ROBINSON NOBLE

Technical Memorandum
Green Cove
Records Review, Data Gaps Analysis, and Recommendations

Date: June 5, 2019

To: Cari Hornbein
City of Olympia

From: Kari Thomas, LG, RG

Subject: Green Cove Document Review

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Robinson Noble, Inc. is pleased to present this technical memorandum regarding the Green Cove document review project. Robinson Noble, Inc. was retained by the City of Olympia to review documents pertinent to environmental concerns associated with the Green Cove subject property and provide recommendations for additional inquiry based on our findings. This review is intended to provide additional insight into the environmental condition of the property based on the history of site activities and citizen concerns regarding past and potential future environmental impacts

The subject is located on the east side of Cooper Point Road between cross streets 20th Avenue Northwest and 28th Avenue Northwest, Olympia, Washington. The subject property is composed of 13 tax parcels, totaling approximately 40 acres. The Thurston County's Assessor's office identifies these as parcel numbers 50400100100, 50400200100, 50400300100, 50400202700, 50400400100, 50400402000, 50400402100, 50400402300, 50400402500, 74202500100, 74202500200, 74202900000, and 81700000000.

The site historically operated as a gravel mine. Over time, fill materials have been brought onto the site in attempt to level the land with the surrounding grade and reclaim the mined area for future use.

We conducted a review of pertinent environmental records for the subject property that were provided by the City. Through our review of the records we identified several potential environmental concerns which are listed below.

- Potential soil contamination from various fill materials placed on the site
- Potential soil contamination from chemical drums and buckets, and previously used underground storage tanks and above-ground storage tanks
- Potential soil contamination from dumping into the septic system on the property
- Potential for settlement of soil on the subject property as a result of the breakdown of organic materials buried as fill on the site

- Potential methane gas concerns from the breakdown of organic materials buried as fill on the site
- Potential shallow, perched groundwater contamination from fill materials, leaks, or spills
- Potential for contaminated sediment in wetland areas on the property from runoff on the site and stormwater discharging outside of the permitted area
- Concerns regarding the possible existence of sensitive species within the wetlands at the site and in Green Cove Creek
- And concerns regarding stormwater runoff impacts to Green Cove Creek

Soil

Ages, LLC (2015) identifies that the subject property was used for log storage in addition to the gravel mining. The 1980 and 1990 aerial photographs included in the report show log storage along the northern, central, and western portions of the site. In addition, a 1986 Kroll map shows log storage in the central portion of the site. Logs and wood debris were also identified in numerous records that we reviewed as both fill soil on the site and as being observed on the ground surface. Documents from concerned citizens mention that there is evidence that at least some of the logs may have been contaminated pilings from the Port of Olympia. However, through the review of the records provided, we were unable to determine the source of the wood on the property. We recommend additional sampling of the wood fill to identify any contaminants that may be associated with the wood.

In 1993, a 12,000-gallon diesel underground storage tank (UST), located on the southwestern portion of the site, was removed by Stemen Environmental, Inc. Contaminated soil was identified and attributed to overfills and spills. Contaminated soil was removed and stockpiled on the site. Confirmation samples were collected. Records suggest that contaminated soils were to be properly stored on the site until a treatment or disposal method was decided upon. However, a letter from Thurston County Public Health and Social Services Department to the City of Olympia (2019) indicates that there is no documentation regarding treatment or disposal of the contaminated soil from the underground storage tank removal. We recommend that treatment of disposal records be acquired, if possible, for the contaminated soil associated with the former UST. If they cannot be located, the area where the soils were stockpiled should be evaluated to determine if contaminated soil and/or residual contamination is present.

Ages, LLC (2015) and AMEC (2004) describe a former 500-gallon above-ground storage tank (AST) with no secondary containment located near the former detached garage at the southwestern portion of the site, as well as several 55-gallon drums located in the former detached garage and in the parking area in front of the garage. Surface soil staining was observed in the vicinity of the 55-gallon drums. Through our review of the documents, it does not appear that potential soil contamination associated with the staining was investigated or characterized. We recommend that soil sampling should be completed in this area to identify if soil contamination exists from the AST or chemical storage.

A soil investigation performed by Pacific Rim Soil and Water, Inc. (Pacific Rim, 2007) included the excavation of 21 test pits. Pacific Rim observed a petroleum odor in two of the test pits (test pit 10 and 17). In 2008, Robinson Noble excavated and completed 32 test pits to charac-

terize the area of suspected petroleum hydrocarbon soil contamination as well as the extent and general composition of the fill materials on the subject property. One soil sample was determined to contain diesel-range petroleum hydrocarbons at a concentration of 370 mg/kg, which is well below the MTCA cleanup level of 2000 mg/kg. Robinson Noble noted fill material in 30 of the 32 pits dug. While most was reworked materials, wood debris, construction debris, and solid waste were noted. Pacific Rim also identified non-native materials within the soil on the site including burn layers, construction debris, oyster shells (possible fill from a waterfront source), metal, asphalt, concrete, and large logs and planks, all which may represent an environmental concern. Based on materials identified in fill soil from the Pacific Rim (2007) investigation and the Robinson Noble (2008) investigation, we recommend that additional soil sampling may be warranted to evaluate other contaminants of concern including metals, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and volatile-organic compounds (VOCs).

A Phase I Environmental Site Assessment completed by AMEC (2004) identified possible dumping into the on-site septic system as a potential environmental concern. The documents reviewed did not reveal whether any sampling or characterization has occurred in the area surrounding the septic system.

Organics including wood debris, logs, and other organics identified in the fill soil on the subject property have the potential to cause settlement of the soil as the organics decompose. We recommend the review of geotechnical reports and design plans in regard to possible soil settlement to determine whether or not additional geotechnical study is warranted.

In addition to soil settlement, the breakdown of organics can release methane gas. If buried wood will remain in place at the site, we recommend that a methane survey be completed to determine the extent and extent of any methane gas. This investigation will provide additional information on whether or not a methane monitoring system (and potentially methane gas mitigation) is needed to monitor methane gas before, during, and after development.

Groundwater

Groundwater was encountered during the excavation of test pits by Pacific Rim (2007). The groundwater encountered is likely a shallow, perched system. Our review of the documents provided did not identify any groundwater sampling or groundwater quality information for the subject property. We recommend that groundwater samples be collected to identify any potential contaminants from spills, leaks, or from fill materials that may exist in the shallow groundwater.

Documented complaints from citizens include a concern for potential contamination to the drinking water aquifers. Drost and others (1998 and 1999) show that the subject property area is underlain by an alternating sequence of glacial and non-glacial sediments, forming several confined aquifer systems and groundwater flow direction in the location are to the east, towards Budd Inlett. These reports indicate the first major aquifer in depth is the Vashon advance aquifer, which is overlain by a thick sequence of Vashon till in the area.

The Washington State Department of Health's source water assessment program mapping application (GIS tool) does not show any Group A or Group B wellhead protection areas which overlap the subject site. Therefore, it is unlikely the site is a potential concern to any public water systems. However, there could be nearby private, domestic wells. Most, if not all, domestic

wells in the area will be completed in the Vashon advance aquifer and would be protected from surface contamination by the till. If sampling of the shallow, perched groundwater system, which is in or above the till, as recommended above, does not identify groundwater contamination, it is unlikely that groundwater contamination would exist in lower aquifers used for drinking water.

The Green Cove Preliminary Short Plat Application (Thurston County, 2019), suggests that a well may exist on the subject property. We recommend that a well log and other pertinent information be obtained for the well. If the well will no longer be in use, we recommend the well be decommissioned in accordance with the applicable regulations.

Stormwater, Surface Water, and Wetlands

A Revised Hydrogeologic Report, completed by Earth Solutions NW LLC (2016) describes three wetlands located on the subject property (wetland A, wetland B, and wetland C). Earth Solutions describes that wetland A will drain toward Cooper Point Road Northwest, wetland B will drain to the south, and Wetland C will drain to the south and may progress off site. The Washington State Department of Ecology identified two additional areas to be treated as regulated wetlands (wetlands D and E) as discussed in the Wetland and Fish and Wildlife Habitat Assessment Report completed by Soundview Consultants (revised 2018). Wetland D drains to the north where it was observed by Soundview Consultants infiltrating approximately 150 feet north of its northern boundary. Wetland E drains south via sheetflow across the slope and, according to Soundview Consultants, most likely infiltrates before reaching an above ground drainage system

Concerns described in the documents provided include a concern for contamination to exist in sediments in the wetlands on site from poor stormwater runoff management during the operation as a gravel mine. A notice of correction, dated February 14, 2014, from the Washington State Department of Natural Resources, indicates that a stormwater pond was connected through culverts and ditches to the north and discharged outside of the permitted discharge area on the subject property. There is potential that contaminants may have deposited in the wetland areas due to poor runoff management and past activities at the site. Therefore, we recommend that sampling of wetland sediments be conducted to evaluate if contamination exists.

There are additional concerns regarding how stormwater will be handled after development of the site and the impact of additional stormwater flow to Green Cove Creek, as well as the impact of stormwater flow on sensitive species that may live in the wetlands associated with Green Cove Creek. (Cereghino, 2019, Robinson, 2019, and OlyEcosystems, 2019) Besides the wetlands, no priority habitats or Threatened, Endangered, or Sensitive plant or animal species were observed by Soundview Consultants (revised 2018) at the time of their site visit. We recommend that the on-site wetlands be evaluated for sensitive species and that stormwater management plans be reviewed to evaluate treatment of stormwater contaminants and the impacts downstream to Green Cove Creek. We also recommend careful site planning during future development in order to avoid direct and indirect impacts to all sensitive critical areas and consulting with the Washington State Department of Ecology and City of Olympia during the process.

Conclusions

Our review of the environmental documents provided revealed the potential for soil contamination on the subject property. Soil contamination may exist from various fill materials used on the subject property, chemical storage including previous underground storage tanks and an above-ground storage tank, and potential dumping into the on-site septic system.
We recommend that additional subsurface investigations and soil sampling be performed to confirm the presence or absence of contamination, analyze for additional contaminants, and determine the extent of contamination which may be present in soil and sediment on the site.

Previous investigations on the property have identified wood waste and logs in the fill soil on the site. As the organic materials break down, there is potential for soil settlement, as well as the release of methane gas. We recommend the review of geotechnical reports and design plans in regard to possible soil settlement to determine whether or not an additional geotechnical study is warranted. If buried wood will remain in place at the site, we recommend that a methane survey be completed to determine the extent of any methane gas. This investigation will provide additional information on whether or not a methane monitoring system (and potentially methane gas mitigation) is needed to monitor methane gas before, during, and after development.

Our review of the environmental documents for the site indicate that shallow, perched groundwater exists at the site. We did not find any documentation that the shallow groundwater has been sampled or analyzed for contaminants. We recommend that groundwater sampling be conducted.

We have determined that contaminated sediment may also exist in the wetland areas from uncontrolled stormwater runoff on the site. We recommend that the wetland areas be sampled to identify if contaminants have settled in the wetland areas. There also concerns of the impact of additional stormwater flow to Green Cove Creek, as well as the impact of stormwater flow on sensitive species that may live in the wetlands associated with Green Cove Creek. We recommend that the on-site wetlands be evaluated for sensitive species and that stormwater management plans be reviewed to evaluate treatment of stormwater contaminants and the impacts downstream to Green Cove Creek.

List of Documents Reviewed

Ages, LLC, 2015, Phase I Environmental Site Assessment, Sundberg Estates, as published for Jerry Mahan

Ages Engineering, LLC, 2015, Environmental Soil Sampling, Sundberg Estates, published for Green Cove Park, LLC

Ages Engineering, LLC, 2016, Phase I ESA and Geotechnical Report Addendum, Green Cove Park, as published for Jerry Mahan

Akins, Chad, 2019, Green Cove Park, as published for the City of Olympia

AMEC, 2004, Phase I Environmental Site Assessment, as published for Jerry Mahan

Cereghino, Paul, 2019, Re: Objection to the Green Cove Gardens Development Design, as published for the City of Olympia

C.E.S, NW Inc., 2018, Preliminary Stormwater Site Plan for Green Cove Park, as published for Green Cove Park, LLC

Earth Solutions NW, LLC, 2016, Revised Hydrogeologic Report, Proposed Green Cove Park Residential Development, as published for Green Cove Park, LLC.

Kronenberg, Esther, 2019, Green Cove Park Project, prepared Thurston County and the City of Olympia

Libby Environmental, Inc., 2008, Sundberg Estates Phase II Project, as published for Robinson, Noble & Saltbush, Inc.

Newman, John, 2019, Re: Neighborhood Comments, FEB 27; Green Cove Park #19-0330; 181 Houses on Cooper Point Road and 20th (Elliot Ave NW), prepared for the City of Olympia

OlyEcosystems, Olympia Coalition for Ecosystems Preservation, 2019, Re:Comments on Proposed Green Cove Park Development, as published for the City of Olympia

Pacific Rim Soil and Water, Inc., 2007, Soils Investigation Preliminary, as published for Hatton Godat Pantier

Robinson, Noble & Saltbush, 2008, Sundberg Estates Subsurface Investigation (Phase II Environmental Assessment), as published for Westbrook Investments, LLC

Robinson, Roger, 2019, Complaint to City of Olympia Mayor, as published for the City of Olympia

Soundview Consultants, revised 2018, Wetland and Fish and Wildlife Habitat Assessment Report, Green Cove Park, as published for Westbrook Investments LLC

Stemen Environmental, Inc., 1993, Re: Underground Storage Tank Removal Located at 2200 Cooper Point Road N.W. Olympia, Site #011500, County Plot #8170000000, as published for Ted Sundberg

Thurston County Public Health & Social Services Department, 2019, City of Oympia 19-0330, Green Cove Preliminary Short Plat Application, as published for the City of Olympia

Thurston County Public Health & Social Services Department, 2015, Improper Solid Waste Handling-Former Sundberg gravel pit, as published for Green Cove Park, LLC

Washington State Department of Ecology, 2019, Initial Investigation Field Report, ERTS # 687561

Other References

Drost, BW, Ely, DM, and Lum II, WE, Conceptual Model and Numerical Simulation of the Ground-Water-Flow System in the Unconsolidated Sediments of Thurston County, Washington, US Geological Survey Water-Resources Investigations Report 99-4165, 254p.