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13 January 2012

Ms. Elizabeth Palmer
Fisher Brothers Management
299 Park Avenue, 42nd Floor
New York, NY 10171

Re: Civil Engineering Due Diligence
111 Washington Street Project
New York, New York
Langan Project No. 001948405

Dear Ms. Palmer:

This report provides the results of our civil engineering site evaluation for the 111 Washington Street Project ("The Project") in Lower Manhattan. The report reviews existing conditions and generalized proposed improvements as they pertain to civil engineering work.

Our assessment of the existing site condition is based on our review of information from city agencies and local utility providers, such as water and sewer record drawings and as-built documents from the New York City Department of Environmental Protection (NYCDEP). A site visit was made to observe on-site surface features and assess the condition of site features. Additionally, we performed a search of the New York City Department of Buildings (NYCDOB) website for property records and obtained the official zoning map and tax map from the Department of Finance (NYCDOF). A Sea, Lake and Overland Surges from Hurricanes (SLOSH) map has also been analyzed for the site. The details of our findings are outlined below.

Roadways, Sidewalks & Curbs

Existing Conditions

The asphalt road pavement in Washington and Carlisle Streets is generally in good condition. It appears that Carlisle Street drains west towards Washington Street. Washington Street drains to the south. Two drainage inlets front the site. One inlet is located on Carlisle Street and the other on Washington Street; both are near the intersection.

The existing sidewalk on Carlisle Street is concrete, in good condition and drains away from the property. The existing sidewalk on Washington Street is concrete, in good condition and also drains away from the property. Both site frontages are characterized as narrow roadways (Carlisle: 30.5 ft. R.O.W, Washington: 49.5 ft. R.O.W) and very shallow sidewalk slopes.

The existing curbs on both Carlisle and Washington Streets are granite and are in good condition.

Analysis
Though the current sidewalk and roadway is in generally good condition, post construction site conditions may require the reconstruction of the sidewalk and repaving the roadway per DOT requirements.

Proposed improvements to the sidewalks and curbs are expected and will be included in Builder's Pavement Plans produced by the design team. These plans are submitted to NYCDOB for review and approval; this is a routine aspect of building design and permitting in New York City. This approval does not include the addition of private street furniture or installation of distinctive sidewalk colors or patterns. These items would be stand-alone NYCDOT permits, evaluated on an individual basis and potentially subject to Public Design Commission Review. The slope constraints shall be considered / addressed when designing the building's finished floor elevation.

Combined Sewers

Existing Service
A combined sewer (carrying both storm and sanitary flow) fronts the project site on both Carlisle and Washington Streets. There is a 4' x 2'8" flat-top concrete sewer in both Carlisle and Washington Streets. The sewer flows west across Carlisle Street then bends south down Washington Street.

Analysis
Building storm and sanitary flows can be discharged to the aforementioned combined sewer line. Site storm drainage will be subject to stormwater detention requirements. New sewer connection permits will be obtained during the design phase (Site Connection Proposal). We do not expect any required sewer upgrades or additional permit or planning exercises related to storm and sanitary discharge. A certified site connection proposal is required for any NYCDOB foundation and new building permits.

Based on the existing sewers, we suggest planning for a new combined connection in the southwest corner of the site to maximize allowable flow and minimize detention requirements.

Water

Existing Service
Water service is provided on both site frontages by 12-inch mains. The mains tie into an existing 4-way water connection in the intersection of Carlisle and Washington Streets.

There is one fire hydrant located along the site frontage at the southernmost extent of the site along Washington Street. Two others are located within close proximity of the site. One is located on Carlisle Street, east of Washington Street, directly across from the project site. The other is located on Washington Street, south of Carlisle Street, directly across from the project site.

Analysis
The sites location is ideal for the two required independent water services. Hydrant spacing on both streets satisfies New York City Fire Department (FDNY) spacing requirements (250-feet max).

Routine design procedure will involve performing hydrant flow tests to obtain street water pressure and allow the plumbing or fire protection engineers to evaluate the need for booster pumps within the new building.

Electric

Existing Service
Con Edison electric service is underground in the project area. Based on a field survey by True North Surveyors, dated 6/21/05. There is an electric manhole and vault at the southeast corner of the Carlisle and Washington Street intersections. There is a vacant vault within the Washington Street sidewalk near the northwest corner of the project site. No ConEd records were obtained by Langan for use in this study.

Analysis
Early in the design stages, the electrical engineer should establish projected electric loads and discuss the project details with Con Edison, such as capacity and potential points of service. Con Edison will then provide feedback on service voltage, transformer vault placement, etc. Con Edison is required by law to bring electric service to the property line. The site owner is then responsible to extend the service into the site / building as needed. Refer to FEMA / SLOSH sections for additional analysis.

Gas

Existing Service
Con Edison maintains a gas main in Washington Street. There is no record of a gas main in Carlisle Street per the field survey by True North Surveyors, dated 6/21/05.

Analysis
At this point, we see no unusual issues related to gas service. Though not required by the Public Utilities Law, Con Ed typically brings service to individual tax lots similar to electric services. If a project requires major upgrades to Con Ed's system, this cost is negotiated with the owner. Similar to electric, the mechanical engineer typically contacts Con Edison early in the design stages of the project to evaluate the capacity of the area's service and discuss the proposed load requirements.

Telecom

Existing Service
Empire City Subway (ECS) owns and maintains underground telecom facilities throughout New York City, leasing conduit and manhole space to various private telecom providers (Verizon, AT&T, Sprint, Time Warner, etc). The field survey by True North Surveyors, dated 6/21/05 indicates conduits on both Carlisle and Washington Streets

Analysis
We do not anticipate any major issues concerning telecom / cable service for the subject property. In the design stage of the project, the telephone / IT engineer shall contact the various providers in the area to discuss the design and installation of the required services. In our experiences, both Verizon and Time Warner Cable are motivated to add new customers and will generally work with owners to bring the appropriate service to the development sites.

FEMA / Floodplain

We reviewed the Flood Insurance Rate Maps (FIRMs) created by the Federal Emergency Management Agency (FEMA) to identify the 100-year floodplain boundary in the area of the subject property. The current (active) FIRM is dated September 5, 2007 and shows this site within the special flood hazard area subject to inundation by the 1% (100 year) annual chance flood.

Analysis
The proposed building will need to be designed in accordance with the requirements of the NYC Building Code, Appendix G- Flood Resistant Construction.

Note: Con Edison does not install 265/460-Volt transformer installations below grade in the flood plain; this installation is not a submersible design and must be installed at least one foot above the flood plain. Con Edison will only install a submersible 120/208-Volt designed facility below grade in areas located in the flood plain or that have a water table above the floor of the vaults. Special construction methods, which may result in incremental customer costs, will be required to mitigate water impact on the facilities.

SLOSH / Hurricane Inundation

SLOSH is a computerized model run by the National Hurricane Center to estimate storm surge heights and winds resulting from historical, hypothetical, and or predicted hurricanes. The model is accurate to within 20%. The latest data is from the New York State Hurricane Evacuation Restudy Technical Report, dated April 2009. This SLOSH map shows the site within the Category 1 zone.

Analysis

Due to the site's location, SLOSH models indicate that the site could be inundated by any category hurricane. The surge depths (in feet) above mean high water for categories 1 through 4 hurricanes are 12.1, 18.3, 24.8 and 30.4, respectively.

Note: Con Edison requires that network protectors and transformers for 460/480-Volt service be installed above SLOSH Category 3 inundation heights.

SUMMARY

- New combined sewer service will involve a connection to the city public sewer in accordance with ordinary NYCDEP permit methods.

- Other utility connections, such as water, electric, gas and telecom, appear to be typical of most New York City developments. We see no major issues at this time concerning these utilities. Each utility provider should be contacted early in the design stage to confirm project details.

- A detailed topographic and utilities survey of the site is recommended prior to the schematic design stage of the project. This data will be used to develop proposed utility design, new sidewalk and curb grading, and first floor elevations for the proposed building.

- Refer to 'Historic and Cultural Resource Due Diligence' letter dated 13 January 2012 by Langan Engineering for information on NYC Landmarks in the area.

- The project site does not include any protected streets or intersections.

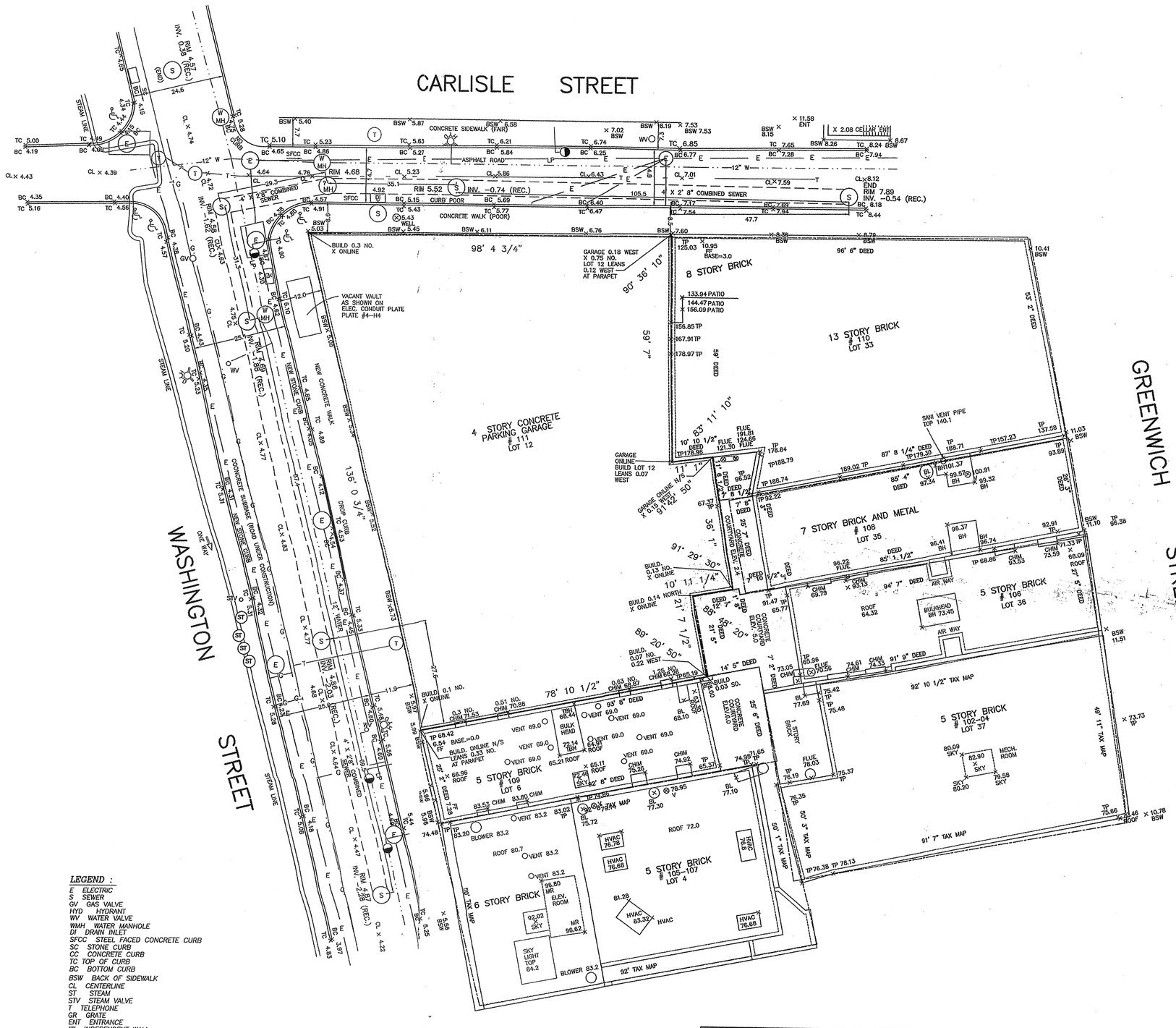
Sincerely,
Langan Engineering and Environmental Services, Inc., PC

David Lizza
Staff Engineer

Michele O'Connor, P.E.
Sr. Associate / Vice President

Attachments

- Architectural Survey by True North Surveyors, dated 6/21/05
- DEP Index Map
- FEMA Flood Insurance Rate Map
- Zoning Map 12b
- Water Map
- Section Map
- SLOSH Map
- NYC Tax Map



LEGEND :

E	ELECTRIC
S	SEWER
GV	GAS VALVE
HYD	HYDRANT
WV	WATER VALVE
WMH	WATER MANHOLE
DI	DRAIN INLET
SFCC	STEEL FACED CONCRETE CURB
SC	STONE CURB
CC	CONCRETE CURB
TC	TOP OF CURB
BC	BOTTOM CURB
BSW	BACK OF SIDEWALK
CL	CENTERLINE
ST	STEAM
STV	STEAM VALVE
T	TELEPHONE
GR	GRATE
ENT	ENTRANCE
IW	INDEPENDENT WALL
V	SAVI ROOF VENT
TP	TOP OF PARAPET
CONC.	CONCRETE
IB	I BEAM
BL	HVAC BLOWER
MIC	MICROWAVE ANTENNA
FF	FIRST FLOOR
INV.	SEWER INVERT ELEVATION
(REC.)	CITY RECORDS
♿	HANDICAP RAMP

AREA OF LOT 6

1ST FLOOR:
COMMERCIAL 1936.8 sq. ft.

2nd FLOOR THROUGH 5th floor:
RESIDENTIAL 7747.2 sq. ft.

PARCEL 2359.2 sq. ft.

AREA OF LOT 4

KOREAN BUDDHIST TEMPLE
OFFICES AND TEMPLE 1ST FL THROUGH 5TH FL 24,122 sq. ft.

ADDITIONAL ON 1ST FL 205 sq. ft,
ADDITIONAL ON 6TH FL 1681.1 SQ. FT.

PARCEL 4600 sq. ft.

AREA OF LOT 37

1ST FLOOR:
COMMERCIAL 4641.3 sq. ft.

2nd FLOOR THROUGH 5th floor:
RESIDENTIAL 21,378 sq. ft.

PARCEL 4617.3 sq. ft.

AREA OF LOT 36

1ST FLOOR:
COMMERCIAL 2160.9 sq. ft.

2nd FLOOR THROUGH 5th floor:
RESIDENTIAL 8643.6 sq. ft.

PARCEL 2811.4 sq. ft.

AREA OF LOT 35

1ST THROUGH 7TH FLOOR:
COMMERCIAL 15,764 sq. ft.

PARCEL 2428.1 sq. ft.

ELEVATIONS ARE ACTUAL AND REFER TO DATUM USED THE TOPOGRAPHICAL BUREAU, BOROUGH OF MANHATTAN, WHICH IS 2.75 FEET ABOVE THE NATIONAL GEODETIC SURVEY VERTICAL DATUM OF 1929 (UNITED STATES COAST AND GEODETIC SURVEY), MEAN SEA LEVEL, SANDY HOOK, NEW JERSEY.

DIMENSIONS SHOWN ARE IN THE UNITED STATES STANDARD OF MEASUREMENT (STANDARD FOOT).

THE SUBSURFACE UTILITY INFORMATION SHOWN HEREON HAS BEEN EXTRACTED FROM INFORMATION OBTAINED FROM THE VARIOUS MUNICIPAL DEPARTMENTS AND PRIVATE COMPANIES AND IS PLACED ON THIS SURVEY FOR SCHEMATIC PURPOSES ONLY. SUCH INFORMATION IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS EITHER BY SAID DEPARTMENTS OR COMPANIES NOR BY THE UNDERSIGNED. BEFORE ANY DRILLING, EXCAVATION OR CONSTRUCTION ON OR NEAR THE PREMISES SHOWN HERON, IT IS REQUIRED BY NEW YORK STATE INDUSTRIAL CODE 54 THAT THE SUBSU UTILITIES BE MARKED OUT AND IDENTIFIED BY THE COMPANIES OR AGENCIES HAVING JURISDICTION.

VAULTS UNDER SIDEWALK IF ANY NOT LOCATED.

SURVEY NOT TO BE USED TO DETERMINE THE LOCATION AND OR ERECTION OF ANY PHYSICAL IMPROVEMENTS OR DEMOLITION.

AREA OF PARCEL = 11,164 SQ. FT.
AREA OF PARCEL = 0.2562 ACRES

new

I HEREBY CERTIFY TO:
GBD DEVELOPMENT
AND OR TERRAMARK DEVELOPMENT
THE CITY OF NEW YORK
THAT THIS SURVEY WAS PREPARED AND REVIEWED UNDER MY SUPERVISION IN THE OFFICE AND THE FIELD.

UNAUTHORIZED ALTERATION OR ADDITION TO THIS SURVEY IS A VIOLATION OF SECTION 7209 OF THE NEW YORK EDUCATION LAW.

COPIES OF THIS SURVEY MAP NOT BEARING THE LAND SURVEYOR'S EMBOSSED SEAL AND ORIGINAL SIGNATURE SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

GUARANTEES INDICATED HEREON SHALL RUN ONLY TO THE PERSON FOR WHOM THE SURVEY IS PREPARED, AND ON HIS BEHALF TO THE TITLE COMPANY, GOVERNMENTAL AGENCY, AND LENDING INSTITUTION LISTED HEREON, AND TO THE ASSIGNEES OF THE LENDING INSTITUTION. GUARANTEES ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS.

REVISIONS	AUTH.	DATE	FIELD DATE: 6/21/05
			FB PG
			SCALE: 1" = 15'
			DRAWN BY: L.E.M.
			CHKD BY: J.J.V.
			COMP FILE:

ARCHITECTURAL SURVEY

SITUATED IN

THE BOROUGH OF MANHATTAN

THE CITY OF NEW YORK
STATE OF NEW YORK

111 WASHINGTON STREET

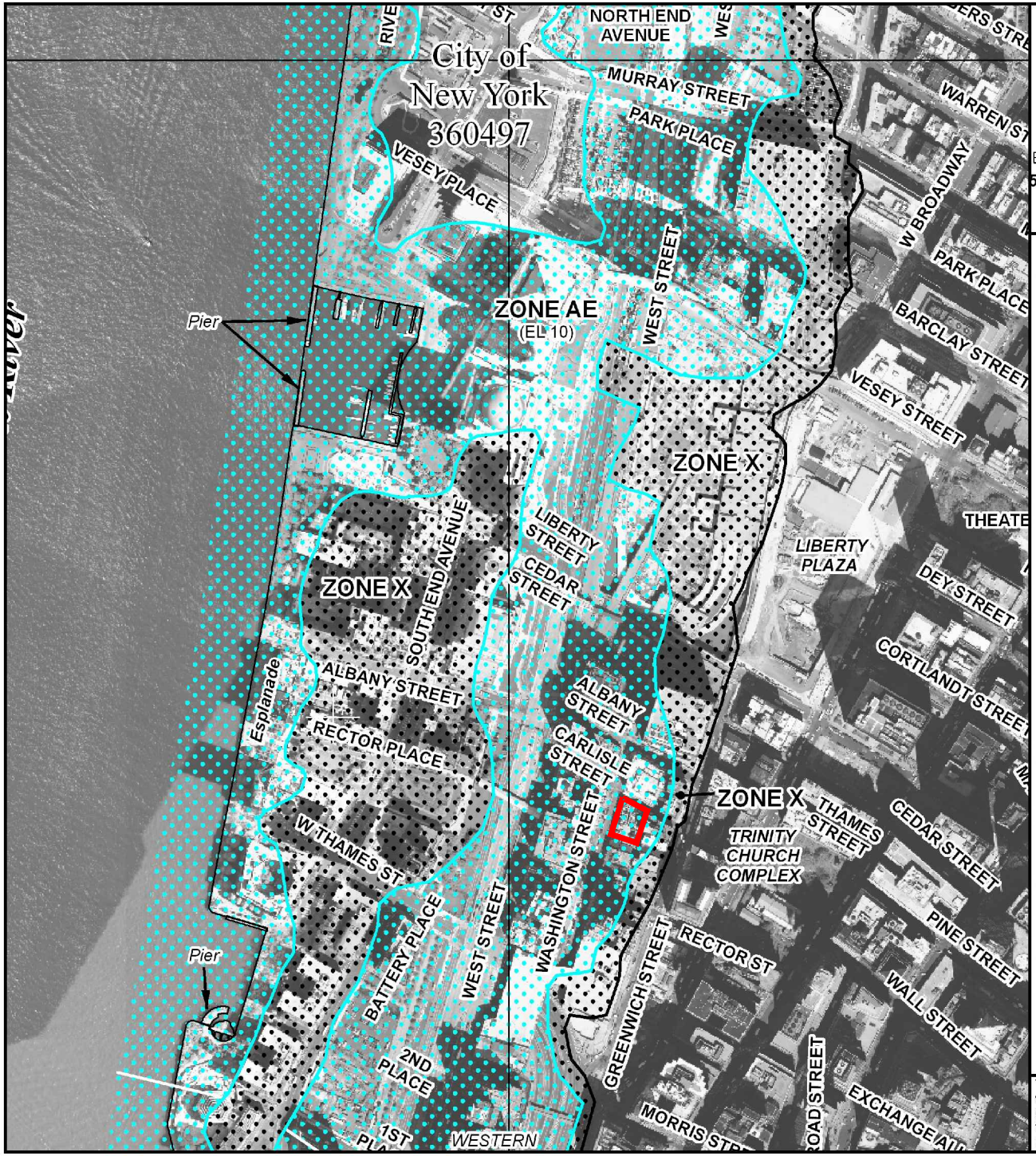
BLOCK 53 LOT 12

True North Surveyo
111 KOSCIUSZKO ROAD, WHITEHOUSE STA
phone (908) 534-6248 fax (908)

JOHN VIDA
No. 050298

John J. N.Y.P.L.S.
PROFESSIONAL LAND SURVEYORS

INDEX MAP PROVIDED
BY NYCDEP, MANHATTAN LOCAL OFFICE



MAP SCALE 1" = 500'

250 0 500 1000 FEET

50 0 150 300 ME

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0184F

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
NEW YORK,
NEW YORK
BRONX, RICHMOND, NEW YORK,
QUEENS, AND KINGS COUNTIES

PANEL 184 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

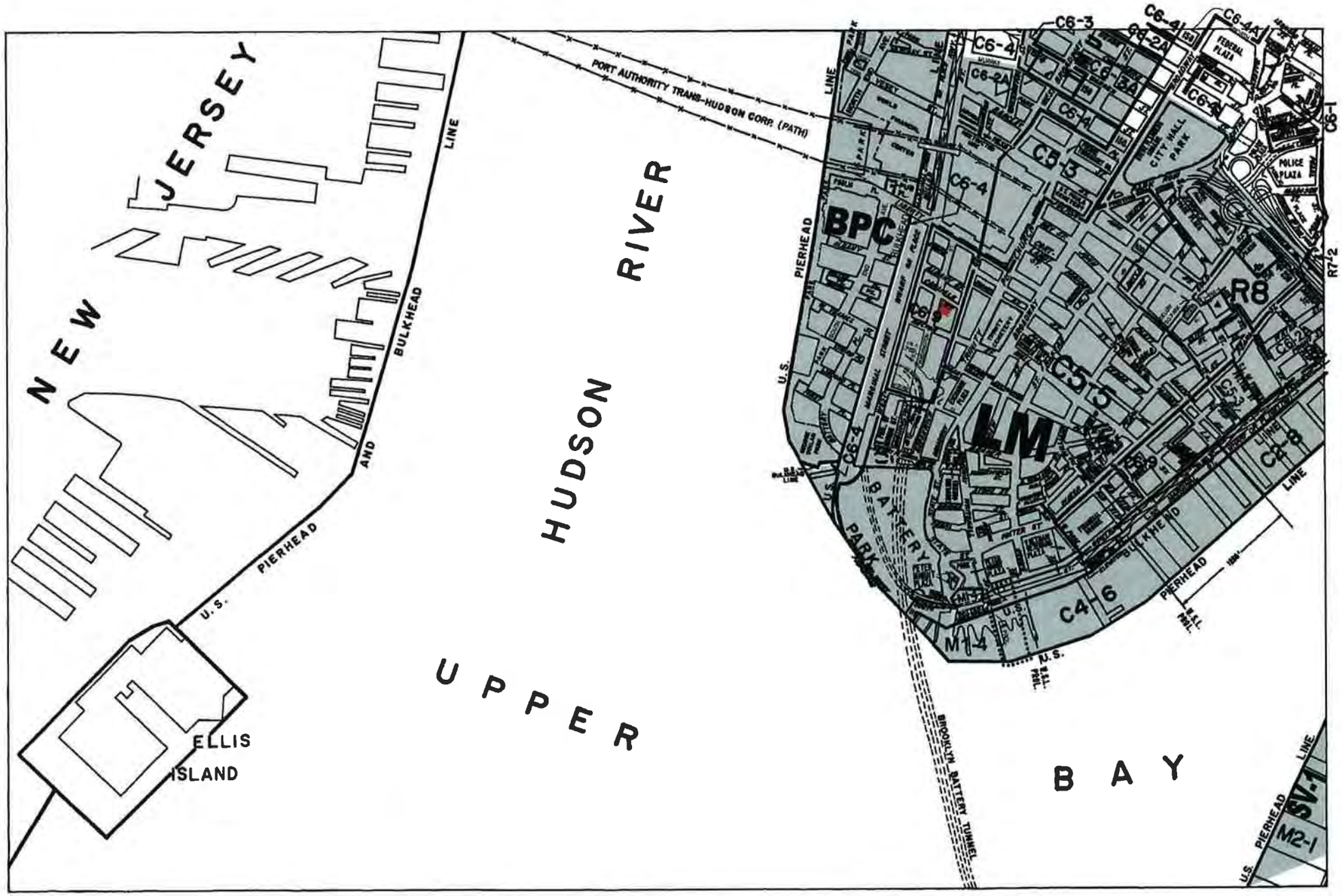
COMMUNITY	NUMBER	PANEL	SUFFIX
NEW YORK, CITY OF	360497	0184	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
3604970184F

MAP REVISED
SEPTEMBER 5, 2007

Federal Emergency Management Agency



600 0 600 1200 1800 FEET

C1-1 C1-2 C1-3 C1-4 C1-5 C2-1 C2-2 C2-3 C2-4 C2-5

NOTE: Where no dimensions for zoning district boundaries appear on the zoning maps, such dimensions are determined in Article VII, Chapter 6 (Location of District Boundaries) of the Zoning Resolution

ZONING MAP

THE NEW YORK CITY PLANNING COMMISSION

Major Zoning Classifications:

The number(s) and/or letter(s) that follows an R, C or M District designation indicates use, bulk and other controls as described in the text of the Zoning Resolution.

R – RESIDENTIAL DISTRICT

C – COMMERCIAL DISTRICT

M – MANUFACTURING DISTRICT

SPECIAL PURPOSE DISTRICT
The letter(s) within the shaded area designates the special purpose district as described in the text of the Zoning Resolution.

AREA(S) REZONED

Effective Date(s) of Rezoning:

03–11–2009 C 090120 ZMM

Special Requirements:

For a list of lots subject to CEQR environmental requirements, see APPENDIX C.

For a list of lots subject to "D" restrictive declarations, see APPENDIX D.

For Inclusionary Housing designated areas on this map, see APPENDIX F.

CITY MAP CHANGE(S):

▲ 10-16-2008 C 080336 MMM

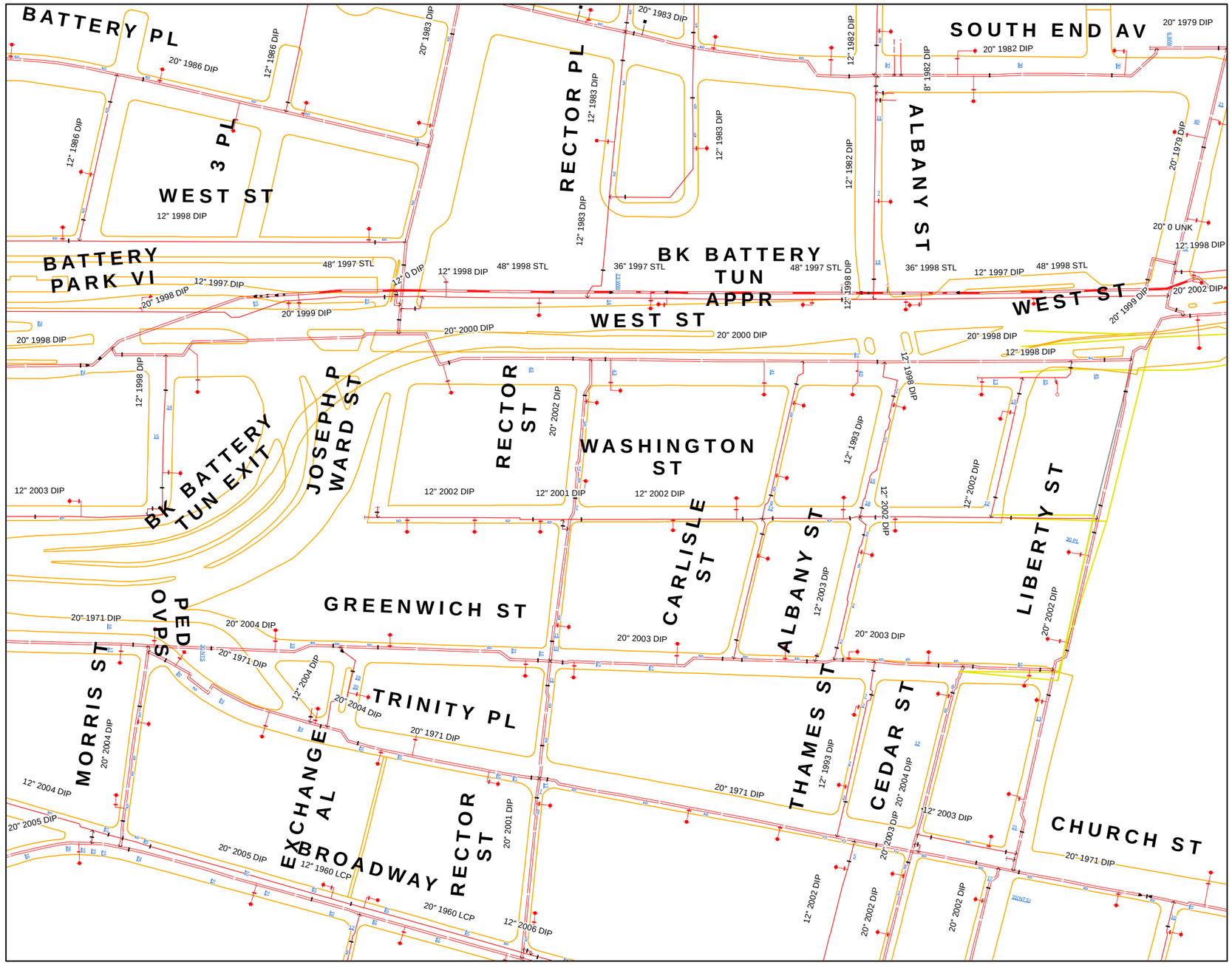
N

MAP KEY

	12a	12c
	12b	12d
	16a	16c

ZONING MAP **12b**

NOTE: Zoning information as shown on this map is subject to change. For the most up-to-date zoning information for this map, visit the Zoning section of the Department of City Planning website **www.nyc.gov/planning** or contact the Zoning Information Desk at (212) 720-3291



Brooklyn Pressure Gradient Colors: K02, K03, K05, K06

Bronx Pressure Gradient Colors: X01, X03, X04, X06, X07

Manhattan Pressure Gradient Colors: M01, M02, M03, M04, M05, M07

Queens Pressure Gradient Colors: Q01, Q02, Q03, Q04, Q05, Q06, Q07, Q08, Q09, Q10

Staten Island Pressure Gradient Colors: R03, R04, R05, R06, R07, R08, R09

Pipe Material

DIP	Ductile Iron Pipe	ACP	Asbestos Concrete Pipe	LCP	Lined Cast Iron Pipe
CIP	Cast Iron Pipe	RCP	Reinforced Concrete Pipe	STL	Steel Pipe
PVC	Polyvinyl Chloride Pipe	COP	Copper Pipe	TRN	Transite Pipe

Water Map Legend

Valve Type and Status
- Butterfly, Open
- Butterfly, Boundary
- Butterfly, Closed
- Check, Open
- LH Gate, Open
- LH Gate, Closed or Boundary
- Gate Open
- Gate, Closed or Boundary

Water Connections
- 3 Way
- 4 Way
- Bulkhead
- CAP
- Eccentric Reducer
- Reducer
- Plug
- Riser
- Manifolds / Reducer Bank
- Wet Connection
- Expansion Joint
- Terminus

BO Discharge and Valve
- BLIND
- Direct to Sewer
- Direct to Unknown
- Direct to Waterway
- POT to Sewer
- POT to Waterway
- BO Valve

Appurtenance
- Access Manhole
- Aqualog
- Electrolysis Connection
- Gauge/Meter
- Pitot Chamber
- Vent
- Venturi Tube
- Water Fed Transformer
- Street Washer

Hydrants
- Breakaway
- Eddy or Standard
- Unknown

Structures and Miscellaneous
- Tank
- Well
- Sampling Station
- Regulator
- Shaft, Chamber,Vault, Etc

General WaterMain Sizes (in inches)
- Aqueduct
- 96
- 84
- 72
- 66
- 60
- 54
- 48
- 42
- 36
- 30
- 24
- 20
- 18
- 16
- 14
- 12
- 10
- 8
- 6
- 4
- 3
- <3

Base Map Layers
- Railroad (NYCMAP)
- Road Edge (NYCMAP)
- Borough Boundary
- City Tile Boundary (NYCMAP)
- Buildings (NYCMAP)
- Open Space (NYCMAP)
- Tax Lot (COGIS)
- Elevated Transportation Structures (NYCMAP)

"Curb dimensions may exist in the water data in areas where there are not curb lines in the current NYCMAP landbase transportation edge layer. This may be because the curbs no longer exist or they are not in NYCMAP because the roadways are private or newly constructed"

Water Mapping

NYC Department of Environmental Protection
Bureau of Water and Sewer Operations
59-17 Junction Boulevard, 3rd Floor
Corona, NY 11373-5108

Datum:
NAD_1983
StatePlane_New_York_Long_Island
FIPS_3104_Feet

Map Updated: December 2009

50 25 0 50 100 150 200 250 300
Feet

This map is intended to be a schematic representation of the water system ONLY, and is not warranted to be accurate for construction and/or surveying purposes.

All warranties, UCC and otherwise, express or implied, including, warranties as to accuracy of data shown hereon and merchantability and fitness for a particular purpose are expressly disclaimed. All incidental, consequential or special damages arising out of or in connection with the use or performance of the data shown on the map are expressly disclaimed.

PWM - Private Water Main
IWM - Internal Water Main

BATTERY PARK CITY (PROPOSED)

RIVER

HUDSON

WORLD TRADE CENTER

LIBERTY ST.

CEDAR ST.

ALBANY

CARLISLE ST.

RECTOR PLACE

PARK

THAMES ST.

CORTLANDT ST.

MAIDEN LANE

BROADWAY

CHURCH ST.

PL.

EXCHANGE ALLEY

EXCHANGE PL.

WALL ST.

PINE ST.

WEST STREET

WASHINGTON

GREENWICH

TRINITY

PUBLIC PLACE

PROMENADE

PIERHEAD AND MARGINAL STREET

WHARF

END

PARK PLACE

BATTERY PLACE

SOUTH

WEST

GRANTS

BULKHEAD LINE

U.S. PIERHEAD LINE

U.S. PIERHEAD AND BULKHEAD LINE

HIGHWAY TUNNEL

RAMP DN TO BATTERY

RAMP DN

RAMP UP

UNDERPASS (17)

PLAZA STREET

TUNNEL APPROACHES

TUNNEL APPROACH

MANHATTAN BATTERY TUNNEL

WITHIN THE BROOKLYN TO THE

SEE ACC. NO 3007 SHEET # 5

SEE DETAIL 'E'

NOTICE: THIS MAP HAS BEEN GENERATED FROM SEVERAL SOURCES INFORMATION OBTAINED FROM SEVERAL SOURCES OVER AN INDETERMINATE PERIOD OF TIME. THEREFORE, THE INFORMATION SHOWN ON THIS PRINT MAY OR MAY NOT PORTRAY THE LINES AND GRADES OF CITY STREETS AT ANY SPECIFIC PERIOD OF TIME.

SCALE: 1" = 80'

DETAIL 'E'

NOTES

LEGAL GRADES SHOWN THUS---------50.4

EXISTING GRADES SHOWN THUS-------(50.4)

ELEVATIONS ARE FOR TOP OF CURB AND ARE REFERRED TO THE DATUM OF THE TOPOGRAPHICAL BUREAU, BOROUGH OF MANHATTAN WHICH IS 2.75 FEET ABOVE THE U.S.C.&G. DATUM AT SANDY HOOK.

WATER GRANTS AS PER ACT OF 1871: ———— — ————

THE CITY OF NEW YORK

PRESIDENT OF THE BOROUGH OF MANHATTAN

TOPOGRAPHICAL BUREAU

3

SECTIONAL MAP, BOROUGH OF MANHATTAN

LEGEND

CATEGORY 1: 12.1 FT ABOVE MEAN HIGH TIDE	
CATEGORY 2: 18.3 FT ABOVE MEAN HIGH TIDE	
CATEGORY 3: 24.8 FT ABOVE MEAN HIGH TIDE	
CATEGORY 4: 30.4 FT ABOVE MEAN HIGH TIDE	

NOTES:

1) SLOSH DATA FROM "NEW YORK STATE HURRICANE EVACUATION RESTUDY TECHNICAL REPORT", APRIL 2009

2) DATA FROM HAZARDS ANALYSIS POINT #28 BATTERY

3) MapPLUTO copyrighted by the New York City Department of City Planning

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NOT FOR OFFICIAL USE

50 0 25 50
SCALE IN FEET

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www.langan.com
NEW JERSEY PENNSYLVANIA **NEW YORK** CONNECTICUT FLORIDA NEVADA VIRGINIA CALIFORNIA
NJ Certificate of Authorization No: 24GA27996400

Project
111 WASHINGTON STREET
SLOSH SKETCH
MANHATTAN NEW YORK

Project No.	Date	Scale	Dwg. No.
1948405	1/6/12	1"=50'	SKETCH 1

Filename: \\langan.com\data\EP\data4\1948401\Engineering Data\Site\SLOSH Data.dwg Date: 1/13/2012 Time: 09:21 User: dlizza Style Table: Langan.stb Layout: SLOSH MAP

NYC Finance

NYC Digital Tax Map

Effective Date : 07-01-2010 10:12:23
End Date : Current

Manhattan Block: 53

Legend

- Streets
- Miscellaneous Text
- Possession Hooks
- Boundary Lines
- Lot Face Possession Hooks
- Regular
- Underwater
- Tax Lot Polygon
- Condo Number
- Tax Block Polygon

0 5 10 20 30 40 Feet