

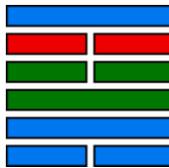
Wetland Delineation Study
For
Chinook Properties / Steve Simon

Spring Creek
399 E Court Street (approx)
Union Gap, Yakima County, WA 98903

Prepared for:

Chinook Properties / Steve Simon
3520 S 5th Street
Union Gap, WA 98903

Prepared by:

 Land Profile Inc.
P.O. Box 2175
Spokane WA 99210
509-838-9860



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Purpose

This report summarizes findings of field studies conducted November 9 - 10, 2007. The scope of work includes site visits and necessary field investigations to evaluate, delineate and rate jurisdictional wetlands and streams.

Summary

An riparian area of about 4 acres meets wetland criteria. It is located in the immediate vicinity of Spring Creek and is the product of surface water hydrology.

Available guidance indicates a buffer width of 80 feet. Eliminating impacts from stormwater, lighting, and noise would qualify for a buffer reduction.

Project Description

Setting

The property is located at 399 E Court Street (approx) in Union Gap, Yakima County, Washington, and lies within S08, T12N, R19E.

The study area consists of about 25 acres and is undeveloped commercial land currently used for pasture. The property is generally bounded by highway (I-82, Hwy 12, Hwy 97) along the east, residential along the south and southwest, undeveloped commercial along most of the west, with commercial/industrial developed along the northwest.

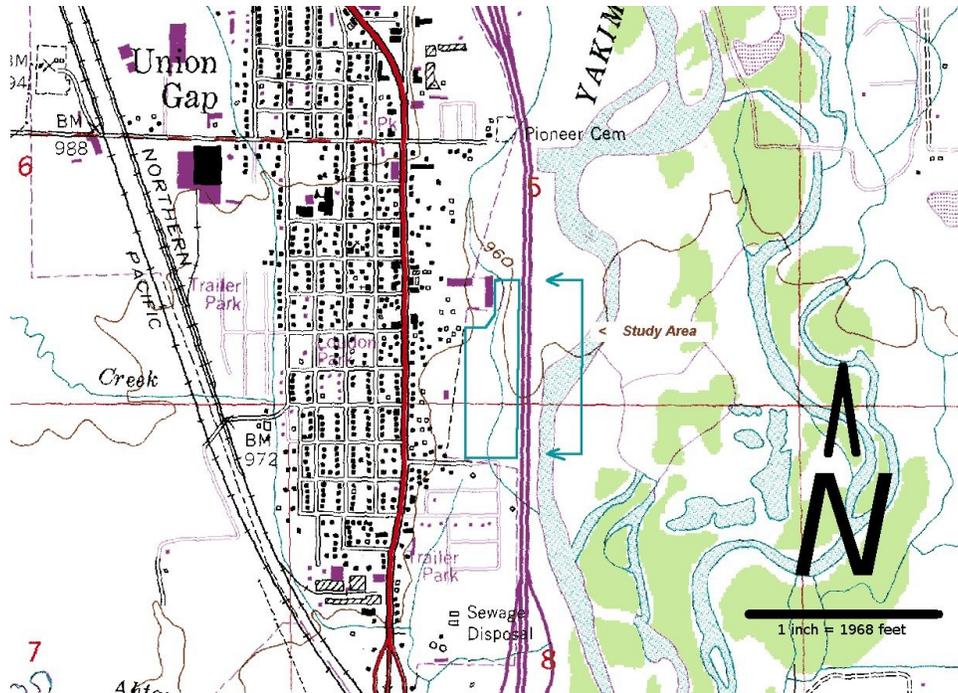


Figure 1: Study Area Location

Site elevation is about 950 feet. Topography is undulating floodplain. The site is located in the lower Yakima River watershed.

Site Condition

For wetland delineation purposes, the site was considered as having normal circumstances since hydrology, soils and vegetation have remained stable for five years or more.

Background

Wetlands can provide essential habitat for wildlife, provide flood protection through absorption of storm water, improve water quality by retention of sediments and add scenic diversity and aesthetic value to the landscape.

To conserve these benefits, jurisdictional authority over activities in wetlands is exercised by federal, state and local bodies.

The Clean Water Act (33 U.S.C. 1344) was enacted by the U.S. Congress to restore and maintain water quality, biological integrity and chemical balance of all Water of the United States. The Act empowered the U.S. Army Corps of Engineers (CE) with jurisdiction over filling of wetlands and authorized the U.S. Environmental Protection Agency (EPA) to oversee the CE fill permitting process.

In January 1987, the Corps of Engineers Wetlands Delineation Manual (herein the 1987 Manual) was issued to provide technical guidelines for identifying wetlands, and provide supporting information and methods for applying the

technical guidelines. The 1987 Manual, along with other official guidance, is relied upon for wetland identification and delineation throughout the United States.

In March 1997, the Washington State Department of Ecology Wetlands Delineation and Identification Manual (herein the Manual) was issued to provide technical guidelines for identifying wetlands specific to the State of Washington. The Manual is fully consistent with the 1987 Manual.

The Clean Water Act (CWA) and the Manual define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." (33 CFR 323).

Methods

The site was traversed November 9, 2007 to compare site conditions with National Wetland Inventory (NWI) mapping. Attention was focused on the area within and adjacent to Spring Creek and, separately, on the west portion of the site identified as PEM1A in NWI mapping.

Site visit was continued November 10, 2007 gathering soil, hydrology, and vegetation data, and concluding field efforts. The boundary of the wetland was delineated remotely on September 28, 2008.

One linear transect with 4 sampling points were established using Environmental Laboratory's 2006 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region.

At each sampling point, a visual estimate of percent vegetative cover included each plant species observed within a 5-foot radius for herbaceous ground cover and a 30-foot radius for trees and shrubs: All species were ranked (based on spatial cover for each vegetative layer), then the dominant species were selected and evaluated. Soils and hydrology were evaluated at each of these points using a backhoe to examine the upper part of the soil profile and observe ground water levels (if present) within the upper 20 inches.

Methodology used was consistent with the 1987 Federal Wetland Delineation Manual. The 1987 Manual specifies wetland criteria that address three indicators: wetland hydrology, hydric soils and hydrophytic vegetation. All three indicators must be present or reasonably inferred to be present under normal circumstances.



Figure 2: Wetland Boundary

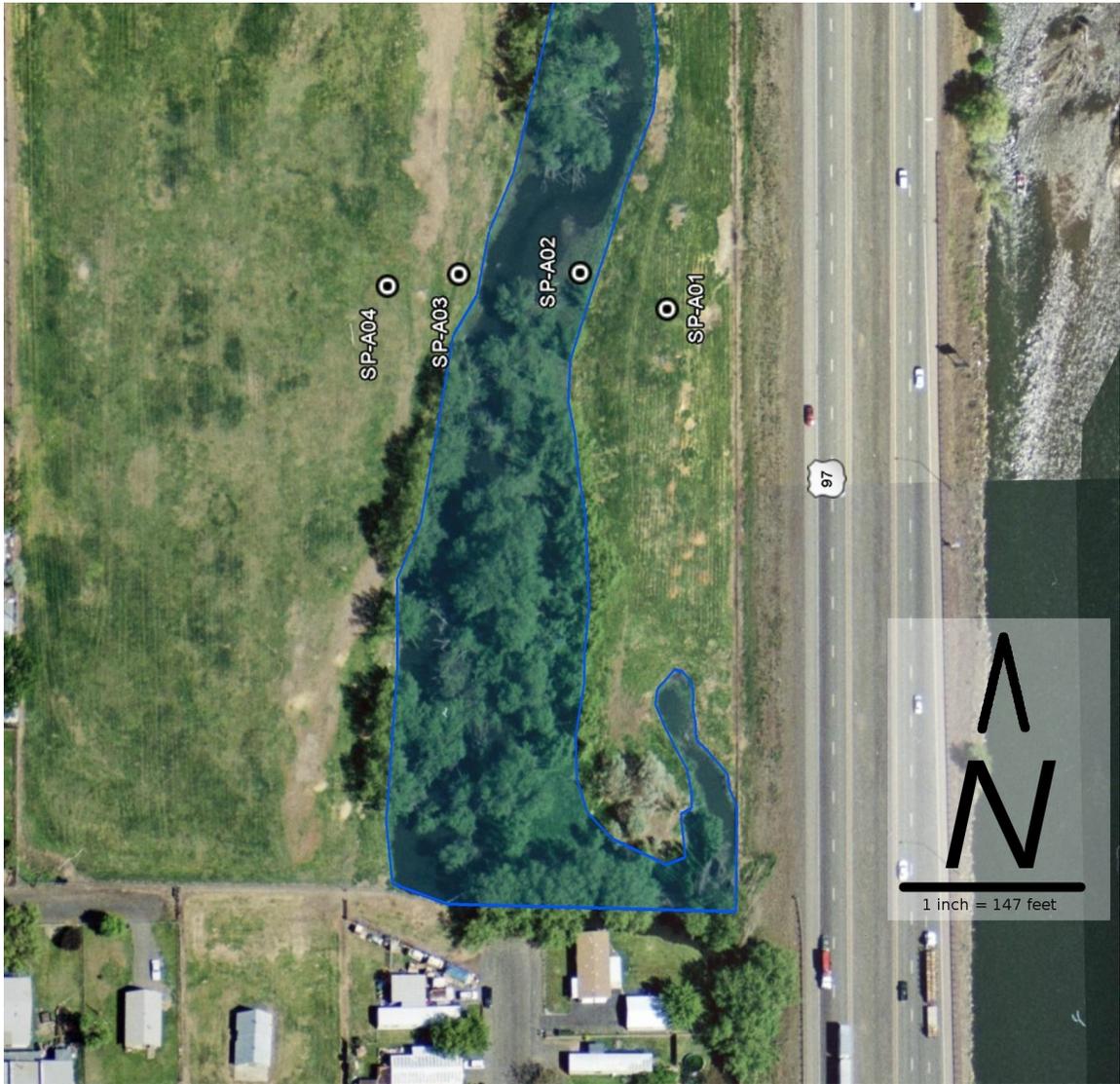


Figure 3: Wetland Transect



Photo 1: Transect Point SP-A01



Photo 2: Transect Point SP-A02



Photo 3: Transect Point SP-A03



Photo 4: Transect Point SP-A04

Discussion

Hydrology

Spring Creek is the sole hydrological feature occurring at the site. Spring Creek is sustained by several sources of water. The primary source of inflow is a water table relief drain discharging to Spring Creek at a point immediately south of the Pioneer Cemetery (Figure 1).

The other point source of inflow is the communication of Spring Creek under the highway to a point east of Pioneer Cemetery. This flow was cut off during the time of the field study by a flood cover at the northeast end of the communicating culvert.

There are two sources of groundwater contributions to the stream. Hyporheic flows in from the north and east from the Yakima River. Groundwater sustained by Wide Hollow Creek flows in from the west. Indications are that these would contribute minor amounts to stream hydrology, and then only if surface water flows were eliminated. Indications are that the stream loses more flow to groundwater than it gains.

Stream outflow is restricted downstream from the project and contributes to groundwater mounding. Water level was determined to be 3 - 4 feet higher than the water level observed as recently as 20 years ago, when a 24 inch diameter concrete drain pipe discharged at what was then the ordinary high water mark of a "normal channel" (See Photo 5)

Although current wetland extent meets CWA guidance for normal circumstances, maintenance of the down gradient property to its design elevation would result in dewatering wetlands. Current slack water surface extends upstream to vicinity of wetland transect.



Photo 5: Determining depth of impoundment. 48 inch tile probe used to locate top of concrete pipe. Assumed normal channel ordinary high water mark elevation at or below pipe centerline terminus elev.

Vegetation

Trees observed were cottonwood (*Populus balsamifera*), and willow (*Salix amygdaloides*). Herbaceous cover included smartweed (*Polygonum aviculare*), yellow iris (*Iris pseudocorus*), reed canarygrass (*Phalaris arundinacea*), and nodding beggars-tick (*Bidens cernua*).

Soils

Soil is mapped as 182—Weirman fine sandy loam in proximity to Spring Creek, and 183—Weirman gravelly fine sandy loam on the next terrace level above and to the west. Weirman map units are characterized by the USDA-NRCS as having hydric soil inclusions of Yakima silt loam map. These are in depressional units in flood prone areas, particularly relict oxbow channel structures, which accumulate fine sediments during flood events. No such inclusional units were observed outside the delineated wetland area.

Surface soil conditions and vegetation were examined on the next terrace level to the west, an area identified as PEM1A¹ in NWI mapping. The NWI map indicates wetlands induced by flooding, a potential condition eliminated when the freeway was constructed. NWI mapping for the Yakima East quadrangle occurred in 1974 prior to freeway construction.

Groundwater supported wetlands in low terrace positions occur within the region. The gradient of the Yakima River and the extent of valley fill alluvial gravels supports a pattern of hyporheic springs at the distal edge of low terraces from Selah to Buena. Accordingly the area was examined for spring activity, and in particular a change in vegetation and soils, one that would warrant extending transect "A", or establishing a second transect. Vegetation and soils were consistent with upland transect point SP-A04. Further study was not indicated,

1 Palustrine – EMergent vegetation – persistent – temporarily flooded

Wetland Rating and Buffer Guidance.

The wetlands were rated according to the Washington Department of Ecology's Washington State Wetland Rating System for Eastern Washington (Hruby, 2004). The wetland type is riverine, Category III. According to available guidance the applicable width of buffer should generally be 80 feet in proximity to high impact uses. (WDOE, 2005)

Category (from scoring):	Spring Creek
Water Quality score:	12
Hydrologic score:	14
Habitat score:	19
TOTAL score:	45 (III)
Buffer (feet)	80

Wetland rating scores in the 30-50 range, qualifying it as a Category III wetland. Recommended buffer width according to available guidance is a function of the proposed use. Commercial, industrial, and urban uses are considered high impact.² Guidance under these circumstances indicates a buffer width of 80 feet.³

A basis for reduction in buffer width below 80 feet is addressed in WDOE guidance.⁴ Permanent measures to minimize impacts can enable a high impact use to have moderate impact, qualifying it as a moderate impact with an indicated buffer width of 60 feet. To be clear, there is no fundamental reason that a buffer less than 60 feet would not work with a specific commercial, industrial, or urban use. However, any mitigation measure must have an element of permanence, designed to persist through ownership changes.

Stormwater detention is particularly important for reducing impacts on wetlands. Buffers are relied on to protect wetlands from pollutants in stormwater, thus managing stormwater offers the most concrete basis for buffer reduction. Direct lights away from wetland and locate activity that generates noise away from wetland are effective for conserving habitat function.

² See WDOE, 2005, table 8D-3

³ See WDOE, 2005, table 8D-5

⁴ See especially WDOE, 2005, table 8D-5, examples of measures to minimize impacts to wetlands from proposed change in land use that have high impacts.

Conclusion

The wetland is about 4.0 acres in extent. It is located in the immediate vicinity of Spring Creek and is the product of surface water hydrology. No wetlands produced by groundwater hydrology are present on the site. Wetland rating scores in the 30-50 range, qualifying it as a Category III wetland.

Available guidance indicates a buffer width of 80 feet. Mitigating impacts from stormwater, lighting, and noise would qualify for a buffer reduction to 60 feet.

Limitations

The user of this report is cautioned that jurisdictional wetland boundaries must be approved by the jurisdictional agency or agencies to be considered valid. This consultant does not have the authority to declare jurisdictional wetland status.

This report has been prepared based upon limited knowledge of conditions at the site property and the adjacent area. Conditions reported are representative of conditions at the specified study area and on the specific dates on which they were observed. Land use, site conditions or other factors may change over time. Should conditions change or new information become available, Land Profile Inc. reserves the right to amend judgments presented in this report.

This Report is presented without warranty, express or implied, except that the services associated with this report are rendered by Land Profile Inc. in good faith and according to the standards generally practiced by professional soil scientists in the area of wetland evaluation.

Attachments

This report is not complete unless the following five (5) files are printed out and attached to it.

1. Data71110-SP-A01.pdf
2. Data71110-SP-A02.pdf
3. Data71110-SP-A03.pdf
4. Data71110-SP-A04.pdf
5. Wetlands Rating Form b.pdf

Enclosures

This report is accompanied by the following four (4) files created in the process of preparing this report:

1. NWI_map24714.pdf
2. MapCodesLegend.pdf
3. Spring_Creek_Soil_Report.pdf
4. WEIRMAN.doc

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