

THE TOWN OF OAK BLUFFS
RULES AND REGULATIONS FOR THE FLOODPLAIN OVERLAY ZONING DISTRICT

1. Purpose.

The purpose of these Rules and Regulations is to establish uniform regulations and procedures for conducting the business managing the floodplain overlay district by the Board of Appeals acting as the Special Permit Granting Authority for the Floodplain Overlay District (FPOD) as established under Section 8.1 of the Zoning Bylaw.

2. Authority.

These Rules and Regulations are adopted by the Board of Appeals as authorized by M.G.L. Chapter 40A, Section 9, and by the Zoning Bylaw of the Town of Oak Bluffs.

3. Waiver of Strict Compliance.

These Rules and Regulations may be waived only if the Board of Appeals finds that the application contains all necessary information required by these Rules and Regulations, meets all applicable requirements of the Bylaw, and in the Board's opinion the granting of such waiver is in the public interest. Any request from an applicant for a waiver must be submitted in writing to the Board of Appeals identifying the waiver provision or provisions and description of how the waiver(s) is/are in the public interest and consistent with the intent and purpose of the Bylaw.

4. Pre-application Plan Review Committee Meeting.

The Plan Review Committee (PRC) consisting of representatives of the Zoning Board of Appeals, Conservation Commission, Board of Health, Planning Board, and the Cottage City Historic District Commission and Copeland Plan District Review Board when the site is within their jurisdiction was established under section 8.1.7 of the Oak Bluff's Zoning Bylaw. In addition to the members of the PRC stipulated in 8.1.7. A of the bylaw, the local building official shall be deemed an associate member of the PRC.

- A. **Procedures** – Prior to submitting an application for a FPOD Special Permit to the Zoning Board of Appeals, applicants may request to meet with the PRC in order to discuss the overlapping jurisdictions that regulate the project proposed within the FPOD. The PRC may also request a meeting with applicants prior to formal submission of a special permit.
- B. **Submission Requirements** – Applicants who meet with the PRC shall file the documents listed in Appendix 1. .
- C. **Role of Plan Review Committee** - In addition to the role of the PRC stipulated in 8.1.7. B, the PRC shall review the submissions and provide written comments to The Board of Appeals.

5. Application for Special Permit.

The Board of Appeals, acting as the Special Permit Granting Authority (SPGA), may authorize an FPOD Special Permit pursuant to the submission requirements and procedures outlined below.

- A. Submission Requirements** - An application for the FPOD Special Permit shall be submitted on the form provided by the Board of Appeals. Applicants for FPOD Special Permit shall also file with the Board of Appeals the documents listed in Appendix 2.
- B. Procedures** - Whenever an application for an FPOD Special Permit is filed with the Board of Appeals, the applicant shall also file, within five (5) working days of the filing of the completed application, copies of the application, accompanying development plan, and other required documentation listed in section 5.A to the Plan Review Committee and any other necessary board including: Building Inspector, Highway Department, Police Chief, Fire Chief, and Town Engineer for their consideration, review, report, and comments. The applicant shall furnish the copies necessary to fulfill this requirement. The PRC and other boards and officials shall submit to the Board of Appeals their reports and recommendations within thirty-five (35) days of receipt of all of the required materials; failure of these reviewing parties to make comments after having received copies of all such required materials shall be deemed a lack of opposition thereto. In the event that the public hearing by the Board of Appeals is held prior to the expiration of the thirty-five-day period, the Board of Appeals shall continue the public hearing to permit the formal submission of reports and recommendations within that thirty five-day period. The Decision/Findings of the Board of Appeals shall contain, in writing, an explanation for any departures from the recommendations of any reviewing party.
- C. Site Visit** - The Board of Appeals and/or the Plan Review Committee may conduct a site visit. At the site visit, the Board of Appeals and/or the Plan Review Committee and/or its agents shall be accompanied by the applicant and/or its agents.
- D. Modifications to Special Permit** - After issuance of a special permit, no changes of any kind shall be made to the application, permit, or any of the plans, specifications, or other documents submitted with the application without the written approval of the Board of Appeals.

6. Design Performance Criteria.

When designing projects pursuant to an FPOD Special Permit, the applicant shall follow the guidelines and criteria as specified below.

A. General Criteria.

1. Containers of any hazardous substance including propane and oil tanks shall not be placed in the floodplain without proper anchoring. These containers shall also be placed based on the rules of other departments including, but not limited to, the fire department, the police department, and the board of health.
2. During review of an application for a FPOD Special Permit, the Board of Appeals may determine that certain materials used on parcels within the FPOD—particularly within the V and AO Zones—may become storm debris and therefore would not be permitted. These materials include, but are not limited to:
 - a. Permeable pavers
 - b. Fencing (except that used for dune building)
 - c. Curbing or small retaining walls

B. Criteria for Construction Phase of the Project.

1. All demolition debris shall be removed from the site within 30 days of completion and not stored within a resource area or a buffer zone. If a dumpster is used to contain the debris, the

dumpster shall be covered. The debris shall be properly disposed of in accordance with applicable federal, state, and local regulations. No debris or trash shall be allowed to enter resource waters.

2. All construction material and excavation or fill materials shall be stored completely outside the FPOD when possible based on the boundaries of the parcel and the boundaries of the designated floodplain. When there is no available property outside the FPOD, these materials shall be stored in the area least likely to flood based on distance from water sources and topography.
3. Exposed, disturbed, or erodible soils shall be protected to minimize erosion, sedimentation, pollution, and damage to the subject and adjacent properties.

C. Criteria for Structural Changes.

1. All new or substantially improved structures, all additions or other alterations to structures, all substantially repaired construction, all reconstruction of a structure, and all substantially repaired foundations in the FPOD must avoid the following:
 - a. Impacts to the ability of the landform under the structure to dissipate energy associated with moving water and waves.
 - b. Altering vegetation so as to destabilize the storm damage protection and flood control functions.
 - c. Interrupting sediment supply.
 - d. Changing the form or volume of a coastal dune or beach.
 - e. Blocking or redirecting the ability of water and sediment to flow under the structure in a storm event, as this can exacerbate flooding and erosion of the land around the foundation.
 - f. Threatening adjacent structures and infrastructure by reflection and channelization of flows.
 - g. Having an adverse impact on the height, stability or use of the bank or dune as a natural sediment source.
 - h. Impeding the natural landward migration or erosion of coastal banks, dunes, beaches, barrier beaches, or other wetland.
 - i. Altering the drainage or run-off to the detriment of other landholders or the Town.
2. All projects must comply with elevation and foundation type requirements in the State Building Code 780 CMR 120.G (or as amended) for floodplains and coastal dunes, and any other regulations required by the Building Inspector.

D. Criteria for Utility Construction and Repairs.

1. Utilities (including but not limited to, sewage systems, heating and air conditioning) shall be designed and sited in such a way to avoid the following:
 - a. Reflecting, redirecting, or channelizing the flow of flood water that could increase erosion and storm damage to adjacent buildings and/or infrastructure and decrease function of the floodplain.
 - b. Adversely increasing the elevation or velocity of flood waters or increasing flows due to a change in drainage or flowage characteristics on the subject site, adjacent properties, or any public or private way.
 - c. Allowing infiltration of flood waters into the systems and discharges from the systems into flood waters.
 - d. Impairing the utility or contaminating the utility during flooding.

2. No new mounded septic systems are permitted in any V or AO zones. "In a case where a new mounded septic system is the only alternative to an existing septic system, the applicant may apply for a variance from the Board of Health.
3. Where mounded systems are proposed in A zones or to meet the requirement for vertical setbacks from groundwater, the proposed system shall not adversely affect any interest of the FPOD Bylaw and Regulations.
4. No newly constructed septic system shall be placed in coastal dune or on a coastal beach, except for an upgrade/replacement of a failed cesspool (as determined and/or ordered by the Board of Health), or a septic system that will likely fail in the immediate future (as determined by a RPE, Registered Sanitician, or the Health Inspector).
5. No newly constructed septic system shall be installed in soils with a percolation rate of five (5) minutes per inch where the distance of naturally occurring ground elevation to maximum ground water elevation is less than five (5) feet, and in soils with a percolation rate of less than five (5) minutes per inch where the distance of naturally occurring ground elevation to maximum ground water elevation is less than seven (7) feet.
6. Septic systems which pre-exist these regulations may be maintained and repaired, but not enlarged.

E. Criteria for Site Alterations.


1. The installation of new or replacement pavement, pavers, landscape ties, curbing, or retaining walls, shall not impede, retard, increase the velocity of, or change the direction of the flow of floodwaters or cause erosion or scour.
2. Where applicable, the applicant shall replace or install walkways or driveways with materials such as crushed stone, shells, or gravel to allow stormwater and coastal flood waters to infiltrate into the ground and to reduce the velocity of coastal floodwaters as it moves across the ground.
3. The applicant shall grade property (except beaches, and dunes) to direct stormwater away from the shoreline and toward planted areas, such as rain gardens, bio-retention cells, and other low impact development best management practices, provided grading does not result in 4a-c below, in order to reduce erosion of banks, dunes, and beaches, and to prevent contaminants from entering bays, harbors, and the ocean.
4. Fill may only be used for landscaping, site grading, or beach, dune, or bank nourishment, provided the fill does not:
 - a. Adversely affect flood storage capacity on or adjacent to the site.
 - b. Interfere with the passage of floodwaters and debris underneath the structure.
 - c. Result in wave runup, a deflection or channelization of floodwaters, or an increase in the velocity of flow that causes increased damages or drainage problems to adjacent buildings or infrastructure.
5. Any proposed project on a previously undeveloped site shall accommodate development in a way that minimizes clearing and re-grading, particularly in areas of steep slopes, erosion-prone areas, or sensitive vegetation.
6. For all redevelopment projects, development shall be concentrated in previously-disturbed areas to the maximum extent possible.

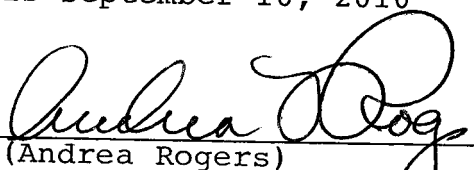
7. Landscape plans shall include plant species that are appropriate for coastal site conditions. Plants tolerant of salt spray and exposure to wind and waves shall be used to provide erosion control, a buffer to pollution, and habitat for wildlife. The applicant is strongly encouraged to discuss in the PRC meeting a plan for landscaping, to use the Coastal Landscaping Plant List provided in Appendix 3, or to use a landscaping plan approved by the Conservation Commission as part of an Order of Conditions.
8. The applicant shall not remove or destroy any stabilizing vegetation that is located on, or provides a buffer to, any bank, dune, beach, or marsh
9. For all development and redevelopment where a vegetated buffer does not exist, the applicant shall plant a buffer of approved salt-tolerant plants (not to include lawn grasses) landward of the resource area (or the top of the bank or bluff) to limit disturbance, to act as a stabilizing feature, and to filter runoff. A list of appropriate plants can be found in Appendix 3 - Coastal Landscaping Plant List.
10. A minimum of a 10-foot buffer will be required to be maintained between lawn areas and the edge of the bank, dune, beach, or wetland.
11. Plantings on banks and dunes are allowed to enhance the native vegetative cover, act as a stabilizing feature, reduce erosion, filter pollutants, and increase dune formation, provided the appropriate permits are received from other issuing authorities. A list of appropriate plants can be found in Appendix 3 - Coastal Landscaping Plant List.
12. On steep slopes where erosion is threatening property, biodegradable erosion fabric, such as coconut fiber or coir mesh, may be used as a temporary erosion control effort, before plants take root.


7. Severability.

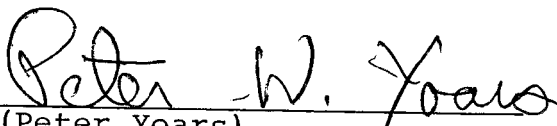
If any provision of these Rules and Regulations is held invalid by a court of competent jurisdiction, the remainder of these provisions shall not be affected thereby.

Approved by the Zoning Board of Appeals September 16, 2010


(Kris Chvatal)


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Appendix 1: Pre-application Submission Requirements

The Pre-application meeting is intended to facilitate the application process by providing both the applicant and the PRC with an understanding of the current site conditions and the opportunities and constraints to its use created by the existing and predicted flood hazards. The pre-application meeting allows projects to be reviewed while still in the conceptual design stage, allowing potential issues with the design to be addressed and alternative solutions to be proposed. It is anticipated that by requiring the submission information below, the resulting development plan will more appropriately reflect the conditions of the site. The pre-application meeting can also answer any questions an applicant may have regarding: the submittal requirements; the goals, objectives, and specific requirements of the FPOD bylaw and regulations; and the FPOD Special Permit review process. The following submission information will be useful for a pre-application meeting with the PRC.

1. **General Information** – The site inventory plan and all additional submission shall contain, at a minimum, the following information:
 - a. Names and addresses of the record owner and the applicant;
 - b. Names and addresses of all consultants working on the project;
 - c. Names and addresses of all abutting property owners;
 - d. Evidence of right, title, or interest in the property, and
 - e. The type of the intended project.
2. **Existing Site Inventory Plan** – A site plan from a registered PLS or engineer depicting existing conditions at a scale of not more than twenty feet (20) feet to the inch showing at a minimum:
 - a. Name of the property owner, north arrow, date, and scale.
 - b. Boundaries of the parcel.
 - c. Contour elevations of the site, with contour intervals equal to one foot. .
 - d. Hydrology of the site, including drainage courses, wetlands, streams, ponds, coastal storm water paths.
 - e. Setbacks.
 - f. Existing buildings, structures, or other improvements on the site (if applicable).
 - g. Location and size of existing utilities or improvements servicing the site (if applicable).
 - h. Each distinct 100-year flood zone, boundaries between flood zones, and the associated base flood elevations, as designated on the FEMA flood maps dated July 6, 2010, and as established in the Floodplain Overlay District (FPOD).
 - i. Relationship of the site to the surrounding area (including distance to water bodies).
 - j. Existing restrictions or easements on the site (if applicable).
3. **Site Analysis Sketch Plan** – A site analysis sketch narrative and/or plan at the same scale as the inventory plan, highlighting the opportunities and constraints of the site. This plan should indicate the following:
 - a. Portions of the site suitable for development or use.
 - b. Portions of the site suitable for on-site sewage disposal if public sewerage is not available.
 - c. Areas of the site that have development limitations (e.g., steep slope, soil constraints, wetlands, flood plains, drainage) which must be addressed in the development plan.
 - d. Suitable access points and routes for roads and utilities.
 - e. Areas where there may be off-site conflicts or concerns (i.e., noise, lighting, traffic).
4. **Proposed Change** – a narrative of the proposed work and a plan at the same scale as the site plan outlining the proposed project and changes to the site.

Appendix 2 – FPOD Special Permit Submission Criteria

The following documents and plans shall be submitted to the Zoning Board of Appeals when applying for a FPOD Special Permit:

1. All Approvals and Necessary Documentation from Other Boards – including, but not limited to:

- Conservation Commission Including a Landscape and Drainage Plan as part of an approved Order of Conditions including but not limited to:
Proposed landscape alterations, such as clearing, cutting or removal of vegetation; the grading, excavation or filling of sediments; and the planting of new vegetation
A planting plan, including the type and planting location of proposed plants
the location, area and material used for any proposed walkway, patio, deck, retaining wall, or other hardscaping feature
A drainage plan addressing roof and storm water run=off
- Board of Health.
- Planning Board.
- Cottage City Historic District Commission.
- Copeland Plan District Review Board.
- Building Inspector.
 - Flood Elevation Certificates -Where the building is located in an “A” “AO” or “V” flood hazard area as designated on the Federal Emergency Management Agency FIRM Maps, the applicant shall submit an “*Elevation Certificate*,” or “*Floodproofing Certificate*,” completed by a registered land surveyor, engineer, or architect.
 - Flood-proofing - The applicant shall submit any other specifications for flood-proofing (if appropriate in the designated flood zone and resource area), such as anchoring of the building to resist flotation, collapse, and lateral movement; installation of watertight closures for doors and windows; reinforcement of walls to withstand floodwater pressures and impact forces generated by floating debris; use of membranes and other sealants to reduce seepage of floodwater through walls and wall penetrations; installation of pumps to control interior water levels; installation of check valves to prevent the entrance of floodwater or sewage flows through utilities; and the location of electrical, mechanical, utility, and other valuable damageable equipment and contents above the expected flood level.

2. Site Plans - Two stamped plans at a ¼ inch scale must be submitted. All plans must be referenced to NAVD88. Plans at a minimum should include the following elements:

- A title designating the project location, the name of the person preparing the drawings, the date prepared, including latest revision dates, and the scale being used.
- The site dimensions of the property, including property lines and any easements.
- The location, dimension, and area of all proposed and existing structures and paved areas.
- Elevations, referenced to NAVD88, of the lowest finished floor of the building and the surrounding grade.
- The location and elevations of any natural features, such as water bodies, wetlands, coastal banks, coastal dunes, and salt marshes, and their distance from structures.
- Site topography, including existing and proposed contour intervals of the site, with maximum contour intervals to equal 1feet.
- Location and amount of any areas to be cleared, graded, excavated, filled, or altered, and the location and dimensions of any earth retention structures, such as retaining walls or riprap.
- Location of any existing or proposed underground or above-ground utilities.
- Location of any septic system, including tank and soil adsorption system/leach trench.

- Location and type of all of impervious surfaces, including a calculation for coverage of impervious surface in square feet.
 - Each distinct 100-year flood zone, boundaries between flood zones, and the associated base flood elevations, as designated on the FEMA flood maps dated July 6, 2010, and as established in the Floodplain Overlay District (FPOD). The applicant must provide a description of what source was used for flood information, and explain how the flood zones were delineated on the plan (the boundary between the V and A or AO zones should be scaled; the landward boundary of the A or AO zones should be based on elevation). If FEMA produces approximate maps showing the a more landward or higher extent of the flood plain following a major storm event, the more conservative flood zone information shall be used to determine the extent of flood zones on the project plans.
3. **Floor Plans** - Overall plans, presented at a standard architectural scale, keyed to the site plan, and showing the basic layout and construction of walls, windows, doors, and other structural features affecting, or affected by the wind, and the flood design of the structure. The floor plan must include the overall floor area of the structure.
 4. **Building Information** - The following information may be included in the floor plan or as a stand-alone document:
 - The occupancy plans for the building – number of individuals / families.
 - Type of construction (e.g., wood with studs, brick).
 - The intended height of the building and the number of floors.
 - Gross living area.
 - Porches and other attached structural areas.
 - Unattached structural area.
 - Current floor area.
 5. **Foundation Plans and Details** - Overall plans, presented at a standard architectural scale, minimum ¼ inch, keyed to the floor plan, and showing the basic layout and construction details of piers, footings, foundation walls (sometimes called stem walls). Details should indicate placement and sizes of reinforcement steel, depths of proposed footings and/or pilings, heights of foundations walls and piers, and specific anchorage of walls to footings as designed to resist shear and uplift of the building. Plans should also include detailed designs for any portions of the structure proposed below the BFE (e.g. access stairs, storage, utilities)
 6. **Costs** - If an improvement to an existing structure is proposed, adequate information on the cost of the improvement and the market value of the structure before the improvement must be supplied to the local permitting official to allow a determination of substantial improvement. In order to make the determination the applicant shall provide two appraisals; in the absence of two appraisals the permitting officials may use tax assessment records.
 7. **Construction plans** - The applicant shall submit details of proposed activities during construction in a plan or narrative format. They should include information on the equipment being used; the land alterations being made; erosion and sedimentation prevention plans during and after construction; methods for protecting exposed and cleared areas of the site during extended shutdowns due to weather, economic conditions, or any other cause; and other changes that will occur at the site.
 8. **Design Compliance** - The applicant shall submit stamped professional engineers or registered architects design calculations and certification showing that the proposed activity has been designed to be in compliance with these regulations.

9. **Additional Documents** - The Board of Appeals may require additional documents in order to ensure that the project is in the public interest and consistent with the intent and purpose of the FPOD Bylaw. These documents may include, but are not limited to:
- An impact analysis with all calculations necessary to show the effect of the proposed structure and/or activities on soil and water, including groundwater, surface water, and storm waves.
 - Based on the drainage areas and physical features shown on the plans, the calculation of runoff volumes, peak discharge rates, velocities and times of concentration for 24-hour duration storms of return periods of 2, 10, and 100 years. Calculations must show the existing condition, the condition at completion of the proposed work, and the condition upon further development planned or reasonably anticipated for the site. The 100-year, 24-hour storm shall be evaluated to show that there will be no offsite increased flooding impacts.

Appendix 3 – Coastal Landscaping Plant List

The plants in the following lists are appropriate choices for the rugged coastal conditions of Massachusetts. The plant selections within the coastal beach plant list, coastal dune plant list, and coastal bank plant list are appropriate for the specified coastal environment, though some of the plants may overlap due to their ability to tolerate various conditions.

Coastal Beach Plant List

Plant list of Sheltered Intertidal Areas

Sheltered intertidal areas (between the low-tide and high-tide line) of beach, marsh, and even rocky environments are home to particular plant species that can tolerate extreme fluctuations in water, salinity, and temperature. The following plants are appropriate for these conditions.

- Black grass (*Juncus gerardii*)
- Cordgrass, Saltmarsh (*Spartina alterniflora*)
- Cordgrass, Saltmeadow (*Spartina patens*)
- Lavender, Sea (*Limonium carolinianum* or *nashii*)
- Spike grass (*Distichlis spicata*)

Plant List for a Dry Beach

Dry beach areas are home to plants that can tolerate wind, wind-blown sand, salt spray, and regular interaction with waves and flood waters. Certain plants actually thrive on accumulations of sand to help them grow. The plants listed below are appropriate for dry beach conditions.

- Beachgrass, American (*Ammophila breviligulata*)
- Cordgrass, Saltmeadow (*Spartina patens*)
- Flatsedge, Seaside (*Cyperus filicinus*)
- Goldenrod, Seaside (*Solidago sempervirens*)
- Orache, Seabeach (*Atriplex pentandra*)
- Pea, Beach (*Lathyrus japonicus*)
- Saltwort, Seabeach (*Salsola kali* ssp. *kali*) (not native)
- Sandwort, Seabeach (*Honckenya peploides*)
- Sea Rocket (*Cakile edentula*)

Coastal Dune Plant List

Plant List for Exposed Areas of a Coastal Dune

Fronting dunes and exposed secondary dunes are habitat for plant species that can tolerate wind, wind-blown sand, and salt spray; endure interaction with waves and flooding; and often even thrive on sand inundation. The plants listed below, as well as those listed above for dry beach areas, are appropriate for these environments.

- Beachgrass, American (*Ammophila breviligulata*)
- Dunegrass, American (*Leymus mollis*)
- Dusty Miller (*Artemisia stelleriana*) (not native)
- Heather, Beach (*Hudsonia tomentosa*)

Plant List for More Sheltered Areas of a Coastal Dune

More protected secondary dunes are able to host a greater variety of plant species, because they are more sheltered from wind, salt-spray, and wave action. The plants listed below, as well as those listed above for exposed coastal dunes, are appropriate for these more sheltered dune environments.

Grasses, Perennials, and Vines

- Aster, Eastern Showy (*Eurybia spectabilis*)
- Cordgrass, Saltmeadow (*Spartina patens*)
- Creeper, Virginia (*Parthenocissus quinquefolia*)
- Lavender, Sea (*Limonium carolinianum* or *nashii*.)
- Panic Grass, Coastal (*Panicum amarum*)
- Switchgrass (*Panicum virgatum*)

Shrubs and Groundcovers

- Bayberry, Northern (*Myrica pensylvanica*)
- Bearberry (*Arctostaphylos uva-ursi*)
- Blueberry, Lowbush (*Vaccinium angustifolium*)
- Chokeberry, Red (*Aronia arbutifolia*)
- Cranberry (*Vaccinium macrocarpon*)
- Fern, Sweet (*Comptonia peregrina*)
- Heather (*Calluna vulgaris*) (not native)
- Juniper, Creeping (*Juniperus horizontalis*)
- Plum, Beach (*Prunus maritima*)
- Rose, Rugosa (*Rosa rugosa*) (non-native) (potentially invasive)
- Rose, Virginia (*Rosa virginiana*)
- Sea-Buckthorn, Common (*Hippophae rhamnoides*) (native to Canada)

Trees

- Birch, Gray (*Betula populifolia*)
- Cherry, Black (*Prunus serotina*)
- Oaks (*Quercus* spp.)
- Pine, Austrian (*Pinus nigra*)
- Pine, Pitch (*Pinus rigida*)
- Red Cedar, Eastern (*Juniperus virginiana*)
- Serviceberry/Shadbush, Downy (*Amelanchier arborea*)

Coastal Bank Plant List

Plant List for Exposed Areas of a Coastal Bank

The top and face of the coastal bank is where the landform is most exposed to wind, salt spray, and storm waves. The plants listed below are appropriate for the rugged conditions of an exposed coastal bank.

Grasses, Perennials, and Vines

- Beachgrass, American (*Ammophila breviligulata*)
- Cordgrass, Saltmeadow (*Spartina patens*)
- Creeper, Virginia (*Parthenocissus quinquefolia*)
- Goldenrod, Seaside (*Solidago sempervirens*)
- Panic Grass, Coastal (*Panicum amarum*)
- Switchgrass (*Panicum virgatum*)

Shrubs and Groundcovers

- Bayberry, Northern (*Myrica pensylvanica*)
- Bearberry (*Arctostaphylos uva-ursi*)
- Fern, Sweet (*Comptonia peregrina*)
- Heather, Beach (*Hudsonia tomentosa*)
- Juniper, Creeping (*Juniperus horizontalis*)
- Juniper, Shore (*Juniperus conferta*) (not native)

- Plum, Beach (*Prunus maritima*)

Trees

- Cherry, Black (*Prunus serotina*)
- Oak, various species (*Quercus* spp.)
- Pine, Pitch (*Pinus rigida*)
- Red Cedar, Eastern (*Juniperus virginiana*)
- Spruce, White (*Picea glauca*)

Plant List for More Sheltered Areas of a Coastal Bank

Areas landward of the top of coastal bank are more protected from wave action, but may still be significantly affected by wind and salt spray. The plants listed below, as well as those listed above for exposed areas of a coastal bank, are appropriate for these more protected areas of the coastal bank.

Grasses, Perennials, and Vines

- Aster, Eastern Showy (*Eurybia spectabilis*)
- Bluestem, Little (*Schizachyrium scoparium*)
- Columbine, Red (*Aquilegia canadensis*)
- Coreopsis, Thread-leaf (*Coreopsis verticillata*)
- Daylily (*Heemerocallis* spp.) (not native)
- Dusty Miller (*Artemisia stelleriana*) (not native)
- Fescue, Red (*Festuca rubra*)
- Fescue, Sheep (*Festuca ovina*) (not native)
- Goldenrod, Sweet (*Solidago odorata*)
- Hairgrass, Wavy (*Deschampsia flexuosa*)
- Lavender, English (*Lavandula angustifolia*) (not native)
- Mallow, Seashore (*Kosteletzkya virginica*)
- Miscanthus (*Miscanthus sinensis*)
- Moor Grass, Variegated Purple (*Molina caerulea variegata*) (not native)
- Reed Grass, Feather (*Calamagrostis acutiflora*) (not native)
- Sage, Russian (*Perovskia atriplicifolia*) (not native)
- Sedge, Pennsylvania (*Carex pensylvanica*)
- St. Johnswort (*Hypericum* spp.) (some not native)
- Thyme (*Thymus* spp.) (not native)
- Yarrow, Common (*Achillea millefolium*)

Shrubs and Groundcovers

- Blueberry, Highbush (*Vaccinium corymbosum*)
- Blueberry, Lowbush (*Vaccinium angustifolium*)
- Chokeberry, Black (*Aronia melanocarpa*)
- Chokeberry, Red (*Aronia arbutifolia*)
- Cinquefoil, Bush (*Potentilla fruticosa*)
- Cotoneaster (*Cotoneaster* spp.) (not native)
- Elder, Marsh (*Iva frutescens*)
- Elderberry (*Sambucus Canadensis*)
- Heather (*Calluna vulgaris*) (not native)
- Hydrangea, Bigleaf (*Hydrangea macrophylla*) (not native)
- Hydrangea, Climbing (*Hydrangea anomala* subsp. *Petiolaris*) (not native)
- Inkberry (*Ilex glabra*)
- Leucothoe, Coast (*Leucothoe axillaries*) (native to southern United States)
- Nannyberry (*Viburnum lentago*)

- New Jersey Tea (*Ceanothus americanus*)
- Ninebark, Eastern (*Physocarpus opulifolius*)
- Northern Wild Raisin (*Viburnum cassinoides*)
- Rose, Rugosa (*Rosa rugosa*) (non-native) (potentially invasive)
- Rose, Virginia (*Rosa virginiana*)
- Sea-Buckthorn, Common (*Hippophae rhamnoides*) (native to Canada)
- Serviceberry/Shadbush, Downy (*Amelanchier canadensis*)
- Spirea, various species (*Spirea* spp.) (not native)
- Sumac, Fragrant (*Rhus aromatica*)
- Sumac, Shining (*Rhus copallina*)
- Sumac, Smooth (*Rhus glabra*)
- Sumac, Staghorn (*Rhus hirta*)
- Sweet Pepperbush, Coastal (*Clethra alnifolia*)
- Viburnum, Arrowwood (*Viburnum dentatum*)
- Viburnum, various species (*Viburnum* spp.) (some not native)
- Virginia Sweetspire (*Itea virginica*) (native to southern United States)
- Winterberry (*Ilex verticillata*)

Trees

- Ash, Green (*Fraxinus pennsylvanica*)
- Arborvitae, Eastern (*Thuja occidentalis*)
- Birch, Gray (*Betula populifolia*)
- Cedar, Atlantic White (*Chamaecyparis thyoides*)
- Crabapple, various cultivars (*Malus* spp.) (some not native)
- Holly, American (*Ilex opaca*)
- Linden, Littleleaf (*Tilia cordata*) (not native)
- Locust, Honey (*Gleditsia triacanthos*)
- Magnolia, Sweet Bay (*Magnolia virginiana*)
- Maple, Red (*Acer rubrum*)
- Maple, Sycamore (*Acer pseudoplatanus*)
- Pine, Japanese White (*Pinus parviflora*) (not native)
- Pine, Scotch (*Pinus sylvestris*) (not native)
- Pine, Swiss Stone (*Pinus cembra*) (not native)
- Sassafras (*Sassafras albidum*)
- Silk Tree (*Albizia julibrissin*) (not native)
- Spruce, Colorado (*Picea pungens*) (native to southwestern United States)
- Tupelo (*Nyssa sylvatica*)
- Willow (*Salix* spp.)