Washington State Department of Transportation

Lynn Peterson
Secretary of Transportation

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March 26, 2015

Ray Hoffman, Director
Seattle Public Utilities

Scott Kubly, Director
Seattle Department of Transportation

Dear Mr. Hoffman and Mr. Kubly,

Replacing the Alaskan Way Viaduct is a critical safety project for both the State of Washington and residents of Seattle. We value our partnership with the City of Seattle, which has played a crucial role in reaching agreement on the bored tunnel as the selected alternative as well as during the design and construction of the project. We are committed to continuing to work with you to ensure the agreements in place are fully implemented.

In your Jan. 6, 2015 letter, you raised concerns about correspondence between Seattle Tunnel Partners (STP) and its subcontractor, an engineering firm that designed the access pit that is being used to retrieve the boring machine to be repaired. It is important to understand the context of why this letter was written to STP and what action was taken as a result.

It was the role of the STP's subcontractor, the engineer of record, to design the access pit so it met all engineering needs and safety standards. It was also the role of the engineer to ensure the steps the contractor was taking during excavation of the pit would not compromise its integrity. The correspondence from the subcontractor to STP described the steps that the contractor should take to ensure the pit's continued structural integrity, which were completed. The correspondence did not say the pit was at risk of catastrophic failure. Any thoughts that these documents indicated that the safety and stability of the viaduct or the access pit was in question is a misunderstanding of the correspondence.

The role of WSDOT as the owner of the design-build contract with STP is to verify that the quality and safety requirements in the contract are met. WSDOT had access to the correspondence and verified that STP was taking the steps required by the engineer of record to ensure the structural integrity of the access pit. Because there was never an issue with the structural integrity of the access pit, we did not bring this normal course of action to the attention of the City.

We are committed to continuing to allow the City the same access to the correspondence in the Aconex database and encourage you to contact me or any of our staff immediately if you have questions about any of the information contained in the database.

We met with you and your staff on Jan. 8, 2015 to address the steps you suggested needed to be taken in order to meet the intent of the agreements between the City and State. During those meetings, we have reached agreement with you on the following:

1. Shannon & Wilson, a geotechnical consulting firm hired by WSDOT, is preparing a report that will assess the recent settlement that has occurred around the access pit, including the issues outlined in your letter. This report will be available this spring.

2. The recent ongoing survey data indicates that measurable ground settlement in the Pioneer Square area is not continuing at the rate observed in November with a few localized exceptions. Monitoring and understanding the possibility of ongoing settlement remains a high priority and survey tracking continues. In addition, STP's predictions of ground settlement during tunneling has not changed. WSDOT is willing to conduct an assessment of deformation impacts in specific locations if the City has areas of particular interest. This assessment would examine existing data and would not speculate on the impact of these predicted movements on specific City owned infrastructure.

3. The project's deformation monitoring program is being expanded in the SODO, Pioneer Square, and downtown neighborhoods. Monitoring points have and will be added to a substantial number of water services in the Pioneer Square neighborhood. The current alert levels, monitoring frequency, reporting formats, and emergency protocols will remain as they are today. Included is a table that shows the region of monitoring, structures/infrastructure, monitoring responsibilities, frequency and reporting mechanisms.

4. The predicted tunnel boring machine access shaft deformation was part of submittal S-C-TUN-TR2.32-01314-02, TBM Access Shaft Additional Dewatering Measures Due to Differing Site Conditions, sent to the City for review on Dec. 1, 2014. The report predicted minor settlement near the access shaft. As we know, the settlement was more than predicted and STP and Shannon & Wilson are currently reviewing the settlement to provide a more detailed understanding of it. While that investigation is ongoing, the monitoring points in the south portal area are surveyed frequently and the information submitted to the City for review. STP continues to acoustically test water mains in the area. The sewer along King Street was video surveyed and no new cracks were observed. The City has real-time access to the Geoscope database, which contains the results of instrument monitoring.

5. In some cases, steps can be taken to mitigate the impacts of ground movement, such as the strengthening of the Alaskan Way Viaduct that was completed by STP. It is not, however, practicable to mitigate the potential effects of ground movement over a large area. We are monitoring for potential ground movement in

the area and will take the appropriate steps to mitigate the impacts, if it should continue to occur. For example, we have conducted assessments of nearly 60 buildings in the area surrounding the access pit since November 2014 and have not identified any structural impacts from settlement.

6. In our meeting, City staff described a post-activity report that they had been provided previously and described the impacts of dewatering in the south end of the project, however, they no longer had a copy nor could recall its title. We are unable to locate such a report, however, we understand that since the request, SPU has located this information.

7. WSDOT has provided raw and final survey data to the City, including results from crews conducted by STP and WSDOT. We lead a bi-weekly survey task force meeting, which includes participants from the City, STP and WSDOT. At the meetings, survey crews from each of the entities exchange and review information and agree on next steps.

8. WSDOT survey crews have completed their control verification work and communicated the control corrections to STP. STP is completing their survey update of project control points based on WSDOT's information. STP is updating the individual monitoring points in Geoscope, which needs to be completed point by point. During this process, WSDOT will continue to share settlement information and continue the weekly task force meetings.

9. The weekly Construction Monitoring Task Force meetings are occurring and the City is an active participant. There are also weekly meetings led by STP with SPU and Seattle City Light.

If you have any questions, please contact me at 206-805-2843.

Sincerely,

Todd Trepanier, Administrator
Alaskan Way Viaduct Replacement Program

Attachment: STP and WSDOT Monitoring and Survey Frequencies

CC: Lynn Peterson, Secretary, Washington State Department of Transportation
Kate Joncas, Deputy Mayor, City of Seattle
Tim Burgess, Council President, City of Seattle

Instrument Type	General Location	STP Frequency	WSDOT Frequency	How Data is Reported
Utility Settlement Point (USP) (Manual)	Western Watermain	Once per Week	Once per Week	Geoscope (STP), Tabular Spreadsheet (WSDOT)
	Alaskan Way S - North of Access Shaft	No recent readings	NA	Geoscope
	Alaskan Way S - South of Access Shaft	Once per Week	NA	Geoscope
	Alaskan Way S - Water West of Access Shaft	Daily, Monday - Friday	NA	Geoscope
	Royal Brougham Way/WOSCA (east of Launch Pit)	Approximately every 2 weeks	NA	Geoscope
	Watermain west of Launch Pit	Varies depending on activity - Once per Week to Once per Month	NA	Geoscope
	East side of First at Railroad Way Plaza	Once per Week	NA	Geoscope
Satellite (ATLAS) (Automated)	Downtown corridor	Images received every two weeks Report issued every two months to WSDOT	NA	Report by STP
MPBX (Manual and Automated)	Along Tunnel Alignment	Automatic every 4 hours, heads read manually daily only within zone of influence of TBM	NA	Geoscope
Inclinometer (Manual or Automated)	Access Shaft	Daily through 3/6, now weekly	NA	Geoscope
	Ahead of Access Shaft	Read only within zone of influence of TBM	NA	Geoscope
	Behind of Access Shaft	No readings since TBM stopped, daily during tunneling	NA	Geoscope
NSSP (Manual)	Alaskan Way - Jackson to Columbia	Some readings in December. No recent data.	NA	Geoscope
Seismographs (Vibration Monitoring) (Automated)	South and North Portals	Readings occur every one minute Report received daily, Monday - Friday	NA	Report by STP
	Alaskan Way S - Jackson to Main	Readings occur every one minute Report received daily	NA	Report by STP
Liquid Levels (Automated)	Western/Polson/Commuter Buildings	Every 4 hours	NA	Geoscope
Manual Survey, Buildings (Manual)	West half of block between 1st and Alaskan Way, Jackson to between Main/Washington	Daily, Monday - Friday	NA	Geoscope
	West half of block between 1st and Alaskan Way, from between Main/Washington to Yesler	Approximately once per month	NA	Geoscope
	West half of block between 1st and Alaskan Way, Railroad to Jackson	Approximately once per month	NA	Geoscope
	1051 and East side of First, south of Railroad	Once per Week	NA	Geoscope
	Western/Polson/Commuter Buildings - West side loading docks	Once per Week	NA	Geoscope
Manual Survey, Viaduct (Manual)	West side, bents 113W - 103W	Weekly	NA	Geoscope
	East side, bents 108E - 103E	Weekly	NA	Geoscope
	Columbia Ramp	Not read since 12/5/14	NA	Geoscope
	Railroad Ramps, west columns	Once per Week	NA	Geoscope
	H1N Embankment	Once per Week	Once per Week	Geoscope (STP), Tabular Spreadsheet by H2K Project Office (WSDOT)
	Gutter line, full extent	NA	Twice per year	Tabular Spreadsheet by WSDOT NW Region Surveyors
	Bents 121 - 88	NA	Once per Week	Tabular Spreadsheet by WSDOT HQ Geodetic Surveyors
	Bents 87 - 53	NA	Once per Month	Tabular Spreadsheet by WSDOT HQ Geodetic Surveyors
AMTS (Automated)	Buildings, west half of block between 1st and Alaskan Way, from between Washington/Yesler and North	Every hour		Geoscope
	Viaduct, bents 121 - 114	Every 30 min		Geoscope
	Viaduct, bents 113 - 103	Every 30 min		Geoscope
	Viaduct, bents 100 - 93, and 92E	Every 30 min		Geoscope
	Viaduct, Columbia ramp	Hourly		Geoscope
Tiltmeters (Automated - ML Viaduct Manual - RR Ramps)	Viaduct, Bents 121E - 93E, and 92E+W	Every 4 hours		Geoscope
	Viaduct, Columbia ramp	Every 4 hours		Geoscope
	Viaduct, Railroad Way ramps	Weekly through 2/18, every 3 weeks since 2/18		Geoscope
	Western and Polson Buildings	Every 4 hours		Geoscope
Crack Gauges (Automated - ML Viaduct Manual - RR Ramps)	Viaduct, Bents 96E and 94E	Every 4 hours		Geoscope
	Viaduct, Bent 102W (two gauges)	Every 4 hours		Geoscope
	Viaduct, Railroad Way ramps (multiple columns)	Weekly through 2/18, every 3 weeks since 2/18		Geoscope
Piezometers/ Wells - STP Installed (Automated)	Access Shaft	Every 2 minutes		Geoscope
	Bottom of MPBX's	King to Jackson - every 15 minutes Yesler, north - every 4 hours		Geoscope
Piezometers/ Wells – Existing (Manual)	Pioneer Square Vicinity	Select wells as varying frequencies, daily through 2/11/15, now weekly from King to Yesler	Select wells at varying frequencies	Geoscope (STP), Reported in Shannon and Wilson Field Activity Reports (FAR) (WSDOT)
Piezometers / Open Cuts (Automated or Manual)	South open cut, east pant leg	Every 30 min		Geoscope
	South open cut, west pant leg	Daily, Monday - Friday		Geoscope
Secondary Survey Control (Manual)	Alaskan Way to First, between Railroad Way and Marion St Alaskan Way to Western, between Marion St and Spring St Western Ave, between Spring and Seneca St	Once per Week minimum, various secondary control is checked and verified on every scheduled monitoring run.	Once per Week	Tabular spreadsheet
Secondary Survey Control (Manual)	Alaskan Way to 4th Ave between Holgate and Spring St Alaskan Way between Spring and Pike St	Varies, secondary control is checked and verified on every scheduled monitoring run.	Once per Month	Tabular spreadsheet
LiDAR (Automated)	Pioneer Square Vicinity	NA	Once per Month starting 3/17	Color coded exhibits