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26 February 2013

Mr. David Rothstein
Broadway Trio, LLC
c/o Extell Development Company
805 Third Avenue, 7th Floor
New York, New York 10022

**RE: Neighboring Building Documentation and Monitoring During Foundation Construction
Proposed 221 West 57th Street Development (the "Project")
New York, New York
Langan Project No.: 009229202**

Dear David:

We understand excavation and foundation construction work is scheduled to commence at the 221 West 57th Street Development site (the "Site") in the upcoming months. The work would generally consist of soil and rock excavation extending about 65 to 80 feet below the existing sidewalk level, followed by new building foundation construction.

The Site is located within 90 feet of several designated NYC Landmarked buildings. Therefore, NYC landmarked building documentation and monitoring requirements in the NYCDOB Technical Policy and Procedure Notice (TPPN) 10/88 will apply to the Project and will need to be complied with prior to and during on-site excavation and foundation construction work. In addition, considering the significant depth of the proposed excavation, documentation and monitoring of other non-landmarked buildings located in close proximity to the Site should also be performed. A New York City Transit (NYCT) subway tunnel structure exists below Broadway adjacent to the Site; documentation and monitoring of this structure is addressed in separate correspondence.

As requested and per our recent discussions with your office, we have prepared the following building documentation and monitoring program for the Project in general accordance with the NYCDOB TPPN 10/88 requirements.

Existing Conditions Documentation

The existing building conditions documentation work should consist of the following tasks:

- NYCDOB TPPN 10/88 generally designates a 90-foot monitoring radius around construction sites. We therefore recommend portions of adjacent NYC Landmarked buildings located within this radius be documented prior to commencing excavation and foundation construction activities at the site. Existing conditions documentation should, as a minimum, consist of video and supplemental photographic documentation of exposed accessible portions of the exterior and interior building façades within the TPPN 10/88 90-foot radius shown on Figure 1. Per our recent discussion with your office, we understand Ownership would also like to include the following additional building areas in the documentation scope:

- All exposed and accessible portions of the exterior and interior building facades of the 205 West 57th Street (NYC Landmarked) building and the 204 West 58th Street building.
- The visible portions of the exterior north side facades, and selected portions of the west and east facades, of the NYC Landmarked 224 West 57th Street, 218 West 57th Street, and 200 West 57th Street buildings.
- Selected portions of the exposed exterior facades of the 211 and 217 West 58th Street buildings within 90 feet of the Site.

The above-described exterior and interior building façade extents are schematically shown on attached Figure 1.

- Ambient vibration level measurements should be made at select locations at the Site and in the accessible basements of the above-mentioned buildings during the documentation work using seismograph vibration monitors. Suggested ambient vibration monitoring locations are shown on Figure 1.
- Where permission is granted by the neighboring building owners, crack monitoring gauges should be established over select cracks observed in the documented façades for future monitoring.

Monitoring During Excavation and Foundation Construction

The neighboring building monitoring program should consist of the following tasks:

- Prior to commencing on-site excavation work, elevation and lateral position control points should be established on exposed accessible portions of the adjacent building exterior façades. Within the NYCDob TPPN 10/88 90-foot radius, the control points should be located at each corner of each adjacent building; additional control points should be located along the façades at a maximum spacing of 25 feet on centers. Beyond the TPPN 10/88 radius, the control points should be installed along the documented portions of the adjacent building façades at a maximum spacing of 50 feet on centers. Refer to attached Figure 1 for suggested minimum control point locations. At each location, the control points should be established near the sidewalk level and the roof level. A professional Land Surveyor licensed in the State of New York should record base elevations and lateral positions of these control points and monitor them on a weekly basis, as a minimum, during excavation and foundation construction work. Signed and sealed copies of the control point monitoring data should be provided to Ownership for inclusion in the monitoring data summary reports. If during monitoring, a cumulative movement exceeding 0.25 inch is recorded at any control point, the Construction Manager and Ownership should be immediately notified by the surveyor; this movement threshold is consistent with the requirements of TPPN 10/88.
- Vibration levels at select neighboring buildings should be monitored continuously during excavation and foundation construction work using seismographs placed inside the building basements at locations approved by the respective building owners. Monitoring should start prior to commencing on-site activities to establish ambient vibration levels at the seismograph locations. The seismograph geophone sensors

should be attached to the basement walls. Suggested seismograph locations are shown schematically on attached Figure 1; if monitoring data warrants, installation of additional seismographs may be necessary at the other neighboring buildings. Data from the seismographs should be transmitted electronically via a wireless connection to a secure internet database at the end of each day; the database should be made accessible to select parties. NYCDOB TPN 10/88 identifies the maximum allowable vibration level at the neighboring Landmarked buildings to be 0.5 inch/second. We suggest an initial alert level of 0.25 inch/second be established for the automatic notification from the seismographs installed in the subject buildings. The initial alert and threshold vibration levels for the seismographs installed in the non-landmarked buildings should be 0.5 inch/second and 1.0 inch/second, respectively. Should the initial alert level or the threshold vibration level be exceeded, instant cellular notification should be transmitted to the Contractor(s) performing the work (so they can be aware of the exceedance) since they are responsible for performing their work so as not to damage the neighboring buildings. Arrangements could also be made so that other pre-designated parties are simultaneously notified.

- On at least a weekly basis, the crack-monitoring gauges installed during the existing conditions documentation should be observed and data downloaded. Any noticeable indications of gauge displacements should be brought to Ownership's and their Construction Manager's attention, so they can be reviewed by their Structural Engineer and the Contractor's Professional Engineer.
- The monitoring results should be summarized in bi-weekly reports submitted to Ownership; the reports should be submitted to NYCDOB, as necessary.

As with any monitoring program, any significant incremental or cumulative displacements observed at crack monitoring gauges and control points should be reviewed by a Structural Engineer to evaluate potential impacts to the neighboring buildings. If such observations and their review indicate the need for installation of additional instrumentation in the neighboring buildings, such instrumentation should be installed immediately and monitored going forward.

If during periodic monitoring, any of the monitoring threshold levels given in the NYCDOB TPN 10/88 or given above are exceeded, the following actions should be taken:

- Work within 90 feet of the subject instrumentation should be temporarily suspended, except any necessary emergency remedial work.
- NYCDOB Excavation Unit should be notified by the Contractor, Ownership's Construction Manager, and / or Ownership.
- The Contractor and his Professional Engineer should visit the subject building(s) and observe conditions; Ownership's Structural Engineer should also be present at the time of the observation.
 - If no adverse impacts or damage is observed, the suspended work can resume; however, the Contractor should make any necessary changes to his construction means and methods, so that the monitoring threshold levels are not exceeded in the future. The Contractor's Professional Engineer should submit a written

statement to Ownership and NYCDOB regarding the likely cause of the threshold level exceedance and any modifications the Contractor intends to make to his construction means and methods.

- o If adverse impacts or damage is observed, the Contractor's Professional Engineer should develop the necessary remedial procedures and changes to their construction means and methods, and submit a signed and sealed copy of the remedial plan to Ownership for review by NYCDOB, Ownership's engineers, and the neighboring building owner. The agreed upon remedial action should be implemented prior to resuming construction activities.

Closure

The western portion of the Site is located within 200 feet of the NYCT subway tunnel structure under Broadway, and we anticipate NYCT will establish project-specific documentation and monitoring requirements for their subway structure. Once these project-specific requirements are available from NYCT, they should be incorporated into the documentation and monitoring program for the Project.

The above-described documentation and monitoring program for the neighboring buildings is proposed for review and discussion with Ownership, their Structural Engineer, the neighboring building owners, and the NYCDOB in an effort to establish a practical on-going monitoring and reporting program acceptable to all Parties. This program is not intended to replace or supersede any monitoring by the excavation and foundation Contractor(s) whose responsibility it is to: inform themselves of the conditions of the neighboring structures, and perform their work so as not to adversely impact or damage the neighboring structures. The requirements of this monitoring program should be incorporated into the Construction Protection Plan for the Project, as necessary.

If you have any questions, please call.

Sincerely,
**Langan Engineering, Environmental, Surveying
and Landscape Architecture, D.P.C.**



Satyjit A. Vaidya, P.E.
Senior Project Manager



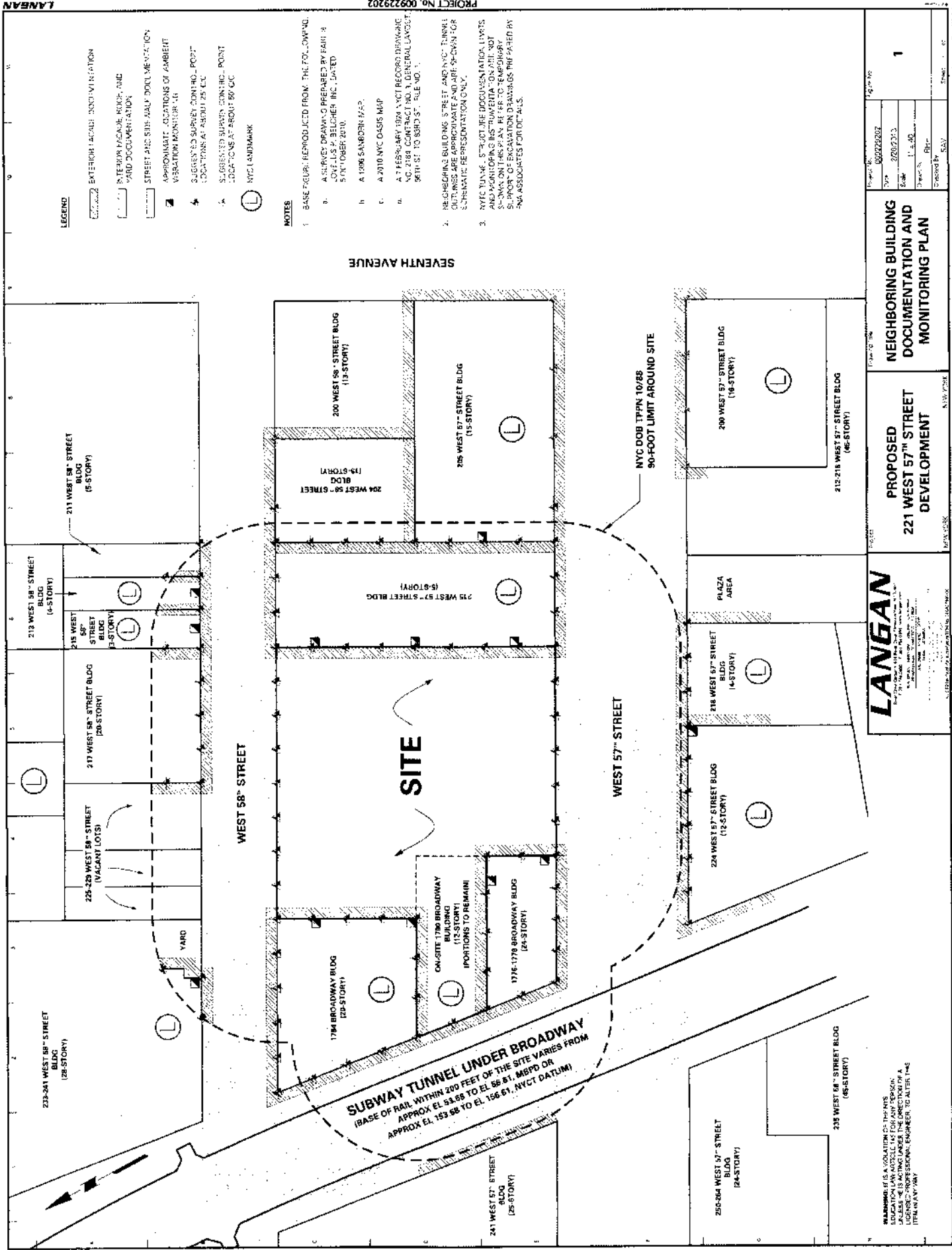
Rudolph P. Fritz, P.E., G.E., D.GE.
Managing Principal

Attachments: Figure 1

cc: Donna Gargano, Michele Fei, Richard Murphy / Extell Development Company

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FIGURE



PROJECT No. 009229202

SEVENTH AVENUE

SITE

WEST 57TH STREET

WEST 58TH STREET

SUBWAY TUNNEL UNDER BROADWAY
(BASE OF RAIL WITHIN 200 FEET OF THE SITE VARIES FROM
APPROX EL 53.55 TO EL 56.61, MBPD OR
APPROX EL 153.68 TO EL 156.61, NYCT DATUM)

NYC DOB TYPN 10/88
90-FOOT LIMIT AROUND SITE

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