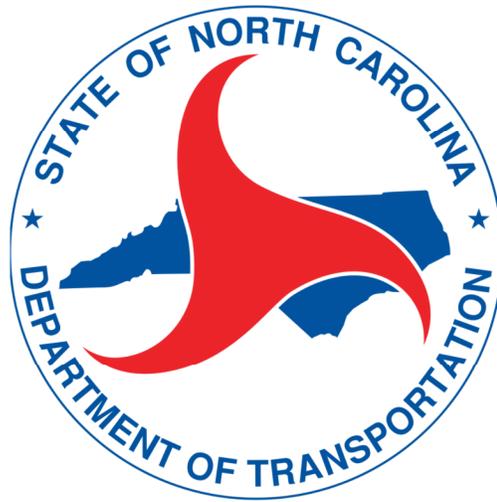


**NORTH CAROLINA**  
**DEPARTMENT OF TRANSPORTATION**



**ATLAS**  
**Guide**

**VERSION 2**

**HYDRAULICS UNIT**

**MARCH 4, 2024**



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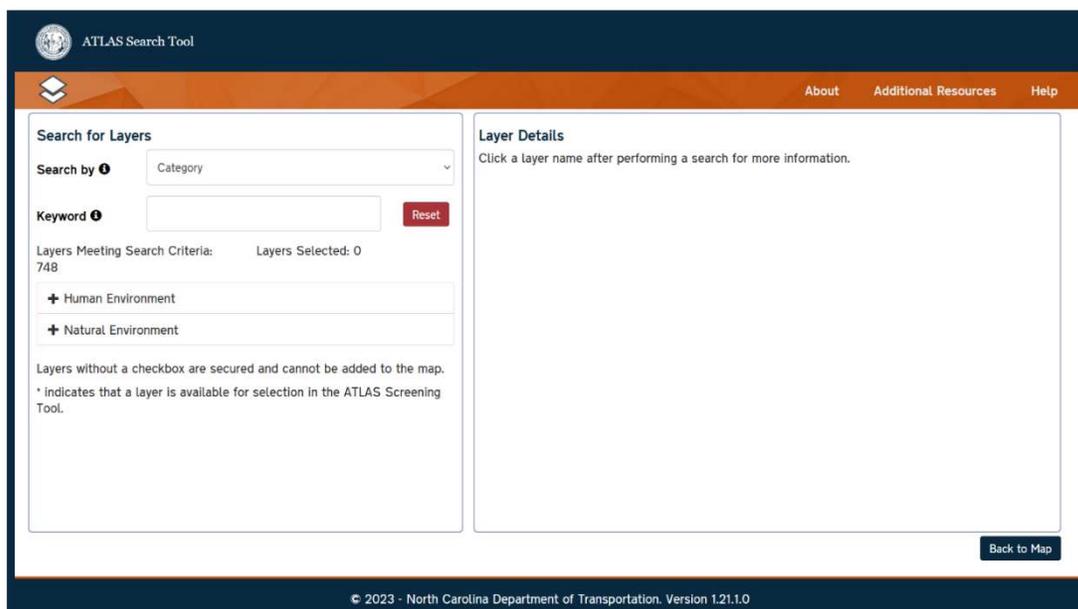
## Overview

The purpose of this training is to provide information and describe how to use ATLAS. By the end of this training session, you should know...

- More about GIS layer organization and identifying different layers
- How to access the ATLAS Search and Screening Tools
- How to select an area of interest and study area
- How to select GIS layers
- How to download layers or print a map from the Search Tool
- How to select a template and run reports in the Screening Tool
- How to read Screening reports
- How to use Screening reports to fill out SMP or PDR reports
- How to use the Search tool for more in-depth research

## GIS Layers

There are more than 750 GIS layers in ATLAS. Layers with an asterisk (\*) indicate that these layers are available in both the Search and Screening Tools. Layers can be searched by Project Delivery Category, Final Key Document deliverable or the Organization that hosts or owns the data layer, and the keyword search returns a list of datasets that contain the search text in their name, description or owning organization.



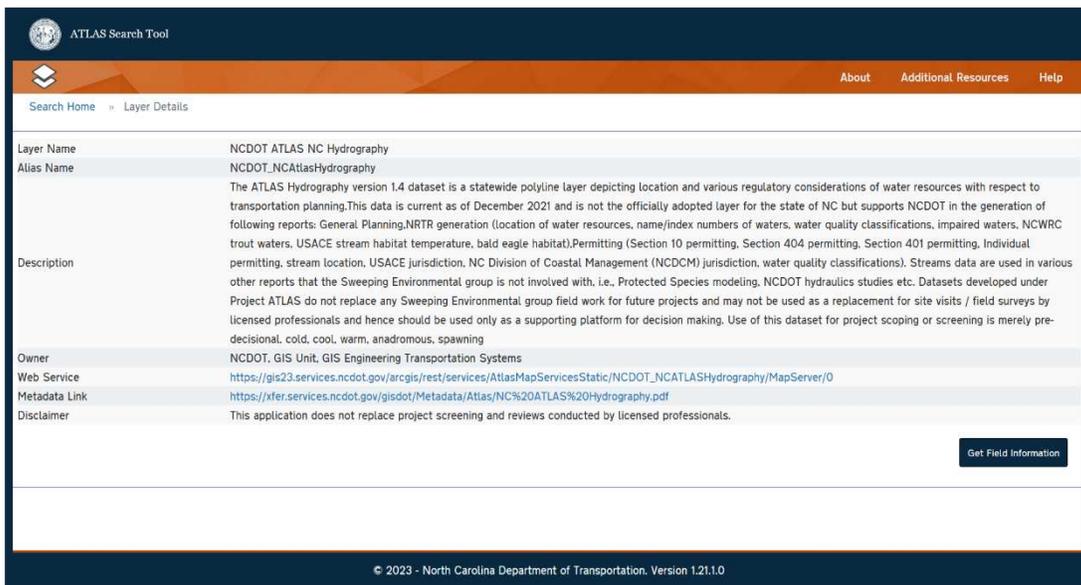
GIS Layers are organized into two main categories: Human Environment and Natural Environment. Human Environment layers include those layers related to:

- Boundaries
- Community
- Cultural resources
- Demographics
- Geo environmental
- Noise and air
- Public property
- Special districts
- Transportation
- Utilities

Natural Environment layers include those layers related to:

- Coastal
- Conservation area
- Fish and aquatics
- Flood data
- Hydrography
- Land cover
- Mitigation
- Physiography
- Threatened and endangered
- Water quality
- Wetland

To find more information about a layer in the Screening Tool, select the Layer Information button. To find more information about a layer in the Search Tool, you can view the layer details by selecting a layer after searching. The Detailed Information button can provide information on the layer’s description, owner, web service link, metadata, and field information.





## Accessing the ATLAS Search and Screening Tools

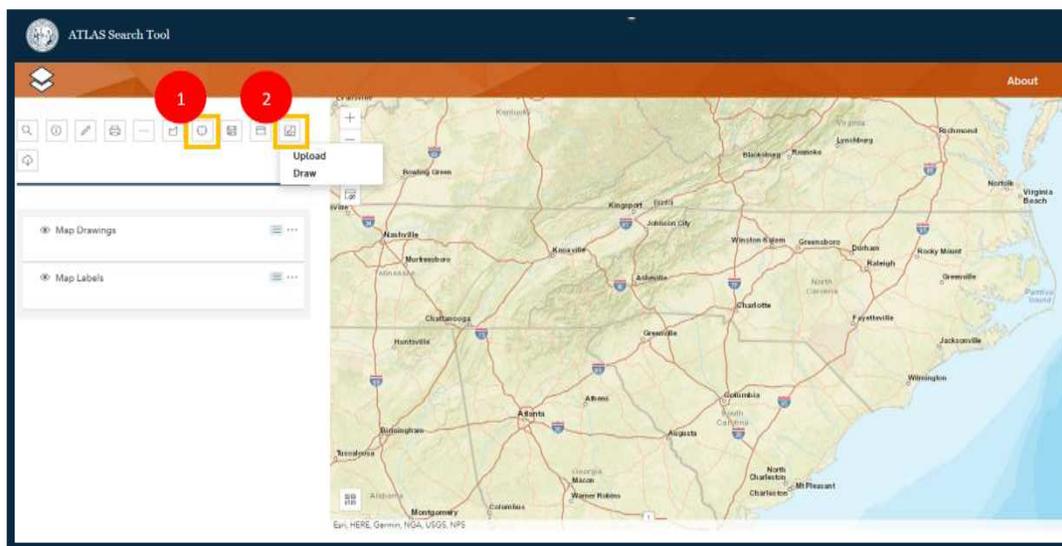
To access the Search and Screening Tools, you must login using your NCID username and password. The Search and Screening Tools can be accessed four ways:

- Via the Connect home page
- Via Preconstructions home page
- Via the Project Site
- Via the Direct URL: [Search Tool](#) and [Screening Tool](#)

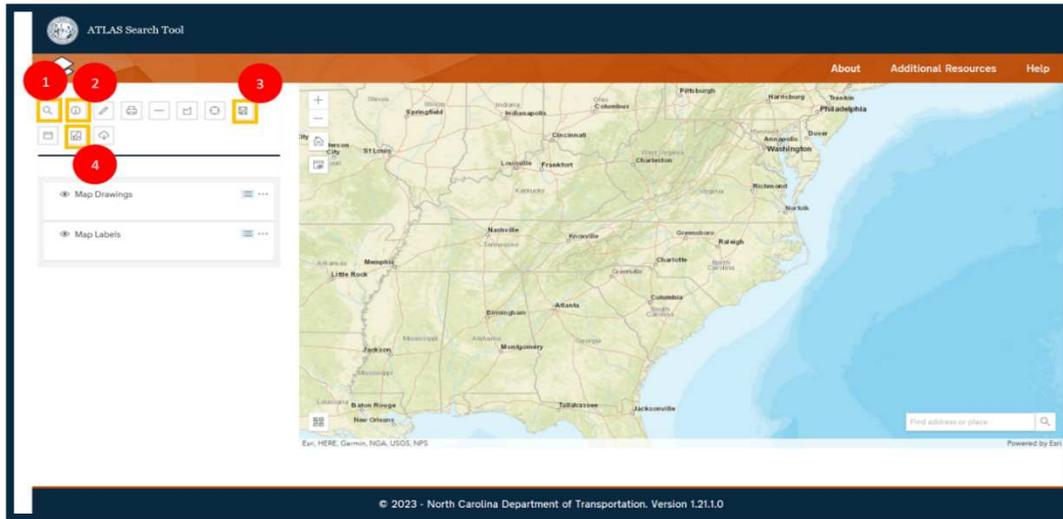
## ATLAS Search Tool

The Search Tool is used to search or download data related to project development, as well as find and analyze a variety of data layers from multiple sources at once. The three primary functions of the tool: find GIS data from multiple sources in one place, view data on map, and download multiple data sources at once in GDB, SHP, and/or DGN formats. It is useful for when preparing for scoping, completing a technical report, or compiling an environmental document. There are four key actions that you can perform in the tool:

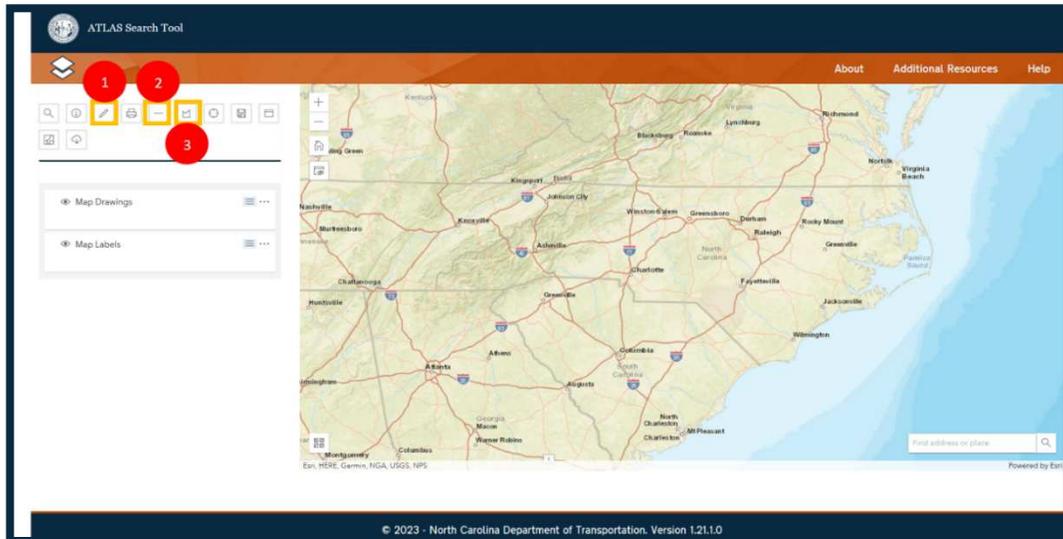
- Find an area of interest: find an area by downloading or creating a study area, or by zooming into the map. To select an area of interest, either
  1. Click the find location icon to find the coordinates of any point on the map.
  2. By uploading or drawing a study area by polygon, square, or circle areas less than 10 square miles.



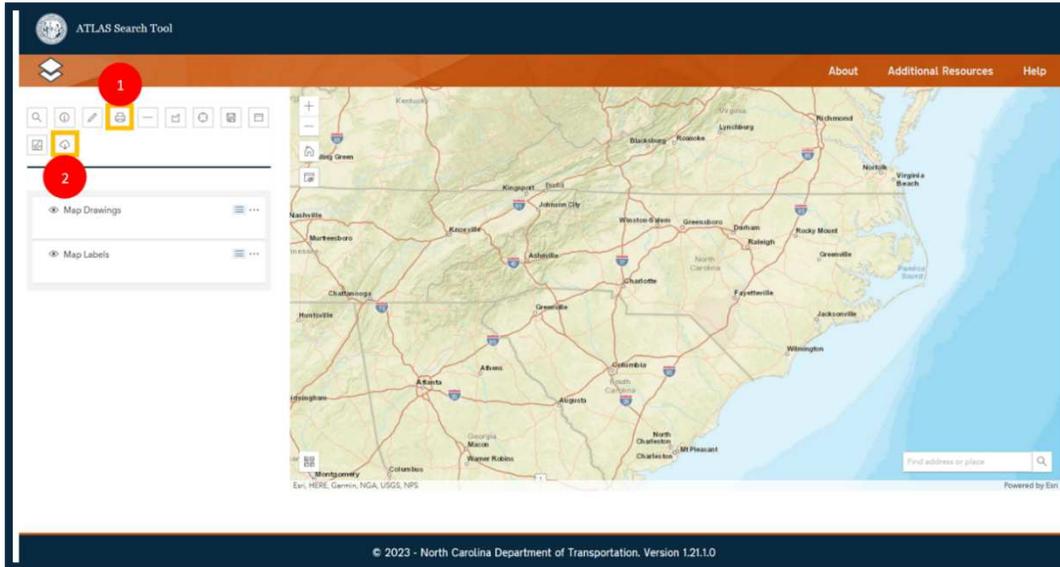
- Selecting layers: select the layers to be viewed or downloaded. Options for layer selection:
  1. Search for layers by category or key work.
  2. Click on the identify features icon to access information and identify features on the map.
  3. Save a combination of layers that you selected form the layer search by using the save layer selection tool.
  4. Load saved map is used to add NCDOT templates or previously saved list of layers to your map. Templates are pre-set templates created by the ATLAS Business Team and include ESM templates and new Hydraulics templates. PDR and SMP templates can be found here under DOT ATLAS Maps, as well.



- Add labels/images and measure: add graphics or take measurements on the map. Options for adding labels/images and measuring on the map:
  1. Use the draw tool to add graphics.
  2. Select the measure distance icon to measure the distance between any two points.
  3. Select the measure icon to measure the area of a drawn selection.



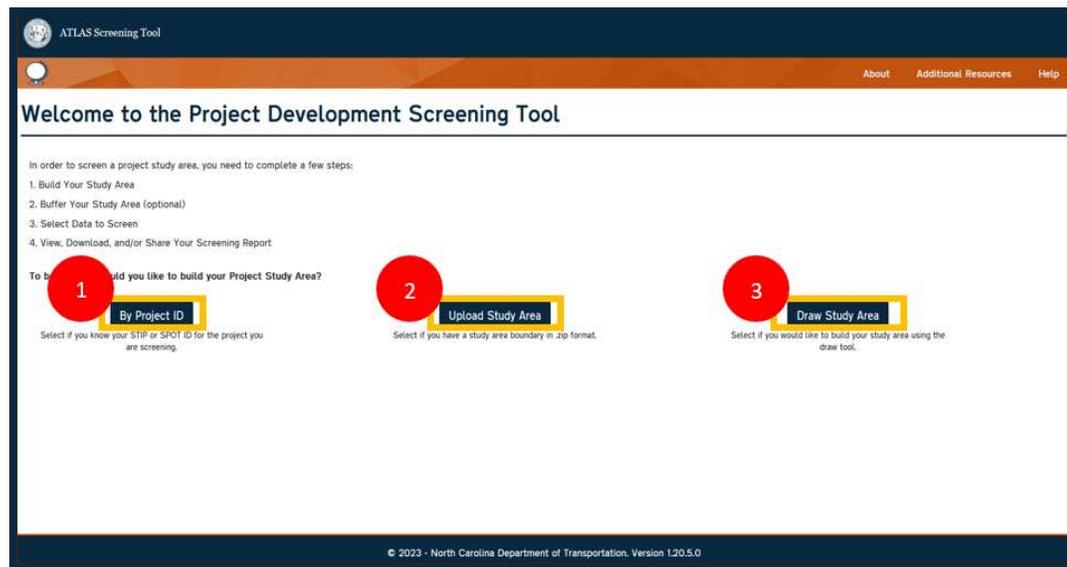
- Download layers or print map: download a pdf of the completed map and download the GIS layers. Options include:
  1. Use the print icon to print a map.
  2. The download data tool allows you to download your data, clipped to your study area, in either SHP, GDB, or DGN formats.



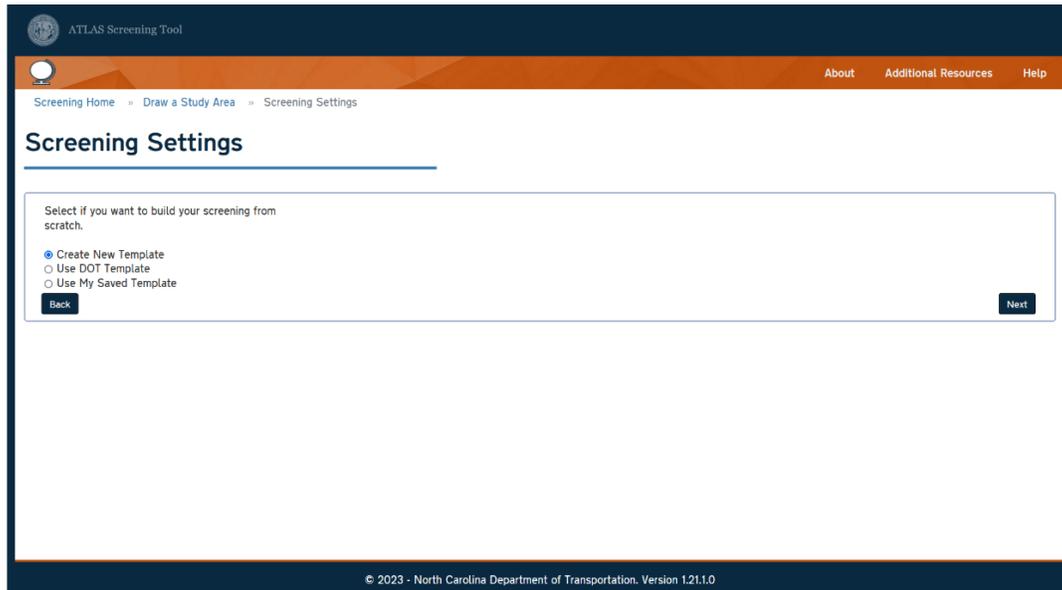
## ATLAS Screening Tool

The Screening Tool is used to view and generate a report of resources within a study area using a subset of GIS layers. Screening templates are available that have pre-selected multiple layers for specific topics or reports. With the Screening Tool, there are three key actions that you can perform in the tool:

- Identify key features in a study area in one of three ways:
  1. By Project ID, which screens by using a project ID such as the STIP or SPOT number.
  2. Upload study area from a previously developed study area.
  3. Draw study area which is useful to screen the area near a project where a formal study area has been developed or the GIS files are not available by the user.



- After identifying your study area, customize screenings to fit a subject matter by selecting GIS layers to screen. Layers can be individually selected, or you can use a template. Templates are a framework to guide the selection of GIS layers during the screening process. Template options include creating a new template, using a DOT template, or using a previously saved template. After a template is identified, you have the option to apply a buffer, and then modify the GIS layer selection.



- Screening Reports are built and available for download after adding a report name and clicking Screen Your Project. All downloaded reports include standard information on the first page:
  1. Date, report name, description, county, and NCDOT division of your study area
  2. The study area size and buffer size entered by the user
  3. The ecoregion, hydrological code (HUC), if the study area is in a Coastal Act Management Area (CAMA), if riparian buffer laws apply based on the river basin, and there is an airport with four miles
  4. A map showing the location of the study area and buffer

## Project Development Screening Report

This report is for high-level screening purposes only. Staff and consultants must continue to adhere to NCDOT standard operating procedures including, but not limited to, ETRACS requests and field validations.

<p><b>Report Date:</b> 10/25/2023</p> <p><b>PDR Report - Draft</b></p> <p>Draft Report of the new PDR Screening Template</p> <p><b>County:</b> Wake</p> <p><b>Division:</b> 5</p> <p><b>Study Area Size:</b> 71.3 Acres</p> <p><b>Buffer Size:</b> N/A</p>	
<p>DOT Screening Template - "PDR Screening Template - Draft"</p>	
<p><b>EPA Level III Ecoregion:</b> Piedmont</p> <p><b>EPA Level IV Ecoregion:</b> Northern Outer Piedmont</p> <p><b>HUC8:</b> 03020201</p> <p><b>Riparian Buffer:</b> Neuse</p> <p><b>CAMA:</b> No</p> <p><b>Airport within 4 miles:</b> Yes</p>	

The page(s) following in the report lists all the layers screened, a count of features intersecting the study area, total coverage of features within the study area, and the distance to the nearest feature from the study area are identified for each layer.



## Completing a Report

*This section is intended to work through a project-specific site to guide you on filling out SMP and/or PDR reports. The purpose of this guide is to provide an overview of how one might go about completing the reports, and it should not be considered as a uniform approach. Determining the workflow that works best for you is up to your own discretion.*

### Guide

1. Navigate to the [SMP Report](#) or [PDR Report](#).
2. Access the Screening Tool by one of the methods previously outlined in this guide. Login with your NCID username and password and accept the Disclaimer.
3. Select your study area by Project ID, by Uploading or Drawing a Study Area and select Next.
4. Select Use DOT Template on the Screening Settings screen. From the dropdown menu, select the report template you are interested in completing, either "Hydraulics SMP Template" or "Hydraulics PDR Template." These templates were created using the reports to guide the pre-set layers and fields in order to fill-in a report. Select Next. Please note, these templates are drafts until the Hydraulics unit finalizes them, and both templates include disclaimers in the templates:
  - a. SMP Disclaimers: (1) IR 2022 Categories 4 and 5 indicate that the water body is Impaired. (2) Medium or High data for Potential Habitat (PotHabitat) indicate Yes for presence of T&E species. (3) A value of 5, 6, 7, 8 or 9 for ServiceUnder in the Structures layers indicates the structure is over a waterbody.
  - b. PDR Disclaimers: (1) Every road is not included in the Road Inundation Points 100 yr layer; please verify results. (2) IR 2022 Categories 4 and 5 indicate that the water body is Impaired.
5. Apply an optional buffer to your study area and select Next.
6. The next screen outlines the layers and their associated fields pre-set on the selected template. Select Next after reviewing the preset layers and adding/removing any as you may see fit.
7. On the next page, enter your report name and description, and the STIP ID and SPOT ID, if applicable. Select Screen Your Report and your report will be generated and select your preferred download file type.
8. Once downloaded, use the information on the report to fill out your SMP or PDR report.
  - a. The following table shows the Report Field, its associated layer, and the associated layer field intended to be used to complete the SMP Report:



SMP Field	GIS Layer	Layer Field
TIP/Project No.	NCDOT State Transportation Improvement Program (STIP) Lines	TIP
	NCDOT State Transportation Improvement Program (STIP) Points	TIP
County(ies)	<i>See first page of the report</i>	
Division	<i>See first page of the report</i>	
Surface Water Body	NCDOT ATLAS NC Hydrography	AUName
NCDWR Stream Index No.	NCDOT ATLAS NC Hydrography	AUNumber
NCDWR Surface Water Classification for Water Body Primary Classification	NC Critical Areas	Class
	NCDOT ATLAS NC Hydrography	BIMSClass
NCDWR Surface Water Classification for Water Body Supplemental Classification	NCDOT ATLAS NC Hydrography	BIMSClass
Other Stream Classification: NC Natural and Scenic Rivers	NC Wild Scenic Rivers (CGIA)	stream_nam
Other Stream Classification: Federal Wild and Scenic Rivers	NC Wild Scenic Rivers (CGIA)	stream_nam
Other Stream Classification: Designated Public Mountain Trout Waters	NC WRC Public Mountain Trout Waters	FIRST_Reg_
		FIRST_WRC_
Other Stream Classification: Designated Shellfish Harvesting Areas	NC Shellfish Growing Area Classifications	HA_CLASS
		MAP_NAME
Other Stream Classification: Primary Nursery Areas	NC DEQ Primary Fish Nursery Areas	<i>None specified</i>



Other Stream Classification: Areas of Environmental Concern	NCDOT ATLAS NC Significant Coastal Archaeological Resources AEC	<i>None specified</i>
	NC DEQ Inlet Hazard Area of Environmental Concern (IHAEC)	<i>None specified</i>
	Estuarine Waters AEC	<i>None specified</i>
	NCDOT ATLAS NC Coastal Estuarine Water Shoreline AEC	<i>None specified</i>
	NCDOT ATLAS NC Coastal Public Trust Shorelines AEC	<i>None specified</i>
	NCDOT ATLAS NC Ocean Hazard Erodible AEC	<i>None specified</i>
	NCDOT ATLAS NC Small Surface Supply Watershed AEC	<i>None specified</i>
	NCDOT ATLAS NC Unique Coastal Geologic Formations AEC	<i>None specified</i>
	NCDOT ATLAS NC Public Trust AEC	<i>None specified</i>
	NCDOT ATLAS NC Public Trust Unvegetated Beach AEC	<i>None specified</i>
Impairments	NCDOT ATLAS NC Hydrography	POI
	NC DEQ 2022 IR Water Quality Overall Ratings	IR2022
		BIMS_CLASS
	NC DEQ TMDL and TMDL Alternative Watersheds	PlanType
Parameter		
Aquatic T&E Species	Appalachian elktoe potential habitat	PotHabitat
	Atlantic Pigtoe potential habitat	PotHabitat
	Atlantic Sturgeon Critical Habitat	<i>None specified</i>
	Cape Fear Shiner potential habitat	PotHabitat
	Carolina heelsplitter potential habitat	PotHabitat
	Carolina madtom Potential habitat	PotHabitat
	Dwarf wedgemussel potential habitat	PotHabitat
	Green floater potential habitat	PotHabitat
	Green Sea Turtle Potential Habitat	PotHabitat
	Hawksbill Turtle Potential Habitat	PotHabitat



Aquatic T&E Species (continued)	James spynymussel Potential habitat	PotHabitat
	Kemps Ridley Turtle Potential Habitat	PotHabitat
	Leatherback Turtle Potential Habitat	PotHabitat
	Loggerhead Sea Turtle Potential Habitat	PotHabitat
	NC Natural Heritage Element Occurrences	<i>None specified</i>
	Neuse River waterdog potential habitat	PotHabitat
	NMFS Species Consultation Range North Carolina Boundaries	ComName
		Status
	Roanoke logperch Potential habitat	PotHabitat
	Spotfin chub potential habitat	PotHabitat
	Tar River spynymussel potential habitat	PotHabitat
	USFWS ECOS Critical Habitat (line)	comname
		listing_status
	USFWS ECOS Critical Habitat (polygon)	comname
listing_status		
Yellow lance potential habitat	PotHabitat	
Buffer Rules in Effect	NC DEQ Riparian Buffer Areas with Rules	BuffName
Project Includes Bridge Spanning Water Body	NCDOT Structures – Bridge Structures	ServiceUnder
	NCDOT Structures – Railroad Bridge Structures	ServiceUnder
<i>None specified</i>	Stormwater Controls Measures	ControllID
		EngAlert



b. The below table shows the Report Field, it's associated layer, and the associated field intended to be used to complete the PDR Report:

PDR Field	GIS Layer	Layer Field
Str. #	NCDOT Structures Culverts	BRIDG_NBR
	NCDOT Structures Bridge Structures	BRIDG_NBR
	NCDOT Structures Pipes	BRIDG_NBR
County	<i>See first page of the report</i>	
Stream	NCDOT NC Atlas Hydrography	AUName
Route	NCDOT All State Maintained Roads	RouteName
	NCDOT Road Characteristics Street Name	FullName
Division	<i>See first page of the report</i>	
Latitude	<i>ATLAS Map will include an enhancement that will allow Latitude and Longitude to be displayed. In its current state, the Screening Tool is not formatted properly to output this information.</i>	
Longitude		
Structure Type	NCDOT Structures Culverts	SUBSTRUCTU
	NCDOT Structures Bridge Structures	SUBSTRUCTU
	NCDOT Maintenance Pipes	PipeID
	Statewide Non-NBIS Pipe Inventory	PipeID
	NCDOT Structure Pipes	SUBSTRUCTU
Yr Built	Statewide Non-NBIS Pipe Inventory	Year Built
	NCDOT Maintenance Pipes	YearBuilt
ADT	NCDOT AADT Traffic Segments Interstates 2021	AADT
	NCDOT Traffic Segments Primary AADT 2021	AADT
Year ADT	<i>Past years are not available in the AADT layers – 2021 is the latest year of data</i>	
Prior Survey Completed	<i>This data is currently being built and will be added to the template when complete.</i>	
Flooding Info	Road inundation points 100 yr	<i>None Specified</i>
River Basin	NCDOT NC Atlas Hydrography	NCBasin



Buffer Rule	NC DEQ Riparian Buffer Areas with Rules	BuffName
Stream ID	NC DEQ 2022 IR Water Quality Overall Ratings	AU_ID
Primary Stream Classification	NC Critical Areas	CLASS
	NCDOT NC Atlas Hydrography	BIMSClass
Supplemental Stream Classification	NCDOT NC Atlas Hydrography	BIMSClass
Other Stream Classification: Anadromous Fish	NCDMF Anadromous Fish Spawning Areas	<i>None specified</i>
Other Stream Classification: CAMA County	<i>See first page of the report</i>	
Other Stream Classification: Impaired [303d]	NC DEQ TMDL and TMDL Alternative Watersheds	PlanType
		Parameter
	NC DEQ 2022 IR Water Quality Overall Ratings	IR2022 BIMS_CLASS
Other Stream Classification: TVA	TVA Reservoirs	<i>None specified</i>
Other Stream Classification: Designated Public Mountain Trout Waters	NC WRC Public Mountain Trout Waters	FIRST_Reg_
		FIRST_WRC_
Other Stream Classification: Area of Environmental Concern	NCDOT ATLAS NC Significant Coastal Archaeological Resources AEC	<i>None specified</i>
	NC DEQ Inlet Hazard Area of Environmental Concern (IHAEC)	<i>None specified</i>
	Estuarine Waters AEC	<i>None specified</i>
	NCDOT ATLAS NC Coastal Estuarine Water Shoreline AEC	<i>None specified</i>
	NCDOT ATLAS NC Coastal Public Trust Shorelines AEC	<i>None specified</i>
	NCDOT ATLAS NC Ocean Hazard Erodible AEC	<i>None specified</i>



	NCDOT ATLAS NC Small Surface Supply Watershed AEC	<i>None specified</i>
	NCDOT ATLAS NC Unique Coastal Geologic Formations AEC	<i>None specified</i>
	NCDOT ATLAS NC Public Trust AEC	<i>None specified</i>
	NCDOT ATLAS NC Public Trust Unvegetated Beach AEC	<i>None specified</i>
Other Stream Classification: Federal Wild & Scenic Rivers	NC Wild and Scenic Rivers (CGIA)	stream_nam
Other Stream Classification: NC Natural & Scenic Rivers	NC Wild and Scenic Rivers (CGIA)	stream_nam
Other Stream Classification: Primary Nursery Area	NC DEQ Primary Fish Nursery Areas	<i>None specified</i>
Other Stream Classification: Designated Shellfish Harvesting Area	NC Shellfish Growing Area Classification	HA_CLASS
		MAP_NAME
USGS Region	<i>See first page of the report</i>	
Stream Gage Number	USGS Drainage Areas of Selected Sites	STATION
		USGS_STATI
	National Flood Hazard Layer Gages	GAGE_ID
	NC USGS Stream Gauging Stations	stationid
Type of FIS	NCDOT NC FEMA Stream Study	STUDYTYPE
Date of FIS	NCDOT NC FEMA Stream Study	RECCHGDATE
<i>None Specified</i>	Stormwater Controls Measures	EngAlert
		ControlID
<i>None Specified</i>	Drainage Investigations	DocName
		DocReq

- b. Any fields from the SMP or PDR Reports that are not included in the above tables, will need to be sourced from elsewhere.
- c. For further investigation into site-specific results, any of the listed layers, or other ATLAS layers you can utilize the Search Tool to analyze any questions you may have.