

DATE: March 12, 2008

TO: Scott R Wheaton, Watershed Scientist
Watershed Management Services

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SUBJECT: Rexview 2007 Watercourses Mapping Results

We have completed mapping of watercourse features entering, exiting, or crossing the portion of parcel number 01716112000 that lies south of Little Rabbit Creek. Mapping was performed in response to a request by Karen Keesecker of the MOA Planning Department to locate, map, and identify two suspect stream features; one beginning along the north side of Cobblestone Hill Rd., and one joining the eastern road ditch along Golden View Dr. less than 100 ft. to the north of 156th Ave. Mapping results for the requested features are summarized below.

During this mapping WMS made substantial effort to accurately and completely locate important features in the target area, based on MOA codified definitions and within the mapping guidelines and standards currently applied by WMS and in context with the requested investigation. The mapping presented in this report is believed to reasonably reflect the probable presence and location of major drainageways and stream features in the target area. However, Municipal code addresses and regulates streams as they exist on the ground and not necessarily as they are mapped. Discovery of any new features or any errors or omissions in mapping requires appropriate action, at minimum including re-mapping and adjustment of setbacks, regardless of the conclusions of this report.

Watercourse Mapping

WMS field mapping for this project was performed on November 15, 2007. Field mapping was conducted by Kyle B. Cunningham under the direction of Scott R. Wheaton. Mapping was conducted under winter conditions with approximately 6 inches of snow cover; however, conditions presented only minor difficulty for identifying features.

Mapping included inspection for both stream features and major drainageways. All features were identified and approximately located in the field and on base ortho-imagery applying WMS' hydrography criteria (WMS document WMP APg04001, 'Municipal Stream Classification: Anchorage, Alaska', January 2004) and map-grade mapping standards (WMS document APg01001, 'Municipality of Anchorage Stream Mapping Standards, ver. 1.04', May 2005).

To help identify feature locations, GPS data were collected in WGS 1984 Datum using a Trimble GeoExplorerXH mobile receiver fitted with an external Zephyr antenna mounted on a 2.03 meter mast. All GPS data were differentially corrected in post-processing using Trimble Pathfinder ver. 4.0 software and base station files obtained from the Anchorage National Geodetic Survey CORS station (<http://www.ngs.noaa.gov/CORS/cors-data.html>). Horizontal location accuracy has not yet been tested for WMS' map grade GPS methodology but is generally expected to be

Rexview Watercourses Mapping

March 12, 2008

within 1 to 2 meters of true ground positions for the device used. Corrected GPS point data including latitude and longitude coordinates are summarized in Table 1. Point identities shown on the map are listed in the table in the Field_ID data fields. Digital data in ESRI and/or Excel file formats can be obtained upon request from WMS.

Alignments of watercourse and other features were estimated and plotted using the field GPS location data along with MOA 2006 0.3 meter ortho-imagery (Anch_MrSid.sid) and 4-foot LIDAR based contour elevation data (MOA4ft.shp). Locations plotted at GPS data points are estimated to have horizontal accuracies consistent with WMS' map-grade survey standards. Locations plotted without GPS supporting data are predominantly dependant upon interpretation of contour and ortho-imagery data, and may have larger horizontal error. However, despite these potential errors, mapped features are believed to reasonably represent the presence and relative locations of watercourse and other features as delineated in Figure 1 and as otherwise limited as stated in this report.

Watercourse Mapping Results

The area investigated contained no streams, but did contain two drainageway features, one of which originates along Cobblestone Hill Rd., and the other along 156th Ave. (Figure 1). The terrain consists of marshy lowlands punctuated by hummocky terrain, in which water is transported at or near the ground surface. Flows become non-integrated across these wet surfaces, and so these features lack the clearly defined, continuous channels that define a stream.

The Cobblestone Hill Rd. drainageway intercepts shallow groundwater along the north ditch of Cobblestone Hill Rd. (GPS point 2, Figure 1). The drainageway continues west in the ditch and enters the parcel via a culvert under Wills Way (GPS point 3). After exiting the culvert, flow is channelized for a short distance (approx. 20 feet) until GPS point 4, at which point flow becomes non-integrated across the wet hummocky terrain. This non-integrated flow continues northwest along the natural flow path until joining the main channel of Little Rabbit Creek.

The 156th drainageway carries perennial flows from ground water intercepted by Robin Hood Dr. ditches to the east. These flows are discharged to the project parcel just west of the intersection of Elizabeth and 156th, where flows along the 156th ditchline are blocked and diverted by sediments filling the ditch. At this point, drainageway flows enter and are dispersed across hummocky terrain within the target parcel. Drainage waters are carried as non-integrated (non-channelized) surface flow across the hummocky surface until they are discharged into the east ditchline of Goldenview Drive.

Conclusions and Recommendations

WMS identified and mapped two major drainageway features entering, crossing, and exiting the parcel. No streams were observed on the inspected portion of the property. Conclusions and recommendations based on this field investigation are as follows.

- The inspected portion of parcel number 01716112000 does NOT contain any stream features.

Rexview Watercourses Mapping

March 12, 2008

- The inspected area of the parcel DOES contain two natural drainageways that receive and convey flows from contributing areas to the east. These drainageways naturally provide important storm water control functions, and should be conserved.
- Features were not flagged, but GPS location data and digital mapping information are available from WMS upon request.

The inspected area does not contain any stream features. However, at least one stream feature (Little Rabbit Creek) does enter, cross, and exit another portion of the property. Other stream and drainageway features may exist outside of the inspected portion of the parcel. Conclusions and recommendations only apply to the area mapped for this request.

Two natural drainageways identified crossing the target parcel receive perennial flows from adjacent road ditch and subdrain systems. Both these drainage paths cross hummocky terrain that provides important storm water detention and filtration functions. These features should be conserved to benefit from these services. The ditch diversion along 156th should be reinforced and storm water energy diffusers installed where flows enter the parcel along 156th and exit at Goldenview. Similarly, an energy diffuser should be placed at the Will's Way culvert crossing.