



**COMPARISON OF
ROBINS AIR FORCE BASE WEB-BASED
AND
NAVAL AIR STATION
PATUXENT RIVER GIS-BASED ENVIRONMENTAL IMPACT ANALYSIS PROCESS**

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Project Description:

Comparison of the EIAP Decision Tree Models from Robins Air Force Base, Georgia and Naval Air Station Patuxent River, Maryland

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1.0 INTRODUCTION

Tetra Tech EM Inc. was contracted under AFCEE contract F41624-00-D-8029, delivery order 00038 to Simplify Environmental Impact Analysis Process (EIAP). The goal of this delivery order is to simplify the EIAP with a web based environmental planning checklist decision tree application while utilizing the Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE)/Facility Management Standards for Facilities, Infrastructure, and Environment (FMSFIE) standards to meet the requirements of the National Environmental Policy Act (NEPA) under Title 32 of the Code of Federal Regulations (32 CFR) 989.

All federal government agencies and organizations are required to comply with the NEPA. There policies and instructions integrate environmental considerations into planning and decision-making to assess effects of the agency or organization actions. NEPA requires each federal agency to systematically evaluate the environmental effects of proposals for projects and programs. However, the statutes implementing NEPA are not detailed or specific. Therefore, there have been several approaches on creating guidance to ensure continuity and quality for implementing NEPA. In each case, the level of detailed and specified direction varies. The environmental impact analysis process (EIAP) is the method for ensuring compliance with NEPA.

Robins Air Force Base (Robins AFB) and Patuxent River Naval Air Station (NAS-PAX) have already taken steps to automate EIAP, using various information technology (IT) solutions such as computer-assisted drawings and designs (CADD), geographic information systems (GIS), and web-based applications. The purpose of this delivery order is to review the current tools in development at Robins AFB and NAS-PAX, provide a generic web-based decision tree to support the work necessary to enhance and expedite EIAP, enhance proper utilization of SDSFIE and FMSAE, and promote consistent compliance with NEPA. This generic decision tree can be used by all federal agencies and organizations to facilitate NEPA compliance, create consistency in data collection/integration and lower costs. The NEPA data collection and legal reporting requirements identified incorporate SDSFIE and FMSFIE Release 2.0. from the CADD/GIS Technology Center.

This document compares the existing EIAP checklist/decision tree approaches and process models developed by Robins AFB and NAS-PAX. The review included the Robins AFB webbased NEPA decision tree and the NAS-PAX Web/GIS-based environmental planning checklist (EPC). This document includes a discussion of the NAS-PAX and Robins AFB EIAP approaches, supporting spreadsheet(s), diagrams/illustrations depicting both process models, recommendations concerning development of a generic EIAP web-based decision tree model and a draft conceptual entity relationship diagram depicted as a NEPA data model.

A review of NEPA laws and legal reporting requirements, as well as available DoD and other entities directives/instructions concerning NEPA compliance, was performed in the development of the web-based EIAP decision tree and NEPA data model. This review was completed utilizing the “Federal Real Property Management” data hosted on the CADD/GIS Technology

Center's Internet web site as well as other data sources [e.g., Code of Federal Regulations (CFR), other Federal Government & DoD web sites].

Under a separate deliverable a Web-Based EIAP decision tree and NEPA data model depicting the Federal requirements for NEPA will be delivered and hosted on the CADD/GIS Technology Center's Internet web site.

2.0 BACKGROUND

Although all federal agencies and organizations are required to comply with NEPA, the statute implementing NEPA is not specific. Robins AFB and NAS-PAX have taken steps to create an environmental planning checklist (EPC) to streamline the environmental review process, create consistency in decisions, and enhance utilization of SDSFIE/FMSDE. Although there are differences in these two applications, concepts and purposes are similar. The following outlines the approaches used by Robins AFB and NAS-PAX.

2.1 APPROACH OF ROBINS AFB

The Environmental Management Directorate performs management, planning and programming of the financial, manpower, equipment and supplies resources for the entire base. The Resources Management Division (EMX) implements EIAP for Robins AFB. As part of the EIAP process EMX reviews all program planning and budgetary information set forth in U.S. Air Force Forms 332 and 813. The U.S. Air Force implements NEPA through its Air Force Instruction 32-7061. Council on Environmental Quality (CEQ) Regulations and Title 32 of the Code of Federal Regulations (32 CFR) 989 also provide a structured decision-making process based on a comprehensive understanding of the potential environmental consequences of proposed actions and alternatives. Robins AFB meets the EIAP requirements by utilizing a web based, intranet based EIAP checklist for each action during the planning process. The goal of this application was to streamline the EIAP process and maintain consistency regarding environmental decisions.

2.2 APPROACH OF NAS-PAX

The NAS-PAX personnel sought to promote front-end planning, without experienced environmental personnel. A team comprised of a facility planner, environmental program managers, and a software developer, created the environmental planning checklist (EPC) utilizing the "Installation Core Business model". The EPC is used to ensure the consistent application of environmental requirements to construction, maintenance, renovation, and design projects. This process begins with a work request number (WRN) already introduced to the application from the project's general and budgetary information. This tool was implemented to provide a proactive approach toward environmental review of projects.

3.0 SYSTEM ARCHITECTURE COMPARISON

The goal of both applications was to create a consistent, streamline methodology for reviewing proposed projects and identify environmental constraints and to ensure compliance with environmental regulations. Although the purpose of both applications is exactly the same, the structures of the applications vary reflecting the differences in approach.

3.1 SYSTEM ARCHITECTURE OF ROBINS AIR FORCE BASE

Much of the initial effort completed at Robins AFB was to document and improve the NEPA process. This process flow was analyzed to determine components for automation. The objective was to provide an Internet application to proponents (users) of the data. Figure 3-1 illustrates the robins NEPA process flow. This web-enabled tool would facilitate a proactive approach to NEPA. Upon completion of this general overview and associated generic maps, the proponent would forward information to the applicable environmental staff (NEPA Manager). The NEPA Manager would then QA/QC the data, coordinate necessary changes, and forward to the appropriate environmental staff. An example of the effectiveness of providing this data to the proponents is as follows: While completing a work request for siting a new facility the proponent would have access to data such as Installation Restoration sites. The pending facility siting may encroach onto a landfill or within a contaminated soils area. By having this data during the planning stage the proponent could then move the facility slightly to avoid encroachment and reduce the review process by environmental management and construction cost.

Robins AFB refers to the web-enabled tool as the NEPA programmatic review. It used the Programmatic Environmental Assessment Plan as a guide in its development. The questions are a web-based application using hypertext markup language (HTML) and JavaScript programming. The application utilizes Microsoft Access to retrieve and store historical and current project information and responses to its questions. Figure 3-2 illustrates the Robins AFB data model.

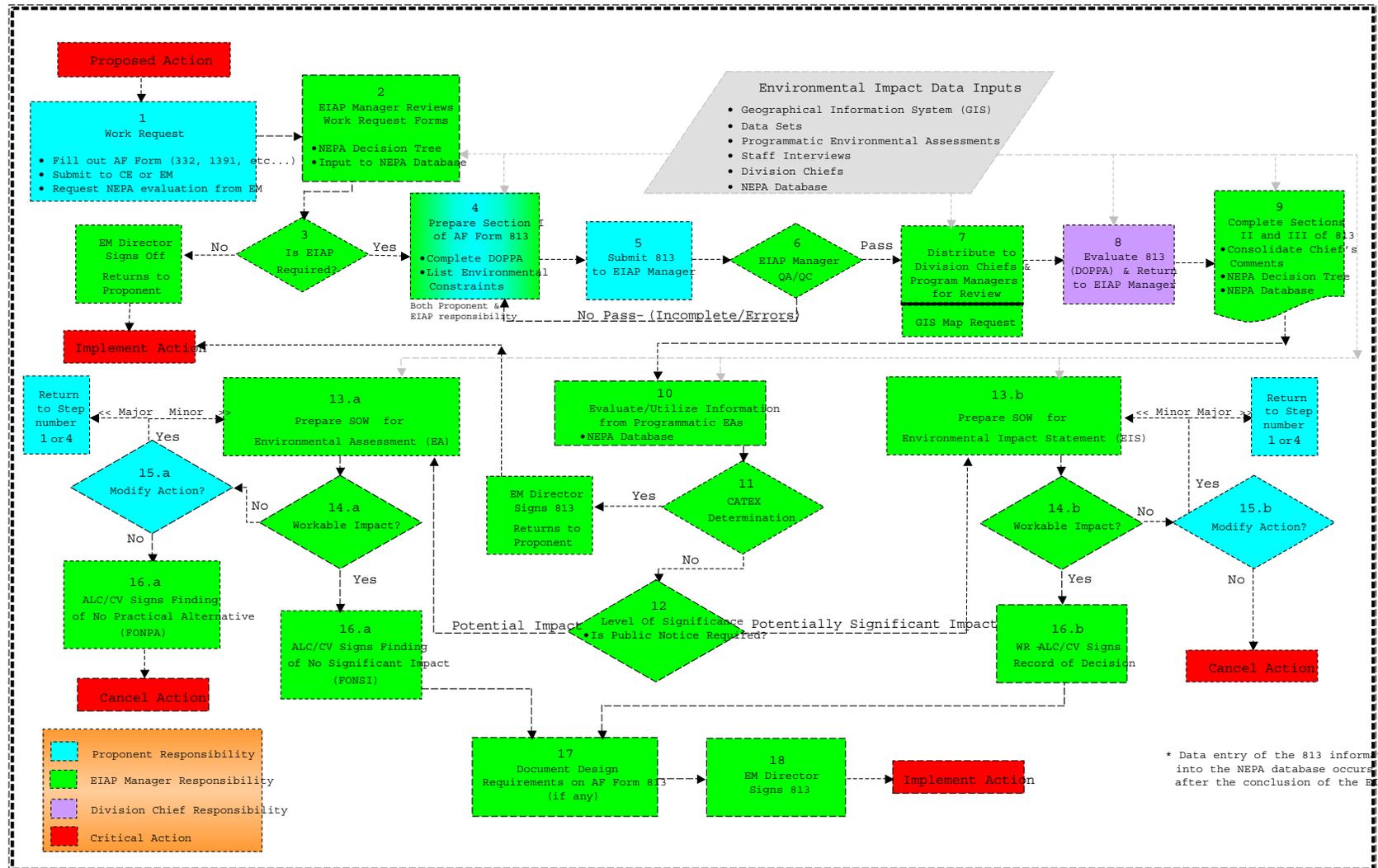


FIGURE 3-1 ROBINS NEPA PROCESS FLOW

Access to the web site is given to authorized users approved by Robins AFB Environmental Management (EM) staff and is controlled by a password. The first step allows the user to select an existing project or set a new project for review by providing a project title. The user enters the information necessary to complete the work request.

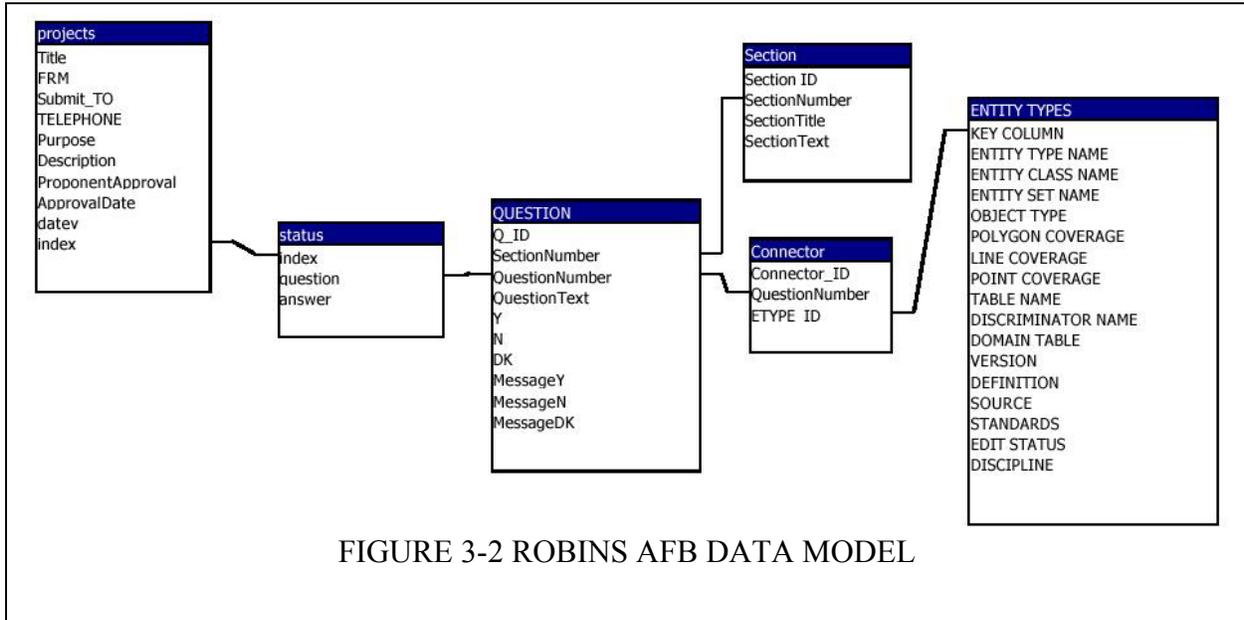
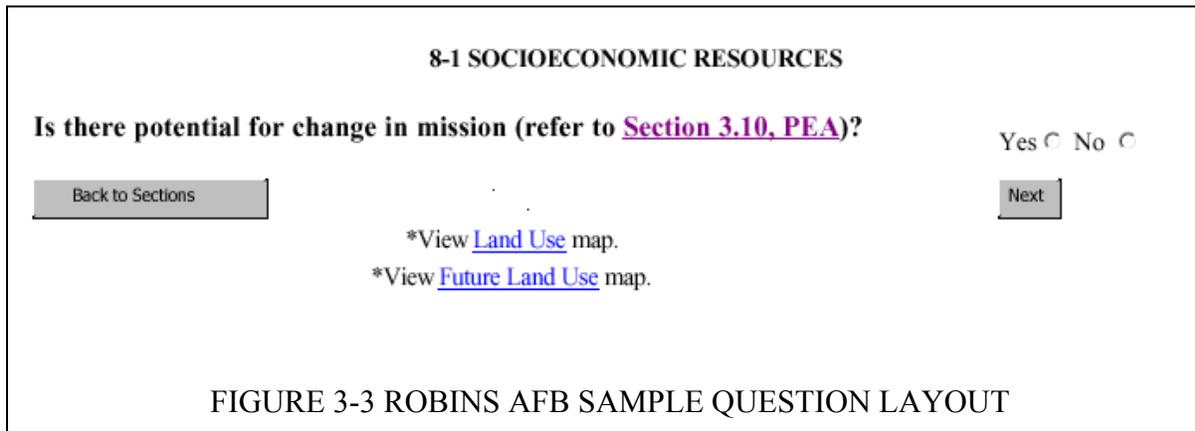


FIGURE 3-2 ROBINS AFB DATA MODEL

The Robins AFB application allows the user to navigate to any of the eight sections. As the user completes a section, a check mark is added next to the section box in the programmatic summary. Each section contains a list of questions through which a user can navigate. Although the majority of questions can be answered as “Yes” or “No”, some are actually statements to notifying the reviewer more action may be required. Furthermore, some questions instruct the user to view a map before responding. These maps are static images in portable document format (PDF), a graphic format such as graphic interchange format (GIF), or joint photographic expert format (JPEF) file. Figure 3-3 illustrates a sample question layout. This data structure also enables the environmental staff accessibility to historical data to query in other similar work requests and environmental documentation prepared. This process facilitates consistency when



making decisions regarding NEPA. The environmental staff has the ability to query on data by spatial orientation. Providing this type of historical reference and tiering from the Programmatic Environmental Assessment documents enables Robins AFB to produce the template for completion of an Environmental Assessment.

Samples of outputs provided by this application are as follows:

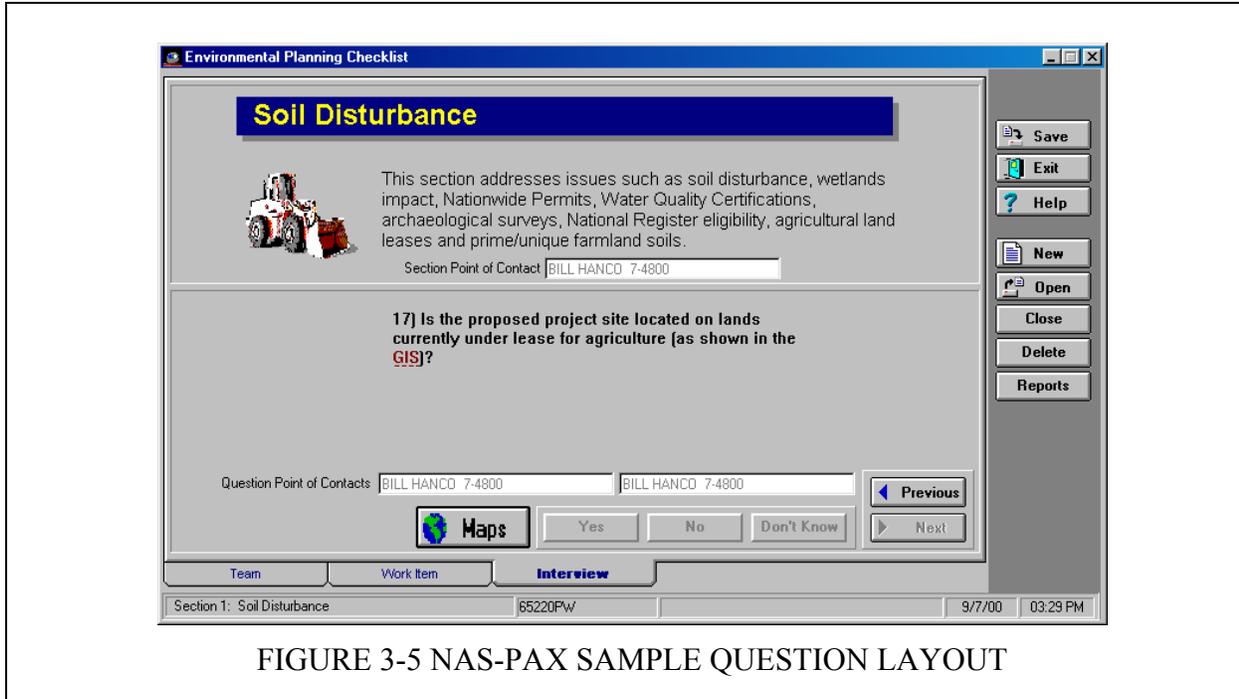
- Section 1 of Work Request (in a printable form)
- Programmatic Review Checklist (to summarize results)
- Environmental Assessment Template (to paste relevant text from various links)

3.2 SYSTEM ARCHITECTURE OF NAS-PAX

The NAS-PAX referred to its checklist as the EPC. It is part of a larger effort to ensure the consistent application of environmental requirements to planning and implementation of construction, maintenance, renovation, and design projects. The application was programmed with Visual Basic with the object-orient concept. This process begins by allowing a user to select a Work Request Number (WRN). If the WRN does not exist in the system, the EPC is unavailable. Therefore, that particular work item has not been entered into the system. As the WRN is selected, the associated project information is retrieved and shown through the Project Information, Planner Point of Contact and Customer Information screens. Figure 3-3 illustrated the NAS- PAX data model.

The EPC application allows the user to navigate to any of the 23 sections. The user can move backward or forward; however, cannot proceed to the next question unless there are some response to the question being displayed. As the user completes a section, a check mark is added next to the section title. Each section contains a list of questions through which a user can navigate. The NAS-PAX EPC presents questions individually on a sequence of screens. Users must respond “Yes” or “No” to each question posed by the program. The program logic uses the

response to each question to determine the next applicable question. Users are prompted to respond only to those questions that are applicable to their project. The program requires users respond to each question that is prompted. However, users may temporarily respond, “don’t know” to a question and return to it later. As the user responds, the answer is highlighted. For certain questions, a dialog box containing a message will appear, providing further information. The screen for each question provides multiple sources of technical assistance as well as the name and phone number for the corresponding technical expert on the Environmental Support Team. Figure 3-5 illustrates the NAS-PAX Sample Question Layout.



Although the majority of questions can be answered as “Yes”, “No”, or “Don’t Know”, the NAS-PAX’s application has a MAP feature to access the GIS script for more than 20 questions utilizing ArcView. At the start of the EPC and after selection of the WRN, a user draws the project footprint as a polygon. This footprint interacts automatically with the GIS data to assist with the answer to many of the EPC’s questions. For example, the MAP command for a wetlands question automatically displays the project footprint over the previously completed base-wide wetland delineation map. This connection helps the user to identify site-specific environmental impacts, constraints, and opportunities. It reveals alternative sites with fewer or no constraints or impacts. This button allows the user to evaluate the feasibility of the proposed site for the project. This integration will automatically alert the user about the environmental impacts to the current infrastructure and existence of natural and cultural resources on the base.

Outputs provided by this application are as follows:

- Project Profile
- Environmental Checklist Report – consists of all questions answered, all action items, the date the questions were answered, and the user’s login
- Outstanding Issue Report – consists of the questions that were answered “Don’t Know”
- Action Item Report- consists of all questions and actions items and identifies the user’s login

3.3 ANALYSIS AND PROPOSED SYSTEM ARCHITECTURE FOR THE ENVIRONMENTAL CHECKLIST

Robins AFB’s maps are static data hyperlinked to other data sources assisting in the response to a question. However, the NAS-PAX EPC would automatically execute the appropriate GIS data and provide a response that would be verified by the user. According to the CADD/GIS Technology Center, SDSFIE provides “a standardized grouping of geographically referenced feature objects depicted graphically on a map at their real-world location.” Although Robins AFB and NAS-PAX have gathered extensive geographical data, they are not completely in compliance with the SDSFIE and FMSFIE standard. The goal is to provide a tool that corresponds with the checklist’s question applying SDSFIE and FMSFIE standard. One of the major obstacles is the quantity of available geographic data at a federal facility or installation and the ability of the geographical data to meet the SDSFIE and FMSFIE standard. The proposed simple data model that incorporated SDSFIE and FMSFIE standard is illustrated on Figure 3-6.

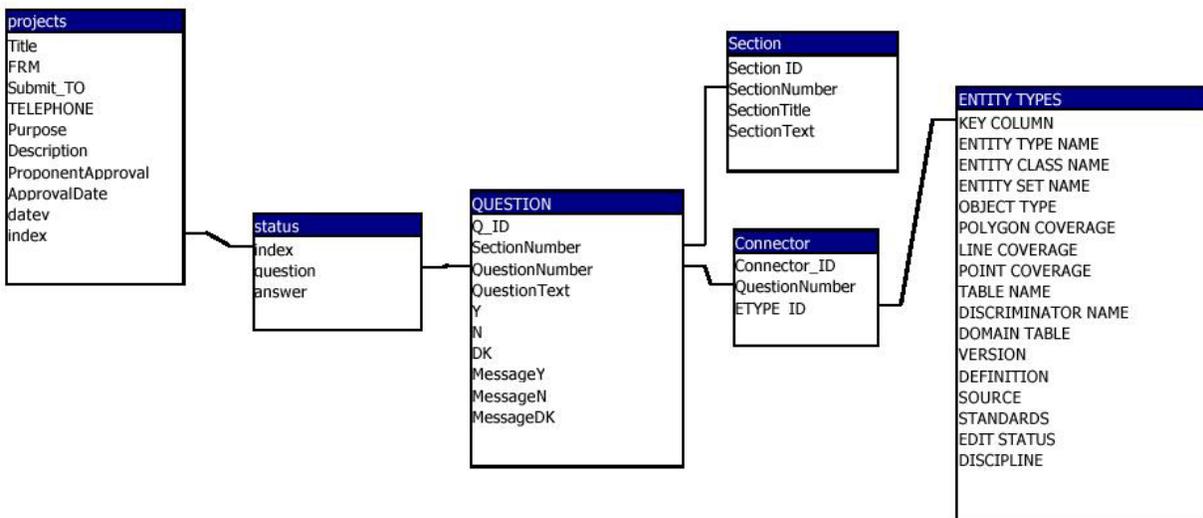


FIGURE 3-6 PROPOSED DATA MODEL WITH SDSFIE AND FMSFIE

Key evaluation criteria for the development of the new web enabled tool are as follows:

- Can be incorporated easily into a website
- Modification to data can be shown instantly (dynamic)
- Modification to questions in database can be done with minimum effort
- Maintainability (cost of maintenance)

Table 3-1 provides a website design methodology comparison, listing advantages and disadvantages of each checklist. The Macromedia Shockwave module was selected. It allows

the developer to create a user-friendly environment to navigate and offers ease of question modification with have minimal effort. The programming cost will be directly related to the level of desired easily modifiable components.

For the proposed application to function, the web-hosting server settings should be, at the minimum, the following:

- Windows 2000, with IIS 5.
- Completely up-to-date security patches and service packs
- Script permission and read/write access. Read and write access so users can write and open data files
- Be a site in a virtual directory. It makes use of ASP and has been confirmed to work on IIS 5 and Unix with Sun's Chilisoft ASP software
- Server place behind a firewall for security

**TABLE 3-1
WEBSITE DESIGN METHODOLOGY COMPARISON**

FEATURE AND FUNCTION	ADVANTAGE	DISADVANTAGE
Simple hyper text mark-up language (HTML) module	<p>Simple basic coding</p> <p>Can be modified by anyone versed in HTML language</p> <p>Easily provided to any website</p> <p>Least expensive option – initially</p>	<p>It is modified by hand (very labor intensive)</p> <p>It is not automatically modifiable</p> <p>Question modification costs are more expensive than other options</p> <p>It has Internet Explorer versus Netscape design complications</p>
Database driven HTML module	<p>Data modified by anyone</p> <p>Dynamic – HTML module instantly reflecting changes in database</p> <p>Question modification costs minimal</p>	<p>Underlying code requires (UltraDev) programmer to modify</p> <p>It requires special web serving applications, such as Active Server Pager (ASP) and Common Gateway Interface (CGI)</p> <p>It is not easily provided to any website unless always served by a hosting provider that supports Server Side scripting</p> <p>Database must reside on server</p> <p>It has Internet Explorer versus Netscape design complications</p>
Shockwave module	<p>Stand alone and easily provided to any website</p> <p>Data modifiable by anyone</p> <p>Module reflects changes in database after simple text (TXT) file generation process and upload</p> <p>Database does not need to reside on server</p> <p>Question modification minimal, but slightly more than above</p> <p>Module branching more flexible</p> <p>Dynamic – module instantly reflects changes in database</p>	<p>Underlying code requires (LINGO) programmer to modify</p> <p>User is required to download Shockwave Player (free)</p> <p>Database must reside on server</p>

4.0 CHECKLIST QUESTIONS COMPARISON

Each application had the objective to streamline and enhance the accuracy of the environmental review process; therefore, each stresses consistency in quality of the review. In addition, each promotes early planning to avoid costly work stoppage situation and delays associated with last-minute attempts at environmental compliance. The checklist is not intended to replace real-time

interaction among project developers (users) and team members. Instead, it is intended to educate users about environmental requirements and eliminate routine or repetitive inquiries for simple projects. This section discusses about the organization and type of questions in each of the application.

4.1 CHECKLIST QUESTIONS FROM ROBINS AFB

The Robins AFB's checklist is a web-based application that presents modules of questions to the user, who must answer, "Yes" or "No" to each. It consists of 87 questions, organized into 8 sections (groups of related questions), as depicted in Table 4-1. The user's response determines which question must be answered next. Users are prompted to respond only to those questions applicable to their specific project. The number of questions posed by the computer program to a given user depends on the complexity of the project, descriptive data available for the project, and the potential for the project to cause environmental impacts.

The first section directs the user to determine if the action qualifies for a categorical exclusion (CATEX) or whether it is adequately addressed in the existing base-wide Programmatic Environmental Assessment for operations at Robins AFB. Like many DoD installations, Robins AFB prepared a programmatic NEPA evaluation addressing the potential for environmental impacts from the totality of its mission. Programmatic NEPA documents may be EISs or environmental assessments, depending on the potential for the mission to result in significant environmental impacts. Individual projects proposed after completion of a programmatic document must then be reviewed to determine whether they are adequately addressed in the programmatic document or whether additional analysis is necessary. This process is termed "tiering".

TABLE 4-1
ROBINS AFB NEPA PROGRAMMATIC CHECKLIST SECTIONS

Section Number	Title	Questions
1	Programmatic Review	1-1 to 1-11
2	Physical Resources (such as air, geology, and soils)	2-1 to 2-11
3	Sensitive Zones (Such as clear zones, accident potential zones associated with runways, noise zones around runways, training areas, fuel storage areas, waste management areas, and outdoor recreation areas)	3-1 to 3-15
4	Water Resources (Such as surface water and groundwater quality/quantity, and floodplains)	4-1 to 4-14
5	Biological Resources (Such as flora and fauna, threatened/endangered species, critical habitat, and wetlands)	5-1 to 5-15
6	Cultural Resources (Such as archaeological or historic sites, and cemeteries)	6-1 to 6-10
7	Land Use Resources (Such as changes in land use, impacts to anticipated future land use, and effects on off-base property)	7-1 to 7-7
8	Socioeconomic Resources (Such as effects on employment and to a mission)	8-1 to 8-4

The other seven sections provide questions grouped into individual resource areas addressed in most NEPA documents such as physical resources, biological resources, and water resources (see Table 4-1). For some questions, internal resources such as static maps and other supporting information are also displayed to help users to respond. Where appropriate, links also guide users to corresponding sections of the programmatic environmental assessment that contain relevant GIS-based maps, background data, and descriptions. The questions also identify the name and phone number of a corresponding specialist on the Robins AFB staff to provide further technical guidance. Robins AFB's Checklist questions can be found in Appendix A.

The outputs provided by this application are as follows:

- Completed work request portion of AF Form 813 used in the *Air Force EIAP* to determine if an action qualifies for a CATEX, requires an environmental assessment, or EIS

- Programmatic Review Checklist summarizing potential impact to each environmental resource addressed in the question and indicating appropriate consultation requirements to complete the NEPA process
- Template to prepare an environmental assessment, if required. The environmental assessment template follows the outline recommended by the CEQ in 40 CFR 1502.10. The template also provides standard verbiage for the opening sentences of each EA section and data for general application such as acreage of the base, names of key water features on the base, and broad descriptions of natural habitats on the base.

The following points constitute favorable elements in the Robins AFB checklist:

- *Promotes a standardized approach to NEPA compliance.* The checklist ensures all categories of environmental resources and types of potential impacts are considered at least briefly in the initial stages of the NEPA compliance process for any project.
- *Closely integrated to the CEQ Regulations on Implementation of the National Environmental Quality Act (40 CFR 1500-1508).* DoD-wide application of the checklist will promote uniform compliance with the CEQ Regulations at installations.
- *Promotes effective tiering from, the programmatic environmental assessment prepared for the overall mission at Robins AFB.* In 40 CFR 1508.28, the CEQ encourages agencies to complete early analyses of broad programmatic issues to address general concerns, and to prepare narrowly focused “tiered” analyses for specific actions under those programs. The tiered analyses will be more efficient if broader level programmatic concerns can be eliminated in the initial process. Many DoD offices and installations have prepared programmatic EISs and environmental assessments then failed to effectively tier off of those documents.
- *Contains comprehensive assessment.* As shown in Table 4-1, the checklist covers all of the environmental resources and issues commonly addressed in most broadly scoped environmental assessments and EISs.
- *Engages nonspecialists in the environmental planning process.* The checklist is designed for use by individuals lacking advanced environmental training and expertise. It allows users access for supporting maps, data, and provides phone numbers of technical experts who can be consulted for guidance. Repeated use will educate nonspecialists about NEPA, environment issues, and may help individuals be more engaged in the environmental planning process. This should prove valuable at those installations lacking a diversified environmental staff or a well-publicized environmental program.
- *Makes environmental data accessible.* A large body of environmental data has been generated for many federal installations, but even environmental specialists are not always aware of the data available. The checklist provides users with a one-stop source for much of the environmental data pertinent to NEPA.

- *Assist in EA/EIS preparation.* If a decision is made to prepare an environmental assessment or EIS, the template will help ensure the environmental assessment follows a standard format consistent with the CEQ Regulations.

The following points constitute deficiencies and operational problems in the Robins AFB checklist if a decision is made to modify the Robins AFB checklist into a DoD-wide NEPA compliance. The following items are not necessarily deficiencies with respect to use of the checklist at Robins AFB, but issues that should the checklist be applied DoD-wide.

- *Does not address cumulative impacts.* At 40 CFR 1508.7, agencies are required to consider the potential for cumulative impacts, defined as impacts resulting “from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” The checklist, as presently constructed, does not encourage users to consider the overall context of an action, rather than analyzing the action as an isolated event.
- *Requires accessibility to accurate supporting data.* The ability of users to respond to many of the questions relies on the online availability of a comprehensive body of environmental baseline data such as that available for Robins AFB. A particular necessity is good mapping coverage for features such as wetlands, cultural resource locations, prime farmlands, and forest cover. The current process provides connectivity to static maps that may not represent the most current data.
- *May be intimidating to novice users.* This intimidation might derive more from the complexity of environmental planning itself, rather than from the mechanics of the checklist.
- *Can require a disproportionate level of effort for simple projects.* Some users may perceive the effort needed to complete a checklist as unjustified for certain projects that clearly lack a potential for environmental impacts.

4.2 CHECKLIST QUESTIONS FROM NAS-PAX

The NAS-PAX EPC consists of 103 questions, organized into 23 sections (groups of related questions), covering a broad spectrum of environmental planning issues. The specific sections are noted in Table 4-2. The NAS-PAX EPC has frequent modifications in response to changing environmental requirements, ongoing developmental effort, and comments from users. The number of questions has progressively increased.

**TABLE 4-2
NAS-PAX ENVIRONMENTAL PLANNING CHECKLIST SECTIONS**

Section Number	Title	Questions
1	Soil Disturbance	1-22
2	Water	23-28
3	Critical Area and Coastal Zone	29-32
4	Historical Preservation	33-35
5	Capital Improvements	36-38
6	Endangered Species	39-40
7	Land Use	41-42
8	Tree Clearing	43-48
9	Bird/Aircraft Strike	49-51
10	Deer Auto Collisions	52-54
11	Solid Waste and Recycling	54
12	Hazardous Materials and Waste	55-61
13	Polychlorinated Biphenyls (PCBs)	62
14	Air Quality and Emissions	63-75
15	Installation Restoration	76
16	Petroleum Systems	77-80
17	Oil Control	81
18	Ground Water Monitoring	82
19	Asbestos	83-86
20	Lead	87-93
21	Electric (Utilities)	94-95
22	Wastewater	96-101
23	Natural Gas	102-103

The NAS-PAX EPC is designed for users without specialized environmental expertise. When the computer program identifies a potentially significant environmental impact or a regulatory compliance requirement, it directs the user to the appropriate team member for further guidance. It includes user-friendly navigating tools for the EPC. The EPC covers issues regarding the protection of natural/cultural resources and compliance.

The outputs provided by this application are as follows:

- Project profile report- provides a basic description of the project including project name, number, and proponent
- Outstanding issues report- indicates applicable questions requiring responses
- Action item report- lists environmental actions that must be completed before a project may proceed. Examples of action items include permit requirements, regulatory

consultation requirements (such as with the State Historic Preservation Officer), and mitigation requirements. The program does not automatically determine if a project qualifies for a categorical exclusion under NEPA, requires an environmental assessment, or EIS. It provides useful supporting data, but NEPA documentation decisions are the professional judgment of the user and the Environmental Support Team.

The following points constitute favorable elements in the NAS-PAX EPC:

- *Promotes integrated environmental planning.* The NAS-PAX EPC addresses the totality of environmental planning. In 40 CFR 1500.2, CEQ encourages agencies to “integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all procedures run concurrently rather than consecutively.” It promotes a “total federal planning” approach presently advocated by many NEPA experts (see Eccleston 2000).
- *Comprehensive.* Table 4-2 demonstrates the NAS-PAX EPC broad spectrum of environmental impacts commonly considered in NEPA.
- *Engages nonspecialists in the environmental planning process.* The checklist is designed for use by persons lacking environmental training. It allows users to access technical terms for definitions, provides educational sidebar discussions of key technical issues, and phone numbers of technical experts. Repeated use will educate nonspecialists about environment issues, awareness of environmental requirements, and help individuals to be more knowledgeable about the environmental planning process.
- *Makes environmental data accessible.* A large body of environmental data has been generated for many federal installations, yet environmental specialists are not always aware of available data. The *NAS-PAX EPC* provides users with a one-stop source for environmental data available for a specific project site.
- *Assists in environmental assessments and EIS preparation.* If a decision is made to prepare an environmental assessment or EIS, the *NAS-PAX EPC* can rapidly assemble data to complete the affected environment chapter. It can also assist with simpler impact analyses, especially involving review of a proposed construction footprint for sensitive resources such as wetlands, archaeological sites, or prime farmland.

The following items are not necessarily deficiencies with respect to use of the EPC at NAS-PAX, but are issues that must be addressed should the EPC be applied DoD-wide.

- *Does not address cumulative impacts.* The 40 CFR 1508.7, requires agencies to consider the potential for cumulative impacts, defined as impacts resulting “from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” The current EPC does not encourage users to consider the overall context of an action, rather analyzing the action as an isolated event.

- *Supporting data.* The ability of users to respond to questions relies on the online availability of a comprehensive body of baseline data regarding environmental resources at NAS-PAX. Of particular value is the GIS coverage for NAS-PAX, with layers displaying the existing locations of features such as wetlands, cultural resource locations, prime farmlands, forest cover, and areas subject to coastal regulation. Similarly comprehensive coverage is not available for all DoD installations.
- *Intimidating to novice users.* Although most users did not consider the NAS-PAX EPC difficult to use, one staff member did state it could be intimidating to project planners lacking environmental experience. However, the developers of the NAS-PAX EPC have provided users with background definitions and explanations of technical terms and concepts. Any intimidation may derive from the complexity of environmental planning rather than from the mechanics of the NAS-PAX EPC.
- *Can require a disproportionate level of effort for simple projects.* Several interviewees complained the effort needed to complete the NAS-PAX EPC might not be justified for projects that lack a potential for environmental impacts.

4.3 ANALYSIS AND PROPOSED APPROACH OF ENVIRONMENTAL CHECKLIST

One fundamental difference is the Robins AFB checklist is directly targeted to NEPA compliance, while the NAS-PAX EPC is environmental permitting and compliance. The Robins AFB checklist focuses primarily on ensuring users follow applicable NEPA regulations, while the NAS-PAX EPC focuses on identifying environmental compliance in general. The former has the advantage of directly ensuring the CEQ NEPA regulations are followed. The latter has the advantage of integrating the overall environmental planning process. Table 4-3 provides a brief comparison of the Robins AFB checklist to the NAS-PAX EPC.

**TABLE 4-3
COMPARISON OF THE NAS-PAX EPC
AND THE ROBINS AFB ENVIRONMENTAL CHECKLIST**

Items	NAS-PAX EPC	ROBINS AFB CHECKLIST
Primary Focus	Environmental Planning Tool	NEPA
On-Line Application	Yes	Yes
Requires End-User to have Minimum Environmental Knowledge	Yes	Yes
“Yes”, “No”, and “Don’t Know” Response Questions	Yes	Yes
Question Organization – Module Development	Each Environmental Planning Issue	Each Resource Typically Addressed In NEPA Documentation
NEPA Coverage	Yes (Limited: Issues not covered such as environmental justice, traffic, and noise.)	Yes
End-User Interaction with Application (“Clickable” Response With Links)	Interactive maps and other sources of supporting information.	Static maps and other sources of supporting information.
Supporting POC Provided	Yes	Yes
Identifies Specific Environmental Permitting And Compliance Requirements	Yes	No
Facilitates Decision on CATEX or FONSI	Yes	Yes
Environmental Assessment Preparation Guidance	No Provides baseline data in preparing an environmental assessment.	Yes Provides a template for preparing an environmental assessment.

Based on the checklist developed by Robins AFB and NAS-PAX a revised set of questions was derived. These questions are intended to meet the Federal requirements and not State, Local or installation requirements. A national checklist will facilitate consistency and account for movement toward comprehensive proactive planning. This checklist can be used by the majority of federal organizations for NEPA compliance, and to potentially lower associated costs. The proposed application will use many aspects from the Robins AFB checklist and the NAS-PAX EPC. See Appendix C for the proposed checklist questions.

The following were considerations and incorporated when developing the proposed checklist questions and they include:

- *Capability to be tailored for any state or locality.* The NAS-PAX EPC and Robins AFB checklist includes questions devoted to environmental issues regulated uniquely by those regions or installations. The NAS-PAX EPC includes questions devoted to environmental issues regulated by Maryland. The national checklist should include a standard core of questions devoted to issues of federal concern and have the ability to be expanded by each installation to address issues of state and local concern.
- *Designed to encourage exploration of alternatives.* CEQ policy in 40 CFR 1500.2 states agencies shall “use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.” Neither of the two reviewed checklists provides assistance in the identification of reasonable alternatives to a proposed action. Some possible ways that the national checklist could be designed to encourage consideration of alternatives are as follows:
 - The initial screens to enter information on the proposed project could also encourage the entry of information on alternatives.
- *Data model generation*
- *Flexibility to add/change or delete questions*
 - The program could be designed to automatically prompt users to consider realigning footprints that overlay sensitive environmental resources. Users could respond “No,” but would at least be forced to briefly consider avoiding the affected area.
- *Incorporate SDFIE/FMSFIE*
- *Designed to address cumulative impacts.* The NAS-PAX EPC does not address cumulative impacts. The Robins AFB Checklist does not address cumulative impacts in the checklist itself, but the environmental assessment template does encourage users when preparing an environmental assessment. Assessment of cumulative impacts is one of the biggest challenges for any federal agency. A national checklist would have to include a simple mechanism for considering cumulative impacts *before deciding whether an environmental assessment is required.* Approaches could include the following:
 - Design the computer program to alert users if, over the course of specified time, processes more than a minimum number of similar projects, affecting the same resource, located close together.

- Include recommendations in action item reports that encourage users to contact state or local planning authorities to discuss other sources of environmental impacts in the area surrounding the installation.
- For installations tailoring the national checklist for local use, add questions addressing consistency with local land use plans, local watershed management plans, and other local plans designed to minimize cumulative environmental impacts.
- *The effort needed should be proportional to the potential of a project to cause environmental impacts.* The checklist was designed to simplify technical terminology and automatically present users only with questions relevant to their project. A national checklist should be designed to require no more than 15 to 30 minutes to complete for most projects.
- *Serve to foster consistent and comprehensive planning but not to automate decision-making.* To their credit, neither the NAS-PAX EPC nor the Robins AFB checklist automatically generate decisions regarding the need for an environmental assessment or EIS or identifying preferred alternatives. Both checklists prompt users to consider key issues, resources, assist with compiling data, and other supporting information. Users must rely on professional judgment, and environmental specialists identified by the computer program, to make decisions. This is an advantage, because automated decision-making would be contrary to the interdisciplinary spirit of NEPA.
- Some omissions include socioeconomic impacts, noise impacts, health and safety impacts, visual impacts, traffic impacts, environmental justice, and public involvement. However, the computer program could easily be expanded to include questions covering these issues.

5.0 SUMMARY/RECOMMENDATIONS

Although the scope and verbiage of the questions differ, the Robins AFB and the NAS-PAX checklist have many similar concepts. Both are computerized and designed for rapid application by persons with only general environmental knowledge. Both involve responding “Yes” or “No” to a series of questions grouped into modules covering separate environmental topics. Both include links to GIS-based maps and other sources of supporting technical data to assist in responses. Both encourage interaction with appropriate environmental specialists employed on the respective bases. Both groups want an application that streamlines the environmental review, promotes consistency in quality, and utilizes the SDSFIE and FMSFIE to maximum effectiveness and efficiency. Thereby, enabling thoughtful front-end planning to minimize delays, project costs, and loss of project objectives.

There are variances in the comprehensiveness of each installation approach to NEPA and environmental planning. The DoD-wide application of the checklist could ensure a consistent approach to NEPA and environmental planning at a minimum level of effort and competence. It would help project proponents know the availability of programmatic analyses and how to effectively “tier” to avoid unnecessary or duplicative effort.

The possible issues covered with NEPA is large and has never been limited through regulation, policy, or precedent. Some installations may have environmental issues and concerns unique to their specific geography or mission. However, the application could easily be tailored to cover unique issues at each DoD installation.

- *Designed to address cumulative impacts.* The NAS-PAX EPC does not address cumulative impacts. The Robins AFB Checklist does not address cumulative impacts in the checklist itself, but the environmental assessment template does encourage users when preparing an environmental assessment. Assessment of cumulative impacts is one of the biggest challenges for any federal agency. A national checklist would have to include a simple mechanism for considering cumulative impacts *before deciding whether an environmental assessment is required*. Approaches could include the following:
 - Design the computer program to alert users if, over the course of specified time, processes more than a minimum number of similar projects, affecting the same resource, located close together.
 - Include recommendations in action item reports that encourage users to contact state or local planning authorities to discuss other sources of environmental impacts in the area surrounding the installation.
 - For installations tailoring the national checklist for local use, add questions addressing consistency with local land use plans, local watershed management plans, and other local plans designed to minimize cumulative environmental impacts.
- *The effort needed should be proportional to the potential of a project to cause environmental impacts.* The checklist was designed to simplify technical terminology and automatically present users only with questions relevant to their project. A national checklist should be designed to require no more than 15 to 30 minutes to complete for most projects.
- *Serve to foster consistent and comprehensive planning but not to automate decision-making.* To their credit, neither the NAS-PAX EPC nor the Robins AFB checklist automatically generate decisions regarding the need for an environmental assessment or EIS or identifying preferred alternatives. Both checklists prompt users to consider key issues, resources, assist with compiling data, and other supporting information. Users must rely on professional judgment, and environmental specialists identified by the

computer program, to make decisions. This is an advantage, because automated decision-making would be contrary to the interdisciplinary spirit of NEPA.

- Some omissions include socioeconomic impacts, noise impacts, health and safety impacts, visual impacts, traffic impacts, environmental justice, and public involvement. However, the computer program could easily be expanded to include questions covering these issues.

A checklist application would be used as regulatory guideline and a decision-making tool. Other capabilities include the following:

- Determine the necessary level of NEPA documentation
- Plan public involvement activities
- Determine resources affected by a proposed action
- Identify mitigation measures
- Write NEPA documents
- Review NEPA documents
- Serve as the NEPA documents

APPENDIX A
ROBINS AFB CHECKLIST QUESTIONS

SECTION	QUESTION
1	Is the proposed action eligible for a categorical exclusion?
1	Is proposed action evaluated in the Programmatic Environmental Assessment (PEA)?
1	Are existing conditions and baseline information the same as under the PEA?
1	Review Environmental Consequences Section to identify potential environmental impacts and mitigation measures (if any) (refer to Section 4.0, PEA).
1	PEA conclusions regarding proposed action; Prepare AF Form 813.
1	Is new action within scope of the PEA? (Such as within boundaries of Robins AFB and fall under action category of new construction, reproduction, infrastructure improvement, or component plan?) (Refer to Section 2.0, PEA)
1	Has new action or site of action been the subject of previous environmental review?
1	Contact EM to identify appropriate supplemental environmental documentation required.
2	Does proposed action have potential to affect physical resources (refer to Section 3.1, PEA)?
2	Will proposed action affect air quality (refer to Section 3.4, PEA)?
2	Will proposed action require preparation of new permit?
2	Do emissions have potential to exceed existing permit conditions or existing air quality regulations?
2	Does the proposed action have potential to disturb erodible soils or steep slopes? (Refer to Figure 2-8, Soil Mapping Units, Section 3.3.2, PEA)
2	Can Soil Erosion Control Plan measures for site stabilization, erosion, and sedimentation controls be implemented?
2	Does U.S. Soil Conservation Service indicate potentially significant adverse effect?
2	Does proposed action have potential to disturb hydric (wetland) soils (refer to Figure 2-8, Soils Not Suitable For Construction)?
2	Can project be moved or modified to avoid hydric (wetland) soil impacts?
3	Does proposed action have potential to conflict with sensitive areas (refer to Stoplight Map)?
3	Is there potential to impact use of training area?
3	Can proposed action be moved or modified to avoid impact?
3	Is there potential to impact fuel storage areas (refer to Stoplight Map)?
3	Can project be moved or modified to avoid impacts?
3	Is there potential to impact a landfill, IRP Area, or AOC (refer to Figure 2-14, Solid Waste Disposal Areas)?
3	Can project be moved or modified to avoid impact?
3	Is there potential to conflict with restricted airspace or safety zones (refer to Figures 2-21 Height Restrictions, 2-22 Accident Potential Zones, 2-23 Quantity Distance Clearance Zones, 2-24 Radiation Zones, 2-25 Security Clear Zones; Section 3.9, PEA)?

APPENDIX A (Continued)
ROBINS AFB CHECKLIST QUESTIONS

SECTION	QUESTION
3	Can project be modified or moved?
3	Is there potential to impact recreation areas (refer to Figure 2-11, Outdoor Recreation Areas; Section 3.7, PEA)?
3	Can project be moved or modified to avoid impact?
3	Is there potential to increase size of existing Noise Zone II or III or create new Noise Zone II and III (refer Section 3.8, PEA)?
3	Can engineering controls be implemented to prevent elevated noise levels?
4	Does proposed action have potential to affect water resources (refer to Stoplight Map; Section 3.3.1, PEA)?
4	Will the proposed action affect water quality?
4	Do proposed water/wastewater discharges have potential to exceed existing permit limits or water quality regulations?
4	Will proposed discharge require preparation of a new permit?
4	Is there potential to obstruct regulatory floodplain (refer to figure 2-4, 100-Year Flood Plains; Section 3.3.1, PEA)?
4	Can construction within floodplain be modified or avoided?
4	Does the COE indicate potentially adverse effect?
4	Is there potential to impact groundwater (refer to Section 3.3.3, PEA)?
4	Can engineering controls can be implemented to prevent impact?
4	Does U.S. FWS indicate potentially significant adverse effect?
4	Is there potential to impact surface water (refer to Figure 2-6, Surface Water Features)?
4	Can engineering controls can be implemented to prevent impact?
5	Can project be modified or moved to avoid impact?
5	Does consultation with U.S. FWS and COE indicate potentially significant impacts?
5	Does proposed action have potential to affect biological resources (contact Dr. Bob Sargent, EMX; refer to Section 3.5, PEA)?
5	Is there potential to impact known threatened or endangered species or other protected species present in affected area (refer to Section 3.5.3, PEA)?
5	Does U.S. FWS or GA DNR indicate potentially significant adverse effect?
5	Can project be modified or moved to avoid impact?
5	Is there potential to impact known jurisdictional wetland (refer to Stoplight Map, Section 3.3.1, PEA)?
5	Does consultation with U.S. FWS or COE indicate potentially significant adverse effect?
5	Can project be modified or moved to avoid impact?
5	Is there potential to impact state or federal designated species critical habitat (refer to Section 3.5.3, PEA)?
5	Can project be modified or moved to avoid impact?

APPENDIX A (Continued)
ROBINS AFB CHECKLIST QUESTIONS

SECTION	QUESTION
5	Does consultation with U.S. FWS or GA DNR indicate project significantly alters critical habitat?
5	Is there potential to impact suspected wetland area (refer to Figure 2-3, Wetland Locations)?
6	Does proposed action have potential to affect cultural resources (contact Mr. Mark Hickman, EMX; refer to Section 3.6, PEA)?
6	Is there potential to impact resource that is eligible for or listed in the National Register of Historic Places (contact Mr. Mark Hickman, EMX)?
6	Can project be modified or moved to avoid impact?
6	Does consultation with SHPO indicate potential adverse effect?
6	Have surveys for archeological sites or historic properties or structures been conducted at this site?
6	Is proposed action compatible with guidelines in Cultural Resources Management Plan?
6	Will proposed action affect a cemetery?
6	Can project be modified or moved to avoid impact?
7	Does proposed action have potential to affect land use (contact base planner, CEG Hayden Hinton 6-3533 x 173); refer to Section 3.7, PEA)?
7	Is there potential for change in existing land use?
7	Is there potential to impact planned future land use?
7	Does proposed action have potential to require a grant, sale, or lease of property?
7	Does proposed action involve field activities on land or in airspace not controlled by military?
8	Is there potential for change in mission (refer to Section 3.10, PEA)?
8	Will total jobs created, transferred, or eliminated be equal to or greater than 50 permanent civilians or 200 military, or 10% of military or civilian authorized strength at the installation?

APPENDIX B
NAS-PAX CHECKLIST QUESTIONS

SECTION	QUESTION
1	Will the proposed project involve soil-disturbing activities?
1	Does the construction project have a planned total disturbance area of 5 acres or more?
1	Is the area of disturbance greater than 5000 square feet or involve more than 100 cubic yards of soil?
1	Is the proposed project located within 100 feet of any wetlands, streams (perennial or intermittent) or other surface waters, which are regulated by law (as shown in the GIS)?
1	Has a jurisdictional determination and survey of wetlands in the area been performed?
1	Will streams, wetlands or wetland buffer actually be impacted (either drained, filled, cleared or otherwise altered)?
1	Is the proposed project type covered by Nationwide or other General Permit issued by the USACE?
1	Can the project be accomplished within the limitations, conditions and management practices prescribed by the Nationwide Permit?
1	Does the applicable Nationwide Permit have a requirement to notify the USACE District Engineer?
1	Does the applicable Nationwide Permit have a requirement for a Section 401 Water Quality Certification?
1	Does the applicable Nationwide Permit have a requirement for a Public Discharge Notification?
1	Is the proposed project located entirely within an area that has documented subsurface disturbance, such as extensive grading or cutting?
1	Is the proposed project located within an area that has already been archaeologically investigated?
1	Is the proposed project located within 1000 feet of a known archaeological site (as shown in the GIS)?
1	Does the archaeological site fall within the Area of Potential Effect (APE) for the proposed project? (Note: "Effect" can include physical, visual or even auditory effects.)
1	Has the known archaeological site been evaluated for eligibility on the National Register of Historic Places?
1	Was the known archaeological site determined to be eligible for the National Register of Historic Places?
1	Is the proposed project site located on lands currently under lease for agriculture (as shown in the GIS)?
1	Is the proposed project site located on Prime or Unique Farmland Soils (as shown in the GIS)?

APPENDIX B (Continued)
NAS-PAX CHECKLIST QUESTIONS

SECTION	QUESTION
2	Will the project create more than 5000 square feet of impervious surface?
2	Does the proposed project include any wastewater discharges from the facility (new facility, facility addition, or facility modification)?
2	Is the wastewater discharged to the sanitary sewer?
2	Is the wastewater discharged to a storm drain?
2	Does the discharge contain only rainwater from roof drains?
3	Is the proposed project located within the Critical Area; that is, within 1000 feet of the Chesapeake Bay or its tidal tributaries (as shown in the GIS)?
3	Is the proposed project located within the 100-foot buffer surrounding the Chesapeake Bay or its tidal tributaries (as shown in GIS)?
3	Is the project considered "water-dependent"?
3	Is the proposed project consistent with the mapped Critical Area zoning (as shown in the GIS)?
4	Does the project involve alterations, maintenance or repairs to an existing structure?
4	Is the structure either listed on or determined eligible for the National Register of Historic Places?
4	Is the structure greater than 50 years old?
4	Has the structure been evaluated to determine eligibility for listing on the National Register of Historic Places?
4	Was the structure determined to be eligible for the National Register of Historic Places?
5	Does the proposed project involve new construction?
5	Is the proposed new construction located within view of any structure listed on or determined eligible for the National Register of Historic Places?
5	Is the proposed project located within the 100-year floodplain (as shown in the GIS)?
5	Do the design criteria include bird-resistant construction techniques, which will not attract nuisance bird species?
6	Does the proposed project involve any actions located within 1000 feet of any rare, threatened or endangered species (as shown in the GIS)?
7	Will the proposed project result in any change in land use or cover type?
7	Is the proposed project compatible with the land use/value classifications described in the Integrated Natural Resources Management Plan?
8	Will the proposed project result in the cutting or removal of trees?
8	Do the trees provide nesting habitat for migratory birds?
8	Are any of the trees classified as merchantable timber?
9	Is the proposed project located within 1000 feet of an active runway or approach path?
9	Will the project require construction of storm water retention/detention basins (or otherwise result in standing surface water)?

- 9 Will the project require the establishment of turf grass?
- 10 Does the project involve the construction or installation of fencing?
- 10 Could the constructed/installed fence significantly alter movement patterns for wildlife, especially deer?
- 10 Could the shift in movement patterns divert deer onto the airfield or across a public roadway?
- 11 Will the project involve application of any pesticides?
- 11 Is the chemical in the Authorized Use List (AUL)?
- 11 Is the method of application consistent with the provisions of the Integrated Pest Management Plan?
- 12 Will the proposed project involve disposal of solid waste?
- 13 Does the proposed project involve the use of hazardous materials?
- 13 Have you considered the use of non-hazardous or less hazardous materials?
- 13 Are the materials listed on the Public Works Authorized Use List (AUL)?
- 13 Will the proposed project generate or involve the disposal of hazardous wastes, including but not limited to, unexploded ordnance (UXO), and/or explosive hazardous waste (EHW), etc.?
- 14 Does the proposed project require the disposal of possible PCB or PCB-contaminated items?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) a boiler with a capacity of 1 million btu/hr or greater?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) a jet engine test cell?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) stationary internal combustion engines (e.g. emergency generators) with greater than 500 brake horsepower (373 kilowatt)?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) paint spray booths?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) heated parts washers/degreasers with a capacity of 60 gallons or greater?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) storage tanks containing gasoline with a capacity of 2000 gallons or greater?
- 15 Does the proposed project involve constructing or bringing online (or taking off-line) any of the following equipment/operations: printing, welding, plating, abrasive blasting, lead smelting?
- 15 Does the proposed project involve equipment, which contains Class I Ozone Depleting Substances (ODS), such as, Freon (F12)?
- 15 Does the proposed project involve open burning?
- 16 Does the proposed project involve potable water wells or water supply lines?
- 16 Does the proposed project involve the procurement of potable water dispensing equipment, such as, commodes, urinals, sinks, showerheads, etc.?
- 16 Will the proposed project discontinue potable water service to a facility or section of the station?
- 16 Does the proposed project involve withdrawing water from groundwater sources?

- 16 Does the proposed project result in a population increase on station?
- 17 Is the proposed project located within the boundaries of an Installation Restoration (IR) site (as shown in the GIS)?
- 17 Will the proposed project involve disturbance/excavation of soil?
- 17 Will the proposed project be located near an IR site, which may involve access (i.e. equipment storage, overhead utility work, etc.) to the site?
- 18 Will the proposed project be located on or near an Aboveground Storage Tank (AST), an Underground Storage Tank (UST), or fuel lines?
- 18 Does the proposed project have a petroleum auxiliary power system, heating system, generator, fire pump or other petroleum engine that would require a petroleum storage tank (UST or AST) or fuel piping?
- 18 Can an alternate energy source or fuel such as natural gas, propane, or electrical systems be used that would not require a petroleum storage tank or fuel piping?
- 18 Does the proposed project scope or action have the potential for petroleum leaks or spills?
- 18 Will the proposed project supply petroleum products to mobile equipment or fixed equipment?
- 18 Can an alternate energy source or fuel such as natural gas, propane, or electrical systems be used for the mobile or fixed equipment?
- 18 Is there a potential for petroleum leaks or spills in the proposed action or project scope?
- 19 Does the proposed project involve digging or construction on an oil contaminated soil area (as shown in GIS)?
- 19 Does the proposed project involve extraction of petroleum-contaminated groundwater (i.e. cooling water, construction dewatering)?
- 19 Will the petroleum-contaminated groundwater be discharged to storm sewer?
- 19 Will the petroleum-contaminated groundwater be discharged to sanitary sewer?
- 20 Will the proposed project require a monitoring well to monitor groundwater (i.e. for contamination monitoring, water level monitoring, or water extraction)?
- 20 Will the proposed project involve work over or near current groundwater monitoring wells (as shown in GIS)?
- 20 Is there a potential that the project will cause contamination to be spilled on the ground surface or reach groundwater?
- 21 Have you verified the absence of asbestos in the project area?
- 21 Is asbestos abatement required?
- 22 Have you verified the absence of lead paint?
- 22 Is lead abatement required?

Appendix C

Proposed Checklist Questions and Associated Entity Types

Section ID 0 - BASEMAP

BaseMap

Question No. 105 BASEMAP

<i>Entity Type Name</i>	<i>Definition</i>
airfield_surface_site	The surface areas that aircraft utilize. These include runways, taxiways, parking ramps, landing strips, helipads which may be components of airport and heliport facilities.
installation_area	Land and water currently owned or used by the military installation or facility
road_area	A portion of a road with similar characteristics such as the number of lanes or surface type.
shoreline	The boundary where land meets the edge of a large body of fresh or salt water. The shoreline is the mean high water line between high and low tide.
structure_existing_site	An existing structure that was created, by man, for occupation, storage, or to facilitate an activity.
surface_water_course_centerline	The center of a flowing course of water, normally measured at a location equidistant opposite shorelines or waterlines.
vehicle_driveway_area	An access to a residence or other vehicle parking lot or storage area.
vehicle_parking_area	An area used for parking vehicles not including residential streets and driveways.

Section ID 1 - Soil Disturbance

This section addresses issues such as soil disturbance, wetlands impact, Nationwide Permits, Water Quality Certifications, archaeological surveys, National Register eligibility, agricultural land leases and prime/unique farmland soils.

Question No. 1 Will the proposed project involve soil disturbing activities?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	
Question No. 2	Is the area of disturbance greater than 5,000 square feet, or will it involve more than 100 cubic yards of soil, or will the project otherwise disturb enough area to require a sediment and erosion control plan according to applicable state or local regulations?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	
Question No. 3	Is the proposed project located within 100 feet of any potential wetlands, streams (perennial or intermittent), or other surface waters?

BaseMap entity types need to be included with the following specific entity types.

Appendix C

Proposed Checklist Questions and Associated Entity Types

construction_storm_water_site	An area where surface runoff from past or present land clearing and/or construction activities have the potential to contribute sediment or other pollutants to the environment.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline	The boundary where land meets the edge of a large body of fresh or salt water. The shoreline is the mean high water line between high and low tide.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
surface_water_body_area	A standing body of water that can be natural or man-made including lakes, ponds, pools, etc.
surface_water_course_area	A flowing course of water including rivers, streams, canals, etc.
surface_water_course_centerline	The center of a flowing course of water, normally measured at a location equidistant opposite shorelines or waterlines.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 4 Has a delineation of wetlands and other surface water features, regulated by the Clean Water Act or applicable state or local regulations been performed? If so, has a jurisdictional determination been issued?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Appendix C

Proposed Checklist Questions and Associated Entity Types

Question No. 5 Will streams or wetlands actually be impacted (drained, filled, cleared, or otherwise altered)? Will stream or wetland buffers designated by your state or local government(s) be impacted?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
surface_water_course_area	A flowing course of water including rivers, streams, canals, etc.
surface_water_course_centerline	The center of a flowing course of water, normally measured at a location equidistant opposite shorelines or waterlines.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 6 Is the proposed project type covered by nationwide or applicable state-wide or regional General Permit ?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
borrow_area	An area designated a being the source of soils or other material which can be used for levee construction projects.
constr_dredging_project_reference	The area representing the extents of a construction dredging project used primarily to reference another design file containing the individual elements of the project including current and future constructions.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
surface_water_quality_monitoring	Equipment installed at a predetermined location for the automatic or manual periodic collection of samples for monitoring the environmental quality of surface water.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.

Appendix C

Proposed Checklist Questions and Associated Entity Types

wetland_centerline A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 7 Can the project be accomplished within the limitations, conditions, and management practices prescribed by the applicable General Permit?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
borrow_area	An area designated a being the source of soils or other material which can be used for levee construction projects.
constr_dredging_project_reference	The area representing the extents of a construction dredging project used primarily to reference another design file containing the individual elements of the project including current and future constructions.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
surface_water_quality_monitoring	Equipment installed at a predetermined location for the automatic or manual periodic collection of samples for monitoring the environmental quality of surface water.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 8 Does the applicable Nationwide Permit have a requirement to notify the USACE District Engineer or a state or local regulatory agency?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
borrow_area	An area designated a being the source of soils or other material which can be used for levee construction projects.
constr_dredging_project_reference	The area representing the extents of a construction dredging project used primarily to reference another design file containing the individual elements of the project including current and future constructions.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.

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surface_water_quality_monitoring	Equipment installed at a predetermined location for the automatic or manual periodic collection of samples for monitoring the environmental quality of surface water.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 9 Does the applicable Nationwide Permit have a requirement for a Section 401 Water Quality Certification?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
surface_water_discharge_point	The location of a surface water discharge.
surface_water_quality_monitoring	Equipment installed at a predetermined location for the automatic or manual periodic collection of samples for monitoring the environmental quality of surface water.
wastewater_discharge_point	Any location where wastewater pipes directly discharge effluent.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 10 Does the applicable Nationwide Permit have a requirement for a public discharge notification?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
industrial_waste_discharge_point	Any location where industrial waste water pipes directly discharge effluent.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.

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surface_water_discharge_point	The location of a surface water discharge.
surface_water_quality_monitoring	Equipment installed at a predetermined location for the automatic or manual periodic collection of samples for monitoring the environmental quality of surface water.
wastewater_discharge_point	Any location where wastewater pipes directly discharge effluent.
wetland_area	Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.
wetland_buffer_area	Areas surrounding certain types of wetlands where any development is restricted. The buffer distance can differ based upon state regulations and the type of wetland.
wetland_centerline	A singularly defined length of linear wetland, where the water table is usually at or near the surface of the land or the land is covered by shallow water.

Question No. 11 Is the proposed project located entirely within an area that has documented subsurface disturbance such as extensive grading or cutting?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
archeological_artifact_point	Objects of archeological significance which, due to their size or nature, have not been removed from the site.
cultural_probable_sensitive_site	A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study.
cultural_restricted_area	An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as restricted is intended to prevent access or development that will disturb the site.
cultural_study_site	A site under study for archeological or historic resources.
cultural_survey_site	A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc.
flora_fire_area	An area where a historically recorded fire has occurred. The fires may be wild or man-made prescribed burns.
historic_bald_eagle_nesting_site	Areas or points which have historic record of being locations for bald eagle nesting.
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_river_alignment_line	Lines marking the historic river alignments of locations in the recent epoch.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 12 Is the proposed project located within an area that has already been archaeologically investigated?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
archeological_artifact_point	Objects of archeological significance which, due to their size or nature, have not been removed from the site.

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cultural_probable_sensitive_site	A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study.
cultural_restricted_area	An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as restricted is intended to prevent access or development that will disturb the site.
cultural_study_site	A site under study for archeological or historic resources.
cultural_survey_site	A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc.
flora_fire_area	An area where a historically recorded fire has occurred. The fires may be wild or man-made prescribed burns.
historic_bald_eagle_nesting_site	Areas or points which have historic record of being locations for bald eagle nesting.
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_river_alignment_line	Lines marking the historic river alignments of locations in the recent epoch.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 13 Is the proposed project located within 1,000 feet of a known archaeological site or cemetery?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
archeological_artifact_point	Objects of archeological significance which, due to their size or nature, have not been removed from the site.
cultural_probable_sensitive_site	A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study.
cultural_restricted_area	An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as restricted is intended to prevent access or development that will disturb the site.
cultural_study_site	A site under study for archeological or historic resources.
cultural_survey_site	A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc.
flora_fire_area	An area where a historically recorded fire has occurred. The fires may be wild or man-made prescribed burns.
historic_bald_eagle_nesting_site	Areas or points which have historic record of being locations for bald eagle nesting.
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_river_alignment_line	Lines marking the historic river alignments of locations in the recent epoch.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

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surface_water_body_area	A standing body of water that can be natural or man-made including lakes, ponds, pools, etc.
terrestrial_archeological_site	The location of a registered archeological site.

Question No. 14 Does the archaeological site or cemetery fall within areas potentially affected by the proposed project? (Note, "Affected" can include physical, visual, or even auditory effects.)

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
archeological_artifact_point	Objects of archeological significance which, due to their size or nature, have not been removed from the site.
cultural_probable_sensitive_site	A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study.
cultural_restricted_area	An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as restricted is intended to prevent access or development that will disturb the site.
cultural_study_site	A site under study for archeological or historic resources.
cultural_survey_site	A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc.
flora_fire_area	An area where a historically recorded fire has occurred. The fires may be wild or man-made prescribed burns.
historic_bald_eagle_nesting_site	Areas or points which have historic record of being locations for bald eagle nesting.
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_river_alignment_line	Lines marking the historic river alignments of locations in the recent epoch.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 15 Has the known archaeological site been evaluated for eligibility on the National Register of Historic Places?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
archeological_artifact_point	Objects of archeological significance which, due to their size or nature, have not been removed from the site.
coke_oven_centerline	Large ovens used to produce coke, which is needed in the extraction of metals from ore.
cultural_probable_sensitive_site	A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study.
cultural_restricted_area	An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as restricted is intended to prevent access or development that will disturb the site.
cultural_study_site	A site under study for archeological or historic resources.

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cultural_survey_site	A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc.
flora_fire_area	An area where a historically recorded fire has occurred. The fires may be wild or man-made prescribed burns.
historic_bald_eagle_nesting_site	Areas or points which have historic record of being locations for bald eagle nesting.
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_river_alignment_line	Lines marking the historic river alignments of locations in the recent epoch.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 16 Was the known archaeological site or cemetery determined to be eligible for the National Register of Historic Places?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
archeological_artifact_point	Objects of archeological significance which, due to their size or nature, have not been removed from the site.
cultural_probable_sensitive_site	A site suspected to contain archeological or historic resources that has not been verified by a detailed archeological study.
cultural_restricted_area	An area that needs to be preserved due to the sensitive nature of the archeological or historic site. The area designated as restricted is intended to prevent access or development that will disturb the site.
cultural_study_site	A site under study for archeological or historic resources.
cultural_survey_site	A site where detailed investigation has been conducted for cultural resources. This investigation could involve test pits, excavation areas, surface surveys, etc.
flora_fire_area	An area where a historically recorded fire has occurred. The fires may be wild or man-made prescribed burns.
historic_bald_eagle_nesting_site	Areas or points which have historic record of being locations for bald eagle nesting.
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_river_alignment_line	Lines marking the historic river alignments of locations in the recent epoch.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 17 Is the proposed project site located on lands currently under lease for agriculture?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	

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agricultural_outlease_area	Department of Defense land areas that are leased to private concerns for agricultural use. The Department of Defense receives lease payment and the land is maintained by the private concern.
agricultural_tract_area	Location of agricultural tract areas

Question No. 18 Is the proposed project site located on prime or unique farmland soil?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
soil_unit_area	An area with similar soil characteristics. The size of the units used for an installation differs based upon the smallest area of land that is managed for a particular land use.

Question No. 93 Does the construction project have a planned total disturbance area of 5 acres or more?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 2 - Storm Water and Wastewater

This section addresses the proposed project's expected impact on storm water and wastewater management.

Question No. 19 Will the project create more than 5,000 square feet of impervious surface, or will it create enough impervious surface to require a storm water management plan according to applicable state or local regulations?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
floodway_area	Leveed areas through which flood flows are diverted from the main river channel into adjacent sub basins to lower downstream river stages to reduce flooding in critical areas also known as a spillway.
hydrobasin_storage_area	A subarea of a watershed, specifically established for executing a UNET hydrologic model.
shoreline	The boundary where land meets the edge of a large body of fresh or salt water. The shoreline is the mean high water line between high and low tide.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
shoreline_buffer_nobuild_area	The buffer area that is 100 feet landward of the mean high tide coastline and any tidal waterways.
watershed_drainage_area	A specific subarea of a watershed.

Question No. 67 Does the proposed project include any wastewater discharges from the facility (new facility, facility addition, or facility modification)?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
wastewater_line	A pipe used to carry a substance from location to location (main line, service line, force main line, etc).

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Question No. 68 Is the wastewater discharged to the sanitary sewer?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
wastewater_discharge_point	Any location where wastewater pipes directly discharge effluent.
wastewater_drain_field_area	The area of influence where perforated pipe placed in gravel trenches carries effluent from a waste storage containment for percolation into the earth.
wastewater_flow_direction_arrow	A flow direction arrow indicates the direction of flow through a line, valve, or component.
wastewater_inlet_point	The location where waste water is collected and received into the utility system.
wastewater_line	A pipe used to carry a substance from location to location (main line, service line, force main line, etc).

Question No. 69 Is the wastewater discharged to a storm drain?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
storm_sewer_armor_point	Any location where armor stone is used for erosion protection in an open channel.
storm_sewer_culvert_line	Interception and removal of ground water or surface water.
storm_sewer_discharge_point	Any location where storm sewer pipes directly discharge effluent.
storm_sewer_drainage_basin_area	An area in which surface runoff collects and from which it is carried by a drainage system.
storm_sewer_flow_direction_arrow	A flow direction arrow indicates the direction of flow through a line, valve, or component.
storm_sewer_inlet_point	The location where water is collected and received into the utility system.
storm_sewer_reservoir_point	The location where storm sewer water is collected.
wastewater_line	A pipe used to carry a substance from location to location (main line, service line, force main line, etc).

Question No. 70 Does the discharge contain only rainwater from roof drains?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 3 - Critical Area and Coastal Zone

This section consists of questions on the Critical Area, the 100-foot buffer and CZMA Federal Consistency Determinations.

Question No. 20 Is the proposed project located within areas designated by your state as part of the coastal zone?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	

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floodway_area	Leveed areas through which flood flows are diverted from the main river channel into adjacent sub basins to lower downstream river stages to reduce flooding in critical areas also known as a spillway.
hydrobasin_storage_area	A subarea of a watershed, specifically established for executing a UNET hydrologic model.
shoreline	The boundary where land meets the edge of a large body of fresh or salt water. The shoreline is the mean high water line between high and low tide.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
shoreline_buffer_nobuild_area	The buffer area that is 100 feet landward of the mean high tide coastline and any tidal waterways.
watershed_drainage_area	A specific subarea of a watershed.

Question No. 22 Is the project considered "water-dependent"?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
airboat_trail_centerline	A designated path in the water course where airboats have jurisdiction to travel.
canal_centerline	An artificially dug waterway with or without flow which is used as a transportation artery.
dam_site	A barrier to obstruct the flow of water.
depth_contour_line	Connecting points on the bottom of a water body representing some fixed depth of water with respect to a specified reference.
depth_maintenance_area	An area beneath the surface of water which has been maintained free of obstacles or subsurface debris such that the depth of water is at least a specific amount with reference to some datum.
distance_marker_point	A marker or location a specific distance from a known origin along a water course. Sometimes known as a river mile.
distance_zone_area	Areas where specific distances to the natural scenic importance of the area are documented.
ditch_aqueduct_centerline	Manmade or improved waterway designed to transport water for irrigation or other use.

Question No. 23 Is the proposed project consistent with any zoning established by state or local government(s) for the coastal zone?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
floodway_area	Leveed areas through which flood flows are diverted from the main river channel into adjacent sub basins to lower downstream river stages to reduce flooding in critical areas also known as a spillway.
hydrobasin_storage_area	A subarea of a watershed, specifically established for executing a UNET hydrologic model.
shoreline	The boundary where land meets the edge of a large body of fresh or salt water. The shoreline is the mean high water line between high and low tide.

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shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.
shoreline_buffer_nobuild_area	The buffer area that is 100 feet landward of the mean high tide coastline and any tidal waterways.
watershed_drainage_area	A specific subarea of a watershed.

Section ID 4 - Historic Architecture

This section addresses alterations, maintenance and repairs to structures eligible for the National Register of Historic Places.

Question No. 24 Does the project involve alterations, maintenance, or repairs to an existing structure?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
structure_existing_site	An existing structure that was created, by man, for occupation, storage, or to facilitate an activity.

Question No. 25 Is the structure either listed on or determined eligible for the National Register of Historic Places?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 26 Is the structure greater than 50 years old?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 27 Has the structure been evaluated to determine eligibility for listing on the National Register of Historic Places?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.

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historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 28 Was the structure determined to be eligible for the National Register of Historic Places?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Section ID 5 - Capital Improvements

This section addresses issues related to new construction, including floodplains, nuisance wildlife and indirect impacts to structures eligible for the National Register of Historical Places.

Question No. 29 Does the proposed project involve new construction?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	

Question No. 30 Is the proposed new construction located within view of any structure listed on or determined eligible for the National Register of Historic Places?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
historic_district_area	A group of related buildings or streetscapes that demonstrate the historical development of an area.
historic_feature_site	Historically or culturally significant points of interest. These include monuments, memorials, landmarks, museums, historic markers, interpretive sites, etc.
historic_structure_site	A structure that has cultural significance due to its historic background, association with a famous person, or its architectural features.

Question No. 31 Is the proposed project located within the 100-year floodplain (on Flood Insurance Rate maps, available from the your installation's natural resource manager, your local planning office, or directly from the Federal Emergency Management Agency)?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
flood_contour_line	A line representing the limit or extent of probable flooding associated with the area.
flood_event_area	An area where a particular flood event has occurred.
flood_zone_area	Areas subject to 100-year, 500-year and minimal flooding.

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Question No. 32 Do the design criteria include bird-resistant construction techniques that will not attract nuisance bird species?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 6 - Endangered Species

This section contains a question regarding potential impacts on rare, threatened and endangered species.

Question No. 33 Does the proposed project involve any actions located within 1,000 feet of any Federal Candidate, State watchlist, or other species or habitat enjoying a special designation assigned by Federal or state agencies?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap entity types need to be included with the following specific entity types.

fauna_special_habitat_site	A site or location where the specific species associated with the habitat require special attention according to law. These are normally threatened, sensitive, or endangered species habitats.
flora_replanting_site	An site where flora has been reintroduced.
flora_special_plant_site	A site or location where there are threatened, endangered, or sensitive floral species.
preserve_area	An area of forest that is being managed as a preserve due to its unique characteristics such as an old growth area or good species habitat area.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.

Question No. 96 Have areas within 1,000 feet of the project site been surveyed within the last 10 years for threatened or endangered species or critical habitat designated under the Federal Endangered Species Act or under equivalent state law?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap entity types need to be included with the following specific entity types.

fauna_special_habitat_site	A site or location where the specific species associated with the habitat require special attention according to law. These are normally threatened, sensitive, or endangered species habitats.
flora_replanting_site	An site where flora has been reintroduced.
flora_special_plant_site	A site or location where there are threatened, endangered, or sensitive floral species.
preserve_area	An area of forest that is being managed as a preserve due to its unique characteristics such as an old growth area or good species habitat area.
shoreline_buffer_critical_area	An area of land extending from the shoreline or from the landward boundary of any adjacent tidal wetland where development is regulated. Activities within this critical area have the greatest potential for affecting water quality as well as fish, plant, and wildlife habitat.

Appendix C

Proposed Checklist Questions and Associated Entity Types

Section ID 7 - Land Use

This section consists of questions regarding proposed changes in land use and cover type and the proposed project's compatibility with the base's Integrated Natural Resources Management Plan.

Question No. 34 Will the proposed project result in any change in land use or cover type?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 35 Is the proposed project compatible with the land use and value classifications described in the integrated natural resources management plan?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 8 - Tree Clearing

This section addresses issues related to planned cutting or removal of trees, proper disposal of real estate (timber) and the impacts associated with the Migratory Bird Treaty Act.

Question No. 36 Will the proposed project result in the cutting or removal of trees?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 37 Do the trees provide nesting habitat for migratory birds?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap entity types need to be included with the following specific entity types.

forest_interior_dwelling_species_a FIDS are habitat areas with specific characteristics that are attractive to neo-tropical migratory bird species.

Question No. 38 Are any of the trees classified as merchantable timber?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 9 - Bird/Aircraft Strikes

This section contains questions regarding the proposed project's potential to create a bird/aircraft strike hazard and the use of bird repellent or exclusion devices to minimize bird/aircraft strikes.

Question No. 39 Is the proposed project located within 1,000 feet of an active runway or approach path?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap entity types need to be included with the following specific entity types.

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Proposed Checklist Questions and Associated Entity Types

air_accident_zone_area	Areas at the end of runways or beneath approach and departure flight paths where there is a higher potential for aircraft accidents. These areas include clear zones, and accident potential zones (APZ) I and II. Clear zones are areas immediately beyond the end of the runways with a high potential for accidents. These areas are traditionally acquired by the Government in fee and kept clear of obstructions to flight. All of these zones are used in the analysis of land use compatibility with surrounding communities.
airfield_light_point	The location of dedicated airfield lights used to illuminate runways, taxiways, or helipads as well as to guide ground traffic.
airfield_surface_centerline	The center of runways and taxiways as measured from the edge of the paved surface.
airfield_surface_marking_line	Markings placed on an airfield surface which aid in its use. Examples are landing indicators, runway designators and route/intersection points.
airfield_surface_site	The surface areas that aircraft utilize. These include runways, taxiways, parking ramps, landing strips, helipads which may be components of airport and heliport facilities.

Question No. 40 Will the project require construction of storm water retention or detention basins (or otherwise result in standing surface water)?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
floodway_area	Leveed areas through which flood flows are diverted from the main river channel into adjacent sub basins to lower downstream river stages to reduce flooding in critical areas also known as a spillway.

Question No. 41 Will the project require the establishment of turf grass?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 10 - Deer Auto Collision

This section consists of questions related to fence alignments and other construction methods which could impact the movement of wildlife, especially deer.

Question No. 42 Does the project involve the construction or installation of fencing?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
fence_line	The line, along which, a fence has been erected.

Question No. 43 Could the constructed and installed fence significantly alter movement patterns for wildlife, especially deer?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

amphibia_migration_corridor_line	An area or route along which amphibian species are known to migrate from one habitat to another.
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Appendix C

Proposed Checklist Questions and Associated Entity Types

aves_migration_corridor_line	An area or route along which certain aves species are known to migrate from one habitat to another.
crustacea_migration_corridor_line	An area or route along which certain crustacea species are known to migrate from one habitat to another.
fauna_general_migration_corridor	An area or route along which an aggregate of fauna species are known to migrate from one habitat to another.
fence_line	The line, along which, a fence has been erected.
insecta_migration_corridor_line	An area or route along which certain insecta species are known to migrate from one habitat to another.
mammalia_migration_corridor_lin	An area or route along which certain mammalia species are known to migrate from one habitat to another.
mollusca_migration_corridor_line	An area or route along which certain mollusca species are known to migrate from one habitat to another.
pisces_migration_corridor_line	An area or route along which certain pisces species are known to migrate from one habitat to another.
reptilia_migration_corridor_line	An area or route along which certain reptilia species are known to migrate from one habitat to another.
riparian_forest_buffer_project_are	An area that has been identified for the establishment of a riparian forest buffer. Riparian forest buffer project areas are only the areas where the natural environment needs to be enhanced through a replanting effort, fencing to harbor the natural regeneration process, or some other means to create a forested buffer area.

Question No. 44 Could the shift in movement patterns divert deer onto the airfield or across a public roadway?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	
amphibia_migration_corridor_line	An area or route along which amphibian species are known to migrate from one habitat to another.
aves_migration_corridor_line	An area or route along which certain aves species are known to migrate from one habitat to another.
crustacea_migration_corridor_line	An area or route along which certain crustacea species are known to migrate from one habitat to another.
fauna_general_migration_corridor	An area or route along which an aggregate of fauna species are known to migrate from one habitat to another.
fauna_hazard_area	An area where there are hazards due to wildlife activities. This includes bird aircraft strike hazard (BASH) areas, and deer strike areas.
fence_line	The line, along which, a fence has been erected.
insecta_migration_corridor_line	An area or route along which certain insecta species are known to migrate from one habitat to another.
mammalia_migration_corridor_lin	An area or route along which certain mammalia species are known to migrate from one habitat to another.
mollusca_migration_corridor_line	An area or route along which certain mollusca species are known to migrate from one habitat to another.

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Proposed Checklist Questions and Associated Entity Types

pisces_migration_corridor_line	An area or route along which certain pisces species are known to migrate from one habitat to another.
reptilia_migration_corridor_line	An area or route along which certain reptilia species are known to migrate from one habitat to another.
riparian_forest_buffer_project_are	An area that has been identified for the establishment of a riparian forest buffer. Riparian forest buffer project areas are only the areas where the natural environment needs to be enhanced through a replanting effort, fencing to harbor the natural regeneration process, or some other means to create a forested buffer area.

Section ID 11 - Pesticides

This section addresses the application of pesticides and the proposed project's consistency with the base's Integrated Pest Management Plan.

Question No. 45 Will the project involve application of any pesticides?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
pest_management_site	A site where specific actions are being taken to control insects, rodents, or other pests.

Question No. 46 Is the method of application consistent with the provisions of the integrated pest management plan?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
pest_management_site	A site where specific actions are being taken to control insects, rodents, or other pests.

Question No. 94 Is the chemical in the Authorized Use List?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 12 - Solid Waste and Recycling

This section addresses the disposal/recycling of solid waste, the disposal of excess materials through DRMO, and the affirmative procurement program (buying recycled).

Question No. 47 Will the proposed project involve disposal of solid waste?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 13 - Hazardous Waste and Materials

This section addresses the authorization, use, and handling of all hazardous materials as well as the proper treatment, storage, and disposal of hazardous waste.

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Proposed Checklist Questions and Associated Entity Types

Question No. 48 Does the proposed project involve the use of hazardous materials?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 49 Have you considered the use of non-hazardous or less hazardous materials?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 50 Are the materials listed on the Public Works Authorized Use List?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 51 Will the proposed project generate or involve the disposal of hazardous wastes, including, but not limited to, unexploded ordnance or explosive hazardous waste?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 14 - Polychlorinated Biphenyls (PCB)

This section addresses the disposal of PCB and PCB-Contaminated material/equipment.

Question No. 52 Does the proposed project require the disposal of possible PCB or PCB-contaminated items?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 15 - Air Quality (Air Emissions)

This section addresses equipment and activities that impact air quality.

Question No. 53 Does the proposed project involve constructing or bringing online (or taking off-line) a boiler with a capacity of 1 million BTU/hr or greater?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 54 Does the proposed project involve constructing or bringing on-line (or taking off-line) a jet engine test cell?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

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Proposed Checklist Questions and Associated Entity Types

Question No. 55 Does the proposed project involve constructing or bringing on-line (or taking off-line) stationary internal combustion engines (such as emergency generators) with greater than 500-brake horsepower (373 kilowatt)?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 56 Does the proposed project involve constructing or bringing on-line (or taking off-line) paint spray booths?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 57 Does the proposed project involve constructing or bringing on-line (or taking off-line) heated parts washers or degreasers with a capacity of 60 gallons or greater?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 58 Does the proposed project involve constructing or bringing on-line (or taking off-line) storage tanks containing gasoline with a capacity of 2,000 gallons or greater?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 59 Does the proposed project involve constructing or bringing on-line (or taking off-line) any of the following equipment or operations: printing, welding, plating, abrasive blasting, and lead smelting?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 60 Does the proposed project involve equipment that contains Class I Ozone Depleting Substances, such as Freon?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 61 Does the proposed project involve open burning?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

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Proposed Checklist Questions and Associated Entity Types

Section ID 16 - Drinking Water

This section addresses compliance with the Safe Drinking Water Act, protection of Station groundwater resources and water conservation requirements and practices.

Question No. 62 Does the proposed project involve potable water wells or water supply lines?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
water_line	A pipe used to carry a substance from location to location (main line, service line, vent line, etc).
water_system_flow_direction_arro	A flow direction arrow indicates the direction of flow through a line, valve, or component.
water_well_point	A shaft dug or drilled into the earth for the purpose of extracting water from subsurface aquifers, collecting groundwater environmental samples, injecting water or other fluids into subsurface aquifers, or extracting contamination or other impurities from subsurface aquifers.

Question No. 63 Does the proposed project involve the procurement of potable water dispensing equipment such as commodes, urinals, sinks, and shower heads?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	

Question No. 64 Will the proposed project discontinue potable water service to a facility or section of your installation?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	

Question No. 65 Does the proposed project involve withdrawing water from groundwater sources?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
chemical_waste_polluted_groundw	Area where chemical waste residues are present in the groundwater at concentrations considered to be detrimental to the environment.

Question No. 66 Does the proposed project result in a population increase on station?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap Entity Types Only	

Section ID 17 - Installation Restoration

This section addresses the proposed project's access requirements and proximity to Installation Restoration Sites.

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Proposed Checklist Questions and Associated Entity Types

Question No. 71 Is the proposed project located within the boundaries of an Installation Restoration site?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
environmental_restoration_site	A geographic area where an active environmental study or project is underway to remediate pollutants located in the soil, sediment, surface water, or groundwater.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.

Question No. 72 Will the proposed project involve disturbance or excavation of soil?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
environmental_restoration_site	A geographic area where an active environmental study or project is underway to remediate pollutants located in the soil, sediment, surface water, or groundwater.
fuel_tank_site	An above or below grade receptacle or chamber for holding components on a temporary basis prior to transfer or use.
land_reclamation_project_site	Sites where an ecosystem has been reclaimed or enhanced by man's efforts. This includes the restoration or creation of wetlands, dunes, stable shorelines, etc.

Question No. 73 Will the proposed project be located near an IR site that may involve access (such as, equipment storage or overhead utility work) to the site?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 18 - Petroleum Systems

This section addresses requirements for existing or proposed fuel storage tanks and fueling operations; new or existing heating oil, fuel oil, and jet fuel requirements; and permits required for removal or installation of new fueling tanks and operations

Question No. 74 Will the proposed project be located on or near an aboveground storage tank, an underground storage tank, or fuel lines?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
fuel_tank_site	An above or below grade receptacle or chamber for holding components on a temporary basis prior to transfer or use.
regulated_aboveground_storage_ta	A receptacle or chamber used for storing bulk fuels or chemicals of which 90 percent or more is located above the surface of the ground.
regulated_underground_storage_ta	A receptacle or chamber used for storing bulk fuels or chemicals of which 10 percent or more is located beneath the surface of the ground.

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Proposed Checklist Questions and Associated Entity Types

Question No. 75 Does the proposed project have a petroleum auxiliary power system, heating system, generator, fire pump or other petroleum engine that would require petroleum aboveground or underground storage tank or fuel piping?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
fuel_tank_site	An above or below grade receptacle or chamber for holding components on a temporary basis prior to transfer or use.
regulated_aboveground_storage_ta	A receptacle or chamber used for storing bulk fuels or chemicals of which 90 percent or more is located above the surface of the ground.
regulated_underground_storage_ta	A receptacle or chamber used for storing bulk fuels or chemicals of which 10 percent or more is located beneath the surface of the ground.

Question No. 76 Can an alternate energy source or fuel, such as natural gas, propane, or electrical systems, be used that would not require a petroleum storage tank or fuel piping?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 78 Will the proposed project supply petroleum products to mobile or fixed equipment?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 79 Can an alternate energy source or fuel, such as natural gas, propane, or electrical systems, be used for the mobile or fixed equipment?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 80 Does the proposed project scope or action have the potential for petroleum leaks or spills?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 19 - Oil Control

This section addresses the disturbance of or construction on oil contaminated sites and the notification procedures required by MDE. If petroleum contamination is found during excavation of project, please contact the PW coordinator at (301)-757-4825.

Appendix C

Proposed Checklist Questions and Associated Entity Types

Question No. 81 Does the proposed project involve digging or construction of on an oil-contaminated soil area?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
chemical_waste_polluted_soil_area	Area where chemical waste residues are present in the soil at concentrations considered to be detrimental to the environment.
hazards_potential_concern_site	A site of suspected environmental contamination.

Question No. 82 Does the proposed project involve extraction of petroleum- contaminated groundwater (such as cooling water or construction dewatering)?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
chemical_waste_polluted_soil_area	Area where chemical waste residues are present in the soil at concentrations considered to be detrimental to the environment.

Question No. 83 Will the petroleum-contaminated groundwater be discharged to storm sewer?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
storm_sewer_culvert_line	Interception and removal of ground water or surface water.
storm_sewer_discharge_point	Any location where storm sewer pipes directly discharge effluent.
storm_sewer_inlet_point	The location where water is collected and received into the utility system.
storm_sewer_line	A pipe used to carry a substance from location to location (main line, service line, vent line, etc).
storm_sewer_open_drainage_line	Interception and removal of ground water or surface water by natural means.
storm_sewer_reservoir_point	The location where storm sewer water is collected.
storm_sewer_stilling_basin_site	The location where the energy from turbulent water flow is reduced.

Question No. 84 Will the petroleum-contaminated groundwater be discharged to a sanitary sewer?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
wastewater_discharge_point	Any location where wastewater pipes directly discharge effluent.
wastewater_drain_field_area	The area of influence where perforated pipe placed in gravel trenches carries effluent from a waste storage containment for percolation into the earth.
wastewater_inlet_point	The location where waste water is collected and received into the utility system.

Section ID 20 - Groundwater Monitoring Wells

This section addresses the proposed project's impact on existing groundwater monitoring wells, the installation of new wells, the removal of existing wells and all required permits.

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Proposed Checklist Questions and Associated Entity Types

Question No. 85 Will the proposed project require a monitoring well to monitor groundwater (such as, for contamination monitoring, water level monitoring, or water extraction)?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
groundwater_quality_monitoring_s	Equipment installed at a predetermined location for the automatic or manual periodic collection of environmental groundwater samples.

Question No. 86 Will the proposed project involve work over or near current groundwater monitoring?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
groundwater_quality_monitoring_s	Equipment installed at a predetermined location for the automatic or manual periodic collection of environmental groundwater samples.

Question No. 87 Is there a potential that the project will cause contamination to be spilled on the ground surface or to reach groundwater?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
chemical_waste_polluted_groundw	Area where chemical waste residues are present in the groundwater at concentrations considered to be detrimental to the environment.
chemical_waste_polluted_surface_	Area where chemical waste residues are present in the surface water at concentrations considered to be detrimental to the environment.

Section ID 21 - Asbestos

This section addresses issues that pertain to asbestos.

Question No. 89 Have you verified the absence of asbestos in the project area?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
asbestos_containing_materiel_poi	A room, space, or other location where an asbestos containing materiel (ACM) is present.

Question No. 90 Is asbestos abatement required?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	
asbestos_containing_materiel_poi	A room, space, or other location where an asbestos containing materiel (ACM) is present.

Section ID 22 - Lead

This section addresses lead paint.

Question No. 91 Have you verified the absence of lead paint?

<i>Entity Type Name</i>	<i>Definition</i>
BaseMap entity types need to be included with the following specific entity types.	

Appendix C

Proposed Checklist Questions and Associated Entity Types

lead_paint_hazard_point A room, space, or other location where a paint or coating containing lead is present.

Question No. 92 Is lead abatement required?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap entity types need to be included with the following specific entity types.

lead_paint_hazard_point A room, space, or other location where a paint or coating containing lead is present.

Section ID 23 - Socioeconomics

This section addresses socioeconomics.

Question No. 97 Is there a potential for the project to result in a change in the mission of your installation?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 98 Will the total jobs created, transferred, or eliminated due to the project be equal to or greater than 50 permanent civilian or 200 military positions, or equal to or greater than 10 percent of the combined military and civilian authorized strength at your installation?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Question No. 99 Will the project create temporary or permanent jobs requiring the off-base housing or lodging of military, civilian, or contractor personnel?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 24 - Traffic

This section addresses traffic.

Question No. 100 Will the project involve a substantial permanent or temporary increase in truck or automobile traffic on any installation or public highway?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 25 - Noise

This section addresses noise.

Question No. 101 Will the project involve generation of noise at levels substantially increased over ambient levels?

<i>Entity Type Name</i>	<i>Definition</i>
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Proposed Checklist Questions and Associated Entity Types

BaseMap Entity Types Only

Question No. 102 Does your installation involve the addition, expansion, or reconfiguration of an airfield or other air transportation facilities, or the addition of flights?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 26 - Aesthetics

This section addresses aesthetics of surrounding area.

Question No. 103 Will the project be visible from residential areas, administrative areas, or public spaces (whether on or off base)?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

Section ID 27 - Environmental Justice

This section addresses environmental justice.

Question No. 104 Will your project have a potential to affect predominantly minority or low-income communities?

<i>Entity Type Name</i>	<i>Definition</i>
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BaseMap Entity Types Only

APPENDIX D

INFORMATION SOURCES

The following regulations, guidance documents, and other technical information sources were considered while performing the review:

40 CFR 1500-1508. Council on Environmental Quality (CEQ) Regulations on Implementation of the National Environmental Quality Act.

46 FR 18026-18038. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations (40 CFR 1500-1508).

Department of Defense (DoD) Directive 6050.1. Environmental Effects in the United States of DoD Actions.

Eccleston, C. H. 2000. *Environmental Impact Statements – A Comprehensive Guide to Project and Strategic Planning*. John Wiley & Sons, Inc., New York, New York.

Naval Air Station Patuxent River. Undated. *A Guide to the Environmental Planning Checklist*. Naval Air Station Patuxent River, Lexington Park, Maryland.

APPENDIX E
LIST OF ABBREVIATIONS

AFB	Air Force Base
AOC	Area of Concern
AST	Aboveground Storage Tank
AUL	Authorized Use List
CADD	Computer-Assisted Drawings and Designs
CATEX	Categorical Exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
DoD	Department of Defense
EA	Environmental Assessment
EHW	explosive hazardous waste
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EM	Environmental Management
EMX	Resources Management Division
EPC	Environmental Assessment
FMSFIE	Facility Management Standards for Facilities, Infrastructure, and Environment
FONSI	Finding of No Significant Impact
GIF	Graphic Interchange Format
GIS	Geographical Information System
HAZMAT	Hazardous Material
IRP	Installation Restoration Program
IT	Information Technology
JPEF	Joint Photographic Expert Format
NAS-PAX	Patuxent River Naval Air Station
NEPA	National Environmental Policy Act
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
ODS	Ozone Depleting Substances
P2	Pollution Prevention
PDF	Portable Document Format
PEA	Programmatic Environmental Assessment
ppm	Parts Per Million
RAFB	Robins Air Force Base
SDSFIE	Spatial Data Standard for Facilities, Infrastructure, and Environment
SHPO	State Historic Preservation Officer
SPCC	Spill Prevention Control and Counter Measures
USACE	U.S. Army Corps of Engineers
UST	Underground Storage Tank
UXO	unexploded ordnance
WRN	Work Request Number