GN Northern, Inc.
Consulting Engineers Environmental Scientists Construction Materials Testing

November 9, 2018

City of Stevenson
7121 E. Loop Rd/PO Box 371
Stevenson, WA 98648-0371

Attn: Leana (Johnson) Kinley, EMPA, CMC
City Administrator

Re: Proposal for Geotechnical Engineering Services
City of Stevenson New Fire Hall, Stevenson Washington (Parcel # 02070200310000)

Dear Ms. Kinley,

As your request, GN Northern is pleased to submit this revised proposal for Geotechnical services for the referenced project in Stevenson.

Based on the information you provided we understand that the City has purchased the property along Rock Creek Drive to construct a new fire hall. We reviewed a draft site plan, an aerial view of the parcel within the site vicinity and a zoomed-in view of the referenced parcel attached to your 10/24 email.

Based on our desktop review the 3.45-acre parcel is located northwest of the intersection of Rock Creek Drive and Foster Creek Road. The site is elevated above the Columbia River by about 35 to 40 feet. Per the City of Stevenson's Critical Areas & Geologic Hazards Map, a small portion near the western of the site is mapped as 'Potentially Unstable Slope' which refers to an area with slope of 25% or greater. Published geologic maps of the area map site as 'mass-wasting deposits', with the apparent scarp of the historic landslide located approximately 3.5-miles to the northwest.

The scope of our Geotechnical services will include the following:

1. Contact local public utility locates, coordinate site access and schedule field activities;

2. Complete 5-7 test pits to explore subsurface conditions at the proposed building site. The test pits will be excavated to depths of 12 to 15 feet below the existing ground surface (BGS) or backhoe refusal whichever occurs first. If loose or unusual geologic conditions are encountered at these depths, the final depth of exploration may be increased by our Geotechnical Engineer. A geologist will log the subsurface conditions and measure groundwater levels, if encountered, in the test holes, examine soil conditions and collect samples for lab analysis. The test holes will be loosely backfilled with excavation spoils.

3. Laboratory testing will be performed on select samples to determine physical (index) properties of the on-site soils in accordance with ASTM Standards.

4. A Geotechnical report will present our findings and recommendations for site development, parameters for foundation design, floor slab support, and pavement design sections.

We will conduct engineering analysis using the data acquired from the subsurface exploration and laboratory testing to determine foundation design parameters, earthwork, groundwater depth, and suitability of onsite soils to support the anticipated structural loads. The report will address the geologic setting, known geologic hazards and seismicity of the overall site.

The report will include the following information:

- Test hole layout plan and test pit logs indicating soil stratification, classification, and groundwater levels where applicable;
- A summary of laboratory test data;
- Foundation Design Parameters- allowable bearing pressure, passive soil pressures, coefficient of horizontal friction; estimated total and differential settlements for shallow foundations. Foundation bearing support zone/ sub-base preparation;
- Frost penetration depth;
- Lateral earth pressures (active, at-rest) for design of retaining walls;
- Recommendations for floor slab-on-grade subgrade preparation, requirement for vapor barrier and capillary break material, and modulus of subgrade reaction value;
- Seismic design parameters including site coefficients and site classification per the 2015 International Building Code;
- Design criteria for temporary excavations;
- Identification of any problematic soil, unsuitable material or groundwater conditions;
- Recommendations for placement, and compaction of engineered fill materials in the building and pavement areas; and suitability of onsite soils for use as engineered fill;
- Compaction requirements for subgrade, base course and pavement sections;
- Asphalt (HMA) and Concrete Pavement design sections for both standard-duty and heavy-duty traffic applications.

An electronic copy of the Geotechnical Report will be submitted. The services will be performed in accordance with generally accepted standards of the Geotechnical engineering profession. The project will be overseen by a professional Geotechnical Engineer and an Engineering Geologist registered in the State of Washington. Our Geotechnical Engineers are available to answer questions during the design phase regarding our findings and recommendations.

Our estimated fee for Geotechnical services would be **$6,800**. In developing this estimate we assumed that we have permission to access the site to perform our field work.

The field activities will commence in about a week after receiving signed authorization; we will call in for local public utility locates before the field work. The Geotechnical Report will be submitted in approximately **2-3 weeks** after the field work, if you need the report sooner please let us know.

Thank you for the opportunity; if you have any questions, please contact us at 509-248-9798 or 541-387-3387.

Respectfully Submitted,

GN Northern, Inc.

Imran Magsi, PE, GE
Sr. Geotechnical Engineer

Karl Harmon, PE, PG, LEG
Senior Engineer/Geologist

AUTHORIZATION

If the scope of services and estimated cost as outlined above are acceptable, please sign below and email a copy to imagsi@gnnorthern.com serving as a Notice-to-Proceed.

Accepted by: _____
(Signature)

Typed or Printed Name: _____

Title: _____

Firm: _____

Date: _____