 feet, so the NE Residence NAL is more stringent.

Assuming the contractor will use small equipment having a maximum noise rating of 95 dB in accordance with the U.S. EPA Regulations contained in 40 CFR Part 211, without additional attenuation methods, the resultant noise level of outdoor equipment usage at the NE Residence NAL would be 52 dB. The noise rating of 95 dB is assumed to be measured at 1 foot from the single point noise source equipment. The resultant noise level from the operation of the contractor s equipment was calculated using the inverse square law as follows:

Therefore, for impact to each NAL, we combine, using the following combination equation, 52 dB with the current DNL at each NAL as follows: SE Residence (59 dB) + 52 dB = 60 dB; NE Residence (assumed 55 dB) + 52 dB = 57 dB. The results at both residential receptors are less than 80 dBA.

Combination Equation

Where: SPLc = The combined sound pressure level (dB); SPLi = The source s sound p ressure leve l (dB).

Use of facility: Noise contributed by the use of the facility will occur after the construction and site development stage of the project. According to HUD, the normally acceptable range of noise for a commercial facility land use category is 65 dB to 75 dB. Using the most stringent noise level of 75 dB, the resultant noise at each NAL to the property line is the NE Residence at 145 feet and SE Residence at 660 feet. Using the above referenced inverse square law, resultant noise would be 32 dB. Therefore, for impact to each NAL, we combine, using the combination equation, 32 dB with the current DNL at each NAL as follows: SE Residence (59 dB) + 32 dB = 59 dB; NE Residence (< 55 dB) + 32 dB = < 55 dB. The results at both residential receptors are less than 80 dBA.

Model Rocketry: Model rocketry contribution to noise was calculated considering the location of pad and distance to NALs. According to NASA Glenn Research Center information regarding model rocket engine performance, typical A through D engines produce a maximum of 33 Newtons (N) of thrust for up to two (2) seconds. The Sound Pressure Level (SPL) was subsequently calculated for each typical engine type. Then, using the calculated SPL values for the two (2) typical engines types with the largest maximum thrust, the impulse SPL at each NAL was calculated (see attached worksheet).

Therefore, during the take-off of model rockets, the noise contribution at the NE Residence NAL would be 67 dB and at the SE Residence NAL would be 65 dB. Using the most stringent noise level of 67 dB, the resultant noise at each NAL to the property line is the NE Residence at 145 feet and SE Residence at 660 feet. Using the above referenced inverse square law, the most stringent resultant noise would be 67 dB (see worksheet). Therefore, for impact to each NAL, we combine, using the combination equation, 67 dB with current DNL at each NAL as follows: SE Residence (59 dB) + 67 dB = 68 dB; NE Residence (assumed 55 dB) + 67 dB = 67 dB. The results at both residential receptors are less than 80 dBA.

Combination of Use of Facility and Model Rocketry: For impact to each NAL we combine, using the combination equation, the current DNL at each NAL with the resultant noise from the use of the facility and model rocketry as follows: SE Residence (59 dB) + Use of Facility (32 dB) + Model Rocketry (67 dB) = 68 dB; NE Residence (assumed 55 dB) + Use of Facility (32 dB) + Model Rocketry (67 dB) = 67 dB. The results at both residential receptors are less than 80 dBA.

There would be a noise increase greater than 10-percent from the existing operation considering the property is currently unimproved farmland and the proposed facility will generate noise from site activities including construction/development of the site, use of the facility, and model rocketry. However, the proposed action would not cause exposure of local residents (community) to severe noise levels (above 80 dBA). Additionally, no major construction activities are planned for the site which would generate considerable community noise loading such as pile driving activities and major building demolition using cranes or dynamite. Therefore, no negative impacts from noise levels are anticipated.

4.5 Historic Preservation.

The Delaware State Historic Preservation Office (SHPO) has determined that a house and possibly outbuildings were located on the project property. The house was shown on

Beer s 1868 map as being owner by G. Garrison.

Based on direction received from SHPO an archaeological survey of the site was conducted by URS Corporation of Gaithersburg, Maryland under contract by DASEF. Included in Appendix F is a copy of URS s Phase I Archaeological Survey of the site. This survey identified three potential sites for further studies.

Based on the result of the Phase I survey, one large multi-component site was identified. The site appeared to have two loci. These loci were represented by distinct artifact concentrations.

As a result of the Phase I findings, a Phase II work plan was developed that entailed the mechanical excavation of 12 trenches of varying sizes across the site areas. It was agreed that depending on the results of the mechanical trenching, hand-excavated test units (3x3 feet) may be necessary.

Since no cultural features were identified in Locus 3, the need for further studies in this area were eliminated. A backhoe was utilized to follow the large features identified in Loci 1 and 2 and to better define their boundaries. Each feature will be bisected to better determine function and date, if possible.

At this time site eligibility for listing in the National Registry of Historic Places is undetermined; however if the large features prove to be historic, additional work (i.e., Phase III) may be required.

In order to expedite the progress of the ITEC Project, a Memorandum of Agreement has been drafted and signed by representatives of DASEF, NASA and SHPO agreeing to further actions that will be taken if the site is determined to be eligible for listing in the National Register of Historic Places and the steps to be taken in the interim to preserve the site. Please refer to Appendix F for the full body of the Memorandum of Agreement.

Key stipulations of the MOA include the following:

a. During construction of ITEC, DASEF will place temporary construction fencing so as to protect the site location during construction of the building, roads, parking lot, and supporting facilities.

b. If the site plan is modified to avoid ground disturbing activities in the area of the site, DASEF will provide the DE SHPO with a modified site plan and restrict any

future ground disturbing activities in the site area.

c. If the project plan cannot be modified to avoid ground disturbing activities in the area of the site, DASEF, in consultation with the DE SHPO, will undertake an evaluation survey of the archaeological site to determine if it meets the criteria for listing in the National Register of Historic Places (36 CFR Part 60).

d. If any debris or excess soil will be disposed of or temporarily stock-piled off-site, then the location of such activity must be reviewed and approved by the DE SHPO in order that this activity will not have an effect on properties listed in or eligible for listing in the National Register of Historic Places.

e. An evaluation level archaeological survey will be conducted in consultation with the DE SHPO and in a manner consistent with the Secretary of the Interior s *Standards and Guidelines for Identification and Evaluation* (48 FR 44720-26) and *Archaeological Documentation* (48 FR 44734-37), the national Park Service publication The Archaeological Survey: Methods and Uses as well as the DE SHPO s *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993).

f. DASEF will ensure that all artifacts, field notes, and other records resulting from the implementation of this stipulation are placed in a recognized State of Delaware artifact repository.

g. DASEF in consultation with the DE SHPO will apply the Criteria of Adverse Effect (36 CFR 800.5(a)). If it is determined that an Adverse Effect will occur, DASEF will carry out a data recovery survey.

h. In consultation with the DE SHPO, DASEF will develop a data recovery plan. All data recovery plans will conform to the Secretary of the Interior s *Standards and Guidelines for Archaeological Documentation* (48 FR 44734-37) and the Advisory Council on Historic Preservation s *Treatment of Archaeological Properties: A Handbook* (1980).

i. DASEF will consult with the DE SHPO as to the appropriate forms of public outreach.

j. DASEF will provide copies of the approved data recovery report to local archives/repositories as determined by the DE SHPO.

k. DASEF will ensure that all artifacts, field notes, and other records resulting from the implementation of this stipulation are placed in a recognized State of Delaware artifact repository.

l. At appropriate times during the consultation process, as determined in consultation with the DE SHPO, DASEF will make the public aware that their project may affect an historic archaeological site, and solicit public input on appropriate mitigation of its project s effects on the site.

4.6 Environmental Justice.

No low income or predominantly minority communities occur along the borders of the site. Therefore no environmental justice impacts are anticipated.

4.7 Socioeconomic.

The proposed action has great public support and anticipation and does not have the potential to generate public controversy. Considering the State of Delaware does not currently have a state-of-the-art aerospace technology and learning complex, the proposed action is not anticipated to have an adverse displacement impact. The construction of the proposed action would add to the cultural attractions in the area without replacing any pre-existing operation. The proposed action would have a beneficial educational, tourism, and economic impact on the region. The proposed action would attract tourists, promoting visitor spending in Delaware, which will result in economic and quality of life benefits for Delaware residents. Additionally, the proposed action would have limited employment opportunities, and thus have a beneficial impact on the employment in the area. The potential for additional jobs because of the proposed action could aid in lowering the current unemployment rate in Kent County, Delaware.

4.8 Community Services.

4.8.1 Areas of Recreational, Ecological, Scenic, or Aesthetic Importance.

A nature trail to be developed jointly with Kent County will provide opportunities for experiencing and studying the various ecosystems of the site and have a beneficial impact on the site. A nature outpost/center planned as part of the ITEC complex will allow for recreational and educational programs as an adjunct to the trail. Furthermore, the stormwater management area for the building will take the form of new and expanded

existing wetlands that will become a part of the complex s teaching environment. Additionally, large areas of the site will be planted with indigenous species and be allowed to naturalize. The only manicured areas of landscaping will be in the immediate area of the main building.

4.8.2 Transportation.

Based on ITEC annual attendance projections, it is anticipated that an average of 260 cars per day will visit the site. The peak arrival time at the site is expected to be between 5:00 p.m. and 7:00 p.m. on weekdays and 10:00 a.m. and 12:00 noon on Saturdays. It is further anticipated that approximately 62 arrivals would occur during the evening peak hours.

According to a traffic count conducted on Thursday, May 16, 2002 and Saturday, May 18, 2002, the weekday peak traffic, East and West bound on Big Oak Road at the intersection of Big Oak Road and U.S. Route 13, was a total of 24 vehicles per hour. Assuming a worst-case overlap of peak traffic, the total expected vehicle count would be 48 vehicles per hour; approximately one vehicle every one and one-quarter minutes. In addition to automobile arrivals, a maximum of six school buses could arrive at the site on any given school day. The arrival times would be between 9:00 a.m. and 10:00 a.m. with departures between 1:00 p.m. and 2:00 p.m. Because of the existing low traffic counts and the relatively small increase in traffic as a result of development of ITEC, the State of Delaware Department of Transportation will not require that a full Traffic Impact Study be conducted. They have further determined that no improvements to the Big Oak Road/Route 13 intersection or along the Big Oak Road right-of-way will be required. It has been determined that it will be necessary to construct acceleration and deceleration lanes at the main entrance to the ITEC site. Therefore, no impact to existing traffic patterns is anticipated.

4.8.3 Police, Fire and Emergency Medical Services.

Existing and adequately equipped community police and fire department facilities, and emergency medical services, would provide response to the site. The proposed action would not adversely affect or result in the need for new or altered police, fire and emergency medical services. Therefore, no impact to police, fire and emergency medical services is anticipated.

5.0 List of Preparers.

This report was prepared by Compliance Environmental, Inc. using standard practices and policies for preparation of this type of report. The report represents our current knowledge of conditions at the site during report preparation.

The findings, conclusions, and recommendations in this report are, by necessity, based solely on the information reviewed. We do not warrant the findings, interpretations, conclusions, and recommendations beyond the information contained in this report.

This report was prepared, reviewed, and approved by the following Compliance Environmental, Inc. personnel: Dr. Valentino P. De Rocili, Mr. Brian J. Goff, and Mr. Steve C. McCarron.

Dr. Valentino P. De Rocili is a Senior Consultant with an extensive background in hazard and risk assessment, environmental health and safety, compliance management, and spill/remediation project management. Dr. De Rocili is a nationally Certified Hazardous Materials Manager and Certified Environmental Inspector. He received his Doctorate of Philosophy degree in Safety Engineering from Kennedy-Western University.

Mr. Brian J. Goff is a Project Consultant with an extensive background in environmental issues. Mr. Goff has completed a Baccalaureate Degree in Biological Sciences from the University of Delaware. Mr. Steve C. McCarron is a Technician with a background in environmental issues. Mr. McCarron has completed a Baccalaureate of Science Degree in Environmental Science from Delaware Valley College.

6.0 Agencies and Individuals Consulted.

Allen, Olin, Acting Environmental Review Coordinator, State of Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife, Natural Heritage Program, 4876 Hay Point Landing Road, Smyrna, Delaware 19977.

Bell, William, Project Coordinator, RC &D, 1203 College Park Drive, Suite 101, Dover, Delaware 19904.

Boyd, Varna, URS Corporation, 200 Orchard Ridge Drive, Gaithersburg, Maryland 20878.

Goff, Thomas, Senior Project Manager, Paragon Engineering Corporation, 708 Philadelphia Pike, Wilmington, Delaware 19809.

Hall, Brian, Engineering Project Manager, Kent County, Department of Public Works, Robert W. O Brien Building, 414 Federal Street, Room 313, Dover, Delaware 19901-3615.

Ho, Jim, Delaware Department of Transportation, 56 Sign Shop Road, Dover, Delaware 19901.

Holland,Holland, Constance, Delaware State OffHolland, Constance, Delaware State Office of PlaHolland, C Dover, Delaware 19901

Joseph T. Farina Architects, Inc., 378 South Bank Road, Landenberg, Pennsylvania 19350.

Petrichenko,Petrichenko, Paul, Assistant State Conservationist,Petrichenko, Paul, Assistant State Conservationist, Resources Conservation Service, 1203 College Park Drive, Suite 101, Dover, Delaware 19904.

Pinder,Pinder, Scott, Engineer, Artesian Water CoPinder, Scott, Engineer, Artesian Water CompanPinder, S 19702.

Solberg,Solberg, Carl, Assistant Director, Kent County ComSolberg, Carl, Assistant Director, Kent County Co Dupont Highway, Dover, Delaware 19901.

Stocum,Stocum, Faye, StateStocum, Faye, State Historic Preservation Officer, Delaware State Historic Preservati The Green, Dover, Delaware 19901.

United States Census Bureau, www.census.gov, Washington DC 20233.

UnitedUnited States Department of Agriculture, Dover Service Center, 3500 South DuPont Highway, Dover, Delaware 19904.

Vandemark & Lynch, Inc., 4305 Miller Road, Wilmington, Delaware 19899.

Wheeler,Wheeler, Phil, State of Delaware Department of NWheeler, Phil, State of Delaware Department of N DivisionDivision of Air and Waste Management, Air Division of Air and Waste Management, Air QualDivi Dover, Delaware 19901.

APPENDIX A

Site Location Map.

APPENDIX B

NEPA Environmental Checklist (Facilities Project)
prepared by NASA, dated June 5, 2002.

APPENDIX C

Site Map Showing the Location of the Wetlands Prepared by Vandemark & Lynch Inc.

APPENDIX D

Letter from DNHP to Compliance Environmental, Inc., dated October 3, 2002.

APPENDIX E

Noise Worksheets, Diagrams, and Location Maps.

APPENDIX F

Letter Dated October 15, 2003 from Delaware State Historical Preservation Office Advising of the Possibility of a circa 1860 s House and Outbuildings Being Located on the DASEF Property.

Phase I Archaeological Survey of the Center for AeroTech Education, NASA Smyrna, Kent County, Delaware (Undated).

URS Meeting Minutes of February 24, 2004 Meeting at Delaware State Historic Preservation Office to Discuss Phase II Work Plan.

URS Meeting Minutes of March 22, 2004 Site Meeting to Review Results Of Mechanical Trenching and to Discuss Further Phase II Work Items.

Management Summary: Phase II Archaeological Evaluation, Innovation Technology Exploration Center, Smyrna, Delaware, Dated April 2004.

Memorandum of Agreement.

MEMORANDUM OF AGREEMENT

AMONG NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, THE DELAWARE AEROSPACE EDUCATION FOUNDATION, AND THE DELAWARE STATE HISTORIC PRESERVATION OFFICER

REGARDING THE INNOVATION, TECHNOLOGY, AND EXPLORATION CENTER SMRYNA, KENT COUNTY, DELAWARE

WHEREAS, Delaware Aerospace Education Foundation (DASEF), with partial federal grant funding from the National Aeronautics and Space Administration (NASA), proposes to construct the Innovation, Technology, and Exploration Center (ITEC) in Smyrna, Kent County, Delaware; and

WHEREAS, DASEF has determined that ITEC construction may adversely affect the historic archaeological site (site number not currently available) which may be eligible for listing in the National Register of Historic Places, and has consulted with the Delaware State Historic Preservation Officer (DE SHPO) pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470f); and

NOW, THEREFORE, DASEF, NASA, and the DE SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account its effect on any historic properties.

STIPULATIONS

DASEF shall ensure that the following measures are carried out:

1. Avoidance

    a. During construction of ITEC, DASEF will place temporary construction fencing so as to protect the site location during construction of the building, roads, parking lot, and supporting facilities.

    b. If the site plan is modified to avoid ground disturbing activities in the area of the site, DASEF will provide the DE SHPO with a modified site plan and restrict any future ground disturbing activities in the site area.

    c. If the project plan cannot be modified to avoid ground disturbing activities in the area of the site, DASEF, in consultation with the DE SHPO, will undertake an evaluation survey of the archaeological site to determine if it meets the criteria for listing in the National Register of Historic Places (36 CFR Part 60).

    d. If the site is determined to be eligible, then Stipulation 4 must be carried out in advance of any ground disturbance in the area of the site.

2. Disposal Site Review

    If any debris or excess soil will be disposed of or temporarily stock-piled off-site, then the

location of such activity must be reviewed and approved by the DE SHPO in order that this activity will not have an effect on properties listed in or eligible for listing in the National Register of Historic Places. The DE SHPO will have 15 days to provide comments on the disposal location.

3. Evaluation Level Archaeological Survey

   a. The survey will be conducted in consultation with the DE SHPO and in a manner consistent with the Secretary of the Interior s *Standards and Guidelines for Identification and Evaluation* (48 FR 44720-26) and *Archaeological Documentation* (48 FR 44734-37), the national Park Service publication The Archaeological Survey: Methods and Uses as well as the DE SHPO s *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993). It will be conducted under the direct supervision of a qualified person or persons meeting the Secretary of the Interior s Standard s *Professional Qualification Standards for Historic Archaeology* (48 FR 44738-9), and the results of the survey will be detailed in a report prepared in accordance with the DE SHPO s *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993) and submitted to the DE SHPO for review and approval.

   b. If DASEF and the DE SHPO agree that the archaeological site meets the criteria for National Register listing, then Stipulations 4, 5 and 6 will be followed. If DASEF and the DE SHPO do not agree that the archaeological site meets the National Register criteria for listing then DASEF will seek the formal opinion of the Keeper of the National Register. The opinion of the Keeper will be considered final.

   c. If the evaluation survey and consultation process results in the determination that the archaeological site is not eligible for listing in the National Register of Historic Places, DASEF will carry out Stipulations 2 and 3.d. in order to conclude the Section 106 consultation and review process.

   d. DASEF will ensure that all artifacts, field notes, and other records resulting from the implementation of this stipulation are placed in a recognized State of Delaware artifact repository in accordance with 36 CFR Part 79 and the Delaware State Museum s *Curation Standards* as well as the DE SHPO s *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993).

4. Effect Determination

   a. DASEF in consultation with the DE SHPO will apply the Criteria of Adverse Effect (36 CFR 800.5(a)). If it is determined that an Adverse Effect will occur, DASEF will carry out a data recovery survey in accordance with Stipulation 5.

5. Data Recovery Archaeological Survey

   In consultation with the DE SHPO, DASEF will develop a data recovery plan. All data recovery plans will conform to the Secretary of the Interior s *Standards and Guidelines for Archaeological Documentation* (48 FR 44734-37) and the Advisory Council on Historic Preservation s *Treatment of Archaeological Properties: A Handbook* (1980). All data recovery plans will be reviewed and approved by the DE SHPO prior to the commencement of the data recovery survey. The DE SHPO will have 15 days to provide comments on the

data recovery plan. The data recovery will be conducted under the direct supervision of a qualified person or persons meeting the Secretary of the Interior s Standard s *Professional Qualification Standards for Historic Archaeology* (48 FR 44738-9). The results of the data recovery will be detailed in a report prepared in accordance with the DE SHPO s *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993) and submitted to the DE SHPO for review and approval.

a. DASEF will consult with the DE SHPO as to the appropriate forms of public outreach.

b. DASEF will provide copies of the approved data recovery report to local archives/repositories as determined by the DE SHPO.

c. DASEF will ensure that all artifacts, field notes, and other records resulting from the implementation of this stipulation are placed in a recognized State of Delaware artifact repository in accordance with 36 CFR Part 79 and the Delaware State Museum s *Curation Standards* as well as the DE SHPO s *Guidelines for Architectural and Archaeological Surveys in Delaware* (1993).

6. Public Participation

At appropriate times during the consultation process, as determined in consultation with the DE SHPO, DASEF will make the public aware that their project may affect an historic archaeological site, and solicit public input on appropriate mitigation of its project s effects on the site.

7. Dispute Resolution

If at any time during the implementation of the measures stipulated in this Memorandum of Agreement a dispute should arise regarding any measure or its manner of implementation, any party to this Memorandum of Agreement can raise the dispute for discussion by all parties to this Agreement. If no resolution is reached, DASEF will request the comments of the Advisory Council on Historic Preservation (Council) in accordance with 36 CFR 800.7. Any Council comments provided in response to such a request shall be taken into account by DASEF with reference only to the subject of the dispute. Other measures contained in this Agreement, and the responsibility of DASEF to carry them out, will remain unchanged.

8. Amendments

If DASEF or the DE SHPO determine that the measures contained in this Memorandum of Agreement are not being carried out, cannot be carried out, or believe a change is necessary, DASEF and the DE SHPO will consult in accordance with 36 CFR 800.6(b)(7) and consider such an amendment. If an amendment cannot be reached, DASEF will request the comments of the Council, in accordance with 36 CFR 800.7.

9. Term of Agreement

This Memorandum of Agreement will remain in effect for two (2) years from the date of its execution.

Execution of this Memorandum of Agreement by NASA, DASEF, and the DE SHPO, and the implementation of its stipulations, evidence that NASA has taken into account the effects of their undertaking on historic properties.

For Delaware AeroSpace Education Foundation	Date
For NASA	Date
Daniel R. Griffith, Delaware State Historic Preservation Officer	Date

APPENDIX G

Geotechnical Evaluation Report from Duffield Associates, Inc., Dated August 2002.

APPENDIX H

USDA Farmland Conversion Impact Rating Form.