

Purpose

This form is designed to help applicants assemble a complete Tier II Review report. This form specifically addresses calculating Tier II resource impacts and evaluating alternatives that minimize water quality degradation from unavoidable impacts to Tier II watersheds and streams. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

The Department will use this information to determine whether the applicant evaluated all reasonable alternatives to minimize water quality degradation. MDE may provide additional comments, conditions, or requirements, during the review.



Maryland Department of the Environment

Antidegradation Review Report Form Alternatives Analysis – Minimization Alternatives



Fill in all that apply:

1. **Project Name:** _____
2. **County ESC Plan Identifier:** _____
3. **Nontidal Wetlands & Waterways Construction Tracking Number:** _____
4. **General Permit Number:** _____
5. **Other Application Type and Number:** _____

Applicant Signature: _____ **Date Complete:** _____

Background

Code of Maryland Regulations (COMAR) 26.08.02.04-2 (G(3)) states that "If the analysis in §G(1) of this regulation shows that the alternatives are not cost effective and feasible, the applicant shall provide the Department with plans to configure or structure the discharge or other regulated activities that may cause a potential water quality impact so as to minimize the use of the assimilative capacity of the water body. The assimilative capacity of the water body is the difference between the water quality at the time the water body was designated as Tier II, the baseline, and the water quality criterion".

To demonstrate that appropriate minimization practices have been considered and implemented, applicants must identify any minimization practices used when developing the project, calculate major Tier II resource impacts, consider alternatives for impacts, and adequately justify unavoidable impacts. Further water quality impact minimization such as mitigation or out-of-kind offsets may be required.

Additionally, applicants are required to coordinate with the County or appropriate approval authority when developing construction plans, and incorporate additional practices as indicated by the guidance provided in the *Construction Stormwater Antidegradation Checklist*. This checklist, as well as the other portions of the Tier II Review Report are required prior to receiving many permits and authorizations from MDE.

Instructions and Notes

1. Review all the information in this document carefully. Prepare a report to address all of the analysis required by this document. Submit all Tier II analysis and documentation together.
2. Do not leave any response blank. Please mark "N/A" for any questions or sections that are not applicable until you reach the end of the document.
3. Provide sufficient supporting documentation for narratives.
4. The level of analysis necessary, and amount of documentation that may be needed to determine if impacts have been adequately addressed, is dependent upon project size, scope, and scale of relative impacts to Tier II resources. Please develop responses accordingly.
5. Reports/responses shall be submitted in electronic format, as well as paper. Full plans are not required unless requested over the course of the review.
6. Direct any questions regarding this form to Angel Valdez at angel.valdez@maryland.gov.

Minimization Alternative Analysis Final Documentation Checklist

- Signature & Date MDE Tier II Alternatives Analysis – Minimization Alternative form
- Resource Impact Analysis
 - Tier II Stream Buffer Impacts
 - Impact Calculation
 - Impact Minimization
 - Stream Buffer Exhibit
 - Forest Cover Impacts
 - Impact Calculation
 - Impact Minimization
 - Forest Cover Exhibit
 - Impervious Cover
 - Impact Calculation
 - Impact Minimization
 - Impervious Cover Exhibit

Tier II Resource Impacts

Sufficient riparian buffers, ample watershed forest cover, and lower levels of impervious cover are essential to maintaining high quality waters. This project may permanently reduce riparian buffers and forest cover, or increase impervious cover within Tier II watersheds leading to a decrease in water quality. Depending upon project specific impacts, MDE may require monitoring, additional BMPs, expanded buffers in Table 1, and other studies prior to approval. This analysis is applicable to all areas of the **whole and complete project** within a Tier II watershed.

MDE will use the following information to determine impacts to Tier II watershed resources.

A. Tier II Stream Buffers
<p>1. Instructions:</p> <ul style="list-style-type: none"> a. If no stream buffer impacts are proposed (within 100' of stream), mark this section N/A and proceed to Section B, Forest Cover. b. <u>Complete the analysis for each Tier II watershed affected on a separate sheet</u> c. Insert the Tier II watershed name at the top of each box. d. "Impacted" stream segments are those disrupted by road crossings, other infrastructure, construction (ex. sewer lines), or otherwise buried e. Calculate buffer averages for 2(f) below on a stream segment-by-segment basis. f. Explain in detail minimization alternatives considered, and any actions taken

A. Tier II Stream Buffers - Tier II Watershed: _____		
2. Calculation of Potential Riparian Buffer Impacts to State Regulated Waters	Linear Feet +/-	
	LEFT Bank	Right Bank
a. Combined length of on-site stream segments:		
b. Combined length of <u>EXISTING</u> , pre-development, impacted stream segments:		
c. Combined length of <u>PROPOSED</u> , post-development, impacted stream segments:		
d. Total post-development <u>impacted</u> stream segments 2(b) + 2(c) =		
e. Total post-development <u>unimpacted</u> stream segments 2(a) - 2(d) =		
f. Combined length of streams, post-development, with an average 100' buffer, based on the value in 2(e):		
g. Potential Tier II Buffer Impacts 2(e) - 2(f) =		

A. Tier II Stream Buffers - Tier II Watershed: _____
3. Buffer Impact Minimization:
Evaluate on-site alternatives for buffer impacts for segments identified in 2(g). Examples include minimizing ROW, narrowing paths, alternate routes for walkways, roads, crossings, etc. to avoid buffer impacts.
4. Buffer Exhibit
Prepare a Tier II Buffer Exhibit for on-site streams. Dependent upon the number of segments, multiple sheets (8 ½" by 11") may be used. On an overview, label each segment (a, b, c...) and provide a tabular summary, per bank-segment (e.g., left bank of segment a), of average buffer width.
In addition to on-site streams, the exhibit shall display the following information:
<ul style="list-style-type: none"> • 100- foot riparian buffer. (symbolize with a line) • Areas where the post-construction stream buffer are +/- 100 feet. (symbolize with shading, hatches, or dots, etc.) • On-site areas where buffers could be maintained at distance greater than or equal to a 100' if there are unavoidable constraints in some locations. (symbolize with shading, hatches, or dots, etc.)

Table 1: Expanded Tier II Riparian Buffer

Adjusted Average Optimal Buffer Width Key (in Feet)				
	Slopes (%)			
Soils	0-5%	5-15%	15-25%	>25%
ab	100	130	160	190
c	120	150	180	210
d	140	170	200	230

B. Tier II Forest Cover
<p>1. Instructions:</p> <ul style="list-style-type: none"> a. If there is no net forest cover loss within the impacted Tier II watershed, mark this section N/A and proceed to Section C, Impervious Cover. b. <u>Complete the analysis for each Tier II watershed affected on a separate sheet</u> c. Insert the Tier II watershed name at the top of each box. d. “Potential Constraints” include forest loss due to ROW, property boundaries, regulatory requirements, etc. e. Explain in detail minimization alternatives considered, and any actions taken

B. Tier II Forest Cover - - Tier II Watershed: _____	
2. Calculation of Potential Forest Cover Impacts	Acres +/-
a. Total on-site forest cover, <u>EXISTING</u> :	
b. Total on-site forest cover, <u>POST-PROJECT</u> :	
c. Total off-site reforestation or restoration, <u>IN the Tier II Watershed listed above</u> :	
d. Permanent forest loss due to <u>potential constraints</u> :	
e. <i>Total forest cover retained in Tier II Watershed</i> 2(b) + 2(c) =	
f. <i>Total forest cover loss in Tier II Watershed</i> 2(e) - 2(a) =	

B. Tier II Forest Cover - - Tier II Watershed: _____
3. Forest Cover Loss Minimization
If 2(d) is greater than 0, or if 2(f) is a negative value, evaluate on-site alternatives for forest cover impact minimization. Examples include minimizing ROW, alternate routes for roads, crossings, etc. to avoid forest cover impacts.
4. Forest Cover Exhibit
On an 8 ½” by 11” sheet(s), prepare an on-site Tier II Forest Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(d) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.

C. Impervious Cover	
1. Instructions:	
<ul style="list-style-type: none"> a. If ESD is used to treat all new, on-site, post-construction stormwater, mark this section N/A and proceed to Section D, Mitigation and Other Potential Requirements. b. Insert the Tier II watershed name at the top of each box. c. Explain in detail minimization alternatives considered, and any actions taken. 	

C. Tier II Impervious Cover - - Tier II Watershed: _____	
2. Calculation of Impervious Cover Increase	Acres +/-
a. Total additional (new) impervious cover, <u>POST-PROJECT</u> :	
b. Total additional (new) impervious cover treated with ESD practices, <u>POST PROJECT</u> :	
c. <i>Total impervious cover not treated with ESD practices, <u>POST-PROJECT</u>:</i> <i>2(a) - 2(b) =</i>	

C. Tier II Impervious Cover - - Tier II Watershed: _____	
3. Impervious Cover Minimization	
If 2(c) is greater than 0, evaluate on-site alternatives for impervious cover impact minimization by identifying additional areas where ESD stormwater management practices can be utilized.	
4. Impervious Cover Exhibit	
On an 8 ½" by 11" sheet(s), prepare an on-site Tier II Impervious Cover Exhibit. Using varying symbology, show a basic site layout relative to 2(a), 2(b), and 2(c) above. Prepare a separate exhibit regarding any off-site reforestation, or out-of-kind mitigation opportunities in accordance with Section D.	

Applicant Signature: _____ **Date:** _____

Provide a hardcopy response to:

Maryland Department of the Environment
 Environmental Assessment and Standards Program
 Antidegradation Implementation Coordinator
 ATTN: Angel D. Valdez
 1800 Washington Blvd, Suite 530
 Baltimore, Maryland 21230

Provide an electronic response via email: to Angel Valdez at angel.valdez@maryland.gov