



**Preliminary Geotechnical
Investigation
Proposed Office Building**

2401 Inter Avenue
Puyallup, Washington

June 25, 2017

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**PRELIMINARY GEOTECHNICAL INVESTIGATION
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1.0 Introduction

In accordance with your authorization, Cobalt Geosciences, LLC (Cobalt) has completed a preliminary geotechnical investigation for the proposed office building located at 2401 Inter Avenue in Puyallup, Washington (Figure 1).

The purpose of the geotechnical investigation was to identify subsurface conditions and to provide preliminary geotechnical recommendations for foundation design, earthwork, soil compaction, utilities, general pavement guidelines, and suitability of the on-site soils for use as fill.

The scope of work for the geotechnical investigation consisted of a site investigation followed by engineering analyses to prepare this report. Recommendations presented herein pertain to various geotechnical aspects of the proposed development, including foundation design, drainage, and earthwork.

2.0 Project Description

The project details have not been finalized; however, we understand that the proposed development includes a one-story office building with wood framing to be supported at or near existing site elevations. There will be paved parking areas adjacent to the new building. The location and dimensions of the proposed structure and parking areas have not been determined at the time of this writing.

We anticipate that foundation loads will be generally light and that site grading will include cuts and fills on the order of 3 feet or less for foundation placement and parking lot construction. We should be notified if site development plans change so that we may update the recommendations in this report. We should be provided with final plans prior to construction and permitting.

3.0 Site Description

The site is located at 2401 Inter Avenue in Puyallup, Washington (Figure 1). The property consists of one rectangular parcel (No. 2105200150) with a total area of approximately 1.85 acres.

The southwest portion of the property is currently developed with a single-family residence and asphalt driveway. The remainder of the site is vegetated with grasses, bushes, and sparse evergreen and deciduous trees.

The property is nearly level and is bordered to the north, east, and west by commercial developments and to the south by Inter Avenue.

4.0 Field Investigation

4.1.1 Site Investigation Program

The geotechnical field investigation program was completed on June 8, 2017 and included excavating and sampling three test pits within the property, where accessible.

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The soils encountered were logged in the field and are described in accordance with the Unified Soil Classification System (USCS).

A Cobalt Geosciences field representative conducted the explorations, classified the encountered soils, kept a detailed log of each test pit, and observed and recorded pertinent site features.

The results of the test pit explorations are presented in Appendix C.

5.0 Soil and Groundwater Conditions

5.1.1 Area Geology

The site lies within the Puget Lowland. The lowland is part of a regional north-south trending trough that extends from southwestern British Columbia to near Eugene, Oregon. North of Olympia, Washington, this lowland is glacially carved, with a depositional and erosional history including at least four separate glacial advances/retreats. The Puget Lowland is bounded to the west by the Olympic Mountains and to the east by the Cascade Range. The lowland is filled with glacial and non-glacial sediments consisting of interbedded gravel, sand, silt, till, and peat lenses.

The Geologic Map of Washington – Southwest Quadrant, indicates that the site is underlain by alluvium.

In this area, alluvium includes variable mixtures and layers of sand, silt, clay, cobbles, and gravels with localized areas of peat and woody debris. These deposits have variable density ranging from soft/loose to dense, and include materials deposited by rivers and streams within the last 11,000 years (approximately).

Test Pits TP-1 through TP-3

All of the test pits encountered approximately 8 to 18 inches of topsoil and vegetation underlain by about 5 to 5.5 feet of medium stiff to stiff, silt with variable amounts of sand and local woody debris (Alluvium). These materials were underlain by loose to medium dense, very fine to fine grained sand with trace to some silt (Alluvium). These materials locally contained large woody debris and interbeds of silt/clay.

Overall Soil Conditions

Based on the explorations conducted as well as past experience at nearby site locations, the site is underlain by variable composition and density alluvium. These deposits generally become denser with depth, typically becoming medium dense or firmer below about 35 feet. Drilled borings would be necessary to confirm the composition and density of the soils.

5.1.2 Groundwater

At the time of our investigation, groundwater was encountered in all of the test pits from 5 to 6.5 feet below grade. Groundwater continued below this level and likely represents a more regional groundwater regime. We anticipate that an upper perched zone of groundwater may develop during the wetter months of the year.

Water table elevations often fluctuate over time. The groundwater level will depend on a variety of factors that may include seasonal precipitation, irrigation, land use, climatic conditions and soil permeability.

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Water levels at the time of the field investigation may be different from those encountered during the construction phase of the project.

6.0 Geologic Hazards

6.1 Erosion Hazard

The Natural Resources Conservation Services (NRCS) maps for Pierce County indicate that the site is underlain by Briscot Loam. We anticipate these soils will have a “Slight” erosion potential in a disturbed state.

It is our opinion that soil erosion potential at this project site can be reduced through landscaping and surface water runoff control. Typically erosion of exposed soils will be most noticeable during periods of rainfall and may be controlled by the use of normal temporary erosion control measures, such as silt fences, hay bales, mulching, control ditches and diversion trenches. The typical wet weather season, with regard to site grading, is from October 31st to April 1st. Erosion control measures should be in place before the onset of wet weather.

6.2 Seismic Hazard

The overall subsurface profile corresponds to a Site Class *E* as defined by Table 1613.5.2 of the 2012 International Building Code (2012 IBC). A Site Class *E* applies to a soft soil profile with an undrained shear strength of less than 1,000 psf.

We referenced the U.S. Geological Survey (USGS) Earthquake Hazards Program Website to obtain values for S_s , S_i , F_a , and F_v . The USGS website includes the most updated published data on seismic conditions. The site specific seismic design parameters and adjusted maximum spectral response acceleration parameters are as follows:

PGA	(Peak Ground Acceleration, in percent of g)
S_s	124.50% of g
S_i	47.70% of g
F_A	0.90
F_V	2.40

Additional seismic considerations include liquefaction potential and amplification of ground motions by soft/loose soil deposits.

Soil liquefaction is a state where soil particles lose contact with each other and become suspended in a viscous fluid. This suspension of the soil grains results in a complete loss of strength as the effective stress drops to zero as a result of increased pore pressures. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. However, liquefaction has occurred in soils other than clean sand, such as low plasticity silt. Liquefaction usually occurs under vibratory conditions such as those induced by seismic events.

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We were not contracted to conduct deep borings or analyze the liquefaction potential. Based on our experience with nearby sites underlain by similar soils, the liquefaction potential at the site likely ranges from moderate to high. Total settlements on the order of 4 to 8 inches or more could result from liquefaction.

Resulting total and/or differential settlements can adversely affect structural developments, causing structural failure or distress. Depending on the finalized proposed construction, conducting liquefaction analyses may be warranted. We should be provided with the final plans to determine if further analysis is necessary. Our preliminary foundation support recommendations do provide options to mitigate some level of settlement due to soft soils and potentially, liquefaction.

7.0 DISCUSSION

7.1.1 General

It is our opinion that the proposed office building may be supported on a shallow mat or raft foundation bearing on a geogrid reinforced fill zone, or on a deep foundation system. One or more drilled borings would be necessary to determine deep foundation system design parameters and options.

The near surface soils consist of silt with variable amounts of sand. These materials are not suitable for use as structural fill. If allowed by the City of Puyallup, adding dry cement and mixing with the native soils could allow their use as fill; however, a mix design would be necessary.

8.0 Recommendations

8.1.1 Site Preparation

Trees, shrubs and other vegetation should be removed prior to stripping of surficial organic-rich soil. Based on observations from the site investigation program, it is anticipated that the stripping depth will range from 8 to 18 inches. The excavated material is not suitable as fill material within the proposed building envelope but could be used as fill material in non-settlement sensitive areas such as landscaping regions. In these non-settlement sensitive areas, the fill should be placed in maximum 12 inch thick lifts that should be compacted to at least 90 percent of the modified proctor (ASTM D 1557 Test Method) maximum dry density.

Any undocumented fill should be removed and backfilled with suitable structural fill compacted to at least 90 percent of the modified proctor up to planned subgrade elevations.

The native soils below the vegetation and topsoil consist of fine-grained alluvium consisting of silt with sand. These materials should not be used as structural fill due to their high fines content and elevated moisture levels.

Imported structural fill should consist of a sand and gravel mixture with a maximum grain size of 3 inches and less than 5 percent fines (material passing the U.S. Standard No. 200 Sieve). Structural fill should be placed in maximum lift thicknesses of 12 inches and should be compacted to a minimum of 95 percent of the modified proctor maximum dry density, as determined by the ASTM D 1557 test method.

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8.1.2 Temporary Excavations

Based on our understanding of the project, we anticipate that the grading could include local cuts on the order of approximately 4 feet or less for foundation placement. These excavations should be sloped no steeper than 1H:1V (Horizontal:Vertical) in native soils. If an excavation is subject to heavy vibration or surcharge loads, we recommend that the excavations be sloped no steeper than 1.5H:1V, where room permits. Excavations that extend below 4 feet should be sloped no steeper than 1.5H:1V and 2H:1V if subject to surcharge loads. This is due to severe caving that occurs in the underlying sand unit.

Temporary cuts should be in accordance with the Washington Administrative Code (WAC) Part N, Excavation, Trenching, and Shoring. Temporary slopes should be visually inspected daily by a qualified person during construction activities and the inspections should be documented in daily reports. The contractor is responsible for maintaining the stability of the temporary cut slopes and reducing slope erosion during construction.

Temporary cut slopes should be covered with visqueen to help reduce erosion during wet weather, and the slopes should be closely monitored until the permanent retaining systems or slope configurations are complete. Materials should not be stored or equipment operated within 10 feet of the top of any temporary cut slope.

Soil conditions may not be completely known from the geotechnical investigation. In the case of temporary cuts, the existing soil conditions may not be completely revealed until the excavation work exposes the soil. Typically, as excavation work progresses the maximum inclination of temporary slopes will need to be re-evaluated by the geotechnical engineer so that supplemental recommendations can be made. Soil and groundwater conditions can be highly variable. Scheduling for soil work will need to be adjustable, to deal with unanticipated conditions, so that the project can proceed and required deadlines can be met.

If any variations or undesirable conditions are encountered during construction, we should be notified so that supplemental recommendations can be made. If room constraints or groundwater conditions do not permit temporary slopes to be cut to the maximum angles allowed by the WAC, temporary shoring systems may be required. The contractor should be responsible for developing temporary shoring systems, if needed. We recommend that Cobalt Geosciences and the project structural engineer review temporary shoring designs prior to installation, to verify the suitability of the proposed systems.

8.1.3 Erosion and Sediment Control

Erosion and sediment control (ESC) is used to reduce the transportation of eroded sediment to wetlands, streams, lakes, drainage systems, and adjacent properties. Erosion and sediment control measures should be implemented and these measures should be in general accordance with local regulations. At a minimum, the following basic recommendations should be incorporated into the design of the erosion and sediment control features for the site:

- Schedule the soil, foundation, utility, and other work requiring excavation or the disturbance of the site soils, to take place during the dry season (generally May through September). However, provided precautions are taken using Best Management Practices (BMP's), grading activities can be completed during the wet season (generally October through April).

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- All site work should be completed and stabilized as quickly as possible.
- Additional perimeter erosion and sediment control features may be required to reduce the possibility of sediment entering the surface water. This may include additional silt fences, silt fences with a higher Apparent Opening Size (AOS), construction of a berm, or other filtration systems.
- Any runoff generated by dewatering discharge should be treated through construction of a sediment trap if there is sufficient space. If space is limited other filtration methods will need to be incorporated.

8.1.4 Preliminary Foundation Design

The proposed office building may be supported on a mat/raft foundation system bearing on at least 12 inches of crushed rock overlying geogrid and existing medium stiff to stiff native soils. Deep foundation options are possible; however, one or more drilled borings would be necessary to determine design options.

Raft/Mat Foundation Option

For a mat foundation system, we recommend that the building area be over-excavated at least 12 inches below proposed bottom of footing elevations and a minimum of 2 feet beyond all footing edges. We recommend a minimum footing embedment of 2 feet below adjacent finished grades.

Tensar TX160 geogrid should be placed on the resulting subgrade with at least 2 feet of overlap onto adjacent grids. Structural fill consisting of 1-1/4 to 1-1/2 inch minus crushed rock should be placed over the resulting subgrade and compacted to at least 95 percent of the modified proctor.

An allowable bearing pressure of 500 psf may be used in rigid mat foundation design. If inter-connecting grade beams are used as a waffle system, we recommend a maximum spacing of 10 feet between grade beams. Any foundation system should be designed to resist differential settlement as noted below and in the Seismic Hazard portion of this report.

We recommend that all completed footing excavations and backfill work be observed by the geotechnical engineer prior to reinforcing steel and structural concrete placement, to confirm that the bearing surface has been prepared in a manner consistent with our recommendations and that the subsurface conditions are as expected.

Lateral loads can be resisted by a combination of friction between the footing and the supporting soil, and by the passive lateral resistance of the soil surrounding the embedded portions of the footings. A passive lateral resistance corresponding to an equivalent fluid density of 275 pounds per cubic foot (pcf) may be used for design above the groundwater table. The upper 12 inches of passive resistance should be ignored. A coefficient of friction of 0.40 may be used between the concrete and crushed rock fill.

We estimate that the post construction settlement of the foundation may be on the order of 1 to 2 inches with differential settlements measured over a distance of approximately 25 feet on the order of 1 inch.

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8.1.5 Slab-on-Grade

We recommend that the upper 12 to 18 inches of the existing soils within any proposed slab areas be removed and replaced with structural fill compacted to at least 95 percent of the modified proctor (ASTM D1557 Test Method).

Often, a vapor barrier is considered below concrete slab areas. However, the usage of a vapor barrier could result in curling of the concrete slab at joints. Floor covers sensitive to moisture typically requires the usage of a vapor barrier. A materials or structural engineer should be consulted regarding the detailing of the vapor barrier below concrete slabs. Exterior slabs typically do not utilize vapor barriers.

The American Concrete Institutes ACI 360R-06 Design of Slabs on Grade and ACI 302.1R-04 Guide for Concrete Floor and Slab Construction are recommended references for vapor barrier selection and floor slab detailing.

Slabs on grade may be designed using a coefficient of subgrade reaction of 180 pounds per cubic inch (pci) assuming the slab-on-grade base course is underlain by structural fill placed and compacted as outlined in Section 8.1.

A perimeter drainage system is recommended unless interior slab areas are elevated a minimum of 12 inches above adjacent exterior grades. If installed, a perimeter drainage system should consist of a 4 inch diameter perforated drain pipe surrounded by a minimum 6 inches of drain rock wrapped in a non-woven geosynthetic filter fabric to reduce migration of soil particles into the drainage system. The perimeter drainage system should discharge by gravity flow to a suitable stormwater system.

Exterior grades surrounding buildings should be sloped at a minimum of one percent to facilitate surface water flow away from these buildings and preferably with a relatively impermeable surface cover immediately adjacent to the buildings.

8.1.7 Utilities

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards, by a contractor experienced in such work. The contractor is responsible for the safety of open trenches. Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

In general, silty and sandy soils were encountered at shallow depths in the explorations at this site. These soils have low cohesion and have a tendency to cave or slough in excavations. Shoring or sloping back trench sidewalls is required within these soils.

All utility trench backfill should consist of imported structural fill or suitable on site soils. Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. The upper 5 feet of utility trench backfill placed in pavement areas should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Below 5 feet, utility trench backfill in pavement areas should be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. Pipe bedding should be in accordance with the pipe manufacturer's recommendations.

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The contractor is responsible for removing all water-sensitive soils from the trenches regardless of the backfill location and compaction requirements. Depending on the depth and location of the proposed utilities, we anticipate the need to re-compact existing fill soils below the utility structures and pipes. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction procedures.

8.1.8 Groundwater Influence on Construction

At the time of our investigation, groundwater was encountered in all of the test pits at depths ranging from 5 to 6.5 feet below existing grades. We anticipate that a near-surface perched groundwater regime may be present during the winter months in addition to the observed regional groundwater level. The upper groundwater should be manageable utilizing pumps and sump excavations.

The regional groundwater level, located about 5 to 7 feet below grades, would be difficult to lower using typical pumping techniques. If deeper excavations are proposed, we recommend that a contractor familiar with groundwater removal be consulted prior to construction.

8.1.9 Pavement Recommendations

The near surface subgrade soils generally consist of silt with sand. These soils are rated as fair for pavement subgrade material (depending on silt content and moisture conditions). We estimate that the subgrade will have a California Bearing Ratio (CBR) value of 8 and a modulus of subgrade reaction value of $k = 180$ pci, provided the subgrade is prepared in general accordance with our recommendations.

We recommend that, at a minimum, 18 inches of the existing subgrade material be moisture conditioned (as necessary) and re-compacted to prepare for the construction of pavement sections. Deeper levels of recompaction or overexcavation and replacement may be necessary in areas where fill and/or loose soils are present. If work occurs outside of the dry grading season, overexcavation and replacement of the upper 1 to 3 feet of native soils may be necessary to achieve a firm subgrade for asphalt support. The use of a geotextile fabric or grid may be necessary.

The subgrade should be compacted to at least 95 percent of the maximum dry density as determined by ASTM Test Method D1557. In place density tests should be performed to verify proper moisture content and adequate compaction. However, if the subgrade soil consists of firm and unyielding native glacial soils a proof roll of the pavement subgrade soil may be performed in lieu of compaction tests.

The recommended flexible and rigid pavement sections are based on design CBR and modulus of subgrade reaction (k) values that are achieved, only following proper subgrade preparation. It should be noted that subgrade soils that have relatively high silt contents will likely be highly sensitive to moisture conditions. The subgrade strength and performance characteristics of a silty subgrade material may be dramatically reduced if this material becomes wet.

Based on our knowledge of the proposed project, we expect the traffic to range from light duty (passenger automobiles) to heavy duty (delivery trucks). The following tables show the recommended pavement sections for light duty and heavy duty use.

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**ASPHALTIC CONCRETE (FLEXIBLE) PAVEMENT
LIGHT DUTY**

Asphaltic Concrete	Aggregate Base*	Compacted Subgrade* **
2.0 in.	6.0 in.	18.0 in.

** 95% compaction based on ASTM Test Method D1557
** A proof roll may be performed in lieu of in place density tests*

HEAVY DUTY

Asphaltic Concrete	Aggregate Base*	Compacted Subgrade* **
3.5 in.	6.0 in.	18.0 in.

** 95% compaction based on ASTM Test Method D1557
** A proof roll may be performed in lieu of in place density tests*

PORTLAND CEMENT CONCRETE (RIGID) PAVEMENT

Min. PCC Depth	Aggregate Base*	Compacted Subgrade* **
6.0 in.	6.0 in.	18.0 in.

** 95% compaction based on ASTM Test Method D1557
** A proof roll may be performed in lieu of in place density tests*

The asphaltic concrete depth in the flexible pavement tables should be a surface course type asphalt, such as Washington Department of Transportation (WSDOT) 1/2 inch HMA. The rigid pavement design is based on a Portland Cement Concrete (PCC) mix that has a 28 day compressive strength of 4,000 pounds per square inch (psi). The design is also based on a concrete flexural strength or modulus of rupture of 550 psi.

9.0 Construction Field Reviews

Cobalt Geosciences should be retained to provide part time field review during construction in order to verify that the soil conditions encountered are consistent with our design assumptions and that the intent of our recommendations is being met. This will require field and engineering review to:

- Monitor and test structural fill placement and soil compaction
- Verify the soil bearing at foundation locations for the building
- Verify slab subgrade and capillary break material below slab-on-grade
- Observe footing drainage placement

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- Observe proof rolls of roadway subgrade prior to asphalt placement

Geotechnical design services should also be anticipated during the subsequent final design phase to support the structural design and address specific issues arising during this phase. Field and engineering review services will also be required during the construction phase in order to provide a Final Letter for the project.

10.0 Closure

This report was prepared for the exclusive use of the Abbey Road Group and their appointed consultants. Any use of this report or the material contained herein by third parties, or for other than the intended purpose, should first be approved in writing by Cobalt Geosciences, LLC.

The recommendations contained in this report are based on assumed continuity of soils with those of our test holes, and assumed structural loads. Cobalt Geosciences should be provided with final architectural and civil drawings when they become available in order that we may review our design recommendations and advise of any revisions, if necessary.

Use of this report is subject to the Statement of General Conditions provided in Appendix A. It is the responsibility of the Abbey Road Group who is identified as “the Client” within the Statement of General Conditions, and its agents to review the conditions and to notify Cobalt Geosciences should any of these not be satisfied.

Respectfully submitted,

Cobalt Geosciences, LLC

Original signed by:

Phil Haberman, PE, LG, LEG
Principal Geotechnical Engineer

PH/sc

APPENDIX A
Statement of General Conditions

Statement of General Conditions

USE OF THIS REPORT: This report has been prepared for the sole benefit of the Client or its agent and may not be used by any third party without the express written consent of Cobalt Geosciences and the Client. Any use which a third party makes of this report is the responsibility of such third party.

BASIS OF THE REPORT: The information, opinions, and/or recommendations made in this report are in accordance with Cobalt Geosciences present understanding of the site specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Cobalt Geosciences is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

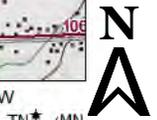
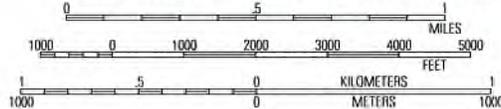
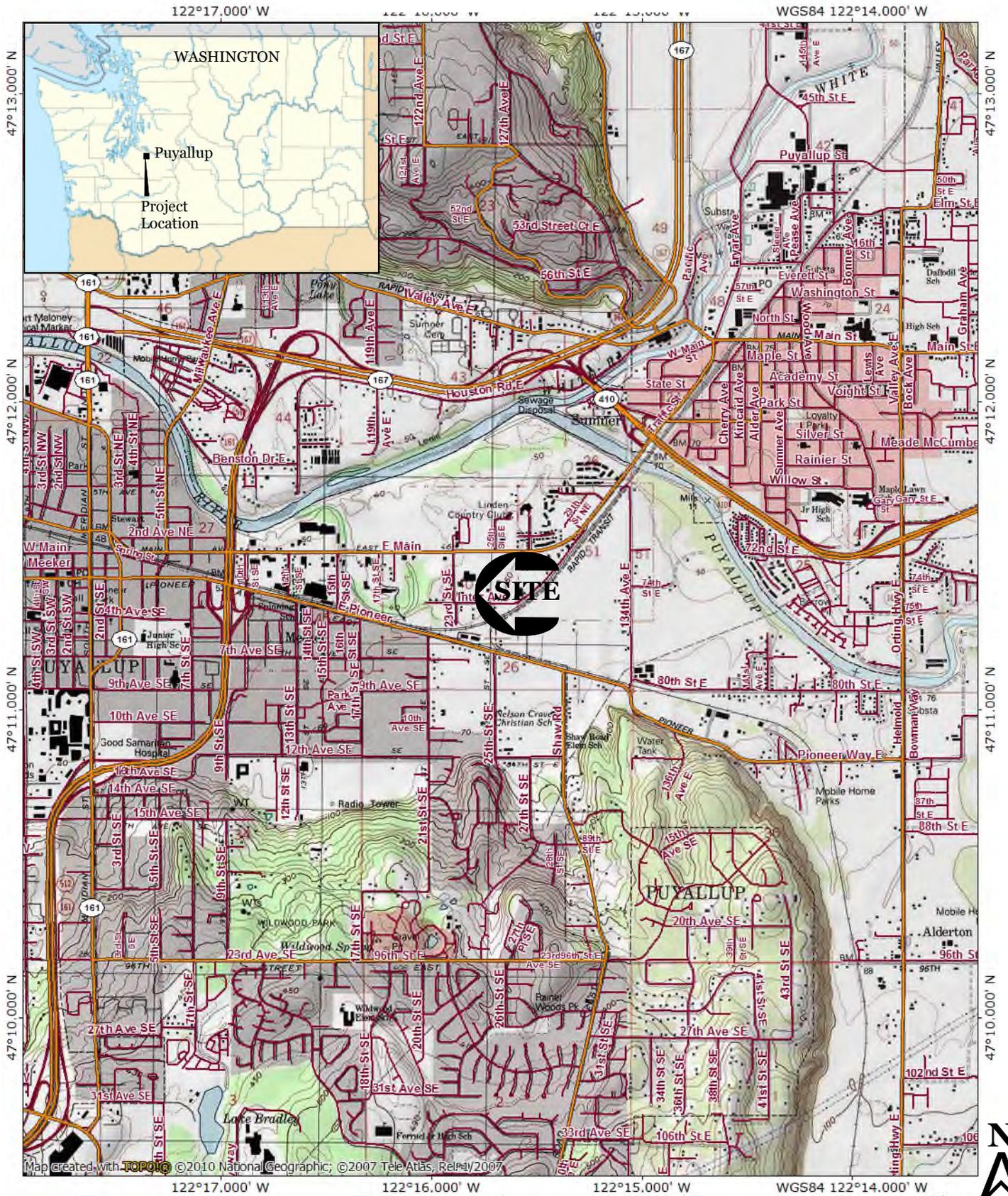
STANDARD OF CARE: Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state of execution for the specific professional service provided to the Client. No other warranty is made.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Cobalt Geosciences at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Cobalt Geosciences must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Cobalt Geosciences will not be responsible to any party for damages incurred as a result of failing to notify Cobalt Geosciences that differing site or sub-surface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Cobalt Geosciences, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Cobalt Geosciences cannot be responsible for site work carried out without being present.

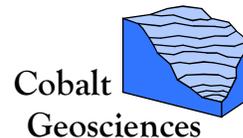
APPENDIX B
Figures: Vicinity Map, Site Plan



TN MN
15 1/2°
06/05/17

Proposed Office Building
2401 Inter Avenue
Puyallup, Washington

Vicinity Map
Figure 1



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APPENDIX C
Test Pit Logs

PROJECT: Proposed Office Building LOCATION: 2401 Inter Avenue, Puyallup, WA PROJECT NUMBER:	Test Pit No: TP-1 PAGE 1 OF 1
DRILLING / INSTALLATION: STARTED 6/8/17 COMPLETED: 6/8/17 DRILLING COMPANY: Steffen DRILLING EQUIPMENT: Mini DRILLING METHOD: SAMPLING EQUIPMENT: Hand Auger	NORTHING (ft): LAT: GROUND ELEV (ft): INITIAL DTW (ft): 6.5 STATIC DTW (ft): Not Encountered WELL CASING DIA. (in): --- LOGGED BY: PH
	EASTING (ft): LONG: TOC ELEV (ft): WELL DEPTH (ft): --- BOREHOLE DEPTH (ft): 10.0 BOREHOLE DIA. (in): CHECKED BY: SC

Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Recov. (feet)	Blow Count	Headspace PID (ppm)
			Grass/Topsoil					
		ML	ML; Medium stiff, silt with fine grained sand, mottled reddish brown to dark yellowish brown, moist. (Alluvium)					
5.0								
		SP	SP; Loose to medium dense, fine to medium grained sand trace silt, local interbeds of silt and clay, local pieces of woody debris, gray, moist to wet. (Alluvium)					
10.0			Test pit terminated at 10 feet.					

PROJECT: Proposed Office Building LOCATION: 2401 Inter Avenue, Puyallup, WA PROJECT NUMBER:	Test Pit No: TP-2 PAGE 1 OF 1
DRILLING / INSTALLATION: STARTED 6/8/17 COMPLETED: 6/8/17 DRILLING COMPANY: Steffen DRILLING EQUIPMENT: Mini DRILLING METHOD: SAMPLING EQUIPMENT: Hand Auger	NORTHING (ft): LAT: GROUND ELEV (ft): INITIAL DTW (ft): 6.5 STATIC DTW (ft): Not Encountered WELL CASING DIA. (in): --- LOGGED BY: PH
	EASTING (ft): LONG: TOC ELEV (ft): WELL DEPTH (ft): --- BOREHOLE DEPTH (ft): 10.0 BOREHOLE DIA. (in): CHECKED BY: SC

Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Recov. (feet)	Blow Count	Headspace PID (ppm)
			Grass/Topsoil					
		ML	ML; Medium stiff, silt with fine grained sand, mottled reddish brown to dark yellowish brown, moist. (Alluvium)					
5.0								
		SP	SP; Loose to medium dense, fine to medium grained sand trace silt, local interbeds of silt and clay, gray, moist to wet. (Alluvium)					
10.0			Test pit terminated at 10 feet.					

PROJECT: Proposed Office Building LOCATION: 2401 Inter Avenue, Puyallup, WA PROJECT NUMBER:	Test Pit No: TP-3 PAGE 1 OF 1
DRILLING / INSTALLATION: STARTED 6/8/17 COMPLETED: 6/8/17 DRILLING COMPANY: Steffen DRILLING EQUIPMENT: Mini DRILLING METHOD: SAMPLING EQUIPMENT: Hand Auger	NORTHING (ft): LAT: GROUND ELEV (ft): INITIAL DTW (ft): 5 STATIC DTW (ft): Not Encountered WELL CASING DIA. (in): --- LOGGED BY: PH
	EASTING (ft): LONG: TOC ELEV (ft): WELL DEPTH (ft): --- BOREHOLE DEPTH (ft): 10.0 BOREHOLE DIA. (in): CHECKED BY: SC

Depth (feet)	Graphic Log	USCS	Description	Sample	Time Sample ID	Recov. (feet)	Blow Count	Headspace PID (ppm)
			Grass/Topsoil					
		ML	ML; Medium stiff to stiff, silt with fine grained sand, areas of large woody debris, mottled reddish brown to dark yellowish brown, moist. (Alluvium)					
5.0								5
		SP	SP; Loose to medium dense, fine to medium grained sand trace silt, local interbeds of silt and clay, gray, moist to wet. (Alluvium)					
10.0			Test pit terminated at 10 feet.					10