



FINDINGS OF FACT STAFF REPORT

Date: December 23, 2008 OPRD Coastal Land Use Coordinator: Tony Stein

OPRD File Number: BA-651-08 County: Tillamook Applicants: Patrick Bowman

Project Location: 17850 Ocean Boulevard, Rockaway Beach
Tillamook County Assessor's Map # 01N, 10W, 07DA, tax lot 2000.

Brief Project Description: The application seeks to convert the existing Emergency Permit (BA# 640-08) issued February 29th, 2008 into a permanent shoreline protection structure. The proposed project involves the construction of a riprap revetment approximately 80 feet in length and 17 feet in height above the beach level. The rip rap revetment will be installed on a varied slope between 1H to 1V to 1H to 2V, and extend from 13 feet to 20 feet beyond the toe of the slope onto the ocean shore. The structure will tie into an existing riprap revetment (BA # 627-07) fronting the Bowman residence and adjacent properties to the south.

ADMINISTRATIVE RULE STANDARDS AND RELEVANT FACTS

I. GENERAL STANDARDS, OAR 736-020-0010

Project Need – There shall be adequate justification for a project to occur on and alter the ocean shore area.

During the winter of 2007/2008, the formation of a very large rip embayment fronting the subject property caused rapid sand erosion and a lowering of beach elevations along this section of the beach. Significant ocean conditions in conjunction with this rip embayment resulted in a direct and continuous wave attack on the dune bluff and on the northern flank of the existing rip rap revetment. Beach sand eroded rapidly at the base of the dune adjacent to the subject property, removing existing vegetation and causing the northern flank of the riprap to unravel. Set back measurements from the top of the dune bluff to the foundation of the Bowman residence was 15 feet. OPRD staff authorized emergency shoreline protection for the Bowman property on February 29th, 2008. The previous year, in October 2007, OPRD issued permit (BA# 627-07) to Robert Abbott, Glenn Shannon and Patrick Bowman to convert an Emergency Permit (BA# 622-07) to a permanent shoreline protective structure fronting the three properties.

A geologic hazard report included in the application (Professional Services Industries, Inc., June 22, 2007) and a Dune Hazard Report Update (Professional Services Industries Inc, October 7, 2008) document the conditions of the site during the winter of 2006/2007 and after the winter of 2007/2008, respectively. The PSI geologic report, October 7th, 2008, summarizes last season's erosion rates, current condition of the existing riprap and project need. It states that "the northern 20 feet of riprap placed on the property was completely razed by wave erosion. Along the northern property line, the dune had receded approximately 72 feet since November 19th, 2007. The foredune to the north of the property appears to have receded up to 85 feet from the time the riprap was placed."

A finding of project need follows the review of all other applicable standards and is included in the findings summary at the end of this report.

Protection of Public Rights – Public ownership of or use easement rights on the ocean shore shall be adequately protected.

The proposed riprap would occupy an approximately 80 foot width of beach area along the base of the 17-foot high bluff. The presence of the riprap and the encroachment on the ocean shore will reduce the amount of usable beach area. In evaluating similar riprap projects, OPRD has found this amount of encroachment to be acceptable when the need for the project was considered justified. The project will occupy an estimated 1,320 square feet of beach area which was previously available for public use.

Public Laws – The applicant shall comply with federal, state, and local laws and regulations affecting the project.

The Tillamook County Department of Community Development has certified that the project is in compliance with the Tillamook County Comprehensive Plan and Land Use Code. State of Oregon regulations are being addressed under the review of this permit. Federal regulations could potentially involve a U.S. Army Corps of Engineers permit. However, a Corps permit is usually not required for this type of project. A condition of the permit will require that the applicants obtain any required permits from the Corps, if applicable.

Alterations and Project Modifications – There are no reasonable alternatives to the proposed activity or project modifications that would better protect the public rights, reduce or eliminate the detrimental affects on the ocean shore, or avoid long-term cost to the public.

According to the application, to avoid the bluff erosion hazard it was determined that it was impractical to relocate the Bowman home because of its large size and the high relocation cost. Submitted with the application was an estimate from Emmert International to relocate the Bowman home, minus the cost of foundation engineering, foundation costs and additional services. The preliminary relocation “only “estimate was for \$31,400 which is less than the total cost of the proposed riprap at \$32,000.

Determining future maintenance, rebuilding and repair costs over the life of the proposed structure and comparing those costs to home relocation have not been analyzed and are not included in the application. The proposed 1H: 1V and 1H: 2V riprap revetment design may be costlier (than relocation) over time due to potential failure and constant repair. The steep slope of the proposed riprap could be impacted by wave run-up and wave forces that could unravel and undermine the near vertical structure. An analysis of alternative designs such as home relocation or other types of shoreline protection structures were not sufficiently addressed in the application.

In addition, the adjacent vacant property to the north (TL 1900) does not meet Goal 18 requirements for shoreline protection. To provide the appropriate 1:5H to 1V or 2H to 1V design slope for the Bowman property, it would be necessary to extend the Bowman riprap footprint onto the property. This action would not meet the intent of Goal 18, Implementation Requirement 5, as properties developed after January 1, 1977, are ineligible for hard shoreline protective structures.

Other alternatives, such as vegetative stabilization, sand alteration, cobble berms and non-structural enhancement west of the existing dune slope, are not addressed in the geologic report.

The geologic report recommends a riprap revetment to limit additional shoreline erosion.

Public Costs – There are no reasonable special measures which might reduce or eliminate significant public costs. Prior to submission of the application, the applicant shall consider alternatives such as nonstructural solutions, provision for ultimate removal responsibility for structures when no longer needed, reclamation of excavation pits, mitigation of project damages to public interests, or a time limit on project life to allow for changes in public interest.

Public costs associated with the proposed riprap will be the loss of approximately 1,320 square feet of upper beach area. Alternative shore protection methods other than riprap have not been discussed above. These alternatives may be considered reasonable special measures, and may provide the needed long-term protection for the property.

Compliance with LCDC Goals – The proposed project shall be evaluated against the applicable criteria included within Statewide Planning Goals administered by the Department of Land Conservation and Development.

Tillamook County has certified that the project is in compliance with the Lincoln County Comprehensive Plan and Land Use Code, which are acknowledged by LCDC as meeting the Statewide Planning Goal requirements.

II. SCENIC STANDARDS, OAR 736-020-0015

Projects on the ocean shore shall be designed to minimize damage to the scenic attraction of the ocean shore area.

Natural Features – The project shall retain the scenic attraction of key natural features, for example, beaches, headlands cliffs, sea stacks, streams, tide pools, bedrock formations, fossil beds and ancient forest remains.

The project would cover the existing dune face, and encroach some distance out onto the ocean shore., This level of scenic alteration has been acceptable for other riprap projects where the need for the project has been justified and where alternatives have been adequately considered.

Shoreline Vegetation – The project shall retain or restore existing vegetation on the ocean shore when vital to scenic values.

There is no existing vegetation that would be affected by the proposed riprap revetment.

View Obstruction – The project shall avoid or minimize obstruction of existing views of the ocean and beaches from adjacent properties.

The proposed riprap revetment would not affect existing views from adjacent properties.

Compatibility with Surroundings – The project shall blend in with the existing shoreline scenery (type of construction, color, etc.).

Other riprap revetments are located to the south of the subject property, and the proposed project will be similar to these existing structures.

III. RECREATION USE STANDARDS, OAR 736-020-0020

Recreation Use – The project shall not be a detriment to public recreation use opportunities within the ocean shore area except in those cases where it is determined necessary to protect sensitive biological resources such as state or federally listed species.

The riprap would occupy some beach area, but would not significantly affect public recreation use opportunities. The proposed structure is orientated in an east/west direction and will occupy an area of approximately 1,320 square feet. During extreme high tides in the winter, wave run-up can reach the upper areas of the beach, and may cover the entire beach at times. During normal conditions, however, the existence of the riprap would not be a detriment to typical recreation uses.

Recreation Access – The project shall avoid blocking off or obstructing public access routes within the ocean shore area except in those cases where it is determined necessary to protect sensitive biological resources such as state or federally listed species.

Riprap revetments encroach some distance out from the natural bluff toe, and increase the chance of high water covering the entire beach area. Under normal conditions, the structure will not block or obstruct any important public access routes within the ocean shore area.

IV. SAFETY STANDARDS, OAR 736-020-0030

The project shall be designed to avoid or minimize safety hazards to the public and shoreline properties. The following safety standards shall be applied, where applicable, to each application for an ocean shore permit.

Structural Safety – The project shall not be a safety hazard to the public due to inadequate structural foundations, lack of bank stability, or the use of weak materials subject to rapid ocean damage.

The proposed 1H: 1V and 1H: 2V slope designs have been used in the past for ocean front riprap revetments and have shown to have a high rate of instability and structure failure. Although the proposed structure is orientated in an east west line along the northern boundary of the Bowman property, wave run-up and wave attack on this steep, near-vertical structure could result in an unstable revetment. Rocks would be placed individually to form an interlocking structure, as is the standard practice for revetment design, but utilizing varied rock sizes from 3 to 5 feet could initiate displacement of rock from the top and unraveling of the flanked corner of the structure. Over-topping waves and subsequent water seepage through the bluff face could also compromise the design integrity of the pit run fill, filter fabric and the use of smaller rock placed. This situation is worsened by the fact that there is no underlying sandstone or bedrock to anchor the riprap into at this location. Frequent riprap repair and/or serious damage to the revetment could be expected and may cause a safety hazard to the public.

Obstructional Hazards – the project shall minimize obstructions to pedestrians or vehicles going onto or along the ocean shore area.

During high water events during the winter, wave run-up can cover the entire beach, washing up the unprotected foredunes and riprap revetments. Any level of encroachment onto the beach would increase the chance of the entire beach being submerged, leaving no room for pedestrians or emergency vehicles.

Neighboring Properties – The project shall be designed to avoid or minimize ocean erosion or safety problems for neighboring properties.

The riprap will be tied into the existing riprap structure fronting the Bowman residence and properties to the south. The adjacent property (TL 1900, vacant lot) to the north is unprotected and was undeveloped as of January 1st, 1977.

Property Protection – Beachfront property protection projects shall be designed to accomplish a reasonable degree of increased safety for the on-shore property to be protected.

The purpose of the proposed revetment is to provide protection to the upland residence along the northern property boundary.

V. NATURAL AND CULTURAL RESOURCE STANDARDS, OAR 736-020-0030

Projects on the ocean shore shall avoid or minimize damage to the following natural resources, habitat, or ocean shore conditions, and where applicable, shall not violate state standards:

Fish and wildlife resources including rare, threatened or endangered species and fish and wildlife habitats.

There are no reported fish and wildlife resources that would be impacted by the proposed project.

Estuarine values and navigation interests.

The proposed project is not adjacent to an estuary, and would not affect navigable water on the ocean.

Historic, cultural and archeological sites.

Notice of the application was provided to the State Historic Preservation Office, and to the Confederated Tribes of Siletz and the Confederated Tribes of Grand Ronde. There were no reports of historic, cultural, or archeological sites at this location.

Natural areas (vegetation or aquatic features).

There is no existing significant vegetation or aquatic features that would be impacted by the proposed riprap.

Air and water quality of the ocean shore area.

The project would take place above the ordinary high tide line, and would not cause foreign materials or pollutants to enter the water. Riprap placed at the site will be free of debris or foreign materials. The proposed project will not adversely affect water quality on the ocean shore. Air quality will not be affected, except for a negligible amount of exhaust from the use of heavy equipment during the construction period.

Areas of geologic interest, fossil beds, ancient forest remnants.

None of these features have been identified at the site.

When necessary to protect native plant communities or fish and wildlife habitat on the subject or adjacent properties, only native, non-invasive, plant species shall be used for revegetation.

The site is within a developed residential area, and there are no known protected native plant communities or fish and wildlife habitat on or adjacent to the subject property.

VI. PUBLIC COMMENT

Notice of the proposed project was posted at the site for 30 days in accordance with ORS 390.650. Individual notification and a copy of the application were mailed to government agencies and individuals on OPRD's ocean shore mailing list. During the comment period, one request was received for a public hearing. The individual also sent in comments in opposition to the permit application. In addition, OPRD received one letter in support of the permit application.

VII. FINDINGS SUMMARY

Project Need – The proposed riprap is necessary to provide protection from ocean caused erosion. Recent loss of beach sand and the erosion of the dune face and proximity of the home to the edge of the dune escarpment have caused the geologist to recommend the riprap revetment. There is evidence of significant active erosion, in the form of end cutting and unraveling of the north flank of the riprap revetment.

Alteration and Project Modification – There may be other reasonable alternatives for controlling the erosion and protecting the residence that were not addressed in the application. Home relocation and alternative designs such as lowering the slope of the riprap towards the structure, metal sheet pile, bulkhead type walls or other options were not considered in the supporting documents.

Relocation of the home may be a reasonable alternative due to available space on the eastern portion of the property. The distance from the eastern property edge to the nearest the building is 347 feet, and the Bowman home footprint is estimated to be 40 feet by 60 feet fronting the western edge of the property. The application included a cost estimate for moving the house, but did not include a cost estimate for building a new foundation and utility hook-ups.

To construct a standard 1:5H to 1V or 2H: 1V slope for the proposed riprap revetment, it may be necessary to relocate the home further east on the property. If feasible, it would also allow for designing the riprap structure to follow a natural curve along the dune bank. This action may be a more long term solution for structural integrity while minimizing erosion to the adjacent property to the north. Historic aerial photographs and a 1967 Oregon State Highway Department aerial photograph show that this property had an easterly eroding dune face with adjacent low elevation properties receiving extensive wave run-up and log deposition over time.

Depending on the structure location, geology, beach profiles and other factors, different types of shoreline protective structures including sheet pile or other types of vertical bulkheads have been used on other coastal properties, where adequate space was not available to place riprap revetments at a stable 1:5H to 1V or 2H: 1V slope. These alternative designs, their stability and limitations in this situation were not considered in the application.

Structural Safety – Although the need has been justified, the submitted design from HLB otak does not meet general standards for riprap placement on the ocean shore. Varying the placement of riprap rock on slopes of 1H:1V or 1H:2V is a design technique used for other types of soil/rock conditions, but rarely used for protecting oceanfront properties in a high energy dune-backed beach environment.

The Bowman residence, which was allowed shoreline protection under OPRD permit BA# 627-07, submitted a riprap design at a slope of 2:1 by the consulting engineer (HLB otak) for this location. As this area has received continuous wave attack and toe erosion of the riprap, this has resulted in riprap repairs only a short period after the original construction. A riprap structure design at 1H: 1V or 1H: 2V appears to be unstable and insufficient to withstand the wave run-up and wave overtopping that can occur at this site.

Based on the above considerations, OPRD finds that there is not adequate justification for the project to occur on and alter the ocean shore area.

The following checklist summarizes whether the application satisfies the general, scenic, recreation, safety and natural and cultural resource standards as defined in OAR 736-020-0010 through 736-020-0030:

Standard	Yes	No	Standard	Yes	No
Project Need	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Structural Safety	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Protection of Public Rights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Obstructional Hazards	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Laws	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Neighboring Properties	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Alteration and Project Modifications	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Property Protection	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Public Costs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fish and Wildlife Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Compliance with LCDC Goals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Estuarine Values and Navigation Interests	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Features	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Historic, Cultural and Archeological Sites	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shoreline Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Natural Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>
View Obstruction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Air and Water Quality of the ocean shore	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Compatibility with Surroundings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Areas of Geologic Interest	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Use of Native Plant Species when Necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. STAFF RECOMMENDATION:

Based on an analysis of the facts and in consideration of the standards evaluated under OAR-736-020-0005 through OAR 736-020-0030, I recommend the following action:

- Approval
- Approval with conditions
- Denial

Tony Stein
Coastal Land Use Coordinator