

**KENT SOIL AND WATER CONSERVATION DISTRICT
EROSION AND SEDIMENT CONTROL PLAN FOR FOREST HARVEST OPERATIONS**

I. GENERAL REQUIREMENTS

Maryland State law and regulations require that an erosion and sediment control plan (Plan) be developed and approved before undertaking any earth-disturbing activity in excess of 5,000 square feet or 100 cubic yards. This requirement applies to construction on residential, commercial, industrial, and institutional sites as well as on forest harvest projects.

This Kent Soil and Water Conservation District Erosion and Sediment Control Plan for Forest Harvest Operations (Plan) can be used for forest harvest operations in Kent County when **all** of the following standard plan requirements are met:

1. Road cuts/fills are 3 feet or less.
2. Grades for haul roads do not exceed 15 percent.
3. Landings are located on slopes 10 percent or less.
4. Grades for skid trails do not exceed 20 percent.
5. The site has no stream crossings.

If the above conditions or any other criteria cannot be met, a Custom Plan, based on the 2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations, is required. If harvesting is proposed within a Streamside Management Zone (SMZ), a SMZ PLAN must accompany this Plan.

II. CONDITIONS

A. The forest harvest operators working on this site assume full responsibility for implementing this Plan on behalf of the landowner. An operator is defined as any individual or company which 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 be identified on sheet 1 and must implement and maintain the required practices as indicated on the approved plan. A copy of the approved plan and any applicable SMZ Plan(s) shall be available on site during harvest operations.

B. The applicant landowner or his/her operator shall notify the Kent County Erosion Control Inspector at (410) 778-7437 at least 5 days prior to commencing forest harvest operations. The applicant landowner or his/her operator shall notify the Kent County Erosion Control Inspector at least **5 days prior** to leaving the site to schedule and complete the post-harvest inspection.

Note: Outstanding site work or outstanding correction orders issued by inspector must be resolved before any other forest harvest operations can be reviewed and approved on behalf of the landowner applicant and/or the operator.

C. A copy of this plan shall be available on site during harvest operations.

D. Each site will be periodically inspected by Local government and/or State inspectors for compliance with the approved plan. State and Local inspectors, as well as Kent Soil and Water Conservation District (District) personnel, may require Kent Soil and Water Conservation District approved plan modifications to this Plan as conditions dictate, to prevent movement of sediment from the site.

E. Failure to properly implement or maintain the practices required by this plan, or failure 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. Outstanding site work or outstanding correction orders issued by inspector must be resolved before other forest harvest operations can be reviewed and approved on behalf of the landowner applicant and/or the operator.

F. All erosion and sediment controls must be implemented in accordance with specifications contained in the document titled 2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations, available from the Maryland Department of Natural Resources - Forest Service, or the Maryland Department of the Environment.

- G. A copy of the approved plan and any applicable SMZ Plan(s) shall be available on site during harvest operations.
- H. The issuance of an approval by the MDE, KSWCD, or a jurisdiction not within a KSWCD, 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.

III. PLAN REQUIREMENTS

A. Site Maps

1. Site maps shall be prepared for all forest harvests and submitted with the plan application to the Kent Soil and Water Conservation District. The map(s) shall 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 or Custom 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).
4. The map topography, scale, and text must be both accurate and legible. All access points, landings, haul roads, skid trails, water bodies, uncut buffer areas, topography, harvest areas, and stream crossings must be identified on the maps. At a minimum, the harvest area must be delineated on all copies of the vicinity map, the U.S.G.S. topographic map, the soils map and on any other topographic maps required by the Kent Soil and Water Conservation District (District). The District may provide the landowner applicant or his/her agent with a copy of topographic maps available for public distribution. A more detailed map (larger scale) of SMZ areas must be provided when a SMZ plan is submitted. An accurate map scale must be provided for all maps.

B. Site Access

1. Access points to the site shall be stabilized with wood chips, corduroy logs, a stone stabilized construction entrance or other methods approved in the 2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations (see specifications for stabilized harvest entrance). Any soil or debris which is tracked onto off-site paved roads shall be removed and deposited in a controlled area by the end of each working day.
2. A grading or entrance permit may be required for a new entrance onto county or state road. Details may be obtained from the appropriate county, city permitting department or State Highway Administration.
3. Existing public road drainage shall not be blocked or damaged by access construction. Pipe culverts shall be installed to maintain existing drainage.
4. The stabilized construction entrance is to be removed at the end of the forest harvest per the 2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations, unless an entrance permit has been obtained from the county or city. Copy of the entrance permit must be submitted and made part of the Standard or Custom Plan.

C. Waterway Protection

1. Any required SMZ shall be marked and properly maintained. (See Specifications for Streamside Management Zone section.) Uncut buffer zones shall be marked and maintained on all sides of perennial or intermittent streams, rivers, lakes, ponds, bogs, marshes and wetlands. These features are identified on United States Geological Survey 7.5 Minute Series (topographic) quadrangle maps, and on other maps as applicable.

2. The minimum SMZ width is 100 feet on land with no slope (less than 1%). Where sloping land is encountered, the following formula shall be applied:

$$100 \text{ ft.} + (2 \text{ ft.} \times \% \text{ slope}) = \text{SMZ width (to a maximum of 150 ft.)}$$

Example for 20% Slope: $100 \text{ ft.} + (2 \text{ ft.} \times 20\%) = 100 \text{ ft.} + 40 \text{ ft.} = 140 \text{ ft. SMZ}$

Table 2 – SMZ Width vs. Site Slope

Slope %	Width of SMZ (ft.) on each side of watercourse
0	100
5	110
10	120
15	130
20	140

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 approved Plan, is submitted to and approved by the District. 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 operation.
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:
- Locating log decks and landing at least 100 feet from any Waters of the State.
 - Locating truck haul roads at least 100 feet from any Waters of the State.
 - Limiting skidding operations to single-pass trails within 100 feet of any Waters of the State.
 - Fell trees away from Waters of the State and remove any slash that enters Waters of the State.
 - Avoid crossing Waters of the State. When crossing is unavoidable, required permits must be obtained.
 - Stabilize within three (3) days any disturbed areas (damage to the humus layer) within 100 feet of Waters of the State unless other sediment control practices have been installed.
6. Roads, trails, and harvesting equipment shall not be allowed in any buffer area except to provide access to authorized stream crossings. The appropriate plan approval authority (District) may make exceptions for existing roads. Existing roads, if serviceable, and not creating a pollution problem, may be utilized if identified on the plan and approved by the appropriate plan approval authority (District).
7. The restriction on harvesting within the SMZ may be waived providing that a SMZ Plan (Referred to as *Streamside Management Plan* in the 2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations) is submitted to and approved by the Kent Soil and Water Conservation District as part of this Standard or Custom Plan. The SMZ Plan shall be designed by a licensed professional forester and must include the forest harvest method, the square footage of basal area to be removed and retained, provisions for removing and restocking the cut trees, the sediment and erosion control practices, and any other criteria established in the 2015 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations. All trees to be removed from the SMZ shall be marked at the base of the stump (so the mark remains after harvesting) by the professional forester in advance of the harvest operation. The SMZ plan is a plan modification to the Standard or Custom Plan and must be available on site during harvest operations.
8. Harvesting within SMZ areas must adhere to the following criteria. Basal area may not be reduced below 60 square feet of evenly distributed trees which are 6 inches or greater in diameter, measured at breast height. Any slash which inadvertently falls into adjacent water bodies must be removed to prevent waterway blockage. Roads, trails, and equipment will not be allowed within 100 feet of any water body except at approved stream crossings. Timber cut within this 100 foot area must be removed by cable.

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 unless said work is reflected on the Standard Plan approved by the Kent Soil and Water Conservation District. 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. 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 specifications contained in the 2005 Maryland Erosion and Sediment Control Standards and Specifications for Forest Harvest Operations.
4. Crossing of perennial or intermittent streams should be avoided. Where it becomes necessary to cross either a perennial or 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 stream.
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 District 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.
7. Skid trails and earth disturbance on slopes with highly erodible soils (as mapped on the attached soils map) must be stabilized with seed and mulch within 3 days of the completion of the harvest.

E. Landings and Log Decks:

Landings shall be located outside of the SMZ and at least 100 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. All unstable material (exposed soil) resulting from the construction of roads, skid trails and landings, with slopes greater than 30 percent and all perimeter slopes which are not adjacent to a buffer, shall be stabilized within 3 days of disturbance with seed and mulch.
2. 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.
3. 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 back-dragged, seeded and mulched according to standards and specifications. The surface of roads, landings, and skid trails less than 10 percent should be back-dragged 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/or mulch may be required (e.g. Highly Erodible Soil Types & Steep Slopes).
4. 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, wood chips, and compacted wood slash may be used as temporary stabilization practices

IV. REQUIRED PLAN CONTENTS

LOCATION MAP: The map shall identify the site location and provide directions and distances from the nearest major road intersection. Provide map at a legible map scale. Note the map scale.

SITE PLAN: Site maps or sketches shall be prepared for all harvests and submitted with the plan application to the Kent Soil and Water Conservation District. The map shall identify the site location and provide directions and distances from the nearest major road intersection. All access points, landings, haul roads, skid trails, steep slopes, water bodies, uncut buffer areas, and stream crossings must be identified on the map or sketch. A more detailed map of buffer areas is required when buffer management plans are submitted. Provide map at a legible map scale. Note the map scale. This plan will be reviewed by the DNR Forester, KSWCD, and Planning Department.

TOPOGRAPHY MAP: The harvest area and property boundaries must be identified on a copy of the U.S.G.S. topographic map and/or any other topographical map required by the Kent Soil and Water Conservation District. Show the forest harvest area, skid trails, haul roads, highly erodible soil types, steep slopes, road names and wet spots/wetlands. The topography map must be clear enough to show the practices necessary to prevent sediment and erosion impacts.

CUSTOM EROSION AND SEDIMENT CONTROL PLAN: (IF APPLICABLE)
Situations may arise when it is not possible, even with careful planning, to comply with all general requirements of a Standard Plan. In such cases, a Custom Plan is necessary. Two pieces of information must be included in a Custom Plan.

1. The first is a description of the Standard Plan requirements that cannot be met; the second is the specific erosion and sediment control measure(s) to be used for the forest harvest operation. A sketch or map of the harvest site that identifies this information must be submitted with a Custom Plan. For example, if proposed road grades exceed 15 percent, and turnouts are to be used to drain water from the road, the location of the turnouts must be noted. If stone is to be installed at the discharge end of the turnout to prevent side bank erosion, the location of the stone must also be shown.
2. Another example is locating a landing on a slope exceeding 10 percent. It may be necessary to install a silt fence or a straw bale dike on the downslope side of the landing to act as a sediment filter. In this case, the location of sediment controls and the type of final stabilization to be used at the landing must be noted on the custom plan.

The Kent Soil and Water Conservation District may require certification of a Custom Plan by a professional engineer, land surveyor, landscape architect, architect, or a LPF, verifying that the plan has been designed in accordance with the appropriate erosion and sediment control ordinances, regulations, standards, and criteria.

The Kent Soil and Water Conservation District has the option to require a specific design if a particular situation demands it. As an example, a proposed haul road exceeds the maximum limits set in the specification. Under such a situation, the Kent Soil and Water Conservation District may require a site-specific design demonstrating that the road will function as intended and remain stable. In summary, it is important to develop a Custom Plan that identifies the location and describes the specific erosion and sediment controls to be used whenever the Standard Plan requirements cannot be met.

STREAMSIDE MANAGEMENT ZONE AND SMZ PLAN: (IF APPLICABLE)
The establishment of a SMZ is required, at a minimum, along all blue line streams. A SMZ is generally required in lieu of structural measures such as silt fence, diversion dikes, and sediment traps.

Harvesting is allowed within a SMZ provided that a SMZ Plan is prepared by a LPF and approved by the Kent Soil and Water Conservation District. A SMZ Plan must be very specific when describing which trees are to be cut, what precautions for sediment control will be taken, and where the sediment controls will be located. The location of any harvesting within a SMZ must be identified on a sketch of the SMZ. The sediment controls to be used for waterway protection within the SMZ also must be identified on this sketch. If a SMZ Plan is required, all other Standard or Custom Plan criteria must still be met. If other conditions of the harvest necessitate a Custom Plan, requirements for harvesting within the SMZ will be made a part of the Plan.

Each site must be evaluated on its own individual characteristics and limitations. The Streamside Management Zone (SMZ) Plan must include an executed copy of the form shown on the next page.

STREAMSIDE MANAGEMENT ZONE (SMZ) PLAN

Landowner's Name: _____

Address: _____

Location: _____
(Attach a map indicating the location of streamside management zone, waterways, planned stream crossing, roads, main skid trails, and landings.)

Area in streamside management zone (SMZ): _____ acres
Drainage area of the stream: _____ acres
Number of stream crossings: _____
Width of SMZ (each side of stream): Range (min. – max. width) _____ feet
Average Width: _____ feet
Average Slope to waters: _____ %

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

Predominant tree species: _____

Dominant class size: _____ Dominant Understory: _____

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)

Anticipated second generation species: _____

Percentage of undesirable residual grown: _____ % Understory control plan: _____

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: _____
(Maryland Forest Service) – Printed Name – Signature – Date

Approved by: _____
(Kent Soil and Water Conservation District) – Printed Name – Signature – Date

Approved by: _____
(Kent County Planning and Zoning) – Printed Name – Signature – Date