

Category 1: Planning and Streamside Management Zones

SPECIFICATIONS FOR PRE-HARVEST PLANNING

Definition

Pre-harvest planning involves collecting information about the area to be harvested. Use of this information can determine the best time for and method used to harvest. An effective pre-harvest plan will take into consideration all aspects of a timber harvest that may lead to water quality degradation and plan for the implementation of BMPs that will minimize the adverse effects of the operation. Elements of pre-harvest planning must consider the need for obtaining all approvals and permits for the project.

Purpose

This practice provides a plan prior to harvest that identifies an efficient harvest operation and maintains water quality through the use of one or a combination of BMPs.

Condition Where Practice Applies

This practice applies in all cases where forest products are to be harvested.

Specifications

The objective of pre-harvest planning is for the forester, landowner/manager, and the logger to determine, based on conditions found on the site to be harvested, which BMPs are necessary to protect water quality and how those BMPs will be implemented. Depending on the site and nature of the harvest, the plan should include any or all of the following: property boundaries, streams and drainages, soil restrictions, slope, environmental concerns, approximation of main haul road and skid trail locations, potential log landings, portable sawmill locations, stream or drainage crossings, and SMZs. Timing of harvest and timber sale contract specifications should be included.

A walk through the harvest area with a topographic map will provide greater insight to existing ground conditions. A site review will aid with determining potential road location, log landings, streams, and wet areas. Assistance can be obtained with site review and contract provisions from the DNR-FS.

In some situations, such as existing roads adjacent to streams, the best practice to control sedimentation may not be covered by the standard practices in this Manual. In this case, a pre-harvest plan is to be discussed with a LPF, and an alternative erosion control strategy developed and approved prior to harvest.

**SPECIFICATIONS FOR THE SOIL EROSION AND SEDIMENT CONTROL PLAN
FOR FOREST HARVEST OPERATIONS IN MARYLAND
(STANDARD PLAN)**

Definition

A *Standard Plan* is an erosion and sediment control plan with a pre-approved set of criteria, authorized by COMAR 26.17.01.07.D, for minor grading and earth disturbances, including many timber harvesting operations.

Conditions Where Practice Applies

The Standard Plan may be used for forest harvest operations when ALL of the following conditions are met:

- Road cuts/fills are 3 feet or less (5 feet in Garrett, Allegany, Washington, and Frederick counties).
- Grades for haul roads do not exceed 15 percent.
- Landings are located on slopes 10 percent or less.
- Grades for skid trails do not exceed 20 percent.
- The site has no stream crossings.

If the above conditions or any other criteria of the Standard Plan cannot be met, a Custom Plan, based on the specifications in this Manual, must be developed and submitted to the SCD for approval. If harvesting is proposed within a SMZ, a SMZ Plan must accompany the Standard Plan.

Plan Requirements

1. Unless one operator assumes full responsibility for implementing an approved plan, all forest harvest operators working at a site must obtain an erosion and sediment control plan. An operator is defined as any individual or company that has contracted or subcontracted a portion of the harvest operation. This also applies to those operators conducting firewood cutting or separate forest harvest operations in conjunction with or subsequent to the initial harvest. Each operator must implement and maintain the required practices.
2. The applicant shall notify the appropriate inspection agency (generally either MDE or the county) at least three (3) business days prior to commencing forest harvest operations. The inspection agency must also be notified at least two (2) business days prior to the completion of work.
3. A copy of the approved plan and any applicable SMZ Plan(s) shall be available on site during

harvest operations.

4. Each site may be inspected periodically by local government and/or State inspectors for compliance with the approved plan. State and local inspectors may require field modifications or a plan revision as conditions dictate, to prevent movement of sediment from the site. Plan revisions require approval by the SCD.
5. Failure to properly implement or maintain the practices required by an approved plan, or to comply with written requirements for corrective action, may result in the operation being stopped (issuance of a Stop Work Order) until the deficiencies have been corrected. Failure to take required corrective action may also result in legal action.
6. All erosion and sediment controls must be implemented in accordance with specifications contained in this Manual.
7. The issuance of an approval by the MDE, a SCD, or a jurisdiction not within a SCD, does not relieve the applicant of the continuing responsibility to effectively abate sediment pollution, and to comply with all other applicable local and State laws.

Standard Plan Specifications

A. Site Maps:

1. Site maps or sketches must be prepared for all harvests and submitted with the plan application for approval. The map or sketch must identify the site location and provide directions and distances from the nearest major road intersection.
2. All access points, landings, haul roads, Waters of the State, SMZs, and existing stream crossings must be identified on the map or sketch.
3. If harvesting is planned in a SMZ, a more detailed map of the SMZ areas is required. Additionally, a SMZ Plan must accompany the Standard Plan. The harvest area should also be delineated on a photocopy of the United States Geological Survey 7.5 Minute Series (Topographic) quadrangle maps (USGS maps).

B. Site Access:

1. Access points to the site shall be stabilized with wood chips, corduroy mats, stone aggregate pad, or other methods as shown in the Specifications for Stabilized Harvest Entrance. Any soil or debris that is tracked onto adjoining off-site roads shall be removed and deposited in a controlled area immediately.
2. A grading or entrance permit may be required for a new entrance onto a county or State road. Details may be obtained from the local permitting agency or the State Highway Administration.

3. Existing public road drainage shall not be blocked or damaged by access construction. Pipe culverts or a bridge shall be installed if necessary to maintain existing drainage.

C. Waterway Protection:

1. Any required SMZ shall be marked and properly maintained. (See Specifications for Streamside Management Zone section.)
2. The minimum SMZ width is 50 feet on land with no slope. Where sloping land is encountered, the following formula shall be applied:

$$50 \text{ ft.} + (2 \text{ ft.} \times \% \text{ slope}) = \text{SMZ width (to a maximum of 150 ft.)}$$

Example for 20% Slope: $50 \text{ ft.} + (2 \text{ ft.} \times 20 \%) = 50 \text{ ft.} + 40 \text{ ft.} = 90 \text{ ft. SMZ}$

Table 2 – SMZ Width vs. Site Slope

Slope %	Width of SMZ (ft.) on each side of watercourse
0	50
5	60
10	70
15	80
20	90

3. Unless part of an approved SMZ Plan, new roads, trails, and harvesting equipment are not allowed in any SMZ except to provide access to authorized stream crossings.
4. Harvesting within the SMZ is not allowed unless a SMZ Plan, along with the Standard Plan, is submitted to and approved by the SCD. The SMZ Plan must be prepared by a LPF and include the harvest method, the square footage of basal area to be removed and retained, provisions for removing and restocking the cut trees, and other criteria for the harvest operation¹⁴.
5. Although not all Waters of the State require the establishment of an SMZ, protecting water quality when harvesting within or near these areas is still required. At a minimum, the following criteria must be adhered to when a SMZ Plan is not required:
 - a. Locating log decks and landing at least 50 feet from any Waters of the State.

¹⁴ See Specifications for Streamside Management Zone section for more information about the requirements of an SMZ Plan.

- b. Locating truck haul roads at least 50 feet from any Waters of the State.
- c. Limiting skidding operations to single-pass trails within 50 feet of any Waters of the State.
- d. Fell trees away from Waters of the State and remove any slash that enters Waters of the State.
- e. Avoid crossing Waters of the State. When crossing is unavoidable, required permits must be obtained¹⁵.
- f. Stabilize within three (3) days any disturbed areas (damage to the humus layer) within 50 feet of Waters of the State unless other sediment control practices have been installed.

D. Haul Roads and Skid Trails:

1. Grading of existing roads and/or trails will be limited to that necessary to make them operable, provided that the requirements of Section D (2) and (5) below are met. If any of the conditions cannot be met, an approved Custom Plan will be required in order to utilize the existing roads and/or trails.
2. Haul roads and skid trails shall be laid out along natural land contours to avoid excessive cuts, fills, and grades. No road cut or fill shall exceed 3 feet (5 feet in Garrett, Allegany, Washington, and Frederick Counties). All new roads must be sketched on the plan map and must be flagged in advance of the harvest.
3. Drainage structures shall be provided at the time of construction of haul roads and skid trails according to requirements contained in this Manual.
4. Crossing of perennial or intermittent streams should be avoided. Where it becomes necessary to cross either a perennial or an intermittent stream, a bridge, culvert, or ford crossing shall be temporarily installed. A MDE-WMA Waterway Construction Permit may be required prior to crossing any stream¹⁶.
5. Grades for haul roads shall not exceed 15 percent. Grades for skid trails shall not exceed 20 percent. If it is not feasible to maintain these grade limits, a Custom Plan that identifies the controls required to prevent erosion, must be approved by the SCD prior to road or trail construction.
6. No haul roads or skid trails other than those providing access to waterway crossings shall be constructed within the SMZ, unless a SMZ Plan has been prepared and approved. Drainage from approaches to waterway crossings shall be diverted to undisturbed areas.

¹⁵ See Appendix G.

¹⁶ See Appendix G.

E. Landings and Log Decks:

Landings shall be located outside of the SMZ and at least 50 feet from any Waters of the State. Landings shall be located on reasonably level (between 3 and 10 percent slope), well-drained ground. If harvest sites do not have any area with a slope of at least 3 percent, landings shall be located on the maximum slope of the site. Landings located on slopes exceeding 10 percent must be shown on an approved Custom Plan.

F. Stabilization:

1. Following completion of installation of all perimeter erosion and sediment controls, and all cut and fill slopes steeper than 3:1 (H:V), stabilization must be accomplished within three (3) calendar days.
2. Within seven (7) days of completion of the harvest, all roads, trails, and landings located on slopes 10 percent or greater shall be graded or backdragged, and seeded and mulched according to specifications. The surface of roads, landings, and trails less than 10 percent shall be graded or backdragged and left in a condition that permits successful natural regeneration of trees, shrubs, or other annual and perennial plants. Under certain circumstances, stabilization of these roads and landings with seed and mulch shall be required.
3. Temporary stabilization may be required to minimize the potential for erosion or if a forest harvest is halted prior to completion. In addition to the practices noted in item 2 above, mats, woods chips, and compacted wood slash may be used as temporary stabilization practices.

G. Maintenance:

1. All practices installed shall be maintained at all times to function as intended.
2. Any practice that fails to function properly will be repaired or corrected immediately.

Diagram 1.0

**APPLICATION – STANDARD EROSION AND SEDIMENT CONTROL PLAN FOR
FOREST HARVEST OPERATIONS**

I. Site Information

A. Location: _____
(Include Sketch or Map of Property)

B. Nature of Operation: _____ Acres harvested: _____
(Logging including clearcut & damage select cut, Woodchipping, Firewood)

II. Landowner and Operator Information

Landowner: _____

Address: _____

Phone: _____ Email: _____

Operator: _____

Address: _____

Phone: _____ Email: _____

Current F.P.O. Lic. #: _____ Green card#: _____

1. List the names of other operators who may be involved in the harvest and the nature of their operations: _____
2. If subcontracting to any of the operators listed above, do you assume responsibility for their compliance with this plan? _____ If no, they must obtain a separate plan prior to their operations.

III. Agreement

A. I / We agree to adhere to Standard Erosion and Sediment Control Plan for Forest Harvest Operations, and to grant inspectors the right of entry to the site to monitor compliance.

B. I am aware of the landowner's responsibility in preventing accelerated erosion and sedimentation during and subsequent to forest harvest operations as mandated by the rules and regulations adopted by the State of Maryland and local jurisdictions, and the *2015 Maryland Soil Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations*.

C. I agree to require that all operators conducting forest harvest operations on my property to adhere to the requirements of the Standard Plan.

Landowner: _____ Date: _____

Operator: _____ Date: _____

Approved: _____ Date: _____
Soil Conservation District

SPECIFICATIONS FOR STREAMSIDE MANAGEMENT ZONE (SMZ)

Definition

A *Streamside Management Zone* is a protected area of at least 50 feet in width along the sides of any blue line stream.

Purpose

The purpose of the SMZ is to provide a relatively undisturbed zone to trap, settle, and filter out suspended sediments before these particles reach the stream, as well as protect stream bank stability and water quality.

Conditions Where Practice Applies

This practice applies to all blue line streams throughout Maryland, as defined below. Additionally, the SCD or other appropriate approval agency may require the establishment of a SMZ for the protection of a watercourse not mapped as a blue line, if site conditions warrant.

Blue line streams typically include all perennial streams and intermittent streams. Perennial and intermittent streams are streams whose flow includes a permanent, seasonal, or temporary groundwater component (*i.e.* the base level of the stream is at or below the local water table). Such streams flow for days, weeks, or months after a rainfall, or flow year round. These streams are identified on United States Geological Survey 7.5 Minute Series (Topographic) maps as solid or dotted-dashed blue lines (*i.e.* blue line streams). Any erosion and sediment control plan for a site that includes a blue line stream must provide for a SMZ.

Ephemeral streams (those that only flow for a few days after a rainfall) are usually not mapped as blue line streams. Although these, as well as other Waters of the State, may not require the establishment of a SMZ, they must still be protected and must not receive sediment-laden runoff as the result of a forest harvest operation.

Ditches managed by a *Public Drainage Association* (PDA) maintain existing erosion and sediment controls, and therefore, a SMZ does not need to be established. However, all of the requirements for Standard Plan specifications apply.

Specifications

1. The minimum width of a SMZ is 50 feet. This applies when the adjacent land has no slope. The maximum width of a SMZ is 150 feet (on land with slopes over 50%). When sloped land is encountered, the SMZ width shall be established using the following formula:
$$50 \text{ feet} + (2 \text{ feet} \times \% \text{ slope})$$

2. No new roads are permitted in the SMZ except to access approved stream crossings. If the only activity in the SMZ is the installation of an approved waterway crossing and its approaches, a SMZ Plan is not required. Existing roads, if serviceable and not creating a pollution problem, may be utilized if identified on the SMZ Plan and approved by the SCD.
3. Skid trails are permitted within the SMZ as part of an approved SMZ Plan as described below. The use of any skid trail within the SMZ must be limited so as to minimize disturbance to the forest humus layer. Skid trails located within 50 feet of a body of water shall be single-pass trails. Repair of damage to the humus layer within the SMZ and stabilization of the SMZ following the harvest shall be in accordance with the requirements set by this Manual¹⁷.
4. Harvesting activity is permitted in the SMZ if authorized by an approved SMZ Plan that follows the listed criteria:
 - a. The SMZ Plan is prepared by a LPF.
 - b. A sketch showing the location of required erosion and sediment control measures is included.
 - c. Stream crossings are avoided where possible. All crossings shall be shown on the sketch and have an approved Waterway Construction Permit, if required.
 - d. The SMZ Plan must show any road leading to the SMZ and skid trails within the SMZ.
 - e. Damage to the humus layer must be minimized. *Damage* is defined as the impairment of the usefulness of the humus layer in controlling sediment-laden stormwater runoff caused by the harvest operations.
 - f. Damage to the humus layer must be repaired immediately and stabilized. *Repair* is defined as returning the humus layer to pre-harvest conditions.
 - g. Exposed soil within the SMZ, resulting from the harvest operation, will be stabilized with seed and mulch within three (3) days of the disturbance.
 - h. Fertilizer shall not be used within the SMZ.
 - i. Use of logging equipment will be limited, with the use of low ground pressure equipment encouraged.
 - j. SMZ Plans may provide for harvesting within 50 feet of a body of water. Felled timber shall be removed by cable, non-vehicular means, extended reach equipment, or by skidder using a single pass. The use of low ground pressure equipment is strongly encouraged.
 - k. The objective of the SMZ is to maintain an effective vegetated buffer. Therefore,

¹⁷ See Specifications for Revegetation of Disturbed Soils.

except in limited circumstances, the basal area must not be reduced below 60 square feet of evenly distributed trees which have 6 inches or greater *diameter breast height* (DBH). However, the SMZ may be clearcut if part of an approved *Forest Management Plan*. The clearcut must also be included on the SMZ Plan prepared by a LPF. When a clearcut is authorized, the SMZ Plan shall require additional erosion and sediment controls be implemented as close to the body of water as practical prior to the start of and maintained during the harvest. Controls may include:

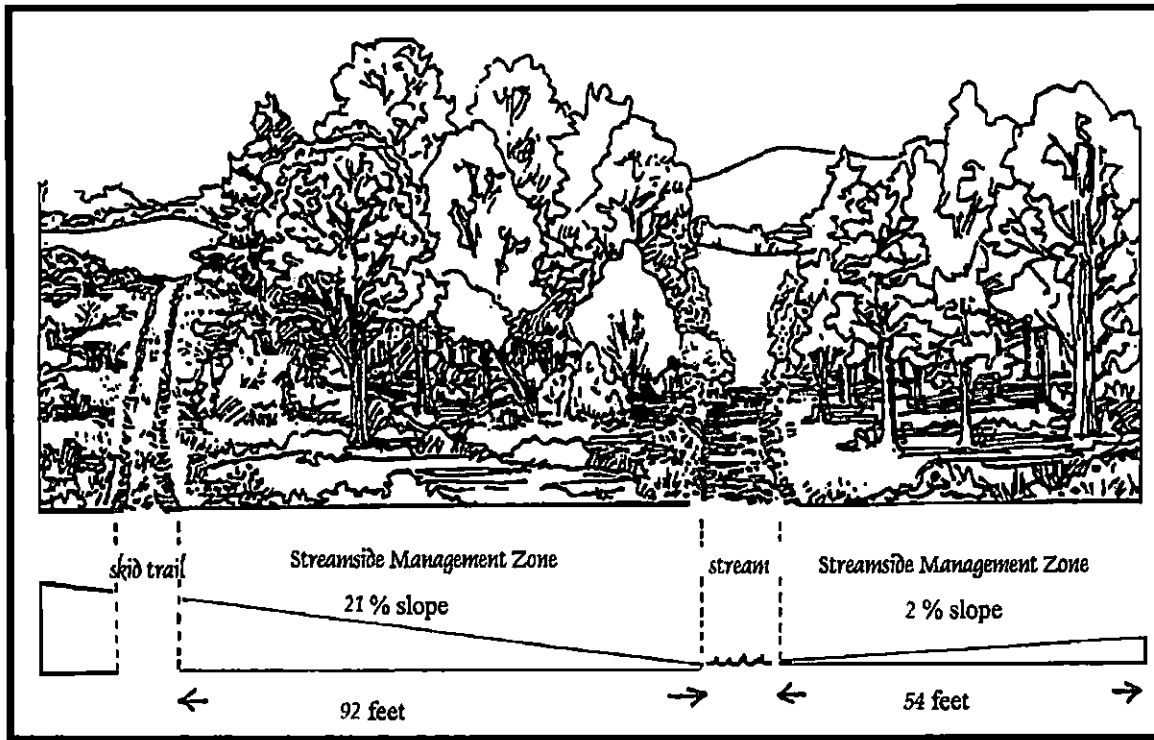
- i. Approved vegetated buffer of a specified width.
 - ii. Earth berm.
 - iii. Straw bale dike.
 - iv. Silt fence.
 - v. Other practices approved by the SCD.
1. All harvested tree limbs and tops must be removed from the stream to prevent stream blockage. Material originating outside of the SMZ shall not be deposited within the SMZ.
 - m. Individual trees to be cut in the SMZ must be marked at eye level and also near the base of the stump, so that the mark is visible after cutting. This requirement does not apply to approved clearcut operations or approved pine plantation thinning operations.
 - n. The method of harvest to ensure sufficient regeneration must be specified in the SMZ Plan.
 - o. Harvesting restrictions will be implemented during adverse weather conditions.
 - p. Trees must be felled away from the stream banks.
5. Sawmill sites and loading decks shall be located outside the SMZ.
 6. Energy dissipaters, such as riprap at cross-drain culvert outlets or discharge points, shall be installed where needed and shown on the SMZ Plan. Do not block water flow when using these structures.
 7. Additional BMPs for the interception and proper discharge of runoff waters from haul roads and skid trails leading to a SMZ may be required¹⁸.
 8. Stream crossings shall be constructed in accordance with the specifications provided later in this Manual¹⁹.
 9. All proposed activities within the SMZ shall not contaminate Waters of the State with sediment or any other pollutant (*e.g.*, equipment fluids).

¹⁸ See Specifications for Broad-Based Dip, Rolling Dip, Water Bars, and Cross-Road Drainage.

¹⁹ See Specifications for Temporary Access Waterway Crossings and Appendix G.

A sample SMZ Plan form is provided, immediately following the SMZ diagram in this specification. Other formats may be required by the SCD.

Diagram 2.0 – Streamside Management Zone



SMZ horizontal width is measured in linear feet from the edge of the pond, lake, or stream bank to the upper limit of the zone.

The SMZ widths shall be maintained during the entire harvest operation. They are determined by the following formula, established by forest researchers for effective SMZ widths:

$$50 \text{ feet} + (2 \text{ feet} \times \% \text{ slope}) = \text{SMZ width (To a maximum of 150 feet)}$$

Examples: (See diagram above)	
21% slope	2% slope
$50 \text{ ft.} + (2 \text{ ft.} \times 21\%) = 50 \text{ ft.} + 42 \text{ ft.} =$ 92 ft. SMZ	$50 \text{ ft.} + (2 \text{ ft.} \times 2\%) = 50 \text{ ft.} + 4 \text{ ft.} =$ 54 ft. SMZ

SMZ Plan Form

The form on the following page is an example of one acceptable type plan. Other types are permissible. Check with the SCD.

Diagram 3.0

STREAMSIDE MANAGEMENT ZONE (SMZ) PLAN

Landowner's Name: _____

Address: _____

Location: _____

(Attach a map indicating the location of streamside management zone, waterways, planned stream crossings, roads, main skid trails, and landings)

Area in streamside management zone (SMZ): _____ acres.

Width of SMZ (each side of stream): Range (min. – max. width) _____ feet;

Average Width: _____ feet.

Boundary of SMZ is marked with: _____ (color) _____ (paint or flagging).

Predominant tree species: _____

Current stocking density (basal area): Range (min. – max.): _____ sq. ft. / acre;

Average: _____ sq. ft./acre.

Average stocking to be retained: _____ sq. ft./acre. (Normally > 60 sq. ft. in trees > 6 in. DBH.)

Trees to be harvested are marked with: _____ color paint at eye level and on base.

Type of harvest within SMZ: _____

(Thinning, Selection, Shelterwood, Clearcut)

Regeneration will be from: _____

(Advanced reproduction, Seed, Sprouts, Planted seedlings, or N/A)

This SMZ Plan is used in conjunction with the Standard Erosion and Sediment Control Plan for this operation. All limitations for harvesting timber within a SMZ, as described in Specifications for Streamside Management Zone (SMZ), of the *2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations*, will be followed. Additional comments may be attached.

Prepared by: _____

(MD Licensed Professional Forester) - Printed Name - Signature - Date

Agreed to by: _____

(Landowner) - Printed Name - Signature - Date

Approved by: _____

(Soil Conservation Dist.) - Printed Name - Signature - Date