

Torres Rojas, Genara

FOI #14182

From: lbs4@columbia.edu
Sent: Friday, August 02, 2013 10:00 AM
To: Duffy, Daniel
Cc: Torres Rojas, Genara, Van Duyne, Sheree; Qureshi, Ann
Subject: Freedom of Information Online Request Form

Information:

First Name: Lynne
Last Name: Sagalyn
Company: Columbia University
Mailing Address 1: 3022 Broadway
Mailing Address 2: Uris 816
City: New York
State: NY
Zip Code: 10027
Email Address: lbs4@columbia.edu
Phone: 212 854 3380
Required copies of the records: Yes

List of specific record(s):

February 3, 2006 posting of the, Cumulative Analysis of the WTC Tower perimeter column bases affected by the Transportation Hub project

THE PORT AUTHORITY OF NY & NJ

FOI Administrator

October 4, 2013

Ms. Lynne Sagalyn
Columbia University
3022 Broadway, Uris 816
New York, NY 10027

Re: Freedom of Information Reference No. 14182

Dear Ms. Sagalyn:

This is a response to your August 2, 2013 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code"), for copies of records related to the February 3, 2006 posting of the Cumulative Analysis of the World Trade Center Tower Perimeter column bases affected by the Transportation Hub project.

Material responsive to your request and available under the Code can be found on the Port Authority's website at <http://www.panynj.gov/corporate-information/foi/14182-WTC.pdf>.

Please refer to the above FOI reference number in any future correspondence relating to your request.

Very truly yours,



Ann L. Qureshi
FOI Administrator

225 Park Avenue South, 17th Floor
New York, NY 10003
T: 212 435 3642
F: 212 435 7555

FEBRUARY 3, 2006 POSTING

**PRELIMINARY ANALYSIS OF POTENTIAL CUMULATIVE EFFECTS ON THE
WTC SITE HISTORIC RESOURCE**

TOWER PERIMETER COLUMN REMNANTS AND TOWER FOOTPRINT AREAS

INTRODUCTION

The following preliminary information and analysis regarding the World Trade Center (WTC) Site has been prepared by The Port Authority of New York and New Jersey (PANYNJ), pursuant to Section 1.G. of its Memorandum of Agreement (MOA) for the WTC Transportation Hub project.¹ This is an initial analysis of potential cumulative effects on the historic resources at the WTC Site,² based on certain preliminary and pre-final design documents and information for various components of WTC Site projects. The potential effects of these components have previously been discussed by individual project sponsors, including the PANYNJ and the Lower Manhattan Development Corporation (LMDC), as part of their respective Section 106 processes. Section 106 Consulting Parties have also provided comments on specific project effects through Section 106 meetings, website postings, and other communications with the project sponsors. Each project sponsor is responsible for addressing effects, as applicable, as part of its independent project-specific environmental review process.³

Not all project components are at comparable stages of design. This initial analysis of potential cumulative effects focuses on specific elements of the WTC Site historic resources -- the Tower Perimeter Column Remnants and the Tower Footprint Areas -- now that there is some advanced information on the WTC Transportation Hub project and the WTC Memorial/Memorial Museum component of the WTC Memorial and Redevelopment Plan (WTCMRP). There is not yet sufficiently developed project design information regarding other features at the WTC Site, such as the bathtub slurry walls, to perform a more complete analysis of cumulative effects at this

¹ Memorandum of Agreement pursuant to Section 106 of the National Historic Preservation Act, executed in April 2005 by the Federal Transit Administration (FTA), New York State Historic Preservation Office, the Advisory Council on Historic Preservation, and PANYNJ. There were also multiple Concurring Parties to the MOA, including the Lower Manhattan Development Corporation (LMDC) and Lower Manhattan Emergency Preservation Fund (LMEPF).

² The WTC Site historic resources are described in the Coordinated Determination of National Register Eligibility for the World Trade Center Site, issued on March 31, 2004 by federal agencies involved in the redevelopment of the WTC Site (FTA, the Federal Highway Administration, and the U. S. Department of Housing and Urban Development), along with the project sponsors (PANYNJ, LMDC, and the New York State Department of Transportation (NYSDOT)).

³ Pursuant to the September 2003 Environmental Analysis Framework for Federal Transportation Recovery Projects in Lower Manhattan, adopted by the governmental project sponsors, including PANYNJ, NYSDOT, MTA and LMDC.

time. As additional project information is developed, additional cumulative analyses and updates will be performed.

This initial analysis encompasses the WTC Memorial Advanced Footings and Foundations package and also examines cumulative impacts related to the planned future construction of load bearing columns and shear walls (described below) that are part of the WTC Memorial/Memorial Museum component.

WTC Memorial / Memorial Museum – Shear Walls and Columns

Loads from both vertical and horizontal forces at the World Trade Center site are tremendous and present significant design challenges for both the Memorial and the Memorial Museum. The design of the Memorial, with its column-free gallery overlooking the pool and 100 foot column free contemplation room, adds even greater complexity to an already difficult site. Vertical loads include the weight of heavy reinforced concrete slabs, on to which must be added the weight of trees, six feet of soil, paving, pools of water and people. Horizontal loads are forces from adjacent sites, analogous to the pressure from the surrounding soil on the walls of a basement, and from the hydrostatic pressures outside of the bathtub. In response to these forces the structural design of the WTC Memorial / Memorial Museum utilizes two types of structural elements; a regularly spaced grid of columns and a series of concrete shear walls. The columns transfer the weight of the structure and its live loads vertically down to its footings, which sit on the bedrock below. The length and placement of the shear walls are directly related to the forces which they are designed to transfer; the greater the forces the longer the wall.

ANALYSIS OF POTENTIAL CUMULATIVE EFFECTS

The Port Authority has reviewed the following WTC Site and project design information, in order to prepare this initial analysis of potential cumulative effects:

- WTC Site Pre-Construction Inspection Report, dated August 31, 2005, prepared by the PANYNJ's Project Historic Architect.
- Preliminary Engineering design documents for the WTC Transportation Hub project, dated December 2005, prepared by the PANYNJ and its consultants.
- WTC Memorial Advanced Footing and Foundations package, dated December 2005, prepared by the LMDC and its consultants, together with related design drawings.
- WTC Memorial/Memorial Museum design information, discussed by the LMDC and its consultants with Section 106 Consulting Parties, at its meeting on January 11, 2006.

The projects affecting the Tower Perimeter Column Remnants and the Tower Footprint Areas of the WTC Site are the WTC Transportation Hub project and the WTC Memorial/Memorial Museum component of the WTCMRP. The PANYNJ has also reviewed initial design documents for the Freedom Tower project and the WTC Vehicular Security Center and Tour Bus Parking Facility project and finds these components of the WTCMRP would not have any potential cumulative effect on the Tower Perimeter Column Remnants and Tower Footprint Areas of the WTC Site.

WTC Tower Perimeter Column Remnants

North Tower

There are 84 “box beam” column remnants outlining the perimeter of the North Tower, located at the lowest level of the site (approximately elevation 242). Upon the installation of Platform D and associated structural work, the WTC Transportation Hub project will potentially affect 14 of these perimeter column remnants, including up to 3 remnants to be permanently removed, up to 6 remnants to be physically inaccessible, and up to 5 remnants to be visually obscured and physically inaccessible (but remaining in situ).⁴ The WTC Memorial Advanced Footing and Foundations package will not directly affect any perimeter column remnants; however the planned future construction of columns and shear wall that are part of the WTC Memorial/Memorial Museum component will potentially affect one perimeter column remnant, that would remain in situ, but could be visually obscured and physically inaccessible.

The potential cumulative effect is that up to 15 of the existing North Tower perimeter column remnants may be permanently affected by the WTC site projects.

South Tower

There are 39 “box beam” column remnants outlining the western portion of the perimeter of the South Tower, that are outside of the PATH right-of-way.⁵ Upon the installation of Platform D and associated structural work, the WTC Transportation Hub project will potentially affect up to 3 of these perimeter column remnants, including 1 remnant to be permanently removed, and up to 2 remnants to be visually obscured and physically inaccessible (but remaining in situ).⁶ The WTC Memorial Advanced Footing and Foundations package will not directly affect any perimeter column remnants; however the planned future construction of columns and shear walls that are part of the WTC Memorial/Memorial Museum component will potentially affect one perimeter column remnant, that would remain in situ, but could be visually obscured and physically inaccessible.

The potential cumulative effect is that up to 4 of the existing South Tower perimeter column remnants may be permanently affected by the WTC site projects.

WTC Tower Footprint Areas

North Tower

There is approximately 43,700 square feet of North Tower Footprint area, defined by the perimeter column remnants. Upon the installation of Platform D and associated structural work, the WTC Transportation Hub project will affect less than 4 percent (or approximately 1,600 feet) of this area. Upon installation of essential subsurface drainage repairs, new footings, and associated removals, the WTC Memorial and Advanced Footing and Foundations package will potentially contribute to an adverse effect on the footprint area, insofar as it is the basis for future

⁴ These potential effects are somewhat less than potential effects initially indicated in the MOA.

⁵ There were 34 “box beam” columns inside the pre-9/11 PATH right of way, that have been impacted by the Temporary WTC PATH Station

⁶ See footnote 4.

construction of columns and shear walls that are part of the WTC Memorial/Memorial Museum component. As previously described, the future construction of these structural elements will affect approximately 4 percent (or approximately 1,640 square feet) of this footprint area.⁷

The potential cumulative effect is that approximately 3,240 square feet of the North Tower Footprint area may be permanently affected by the WTC site projects.

South Tower

There is approximately 22,100 square feet of South Tower Footprint Area, defined by the perimeter column remnants, that are outside of the pre-9/11 PATH right of way.⁸ Upon the installation of Platform D and associated structural work, the WTC Transportation Hub project will potentially affect approximately 4 percent (or approximately 2,000 square feet) of the total footprint area. Upon installation of essential subsurface drainage repairs, new footings, and associated removals, the WTC Memorial Advanced Footing and Foundations package will potentially contribute to an adverse effect on the footprint area, insofar as it is the basis for future construction of columns and shear walls that are part of the WTC Memorial/Memorial Museum component. As previously described, the future construction of these structural elements will potentially affect approximately 0.5 percent (or approximately 120 square feet) of this footprint area.⁹

The potential cumulative effect is that approximately 2,120 square feet of the remaining South Tower footprint area may be affected by WTC Site projects (in addition to the approximately 21,600 square feet already within the PATH right-of-way).

POTENTIAL CUMULATIVE EFFECTS

The potential cumulative effect of the WTC Site projects on the Tower Perimeter Column Remnants, would result in 81 North Tower column remnants remaining in situ, including 69 column remnants remaining both physically and visually accessible; and 38 South Tower column remnants remaining in situ, including 35 remaining both physically and visually accessible.

The potential cumulative effect of the WTC Site projects on the Tower Footprint Areas, could result in approximately 92 percent (or approximately 40,000 square feet) of the North Tower Footprint Area remaining physically accessible, and approximately 47 percent (or approximately 20,000 square feet) of the South Tower Footprint Area remaining physically accessible.¹⁰

The project design information used for this analysis is preliminary and remains subject to further review. Non-cumulative effects, including temporary effects, on WTC Site elements

⁷ Additional portion of the Tower Footprint areas are likely to be affected by future construction of the WTC Memorial/Memorial Museum, but not final decisions have yet been made or final designs selected for this component of the WTCMRP.

⁸ The pre-9/11 PATH right-of-way occupies approximately 21,600 square feet (or approximately 49 percent) of the South Tower Footprint Area.

⁹ See footnote 7.

¹⁰ See footnote 7.

have been noted by specific project sponsors.¹¹ Each project sponsor shall remain responsible for considering and undertaking any measures within their own project to minimize or mitigate effects, pursuant to their respective Section 106 processes.

¹¹ As provided by the PANYNJ for the WTC Transportation Hub project, in its MOA and subsequent website postings; and as provided by the LMDC for the WTC Memorial/Memorial Museum projects, in its Programmatic Agreement and subsequent Section 106 meetings.