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November 20, 2017

Project X17444

**Project: Former Normandie Maintenance Facility
Spokane, WA**

Subject: Environmental Site Characterization Report

Dear Mr. Lukas,

Per your request, we conducted a remedial investigation of the former Normandie Maintenance Facility. We understand that this work was requested to facilitate potential sale or development of a regional stormwater infiltration facility. The results of this investigation are presented in the attached report and appendix. Our report of geotechnical evaluation for stormwater management is transmitted separately.

We appreciate the opportunity to be of service. If you have any questions please don't hesitate to call.

Respectfully Submitted:
BUDINGER & ASSOCIATES

A handwritten signature in blue ink that reads 'Stephen D. Burchett'.

Stephen D. Burchett, PE
Principal



11/20/17

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FORMER NORMANDIE MAINTENANCE FACILITY, SPOKANE, WA

ENVIRONMENTAL SITE CHARACTERIZATION REPORT

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EXECUTIVE SUMMARY

The former Normandie Maintenance Facility has been operated by the City of Spokane for vehicle and heavy equipment maintenance since the turn of the last century, and has been recently vacated. The City is considering selling portions of the property or developing portions of the property into a regional stormwater treatment and infiltration facility.

Phase 1 environmental assessment of the property identified several recognized environmental conditions associated with this past use which are typical of older maintenance facilities. These include underground storage tanks (UST's), storm drains, floor drains, and previous spills and remedial action. Most of the UST's have been removed, requiring remediation of soil contamination due to leaks from some of the tanks.

The site is currently regulated by Ecology due to an active fueling station. It is listed as a leaking underground storage tank site, with a status of "cleanup started" for a release from an UST removed in 1988 which was remediated but not well documented. One UST remains abandoned in place due to proximity to a building, and contaminated soils associated with a cesspool remain beneath another building. Additional older UST's may be present which were not located by this or previous assessment of the site.

Additional research and environmental site characterization was performed to evaluate recognized environmental conditions associated with past use of the site, and conditions remaining from previous remedial efforts. We performed subsurface exploration, sampling and chemical analysis of soils adjacent to or beneath current and previous UST locations, previous remedial actions, stormwater treatment swales, and a representative number of floor drains and stormwater drains. Groundwater was sampled from three areas of previous soil remediation. Sediment samples were taken from a representative number of stormwater and floor drains to characterize the material for disposal.

A total of 42 environmental borings were drilled and sampled, 18 of these were advanced to groundwater which ranged from 20-30 feet below grade, depending on the surface elevation. Soil and groundwater samples were tested for petroleum, and many were also analyzed for heavy metals and volatile organic compounds (VOC's). Heavy oil range petroleum was detected in 17 of 96 samples tested, five of these were taken from stormwater or floor drain sediment. Diesel was detected in three of the samples. Petroleum concentrations were below regulatory limits in the 12 soils samples in which petroleum hydrocarbons were detected.

Heavy metal concentrations were slightly elevated in some of the soil samples. The chromium concentration in seven samples exceeded the regulatory limit for hexavalent chromium, but was well below but below regulatory limits for total chromium. Other heavy metal concentrations

were elevated in a few of the samples, but below regulatory limits. Trace concentrations of unrelated VOC's were detected in four samples.

Petroleum hydrocarbons and VOC's were not detected in groundwater samples. The Arsenic concentration was slightly above the MTCA regulatory limit of 5 ppb in one sample, but lower than the drinking water standard of 10 ppb.

We have not identified widespread or severe contamination of soil or groundwater remaining from past use of the site. Though not comprehensive, it is our opinion, that if significant soil or groundwater contamination were present, the location and number of borings and samples tested during this site characterization would have detected it. There is some potential for additional UST's or old spills to be present that were not identified through this effort.

Some remediation of petroleum contaminated soils will be likely be necessary during re-development of the site. Specifically, soil contamination remains in place surrounding the cesspool beneath the broom shed, near the UST closed in place by the engineering building, and beneath some of the floor drains. Though they appear to be connected to the sanitary sewer, they are very old and removal will likely encounter minor amounts of contaminated soil. Removal of the fueling station UST's is likely to encounter minor amounts of petroleum contaminated soil as well.

1. Introduction

This report presents the results of environmental characterization of the former Normandie maintenance facilities. The work was contracted and coordinated with the City of Spokane (Ed Lukas, Director of Asset Management) under Task Order 34, on-call agreement 2016-0012 on August 24, 2017.

1.1 Purpose

The City of Spokane is considering selling all or portions of the property for re-development, or using the property for a regional stormwater treatment and infiltration facility. The purpose of this assessment is to help characterize environmental conditions resulting from past use well enough to allow the City to evaluate environmental conditions that may require remediation or other special consideration during re-use of the site. It is also intended for submittal to Ecology to help satisfy their request for additional information concerning a previous release at the site and facilitate Site Hazard Assessment (SHA) of the property.

1.2 Scope of Work Performed

This work was performed in general accordance with our sampling and analysis plan dated August 22, 2017. The work performed included the following:

- Reviewed available environmental assessment reports and other historical information
- Interviewed personnel familiar with past operations and conditions at the site
- Performed reconnaissance of the site and facilities to identify exploratory boring locations
- Contacted the utility location “one call” service and retained a private locator with ground penetrating radar to survey potential boring and tank locations
- Cleared areas congested with utilities and locations where potential tanks may remain with a vacuum excavator
- Drilled logged and sampled 42 environmental borings to depths of 10-40 feet
- Sampled sediment in storm drains and floor drains at 5 locations
- Sampled groundwater in three temporary monitoring wells near previous remedial excavation
- Performed soil vapor extraction testing at three monitoring well locations and monitored soils encountered during drilling and sampling for VOC’s
- Preparation of this report

The scope of environmental characterization performed was not comprehensive, but focused on the areas where soil or groundwater were considered most likely to be present. Additional environmental assessment will be necessary when the existing structures are demolished, and when the current fueling station and previously abandoned UST’s are removed. Geotechnical exploration and analysis for stormwater management was performed concurrently with this characterization; that report is transmitted separately.

2. Site Description

2.1 Location and Legal Description

The subject property occupies two city blocks and the adjacent section of Normandie Street, north of Downtown Spokane. It has a street address of 127 west Mission Avenue and is Spokane County Tax Parcel #35181.0201. It is currently zoned for office and retail use. A legal description of the property is presented in the Appraisal (See Appendix). The location of the site and surrounding areas are presented on the Vicinity Map and Site Plans (Figures 1 and 2).

2.2 Site and Vicinity Characteristics

The site is in an older neighborhood of Spokane which was mostly developed by the middle of the last century. The areas to the north were originally residential, while the areas to the south included a mix of industrial and commercial uses. The surrounding area is currently mostly commercial, with residential use to the north and scattered residences remaining to the east and west. Mission Avenue and the areas to the south have been mostly developed into commercial use, and the Division Street corridor three blocks to the east is nearly entirely commercial.

The subject property has been used and developed into a maintenance facility since the early 1900’s. It is currently vacant and has been used recently for minor storage, filming and for Police

Department training exercises. The fueling station remains in use. Site conditions historical use and improvements to the property are described in detail in the Phase 1 Environmental Assessment report prepared by Stantek (August 16, 2016, See Appendix). The existing buildings and improvements are also described in detail in the property appraisal by Daniel E Barrett, MAI (December 7, 2004, See Appendix).

2.3 Geologic and Hydrogeologic Setting

The geology of this area of Spokane is characterized by glacial outwash flooding which scoured and removed basalt formations of the Columbia River Group, and deposited thick sequences of generally coarse flood deposits. In this area, basalt outcrops are present within several blocks of the site, however, basalt was not encountered to depths of 30-40 feet during subsurface exploration.

The soils encountered are predominantly gravels with sand and minor amounts of silt and fines. Occasional cobbles and boulders were encountered. These soils are very permeable to both liquids and gasses, though occasional lenses or layers of finer material may be present. Descriptions of the materials encountered during drilling are presented on the boring logs (Figure(s) 6).

The site lies over the Spokane/Rathdrum Prairie aquifer which flows through these coarse alluvial deposits. In this area, the flow is thought to be to the west/northwest. Groundwater was encountered at depths of 20 to 30 feet below grade depending on the surface elevation at each particular boring.

2.4 Subsurface Exploration

Exploratory borings were advanced using cased air rotary drilling equipment inside and outside of the buildings. Environmental drilling and sampling protocol were followed including pressure washing and cleaning of drilling and sampling equipment between sampling locations. Most of the samples were taken using conventional split spoon samplers; cutting samples were collected as drilling was advanced. In some areas, soil conditions were too coarse to obtain split spoon samples and cutting samples were analyzed.

Soil samples and cuttings were evaluated for indications of chemical contamination, such as unusual color or chemical odor. A PID was used to screen drill cuttings and sample headspace for volatile organic constituents. Observed conditions and PID readings are presented on the attached Boring logs. Samples were placed in containers using disposable sampling gloves and placed in a cooler on ice. They were transported to the analytical laboratory (Anatek Labs) under Chain of Custody.

2.5 Chemical Analysis

Representative samples were selected for chemical analysis, based on location, depth and potential contamination source. Samples taken near the fueling station were analyzed for

gasoline and diesel constituents, samples from floor drains and near the waste oil tank were also analyzed for heavy metals. Test results are presented on the attached laboratory summaries for soil and groundwater; analytical reports, QA/QC data and Chain of Custody forms are presented in the Appendix.

3. Results of Environmental Characterization

3.1 Stormwater and Floor Drains

Most of the buildings were originally constructed with floor drains; many of the floor drains exhibit significant staining of the adjacent areas and have accumulated sediment. Plans provided by the City indicate that these drains are connected to the sanitary sewer system, or have subsequently been connected (See Appendix A).

The Mission Sheds building adjacent to Mission Avenue at the northwest edge of the property was originally constructed as horse stables. Each of the bays has a floor drain which was connected to the sanitary sewer when the sheds were originally constructed in the early 1900's. The sheds have since been used for vehicle and equipment parking and maintenance, and some of the bays exhibit severe staining and use for painting. Borings 35 and 42 were drilled in these buildings.

Boring 18 was advanced near a floor drain in the demolished welding shop, and Boring 38 was located near floor hoists and drains in the adjacent Radio and Body Shop on the north side of the site. Petroleum hydrocarbons were detected in one sample near the floor hoist at trace concentrations, but were not detected in the other samples.

Borings 3-8 were advanced next to stormwater drainage structures in the northwestern lot area to obtain samples from beneath these structures. Borings 29-31 were located next to storm drains east of the City Stores Building and Annex. Petroleum and heavy metal contamination was not detected in the soil samples adjacent to these structures. Petroleum was detected at low concentrations in samples of sediment from the storm drains adjacent to Boring 3 and 29. It is fairly typical for storm drain sediments to contain petroleum.

A series of buildings were constructed west of the south side of Normandie Street for pressure washing equipment and maintenance. These buildings have floor drains that function as small oil-water separators, but were connected to a couple of cesspool/drywell structures to the north. The Broom Shed building used to park street sweepers was later constructed directly over these cesspools. In 1998, soils beneath and outside the Broom Shed building were excavated and the building was connected to the sanitary sewer due to a break in the line. The contaminated soils could not be completely removed due to the adjacent building and utility lines (See 1998 remediation report by the Lambert Group, Appendix).

Borings 13, 32 and 36 were located as closely as practicable to the cesspool structures. Results from Boring 13 were below detection limits for samples taken at 5 foot intervals to the water table. Petroleum was not detected in Boring 32. Boring 36 encountered petroleum hydrocarbons at levels below regulatory limits to depths of 15 feet adjacent to the cesspool structure. Groundwater samples taken from Boring 13 do not indicate impact from the petroleum contaminated soils left in place.

Borings 23-24 and 33-34 were advanced adjacent to floor drains inside these buildings. Boring 33 encountered petroleum hydrocarbons to depths of 10' along with trace concentrations of several VOC's, below regulatory limits. While not severe, it does indicate the potential for leakage from some of the other floor drains to surrounding soils. Petroleum and heavy metal contamination were not detected in samples from Borings 23 and 24, Samples from Boring 34 were not tested, but did not appear to be contaminated.

Shallow soils were taken from the stormwater swale adjacent to the fueling facility, from the swale west of the south end of Normandie Street and from the swale at the north end of Normandie Street. Borings 19, 20 and 22 were drilled adjacent to these locations. A surface spill of 30 gallons of gasoline was reported from the fueling station which required remediation of the adjacent swale. Overflow from this swale is piped across Normandie to the western swale. The northern swale collects runoff from stormdrains in former Normandie. Stormwater runoff from streets and maintenance areas is typically contaminated with petroleum.

Shallow soils in the southern swales contained low concentrations of heavy oil range petroleum, VOC results were below detection limits; deeper soils tested were below detection limits. We did not find significant contamination associated with the stormwater infiltration swales, though shallow topsoil and catchbasin sediments are contaminated with petroleum.

The Fleet Maintenance Building fronts on Sinto Avenue east of Normandie. It has a large number of floor drains and has been used extensively for vehicle maintenance. The main maintenance floor of the building is level with Sinto, while the lower floor daylight to the north. The lower level was used for storage and maintenance. Maps provided by the City indicate that the floor drains are connected to the sewer system. We did not test sediment in these drains or drill and sample near drains in the lower level, however, the sediment is likely to contain petroleum and possibly other related chemicals.

3.2 Underground Storage Tanks

Several UST systems have been removed from the site, two tanks have been abandoned in place, and one or more additional tanks may be abandoned in place. The tank records provided by the City and WSDOE are not conclusive, and appear to contain duplicate references, however 17 UST's are referenced.

Two tanks are still in service at the fueling station, a 10,000 gallon diesel tank and 20,000 gallon gasoline tank. This system appears to be in compliance with current UST regulations but will require closure and removal to facilitate re-development at some point. Several UST's were removed from this location prior to installation of the current system, requiring remediation of contaminated soils (See 1998 Report by The Lambert Group, Appendix)

Borings 11, 19, 27, and 40 were drilled and sampled to the water table adjacent to the current and previously removed UST's at the fueling station. Water samples were taken from a temporary monitor well installed in Boring 11. Numerous samples were analyzed for petroleum hydrocarbons, lead and VOC's.

Most of the results were below detection limits for gasoline or diesel constituents and VOC's. Petroleum hydrocarbons and VOC's were not detected in groundwater taken from Boring 11. Heavy metal concentrations were below detection limits or below regulatory limits.

Trace concentrations of diesel were identified in one sample from Boring 19, below regulatory limits, and trace concentrations of acetone were detected in one sample from Boring 19. Lead concentrations did not appear elevated. A sample of shallow soils in the swale adjacent to Boring 19 contained trace concentrations of heavy petroleum and naphthalene. In our opinion, these results do not indicate significant soil or groundwater contamination from previous UST release remediation or the current UST system.

A heating oil tank was abandoned in place to the east of the field engineers building. The GPR survey was able to identify the location of this tank, and the fill ports are visible at the surface. Another UST is suspected to have been removed from the east side of the Broom Shed and possibly to the east of the wash bays, adjacent to the current stormwater swale. Stormwater, including spills from the fueling station are piped to this swale as well. A 280 gallon UST is illustrated on historical fire insurance maps near the former welding shop at the north side of the site. Pavement cuts and mechanical equipment inside the Field Engineers Building lead us to suspect that a UST was currently located beneath the lot to the west of the building. GPR surveys were somewhat inconclusive, but did not identify tanks remaining at these locations.

Borings 17, 20, 21 and 37 were drilled at these locations. One sample from Boring 17 contained heavy oil range petroleum. Samples from Boring 37, west of the Field Engineers Building contained heavy oil range petroleum at low concentrations. The results are relatively low and below regulatory action levels. In our experience, the results do not suggest a significant release, but do warrant more assessment during demolition of the facilities.

A former fueling station was located in the lot area of the western half of the property. Underground storage tanks and dispensers, including a previously closed in place tank beneath the dispensers were removed in 1997. Petroleum contaminated soils were removed until test results from the remedial excavations were below regulatory limits (See Rob's Demolition report

of UST removal and assessment, 1997, Appendix). Borings 2 and 14 were advanced at the location of the remedial excavations to sample the underlying soils.

Obvious staining or other evidence of contamination was not observed. Several samples were tested for petroleum hydrocarbons which were not detected. VOC's were not detected, and heavy metal concentrations appear to be normal or below detection limits. This work was performed as a check on the previous remedial effort. We conclude that significant petroleum contamination is no longer present from this release.

A 10,000 gallon heating oil tank was previously located north of the Fleet building which was removed in 1988. It had been converted to waste oil storage. Removal of the tank involved excavation of petroleum contaminated soils which reached the water table at that time. Available reports indicate that the contaminated soils were removed, but documentation of sampling and chemical analysis following remediation is not available. See information provided by Ecology (Appendix E). The remedial excavation extended to the water table which we encountered at 20 feet below this lower portion of the site.

Borings 12, 16, 25, 26, 28, 39, and 41 were drilled and sampled to the water table in the vicinity of the removed tank. Groundwater samples were taken from a temporary monitoring well installed at the location of Boring 12, north and west of the former UST. Samples were tested for petroleum hydrocarbons, and VOC's with results below detection limits except for one sample from Boring 28 and two from Boring 39 which contained very low concentrations of heavy petroleum hydrocarbons, below regulatory limits. Petroleum and VOC's were not detected in groundwater samples taken from this location, heavy metals were detected at trace concentrations or were below regulatory limits. We did not find significant petroleum contamination remaining from this UST release.

4. Conclusions

We have not found significant environmental contamination during the course of this investigation. The conditions we have identified are relatively minor, and can likely be managed through remediation of floor drains and storm drains.

The current active UST system needs to be removed to accommodate future development, minor amounts of soil contamination will likely need to be disposed of during removal of the system. Removal of abandoned tanks, stormwater and floor drains will likely also require some remediation.

We have not encountered severe or widespread soil contamination, or evidence of groundwater contamination, that would require significant environmental remediation.

5. Recommendations

We recommend removing the abandoned UST's and floor drains and remediation of surrounding soils as necessary. We recommend removing the cesspool and drains serving the Broom Shed and wash bays and removing contaminated soils as necessary.

We recommend eventual closing and assessment for the active fueling station. Some remediation should be anticipated due to leaks and spills and tank overfills. These conditions are normal or at least common. We did not find severe or widespread soil or groundwater contamination associated with this or previous UST systems.

6. Limitations

As this investigation is not comprehensive, we recommend awareness of the potential for contaminated soils and other adverse environmental conditions to be found in other areas of the property, including potentially other abandoned UST not identified during this characterization.

The conclusions and recommendations presented herein comprise professional opinions based on the information reviewed and results of exploration and analysis to date. This report is intended for the use of our Clients for the purposes stated herein. It should not be relied upon by other parties for other purposes. No express or implied warranties are offered or implied.