

19.0 FLOODING

The Site Location of Development Standard regarding flooding impacts states that the activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure (38 MRSA 484.7).

19.1 Potential Flooding Impacts

Standards regarding no unreasonable effect on Runoff/Infiltration Relationships with respect to the proposed site development stormwater management are addressed in Section 12 of this application (096 CMR 375.4). The stormwater management systems for the proposed development are designed such that rainfall from a 50 year 24-hour storm will infiltrate, be detained on the site, or be conveyed directly to the ocean, such that there will be no increase in storm water outflow from the site when compared to the stormwater outflow prior to development.

Stormwater management design will decrease the volume of runoff conveyed to potential riverine flooding sources on or adjacent to the proposed development boundaries, and therefore will not create an unreasonable flood hazard to any proposed or existing structure.

19.2 Flood Insurance Rate Map and Base Flood Elevation

The site is located on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel number 23027C0463 with an effective date of July 6, 2015. **Appendix 19-A** shows the boundary of the proposed development area overlaid on the effective FIRM panel. The proposed development area intersects two riverine Special Flood Hazard Area (SFHA) zones and one coastal SFHA zone. The riverine zones include a zone associated with Reservoir One along the southern boundary of the site and a zone associated with the unnamed stream along the northeastern boundary of the site. Both riverine zones are classified as unnumbered (approximate) A zones on the FIRM and do not have assigned regulatory Base Flood Elevations (BFE). The site is also adjacent to a coastal AE zone located between the dam at Reservoir One and Route 1. The BFE of the coastal AE zone is 14 feet North American Vertical Datum 1988 (NAVD88).

The FEMA Flood Insurance Study (FIS) and FIRM do not provide BFEs for the approximate A zones. However, FEMA does provide guidance for estimating the BFE in approximate A zones when necessary for floodplain management decisions (FEMA guidance document 265). Using the simplified elevation contour interpolation method, it is possible to approximate the BFE for the site by comparing the mapped flood zone boundary to topographic data for the area. According to the effective FIS for Waldo County, 2-foot elevation contours derived from composite LiDAR data that was taken between 2006 and 2011 provided by the Maine Office of Geographic Information System (MEGIS) were used to delineate flood zones on the effective FEMA FIRM. The same elevation contour data were obtained from MEGIS and compared to the approximate SFHA boundaries. The comparison gives conservative estimate of the BFE for Reservoir One of 21 feet above the NAVD88. Approximate BFEs along the unnamed stream range from 23 feet NAVD88 at the inlet of the culvert at Route 1 to an elevation of 65 feet NAVD88 at the northern end of the site approximately 1950 feet upstream from the Route 1 culvert. An approximate BFE profile for the unnamed stream is provide in **Appendix 19-B**.

19.3 Impact on Flooding

Stormwater management design for the proposed development on the site will reduce the total volume of runoff that reaches either riverine flooding source by a combination of detention, infiltration, and conveyance directly to the ocean. This will tend to reduce peak flows for the flooding sources when compared to the existing hydrology of the site, which in turn will tend to decrease 1% annual chance Base

Flood Elevations. Within areas subject to coastal flooding the site development will not change the topography or hydrology such that no impact to coastal flooding is expected.

With exception of hydraulic structures that are designed to convey stormwater, structures on the site will be constructed either outside the existing SFHA or above the existing approximated BFE. Because development will not cause an increase in the BFE, development will not cause an unreasonable increase in the flood hazard for any new or existing structures or any adjacent properties.

APPENDIX 19-A

Flood Insurance Rate Map

APPENDIX 19-B

Approximate Unnamed Stream Base Flood Elevation Profile