M E M O R A N D U M

Clallam County Public Works Department

TO: Craig Jacobs, Public Works Director

TO: Joel Winborn, Division Manager

FROM: Dave Lasorsa, Environmental Coordinator

SUBJ: Wetland Assessment of the Proposed Shooting Range

DATE: July 8, 2005

On July 5th and 6th, 2005, I inspected the site for a proposed shooting range, located in T30N, R9W, SE ¼ of Sec. 6. This site is located on DNR lands, close to the headwaters of Susie and Sadie Creeks. The purpose of this inspection was to determine the presence or non-presence of wetlands along four firing ranges, and the future need for a formal wetland delineation. I have also prepared a map, using an aerial photo from August 2000 as a base. On this map are the approximate locations of the firing lines. I felt the creation of a new map was needed, since the original gun range map (dated January 2003) does not accurately show the location of the 1000-yard range. Without an accurate firing line location, the wetland locations would be meaningless. It should be noted however that all features are approximations and should be verified by delineations and surveys.

On July 5th I was met on site by Don Roberts and Rick Cahill. Although the ranges were flagged, Rick guided me though the 1000-yard range. Weather was overcast and raining. On July 6th I visited the site alone, walking the 100, 200, and 300 yard ranges; and most of the 1000-yard range. Weather was overcast and raining.

Description of the Landscape

This site is rolling hills, forested, and marine-influenced. Most of the range lies within the watershed of Sadie Creek, however a portion drains to Susie Creek, including those lands located south of the DNR 1000 Rd. This visit did not include an assessment of those lands. Five soil types are located in the project area, as identified by the Soil Survey of Clallam County (1987):

- Mukilteo Muck (SCS 43)
- Bellingham silty clay loam (SCS 4)
- Sadie gravelly loam, 0 to 35 percent slopes (SCS 58)
- Lyre very gravelly sandy loam, 0 to 15 percent slopes (SCS 39)
- Lyre very gravelly sandy loam, 15 to 30 percent slopes (SCS 40)

Of these soil types, close attention should be paid to any areas that are composed of Bellingham and Mukilteo soils. These are poorly drained soils that are associated with seasonally high water tables. Mukilteo muck is an organic soil. Typically, these soils support alder, with western red cedar and western hemlock to only a limited extent. Wetlands are often associated with these soils, as both are listed as hydric soils in Clallam County. In the project area, the extent of these two soil types closely matches the extent of wetlands, especially as the case with the Mukilteo soils. The area of

alder/deciduous forest nearly follows the line of Mukilteo soils, which logically is close to the line of the DNR commercial thinning boundary. This soil deposit is located in a shallow valley (running northwest to southeast) at the headwaters of Sadie Creek, with the shooting range at its southeastern extent. Although a visit was not conducted northwest of the project area, it is very likely that the wetlands encountered at the shooting range merge to form a larger contiguous forested wetland as one moves further northwest, and that this wetland is associated with Sadie Creek.

It is important to note however, that one should not assume to find wetlands, based only on a mapped soil type. The following should be kept in mind:

1. Both Bellingham and Mukilteo soils may contain other soil inclusions, especially at their margins. For example, moving the 1000-yard firing range just 100 feet further south will avoid most of the wetlands found on the eastern half of this line.
2. Local topography may present small elevation changes with different hydrologic regimes. This is the case with the area just east of the 300-yard firing line, along the 1000-yard range. An elevation gain of only four feet at this point produces a transition from an alder-dominated forested wetland to a dry upland coniferous stand.
3. The soil survey was done over large areas and site specific determinations may be different.
4. The presence of hydric soils is only one of three criteria used to determine regulatory wetlands.

Site Surveys

The County's Critical Areas maps only show tentative wetland locations which may "trigger" the need for a field determination. "Wetlands" are defined, and their presence is determined, by criteria established in the Washington State Wetland Delineation Manual and the 1987 Army Corps of Engineers Wetland Delineation Manual. Both manuals require the presence of three conditions to fully classify an area as a "wetland:" 1) hydric soils, 2) a dominance of hydrophytic (wetland) vegetation, and 3) hydrology. With this in mind, the following observations were made at each site and recorded on the attached map. The mapped notations "P1," "P2," "S1," etc. refer to wetland or stream plots. The approximate boundaries of wetlands are shown as dashed green lines on the map.

100 and 200 Yard Ranges

These were completely upland sites, with no wetlands present.

300 Yard Range

This was also an upland site for its length, however, a wetland is entered just 10 feet west of the flag marked "300 yard butts," at a large cedar stump (Figure 1). A plot and soil pit (see P7 on the map) taken at this point found soil changing from gravelly sandy loam to Mukilteo and gleys, with standing water at 10 inches from the surface. Vegetation was predominantly an overstory of alder (*Alnus rubra*), with salmonberry (*Rubus spectabilis*), devils' club (*Oplopanax horridus*), and skunk cabbage (*Lysichiton americanum*) comprising the shrub and herb layer. The presence of skunk cabbage is a re-occurring theme in much of the wetland areas. This plant is found mostly in forested wetlands, and it is an "obligate" wetland plants. Obligate plants have a 99% occurrence in wetlands.

This wetland is extensive and continues south and north, eventually joining with the wetland noted at the 300-yard firing line of the 1000-yard range (see below). As a likely Class I wetland (see

conclusion), this wetland would require a 200-foot buffer for major new development, thus a portion of this range would be located within the buffer.

1000 Yard Range

S1: This is a crossing of a tributary of Sadie Creek. It would more accurately be labeled as the main channel of Sadie Creek, since it has a greater flow than the channel to the east. Although noted as a Type 4 Stream on County maps, it is at least a Type 3 Waters. Coho salmon and winter steelhead have been documented in this creek, and resident cutthroat are certainly present. During the July 5th visit, coho fry were observed. Under the Clallam County Critical Areas Code, Type 3 Waters require a buffer of 100 feet for major new development.

P1: At close to the 200-yard firing line, the edge of an extensive wetland is encountered (Figure 2). The area contains a network of braided channels, evidence of flows during at least part of the year. This drainage appears to flow towards the tributary noted above, or the "main" channel of Sadie Creek. The soil is Mukilteo muck and water is observed within 4 inches of the surface in soil pits. Although some western red cedar (*Thuja plicata*) stumps are present, the dominant overstory is now alder. Skunk cabbage, devil's club, salmonberry, and lily-of-the-valley (*Maianthemum dilatatum*) are dominant understory.

This wetland continues to a point just shy of the 300-yard firing line. It likely extends southward to the line of alder/deciduous forest. Northward, it appears to become more extensive, eventually merging with the associated wetlands of Sadie Creek.

East of the 300-yard line, a slight rise in elevation produces upland (non-wetland) sites. The vegetation is a mixed stand of western hemlock (*Tsuga heterophylla*), Douglas fir (*Pseudotsuga menziesii*), and red alder. The soils change dramatically from Mukilteo to a gravelly sandy loam (Lyre). This association continues for almost 300 yards, to approximately the 600-yard line.

P2 through P4: At approximately 600 yards, 650 yards and 700 yards, a similar pattern of wetlands are found. Small, narrow "rivulets" of skunk cabbage, alder, and salmonberry thread their way to a point just intersecting the centerline of this firing range. These are following low depressions associated with drainage features. Further north, the margins of these wetlands widen and become more extensive, likely merging. To the south of the firing line, they are non-existent. Moving the firing line only 100 feet further south would place the centerline completely out of these areas (although the width of the range, service road, and wetland buffers would have to be taken into account).

P5: This plot is located 55 feet west of the 800-yard firing line, and is interesting for what it is lacking. Although maps indicate this as the headwaters of Sadie Creek, no defined surface stream channel could be found; however, sub-surface flows are evident around root collars just north of this point. Standing water is found 10 inches below the surface in dug pits. Like P2-P4, a thin line of skunk cabbage and hydric soils is found here, becoming more extensive further north (Figure 3). To the south, this wetland ends within 70 feet. Again, moving the firing line only 100 feet further south would place the centerline completely out of this area. Small, isolated areas of potential wetlands (P6) exist along the drainage, up to the DNR 1000 road. These areas appear to be too small (less than 10,000 sq. feet) to be regulated by Clallam County Code.

From the 800-yard line to the 1000-yard line, a slight elevation is gained and no wetlands were found.

Conclusion

Wetlands are definitely present within the proposed range. These are limited to the 1000-yard range, although the presence of a wetland just off the west end of the 300-yard range would place a portion of this line within a wetland buffer. Re-arranging either the angle or the location of the 1000-yard range can minimize (or avoid) impacts to the wetlands on the east half of this line, however, the large wetland on the west half appears to be unavoidable, unless the entire line can be shifted approximately 300 yards to the east. It was not the intention of this survey to classify the wetland, however it would likely be a Class I, according to criteria of the Clallam County Critical Areas Code. Class I wetlands require a buffer of 200 feet for major new development, and this should be taken into account when planning future locations.

As stated, this assessment is not to be considered a wetland delineation. Although I am confident in the determination of wetlands at the locations noted, the mapped outlines are only rough estimates. A formal delineation and survey of wetland boundaries (within the project area) is the only means of accurately determining wetland impacts.

David Lasorsa

attachments
Figure 1
Figure 2
Figure 3
Map of range and approximate wetland locations

Figure 1. Wetland just west of the 300 Yard Range (P7). White flagging, marking butts, is top-center.

Figure 2. Typical vegetation of wetland between the 200 and 300 yard firing lines, 1000 Yard range.

Figure 3. Wetland along the 1000 Yard range, near the headwaters of Sadie Creek (Plot P5).