ENVIRONMENTAL TECHNICAL MANUAL

The Maryland-National Capital Park and Planning Commission

Prince George's County Planning Department

Approved by the Prince George's County Planning Board
July 29, 2010

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Environmental Technical Manual

1.0 Introduction

This Environmental Technical Manual provides guidance and direction on how to prepare environmentally related plans and documents for submission to Prince George's County in conformance with the appropriate sections of County Code. This technical manual is presented in five parts:

Part of the Manual	Corresponding County Code Provisions
Part A: Woodland and Wildlife Habitat Conservation Technical Manual	Subtitle 25, Division 2, and Subtitle 27
Part B: Guidelines for the Preparation of a Natural Resource Inventory	Subtitles 4, 24, and 27
Part C: Preservation, Restoration, and Enhancement of Regulated Environmental Features	Subtitles 24 and 27
Part D: Guidelines for Tree Canopy Coverage	Subtitle 25, Division 3, and Subtitle 27
Part E: Chesapeake Bay Critical Area (to be added at a later date)	Subtitles 5B, 24, and 27

The Environmental Technical Manual includes:

- Instructions on how to prepare plans required for the submission of various application types
- Process charts that explain various environmental review processes
- Decision matrices to determine which process is appropriate for the subject application
- Worksheets for the calculation of the requirements for each site
- Appendices that contain supporting information and copies of necessary forms

The technical manual was approved by the Prince George's County Planning Board on July 29, 2010. If amendments or revisions are needed, the appropriate pages or sections will be prepared for review and approval by the Planning Board. Updates should be checked regularly by going to the Prince George's County Planning Department's web site at pgplanning.org.

2.0 History of Environmental Regulations in Prince George's County

Prior to 1989, protection of environmental resources was limited to areas identified during the review of development applications. There were few County Code provisions to assist in the determination of which resources were most important. There also was no guidance regarding the processes for field identification of resources and documentation on the plans submitted.

In 1989, several pieces of environmental legislation were passed in Prince George's County that changed how development proposals were evaluated. The Prince George's County Woodland Conservation and Tree Preservation Ordinance was passed in 1989 to protect tree and woodland resources. Also in 1989, the Chesapeake Bay Critical Area regulations were adopted to protect the Chesapeake Bay and the resources closest to tidal waters. Both of these bills were followed by similar legislation at the state level. At that time, revisions were made to the Subdivision Regulations (Subtitle 24) that resulted in the protection of streams and wetlands and their associated buffers. The regulations regarding the Chesapeake Bay Critical

Area are contained in the County Code in Subtitle 5B and are not covered in this technical manual. A placeholder is provided for a future chapter on implementation of the Chesapeake Bay Critical Area regulations.

3.0 Why Conservation Is Important

As new neighborhoods, communities, commercial areas, and parks are designed, an evaluation needs to be made to ensure that the existing resources of the highest quality are preserved for future generations. When structures are built, it is inevitable that trees, woodlands, and other natural resources will be lost. The task is to determine how best to design the development, so that the impacts are avoided and/or minimized and to ensure that the highest quality resources are preserved.

Much has been written about the global issues of climate change and sustainability. Natural areas are one of the backbones of the complex solutions to climate change and making communities sustainable for this and future generations. Trees produce oxygen and cool the earth. Streams in good health that are stable and well protected ensure a clean water supply. The availability of open spaces for recreation and quiet contemplation are important aspects of a healthy society.

Scholars speak of the three tenets of sustainability: economics, social capital, and a healthy environment. Economically, energy costs can be reduced by strategic planting of vegetation and the preservation of areas that are unsuitable for building, such as wetlands and floodplains. Socially, trees are planted for the beautification of neighborhoods—the shade of a large tree is a common social gathering place. Studies have shown that if people in hospitals can see trees from their windows, they will recover much faster than people without a view of trees, and the benefits to communities from trees and woodlands are many—reducing overall temperatures, cleaning the air, stabilizing the soil, and cleaning the water. (See Table I-1. Benefits of Trees and Woodlands.)

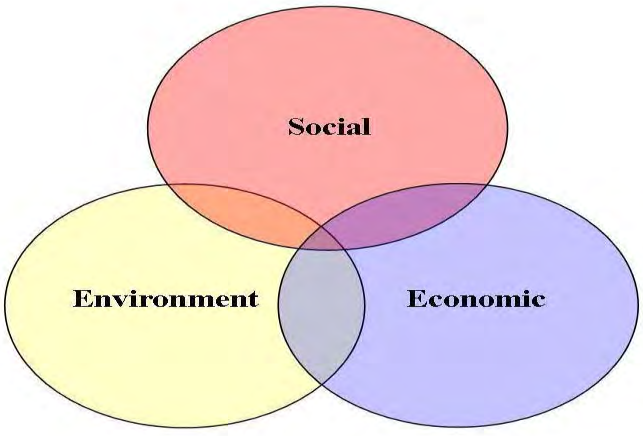


Figure I-1. The Three Tenets of Sustainability

The preservation of trees and woodlands is especially important to sustainable communities. Trees and woodlands form the fabric of the mid-Atlantic landscape. It was once said that a squirrel could dip a toe in the Atlantic Ocean and travel all the way to the Mississippi River without having to touch the ground because the forest canopy was so expansive. Today, trees and woodlands continue to provide shelter for both humans and wildlife and are an important factor to consider in relation to climate change and sustainability.

Trees and woodlands cool our homes, walkways, cars, parking lots, and buildings. Our energy costs would be measurably higher if it weren't for trees and woodlands keeping the air cool. Trees planted in strategic locations around buildings can make buildings up to 20 degrees cooler. Table I-1 provides a list of some of the well-established benefits of trees and woodlands.

Table I-1. Benefits of Trees and Woodlands

Environmental Benefits	Economic Benefits	Health Benefits	Social Benefits
Cleaner/Cooler Air Trees reduce air pollution by absorbing carbon dioxide and producing oxygen.	**Increased Business Value** Trees enhance community economic stability by attracting businesses and tourists	**Increased Physical Activity** People are more inclined to get outdoors and exercise when their surroundings are greener. More physical activity results in fewer health problems	**Improved Well Being** Trees help people relax. They help reduce aggression and lessen violence. People feel safer and more satisfied with green surroundings
Cleaner Water Trees act as natural water filters to prevent harmful land pollutants from getting into our waterways	**Increased Property Value** Healthy trees can add up to 15 percent to a residential property value	**Better Attention/Focus** More time spent outside results in better attention and increased concentration inside	**Healthy Child Development** Children in green spaces are more likely to be active with an increase of creative play. Trees contribute to healthy patterns of interrelation among adults and children outdoors
Reduced Soil Erosion Tree roots increase soil permeability resulting in reduced surface runoff of water from storms and a reduction in erosion control practices	**Reduced Energy Costs** Trees lower local air temperatures by transpiring water and shading surfaces resulting in reduced building energy usage	**Better Air Quality** Trees remove or filter airborne pollutants and reduce the conditions that cause asthma	**Increased Physical Comfort** Trees reduce wind and assist in the reduction of noise, provide shade, and improve psychological well-being
Reduced Noise Pollution Trees absorb and block noise from the urban environment	**Reduced Health Care Costs** Trees remove or trap lung-damaging dust, ash, pollen, and smoke from the air, encourage outdoor activity and result in a healthier lifestyle	**Shorter Hospital Stays** Trees speed healing and nurture positive attitudes in hospital patients who can see trees from their rooms	**Increased Social Activity** Green spaces bring residents together more often. People are more involved in social activities in green environs than in areas that have few or no trees

Wildlife and Plant Diversity Trees and associated plants create local ecosystems that provide habitat and food for birds and animals	**Lower Infrastructure Costs** Trees affect the cost of storm water control by significantly slowing the movement of stormwater, which lowers the total runoff volume resulting in a reduction in the cost of storm water treatment	**Radiation Block** Trees provide shade and block ultraviolet radiation. Trees can block up to 95% of the sun's radiation	**Better Neighborhoods** Residents get to know one another, producing stronger more cohesive neighborhoods

Source: The International Society of Arboriculture, "Trees Are Good-Benefits of Trees," 2007

Both an economic and social benefit of tree and woodland conservation is cleaner air. As just one example, asthma, the respiratory ailment most related to air pollution, has been increasing over the last few decades. According to the Centers for Disease Control, Maryland has among the highest percentages of teenage asthma in the U.S. (over 9.8 percent) and asthma is generally higher in urban and African-American communities. Through a concerted effort of tree and woodland conservation, combined with other strategies, these statistics can be reduced.

4.0 Conservation Vision for the Future

On June 14, 2005, the Countywide Green Infrastructure Plan was approved. This plan is the first comprehensive functional master plan ever developed for environmental ecosystems in Prince George's County and the first of its kind in the nation. The plan's purpose is to provide:

"A comprehensive vision for conserving
significant environmental ecosystems in Prince George's County"

This plan guides development, green space protection, and mitigation activities and implements the long-range vision for preserving, protecting, enhancing, and/or restoring contiguous networks of environmentally important areas in the county by the year 2025. The Green Infrastructure Plan contains an overall goal, measurable objectives, and policies and strategies for implementation.

The Green Infrastructure Plan is used as a guide for decision-makers in both the land development process and when making decisions on public land acquisitions. It contains eight measurable objectives with regard to implementation that provide additional guidance for implementing the vision:

1. By the year 2025, ensure that 75 percent of the green infrastructure network acreage meets the definition of countywide significance.

2. Ninety percent of the land acreage purchased for environmental preservation using public funds should be located within the green infrastructure network. If a portion of a property purchased is in the green infrastructure network and a portion is outside of the network, for the purpose of this calculation, the entire acreage purchased will be counted toward meeting this objective.

3. In new subdivisions in the Rural Tier and outside of approved growth centers and corridors in the Developing Tier, ensure that 100 percent of impacts to regulated areas are limited to unavoidable impacts, such as those for road and utility crossings.

4. By the year 2025, less than 25 percent of countywide net losses of woodland cover should occur within the green infrastructure network.

5. By the year 2025, improve the water quality in each major watershed to elevate the Benthic Index of Biological Integrity (IBI) rating of the watershed by at least one category using as a baseline the 1999–2003 biological assessment of the streams and watersheds of Prince George's County completed by the Department of Environmental Resources (DER).

6. By the year 2025, improve the stream habitat in each major watershed to elevate the habitat rating of the watershed by at least one category using as a baseline the 1999–2003 biological assessment of the streams and watersheds of Prince George's County completed by DER.

7. Each year, strategically target 100 percent of off-site forest mitigation acreage into the green infrastructure network and/or adjacent to streams outside of the green infrastructure network. Fifty percent of the forest mitigation acreage should be targeted to improving water quality by establishing, enhancing, and/or restoring riparian forest buffers.

8. Each year, 100 percent of off-site environmental mitigation projects (wetland, forests, stream restoration, etc.) should be targeted to priority areas identified in the countywide catalog of mitigation sites. A minimum of 50 percent of the mitigation projects should be targeted to enhance the water quality of the major watershed in which the project generating the need for mitigation is located.

9. The update of the environmental regulations implements many of the strategies needed to meet these objectives. The technical manual assists in the implementation of the Green Infrastructure Plan by providing guidance on the structural elements needed to meet the requirements of the updated regulations.

5.0 Addition of Tree Canopy Coverage Requirements

In the 2010 update to the environmental regulations, a new provision was added that requires a minimum amount of tree canopy coverage on all new and redevelopment sites. Minimum tree canopy requirements have been in place in several jurisdictions since the early 1990s, and much success has been gained in these communities.

The minimum standards adopted in the 2010 update reflect the percentages that have been used in Fairfax County, Virginia, since 1989. With few exceptions, applicants have been able to meet these requirements on-site and have successfully regrown some of the tree cover lost to development. As portions of Prince George's County become more developed it, will be increasingly important to weave tree canopy coverage into the fabric of these communities.

6.0 Environmental Regulations and the Land Development Process

The existing natural resources of a site are evaluated throughout the land development process. The 2010 update to the environmental regulations require the submission of a Natural Resource Inventory (NRI) for all applications to ensure that regulated environmental features are identified as early in the process as possible. Table I-2 illustrates the major steps in the land development process.

Table I-2. The Four Phases of Land Development

<table>
<tr>
<td rowspan="2">PHASE 1
Site Analysis & Feasibility Study
(Simultaneous tasks conducted by the private sector)

• Market analysis to evaluate timing, budget, and demand
• Site visit/analysis to determine what portions are developable
• Regulated physical features examined (environmental, historic etc.)
• Determination made whether rezoning necessary
• Determination made whether special exception required
• Decisions made for public/private water & sewer
• Existing planning documents reviewed
• Determination made whether project is feasible</td>
<td>PHASE 2
Engineering & Plan Review
(Sequential tasks conducted by private/public sectors)

Initial Stage:
• Rezoning if required
• Public water & sewer category change if required
• Natural resources identified
• Preliminary engineering design
• Conceptual tree conservation plan
• Conceptual stormwater management plan
• Perc testing if well and septic site
• Site development (stormwater) concept and approval
• Phase 1 archeological study if required
• Traffic study if required</td>
</tr>
<tr>
<td>Detailed Stage:
• Final engineering design
• Street grades established
• Water and sewer layout
• Detailed tree conservation plan
• Phase 2 archeological study if required
• Technical stormwater management design
• Final road and utility layout
• Final well and septic design
• Plat preparation and recordation
• Final stormdrain, sediment control, and water and sewer designs</td>
</tr>
<tr>
<td>PHASE 3
Permitting

• WSSC permits
(utility extensions, connections, permitting)
• DPW&T permits
(grading, stormdrain, street construction, other)
• Health Department permits
(well and septic)
• Other permits
(wetland impacts, street construction—state highway access)
• Utility coordination
(site plans to electric, gas, phone, cable companies)
• DER permits
(grading, final building permit issuance)</td>
<td>PHASE 4
Construction and Inspection

• Pre-construction meeting held
• Permit issued
• Initial inspection approval
• Clearing and rough grading phase
• Infrastructure phase
• Site development phase
• Use & Occupancy issued
• Final inspection approval
• Bond release</td>
</tr>
</table>

Source: Adapted from the Prince George's County Site Development Forum Manual, 2007

As shown in Table I-2, there are four phases in the overall process of land development. Table I-3 generally describes the required information for each application type.

Table I-3. Required Submittals by Application Type

Application Type	FSD Required[1]	NRI Required[2]	TCP1 or LOE Required	TCP2 or LOE Required
Basic plan or ZMA	X			
CDP or CSP		X	X	
Preliminary plan		X	X	
DSP or SDP		X		X
SE		X		X
Grading permits				X
Letter of exemption (LOE)	X			
Zoning Ordinance departures[3]				X

1. An FSD is required with a basic plan or zoning map amendment (ZMA) application and with applications for a letter of exemption (LOE). It may be a simplified, intermediate or detailed FSD, depending on the site features or as determined by the Planning Director or designee. (Refer to the section on Forest Stand Delineation, Types of Forest Stand Delineations for more information.) The FSD requirements may be waived if sufficient information is provided by the applicant or if sufficient information is easily accessed through PGAtlas.com.
2. If a site has an approved NRI, it can be submitted with any future application because it runs with the land. NRIs are required to be amended if:
   a. The information changes significantly from the original approval
   b. The area of the application changes
   c. The application is being phased or divided into smaller portions and the site information was not divided into phases in the previous application
3. Departures from the Zoning Ordinance include departures from design standards (DDS), departures from parking and loading standards (DPLS), and departures from sign design standards (DSDS). If a departure is part of an application that includes a TCP2 or LOE, a separate submittal of these documents is not required. Stand-alone nonconforming use applications have no environmental submittal requirements.

The technical manual describes the plan specifications and preparation processes related to each application. When comments are received during the review of any of the plans covered in this manual, applicants are required to submit a comment/response letter to speed the review of the plans and provide a description of the applicant's understanding of the comments provided. As noted in Subtitle 25, the plans showing the existing environmental information must be at the same scale as the associated submittals. Additional submittal requirements to address potential issues that vary from site to site, such as the presence of Marlboro clay, noise, and/or variance applications, may also be required.

7.0 Data Sources for Plan Preparation

The following data sources are available for plan preparation in conformance with the technical manual. Other sources may be used and must be noted on the plan and are subject to approval by the Planning

Director or designee. If conflicting information is available from more than one source, or a source is used that is not listed above, additional information may be required by the Planning Director or designee.

Recommended Data Sources

- Property boundaries can be from deed plots, survey located, or from The Maryland-National Capital Park and Planning Commission (M-NCPPC).
- Existing woodland information can be obtained from the most current aerial photographs available and must be refined using field observations and sampling as necessary.
- Topography can be surveyed, obtained from an aerial photogrammetric survey, or from M-NCPPC.
- Steep slopes are those 15 percent and greater. Steep slopes must be calculated based on the topography shown on the plans. The formula for calculating steep slopes is as follows:

Where V= the vertical distance between contours
V/H=% slope (For example: 2 foot contour/13.5 feet=15% slope)

- Soils information can be obtained from the most current version of the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soils Survey for Prince George's County.
- Regulated streams and wetlands information can be preliminarily determined during environmental studies using U.S. Geological Surveys (USGS), topographic quadrangles, soils maps, information from Maryland Department of Natural Resources (DNR), National Wetland Inventory (NWI) maps or from PGAtlas.com; however, the final location of regulated streams and wetlands must be field verified and included in a signed and dated wetland study.
- Floodplain information can be obtained during preliminary environmental studies from PGAtlas.com; however, floodplain information to be used on NRIs must be based on a recent study approved by Prince George's County Department of Public Works and Transportation (DPW&T) or a delineation prepared by an engineer with expertise in water resource engineering.
- Information regarding critical habitat areas can be obtained from the Maryland Department of Natural Resources, Wildlife and Heritage Division, 580 Taylor Avenue, Annapolis, Maryland 21401 or from their web site at: http://www.dnr.state.md.us/wildlife/wldivplan.asp.
- Historic sites are listed in the latest edition of Illustrated Inventory of Historic Sites of Prince George's County, Maryland, and can also be found on PGAtlas.com.
- Scenic and historic roads are listed in the "Designated Scenic and Historic Road List for Prince George's County" and are available on PGAtlas.com.
- The Champion Tree List for Prince George's County may be accessed by going to: http://www.pgparks.com/AssetFactory.aspx?did=1127.

8.0 Standard Symbols and Sheet Layouts

Standard symbols are required to be used on all plans referenced in this manual. These are provided in Appendix 1. The use of standard symbols will reduce review times and provide clarity on detailed plans. Alternate symbols may be used only if they are equivalent to those provided in Appendix 1 and provide the same level of clarity. Alternate symbols are subject to review and approval by the Planning Director or designee.

The standard sheet layout is to be used for all plan submittals and should be customized for the different plan types discussed in the technical manual. In general, the title block, professional certification, tabulation tables (either the TCP worksheet or other tables depending on the plan type), and the EPS approval block shall be placed in the lower right-hand corner, so that when the plans are folded, this information is easily referenced. The legend must be located as closely to the lower right-hand corner as possible to allow for easy reference of the symbols used on the drawing. The scale of the plan must be listed in the title section of the drawing. A bar scale must be shown on all sheets. Additional site statistics and required plan notes must be provided in the upper right-hand corner of the sheet. A sample sheet layout to be used for all environmental plans being submitted for review and approval can be found in Appendix 1. An overall cover sheet shall be provided for multisheet plans containing three or more sheets. The cover sheet shall provide a key to the areas covered by each sheet. The key must be provided on each sheet. Color copies of required plans may be submitted only if all features shown on the plan are fully legible when the plans are reproduced in black and white.

9.0 Preparation of Plans by Qualified Professionals

The Prince George's County Code requires that a person be a qualified professional to submit certain plans for review and approval. This requirement ensures that the plans have been prepared according to industry standards and meet the minimum requirements of the County Code and the Environmental Technical Manual.

To attain qualified professional status in Prince George's County, a person must be a licensed forester, a licensed landscape architect, or a certified arborist. If these qualifications cannot be verified on-line or if a person is not listed on the Maryland Department of Natural Resources' (DNR) qualified professionals list, documentation of licensure or certification may be required.

Any person who has attained qualified professional status through the DNR program is automatically eligible to submit plans in Prince George's County. A person may also seek qualified professional status solely in Prince George's County by meeting the following criteria as required by COMAR 08.19.06.01:

An individual may be approved by Prince George's County as a qualified professional if the individual:

1. Possesses the following education or experience requirements:

    a. A four-year degree in natural resource science, natural resource management, landscape planning, or environmental planning.

    b. Four years of professional experience in natural resource science, natural resource management, landscape planning, environmental planning, or the equivalent as determined by the Planning Director or designee.

    c. A graduate degree in natural resource science and one year of professional experience.

2. Has shown the ability to meet the obligations required by the Planning Department to prepare a forest stand delineation and a tree conservation plan.

3. Has satisfactorily completed a forest conservation training program approved by DNR.

A certification block must be provided on all plans. Blank certification blocks are provided in Figures I-2 and I-3. By signing the plans, the qualified professional is certifying that the information on the plans is true and accurate and meets the minimum submittal standards provided herein. They are, through their

signature, certifying that they have either personally prepared the plans or reviewed the work of others for accuracy and completeness. This requirement applies to all qualified professionals. If the professional has a valid seal, then both the certification block and professional seal must be shown on the plans.

QUALIFIED PROFESSIONAL CERTIFICATION

This plan complies with the current requirements of Subtitle 25 and the Woodland and Wildlife Conservation Technical Manual.

Signed: _____ Date: _____

(Place printed name, address, phone number, and e-mail address of qualified professional below the signature)

Figure I-2. Blank Certification Statement to be used by the Qualified Professional for Forest Stand Delineation and Tree Conservation Plan Submissions

QUALIFIED PROFESSIONAL CERTIFICATION

This complies with the current requirements of Prince George's County Code and the Environmental Technical Manual.

Signed: _____ Date: _____

(Place printed name, address, phone number, and e-mail address of qualified professional below the signature)

Figure I-3. Blank Certification Statement to be Used by the Qualified Professional for NRI Submissions

Part A Woodland and Wildlife Habitat Conservation Technical Manual

1.0 Introduction

This part of the Environmental Technical Manual provides guidance and direction on how to prepare forest stand delineations, tree conservation plans, and related documents for submission in Prince George's County to demonstrate conformance with Subtitles 4, 25, and 27 of the County Code. Refer to these subtitles for the regulations that this portion of the manual addresses. In the County Code, this section of the Environmental Manual is referred to as "The Technical Manual."

2.0 Trees and the Law in Prince George's County

On January 29, 1990, the Prince George's County Woodland Conservation and Tree Preservation Ordinance (CB-73-1990) went into effect. This program required the conservation of woodlands in accordance with the "Prince George's County Conservation and Tree Preservation Policy Document" for development plans and grading permits involving sites that are 40,000 square feet or greater in area and contain a total of 10,000 square feet or more of woodlands.

When it was first introduced, the Woodland Conservation Ordinance was groundbreaking in the State of Maryland and nationally. It provided, for the first time, direction and requirements with regard to the preservation of trees and woodlands during the land development process. The county had a vision to be a leader in the environmental field, as a way to provide its citizens with the healthiest, most sustainable, and beautiful communities within which to live and work.

In May 1990 a technical manual was published to provide guidance and direction on how to prepare the required plans. The manual included examples, instructions, and details to help implement the ordinance requirements. Appendices included information for preparing forest stand delineations and tree conservation plans.

In 1991, the General Assembly of Maryland adopted the Forest Conservation Act, Subtitle 16. "Natural Resources," Annotated Code of Maryland and Section 5-1603(a). At that time, most of the provisions of the Prince George's County ordinance were adopted by the state. Today, county programs are required to be approved and periodically reviewed by the Maryland Department of Natural Resources Forest Service.

Since 1990, various County Council bills have been approved concerning woodland conservation. In 2010, the County Council approved an update to the Prince George's County Code to bring it into conformance with state laws regarding tree and forest conservation. The name of the ordinance was changed to the Woodland and Wildlife Habitat Conservation Ordinance to emphasize that wildlife habitat conservation is one of the purposes of the regulations. The updated ordinance was approved by the County Council on July 13, 2010, and is abbreviated WCO throughout this manual. Several state bills have also been passed since 1991 to amend the Forest Conservation Act. The current state requirements have been incorporated in the 2010 update to the WCO. The Council bill that approved the updated ordinance is CB-27-2010.

3.0 Process and Applicability

The process of preparing plans for conformance to the County Code starts with the preparation of a forest stand delineation (FSD) or natural resource inventory (NRI) and then the preparation of the appropriate type of tree conservation plan, depending on the type of application (see Table A-1). Section 25-119 of the WCO details the applicability of the regulations and should be consulted prior to preparing plans for submittal.

Table A-1. Required Submittals by Application Type

Application Type	FSD Required[1]	NRI Required[2]	TCP1 or LOE Required	TCP2 or LOE Required
Basic Plan or ZMA	X			
CDP or CSP		X	X	
Preliminary plan		X	X	
DSP or SDP		X		X
SE		X		X
Grading permits				X
Letter of exemption	X			
Zoning Ordinance departures[3]				X

1. An FSD is required with a basic plan or zoning map amendment (ZMA) application and with applications for a letter of exemption (LOE). It may be a simplified, intermediate, or detailed FSD, depending on the site features or as determined by the Planning Director or designee. (Refer to the section on Forest Stand Delineation, Types of Forest Stand Delineations for more information.) The FSD requirements may be waived if sufficient information is provided by the applicant or if sufficient information is easily accessed through PGAtlas.com.
2. If a site has an approved NRI, it can be submitted with any future application because it runs with the land. NRIs are required to be amended if:
   a. The information changes significantly from the original approval
   b. The area of the application changes
   c. The application is being phased or divided into smaller portions and the site information was not divided into phases in the previous application
3. Departures from the Zoning Ordinance include departures from design standards (DDS), departures from parking and loading standards (DPLS), and departures from sign design standards (DSDS). If a departure is part of an application that includes a TCP2 or LOE, a separate submittal of these documents is not required. Stand-alone nonconforming use applications have no environmental submittal requirements.

The technical manual describes the plan specifications and preparation processes related to each application. When comments are received during the review of any of the plans covered in this manual, applicants are required to submit a comment/response letter to speed the review of the plans and provide a description of the applicant's understanding of the comments provided. As noted in Subtitle 25, the plans showing the existing environmental information must be at the same scale as the associated submittals. Additional submittal requirements to address potential issues that vary from site to site, such as the presence of Marlboro clay, noise, and/or variance applications, may also be required.

The requirements for each application type are contained in the County Code sections that govern the relevant portion of the process. The technical manual describes the plan specifications and preparation processes related to each application. When comments are received during the review of any of the plans covered in this manual, applicants are required to submit a comment/response letter to speed the review of the plans and provide a description of the applicant's understanding of the comments provided. As noted in

Subtitle 25, the plans showing the existing environmental information must be at the same scale as the associated submittals.

Letters of exemption from the WCO may be granted for certain properties or activities only if the property does not have a previously approved tree conservation plan. Two types of exemption letters may be issued: standard exemptions are for development applications for sites that are less than 40,000 square feet in size or for sites that contain less than 10,000 square feet of woodlands, and numbered exemptions are for permit applications for activities that disturb less than 5,000 square feet of woodlands. Numbered exemptions are to be used for permit applications only and are not acceptable for submission with a land development application. The conditions and requirements for each type of exemption are outlined in the Letters of Exemption section.

Tree conservation plans are the legal mechanisms used to illustrate how the woodland conservation requirements will be met both during the land development process and in perpetuity as required by the Forest Conservation Act. There are two types of tree conservation plans. Specific requirements for the Type 1 and Type 2 tree conservation plans and the level of detail required for each are outlined in Sections 6.0 and 7.0 below.

4.0 Forest Stand Delineation

A forest stand delineation (FSD) is defined as a detailed accounting of woody vegetation and existing site conditions, prepared in plan and document form. The purpose of an FSD is to provide an accurate depiction of the forest species, composition, age, condition, location, and acreage existing on a property prior to disturbance. FSDs are used to determine the most suitable areas for both development and woodland and wildlife habitat conservation. FSDs are required to be prepared by a qualified professional and must provide all the information contained in the FSD checklists and include the standard FSD notes as provided in Appendix A-1. Refer to Table A-1 for an overview of when an FSD is required.

Prior to the design team beginning their work on a project, the FSD should be analyzed to determine what existing resources on-site should be preserved and how the proposed development might affect the resources to remain. The FSD, combined with the NRI, should be used as the base sheet upon which the design work commences.

FSDs are reviewed as part of the review of the associated application and are not reviewed separately. Comments are provided through the coordinating reviewer and revised plans are submitted through the appropriate section. The County Code requirements with respect to FSDs can be found in Subtitle 25-123.

4.1 Types of Forest Stand Delineations

The FSD must cover the legal boundaries of a lot or parcel, or combination of lots and parcels, that are to be the subject of the proposed application. The FSD must be prepared at the same scale as the associated plans. There are three types of FSDs described below that are prepared in association with different types of development applications. A site visit by the qualified professional is required for all types of FSDs. The following criteria should be used to determine which FSD type is best suited for the subject application.

4.1.1 Simplified Forest Stand Delineation

A simplified forest stand delineation (FSD) may be submitted when the woodland disturbed will be less than 5,000 square feet and/or:

- A standard or numbered letter of exemption is in the application process.
- A basic plan for the purpose of rezoning a property is being considered.
- A natural resource inventory (NRI) that has no regulated environmental features and limited areas of woodland on-site is being submitted.

The collection of data samples is not required; however, a brief narrative description of the woodlands and a calculation of the amount of woodlands on the site must be provided on the plan. A separate text document is not required; however, a site visit must be conducted in order to verify information collected from various sources. The plan must accurately locate all existing woodlands on the lot(s) and/or parcel(s). The submittal requirements must include the plan elements outlined in this section and all of the information contained in the simplified FSD checklist provided in Appendix A-1.

4.1.2 Intermediate Forest Stand Delineation

An intermediate forest stand delineation may be submitted when:

- The site does not have an existing tree conservation plan.
- The proposed development will disturb more than 5,000 square feet of woodlands but less than ten percent of the property.
- The site will be established as a woodland conservation bank.

Intermediate FSDs may be submitted as part of an NRI, as determined by the Planning Director or designee per Section 25-123(a)(4)(B).

Intermediate FSDs shall include a plan showing the location of all woodlands on the property and the associated text per the intermediate FSD checklist provided in Appendix A-1. Intermediate FSDs must contain all of the information required for a simplified FSD for the entire site and text and sampling data for the areas proposed for development. The text may be provided in a separate document, or if space allows, the required information may be placed on the plan itself.

This option is used mainly for permit applications containing a single-family home or other low-intensity uses. An intermediate FSD provides the same information as that required for a detailed FSD, except that the sampling is limited to the portion of the property that will be disturbed and an additional 200 feet beyond the conceptual limit of disturbance. The FSD for the remainder of the property may be prepared as a simplified FSD. The use of the intermediate FSD option is at the discretion of the Planning Director or designee.

4.1.3 Detailed Forest Stand Delineation

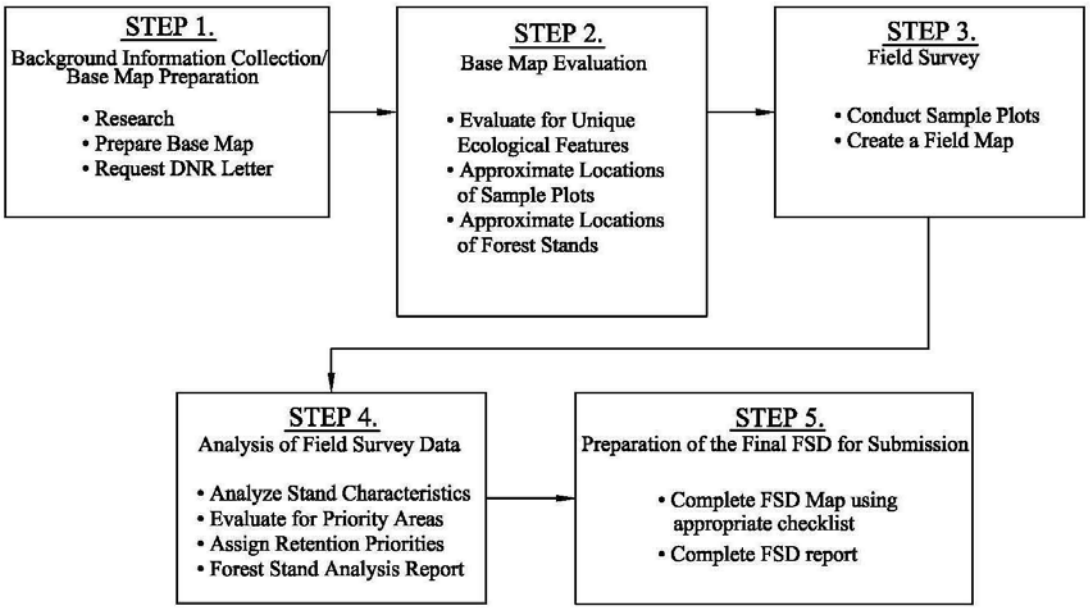
An FSD shall be submitted when the site or application does not qualify for a simplified or intermediate FSD. A detailed FSD shall include a plan showing all the required information and shall be prepared using the methodology outlined below. A detailed FSD checklist is provided in Appendix A-1.

A detailed FSD is required when:

- A Natural Resource Inventory (NRI) will be prepared.
- The site is greater than 40,000 square feet in size with greater than 10,000 square feet of woodlands and does not meet the eligibility for an intermediate FSD.

4.2 Forest Stand Delineation Preparation Methodology

The following steps outline the sequential procedure for gathering background information about a site, preparing a base map, evaluating the base map, performing a field evaluation, analyzing the results of the field data, and preparing the final FSD map and report.

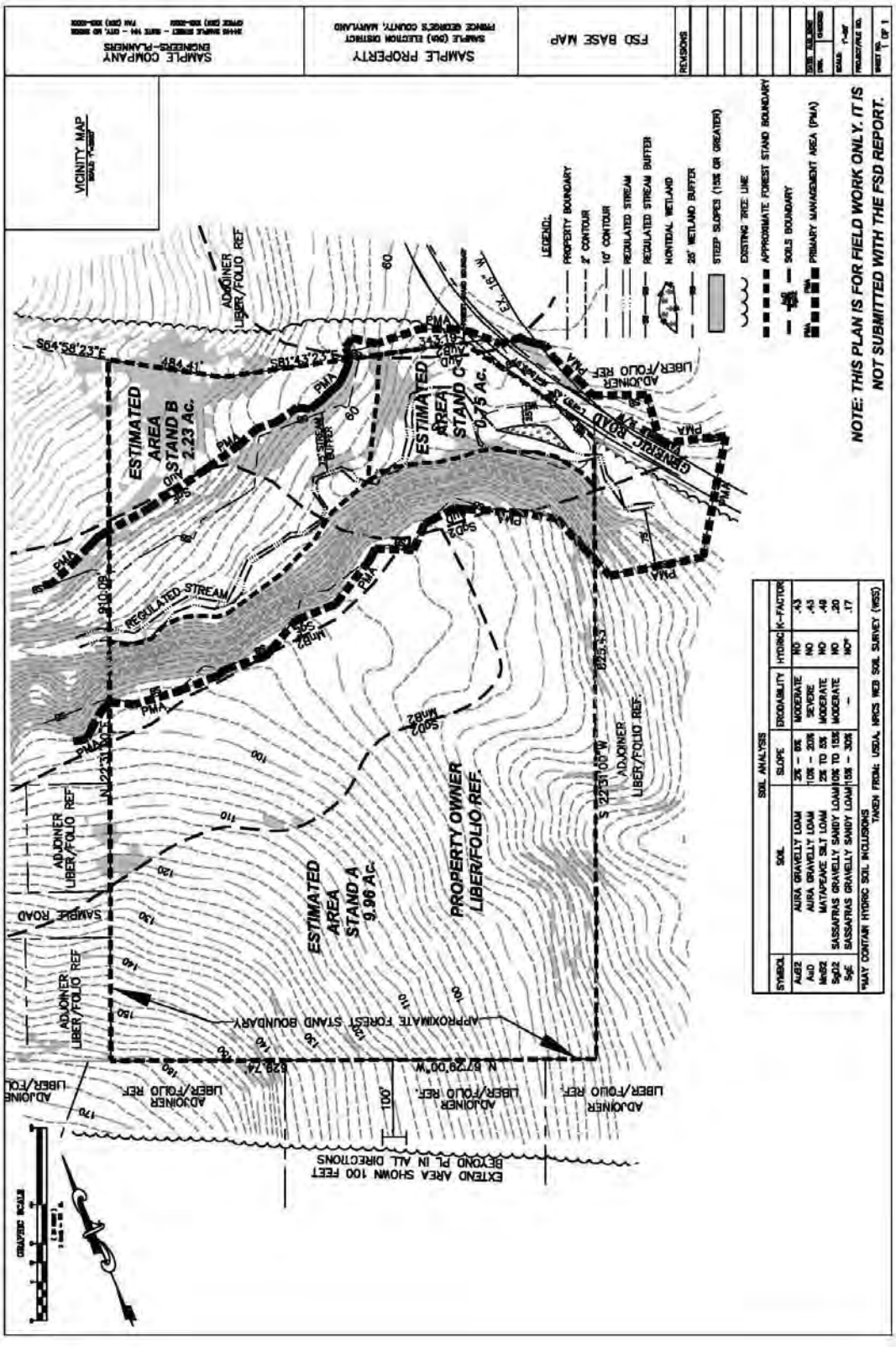


4.2.1 Step 1: Background Information Collection/Base Map Preparation

The base map shall be prepared at the same scale as the proposed development plan and shall sufficiently indicate all of the required features where applicable. The base map is prepared using the data sources found in the introduction to the technical manual. The base map is used to make a preliminary determination of the location of the forest stands on a site before doing any field verification or sampling. (See Map A-1 for a sample base map.) A base map may be used to satisfy the requirements of a simplified FSD. The base map shall include the following:

- Property boundaries
- Topography
- North arrow
- Regulated streams and their required buffers
- 100-year floodplains
- Nontidal or tidal wetlands and their required buffers
- Steep slopes
- All features such as roads, structures, and disposal areas
- Critical habitat areas

- Soils (locations of mapping units within each soil series shown on the plan and further identified with k-factor, hydric rating, hydrologic soil group, drainage class, and other classifications useful in determining location of forest stands)
- Estimated forest stand boundaries (prefield sampling)



Map A-1. Sample Base Map

At the time of base map preparation, a letter should be sent to the Maryland Department of Natural Resources (DNR) requesting the status of rare, threatened, and endangered species. After DNR researches the subject property, a letter of determination is sent to the property owner or authorized representative. This letter of determination shall be included with the FSD report.

4.2.2 Step 2: Base Map Evaluation

Before going out to the field, the base map is used to prepare for the field survey. Aerial photographs, both current and historic, are useful tools in the evaluation of the base map. Historic aerials reveal the past uses of the property. For example, an abandoned farm field that is now partially wooded would be expected to have pioneer stage successional species composition, while a site whose historic aerials reveal that it has long been wooded would be expected to have a mature forest. Areas of unique ecological character should be noted on the plan before going out to the field, so that sample point locations can be easily selected to ensure that all existing forest stands are sampled. The unique ecological features include:

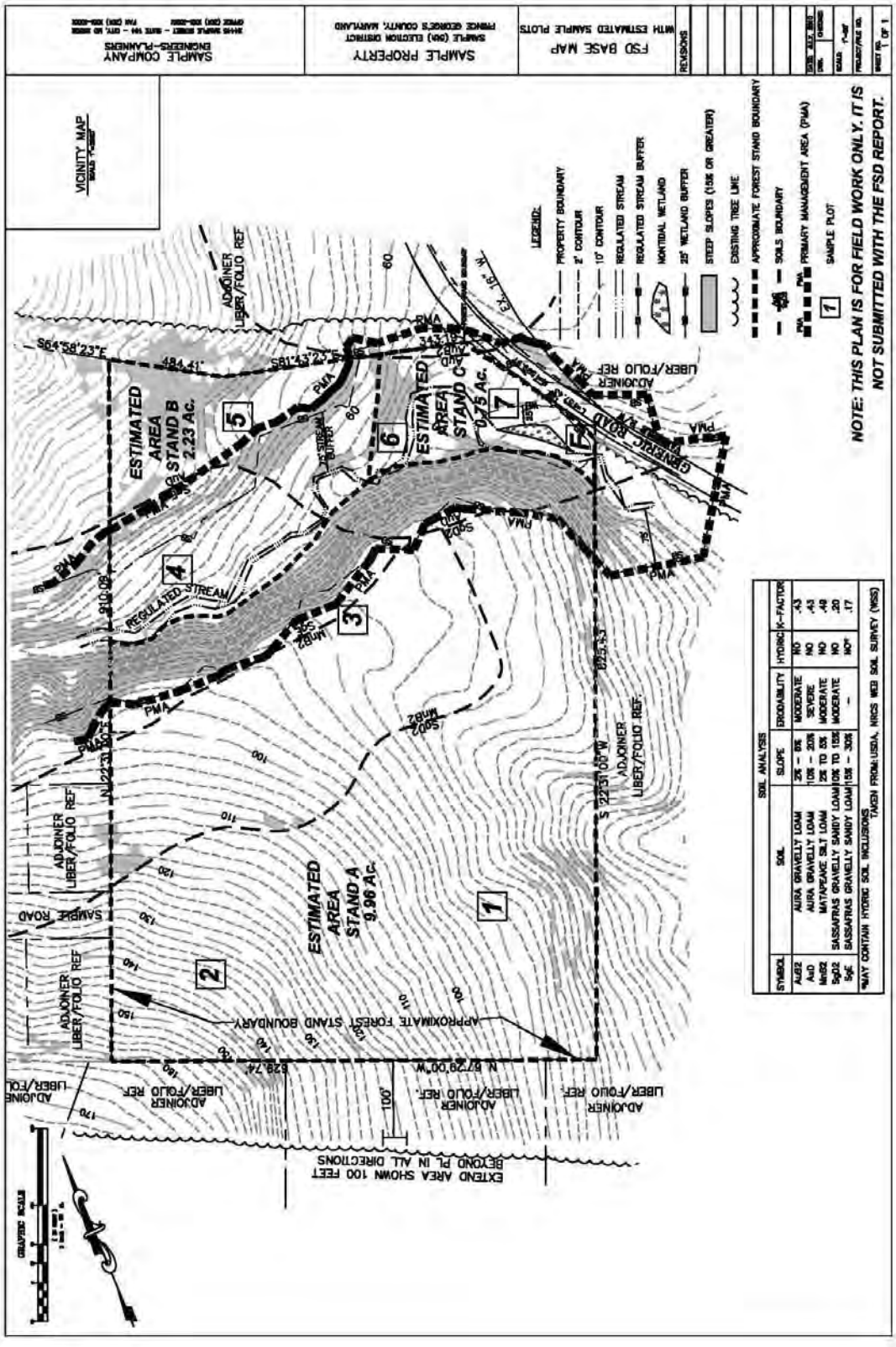
- Slope aspect (north vs. south facing slopes)
- Elevation (upland vs. bottomland)
- Soils (hydric or highly erodible)
- Tree species composition and age (rough estimate from aerial photos)

These characteristics can be used to determine probable site conditions and give an approximation of where forest stand boundaries may exist. The approximate stand boundaries should be marked on the base map using these features as a guide. Forest stand boundaries mark a transition from one ecological association to another. For example, a stand boundary might exist along a contour that differentiates upland forest stand associations from lowland stand associations. Likewise, a stand boundary might exist along a ridgeline that differentiates north facing slope forest stand associations from south facing slope associations. These approximate stand boundaries are used to estimate the sample point locations that will be needed for the field survey. The random placement of proposed sample plots should be put on the base map for use in the field. (See Map A-2.) Final locations of sample plots may change or shift during the field survey. Additional sample points may also be required if field conditions warrant additional sampling not previously shown on the base map.

The **minimum number of sample plots** as required by the state Forest Conservation Technical Manual is as follows:

- One plot per four acres of forest stand area
- Two plots minimum per stand
- Three plots minimum for the total forested area of the site

Using these standards, there will always be at least three sample plots for the entire forested area on a site and at least two sample plots for each stand. If there is only one stand on the site and it is less than four acres, it will still require three sample plots to be in conformance with the state standards.



Map A-2. Sample Base Map with estimated sample plots and estimated forest stand boundaries

4.2.3 Step 3: Field Survey

A field evaluation that includes sample points is required for intermediate and detailed FSDs. A simplified FSD does not require sample points, unless additional site verification is deemed necessary as determined by the Planning Director or designee.

4.2.3a General Site Conditions

A field evaluation shall be performed to verify the existing features and environmental conditions of the property shown on the base map. This evaluation is used to record sample point data, verify the woodland and trees on-site, and note the location of regenerating areas, hedgerows, specimen trees, and any other significant environmental features. During the field evaluation, notes and sketches of field conditions shall be added to the base map, creating a field map. A copy of the appropriate FSD checklist should be taken out into the field to ensure that all required information is collected.

An additional field evaluation may be deemed necessary to verify the presence or absence of rare, threatened, or endangered (RTE) species habitats based on the DNR letter of determination that critical habitats exist on-site or by the positive identification of an RTE during the FSD field evaluation. The RTE survey must be performed following standard protocol established by DNR. The timing of the study may be limited to a distinguishing feature of the RTE, such as flowering period or breeding or spawning season. The identification of RTEs is not limited to the wooded areas of the site. The entire site must be evaluated for the possible presence of RTE habitat and/or species.

4.2.3b Sample Points and Sample Point Data Sheets

The state Forest Conservation Technical Manual describes the required data collection for the preparation of an FSD. For the purposes of preparing an FSD, the state manual may be used for the collection of data with regard to the method used. The number of sample plots required is described in the Forest Stand Delineation Preparation Methodology. The random placement of the sample plots is completed during the preparation of the base map. A data sheet is to be filled out for each sample plot to document the species, size class, and canopy dominance for all trees greater than two inches diameter at breast height (DBH). A sample plot data sheet is provided in Appendix A-1.

Alternative sample data sheets may be used as long as all of the required information shown on the sample is provided. Other documented parameters include basal area, size and number of standing dead trees, a list of common understory species, a list of herbaceous species, percent of canopy closure, percent of understory cover, percent of herbaceous cover, percent of downed woody material, percent of invasive cover, and stage of plot succession. Other site information affecting the forest should be noted, such as evidence of past harvesting, storm damage, disease, or insect infestation. Information related to future preservation areas should also be noted, such as the presence of debris piles, dumping areas, and/or any non-natural debris that should be removed before construction. These areas should also be shown on the FSD map.

Sample point data is to be collected by both a fixed plot sampling method and the variable plot wedge prism or angle gauge method. Sample plots 1/10th of an acre in size are typically used; however, sample plots 1/20th of an acre or even 1/100th of an acre may be appropriate in cases where areas of regeneration have created a density that lends to an unreasonable tallying process for a larger sample plot. Other sampling methods may be used as long as those methods yield realistic data, and the information provided is statistically viable. The information to be reported must be converted to sample plots using 1/10th acre in size. When alternative methods are used, the preparer must describe the method in the text and be clear why

this alternative method was used. Sample point data sheets are required to be submitted as part of the FSD text.

The center of all sample points must be identified in the field by survey flagging labeled with the corresponding sample point number. The flagging may be placed around a tree at the center of a plot or by using a wooden stake with flagging. The stake and/or flagging should remain in place after the FSD preparation for future reference in the field.

The 1/10th-acre "fixed plot" sampling method involves establishing a circle with a 37.5-foot radius around each fixed sample point. Within this circle, trees greater than two inches DBH are identified, measured, and recorded. A list of the common understory species 3 to 20 feet in height and a list of the herbaceous species up to three feet in height within the circle are also recorded. (See Figure A-1.)

The variable plot wedge prism or angle gauge sampling method makes use of a wedge prism or angle gauge with a predetermined basal area factor (BAF) rating. The wedge prism and angle gauge are tools traditionally used for sampling random points while cruising for timber; however, these tools are also effective for determining basal area associated with fixed plots.

Once all of the sample data have been collected in the field and the data sheets have been completed, they are used to classify each forest stand. Dominant/co-dominant species, average DBH, and the makeup of the understory and herbaceous layers are summarized.

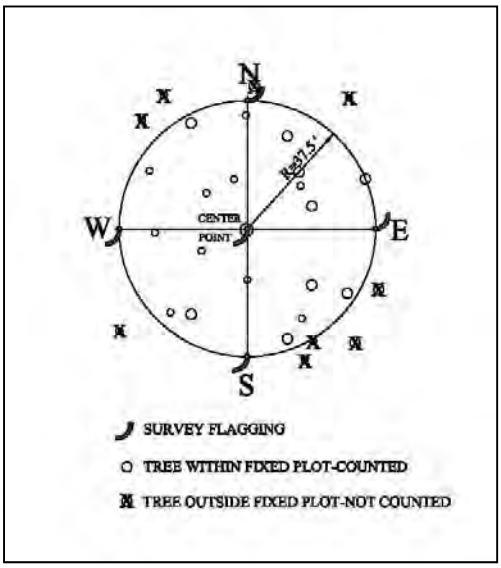


Figure A-1. 1/10th-acre fixed plot sampling method

To measure cover:

Estimates of canopy closure are becoming increasingly important in forest management. Several techniques have been used to estimate canopy closure, including the densiometer and ocular estimates using a crown density scale. The crown density scale produces a more accurate estimation of cover and is the recommended method. (See Crown Density Scale, Appendix A-1.)

Basal area should be measured as a total for all species using a BAF wedge prism or an angle gauge at the center of all sample points. A Biltmore stick or diameter tape may be used to measure the diameter of all trees within the sample plot. Please note that, if a Biltmore stick or diameter tape is used, it is important that

each individual tree be measured within the plot because using a general size class will give an inaccurate measurement of basal area.

4.2.3c Specimen, Champion, and Historic Trees

Specimen trees are defined in the WCO as trees having a diameter at breast height of 30 inches or more; trees having 75 percent or more of the diameter at breast height of the current champion of that species; or a particularly impressive or unusual example of a species due to its size, shape, age, or any other trait that epitomizes the character of the species. Champion tree lists are maintained at the national, state, and local levels. The Champion Tree List for Prince George's County is maintained and updated by the Department of Parks and Recreation and may be accessed by going to http://www.pgparks.com/AssetFactory.aspx?did=1127. Historic trees are defined by COMAR Subtitle 5, Section 5-1607, C(4) as trees that are part of a registered historic site or are associated with a registered historic structure.

The entire site must be walked to ensure that all existing specimen, champion, and historic trees have been flagged, recorded, and mapped. Required tree information includes the species, DBH, and condition. The condition comments column is used to provide information regarding the condition rating given to a particular tree.

Possible condition ratings are provided in Table A-2 (below). The last column of the table contains the condition ratings that result from using methods presented in The Guide to Plant Appraisal prepared by the Council of Tree & Landscape Appraisers and published by the International Society of Arboriculture.

Table A-2. Specimen, Champion, and Historic Tree Rating Guide

Rating	Conditions that may warrant this rating	Appraisal Guide Ratings
EXCELLENT	Exceptionally healthy condition based on observations of leaf, stems, and trunk. Form and habit exceptional or typical of species. Live growth or buds to the terminal ends of branches. Normal leaf size, distribution, and color. Trunk in excellent condition with form typical of species. No disturbances to the root zone or the root zone has been formed over a period of years in an urban setting without disturbance.	90–100
GOOD	Generally healthy condition. Form and habit typical of species. Live growth or buds to the terminal ends of branches. Normal leaf size, distribution, and color. Trunk in excellent condition with form typical of species. Little or no disturbances to the root zone or the root zone has been formed over a period of years in an urban setting without disturbance.	80–90
FAIR	Generally healthy condition, with some minor problems noted. Form and habit typical of species or with some deviations that may impair future preservation. Live growth or buds to the terminal ends of branches. Leaf size, distribution, and/or color atypical of species. Trunk condition impaired by a structural defect. Limited areas of disturbance to the root zone or the root zone has been formed over a period of years in an urban setting with some minor disturbances.	70–80

Rating	Conditions that may warrant this rating	Appraisal Guide Ratings
POOR	Generally poor condition, with some major problems noted. Live growth or buds not present on the terminal ends of branches. Leaf size, distribution, and/or color atypical of species. Trunk condition impaired by one or more structural defects. Extensive areas of disturbance to the root zone or the root zone has been formed over a period of years in an urban setting with some major disturbances.	Less than 70

The location of all specimen, champion, and historic trees can be field located preliminarily; however, at the time of TCP2 preparation and final site design, all specimen, champion, and historic trees inside the limit of disturbance (LOD) and any specimen, champion, and historic trees located outside the LOD within 100 feet of the LOD, MUST be survey located to ensure that they relate spatially to the development being proposed. The following note must be added to the TCP2: "All specimen, champion, and historic trees inside the LOD and outside the LOD within 100 feet of the LOD have been survey located."

There are three different types of specimen, champion, and historic tree tables. For FSDs and NRIs, the tree table shall contain the columns as shown in Table A-3A. For TCP1s, the tree table must also include a column stating the disposition of the trees as shown in Table A-3B. For TCP2s, an additional column is required to describe the treatments for trees to be preserved. A sample of this table is provided in Table A-3C.

Table A-3A. Sample FSD and NRI Specimen, Champion and Historic Tree Table

No.	Common Name	Scientific Name	Dbh (Inches)	Condition Rating	Condition Comments
1	Red Maple	Acer rubrum	38	Good	
2	Red Maple	Acer rubrum	40	Poor	Storm damage
3	Yellow Poplar	Liriodendron tulipifera	40	Poor	Lightning strike
4	White Oak	Quercus alba	31	Fair	Some breakage
5	Yellow Poplar	Liriodendron tulipifera	31	Good	
6	Yellow Poplar	Liriodendron tulipifera	31	Good	
7	White Oak	Quercus alba	32	Good	
8	Yellow Poplar	Liriodendron tulipifera	31	Fair	Powdery mildew; atypical form
9	White Oak	Quercus alba	31	Good	
10	Chestnut Oak	Quercus prinus	32	Fair	Some breakage

Note: All specimen, champion, and historic trees were field located

Table A-3B. Sample TCP1 Specimen, Champion, and Historic Tree Table

No.	Common Name	Scientific Name	Dbh (Inches)	Condition Rating	Condition Comments	Disposition
1	Red Maple	Acer rubrum	38	Good		Save
2	Red Maple	Acer rubrum	40	Poor	Storm damage	Remove

No.	Common Name	Scientific Name	Dbh (Inches)	Condition Rating	Condition Comments	Disposition
3	Yellow Poplar	Liriodendron tulipifera	40	Poor	Lightning strike	Remove
4	White Oak	Quercus alba	31	Fair	Some breakage	Save
5	Yellow Poplar	Liriodendron tulipifera	31	Good		Save
6	Yellow Poplar	Liriodendron tulipifera	31	Good		Save
7	White Oak	Quercus alba	32	Good		Save
8	Yellow Poplar	Liriodendron tulipifera	31	Fair	Powdery mildew; atypical form	Save
9	White Oak	Quercus alba	31	Good		Save
10	Chestnut Oak	Quercus prinus	32	Fair	Some breakage	Save

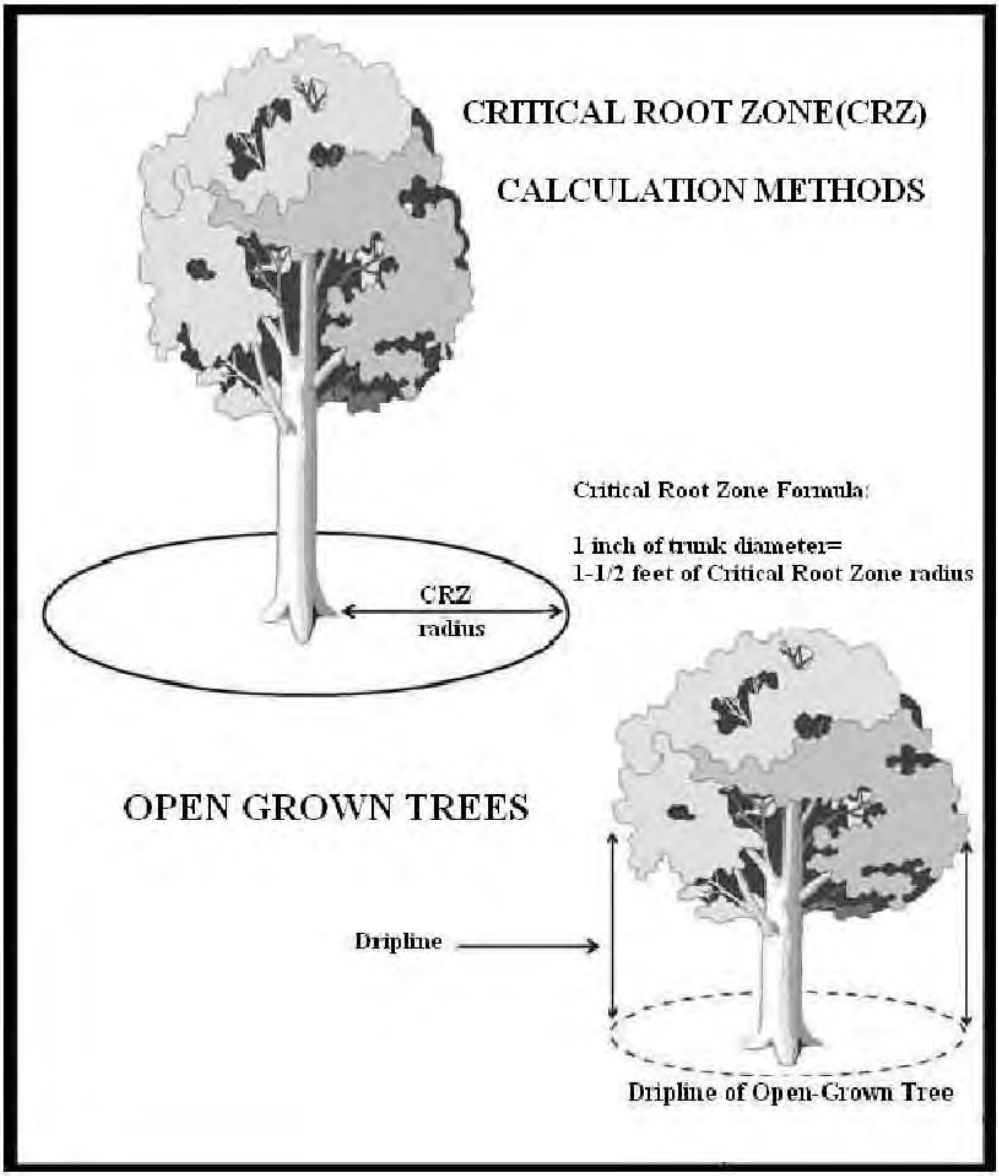
Note: All specimen, champion and historic trees were field located

The "Disposition" column is used on Type 1 and Type 2 TCPs but is not needed for the FSD or NRI.

Table A-3C. Sample TCP2 Specimen, Champion, and Historic Tree Table

No.	Common Name	Scientific Name	Dbh (In)	Condition Rating	Condition Comments	Disposition	Preservation Comments
1	Red Maple	Acer rubrum	38	Good		Save	Root, prune, and fertilize
2	Red Maple	Acer rubrum	40	Poor	Storm damage	Remove	
3	Yellow Poplar	Liriodendron tulipifera	40	Poor	Lightning strike	Remove	
4	White Oak	Quercus alba	31	Fair	Some breakage	Save	Crown thin to remove breakage
5	Yellow Poplar	Liriodendron tulipifera	31	Good		Save	Root, prune, and fertilize
6	Yellow Poplar	Liriodendron tulipifera	31	Good		Save	Root, prune, and fertilize
7	White Oak	Quercus alba	32	Good		Save	Root, prune, and fertilize
8	Yellow Poplar	Liriodendron tulipifera	31	Fair	Powdery mildew; atypical form	Save	Root, prune, and fertilize
9	White Oak	Quercus alba	31	Good		Save	Root, prune, and fertilize
10	Chestnut Oak	Quercus prinus	32	Fair	Some breakage	Save	Crown thin to remove breakage

Note: All specimen, champion, and historic trees within 100 feet of the LOD have been survey located.



Source: Adapted from Fairfax County, Virginia, Public Facilities Manual

Figure A-2. Example of Specimen Tree and Critical Root Zone (CRZ)

4.2.4 Step 4: Analysis of Field Survey Data

The objective of this step is to first evaluate the existing resources on the site and then to determine which woodlands contain the most valuable areas for preservation. A forest analysis is completed for each forest stand using the individual data sheets and the forest stand summary sheets as described in this section. The forest analysis worksheet as provided in Appendix A-1 shall be completed for each forest stand. The worksheet uses the information from the individual data sheets and forest stand summary sheets to evaluate the forest structure, condition, and the location of regulated features for each forest stand to determine the priorities for retention and restoration. The individual data collected at each sample plot is combined and

averaged to give an accurate report of the stand. The analysis of each forest stand shall be summarized in a written narrative and included in the FSD report. A forest analysis worksheet for each stand must also be included in the report. This evaluation is used by the site designers and engineers to prepare the site layout and the subsequent tree conservation plan.

4.2.4a Summary of Stand Characteristics and Forest Stand Summary Sheets

A Forest Stand Summary Sheet shall be completed for each forest stand. All of the individual data sheets completed within a forest stand are combined and averaged for all information recorded. For example, if six (6) sample plots are taken in the forest stand, the data is added together from each individual data sheet and divided by six for an average. Along with the individual data sheets, the forest stand summary sheets are required to be submitted as part of the FSD report. The Forest Stand Summary Sheet is provided in Appendix A-1.

4.2.4b Analysis of Stand Characteristics

Forest stands should be evaluated based on stand composition, structure, condition, and function for each individual stand.

Stand composition: Species diversity is a major component in the evaluation of stand composition. Higher species diversity results in more sustainable forests, while low species diversity usually indicates poor environmental conditions or stands experiencing transition, which can be associated with recent site disturbance, poor soils, drought, etc. The dominant and co-dominant species, common understory species, herbaceous species, specimen trees, and the presence or absence of invasive species within each stand, encompass the stand composition. Stand composition is considered site-specific, and any unique conditions are summarized and considered when assigning retention priority.

Stand structure: Stand structure is measured by basal area, density, canopy closure, and the presence or absence of multiple layers.

Stand condition: Stand condition is characterized by density and basal area, understory species, successional stage, presence or absence of invasive species, insect infestation and/or disease. Stand condition is indicative of the health of the forest and is an important factor for assigning retention priority and evaluating potential preservation methods. Successional stages to be used include pioneer, early successional, midsuccessional, subclimax, and climax.

Stand function: Stand function is characterized by stand composition, structure, and condition as they pertain to maintaining or enhancing existing water quality protection, maintaining or enhancing wildlife habitat, accomplishing landowner uses, and implementing the priorities for conservation defined in Subtitle 25-121.

4.2.4c Assigning Conservation Priorities

Priority areas include features for preservation and areas that are a high priority for replanting as outlined in the WCO. The following section describes how priorities are assigned to existing forest stands. Forest stands are prioritized for preservation based on the completed forest analysis worksheet. The FSD text must include a description of what elements are present that resulted in the priority assigned to each stand. In some cases, only a portion of a stand may contain an element that results in a certain priority rating; however, if, for example, an area contains only one specimen tree and otherwise would be a Priority 3 stand, the presence of the one specimen tree does not necessarily result in an automatic rating of Priority 1.

Best judgment should be used by the preparer in assigning priorities that reflect the overall character of the stand.

The following characteristics are used to assign stand priorities:

Priority 1

Land designated in Subtitle 25 as woodland and wildlife habitat conservation priorities, whether the area is currently wooded or not.

1. Green infrastructure network elements designated in the Countywide Green Infrastructure Plan and any subsequent updates or within the designated green infrastructure networks in master or sector plans.

2. Critical habitat areas.

3. Contiguous wooded areas with high structural and species diversity, few nonnative and invasive species present, very good overall stand health, and high potential to provide a significant amount of habitat for forest interior dwelling plant, animal, and bird species.

4. Champion trees designated by the United States, the State of Maryland, the county, or municipalities.

5. Specimen, champion, and historic trees.

6. Forest legacy areas as defined by the state.

7. Trees that are within the environmental setting of a historic site or associated with a historic resource.

Priority 1 areas may also include:

8. Primary management areas not within the green infrastructure network

9. 100-year floodplain

10. Wetlands and their buffers

11. Regulated streams and their buffers

12. Extensive areas of steep slopes

13. Hydric and highly erodible soils

14. Forest interior dwelling species (FIDS) habitat

Priority 2

Areas that contain locally significant features including, but not limited to, the following:

1. Woodlands adjacent to Priority 1 woodlands

2. Areas of Marlboro and/or Christiana complex

3. Land adjacent to special roadways and their associated buffers

Priority 3

All other areas on the property are ranked as Priority 3.

In addition to the three priorities listed above, the forest analysis worksheet, provided in Appendix A-1, provides the framework for determining preservation and restoration priorities based on the composition, structure, condition, function, and location of each stand. The worksheet is required to be provided on the FSD or NRI when sampling points are used to determine the priority for preservation or restoration. Restoration can include the replanting of areas currently devoid of woodlands, areas with low stocking levels, or areas that contain high percentages of invasive plants.

The total number of points possible for the stand analysis is 60.

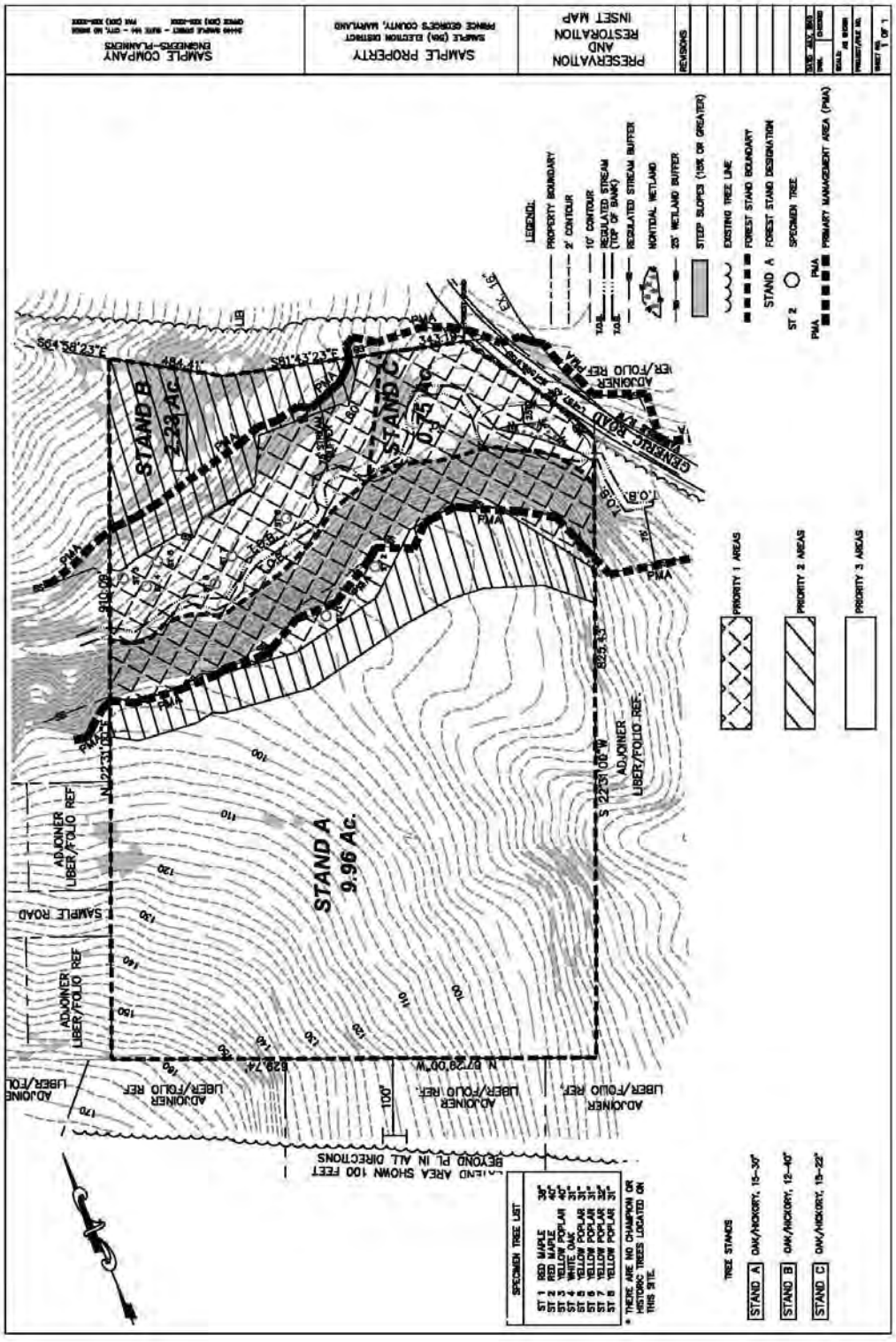
Table A-4A. Assigning Priorities for Preservation

Priority for Preservation	Guidelines for Priority Designation
HIGH	Location in Priority 1 areas regardless of structure or condition (see below) or more than 15 points in either structure or condition or total stand analysis points of 45 or greater
MEDIUM	Location in a Priority 2 area or 12–15 points in structure and condition or total stand analysis of 30 or greater
LOW	Location in a Priority 3 area or less than 12 points in structure or condition or total stand analysis less than 30

Table A-4B. Assigning Priorities for Restoration

Priority for Restoration	Guidelines for Priority Designation
HIGH	Location in a Priority 1 area
MEDIUM	Location in a Priority 2 area
LOW	Location in a Priority 3 area

Once the preservation and restoration priorities have been established, a priority area inset map is created. This map is to be located on the final FSD and should depict the assigned priority areas. (See Map A-3.)



Map A-3. Example of priority area inset map

4.2.4d Forest Stand Analysis Report

From the forest stand summary and analysis information, a narrative is written. The narrative begins with a brief introduction describing overall site conditions. The introduction is then followed by a description of the forest association or species composition and condition, any past or present management, presence or absence of critical habitat areas, disease, insects, or invasive plant species on the site. A statement regarding the presence of any historic sites and/or scenic or historic roads should also be included. A suggested format for the FSD report is provided in Appendix A-1.

4.2.5 Step 5: Preparation of the Final Forest Stand Delineation for Submission

A complete FSD comprises an FSD map and an FSD report. The FSD map contains all of the information contained in the appropriate checklist and all of the information gathered during the site visit. The final FSD report provides a written description for all of the information shown on the plan and includes all applicable data sheets and any determination letters received by DNR regarding rare, threatened, or endangered species existing on the site.

The FSD submission **MUST INCLUDE** both the FSD map and FSD report for acceptance.

5.0 Letters of Exemption

A property may be eligible for a letter of exemption (LOE) from the woodland conservation requirements of the Woodland and Wildlife Habitat Conservation Ordinance (WCO) when information is verified that the site or proposed activity qualifies for an exemption under the criteria set forth for exemptions. An LOE from the woodland conservation requirements does not exempt the property from the tree canopy requirements as outlined in the Guidelines for Tree Canopy Coverage section. All applications must either include a standard LOE or the appropriate tree conservation plan. Permit applications for specific activities may include a numbered LOE in lieu of a tree conservation plan.

Letters of exemption cannot be issued for properties that have a previously approved TCP unless the TCP has expired.

Information regarding the presence of a tree conservation plan is provided at www.pgatlas.com (use the identify feature) or by visiting the Environmental Planning Section.

Letters of exemption are not required for certain activities. For a list of these activities, refer to the WCO, Section 25-119. Applicability. (b) Exemptions from this Division.

Letters of exemption are valid for two years from the date of issuance. If the associated application or permit expires, the LOE also expires. Renewing the LOE requires a new application, a copy of the previous letter, and the associated fee.

A standard letter of exemption is issued for sites with no previous TCP that meet one of the conditions listed in this section under Standard Letters of Exemption. A numbered LOE is issued for proposed activities on properties that are greater than 40,000 square feet, contain more than 10,000 square feet of woodland, have no previous TCP, and meet one of the conditions listed in this section under Numbered Letters of Exemption.

Refer to the Decision Matrix (Figure A-3) for information regarding when a tree conservation plan is required and when a letter of exemption may be requested.

5.1 Preparation of the Application Package

To apply for a letter of exemption, the following must be submitted to the Environmental Planning Section:

1. A site plan or equivalent showing the existing tree line, proposed limit of disturbance and proposed activity. The plan must show sufficient information so that a determination can be made regarding the exemption status for the application. If the information submitted is not sufficient to make a determination regarding the exemption status for an application, a simplified forest stand delineation (FSD) may be required. If the activity requires a land development application for a subdivision, for example, a numbered exemption cannot be issued.

2. A completed Environmental Planning Section application form, available on-line at pgplanning.org or from the Environmental Planning Section.

3. A check or money order for the appropriate fee made payable to The Maryland-National Capital Park and Planning Commission. If multiple applications are requested, a separate check is required for each application. Applications may be made in person during business hours or by mailing a package containing all required materials to the Planning Department.

Figure A-3. Decision Matrix

5.2 Standard Letters of Exemption

Standard letters of exemption (LOE) are issued for sites with no previous TCP that meet one or more of the following conditions:

1. The property is less than 40,000 square feet gross tract area.

2. The property contains less than 10,000 square feet of woodland.

3. The site is located within the Chesapeake Bay Critical Area (CBCA). (If a site is located partially within the CBCA, then only that portion within the CBCA is exempt from the WCO and is subject instead to CBCA regulations. If a portion of the property is outside the CBCA, that portion must conform to the regulations of the WCO.)

4. A letter from the State of Maryland Department of Natural Resources is provided stating that they are taking jurisdiction over the review of the project. (The standard LOE and the state-approved forest conservation plan shall accompany all local applications.)

5. The construction of a state road or highway is proposed, and a letter from the State of Maryland Department of Natural Resources is provided stating that they are taking over the review of the project.

6. Cutting or clearing of trees or woodlands necessary to meet the requirements related to objects affecting navigable airspace, provided that the Federal Aviation Administration has determined that the trees are a hazard to aviation.

5.3 Numbered Letters of Exemption

Numbered letters of exemption are issued for an activity or series of activities resulting in the cumulative disturbance of less than 5,000 square feet of woodland during a five-year period on a site that otherwise would be subject to the WCO. A numbered letter of exemption shall not be issued for properties that are required to submit applications as part of the land development process for the activity proposed. The property must not have a previous TCP and meet one or more of the following conditions:

1. Less than 5,000 square feet of woodland is proposed to be cleared over a five-year period.

2. No other applications are required as part of the land development process for the activity proposed.

3. Commercial logging and forest harvesting operations are proposed on properties in the Open Space (O-S), Residential-Agricultural (R-A), Residential-Estate (R-E), or the Rural-Residential (R-R) zones. The land is subject to the requirements established in the WCO, Section 25-119. Applicability. (b) Exemptions from this Division. (5) (C) Numbered Letter of Exemption. An approved Forest Management Plan is also required.

4. A linear project that meets all of the following criteria:

    a. Proposes to disturb less than 20,000 square feet of woodland

    b. None of the associated properties are subject to a previously approved TCP

6.0 Type 1 Tree Conservation Plan (TCP1)

A Type 1 tree conservation plan (TCP1) illustrates conceptually how the requirements of Subtitle 25 and the other relevant requirements of related sections of the County Code will be met. It is prepared by analyzing the existing site features and determining which features are the highest priorities for preservation. Other environmental issues, such as noise, soil conditions, and water resources, are also considered prior to site design. This analysis is then meshed with the site constraints, such as access points for roadways and utilities, to determine the best conceptual layout for the development proposed.

TCP1 applications are required to meet all of the requirements of Subtitle 25. Applicants can request a variance from the provisions of Subtitle 25 provided all of the required findings in Section 25-119(d) can be met and the request is not less stringent than the requirements of the applicable provisions of COMAR. An application for a variance shall be accompanied by a letter of justification stating the reasons for the request and how the request meets each of the required findings. Required variances associated with a TCP1 shall be approved by the Planning Board, Zoning Hearing Examiner, and the District Council with the associated case as appropriate.

A TCP1 is followed later in the process by a Type 2 tree conservation plan that provides the detailed grading, final building locations, and final calculations of woodland conservation. Refer to the Type 2 Tree Conservation Plan (TCP2) section for information regarding the preparation of a TCP2.

At a minimum, a TCP1 is a plan prepared at the same scale as the associated application and includes a completed worksheet, standard notes, and all of the elements required by the TCP1 checklist. The TCP1 must be checked for accuracy and completeness prior to submission by the qualified professional who prepared it. TCP1s are required to be submitted with an associated application and are not reviewed separately from their associated application. A plan preparation checklist and the standard TCP1 notes are provided in Appendix A-2.

6.1 Submission of a TCP1

A Type 1 tree conservation plan is conceptual in nature and is required to be included as part of the following applications:

1. Conceptual site plans

2. Comprehensive design plans

3. Preliminary plans of subdivision

An overall cover sheet must be provided for multisheet plans. The cover sheet shall provide a key to the areas covered by each sheet, and this key shall be provided on each sheet.

6.2 Process for Preparing a TCP1

6.2.1 Step 1: Priority Areas for Preservation and Replanting

During preparation of the FSD, the site was evaluated to identify areas of high priority woodlands. During the preparation of the natural resource inventory, regulated environmental features and their buffers were established. When preparing a TCP1, the first step is to analyze the priority areas for preservation and determine how the proposed development fits within this framework. Through all aspects of the site design process, the priority areas should be considered and impacts avoided or minimized. Areas that are priorities

for replanting are also considered throughout the design process and are enhanced using either reforestation or afforestation so that priority areas have the opportunity to develop into perpetual woodlands. The priority areas for consideration as woodland conservation are provided in Section 25-121(b)(1):

"(b) Woodland and Wildlife Habitat Conservation Priorities

"(1) The required locational priorities for consideration as woodland conservation are as follows in the order listed:

"(A) Green infrastructure network elements designated in the Countywide Green Infrastructure Plan and any subsequent updates, or within the designated green infrastructure networks in master or sector plans.

"(B) Critical habitat areas.

"(C) Contiguous wooded areas with: high structural and species diversity; few nonnative and invasive species present; very good overall stand health; and high potential to provide a significant amount of habitat for forest interior dwelling plant, animal, and bird species.

"(D) Champion trees designated by the United States, the State of Maryland, the County or municipalities.

"(E) Specimen trees and historic trees.

"(F) Forest Legacy Areas as defined by the state.

"(G) Trees that are within the environmental setting of a historic site or associated with a historic resource."

When selecting areas for preservation or restoration on a TCP1, the location, condition, and structure of the existing woodlands as detailed in the FSD report should be used. When deciding whether specimen, champion, and/or historic trees should be preserved, their condition as outlined in the FSD report should be considered, as well as the construction tolerance for each species. A construction tolerance chart is provided in Appendix A-2. Per Subtitle 25, Section 25-122(b)(1)(G). Specimen trees, champion trees, and trees that are part of a historic site or are associated with a historic structure shall be preserved, and the design shall either preserve the critical root zone of each tree in its entirety or preserve an appropriate percentage of the critical root zone in keeping with the tree's condition and the species' ability to survive construction. It should be noted that the removal of a specimen, champion, or historic tree requires the approval of a variance per Section 25-119(d).

6.2.2 Step 2: Calculating the Woodland Conservation Requirement

After a site design has been prepared using the information gleaned from the priority area analysis, the woodland conservation requirement can be calculated.

The woodland conservation requirement is based on two factors: the woodland conservation threshold (WCT) percentage based on the zoning of the subject property and the requirement based on the amount of clearing proposed. One of the standard woodland conservation worksheets must be used to calculate the total requirement. A basic woodland conservation worksheet and the guidelines for completion are included in Appendix A-2.

The acreage of the WCT is determined by multiplying the WCT percentage for that zone (see Table A-5) by the net tract area (gross tract area minus 100-year floodplain and "previously dedicated land"—refer to WCO for definitions) as shown in the example below.

14.00 acres gross tract area
– 1.00 acre of 100-year floodplain
– 0.00 acre of previously dedicated land
=13.00 acres of net tract area

13.00 acres of net tract area
X 0.20 percent threshold in the R-T Zone
= 2.60 acres woodland conservation threshold (WCT)

Afforestation refers to planting trees where none existed on a site before or where they have been absent for a long time. At a minimum, all sites subject to the WCO must meet the afforestation threshold as stated in the WCO. Woodland conservation thresholds (WCT) and afforestation thresholds (AFT) are expressed in percentages and differ by zoning category.

If a site contains less acreage of woodlands than the acreage of the threshold, then the woodland conservation threshold drops to the acreage of woodlands on the site. The minimum woodland conservation threshold cannot fall below the afforestation threshold for a site.

Table A-5. Woodland Conservation and Afforestation Thresholds and Tree Canopy Requirements by Zone

Zone	Woodland ConservationRequirements	
	Minimum Woodland Conservation Threshold*	Minimum Afforestation Threshold*
R-O-S, O-S, R-A	50%	20%
R-E, R-L, V-L	25%	20%
R-S, R-R, R-80, R-55, R-35, R-20, R-T, R-30, R-30C, R-18, R-18C, R-10, R-10A, R-H, R-U, R-M, R-M-H, V-M	20%	15%
C-A, C-O, C-S-C, C-1, C-C, C-G, C-2, C-W, C-M, C-H, C-R-C, I-1, I-2, I-3, I-4, E-I-A, L-A-C, M-X-C, M-U-I, M-U-T-C, M-X-T, M-A-C, U-L-I	15%	15%

**Percentage of net tract area*

6.2.3 Step 3: Illustration of How the Requirement is Being Met

After the requirement has been determined for the site, the design is evaluated to determine how the requirement will be met. The preservation areas in priority locations will be the first areas to be counted toward meeting the requirement. Consideration should then be given to placing afforestation and reforestation areas adjacent to the priority areas for preservation. Refer to Subtitle 25-121(b) for the order of priorities for woodland conservation.

The design must meet the design criteria outlined in Subtitle 25-122. The plans must show all standard symbols clearly and each existing or proposed wooded area must be labeled separately as to treatment and acreage. A table shall be provided on each sheet that contains the following information: Gross tract area, 100-year floodplain (FP), net tract area (NTA), existing woodland within the net tract area, existing woodland within the 100-year floodplain, woodland cleared in the net tract area (C-NTA), woodland cleared in the 100-year floodplain (C-FP), woodland cleared off-site (C-OS), woodland preservation area (WPA),woodland reforestation/afforestation area (WRA), woodland retained/not credited toward the requirements (WR-NC), and woodland retained but assumed cleared (WP-AC). The figures provided on

each sheet are then calculated to provide the overall totals for the site. These totals must match the areas being reported on the woodland conservation worksheet. All off-site clearing must be reported on the worksheet. A summary table, similar to the one shown in Table A-6A, must be provided on the cover sheet. For developments that will likely be developed by different parties in the future, such as a large-lot development with different custom builders or an industrial site where the parcels will be developed by different parties in the future, a lot-by-lot table may be required that contains the same information as that provided in Table A-6B.

Table A-6A. Woodland Conservation Summary Table

Sheet	Gross Tract Area	100-Year Flood plain (FP)	Net Tract Area (NTA)	Ex. Wood-land (NTA)	Ex. Wood-land (FP)	Woodland Cleared Net-Tract (C-NTA)	Wood-land Cleared Flood-plain (C-FP)	Wood-land Cleared Off-site (C-OS)	Wood–land Preserv. Area (WPA)	Wood-land Reforest. Area (WRA)	Woodland Retained/ Not Credited (WR-NC)	Woodland Retained/ Assumed Cleared (WR-AC)
1	7.32	1.27	6.05	5.50	1.27	2.72	0.48	-	1.28	-	1.50	-
2	6.95	0.79	6.16	5.86	0.79	3.63	-	-	0.58	-	1.65	-
3	5.05	-	5.05	4.85		1.85	-	-	2.00	-	1.00	-
4	5.62	-	5.62	5.50		1.62	-	-	1.78	-	2.10	-
5	6.16	-	6.16	6.00		2.49	-	-	1.85	-	1.66	-
6	4.76	-	4.76	4.50		1.68	-	-	0.90	-	1.92	-
7	6.92	-	6.92	6.25		1.10	-	-	2.15	-	3.00	-
8	7.97	-	7.97	7.75		2.69	-	-	3.41	-	1.65	-
9	5.56	-	5.56	5.50		2.19	-	-	2.37	-	0.94	-
Total	56.31	2.06	54.25	51.71	2.06	19.97	0.48	-	16.32	-	15.42	-

Table A-6B. Lot-by-Lot Woodland Conservation Summary Table

Lot (list all lots)	Gross Tract Area	100-Year Flood plain (FP)	Net Tract Area (NTA)	Ex. Wood-land (NTA)	Ex. Wood-land (FP)	Woodland Cleared Net-Tract (C-NTA)	Wood-land Cleared Flood-plain (C-FP)	Wood-land Cleared Off-site (C-OS)	Wood-land Preserv. Area (WPA)	Wood-land Reforest. Area (WRA)	Woodland Retained/ Not Credited (WR-NC)	Woodland Retained/ Assumed Cleared (WR-AC)
1	1.25	-	1.25	1.25	-	0.47	-	-	0.58	-	0.20	-
2	1.56	0.35	1.21	0.98	0.35	0.33	-	-	0.38	-	0.27	0.22
3	1.36	-	1.36	1.25	-	0.45	-	-	0.55	-	0.25	-
4	1.19	-	1.19	0.75	-	0.22	-	-	0.43	-	0.10	-
Total	5.36	0.35	5.01	4.23	0.35	1.47	-	-	1.94	-	0.82	0.22

6.2.4 Step 4: Worksheet and Standard Notes

The worksheet to be used must match the proposed development. There are several worksheet types provided in Appendix A-2. The standard notes contained in Appendix A-2 must be provided as appropriate on all TCP1s. Additional notes may be required as needed to address situations that are specific to a particular site. A "phased worksheet" is used when the future development will occur in phases so that the future Type 2 tree conservation plans can be prepared separately. A "government worksheet" is used when

the option to provide all woodland conservation at a rate of 1:1 will be used. If a government project opts to use the woodland conservation threshold of the underlying zone, then a standard worksheet is used.

6.2.5 Step 5: Quality Control Check

Prior to submission of the TCP1 for review, it must be checked by the qualified professional who prepared it to ensure that all appropriate checklist items have been addressed. The worksheet must be checked to ensure the calculations have been done correctly and the sheet tables are correct. Any plans that do not meet the minimum standards for review, such as the use of standard symbols, a standard worksheet, and the required standard notes, shall not be accepted for review.

6.2.6 Step 6: Signature and Date by Qualified Professional

When the TCP1 is complete, it must be signed and dated by the qualified professional who prepared the plan. By signing the plans, the qualified professional certifies that the plan meets the minimum standards required by the WCO and the technical manual and that all the calculations have been done correctly.

6.3 Completing a TCP1 Worksheet

Several standard woodland conservation worksheets are used for the preparation of a TCP1, based on the type of plan being prepared. One of the approved worksheet templates is to be provided on every TCP1. While the basic standard worksheet is the most widely used, there are variations that are tailored to meet unique circumstances such as for phased projects, government projects, and for single lots with prior TCP approval. The worksheet is divided into three main sections. All worksheets include the three main sections, but each type is tailored to meet the circumstances unique to certain types of projects. The worksheets are also available on-line through the Prince George's County Planning Department's web site at pgplanning.org.

Section I—Establishing Site Information describes the site and divides the subject property's acreage into appropriate categories. The gross tract area includes all of the acreage of the associated application. The floodplain delineation must be conducted to meet the requirements of Section 27-124.01 of the Zoning Ordinance. Previously dedicated land can only be subtracted when the dedication occurred prior to the first application for a tree conservation plan. The worksheets are designed to make all necessary calculations when the required numbers are inserted into the computer spreadsheet. All required numbers are stated in acreage to the nearest 1/100th of an acre. Because the WCT is based on the zoning of the property, make sure the correct zoning is used. The worksheet must include ALL zones existing on the property. All of the areas that are shaded on the spreadsheet MUST be filled in for the computer spreadsheet to make the necessary calculations. The areas that are not shaded are protected cells that MUST NOT be altered, or the worksheet will not calculate properly.

	Basic Standard Woodland Conservation Worksheet for Prince George's County			
	SECTION I—Establishing Site Information- (Enter acres for each zone)			
1	Zone:	R-R	R-T	
2	Gross Tract:	8.50	5.50	
3	Floodplain:	0.50	0.50	
4	Previously Dedicated Land:	0.00	0.00	
5	Net Tract (NTA):	8.00	5.00	0.00
6	Property Description or Subdivision Name:	Example Basic Standard Worksheet		
7	Is this site subject to the 1989 Ordinance?(y/n)	N		
8	Is this one (1) single-family lot? (y, n)	N		
9	Are there prior TCP approvals which include a combination of this lot/s? (y, n)	N		
10	Is this a woodland conservation bank?	N		
11	Break-even point (preservation) =	4.48	acres	
12	Clearing permitted without reforestation=	7.52	acres	

Section II—Determining Requirements calculates the woodland conservation requirements for the site. Section 25-121 provides valuable information regarding how the requirements are calculated. Section 25-122(b) contains the design criteria to be followed in the preservation and replanting of woodland to meet the requirements. Section 25-122(c) provides the priorities for woodland conservation methods that must be followed during plan preparation.

	SECTION II—Determining Requirements (Enter acres for each corresponding column)				
		Column A WCT/AFT %	**Column B** Net Tract	**Column C** Floodplain (1:1)	**Column D** Off-Site Impacts (1:1)
13	Existing Woodland		12.00	1.00	
14	Woodland conservation threshold (WCT) =	20.00%	2.60		
15	Smaller of 13 or 14		2.60		
16	Woodland above WCT		9.40		
17	Woodland cleared		10.50		0.38
18	Woodland cleared above WCT (smaller of 16 or 17)		9.40		
19	Clearing above WCT (0.25:1) replacement requirement		2.35		
20	Woodland cleared below WCT		1.10		
21	Clearing below WCT (2:1 replacement requirement)		2.20		
22	Afforestation threshold (AFT) =	15.00%	0.00		
23	Off-site conservation being provided on this property		0.00		
24	Woodland Conservation Required		6.43		

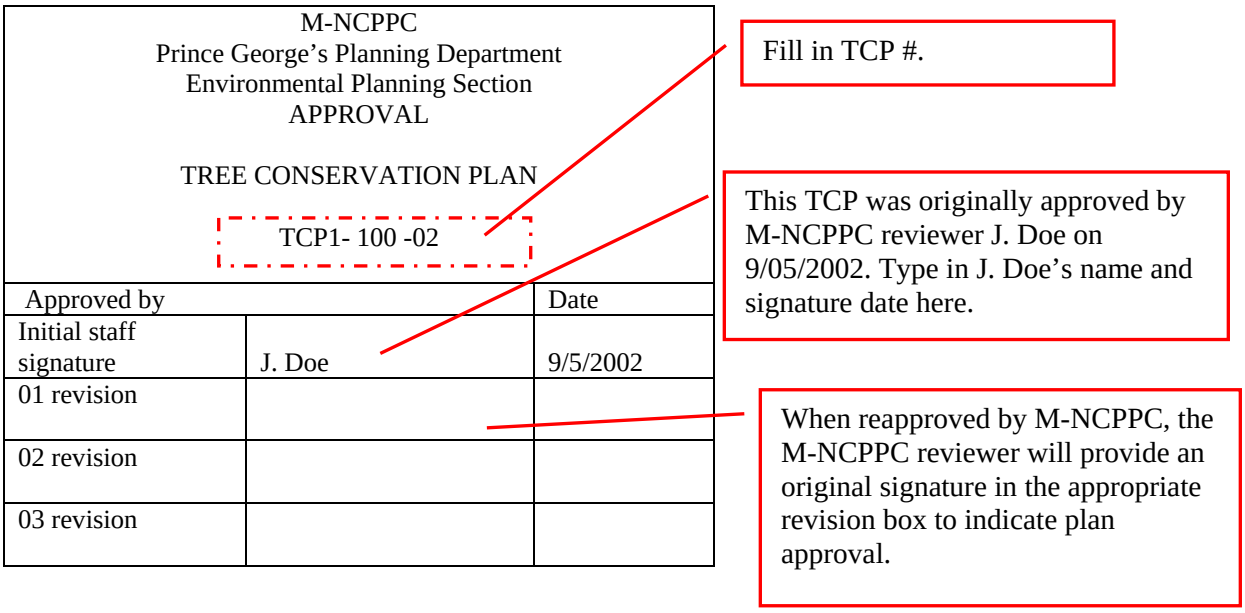
Section III—Meeting the Requirements contains information on how the woodland conservation requirements will be met. As noted above, Section 25-122(c) provides the priorities for woodland conservation methods that must be followed during plan preparation. Prior to selecting methods to be used in meeting the requirements, the highest priority methods must be exhausted.

	SECTION III—Meeting the Requirements		
25	Woodland preservation	1.10	
26	Afforestation/reforestation	4.50	
27	Area approved for fee-in-lieu	0.83	$10,846.44
28	Credits for off-site conservation on another property	0.00	
29	Off-site conservation (preservation) being provided on this property	0.00	
30	Off-site conservation (afforestation) being provided on this property	0.00	
31	Total woodland conservation provided	6.43	

32	Area of woodland not cleared	1.50	acres
33	Woodland retained not part of requirements:	0.40	acres

6.4 EPS Approval Block

TCP1s and TCP2s require an approval block so that staff can sign the final version of the plan. If an approved plan is being revised, the name of the reviewer who previously signed the plan is typed onto the proper line in the block, and the date is typed next to it in that column.



Example: M-NCPPC staff member Jane Doe previously approved TCP1-100-02 on September 5, 2002. Due to a change in the proposal, the revised TCP1 is being resubmitted for review and approval.

7.0 Type 2 Tree Conservation Plan (TCP2)

A Type 2 tree conservation plan (TCP2) provides more detail than the TCP1. The TCP2 shows the final grading proposed on a site and the proposed actual locations for structures (as opposed to conceptual locations shown on the TCP1), utilities, easements, stormwater management, and a final limit of disturbance (LOD). Final decisions are made for techniques that will be incorporated on the site to ensure adequate woodland conservation and tree protection.

TCP2 applications are required to meet all of the requirements of Subtitle 25. Applicants can request a variance from the provisions of Subtitle 25 provided all of the required findings in Section 25-119(d) can be met and the request is not less stringent than the requirements of the applicable provisions of COMAR. An application for a variance shall be accompanied by a Letter of Justification stating the reasons for the request and how the request meets each of the required findings. Required variances associated with a TCP2 shall be approved by the Planning Board, Zoning Hearing Examiner, and the District Council with the associated case as appropriate. The Planning Director may approve variances for tree conservation plans that are not associated with applications heard by the Planning Board, Zoning Hearing Examiner, and/or the District Council.

Subtitle 25, Section 25-119(c) Plan Review and Conformance, describes the conformance requirements with regard to TCP2 submissions. Refer to additional sections of Subtitle 25 for more information.

"(c) Plan Review and Conformance

"(1) The approval authority for TCPs is the same as that of the associated application.

"(A) If a TCP1 has been approved for a site, all subsequent TCP2 plans must be in conformance with the TCP1.

"(i.) If the TCP2 is to be approved by the Planning Board, conformance with the TCP1 shall be determined by the Planning Board.

"(ii.) If a TCP2 is to be approved by the Planning Director or designee, it shall be in conformance with this Division and in conformance with the TCP1 as follows:

"(a.) Any proposed reduction in the total woodland conservation on the site shall not exceed the greater of 5,000 square feet or 5 percent of the area of on-site woodland conservation originally approved; or

"(b.) The proposed change in the location or type of woodland conservation shall not exceed the greater of 10,000 square feet or 10% of the area of woodland conservation originally approved; or

"(c.) The proposed change or reduction results from governmental requirements; or

"(d.) Specimen trees specifically identified for preservation will not be adversely affected.

"(e.) The proposed TCP2 continues to meet all required elements of this Division.

"(f.) The TCP2 does not affect lots already sold to builders or homeowners.

"(iii.) If a criterion in (ii.) above cannot be met, the TCP2 shall be duly advertised and the approval authority becomes the Planning Board.

"(B) If no TCP1 exists and one is not required, each TCP2 shall be in conformance with this Division. If a permit is subject to this Division, a TCP2 shall be approved by the Planning Director or designee."

7.1 Applicability of a TCP2

A TCP2 is required with all applications that are subject to the WCO. A TCP2 receives final approval authority as follows:

TCP2 approval authority is the Planning Board, Zoning Hearing Examiner, or the District Council for:

- Special Exceptions, Detailed Site Plans, or Specific Design Plans

TCP2 approval authority is the Planning Director or designee for:

- Grading plans and permits
- Road-grading plans
- Establishment of a woodland conservation bank (The requirements of the Specialized TCP2s section, Woodland Conservation Banks, must also be met, and both the TCP2 Checklist AND the woodland conservation bank checklist must be used to prepare the plan.)
- Forest harvesting

If a TCP1 has preceded the TCP2, the approved TCP1 is instrumental in completing the TCP2. Prior to the completion of the TCP1, the FSD or NRI establishes areas of sensitive environmental features and high priority woodlands. The TCP1 provides conceptual approaches for retaining and protecting existing forested areas and sensitive environmental features and makes commitments regarding how the County Code requirements will be met.

It is noted that the final grading plan may result in certain changes that were not anticipated at the TCP1 stage. These changes may ultimately change the conservation areas shown on the TCP1. Minor differences from the TCP1 are permitted within the parameters described in the WCO. When a TCP2 is approved at the Planning Director level, major changes that include proposing the use of fee-in-lieu or off-site woodland conservation when these methods were not approved by the Planning Board for the TCP1 cannot be shown on a TCP2. If no alternative exists, the TCP2 shall be referred to the Planning Board to approve the changes requested.

7.2 TCP2 Preparation Methodology

The TCP2 must be prepared at the same scale as all associated plans submitted for the subject application but at a scale no greater than 1”=50’. Larger scales may be appropriate for woodland conservation banks if approved by the Planning Director or designee. An overall cover sheet must be provided for multi-sheet plans. The cover sheet can be at a scale greater that 1”=50’ but no greater than 1”=200’.The cover sheet shall provide a key to the areas covered by each page, and this key shall be provided on each sheet. The plan shall show the final details of how the woodland conservation requirements are being met and must be prepared using the standard symbols provided in Appendix 1 of the Introduction chapter. The TCP2 must include all of the items per the TCP2 checklist provided in Appendix A-3.

7.2.1 Submittal Requirements

The TCP2 must accomplish two basic objectives to be considered for approval. First, the TCP2 must provide a clear graphic representation of all of the proposed disturbances and construction to occur on the site, including all temporary disturbances, such as those for sediment and erosion controls, with the limit of disturbance (LOD) clearly shown. The plan must also clearly identify the locations of preservation areas, tree planting areas, specimen, champion, and historic trees, including proposed protection measures. The

completed Woodland Conservation Worksheet must be shown on the plan to provide the information needed to satisfy the woodland conservation requirements for the site. Refer to Appendix A-2 for Woodland Conservation Worksheet types for TCP submissions. An approved NRI is required to be submitted. (Refer to Part A, Section 4.0, Forest Stand Delineation and Part B, Guidelines for the Preparation of a Natural Resource Inventory for more information.)

7.2.2 Plan Preparation Process

7.2.2a Step 1: Establishing the Limits of Disturbance

Setting the limits of disturbance (LOD) on the site is critical to the preparation of the TCP2. The LOD must reflect what will actually occur in the field during construction. Any change to the LOD that results in 5,000 square feet or more of additional clearing on an approved TCP2 requires the resubmission of a revised plan for review and approval. The LOD shown on the TCP2 must always match that of the erosion and sediment control plan. All proposed disturbances, whether temporary or permanent, must be within the LOD.

There are many aspects of the plan that may change as it moves through the review and development processes. The best way to reduce the amount of unanticipated revisions is to work with the most accurate information possible early in the process. If a TCP1 was approved for the site, the conceptual LOD shall be used as a guideline for the establishment of the LOD on the TCP2. At the time of TCP2 preparation, the topography and existing site features must be surveyed. Aerial photography or field run, ground-based mapping are required. After aerial photographs are obtained, field survey work may be required to establish and measure the map's basic control points and to identify objects that need visual verification.

7.2.2b Step 2: Planning for the Preservation of Existing Woodlands

When woodlands are cleared on a site, a new woodland edge is created. The final limit of disturbance balances the needs for the development with the demands for survivability of the trees along the new edge. Sometimes trees along the new edge of woodland become stressed and die due to the root damage or loss and the sudden exposure to harsh conditions of sun and wind. The intent of a preservation area is to preserve the trees in good condition and not create problems or future expenses for the future property owners. Refer to the Standard Type 2 tree conservation plan notes provided in Appendix A- 3 for the appropriate edge management notes that need to be included on the plan in this situation.

The final limits of disturbance must include:

1. The proposed final clearing and grading for all roads, structures, utilities, easements, stormwater management, and erosion and sediment controls.

2. At a minimum, the LOD must provide for 40 feet of cleared area to the front and rear of all building footprints and 20 feet of cleared area to the sides of all building footprints, within the subject lot or parcel. These dimensions must be shown on the plan as appropriate.

3. Methods that address all of the design criteria listed in Section 25-122.

4. Preservation of a sufficient amount of the critical root zones of specimen trees to ensure their survival if they are shown to be preserved.

7.2.2c Step 3: Determining the Woodland Conservation Requirements

Once the LOD has been established, the area of cleared woodlands can be calculated. Using the correct Woodland Conservation Worksheet for the site, the woodland conservation requirements are determined. (Refer to "Explanation of the Standard Woodland Conservation Worksheet," Appendix A-2.)

7.2.2d Step 4: How Woodland Conservation Requirements Are Met

The required priorities for woodland conservation methods are found in Section 25.122 (c), "Conservation Method Priorities," of the WCO. Every effort must be made to meet the woodland conservation requirements on-site and then the following methods must be exhausted in turn:

1. On-site preservation of connected woodland and wildlife habitat areas
2. On-site afforestation/reforestation of connected planting areas using transplanted native stock
3. On-site afforestation/reforestation of connected planting areas using native whip and seedling stock
4. On-site specimen trees
5. On-site natural regeneration
6. Off-site afforestation/reforestation using relocated stock in an approved woodland conservation bank
7. Off-site afforestation/reforestation using native whip and seedling stock in an approved woodland conservation bank
8. Off-site preservation
9. On or off-site habitat enhancement
10. Off-site natural regeneration
11. On-site landscaping
12. Street trees
13. Fee-in-lieu

Woodland conservation areas must be delineated on the plan using the standard symbols. These areas must be established according to Section 25.122 (b), "Design Criteria," of the WCO. The symbols must be included in the legend. Woodlands preserved and/or planted to meet the WCO requirements may also be counted toward meeting the tree canopy requirement. (Refer to Part D, Section 4.0, Tree Canopy Coverage Calculation Methodology.)

7.2.2e Step 5: Final TCP2 Worksheet

At this point the final TCP2 worksheet can be prepared. It must show all of the calculations and information that determined the woodland conservation requirements and how they are being met. (Refer to the "Guidelines for the Completion of the Prince George's County Woodland Conservation Worksheet," provided in Appendix A-2.)

7.2.2f Step 6: Completing the Plan

The plan should now provide a clear graphic representation of the work to occur on the site within a clearly delineated limit of disturbance. The plan should also clearly identify the locations of all preservation areas, tree planting areas, and specimen trees. All conservation areas must show protective fencing and signage, and all associated details are required to be shown on the plans. The completed woodland conservation worksheet must be shown on the plan providing the information needed to satisfy the woodland conservation requirements for the site. A legend must be provided containing all of symbols used on the plan. Symbols that are NOT used on the plan should not be included in the legend. The final plan must also include all of the appropriate Standard Type 2 Tree Conservation Plan Notes. (See Appendix A-3.) Refer to Section 6.0 for an example of an EPS approval block, another required element on a completed TCP2.

7.3 Specialized TCP2s

7.3.1 Woodland Conservation Banks

When the woodland conservation requirements for a site cannot be met on-site, due to site constraints or other considerations, an alternative is fulfilling the requirement off-site by securing woodland conservation credits from a woodland conservation bank. A woodland conservation bank is defined in the WCO as:

"A lot or parcel, or portions of a lot or parcel, that has been intentionally preserved or afforested as perpetual woodlands and has been protected by the documents recorded in the land records for the purpose of meeting the requirements of this Division for land development activities occurring on another property in the county."

Woodland conservation banks are sometimes referred to as "mitigation banks." This term is not used in the WCO to avoid confusion with the term "mitigation," which is used to describe remediation or compensation for a woodland conservation violation. The regulations regarding woodland conservation banking are provided in Division 2 of Subtitle 25.

7.3.1a Preapproval of Woodland Conservation Banks

Prior to submitting an application for a woodland conservation bank, the woodland conservation program coordinator in the Environmental Planning Section should be consulted for an initial evaluation to determine the suitability of the site for the intended purpose. Factors that may affect the approval of a woodland conservation banking site include its location relative to the designated green infrastructure network of the approved Countywide Green Infrastructure Plan, the size of banking area proposed, the location of regulated environmental features, previous uses of the site, quality of woodlands on the site, the subwatershed location, continuity with other contiguous blocks of woodlands, and prior encumbrances on the property. Land currently protected by easements that specifically protect woodlands for another purpose, including but not limited to utility easements, approved TCPs for other development, deed restrictions, and declarations of covenants for woodland conservation banking that would impair the land from being used as a woodland conservation bank, cannot be used for banking purposes. Potential applicants are advised not to proceed with a tree conservation plan for a conservation bank until after preliminary approval is given for the proposed property or properties.

7.3.1b Required Plans

An approved NRI is required for all proposed woodland conservation banks. The NRI must be prepared in accordance with all applicable requirements of the technical manual. (Refer to Part B, Guidelines for the

Preparation of a Natural Resource Inventory.) The type of FSD required for the NRI is based on the method of woodland conservation proposed, as follows:

1. A simplified FSD may be submitted if all woodland conservation proposed is to be done as afforestation.

2. An intermediate FSD may be submitted if less than 50 percent of the existing woodlands on the property are to be used as off-site conservation in preservation, there are no previously approved tree conservation plans for the property, and no other development activities are proposed for the property.

3. A detailed FSD is required if 1 or 2 above do not apply.

In addition to the information required for the type of FSD selected, the FSD for an off-site woodland conservation bank must provide the following information about the property:

1. Show all existing easements on the property, including utility easements, conservation easements, agricultural easements, floodplain easements, trail easements, grading easements, and woodland conservation easements if applicable.

2. Show the location of all elements related to septic fields (recovery field, lines, and the tank).

3. Show the location, and label all existing woodland conservation areas and/or off-site banking areas. Any recorded easements must include a legal description and land record reference.

4. Show the location of 100-year floodplains based on a study approved by the county.

A Type 2 tree conservation plan is required for any property proposed as an off-site woodland conservation bank. A site with an existing TCP2 for on-site development may be revised to include off-site conservation banking if significant surplus woodland conservation areas exist on the site in priority preservation areas. The plan must include all of the information required for a TCP2, as well as unique items outlined on the TCP2 checklist for off-site conservation banking information. (Refer to the TCP2 checklist for conservation banks, provided in Appendix A-3.)

Additional items must include the following:

1. Show all existing easements on the property, including utility easements, conservation easements, agricultural easements, floodplain easements, trail easements, grading easements, septic drain fields, and woodland conservation areas if applicable.

2. Show the rights-of-way for any master-planned roadway.

3. Show the location, and label all existing woodland conservation areas and off-site conservation and include a legal description.

4. Show the location of the proposed easement with metes and bounds.

5. Include a woodland conservation worksheet for the property. This worksheet need only address the existing conditions and the conservation areas unless another development activity is being proposed for the property. If another development activity is proposed for the property then the worksheet must address not only the off-site conservation proposed but also how the property will satisfy its own requirements.

6. Include an off-site woodland conservation bank summary table as shown in Appendix A-3, which is used to track the transfer of woodland conservation credits from the site to benefitting properties.

7. Include the appropriate general notes, management notes, protection devices, signs, bonding information, tree planting schedules, tree planting plans, and any other information needed to implement and protect the off-site conservation areas proposed.

8. Include the provision of a proposed building site and all associated features.

The NRI and TCP2 must be prepared by a qualified professional and be submitted for approval to M-NCPPC along with the appropriate application and fee. The NRI and TCP2 must include the legal boundaries of the property or properties involved.

7.3.1c Required Documents

In order to transfer credits in a woodland conservation bank, the land area associated with woodland conservation credits must be encumbered by a declaration of covenants or similar long-term protection mechanism in the county land records. The most current templates for these documents that have been preapproved by the Office of Law are available on the web through the Prince George's County Planning Department's web site at pgplanning.org.

The establishment of an off-site woodland conservation bank requires the following documents and supporting information as determined by the Prince George's County Office of Law and is subject to change and/or alterations based on their legal evaluation:

1. A declaration of covenants, with original signatures

2. A copy of the deed or deeds to the property

3. An up-to-date title search not more than 60 days old

4. A metes and bounds description of the covenant area signed and sealed by a licensed surveyor

5. Statement of subordination for the mortgage, if one exists

6. A Type 2 tree conservation plan approved specifically for the woodland conservation bank

7. Legal standing of any corporation with the records of the state, if applicable

8. A copy of a sample woodland conservation transfer certificate

9. Any other documents deemed necessary for establishing ownership of the woodland conservation rights on the property

The required documents are submitted to the Environmental Planning Section for preliminary review for correct acreages, tree conservation plan numbers, appropriate use of corporation titles, currency of documents, and other elements of correctness and completeness. The Environmental Planning Section may determine that the documents are correct and complete, or may request corrections, clarifications or additional information. When deemed complete, the documents are then forwarded to the Office of Law for review. The Office of Law may request corrections or additional information, coordinated through the Environmental Planning Section, or the documents may be found ready for recordation.

7.3.1d Recordation of Woodland Conservation Bank Documents

To establish a woodland conservation bank, the package of documents to be recorded in the land records includes:

1. An original signed declaration of covenants

2. The legal description of the easement

3. A sample woodland conservation transfer certificate

No transfer tax is required when the declaration is recorded. After a woodland conservation bank is recorded in the land records, a copy of the recorded documents must be provided to the Environmental Planning Section before any credit transfers can occur.

The Environmental Planning Section maintains a database of all woodland conservation banks with available acreage, which is provided upon request to interested parties. The woodland conservation credit market is a private market, and neither M-NCPPC nor the county takes any responsibility for the cost of easements or availability of off-site woodlands. The government's role is one of tracking the private market as a public service.

7.3.1e Off-site Woodland Conservation Credits

Off-site woodland conservation credits can be provided either by the preservation of existing trees or through the creation of new woodlands through afforestation. When off-site woodland conservation is provided by preservation, two acres of preserved woodlands are required for each acre of off-site woodland conservation credit required. When off-site woodland conservation is provided by afforestation, one acre of afforestation is required for one acre of off-site woodland conservation credit.

Off-site woodland conservation provided in preservation can be used for transfer credits immediately after the long-term protection measures are recorded in the land records and evidence of recordation has been provided. Off-site woodland conservation provided in afforestation is not available for transfer credit until the required planting has occurred, certification of planting prepared by a qualified professional has been submitted to the Environmental Planning Section in accordance with forms contained in this manual, and a bond has been submitted for the establishment of planting with a minimum term of four years. A woodland conservation bank that uses afforestation can be used without bonding if the planted areas have been established for a minimum of four years and the survival counts described below are provided.

Survival counts prepared by a qualified professional in accordance with the methodology provided in this manual must be submitted on an annual basis until the planting has been found to be successfully established. Two years after the conservation methods have been completed, a reduction in the bond amount of up to 50 percent may be approved by the county. The request for bond reduction shall be submitted in writing to the M-NCPPC Planning Director and shall include documentation of the completion of the conservation methods and a survival count of materials. The Planning Director or designee shall recommend to the county whether a bond reduction is appropriate, taking into account the following: the number of acres, the proposed method of woodland conservation, the cost of planting materials or replacement materials, the cost of maintenance of the project, demonstrated survival count of materials, and other relevant factors.

After a final inspection of the site by the county inspector confirms that the areas meet or exceed the requirements of the approved woodland conservation bank TCP (no sooner than four years after

establishment), the bond or other security shall be returned or released. The bond or other security may be subject to forfeiture if the approved TCP is not implemented fully within the time frames specified on the plan. The county shall notify the permitee of the intention of the county to initiate forfeiture proceedings following their established procedures for bond forfeiture.

If a woodland conservation bank is established using afforestation or reforestation, the property owner is responsible for maintaining the designated areas as perpetual woodlands. Failure to do so is a violation of the WCO, and the property owner and/or permitee may be subject to fines and penalties.

The approved TCP2 does not require revision unless an alternative use or development is proposed for the subject property. The off-site woodland conservation summary table records the transfer of credits and is updated each time credits are transferred even when the TCP2 is not required to be revised.

7.3.1f Transfers of Woodland Conservation Credits to Benefitting Properties

Woodland conservation credits are transferred from a woodland conservation bank by the use of a woodland conservation transfer certificate. The certificate is prepared by the owner of the property or the owner of the woodland conservation rights for the site and states the Type 2 tree conservation plan numbers for the transferring and the benefitting properties, with reference to the recorded covenants. It is recommended that these certificates be reviewed for correctness and completeness by the Environmental Planning Section prior to recordation. At time of recordation of the transfer certificate, required transfer tax must be paid. Transfer tax rates are a percentage of the consideration payable and may vary from year to year. State and county transfer taxes apply. The state transfer tax is imposed under Title 13 of the Tax - Property Article, Annotated Code of Maryland. Higher rates may apply to agricultural land under Title 13, Subtitles 3 and 5 of the Tax - Property Article.

7.3.1g Release of Grading Permits

If off-site woodland conservation is proposed to fulfill the woodland conservation requirement, evidence that this requirement has been satisfied must be provided prior to the release of the associated grading permit. After recordation of a transfer certificate, a copy of the recorded certificate and a copy of a sales agreement between the transferring and benefitting properties must be submitted to the Environmental Planning Section. A copy of the recorded certificate is placed in the files of the transferring property and the benefitting property, the woodland conservation summary table for the transferring TCP2 is updated to include the pertinent information for the transfer certificate, and the information contained in the transfer certificate is placed into the off-site woodland conservation database.

7.3.1h Release of a Declaration of Covenants for a Woodland Conservation Bank

If a declaration of covenants has been recorded on a property for a woodland conservation bank and no transfer certificates have been recorded within the woodland conservation bank, a release of the declaration of covenants may be requested by the owner or agent through the Environmental Planning Section using standard template documents. The request for release is forwarded to the Office of Law for review and, if found legally sufficient, is returned to the applicant for recordation. A copy of the recorded release should then be provided the Environmental Planning Section. A copy of the release is placed in the TCP2 file of the woodland conservation bank. The woodland conservation bank is then removed from the listing of sites available from woodland conservation transfer credits.

7.3.1i Release of Recorded Off-Site Woodland Conservation Documents

In some circumstances, recorded transfer certificates or individual easements may become unnecessary due to changes in the proposed development or to allow for development of an established woodland conservation bank for another use. In these cases, the woodland conservation coordinator in the Environmental Planning Section should be consulted to determine if the release of the legal encumbrances is appropriate based on previous approvals and to determine the necessary steps.

The first step in the release of an easement is a determination that the off-site woodland conservation is no longer needed for a specific project or that moving the woodland conservation requirement to an alternative location is appropriate. Because the intention of woodland conservation banking is to provide perpetual woodlands, the relocation of woodland conservation requirements is reviewed closely for conformance to previous approvals. When woodland banks are moved from one site to another, the two-to-one mitigation ratio for preserved areas is applied to the acreage being moved.

7.3.2 Forest Management/Timber Harvesting Plans

Forest management and timber harvesting address the removal of trees from woodlands to be used as a resource either for personal use or for sale. Subtitle 25, Section 25-124 describes what types of activities require a permit and/or a forest management plan. TCP2s for timber harvesting must show all relevant information, such as access to the site from an approved entrance, clearing required for staging areas, etc., and the total limits of the area to be harvested. The plan must also describe the harvesting procedures, goals, and target species.

7.3.3 Linear and Government Projects

TCP2s for linear projects are not required to include the entirety of the affected lots or parcels and can be prepared showing the limit of disturbance and a minimum of 100 feet outside the limit of disturbance. One acre replacement for each acre disturbed is required. Notes and details shall be provided as needed to address the proposed project.

7.3.4 Single Lot Revisions

On occasion the homeowner of a single lot within a larger subdivision requests a revision to the TCP2. In lieu of revising the entire TCP2 or even the entire sheet, a single lot revision may be submitted. The lot must be shown at the same scale as the TCP2, and all details and symbols shall be as similar as possible to the original plan. The plan shall provide the details regarding how the requirements will be met and shall provide all necessary calculations using the appropriate worksheet provided in Appendix A-2. Single lot revisions lose their grandfathered status with regard to design criteria; however, revisions will be considered on a case-by-case basis to ensure conformance to the fullest extent possible.

7.3.5 Remediation of Violations

When a violation is issued by the county, a TCP2 is required to be reviewed and approved in order to resolve the violation. If the site has an existing TCP2, then the existing plan is revised. If the site does not have an approved TCP2, then a new plan must be submitted and approved. M-NCPPC's Planning Department staff will work with the applicant to determine the requirements for remediation.

7.4 Revisions to TCP2s

If a valid (unexpired) TCP2 exists for a site, it can be amended as long as conformance to the TCP1, if one exists, can still be found. Refer to Subtitle 25, Section 25-119(c) for the parameters related to conformance.

7.5 Implementation of TCP2s

7.5.1 Preconstruction

7.5.1a Preconstruction meeting

A preconstruction meeting must be held subsequent to the installation of tree protection devices and prior to any site disturbance. Required parties include the developer, contractor or project manager, the on-site contractor in charge of clearing and grading work, the tree professional contracted by the developer (if applicable), and the county inspector(s). During the meeting, the limit of disturbance (LOD) and limits of clearing must be field verified, protection devices inspected for proper installation, and stress reduction measures discussed. The responsibilities for compliance and the penalties for noncompliance must be discussed.

7.5.1b Stress Reduction

While stress reduction measures should be outlined on the approved TCP2 plan for specimen trees to remain within close proximity to the LOD, additional stress reduction measures may be necessary for specimen trees or for other trees along the LOD based on field conditions. Such measures include, but are not limited to, root pruning, crown pruning, watering, fertilizing, and mulching. Any stress reduction measures, either outlined on the approved TCP2 or deemed necessary in the field, should be discussed during the required preconstruction meeting and may need to be outlined by the tree professional contracted by the developer.

7.5.1c Installation of Protection Devices

Protection measures are necessary to protect woodland preservation areas during the construction process. All tree protection devices and signs must be installed around preservation areas and specimen trees that are to remain and are within close proximity to the LOD, per the approved TCP2 plan. Tree protection devices for afforestation or reforestation areas may be installed after tree planting, if the areas are shown to be graded.

7.5.2 Construction

Inspectors will perform periodic site visits during the construction phase, usually subsequent to clearing and after heavy rain events. Inspectors will give written notice to the on-site contractor regarding any problems, who will then be expected to correct the problems in a timely manner. Recommendations from the tree professional, contracted by the developer, may be deemed necessary to address concerns regarding dead, dying, or hazardous trees, issues regarding maintenance or repair of protective measures, storage of materials within preservation areas, excessive flooding or siltation in the preservation area, or issues of over-clearing.

7.5.3 Construction Completion

7.5.3a Corrective Measures

Upon completion of construction, an inspection by the county must be requested. The inspector may require an assessment by the tree professional, contracted by the developer, to evaluate the remaining trees and to prescribe corrective measures that may be necessary due to damage or impacts from construction. Such measures may include the removal of dead, dying, or hazardous trees, pruning, fertilizing, watering, wound repair, and/or clean-up of preservation areas (removal of trash, etc.).

7.5.3b Inspection and Approval

Upon completion of construction and all prescribed corrective measures, a final inspection by the county must be requested. The inspector will verify compliance with the approved TCP2 and any corrective measures prescribed during or after construction. If any preservation areas are found to be in violation of the approved TCP2 due to negligence, a violation fee may be issued and corrective actions required. If corrective actions are required, then a certification prepared by the tree professional, contracted by the developer, will be required stating that the corrective measures have been undertaken and that the remaining trees are likely to survive.

7.5.3c Removal of Temporary Structures

After completion of construction and approval by the county inspector, all temporary tree protection devices must be removed. During the removal of the devices, no additional clearing or disturbance may take place within the preservation areas except by hand and as approved by the county inspector. No burial of discarded materials or clearing for the purpose of planting grass shall be permitted. The preservation signage shall remain in place.

7.5.4 Postconstruction

7.5.4a Installation of Reforestation

Reforestation areas must be implemented per the approved TCP2, including the installation of all permanent protection devices, such as fencing and signage. The county inspector must be notified prior to soil preparation or initiation of any tree planting. Seedling planting is to occur from November through May only. Container stock may be planted at any time of the year when soil moisture is adequately available. No planting is to be done while the ground is frozen. Planting with larger caliper stock or containerized stock may be done at any time per a detailed maintenance schedule approved as part of the TCP2.

7.5.4b Maintenance of Reforestation

A four-year maintenance plan, per the approved TCP2, must be implemented by the developer. Maintenance may include measures such as watering, mowing, or hand removal of competitive vegetation or invasive species controls.

Annual survival checks must be prepared by a tree professional, contracted by the developer, and submitted to M-NCPPC, Planning Department.

7.5.4c Bond Release

At the end of the four-year maintenance plan, a survival rate of 75 percent must be achieved for bond release. Failure to establish the reforestation within the prescribed time frame will result in the forfeiture of the reforestation bond and/or a violation of the approved TCP2, including the associated penalty fee unless the county inspector approves a written extension. A bond reduction may be requested two years after the conservation methods have been completed. Refer to Section 25-122(f)(2) of the County Code for more information.

8.0 Reporting Requirements - Maryland Department of Natural Resources

In 2008, the Maryland Department of Natural Resources (DNR) changed their reporting requirements for local jurisdictions. As part of their annual report to the state, local jurisdictions are now required to provide information with regard to the preservation and reforestation of stream buffers. Instructions for any additional calculations needed from the applicant for these areas will be included in future versions of the technical manual.

Part B Guidelines for the Preparation of a Natural Resource Inventory

1.0 Introduction

A natural resource inventory (NRI) is a detailed inventory of the lots or parcels or combination of lots and parcels that will be the subject of a development application. It provides detailed information on the land, physiological, ecological, and hydrologic resources, as well as any existing structural features of a site. The primary purpose of an NRI is to provide a base plan to be used in the design of the site for land development proposals. Refer to the introduction of the technical manual for more information regarding standard symbols required on the plans and sources of data for plan preparation.

1.1 When is an NRI required?

An NRI is required prior to the submission of all development applications, with the exception of a basic plan or zoning map amendment (ZMA) application, or for an application for a letter of exemption (LOE). For these exceptions, a Forest Stand Delineation (FSD) is required. It may be a simplified, intermediate or detailed FSD, depending on the site features or as determined by the Planning Director or designee. Refer to Part A, Section 4.1, Types of FSDs, for more information on which type may be required.

1.2 How much area should the NRI cover?

The total site area included on the NRI plan must match that of all associated plans and include the legal property boundary of all lots and parcels to be included in a development application. NRIs shall be prepared at a scale of no less than 1 inch equals 100 feet (i.e., plans can be 1 inch equals 50 feet or 1 inch equals 30 feet) but must match the scale of future associated plans. If the development plan is to be divided in the future into phases or separate development pods, consideration should be given early in the process to separating the NRI data into the proposed future pods. In the future, after an NRI and its associated application have been approved, if the development is divided into phases or separate development pods for separate tree conservation plans, the NRI site statistics will need to be updated to address the statistics for each phase or pod.

1.3 Acceptance and Approval

When an NRI application is submitted to the Planning Department, it is first reviewed for acceptance. In order to be accepted, the package must contain all of the information contained in the NRI checklist. (See NRI checklist, Appendix B-1.) The plans must be legible. All original documents and plans must be signed in blue ink by the qualified professional who prepared them. Illegible or incomplete packages will be returned with the deficiencies noted. Once accepted, the review will be completed within 30 days. In extenuating circumstances, such as periods of high workload volume, this review and comment period may be extended an additional 15 days.

After review comments have been addressed and the NRI package is complete with all information correctly shown, three copies of the NRI plan will be signed and dated by the Planning Director or designee. One original copy will be returned to the applicant. The two other originals will be retained by the Planning Department as file copies.

An approved NRI is valid for five years from the date of approval, or until information used to prepare the NRI changes significantly, or if the development proposal is divided into phases or separate pods. Once the revised NRI has been approved, the five-year validity date is counted from the date of signature. When the revision involves a change in the amount of forested area and the FSD prepared with the NRI is older than five years, the Planning Director or designee may ask for the FSD to be updated.

The information on the NRI must match that provided on subsequent TCPs, because the NRI contains the FSD and other information relevant to the review of proposed development plans and TCPs. After the TCP1 has received EPS approval, if the subsequent TCP2 shows more detailed information than the TCP1 or if the topography changes, such that the site statistics change, the NRI does not need to be revised. Instead, the resulting TCP2 must include an additional table that contains all of the information provided in the site statistics table shown on the approved NRI and the proposed calculations resulting from the change. Notations must be provided regarding why the site statistics changed from those shown on the approved NRI. If the delineation of the regulated environmental features changes significantly, the NRI may be required to be revised at the discretion of the Planning Director or designee. The plan review and conformance provisions of Section 25-119(c) will be used to determine whether or not the resulting TCP2 will be reviewed by the Planning Board or by the Planning Director or designee.

1.4 Appeals

If a submitted NRI application is not approved, the applicant may appeal the decision to the Director of the Planning Department.

2.0 Submittal Requirements

A complete NRI review package depends on the number and variety of regulated environmental features found on-site. At a minimum, a complete package must include:

1. One signed copy of the completed NRI application form (provided in Appendix B-1).

2. One copy of the completed NRI checklist.

3. Three copies of the NRI plan, signed and dated in blue ink by the qualified professional who prepared the plan (a licensed landscape architect, licensed forester, or a current Maryland Department of Natural Resources qualified professional) that includes all of the required elements shown on the NRI checklist.

4. Two copies of a forest stand delineation report and field data sheets*, signed and dated by the qualified professional who prepared the plan (a licensed landscape architect, licensed forester, or a current Maryland Department of Natural Resources qualified professional).

5. If streams or wetlands are mapped, exist, or may exist on-site or within 100 feet off-site—two copies of a wetland study and wetland delineation map for the entire subject property, prepared, signed, and dated by a qualified professional who has completed a U.S. Army Corps of Engineers approved training course in wetland delineation.

6. If a one 100-year floodplain exists on-site or within 100 feet off-site—two copies of a recent 100-year floodplain study approved by the Department of Public Works and Transportation, or as noted below.

*A detailed FSD is required if the site is greater than 40,000 square feet in size with greater than 10,000 square feet of woodlands and does not meet the eligibility for an intermediate FSD. If the site contains less than 10,000 square feet of woodland, a simplified FSD may be submitted. (See Part A, Section 4.0, Forest Stand Delineation.) The applicant may also request a standard letter of exemption as part of the NRI review if the site meets certain criteria. (See Part A, Section 5.0, Letters of Exemption.)

All materials must be prepared for the entirety of the lots or parcels that will be the subject of the future development plan application. Incomplete packages will be returned without being reviewed. The missing information will be noted.

3.0 Wetland Study and Plan Requirements

If streams and/or wetlands are mapped, exist, or may exist on the site, as defined in Subtitle 24 of the Subdivision Regulations, a wetland study and wetland delineation plan must be prepared, signed, and dated by a qualified professional who has successfully completed a U.S. Army Corps of Engineers (USACE) approved training course in wetland delineation. This study must accompany the submission of the NRI package. The wetland delineation methodology must be based on the currently accepted USACE delineation methods; however, a jurisdictional determination cannot be substituted for this requirement because it will only show those areas that are regulated by federal law and will not necessarily show those areas regulated at the state and local levels.

Similar to FSDs, wetland studies must include a report and a plan. The report must include a narrative and photographs. The narrative should begin with a brief introduction describing overall site conditions, followed by a description of the methodology used, a description of any past or present land use that may have affected drainage, the presence or absence of regulated and nonregulated streams, and/or regulated wetland features on the site. The narrative and photographs are important to confirm the presence or absence of streams and/or wetlands that have been mapped on PGAtlas, National Wetland Inventory (NWI), or DNR. A suggested format for the wetland study report is provided in Appendix B-2.

The wetland delineation plan must show all regulated wetlands, streams, and nonregulated streams for the subject property and within 100 feet of the subject property or the width of the adjacent lot(s), whichever is less. Off-site information can be estimated using available information; site visits to properties that are not part of the application are not required. The wetland delineation study and plan must include all information outlined in section II of the NRI checklist.

4.0 Natural Resource Inventory Plan Requirements

An NRI must show all of the existing features found on a site. The total site area included on the NRI plan must match that of all associated plans and include the legal boundaries of all subject lots or parcels. NRI applications with plans showing property boundaries differing from the property boundaries shown on PGAtlas must include copies of deeds and/or plats depicting the legal boundaries.

The NRI must include specific information for the development site, as well as information for land extending off the property 100 feet in all directions or the width of the adjacent lot(s), whichever is less. Even though a site may not contain any environmental features, a stream or wetland located on an adjacent property may require a buffer on the subject property, which could restrict development. It is not necessary to access an adjacent property to show its environmental features. This information can be projected or obtained from aerial photos. The “Checklist for the Preparation and Review of Natural Resource Inventory Plans” (Appendix B-1) contains a list of all the features that must be included on the NRI plan. The standard symbols provided in the introduction to the technical manual must be used. Color copies of the NRI plan may be submitted; however, all features shown on the plan must be fully legible when produced in black and white.

Site statistics are required to be shown on the plan for several of the environmental features outlined in this section. These statistics need to be shown on the plan in the following table form:

Table B-1. Natural Resources Inventory Statistics Table

Site Statistics	Total[1]
Gross tract area	
Existing 100-year floodplain	
Net tract area	
Existing woodland in the floodplain	
Existing woodland net tract	
Existing woodland total	
Existing PMA	
Regulated streams (linear feet of centerline)	

[1]*Figures are to be provided in acres rounded to the nearest 1/100th of an acre unless otherwise indicated.*

If a previously approved Type 1 or Type 2 tree conservation plan exists for all or part of the site, the NRI plan shall include this area, in consultation with Planning Department staff. A note should be added to the plan listing the area of the previous approval and the assigned TCP number. A separate table containing information applicable to the approved plan must also be included, and areas of designated woodland conservation must be shown on the plan.

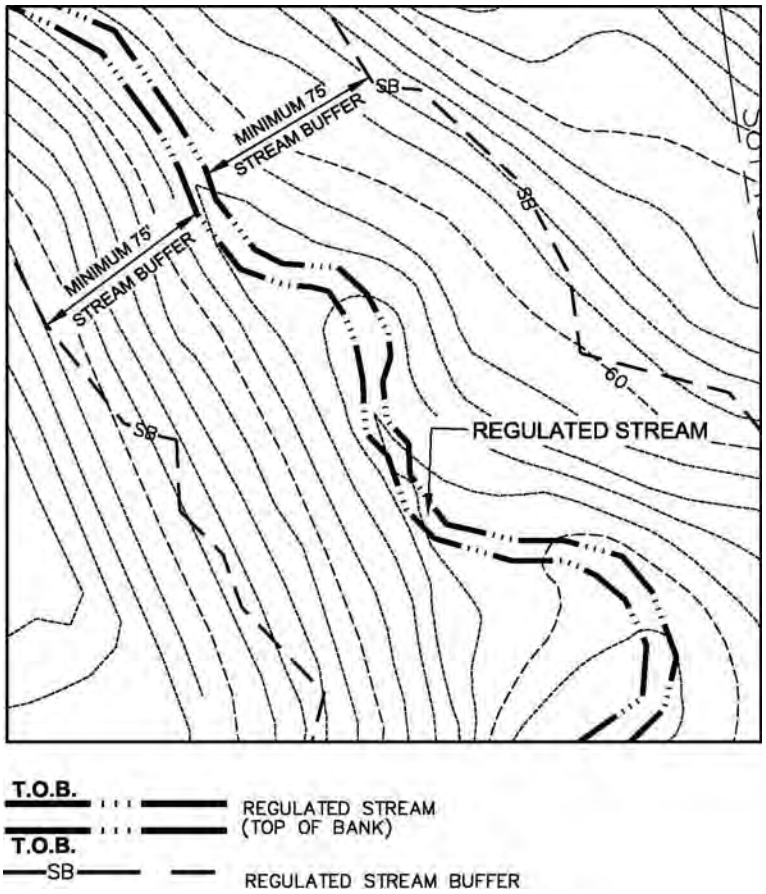
4.1 Streams and Minimum Stream Buffers

All streams (regulated and nonregulated) as defined in Subtitle 24 of the County Code must be shown on the NRI plan for the subject property and within 100 feet of the subject property or the width of the adjacent lot, whichever is less. Stream buffers must be shown for regulated streams on the NRI plan in accordance with Table B-2 below. Nonregulated streams do not require a stream buffer but are required to be shown on the NRI plan and should be protected as much as possible through the design process. The standard list of symbols must be used for all features shown on the NRI plan. Map B-1 shows a stream and its associated minimum buffer.

Table B-2. Minimum Stream Buffer Widths for Regulated Streams

Growth Policy Tier*	Stream Buffer Width (in feet)
Developed Tier	60
Developing Tier	75
Rural Tier	100

**As designated in the General Plan or as modified by a subsequent master or sector plan*

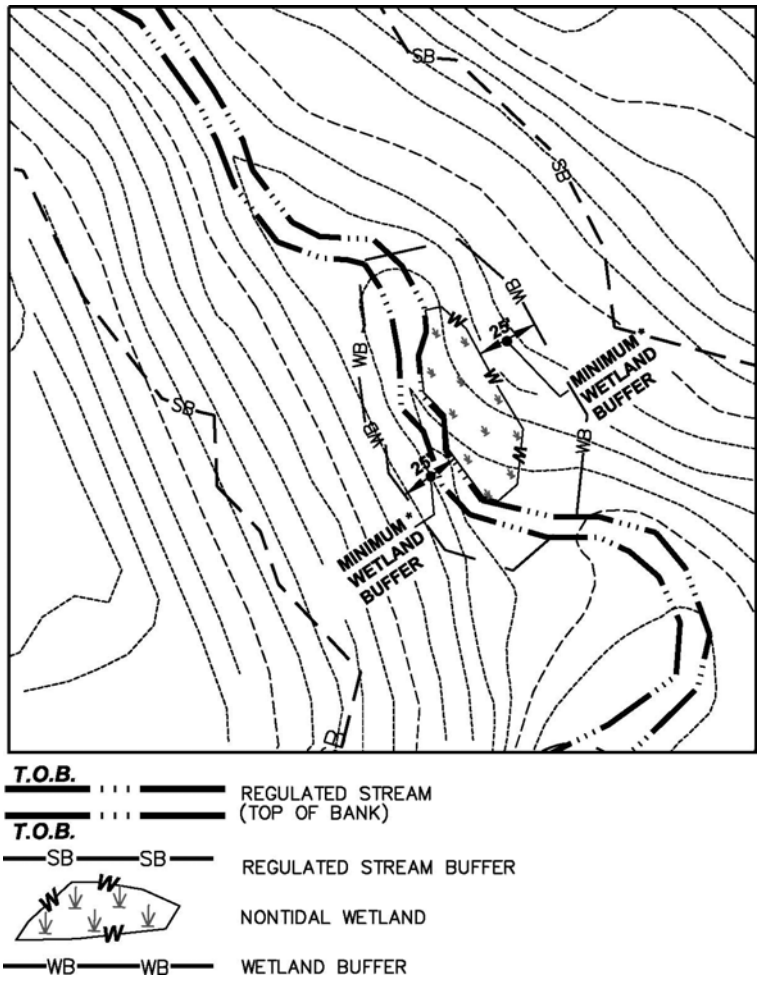


Map B-1. Regulated Stream and Minimum Stream Buffer (Developing Tier)

4.2 Wetlands and Wetlands Buffers

All wetlands, including isolated/nonisolated, tidal/ nontidal, and wetlands of special state concern must be shown on the NRI plan for the subject property and within 100 feet of the subject property or the width of the adjacent lot, whichever is less. Off-site information can be estimated using available information.

A minimum 25-foot-wide wetland buffer is required by state and county ordinance. The minimum 25-foot-wide wetland buffer must be shown on both the NRI plan and wetland delineation map, and the symbols for both wetlands and wetland buffers must be included in the legend. Refer to the list of standard symbols provided in Appendix 1 and the discussion in the introduction to the technical manual. Map B-2 provides an illustration of wetlands and wetland buffer.



Map B-2. Nontidal Wetland and Minimum Wetland Buffer

When an area that is adjacent to a wetland contains highly erodible soils and steep slopes of 15 percent or greater, the wetland buffer must be expanded to include these areas and shall be labeled "Expanded Wetland Buffer." If a wetland of special state concern (see Table B-3, Wetlands of Special State Concern in Prince George's County) exists, a minimum 100-foot-wide expanded wetland buffer is automatically required, and the standard wetland symbol shall be provided in the legend. This information may also be found on PGAtlas and MERLIN.

Table B-3. Wetlands of Special State Concern in Prince George's County[1]

SITE	U.S.G.S. QUAD NAME
Beck Woods	Laurel
Belt Woods	Lanham
Beltsville Airport Bog	Laurel
Beltsville Bottomland Forest	Laurel, Beltsville

SITE	U.S.G.S. QUAD NAME
Beltsville Forest & Meadow	Laurel
Beltsville Seasonal Ponds	Laurel
Buck Lodge Road Bog	Beltsville
Chews Lake	Bristol
Fort Ravine	Mt. Vernon
Johnson's Gully	Mt. Vernon
Huntington Park Woods	Laurel
Patuxent Maple Swamp	Bowie
Patuxent W.R.C.	Laurel
US I-95 Bog	Beltsville
Southwest Branch Bottomland Forest	Lanham, Upper Marlboro
Suitland Bog	Anacostia
Watkins Regional Park	Lanham
Zekiah Swamp	Brandywine

[1] *Compiled from COMAR 26.23.06.01*

4.3 100-Year Floodplain

The 100-year floodplain is defined as a flood event, which has 1 chance in 100 or a one percent chance of occurring in any given year. For regulatory purposes, the location of the 100-year floodplain in Prince George's County is determined and/or approved by the Prince George's County Department of Public Works and Transportation (DPW&T). Development proposals must also adhere to the regulations of the Prince George's County Building Code, Subtitle 4, Divisions 2 and 3, Sections 4-256 through 4-276. (Floodplain Ordinance); Section 27-124.01 of the Zoning Ordinance; and Section 24-129 of the Subdivision Ordinance. The 100-year floodplain as identified by the Federal Emergency Management Agency (FEMA) cannot be used as the source for the delineation on an NRI plan because FEMA studies are based on existing conditions in the watershed at the time the FEMA study was prepared and do not project impacts of planned future land uses. County floodplain studies project future land uses in the watershed to ensure maximum protection of the floodplain based on future conditions.

In order to determine whether or not a 100-year floodplain is present on-site, the applicant must first contact DPW&T to determine whether or not a floodplain study was ever approved for the subject property. The floodplain studies approved by DPW&T vary in age from recent approvals to approvals that are more than 20 years old. Because of development that may have occurred in other areas of the watershed, floodplain studies used for NRIs should generally have been approved within the past ten years. If the information from an older floodplain study is used, verification that the study is still valid must be obtained from DPW&T. If a floodplain study has been completed in the last ten years that study can be used to delineate the floodplain on the NRI. If a floodplain easement has been established on a property, the easement must

be shown. If that easement was established more than ten years ago, verification from DPW&T may be required that the boundaries of the easement are still valid for the area. If a recent study is not available, a floodplain study must be completed.

The floodplain study for the NRI can be one of five types: (1) a floodplain easement less than ten years old, (2) a watershed study, (3) a floodplain study prepared by DPW&T (preferred); (4) a floodplain study prepared by an engineer and approved by DPW&T; or (5) a study prepared by an engineer with expertise in water resources engineering. If the last option is used, documentation of who prepared the floodplain study must be provided, and the study shall be signed by the engineer who prepared it. The study prepared by the engineer must be approved by DPW&T prior to EPS approval of the TCP1 with a preliminary plan or prior to the EPS approval of a TCP2 if a preliminary plan is not required.

If no area of 100-year floodplain is shown on the NRI, then documentation regarding the absence of floodplain must be submitted in one of two forms: written verification obtained from DPW&T (preferred) that there is no 100-year floodplain existing on-site or a statement prepared by an engineer with expertise in water resources engineering that the drainage area is less than 50 acres. If the second option is used, documentation of who prepared the statement must be provided and the engineer must sign the statement with a certification that they have the required expertise to prepare a floodplain study.

4.4 Soils and Unsafe Lands

A soils table must be included on the NRI plan and in the FSD report, and the areas of the soil types must be depicted on the NRI plan. This table shall include information for all mapped soil types found on the subject property. This information must include the map unit symbol used for each soil type shown on the plan, the map unit name and description, k-factor, hydric rating, hydrologic soil group, and drainage class. The most current information available from the USDA, NRCS Web Soil Survey (WSS) shall be used. Two copies of a dated custom soil resource report for an area of interest established for the subject site and generated from the USDA NRCS WSS shall be submitted with the NRI application. Soil locations and soil division lines shall be shown on the NRI plan. These symbols must be included in the legend.

Table B-4. Sample Soils Table

Map Unit Symbol	Map Unit Name	K-Factor (Whole Soil)	Hydric Rating	Hydrologic Soil Group	Drainage Class
AaB	Adelphia silt loam, 2 to 5 percent slopes	0.37	Unknown Hydric	C	Moderately well drained
AcA	Adelphia-Aquasco complex, 0 to 2 percent slopes	0.37	Not Hydric	C	Moderately well drained
AdA	Adelphia-Holmdel complex, 0 to 2 percent slopes	0.37	Partially Hydric	C	Moderately well drained
AdB	Adelphia-Holmdel complex, 2 to 5 percent slopes	0.37	Partially Hydric	C	Moderately well drained

Taken from: USDA, NRCS, Web Soil Survey (WSS) available online at http://websoilsurvey.nrcs.usda.gov

Through the use of PGAtlas or other available sources, the presence or absence of Marlboro clay and Christiana complex shall be identified. The exact areas do not need to be delineated on the NRI plan; however, the general location of the identified clays shall be stated in the standard NRI notes and included on the plan. (Refer to the NRI checklist for a list of standard NRI notes.)

If the site or portions of the site have been mined in the past, these areas shall be delineated on the NRI plan with a note identifying them. The acreages of these mined areas shall be included in the NRI site statistics table. The acreages shall be rounded to the nearest 1/100th of an acre. The following note must also be added to the plan: "A soils report is required as part of any development application. The study shall clearly define the limits of past excavation and indicate all areas where fill has been placed. All fill areas shall include borings, test pits, and logs of the materials found. Borings and test pits in fill areas shall be deep enough to reach undisturbed ground." The requirement for this soils report may be waived by the Planning Director or designee if the area of development is not within or adjacent to the area of past mining.

4.5 Topography and Steep and Severe Slopes

Up-to-date topography must be provided on the NRI plan at a minimum scale of 1"=100', with contour intervals of not more than two feet. Slopes equal to, or greater than, 15 percent are classified as "steep slopes" and must be shown on the NRI plan. The standard symbol for steep slopes must be used on the plan and included in the legend.

The formula for calculating slopes is as follows:

Where V= the vertical distance between contour intervals (Maximum interval allowed =2 feet)
Where H= the horizontal distance between contours
V/H=% slope or 2-foot contour/ # feet horizontal distance= percent slope

4.6 Primary Management Area

The primary management area (PMA) is a vegetated buffer established or preserved along all regulated streams outside the Chesapeake Bay Critical Area Overlay Zones. If the PMA is not vegetated at the time of plan review, the planting of trees in this area is a high priority for woodland conservation.

At a minimum, the PMA includes:

1. All regulated streams and their associated minimum stream buffers

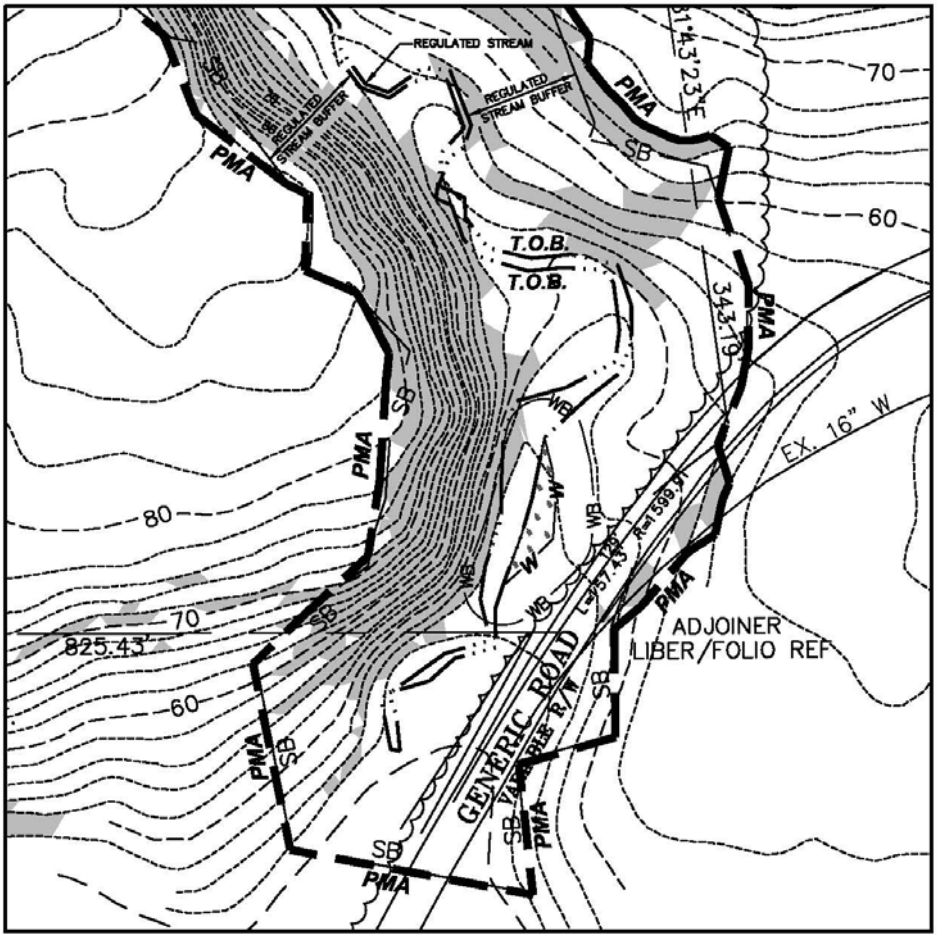
2. The 100-year floodplain as defined by Section 27-124.01

3. All wetlands and associated wetland buffers that are adjacent to the regulated stream, stream buffer, or the 100-year floodplain;

4. All areas having slopes of 15 percent or greater adjacent to the regulated stream or stream buffer, the 100-year floodplain, or adjacent wetlands or wetland buffers

5. Adjacent critical habitat areas

The PMA is required to be shown on the plan using the standard symbol as shown in the standardized list of symbols. The symbol must be included in the legend. Map B-3A shows the elements of a PMA and its overall delineation. Map B-3B illustrates the correct and incorrect methods for delineating the PMA.



T.O.B. REGULATED STREAM (TOP OF BANK)

CL REGULATED STREAM (CENTERLINE)**

SB SB REQUIRED STREAM BUFFER

W NONTIDAL WETLAND

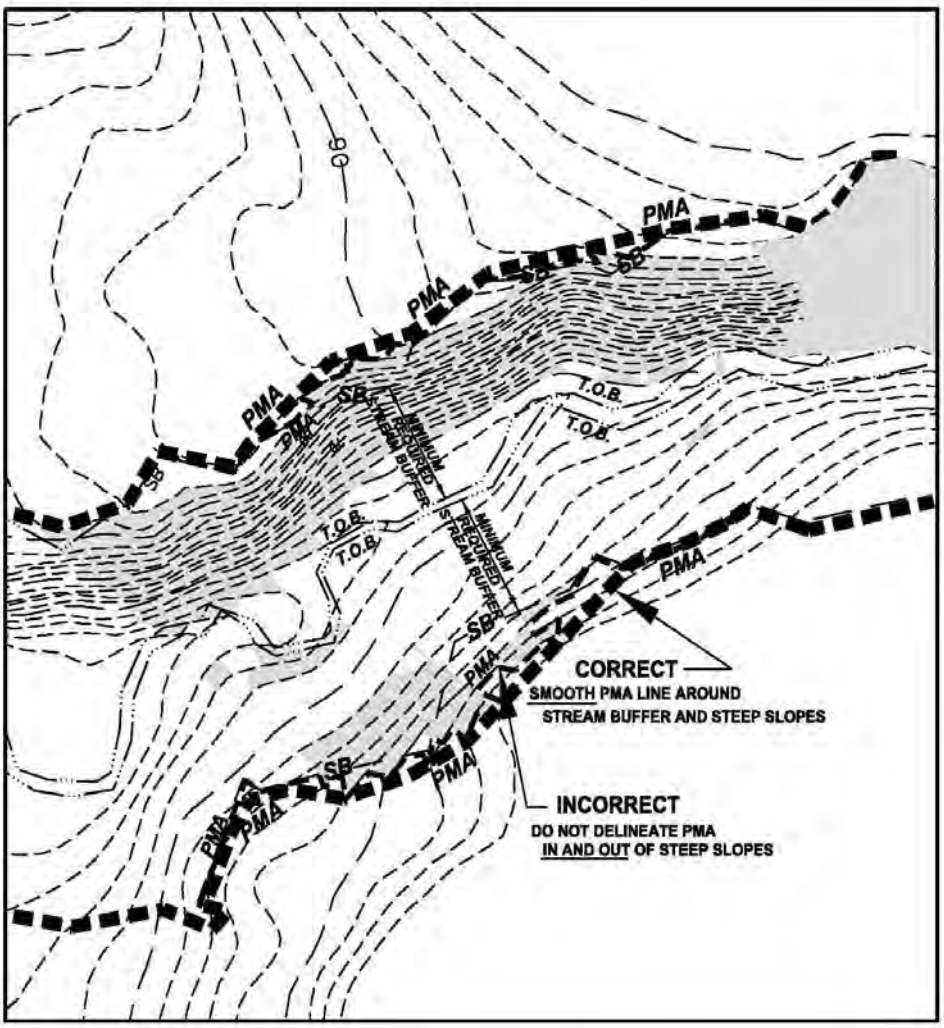
WB WB 25' WETLAND BUFFER

STEEP SLOPES (15% OR GREATER)

PMA PMA PRIMARY MANAGEMENT AREA (PMA)

**** WHEN STREAM BANKS ARE 10 FEET OR LESS APART, SHOW ONLY THE CENTERLINE OF THE STREAM AND MEASURE THE STREAM BUFFER FROM THE CENTERLINE.**

Map B-3A. Delineation of Primary Management Area



T.O.B. / T.O.B. — REGULATED STREAM (TOP OF BANK)

—SB— —SB— — MINIMUM REQUIRED STREAM BUFFER

STEEP SLOPES (15% OR GREATER)

PMA PMA — CORRECT DELINEATION OF PMA

PMA — INCORRECT DELINEATION OF PMA

NOTE: SYMBOLS SHOWN ARE EXAGERATED FOR ILLUSTRATIVE PURPOSES ONLY. REFER TO THE STANDARD SYMBOLS FOR CORRECT LABELING.

Map B-3B. Correct Method for Delineation of Primary Management Area

4.7 Forest Stand Delineation

The forest stand delineation (FSD) is required as part of the NRI. (Refer to Part A, Section 4.0, Forest Stand Delineation, for FSD Preparation Methodology.) All existing forest cover and tree cover, as determined from fieldwork and up-to-date aerial photos, shall be shown on the plan. These areas shall be designated with a line that delineates the extent of canopy for those areas that are considered regulated woodlands. A symbol for hedgerows and shrub/scrub areas is also required to be shown. Refer to and use all appropriate standard symbols.

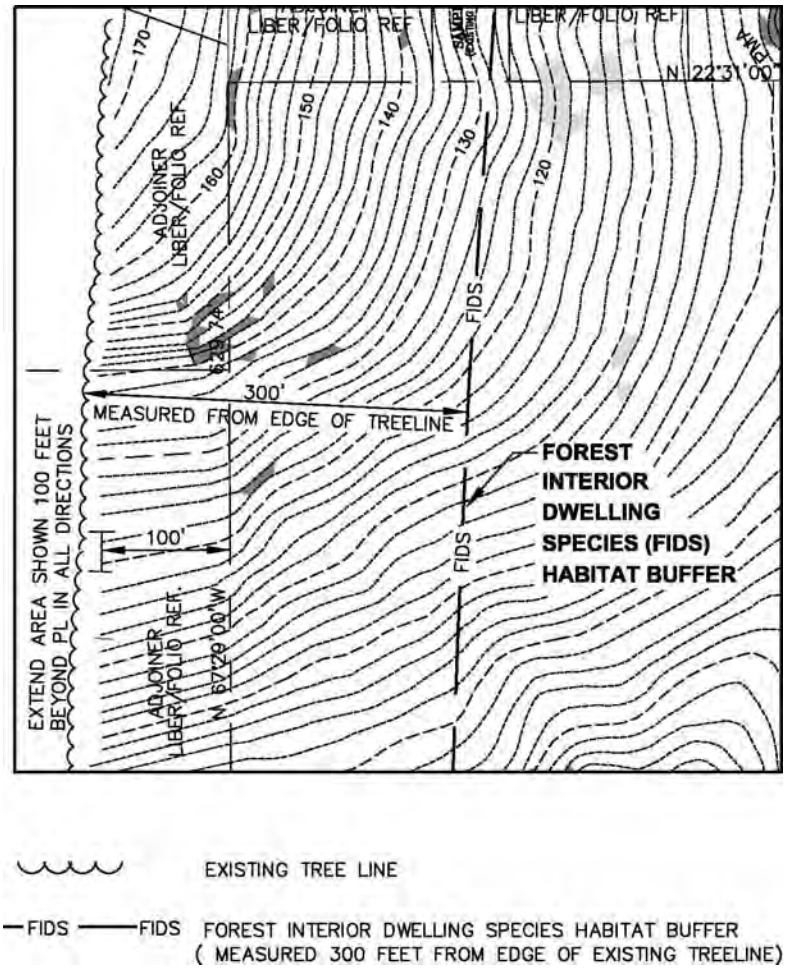
4.8 Forest Interior Dwelling Species Habitat and FIDS Buffer

Forest interior dwelling species (FIDS) habitat is a woodland area of sufficient size to be favorable to the breeding of certain interior-dwelling bird species. These areas must meet one of the following conditions:

1. The woodlands are a minimum of 50 acres in size, contain at least ten acres of "forest interior" habitat, and are located more than 300 feet from the nearest forest edge.

2. The woodlands are riparian forest at least 50 acres in size, have a minimum average width of 300 feet, and are located within the watershed of a regulated stream.

To delineate the FIDS buffer, start at the existing tree line and measure into the forest 300 feet. The area contained within this 300 feet should be labeled FIDS buffer, and the symbol should be included in the legend. (Refer to the standardized list of symbols.) The FIDS habitat area includes the forested area greater than 300 feet from the forest edge that meets one of the two conditions listed above. FIDS buffers and habitats are areas where forest fragmentation should be avoided in future land designs.



Map B-4. Forest Interior Dwelling Species (FIDS) Habitat Buffer

4.9 Rare, Threatened, or Endangered Species

Habitat locations of flora and fauna that are designated as rare, threatened, endangered (RTE), in need of conservation, or as a "watch list" species (as determined by the Maryland Department of Natural Resources (DNR), Natural Heritage Program) must be shown on the NRI plan. The applicant should first review the DNR Natural Heritage Program Sensitive Species Project Review Area available on MERLIN. This is a digital data layer that provides an overview of all state-regulated and designated areas involving sensitive and listed species. Information on this data layer can be accessed by going to http://dnr.maryland.gov/wildlife/sspra.asp. Second, the applicant should send a vicinity map and a letter requesting the identification of significant species to the following address:

DNR Natural Heritage Program
Tawes State Office Building
580 Taylor Avenue, E-1
Annapolis, MD 21401

DNR will check their database for known occurrences of significant species and will send a response letter. Two copies of this letter must be submitted with the NRI plan. This request takes a few weeks to process and should be one of the first steps in the preparation of the NRI application.

4.10 Historic Resources and Sites

Known historic resources, cemeteries, archeological sites, existing buildings, and foundations must be shown on the NRI plan. The applicant may obtain information from PGAtlas.com on the locations of historic sites and historic resources and county and national registry historic districts. This information must be included in the standard NRI notes (see Appendix 1), and the locations of known resources and sites must be shown on the plan.

The applicant is encouraged to contact the M-NCPPC Planning Department's Historic Preservation staff to verify the presence or absence of historically significant resources and sites on or near the property during the NRI preparation process. This information may be required during subsequent review and approval processes, including the preliminary plan review and approval process, and may pose limitations on the development of the site.

4.11 Noise

Noise is defined as unwanted or excessive sound that may come from various sources.

Traffic generated noise from master-planned roadways designated as arterial or higher may affect the proposed use of a site. Designations of roadway classifications are available on PGAtlas.com. A note must be included on the plan indicating if the site is adjacent to or in the vicinity of any roadways designated or master-planned as arterial or higher.

Joint Air Base Andrews (JBA) is a local noise generator that may also affect the proposed use of a site. If a site lies within the noise contours as found in the 2007 Air Installation Compatible Use Zone (AICUZ) Study for JBA, then a note must be added to the plan that includes the noise contour within which the property lies.

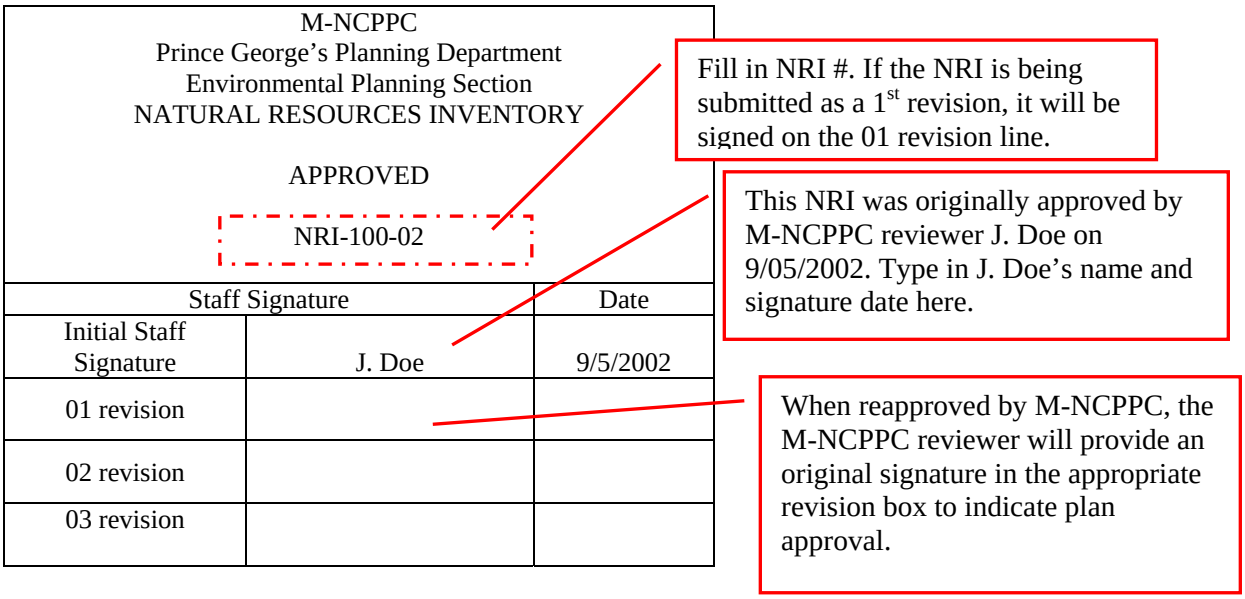
Noise information must be included in the standard NRI notes, including the distance of the site from known noise generators located in the vicinity of the site. Other noise generators might include concrete recycling facilities, industrial uses with outdoor equipment, and gravel mining.

5.0 Revisions to Previously Approved Natural Resource Inventory Plans

Approved national resource inventories (NRIs) are typically revised for two reasons. The first situation is when the information used to prepare the NRI changes. If the information on an approved NRI changes significantly in the future due to more detailed information, such as field-run topography when aerial topography was used previously, then a revised NRI is required. If the acreages of existing woodlands or the acreage of the property change slightly after a signed TCP1 has been obtained, a revision to the approved NRI is not required.

The second situation addresses the requirement that NRI plans must be prepared at the same scale as all associated plans being submitted for an application. As stated earlier, the NRI shall be prepared at a scale of no less than 1 inch equals 100 feet. Once the NRI has been approved, the scale must match the first application for the subject property. If subsequent applications are submitted at a different scale than that of the approved NRI, the Planning Director or designee reserves the right to request the scale of the approved NRI be revised to match that of the associated plans. The plans are not resubmitted for review and approval, nor are they re-signed. The cover sheet of the NRI package must include the NRI at the previous scale, and the additional sheets will show the NRI at the same scale as the associated application.

Previously approved NRI plans that are being resubmitted for review due to a change in baseline information must be submitted with a new application form and a letter stating what revisions were made and why. Both the letter and the application form must reference the NRI number associated with the plan. Two copies of the revised NRI plan and any other relevant baseline information must be submitted. A copy of the originally approved plan must also be submitted. In the EPS approval block that appears on each page of the NRI plan, type in the NRI number and the revision number, the name(s) of previous staff reviewer(s), and the date of each staff signature into the block.



Example: M-NCPPC staff member Jane Doe previously approved NRI/100/02 on September 5, 2002. Due to a change in acreage, the revised NRI plan is being resubmitted for review and approval.

Part C Preservation, Restoration and Enhancement of Regulated Environmental Features

1.0 Introduction

Regulated environmental features in Prince George's County include the following features as defined in Subtitle 24, the Subdivision Ordinance.

Regulated Environmental Features: Regulated streams, nontidal wetlands, and their associated buffers.

Regulated Stream: Streams that have water flowing year-round during a typical year and streams that have water flowing during certain times of the year when groundwater provides for stream flow. Water flow can be identified by a defined channel and movement of leaf litter and debris by the movement of water. During dry periods some regulated streams may not have flowing water. This definition includes "perennial" and "intermittent" streams. Streams that only have water flowing during, or for a short duration after, precipitation events in a typical year are "ephemeral" streams and are not regulated. The use of the term "stream" in this or other sections of the County Code shall refer to a regulated stream, unless the provisions of that section define a stream otherwise.

Primary Management Area: A vegetated buffer preserved and/or restored along all regulated streams outside the Chesapeake Bay Critical Area Overlay Zones, which at a minimum includes:

1. All regulated streams and associated minimum stream buffers.

2. The 100-year floodplain as defined by Section 27-124.01.

3. All wetlands and associated wetland buffers that are adjacent to the regulated stream, stream buffer, or the 100-year floodplain.

4. All areas having slopes of 15 or greater adjacent to the regulated stream or stream buffer, the 100-year floodplain, or adjacent wetlands or wetland buffers.

5. Adjacent critical habitat areas.

Nontidal Wetland: An area which:

1. Is inundated or saturated by surface or ground water at a frequency and duration sufficient to support and, under normal circumstances, supports a prevalence of vegetation typically adapted for life in saturated soil conditions.

2. Is identified as a "wetland" in accordance with the federal manual.

Wetland Buffer: Where a wetland or a portion of a property containing a wetland is located outside the Chesapeake Bay Critical Areas Overlay Zones, a minimum of 25 feet in width measured from the edge of the wetland and expanded to 100 feet in width due to the presence of steep slopes 15 percent or greater, highly erodible soils, other soils with development constraints, or the presence of nontidal wetlands of special state concern as defined by COMAR.

These areas are required to be survey located and shown on engineered drawings. Refer to other parts of the technical manual for the provisions regarding how these areas are to be depicted on the plans.

The protection, restoration, and enhancement of these features are vital to the long-term health of county citizens. These features provide extensive social and economic benefits to both the natural and built environments. Known as "ecosystem services," the benefits of their conservation cannot be overstated. For example, currently, the county's woodlands provide an estimated $1.4 billion of cost savings annually with regard to stormwater management.

2.0 Regulations Regarding Impacts to Regulated Environmental Features

Streams and nontidal wetlands and their associated buffers, and isolated nontidal wetlands and their associated buffers (collectively referred to as "regulated environmental features"), are required by the Zoning Ordinance and the Subdivision Ordinance to be preserved in and/or restored to a natural state to the fullest extent possible.

The determination of "fullest extent possible" is a three-step process that starts with avoidance of impacts. Then, if the impacts are unavoidable and necessary to the overall development of the site (as defined below) and cannot be avoided, the impacts must be minimized. In the third step, if the cumulative, minimized impacts are above the designated threshold, then mitigation is required for the impacts proposed.

Necessary impacts are those that are directly attributable to infrastructure required for the reasonable use and orderly and efficient development of the subject property or are those that are required by County Code for reasons of health, safety, or welfare. Necessary impacts include, but are not limited to, adequate sanitary sewerage lines and water lines, road crossings for required street connections, and outfalls for stormwater management facilities. Road crossings of streams and/or wetlands may be appropriate if placed at the location of an existing crossing or at the point of least impact to the regulated environmental features. Stormwater management outfalls may also be considered necessary impacts if the site has been designed to place the outfall at a point of least impact.

The types of impacts that can be avoided include those for site grading, building placement, parking, stormwater management facilities (not including outfalls), and road crossings where reasonable alternatives exist. The cumulative impacts for the development of a property should be the fewest necessary and sufficient to reasonably develop the site in conformance with County Code.

Where properties are located in the Developed Tier or a designated center or corridor, impacts to regulated environmental features may be considered where needed to accommodate planned development on constrained sites. Such impacts may include allowing impervious surfaces to remain within the buffer or the placement of structures within a currently unvegetated buffer. Preservation of existing vegetated buffers will be a priority.

Where regulated environmental features are not currently in a natural state, they are to be restored through replanting of native vegetation, restoration of the natural hydrology, and stabilization of the stream bed and banks.

Isolated nontidal wetlands and their associated buffers are also required to be preserved in and/or restored to a natural state to the fullest extent possible. Impacts to isolated nontidal wetlands will be evaluated on a case-by-case basis. High quality wetlands that provide an infiltration function shall be preserved and, as determined by the Department of Public Works and Transportation, integrated into the site design as part of the stormwater management concept.

The proper sequence for preparing a design for a site that has regulated environmental features is as follows: (1) avoidance, (2) minimization, and (3) mitigation (if the threshold is met). This sequence will be

used to evaluate the appropriateness of the proposed impacts during the review of applications that contain impacts to regulated environmental features.

1. **Avoidance: Can the impacts be avoided by another design? Are the road crossings as shown necessary for the reasonable development of the property? Is it necessary to place the utilities within the boundaries of the regulated environmental features?**

When designing a site, the first step is to prepare a natural resource inventory (NRI) to determine the locations of regulated environmental features. The NRI is then used as the base map to start laying out the proposed development. The next step is to prepare a draft plan that shows no impacts to regulated environmental features.

If this design does not result in a development plan that allows for the reasonable use and orderly and efficient development of the subject property, or does not adequately provide for the health, safety, and welfare of county citizens, then impacts can be considered.

2. **Minimization: Have the impacts been minimized? Are road crossings placed at the point of least impact? Are the utilities placed in locations where they can be paired or grouped to reduce the number of different locations of impacts? Are there alternative designs that could reduce the proposed impacts?**

Minimization of impacts to regulated environmental features may include placing a road crossing or utility at the narrowest point of the PMA; the use of retaining walls instead of extending the grading; bridging instead of constructing a culvert; placing required infrastructure elements together in one location instead of placing each one individually; and, where appropriate, obtaining waivers from County Code with regard to required side slopes or road cross-sections as appropriate and as approved by the regulating agency.

Temporary impacts to regulated environmental features may be necessary for certain temporary erosion and sediment controls that cannot be designed in any other way. These impacts may be supported if the area is restored. All erosion and sediment control structures, such as ponds and collecting basins, shall be placed outside regulated environmental features. Temporary impacts and the proposed restoration must be shown on the associated tree conservation plan.

3. **Mitigation: For areas of significant impacts, has a mitigation package been proposed to provide an equal or better trade-off for the impacts proposed?**

“Mitigation” means the design and installation of measures to enhance, restore, or stabilize existing environmentally degraded streams and/or wetlands to compensate for proposed impacts. Mitigation shall be required for significant impacts to regulated streams, wetlands, and 100-year floodplains. Significant impacts are defined as the cumulative impacts that result in the disturbance on one site of 200 or more linear feet of stream beds or one-half acre of wetland and wetland buffer area,. Stream or wetland restoration, wetland creation, or retrofitting of existing stormwater management facilities that are not required by some other section of County Code may be considered credit as mitigation. The amount and type of mitigation shall be at least generally equivalent to, or a greater benefit than, the total of all impacts proposed, as determined by the Planning Board.

Priority shall first be given to mitigation within the impacted stream system. If the mitigation cannot be done on-site, mitigation should be focused in the following areas, in the stated order of priority: within the drainage area, subwatershed, watershed, or river basin in Prince George’s County.

3.0 Mitigation Opportunities and Sources

Between 2006 and 2009, almost half of the existing streams have been walked, and stream corridor assessments have been conducted. During the coming years, the remainder of the existing streams will be walked and assessed. The stream corridor assessments are being prepared using the Maryland Department of Natural Resources protocol. The assessments are simply visual and do not provide proposed mitigation measures to restore the degraded conditions that are noted. The assessments that have been completed have been compiled into a database so that, as development proposals are analyzed, restoration opportunities on the existing streams can be more fully explored.

As noted above, if mitigation is required for proposed impacts, the countywide database of mitigation sites should be used as a starting point of identified sites. Applicants will be requested to conduct field assessments of the current conditions of the affected stream systems and propose mitigation packages.

The Maryland Department of the Environment approves state wetland mitigation banks where credits can be secured for wetland impacts. County mitigation banks are also an option and can be created in coordination with M-NCPPC staff.

Other opportunities for mitigation sites include land owned by the Department of Parks and Recreation (DPR), land trusts, and other nongovernmental organizations. As the owner of many stream valley parks, DPR manages many of the larger stream systems in the county. There may be opportunities to access parkland to provide much needed restoration. Land trusts and other nongovernmental organizations, such as the Anacostia Watershed Society, Potomac Conservancy, and the Riverkeepers, should be contacted as needed to identify areas in need of restoration.

Part D Guidelines for Tree Canopy Coverage

1.0 Introduction

The Woodland and Wildlife Habitat Conservation Ordinance (WCO) provides for the protection and enhancement of existing woodlands and provides for the planting of tree and forest cover. However, there are sites that are exempt from meeting these requirements, and there are sites where it is not possible to meet the requirements on-site. These sites could benefit greatly from the strategic planting of trees to provide meaningful areas of tree canopy coverage as part of the overall design.

The planting of trees provides many benefits to communities. Trees reduce overall temperatures, especially where they are planted to shade hard surfaces, such as parking lots, roofs, and siding. Studies have shown that the net cooling effect of a young, healthy tree is equivalent to ten room-size air conditioners operating 20 hours a day. They take in a gas that at high concentrations can be lethal to humans (carbon dioxide) and release oxygen. One acre of trees removes up to 2.6 tons of carbon dioxide per year. Preserving trees and providing tree canopies not only results in cleaner air but also in increased property values and reduced energy costs.

Tree canopies provide many other benefits too, the most important of which are intercepting rainwater so it can be absorbed more slowly and absorbing and transpiring excess rainwater. Studies have shown that tree canopies in urban settings provide millions of dollars worth of stormwater management benefits. The preservation and enhancement of tree canopy coverage is one of the tools being emphasized for the restoration of the Chesapeake Bay. In December 2003, the Chesapeake Executive Council signed a Riparian Forest Buffer Directive that included setting goals for tree canopies in urban areas in order to protect the Chesapeake Bay from the pollutants in urban runoff.

In order to ensure sustainable and livable communities for future generations, the 2005 General Plan set forest and tree cover goals for 2025 as follows:

Developed Tier:	26% (maintains the 2000 coverage percentage)
Developing Tier:	38% (a reduction from the 2000 figure of 41%)
Rural Tier:	60% (an increase from the 2000 figure of 59%)
Countywide	44% (a slight decrease from the 2000 figure of 45%)

In order to reach these goals, the Countywide Green Infrastructure Plan contains recommendations regarding needed changes to the associated ordinances. The addition of a tree canopy coverage requirement was not explored at that time, but it is an appropriate strategy to assist in reaching the 2025 tree and forest canopy coverage goals of the General Plan.

For most development projects, the tree canopy coverage requirement will not result in additional tree planting because it will be met using the areas provided for woodland conservation. The types of projects that will benefit the most from this requirement are the sites that need the tree canopy the most: dense development and redevelopment projects where strategic tree planting can turn uninhabitable outdoor spaces into urban oases for relaxation and protection from the sun.

2.0 Overview of Tree Canopy Coverage

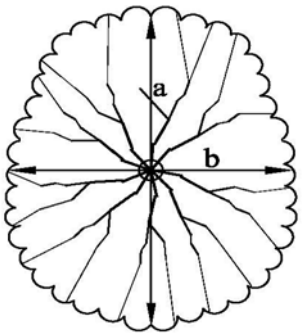
Tree canopy is defined in Subtitle 25 as follows:

> "Tree canopy: The land area under the dripline of an existing tree or group of trees or the amount of credit provided for planting trees of a certain species and certain size at time of planting in conformance with the worksheet provided in 'The Technical Manual.'"

Tree canopy coverage is defined as:

> "Tree canopy coverage: The combined area measured in square feet of the tree canopies of existing trees and trees planted in conformance with this Division and "The Technical Manual." Tree canopy coverage requirements are measured using a percentage of the gross tract area."

To visualize tree canopy coverage, imagine the amount of shade a tree will cast at 12:00 noon on a sunny day when viewed from above. The shadow of the tree would then be measured in square footage to determine how much tree canopy is provided by that tree.



Calculating Tree Canopy Area
(for single tree)

a=75 feet
b=65 feet

a x b = square footage of tree canopy

Figure D-1. Calculating Tree Canopy Area for Single Tree

To meet the requirements for tree canopy coverage, the existing and proposed amounts of tree canopy coverage must be measured.

To be eligible to meet the tree canopy coverage requirements, planting areas must be designed to provide the maximum allowable rooting zone.

Trees should be planted in appropriate locations based on each species' cultural tolerances to be eligible to meet the tree canopy coverage requirements. For example, a dogwood planted in a parking lot island in full sun would not be eligible to meet the requirements because dogwoods prefer partial to full shade in order to thrive. In another example, if an evergreen tree, such as a white pine, is proposed to be planted in a narrow space between a fence and a parking lot curb, it could not be given credit because, due to its low branching and wide form, it will outgrow the available area quickly.

3.0 Applicability of the Tree Canopy Requirements

The tree canopy requirements contained in the Woodland and Wildlife Habitat Conservation Ordinance apply to all types of applications that require a tree conservation plan or letter of exemption; in other words, all applications requiring a grading permit.

Existing woodlands and landscape and street trees may be counted toward meeting the tree canopy coverage requirement. While the woodland conservation requirements may be met on-site or off-site, the tree canopy coverage requirement must be met on-site, unless a variance has been approved to either allow a reduction in the requirement or to allow the meeting of the requirement through some other method. All woodlands and landscape trees may be counted toward meeting the tree canopy coverage requirements even if they are used to meet the requirements of the WCO or the Landscape Manual.

If the only application to be submitted is a grading permit, then the tree canopy coverage notes must be placed on the grading plan. Refer to the scenarios in Appendix C-1 for more information regarding how each type of application is to be handled.

Table D-1. Tree Canopy Requirements by Zone

Zone	Minimum Tree Canopy Coverage*
R-O-S, O-S, R-A	Exempt
R-E, R-L, V-L	20%
R-S, R-R, R-80, R-55, R-35, R-20, R-T, R-30, R-30C, R-18, R-18C, R-10, R-10A, R-H, R-U, R-M, R-M-H, V-M	15%
C-A, C-O, C-S-C, C-1, C-C, C-G, C-2, C-W, C-M, C-H, C-R-C, I-1, I-2, I-3, I-4, E-I-A, L-A-C, M-X-C, M-U-I, M-U-TC, M-X-T, M-A-C, U-L-I	10%

**Percentage of gross tract area*

4.0 Tree Canopy Coverage Calculation Methodology

4.1 Step 1: Calculating the Amount Required

To calculate the requirement for a site, the gross tract area is multiplied by the percentage required based on the zone as shown in Table D-1. For a 2.55-acre site in the C-S-C Zone, the requirement would be calculated as follows:

2.55-acre site (gross tract area) x 15% = 0.38 acres or 16,662 square feet of tree canopy coverage required

4.2 Step 2: Measuring the Woodlands and Tree Cover to Be Preserved

The proper method for calculating the amount of tree coverage provided depends on the types of vegetation to be used to meet the requirement. Any of the following methods can be used alone or in combination to meet the requirement for a particular site.

Woodland conservation: If the site is providing sufficient woodland conservation on-site to also meet the tree canopy coverage requirement, the following notation shall be placed below the woodland conservation worksheet on the tree conservation plan:

Note: The tree canopy coverage requirement on this site has been met using woodland conservation on-site as follows:

Tree canopy coverage required: 0.38 acres or 16,553 square feet (2.55 acres x 15%)

Tree canopy coverage provided using woodland conservation: 0.91 acres (the 0.91 acre figure will be shown on the "Total Woodland Conservation Provided" line on the woodland conservation worksheet above this note)

Existing wooded areas or large trees: For existing wooded areas or trees larger than six inches in diameter measured 12 inches above the ground, the existing tree canopy coverage is used (see Figure D-2). For example, a 10-inch diameter tree might provide an area of canopy coverage that is 400 square feet in area, based on aerial photo observations or ground measurements. Tree canopies for existing woodlands and trees are measured from the edges of the outermost branches.

In this case, the plan must be marked to note which woodland areas or large trees are being preserved to be counted toward meeting the requirements, and a tree canopy coverage worksheet must be added. If the information cannot be displayed legibly on the tree conservation plan, then a separate sheet illustrating how the tree canopy coverage requirements are being met must be added. The tree canopy coverage worksheet should be placed on this separate sheet if one is provided.

Areas proposed for afforestation/reforestation: These areas are measured based on their square footage. The amount credited toward meeting the requirement is the same as the area afforested or reforested. In this case, the plan must be marked to note which afforestation/reforestation areas are being planted to be counted toward meeting the requirements. If this is the sole method being used, a note on the plan is sufficient. If landscape trees are used in combination, then a tree canopy coverage worksheet must be included on the associated plan.

Landscape trees: Trees smaller than six inches in diameter, 12 inches above the ground, are measured using their potential future canopy coverage in ten years, according to the chart shown in the worksheet provided in Appendix D-2.

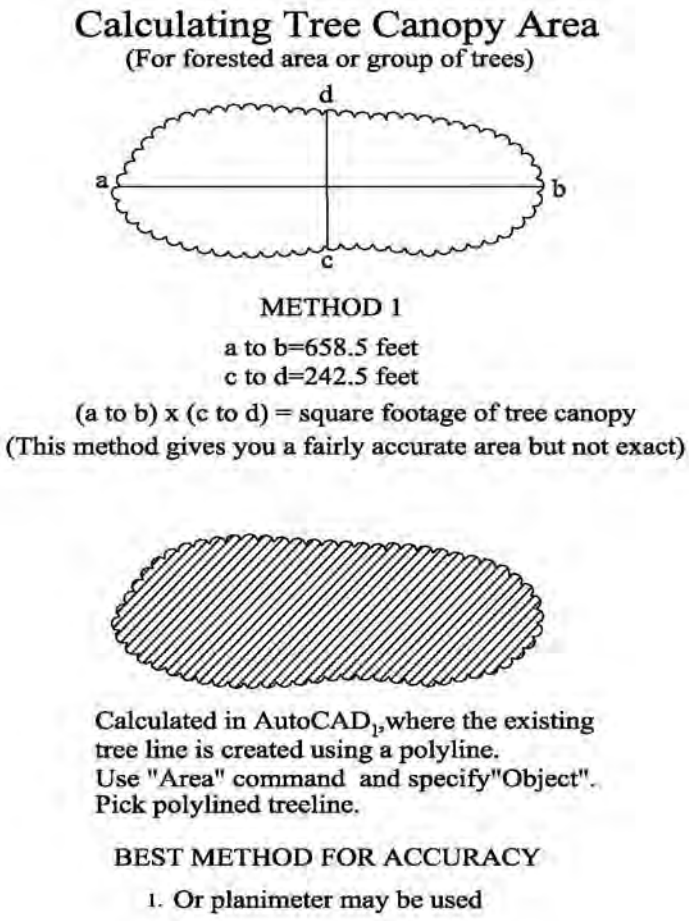


Figure D-2. Calculating Tree Canopy Area for Group of Trees

4.3 Step 3: Calculating the Amount Provided

As noted above, if existing woodlands are used exclusively. Then, all that is needed on the plans is a note under the woodland conservation worksheet.

If woodlands are used and proposed landscape trees are used to meet the tree canopy coverage requirement, then a tree canopy worksheet must be provided on the associated plan.

If proposed landscape trees are used exclusively to meet the tree canopy coverage requirement and there is no TCP2 to show the calculations, then a tree canopy worksheet must be provided on the associated plan.

When calculating the amount provided, the acreages of the woodlands and landscape trees used to meet the requirement are added, and the amount provided must at least equal the amount required.

Part E Chesapeake Bay Critical Area

(to be added when completed)