

## **12.0 Environmental Information Document**

### **12.1 Introduction**

#### ***12.1.1 Purpose of Environmental Information Document***

When public grant and loan program funds administered by the Infrastructure Finance Section (IFS) are spent on a construction project, the project must be assessed for environmental impacts. The environmental information document (EID) allows IFS, as well as other review agencies, to make determinations about the degree of impacts that can reasonably be expected to occur as a result of construction and operation associated with a proposed project. The EID may also be needed to comply with the National Environmental Policy Act (NEPA) and/or the North Carolina Environmental Policy Act, also known as the State Environmental Policy Act (SEPA).

Projects seeking funding through the State and Tribal Assistance Grants (STAG) program are subject to NEPA requirements. Projects seeking funding through the Clean Water State Revolving Fund (CWSRF), State Revolving Loan (SRL), or State Emergency Loan (SEL) programs are subject to SEPA requirements. Even though CWSRF projects are subject to SEPA, there are some Federal cross-cutting issues that may be applicable. The two programs are very similar, and both have a goal of preserving natural resources and minimizing environmental consequences. For additional information, refer to EPA's [NEPA Homepage](#) and [associated regulations](#) and North Carolina Department of Environment and Natural Resources's (DENR's) [SEPA Web Page](#) and [associated regulations](#).

#### ***12.1.2 Scope of Impacts***

When constructing a project, three types of impacts must be documented in the EID. These impacts are as follows:

Benefits – Environmental impacts that result in a positive outcome

- Direct impacts
- Secondary impacts
- Cumulative impacts

Secondary and cumulative impacts (SCI) are often assessed jointly. The different types of impacts, as well as the scope of impacts that must be considered, are discussed in this section. Environmental impacts can be both positive (hereafter known as benefits) and negative (hereafter known as impacts). The EID should include a discussion of both impacts and benefits. DENR's [Guidance for Preparing SEPA Documents and Addressing Secondary and Cumulative Impacts](#) is an excellent resource for additional information. When considering cumulative impacts under NEPA (STAG-funded projects only), review and implement the information in [Considering Cumulative Effects Under the National Environmental Policy Act](#), which is published by the Council of Environmental Quality.

### 12.1.2.1 *Direct Impacts*

Direct impacts are those effects on the environment that occur at the same time and place as the project. They are the most certain and predictable of the impacts. Direct impacts include impacts from construction-related activities as well as impacts related to operation of a newly constructed or modified facility upon completion of construction. The EID must address direct impacts. Direct impacts are typically the easiest to identify. Examples of direct impacts include the following:

- Displacement of wildlife due to forest clearing associated with construction projects
- Air emissions from open burning during construction
- Aquatic habitat degradation from installation of a sewer pipe crossing a stream
- Increased nutrient loading in a river from a wastewater treatment plant discharge
- Odors from a wastewater treatment plant

Direct Impacts – Those effects on the environment that occur at the same time and place as the project.

Direct impacts include impacts from construction activities as well as operational impacts that continue when the construction is complete and the project is functional.

Construction impacts include such things as air emissions from construction vehicle traffic, soil disturbance, sedimentation and erosion, and land clearing activities.

Operational impacts include such things as increased noise from generators or other equipment in use after construction is completed, odors associated with pump stations, increased effluent discharge to a stream from a plant expansion, and improved water quality due to a stream restoration project.

### 12.1.2.2 *Secondary Impacts*

Secondary impacts are effects to the environment and natural resources that are more removed in time and distance from a project's construction and operation activities. Secondary impacts are also called "indirect impacts" and are often thought of as chain reaction processes where one action or result leads to another action or result. SEPA regulations ([15A NCAC 01C .0103](#)) define secondary impacts as

Secondary impacts (indirect impacts) – Effects to the environment and natural resources that are more removed in time and distance from a project's construction and operation activities.

*...indirect impacts caused by and resulting from a specific activity that occurs later in time or further removed in distance than direct impacts, but are reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate and related effects on air and water and other natural systems, including ecosystems.*

[NEPA regulations](#) define secondary impacts in a similar manner.

Secondary impacts associated with infrastructure projects are often related to residential, commercial, and industrial growth that the infrastructure project supports. For example, after sewer service is extended into an unsewered area, a subdivision might be built. The paved roads and other impervious services in the new subdivision may increase the level of pollutants in a nearby stream due to runoff. The decreased water quality that results in the stream is not directly

related to the construction or operation of the sewer system, but it is indirectly related to the project because the expanded sewer system supported development of the new subdivision.

### 12.1.2.3 *Cumulative Impacts*

Cumulative impacts are those effects that result from the project's direct impacts when added together with impacts from other past, present, and future projects that can be reasonably predicted. SEPA regulations define cumulative impacts as "environmental impacts resulting from incremental effects of an activity when added to other past, present, and reasonably foreseeable future activities regardless of what entities undertake such actions."

Cumulative impacts – Those effects that result from the project's direct impacts added together with impacts from other past, present, and future projects that can be reasonably predicted.

The [NEPA regulations](#) have a similar definition.

Evaluating cumulative impacts requires analysis of the "big picture" in terms of time and space. Consider the following example: run-off from parking areas surrounding a single shopping center might not be a significant stressor to the receiving stream, but the combined run-off from multiple shopping centers located in the same watershed can become a significant stressor. Another example would be where a combination of wastewater infrastructure projects in the same river basin could create nutrient issues downstream. Note: In some cases, cumulative impacts may be positive. For example, if, in a watershed, several stream and wetland restorations are implemented in the headwaters of the watershed, then nutrient loadings and siltation may be reduced downstream. Cumulative impacts are an issue that must be considered any time that growth is anticipated in the project area, even if that growth is not facilitated by or connected to the proposed project. If impacts from a proposed project are minor and limited to construction only, they are less likely to contribute to cumulative impacts in the broader project area. Note, however, that even minor impacts may be significant to a cumulative impacts analysis if those impacts are permanent in nature because minor permanent impacts from multiple projects can become significant when considered together.

In some cases, cumulative impacts may be positive.

Cumulative impacts must be considered and discussed for any project that takes place in an area experiencing growth and development, even if the proposed project is not an expansion project.

### 12.1.2.4 *Scope of Impacts*

The other factor to consider when evaluating impacts of the project is the scope of impacts. The scope of impacts is the area that should be investigated to identify impacts to various resources that are included in the impact analysis. The scope of impacts for direct impacts is more narrowly focused because it deals with impacts that occur in close proximity to the project. The scope of impacts for SCI is typically broader and will include areas that

Scope of impacts – The area that should be investigated to identify impacts to various resources that are included in the impact analysis.

Service area – The sewershed served by the collection system and/or wastewater treatment plant.

will be impacted by future growth/development in areas surrounding the project site. Table 12.1 below identifies the scope of impacts that should be considered for direct impacts and SCI for each resource category.

<b>Table 12.1 Scope of Impacts for Resource Categories</b>		
<b>Resource Category</b>	<b>Direct Impacts</b>	<b>SCI</b>
Topography and Flood Plains	Project Site	Existing and expanded Service Area
Soils	Project Site	Existing and expanded Service Area
Prime and Unique Farmland	Project Site	Existing and expanded Service Area
Land Use	Project Site	Existing and expanded Service Area
Forest Resources	Project Site	Existing and expanded service area
Wetlands & Streams	Project Site and Subbasins/watershed downstream of the project	Subbasin/watershed containing the existing and expanded service area as well as areas downstream
Water Resources	Subbasin/Watershed containing the project and downstream (for surface water) and aquifer below the project (for groundwater)	Subbasin/Watershed containing the project and expanded service area as well as areas downstream (for surface water) and aquifer below the project and expanded service areas (for groundwater)
Shellfish or Fish and Their Habitats	Subbasin/Watershed containing the project and downstream	Subbasin/Watershed containing the existing and expanded service areas
Wildlife and Natural Vegetation	Project Site and T&E species adjacent to site	Existing and expanded service area
Public Lands, Scenic & Recreational Areas	Project site and areas immediately adjacent to the project site	Existing and expanded Service Area
Areas of Archaeological or Historical Value	Project Site and areas immediately adjacent to the project site.	Existing and expanded Service Area
Air Quality	Area immediately adjacent to site and area downwind of the project (area downwind of the project is included for operational impacts, not construction impacts)	Region containing the project site
Noise Levels	Project Site and area adjacent to the project (area adjacent to the project is included for operational impacts, not construction impacts)	Existing and expanded service area
Introduction of Toxic Substances	Project Site	Not applicable

## 12.2 Preparing the Environmental Information Document

The EID must include the existing environmental characteristics, predicted environmental effects, environmental justice, and mitigative measures. Each item that must be included is discussed in further detail below.

Many of the requirements for the EID are based on the North Carolina Department of Administration's (DOA's) [Environmental Assessment Guidelines](#).

For Minor ERs/EIDs, each section or step will provide direction as to what tables to complete and what other information is needed. For Major ERs/EIDs, complete the requirements described in a narrative format. Where possible, use tables to display numerical information. Discussions must be succinct, and any supporting information should be placed in an appendix of the EID.

Regardless of format, the EID (Section 6 of the ER/EID) must follow the format below:

- 6.0. Environmental Information Document
  - 6.1. Topography and Floodplains
    - 6.1.1. Existing Conditions
    - 6.1.2. Direct Impacts
    - 6.1.3. Secondary and Cumulative Impacts
  - 6.2. Soils
    - 6.2.1. Existing Conditions
    - 6.1.2. Direct Impacts
    - 6.1.3. Secondary and Cumulative Impacts
  - 6.3. Prime and Unique Farmland
    - 6.3.1. Existing Conditions
    - 6.3.2. Direct Impacts
    - 6.3.3. Secondary and Cumulative Impacts
  - 6.4. Land Use
    - 6.4.1. Existing Conditions
    - 6.4.2. Direct Impacts
    - 6.4.3. Secondary and Cumulative Impacts
  - 6.5. Forest Resources
    - 6.5.1. Existing Conditions
    - 6.5.2. Direct Impacts
    - 6.5.2. Secondary and Cumulative Impacts
  - 6.6. Wetlands and Streams
    - 6.6.1. Existing Conditions
    - 6.6.2. Direct Impacts
    - 6.6.3. Secondary and Cumulative Impacts
  - 6.7. Water Resources
    - 6.7.1. Existing Conditions
    - 6.7.2. Direct Impacts
    - 6.7.3. Secondary and Cumulative Impacts

- 6.8. Shellfish and Fish and Their Habitats (including aquatic T&E species)
  - 6.8.1. Existing Conditions
  - 6.8.2. Direct Impacts
  - 6.8.3. Secondary and Cumulative Impacts
- 6.9. Wildlife and Natural Vegetation (including terrestrial T&E species)
  - 6.9.1. Existing Conditions
  - 6.9.2. Direct Impacts
  - 6.9.3. Secondary and Cumulative Impacts
- 6.10. Public Lands and Scenic, Recreational, and State Natural Areas
  - 6.10.1. Existing Conditions
  - 6.10.2. Direct Impacts
  - 6.10.3. Secondary and Cumulative Impacts
- 6.11. Areas of Archaeological or Historical Value
  - 6.11.1. Existing Conditions
  - 6.11.2. Direct Impacts
  - 6.11.3. Secondary and Cumulative Impacts
- 6.12. Air Quality
  - 6.12.1. Existing Conditions
  - 6.12.2. Direct Impacts
  - 6.12.3. Secondary and Cumulative Impacts
- 6.13. Noise Levels
  - 6.13.1. Existing Conditions
  - 6.13.2. Direct Impacts
  - 6.13.3. Secondary and Cumulative Impacts
- 6.14. Introduction of Toxic Substances
- 6.15. Environmental Justice
- 6.16. Mitigative Measures
- 6.17. References

### ***12.2.1 Introduction to Existing Conditions and Environmental Impacts***

For each resource category described in the following sections, discuss the existing environmental conditions, direct impacts, and secondary and cumulative impacts. If there are no existing resources within a particular category, state so rather than skipping the section.

In this section, each of the resource categories listed below must be included.

#### ***12.2.1.1 Existing Conditions***

The existing conditions sections should describe the immediate project site and surrounding project vicinity as it currently exists. Two mistakes that are commonly made with the existing environmental characteristics section are (1) describing only the resources that will be impacted by the project, and (2) describing only the immediate project site. All resources must be addressed, whether impacted by the project or not, and the surrounding project vicinity must

All resource categories must be described under existing conditions regardless of anticipated impacts. “Not Applicable” or “No Impacts” are not acceptable responses for existing conditions descriptions.

be included. Refer to Table 12.1 for additional information on Scope of Impacts that should be addressed.

Project vicinity – The proposed project site and area immediately adjacent to the proposed project.

### *12.2.1.2 Environmental Impacts*

The expected environmental impacts sections are the most critical part of the EID. As discussed in Section 12.1.2.1, the EID must address direct impacts, secondary impacts, and cumulative impacts. Be sure to address **all** resource categories discussed below. In the discussion for each resource, explain the rationale for conclusions. For example, if there will be no impacts to land use, briefly explain why that is the case. “N/A” or “No Impact” is not an acceptable response for an impact discussion except in cases where the resource is not present in the project vicinity. Consider the scope of impacts as discussed in Section 12.1.2.4 in preparing the discussion for each resource. For SCI, utilize the [Guidance for Preparing SEPA Documents and Addressing Secondary and Cumulative Impacts](#) for the basis of the discussion and tailor the information in the guidance to fit each category. Refer to Table 12.1 for additional information on Scope of Impacts that should be addressed.

Keep in mind that a project can produce both environmental impacts and benefits. The focus of many EIDs tends to be on potentially negative impacts, but benefits should be discussed as well.

### *12.2.2 Topography and Floodplains*

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.2.1 through 12.2.2.3 must be included.

#### **Minor ERs/EIDs**

- Complete 6.1.1 in Appendix P and place in the body of the ER/EID.
- Include floodplain location on the Environmental Features Figure or as a separate figure. List the figure number in the table.
- Include any additional information in an appendix to the ER/EID. List the appendix reference in the table.

#### *12.2.2.1 Existing Conditions*

Briefly describe the topography of the project site and vicinity, including landforms, slopes, and elevations. Include a brief description of the geology of the area. Note any significant geological features.

Discuss whether the project will encroach on the 100-year floodplain. If the project is within or near the floodplain, note the floodplain areas on the Environmental Features Figure or provide a separate floodplain map. The map must clearly delineate where the project is located in relation to the floodplain. The map must also have a scale, legend, number and title, and North Arrow. The North Carolina Emergency Management Agency (NCEMA) has [digital flood plain data](#)

available for possible use in analysis. Distinguish between *floodplain* impacts versus *floodway* impacts.

100-year Floodplain – The areas that are expected to be inundated by the 1% annual chance flood (100 year flood).

Floodway – The channel of a stream, plus any adjacent floodplain areas, that must be kept free from encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

#### 12.2.2.2 *Direct Impacts*

For direct construction impacts, describe how the project will change existing topography on the project site. Note whether changes, if any, will be temporary or permanent. Identify encroachments of the project on floodplains and floodways. For floodplains, discuss whether the construction of the proposed project will impact the 100-year floodplain, and discuss how any buildings or infrastructure built in the floodplain will be protected

For projects funded through the CWSRF and STAG programs where there are proposed permanent impacts to the 100-year floodplain (see Executive Order 11988), alternatives to the impact must be provided in the alternatives analysis. Impacts to the floodplain are only allowed where there is no practicable alternative. In addition, the impacts must be specifically included in the public participation project. Clearly explain why alternatives that would not impact the floodplain were rejected.

#### 12.2.2.3 *Secondary and Cumulative Impacts*

For SCI, discuss the changes in topography in the existing and expanded service area which will be impacted by the project. Note if there is a local floodway regulation program in place for the service area. Specify whether any local ordinances restrict building in the floodplain or the floodway.

### 12.2.3 *Soils*

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.8.1 through 12.2.8.3 must be included.

#### **Minor EIDs**

- Complete 6.2.1 in Appendix P and place in the body of the ER/EID.
- Include a [Natural Resources Conservation Service](#) (NRCS) map as discussed in Section 12.2.3.1. List the appropriate figure reference in the table.
- Include any additional information in an appendix to the ER/EID. List the appropriate appendix reference in the table.

#### 12.2.3.1 *Existing Conditions*

Describe the characteristics of the dominant soil units in the project vicinity (do not simply list the soil types) and note whether any soil types present a constraint to the project. This would

include any fill, wetland soil types, etc. Note any soil contamination that exists. Provide the NRCS Soil Survey map of the project area. It must include a clear differentiation of each soil type via a legend or labeling. The map must also include a scale, number and title, and North Arrow. The [North Carolina Center for Geographic Information and Analysis](#) (NCCGIA) has links to digital layers of soils information. The [NRCS](#) also has large amounts of soil information available.

#### *12.2.3.2 Direct Impacts*

For direct construction impacts, discuss whether the project will involve soil disturbance or contamination. Discuss the extent to which soil will be disturbed. If soil will be moved, identify the location to which it will be moved if known, or discuss contractor responsibilities with regard to moving or disposing of soil. Note whether soil is expected to be contaminated, and describe the contamination if it is expected. Provide quantitative information (i.e., square feet to be disturbed or cubic yards to be moved) if known, but a qualitative discussion is also acceptable.

#### *12.2.3.3 Secondary and Cumulative Impacts*

For SCI, describe how soils will be impacted in the existing and expanded service area, especially in terms of past, present, and future soil erosion due to the proposed project. For example, if a wastewater treatment plant were being built that would expand the service area, then the discussion of SCI would need to detail historical soil erosion trends as well as discuss the impacts that the project will have on soil erosion in the future. Discuss any turbidity stream violations that have occurred in the project vicinity.

### *12.2.4 Prime or Unique Farmland*

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.4.1 through 12.2.4.3 must be included.

#### **Minor ERs/EIDs**

- Complete Table 6.3.1 in Appendix P and place in the body of the ER/EID.
- Define any prime or unique farmlands on the [Natural Resources Conservation Service](#) (NRCS) map discussed in Section 12.2.4.1.

#### *12.2.4.1 Existing Conditions*

Note whether the project vicinity includes any lands designated as prime or unique farmland by NRCS. If such lands are located in the area, discuss whether they are currently in agricultural use or other land use. If prime or unique farmland exists in the area, note the location on the environmental features figure. Information from the [NRCS](#) may be helpful.

#### 12.2.4.2 *Direct Impacts*

Direct impacts to prime or unique farmland should be evaluated and discussed as follows:

- First, determine whether prime and unique farmland will be directly impacted by the proposed project. If none will be impacted, state such and no further analysis is required.
- Second, determine whether the land that will be impacted is currently in agricultural use. If no, state such and no further analysis is needed. If yes, estimate the acreage of land currently in agricultural use that will be lost from agricultural use or otherwise negatively impacted by the project.
- Next, determine the percentage of prime or unique farmland in the county that will be lost from agricultural use or otherwise impacted. Divide the acreage expected to be impacted as determined in the previous step by the estimated total acreage of prime or unique farmland in the county.
- If the percentage of impacted land is significant, discuss the implications of that loss.

#### 12.2.4.3 *Secondary and Cumulative Impacts*

For SCI, discuss past trends related to prime or unique farmland being taken out of agricultural production. For the future, discuss the impacts of the proposed project on any prime or unique farmland in the existing and expanded service area, especially in terms of land being currently used for agricultural production. If possible, provide a quantitative estimate of the amount of land currently in agricultural production that will be lost.

#### 12.2.5 *Land Use*

##### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.5.1 through 12.2.5.3 must be included.

##### **Minor ERs/EIDs**

- Complete Table 6.4.1 in Appendix P and place in the body of the ER/EID.
- If possible, provide a land use figure as discussed in Section 12.2.5.1. List the figure reference in the table.
- Place any supporting information in an appendix of the ER/EID. List the appendix reference in the table.

#### 12.2.5.1 *Existing Conditions*

Describe the current use of land at the project site and in the project vicinity. Discuss how the current land use of the project site fits into the land use of the region in terms of conservation, development, and ecological function. Provide the current zoning classification of the project

site if applicable. A land use figure is not required but is recommended if relevant for the specific project. If a figure is included, be sure that it includes clear differentiation of each land use type via a legend or labeling. The figure must also contain a scale, number and title, and North Arrow. If utilizing a geographic information system (GIS), check with the county or LGU's planning department for further information.

#### *12.2.5.2 Direct Impacts*

For direct construction and operational impacts, discuss how land use on the project site will change, and how the new use fits into the intended land use of the entire area in terms of conservation, development, ecological function and quality of life. Identify whether local zoning or land use plans need to be changed.

#### *12.2.5.3 Secondary and Cumulative Impacts*

For SCI, explain how land use in the existing and expanded service area is expected to change as a result of the project. Discuss whether new uses fit the intended land use of the entire area in terms of conservation, development, ecological function, and quality of life. Note whether local zoning or land use patterns will be changed as a result of the project.

Secondary and cumulative impacts often come into play with projects that are driven by growth.

### ***12.2.6 Forest Resources***

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.6.1 through 12.2.6.3 must be included.

#### **Minor ER/EIDs**

- Complete Table 6.5.1 in Appendix P and place in the body of the ER/EID.
- Include any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

#### *12.2.6.1 Existing Conditions*

Describe the type of forest resources (e.g., pines, hardwoods, mixed) on the site of the proposed project site and the project vicinity. Discuss whether the forest resources are old growth or new growth.

#### *12.2.6.2 Direct Impacts*

Describe any direct construction impacts to forest resources as a result of project construction. If forested area will be cleared, specify the acreage that will be cleared and describe forestry practices to be used.

### 12.2.6.3 *Secondary and Cumulative Impacts*

For SCI, describe past trends related to the loss of forest resources as well as expected future trends. If possible, approximate the amount of forestry acreage that might be lost due to the project in the existing and expanded service area.

### 12.2.7 *Wetlands and Streams*

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.7.1 through 12.2.7.3 must be included.

#### **Minor ERs/EIDs**

- Complete 6.6.1 in Appendix P and place in the body of the ER/EID.
- Complete Table 6.6.2 in Appendix P and place in the body of the ER/EID if the project includes any wetland or stream crossings, even if crossings will not have any net impact.
- Place any stream and/or wetlands impacts either on the Environmental Features Figure or in a separate figure. List the figure reference in the table.
- List any supporting information for either table in an appendix of the ER/EID.

#### 12.2.7.1 *Existing Conditions*

Note whether any federally or state regulated wetlands are present in the project vicinity and identify if and when delineations occurred, if applicable. Discuss the type, quality, function (e.g., flood control, wildlife habitat, groundwater recharge), and relative importance of wetlands in the project vicinity to the total wetland resources of the area.

Be aware that the NWI database is limited to Federal wetlands and does not define wetlands for regulatory purposes. It is strongly encouraged that a preliminary survey be conducted to flag areas of concern. If wetlands impacts appear to be likely to occur, delineations will be required for permitting.

Identify and discuss any streams in the project vicinity.

Note the location of streams and wetlands on the Environmental Features Figure or include a separate figure showing the locations of wetlands and streams identified in this section.

[NCOneMap](#) has a digital layer of the National Wetland Inventory (NWI) maps available for download, as does the [U.S. Fish and Wildlife Service](#) (FWS).

#### 12.2.7.2 *Direct Impacts*

For direct construction impacts, discuss the impacts to wetlands and streams as a result of project construction and long-term operation. If a wetland will be filled as part of the project, indicate how many acres are involved and note the location on the Environmental Features Figure. For

impacts to streams, note the stream length in linear feet that will be affected. Be sure to discuss all stream crossings including crossing methods used, as applicable. Crossings that will have no or minimal impacts, such as direct bore, must be included. Discuss the type of authorization/permit that will be required for the project.

Streams and wetlands must be shown on the Environmental Features Figure (if no crossings) or on a separate figure with all crossings labeled.

For projects that involve the construction of collection systems or reclaimed water distribution lines, provide a table that describes the following for each crossing:

- The stream/wetland crossing identified by a number
- The diameter and type of line that will be installed
- The installation method
- The acreage (wetlands) and linear feet (streams) impacted (Total the impacts at the bottom of the table.)

For direct operational impacts, discuss whether the operation of the project will have any positive or negative impacts on subbasins or watersheds downstream of the proposed project. For example, expanding a WWTP might remove a discharge upstream of an impaired stream, which would improve the quality of a stream not in the vicinity of the proposed project by reducing the nutrient loading.

For projects funded through the CWSRF and STAG programs where there are proposed permanent impacts to wetlands (see Executive Order 11990), alternatives to the impacts must be provided in the alternatives analysis. Describe how impacts to wetlands have been avoided and minimized, and discuss why alternatives that would have lesser impacts to wetlands have been rejected.

### *12.2.7.3 Secondary and Cumulative Impacts*

For SCI, consider the long-term impacts to wetlands and streams that may result from diversion from, discharge to, or withdrawal from surface waters upstream of wetlands areas. Additionally, discuss past trends related to the loss/gain of wetlands and streams in the subbasin(s) or watershed(s) for the existing and expanded service area. Describe any potential losses or gains in the future as a result of the proposed project. If possible, provide an estimate of the wetlands that may be gained or lost.

## **12.2.8 Water Resources**

### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.8.1 through 12.2.8.3 must be included.

**Minor ERs/EIDs**

- Complete Table 6.7.1 in Appendix P and place in the body of the ER/EID.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

*12.2.8.1 Existing Conditions*

Discuss surface water and ground water resources in the project vicinity and surface waters downstream. For surface waters, include the name, classification, and use support ratings. Also identify the river basin where the project is located. If there are unnamed streams in the project vicinity, briefly describe them. Note the location of surface waters identified in this section on the Environmental Features Figure. The [DWQ](#) has information that is helpful for this section.

For groundwater, discuss the use, quantity, quality, depth, and recharge of groundwater in the project area, and identify the primary aquifer(s) in the project area. Specifically discuss any capacity use areas in the project vicinity. Identify the primary source(s) of drinking water in the project area. This information must be included even if groundwater impacts are not anticipated.

Provide the LGU water supply, including the source from which water is drawn.

*12.2.8.2 Direct Impacts*

Describe the direct construction impacts to surface waters in the subbasin/watershed containing the project and downstream of the project in terms of *water quality and quantity* and whether there is the potential for stormwater runoff increases due to an increase in the amount of impervious surface. Identify the amount of impervious surfaces increase. Discuss any construction impacts to groundwater quality and quantity.

Note that water resources impacts may be both negative and positive.

Also, characterize the direct long-term operational impacts of the project. Be sure to consider issues such as increased sedimentation and stormwater runoff as well as impacts to surface water and groundwater quality and quantity. For example, a stormwater project might create erosion concerns while it is being built, but once constructed, it would reduce the amount of turbidity in a nearby stream.

*12.2.8.3 Secondary and Cumulative Impacts*

For SCI, consider changes to water quality within the subbasin/watershed containing the proposed project and expanded service area, including impacts on erosion rates, sedimentation, and eutrophication. Note past and future trends related to water quality and stormwater runoff (e.g., increase in impervious surfaces). If possible, estimate the expected percent impervious surfaces area increase or decrease in the area.

For example, constructing a collection system to take failing septic systems offline could cause potential adverse construction impacts related to erosion and sedimentation entering nearby

waterways. However, the operational impacts would reduce the amount of fecal coliform entering nearby surface waters. For SCI, the new collection system could fuel growth in the service area, meaning that the subbasin/watershed containing the current and expanded service area could experience an increase in impervious surfaces area and stormwater runoff due to growth.

### **12.2.9 Shellfish, Fish, and Their Habitats (Including Aquatic T&E Species)**

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.9.1 through 12.2.9.3 must be included.

The NHP database will not provide precise locations of T&E species due to concerns with species disturbance, so all locations will be approximate.

#### **Minor ERs/EIDs**

- Complete Table 6.8.1 in Appendix P and place in the body of the ER/EID.
- Place the approximate location of any aquatic T&E species on the Environmental Features Figure. List the figure reference in the table.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

#### **12.2.9.1 Existing Conditions**

Discuss whether there are any categories of shellfish beds and/or fish habitats at or near the project site and in the project vicinity. Provide examples of specific species present. Note whether there are closed beds, highly productive areas, or spawning areas in the text, and include such areas on the Environmental Features Figure.

Show the approximate location of T&E species on the Environmental Features Figure.

Note whether any aquatic threatened and endangered (T&E) species or identified habitats for T&E species are in or near the project vicinity, particularly downstream of the project site. T&E species are a critical issue during review of the EID. *Be sure to review both Federal and state T&E species lists.* If T&E species are present, include a detailed discussion of the species present, their status, and their approximate locations. Note approximate locations on the Environmental Features Figure if applicable. This information is available through [NCOneMap](#), which is part of the [NCCGIA](#). Additionally, both the [FWS](#) and the [North Carolina Natural Heritage Program](#) (NHP) have data available related to T&E species. Typically T&E species locations can be identified within a two mile radius. Note that the existing conditions description applies to all shellfish, fish, and their habitats, not just T&E species.

If there are potential impacts to T&E species, it is highly recommended that the applicable resource agencies be contacted to discuss before completing the EID.

### 12.2.9.2 *Direct Impacts*

Describe any construction impacts to shellfish, fish, and their habitats in the subbasin/watershed containing the project and downstream of the project. Additionally, characterize the operational impacts for this same area. If T&E species are present within or downstream of the project vicinity, be sure that the discussion clearly explains how impacts to such species will be minimized or avoided. If no impacts are anticipated, clearly support that position. If impacts are anticipated or possible, it is highly recommended to contact U.S. Fish & Wildlife Service and North Carolina Wildlife Resource Commission for guidance as soon as possible.

Any impacts to T&E species must be specifically noted.

### 12.2.9.3 *Secondary and Cumulative Impacts*

For SCI, discuss past trends related to fish, shellfish, and their habitats and then characterize potential future impacts.

For example, if the proposed project discussed in Section 12.2.8.3 were constructed, then the erosion and sedimentation from the project could negatively impact fish, shellfish, and their habitat downstream. The operational impacts could help improve their habitats downstream. However, the SCI from the project could adversely impact fish, shellfish, and their habitats in waterbodies within the subbasin/watershed(s) containing the project and expanded service area.

### 12.2.10 *Wildlife and Natural Vegetation (Including Terrestrial T&E Species)*

#### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.10.1 through 12.2.10.3 must be included.

The NHP will not provide precise locations of T&E species due to concern with species disturbance, so all locations will be approximate.

#### **Minor ERs/EIDs**

- Complete Table 6.9.1 in Appendix P and place in the body of the ER/EID.
- Place the location of any terrestrial T&E species on the Environmental Features Figure. List the figure reference in the table.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

### 12.2.10.1 *Existing Conditions*

Identify wildlife habitat that exists on or near the project area. List specific species of dominant plants and animals that are indicative of the kind of habitat present. Note whether terrestrial T&E species and/or their habitats are located at or near the project site. T&E Species are a critical issue during review of

Show the approximate location of T&E species on the Environmental Features Figure.

the EID. Be sure to review both federal and state T&E species lists. If T&E species are present, include a detailed discussion of the species present and their locations. Note locations on the Environmental Features Figure if applicable. This information is available through [NCOneMap](#) that is a part of the [NCCGIA](#). Also, check the lists available from the [NHP](#) and [FWS](#). Typically T&E species locations can be identified within a two mile radius. Note that the existing conditions description applies to all wildlife and vegetation, not just T&E species.

#### *12.2.10.2 Direct Impacts*

Describe the construction impacts to wildlife and natural vegetation. Quantify in acres the amount of natural vegetation that will be disturbed or destroyed by the project and note whether such impacts will be short-term or permanent. Note whether wildlife will be displaced, either temporarily or permanently, and identify surrounding areas or areas nearby that may provide similar habitat for relocation. If T&E species are present within the project vicinity, be sure that the discussion clearly explains how impacts to such species will be minimized or avoided. If no impacts are anticipated, clearly support that position. If impacts are anticipated or possible, it is highly recommended to contact U.S. Fish & Wildlife Service and North Carolina Wildlife Resource Commission for guidance as soon as possible.

If there are potential impacts to T&E species, it is highly recommended that the applicable resource agencies be contacted to discuss before completing the EID.

#### *12.2.10.3 Secondary and Cumulative Impacts*

For SCI, discuss past trends related to wildlife and natural vegetation within the existing and expanded service area. Then discuss future trends. If possible, provide an estimate of the potential loss of wildlife habitats.

#### *12.2.11 Public Lands and Scenic, Recreational, and State Natural Areas*

##### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.11.1 through 12.2.11.3 must be included.

##### **Minor ERs/EIDs**

- Complete Table 6.10.1 and place it in the body of the ER/EID.
- Place any public lands and scenic, recreational, and state natural areas on the Environmental Features Figure. List the figure reference in the table.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

### 12.2.11.1 *Existing Conditions*

Describe any formally designated parkland, scenic, recreational, or state natural areas that are located within five miles of the project area or that are located outside of that radius but will be potentially impacted by the proposed project. If such areas exist, include them on the Environmental Features Figure. [NCOneMap](#) has some of this information available digitally.

Show and label any identified public lands on the Environmental Features Figure.

### 12.2.11.2 *Direct Impacts*

Discuss whether the project will impact formally designated park land, scenic, recreational, or state natural areas on or adjacent to the site due to the construction and operation of the proposed project. Quantify any expected losses or areas of impaired use and discuss the significance of such losses or impairments. Also, discuss the loss of any informal scenic or recreational site functions.

For example, a project might consist of a pump station, force main, and collection system constructed next to a baseball field to take existing septic systems offline. Direct construction impacts to the baseball field might consist of noise and exhaust. Operational impacts could include odors and noise from emergency generator usage and testing.

### 12.2.11.3 *Secondary and Cumulative Impacts*

For SCI, discuss past trends of impacts to public lands and scenic, recreational, and state natural areas within the existing and expanded service areas. Characterize potential future trends as well.

For the baseball field example above, SCI would consist of development related to the collection system upstream, which could create growth all around the baseball field.

## 12.2.12 *Areas of Archaeological or Historical Value*

### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.12.1 through 12.2.12.3 must be included.

#### **Minor ERs/EIDs**

- Complete Table 6.7.11 in Appendix P and place in the body of the ER/EID.
- Place the location of any archaeological or historical sites on the Environmental Features Figure. List the figure reference in the table.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

### *12.2.12.1 Existing Conditions*

Identify and discuss any archaeological sites or historical resources that are located within five miles of the project area or that are located outside of that radius but will be potentially impacted by the proposed project.

Show and label any identified archaeological or historical resources on the Environmental Features Figure.

Identify any historic buildings located on the project site and their approximate age. Consult with the Division of Cultural Resources' State Historic Preservation Office (SHPO) for assistance. SHPO will provide [project review](#) through mail or email. If archaeological sites or historical resources are present, note the locations on the Environmental Features Figure. Include references to studies regarding archaeological or historical resources as applicable. If no studies are available, discuss if and how the site has been previously disturbed. Include correspondence with SHPO and/or any agencies consulted for this review.

### *12.2.12.2 Direct Impacts*

Discuss the construction impacts of the proposed project on areas of archaeological or historical value on or adjacent to the site. State whether any historic buildings will be destroyed or disturbed and, if so, note the location of such buildings on the Environmental Features Figure. Include photographs of the relevant buildings on the site. For operational impacts, discuss if any areas adjacent to the project site contain archaeological or historical resources. If they do, then describe potential impacts.

For example, a pump station, force main, and collection system may be constructed with the pump station being located at the edge of a cemetery. Direct construction impacts will occur in terms of construction noise and exhaust being generated. Operation could impact the cemetery if visitors had to listen to emergency generators and equipment testing or could smell any odors.

### *12.2.12.3 Secondary and Cumulative Impacts*

For SCI, consider the existing and expanded service area. Describe past trends related to the loss/gain of archaeological or historical resources and detail what may occur in the future.

For the cemetery example above, SCI would occur if historic buildings and cemeteries were removed to accommodate growth in the future service area.

## *12.2.13 Air Quality*

### **Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.13.1 through 12.2.13.3 must be included.

**Minor ERs/EIDs**

- Complete Table 6.12.1 in Appendix P and place in the body of the ER/EID.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

*12.2.13.1 Existing Conditions*

Discuss the ambient air quality and nonattainment areas and identify current sources of emissions from the project site and surrounding vicinity. The [United States Environmental Protection Agency](#) (EPA) and [DENR's Division of Air Quality](#) (DAQ) provide information related to air quality issues within the state.

Discuss any previous odor problems or complaints due to existing facilities.

*12.2.13.2 Direct Impacts*

Discuss any expected direct construction or operational impacts to air quality at and around the project site. Note whether impacts are expected to be temporary (related to construction) or long-term (related to operation). Discuss whether open burning will occur and, if so, describe what will be burned. Consider whether general air quality degradation will occur as a direct construction or operational impact.

*12.2.13.3 Secondary and Cumulative Impacts*

For SCI, characterize any potential air quality degradation in the region containing the proposed project. Discuss any past air quality trends and how SCI will affect future trends.

*12.2.14 Noise Levels*

**Requirements**

Whether preparing Minor or Major ERs/EIDs, the information discussed in Sections 12.2.14.1 through 12.2.14.3 must be included.

**Minor ERs/EIDs**

- Complete Table 6.13.1 in Appendix P and place in the body of the ER/EID.
- Place any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

#### *12.2.14.1 Existing Conditions*

Discuss the current noise levels on the project site with examples of sources of noise at or near the project site. Include measurable benchmarks, if possible. Briefly discuss any local noise ordinances that are in place for the project area and project vicinity.

#### *12.2.14.2 Direct Impacts*

Discuss whether noise levels are expected to change at or near the project site as a result of construction or operation of the proposed project. If noise levels are expected to increase, discuss when the impacts will occur and the distance at which the increased noise will be heard. Discuss whether surrounding properties will be affected by noise levels.

For example, construction of a pump station and force main would cause construction noise. Once the project is operational, operational impacts could come from emergency generator testing and usage.

#### *12.2.14.3 Secondary and Cumulative Impacts*

For SCI, characterize past trends related to noise in the existing and expanded service area. This can be a qualitative discussion related to land use changes over time that impact noise and should identify any specific developments that have had a significant impact on noise levels. Then analyze potential future trends.

For the pump station and force main example, noise related to SCI would occur as the pump station and force main facilitated growth in the existing and expanded service area.

#### *12.2.15 Introduction of Toxic Substances*

##### **Requirements**

For this resource category, only direct construction impacts need to be considered. Discuss the potential for the introduction of toxic substances. Be sure to consider that most construction activities have the potential to introduce toxic substances such as fuels, lubricants, etc. into the environment. Chlorine used in wastewater treatment processes must be included in this discussion. Describe the type and extent of contamination that may be reasonably expected and mitigative measures that will be implemented

Note that most construction activities have the potential to introduce toxic substances related to construction equipment (fuels, lubricants, etc.).

##### **Minor ERs/EIDs**

- Complete Table 6.14.1 in Appendix P and place in the body of the ER/EID.
- Place any supporting information in an appendix of the ER/EID. List the appendix reference in the table.

## **12.2.16 Environmental Justice**

Executive Order 12898 states that

Each federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

EPA's Office of Environmental Justice is responsible for implementing Executive Order 12898 as it applies to EPA actions and programs. Environmental justice (EJ) strives to ensure that no racial, ethnic, or socioeconomic group bears a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies. Environmental justice also includes giving all persons equal access to the decision-making process. As federally funded programs, the CWSRF and STAG programs are subject to policies established by the Office of Environmental Justice.

In terms of preparing an EID, an EJ analysis must be conducted to verify that EJ is achieved through the project. Consult [EPA's Guidance](#) for additional information.

### *12.2.16.1 Existing Environmental Justice Characteristics*

#### **Requirements**

The first step of the EJ analysis involves determining the presence of a significant minority or low-income population. EPA's [EJ View](#) can help identify minority and/or low income populations near the project area. The tool will generate maps that can be printed and included with the EID to document this step of the analysis.<sup>1</sup>

(The EJ View Tool replaces the older EnviroMapper Tool.) If another source of data is used to identify minority or low-income populations in the project area,

The most current Census data must be used for the Environmental Justice Analysis.

be sure to document the process used. All maps must clearly show the project site. An alternative process may be used by following the steps below. Note that the most current Census data must be used.

1. **Census Block Groups.** Determine what Census block group(s) encompass the project area.
2. Collect minority and total population data using SF1 of the US Census data (can be done with GIS).<sup>2</sup>

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<sup>1</sup> The EJ View replaces the older EnviroMapper tool.

<sup>2</sup> Note that Block Groups may change when data from Census 2010 becomes available.

3. **Minority percentages.** Calculate the total minority percentages in each block group. 50% or greater shows an impact.
4. **Low-Income.** Repeat for low-income populations using SF-3 data.

**Minor ERs/EIDs**

- If using the EJ View Tool, provide a copy of the maps in the body of the ER/EID with the location of all components of the project clearly marked. Note that you will need to include separate maps to illustrate percentage of minority populations and percentage below poverty level. Check the appropriate box in Table 6.15.1 and place this table in the body of the ER/EID. List the figure reference(s) in the table.
- If using the alternative methodology described above, complete Table 6.15.1 in Appendix P and place in the body of the ER/EID. Include a map in the EID that keys the table to the appropriate Census block groups and shows the project location. List the figure reference in the table.
- If significant minority and/or low-income populations are present (>50%), the impacts section of Table 6.15.1 must be completed regardless of the methodology used.
- Provide any supporting information in an appendix to the ER/EID. List the appendix reference in the table.

*12.2.16.2 Potential Impacts from Project*

If the analysis of Census block groups discussed above indicates that minority and/or low income populations are greater than 50 percent of the total population at or near the project location, then

proceed with determining what impacts the project will have on the identified minority and/or low income population(s). EJ issues may involve impacts to human health, ecological impacts, or related social or economic impacts. If minority and/or low-income populations are identified in the project area, consider, for each resource category, whether such populations will be *disproportionately* affected. Describe the anticipated impacts as well as measures that will be taken to minimize the potential for harmful impacts. Be sure to include efforts to ensure adequate opportunities for public participation. If significant impacts are anticipated, contact us as soon as possible to discuss the impacts and possibly mitigation (prior to submitting the EID, if possible).

### ***12.2.17 Mitigative Measures***

For any potential impacts identified in the sections above, mitigative measures must be discussed. Mitigative measures may include actions specifically taken or actions deliberately avoided or limited in order to minimize impacts. Mitigative measures may also include actions taken to repair or compensate for damage done. Some specific examples of mitigative measures that might be applicable to a project include the following:

Mitigative measures – Actions taken to minimize or eliminate impacts to the environment and natural resources.

- Adhering to the requirements of a sedimentation and erosion control permit.
- Conducting construction activities during daytime hours only to minimize impacts from noise on residential areas.
- Constructing wetland habitats in a nearby area to replace wetlands that are filled.
- Maintaining buffers that exceed regulatory requirements.
- Installing an air pollution control device to minimize odors.

### **Requirements**

Use a table to clearly identify the potential impact and the associated mitigative measure(s). Include all resource categories in the table. If additional explanation is needed, include text discussion in addition to the table. Quantify impacts whenever possible. If no impacts have been identified, indicate

If correspondence has been received from review agencies indicating that concurrence with the project is dependent upon certain mitigative measures, be sure to include such measures in this table and/or discussion.

“none” for impacts and “not applicable “N/A” for mitigative measures. For a Major ER/EID, in addition to the summary table of mitigative measures, also provide a text discussion for mitigative measures for each resource category for which impacts have been identified. If desired, the mitigative measures can be discussed as a subsection of each resource category section.

### **Minor ERs/EIDs**

- Complete Table 6.16.1 in Appendix P and include in the body of the ER/EID.
- Include all additional information such as more detail and copies of ordinances in an appendix of the EID.

Table E.13.1 in Appendix E shows an example of how this table would be completed.

### ***12.2.18 References***

Any documents referred to in your EID should be identified in the references section. Consider attaching significant references in an appendix. References will vary for different types of projects, but examples that you might include are as follows:

- Correspondence with agencies such as Corps of Engineers or Cultural Resources
- Wetlands delineations studies
- Soil surveys
- Local ordinances
- Master plan documents