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Appendix A Documents

Appendix A
Document 5.2-1
Air State Facility Permit



PERMIT
Under the Environmental Conservation Law (ECL)

IDENTIFICATION INFORMATION

Permit Type: Air State Facility
Permit ID: 2-6206-00032/00004
Effective Date: 11/04/2013 Expiration Date: 11/03/2023

Permit Issued To: NYC HEALTH & HOSPITALS CORP
125 WORTH STREET
NEW YORK, NY 10013-4006

Contact: PATRICK O'BRIEN
NEW BELLEVUE HOSPITAL
462 FIRST AVE
NEW YORK, NY 10016
(212) 562-6295

Facility: NYC-HH - NEW BELLEVUE HOSPITAL-462 1 AV
462 FIRST AVE
NEW YORK, NY 10016

Contact: PATRICK O'BRIEN
NEW BELLEVUE HOSPITAL
462 FIRST AVE
NEW YORK, NY 10016
(212) 562-6295

Description:
The NYC-HH - NEW BELLEVUE HOSPITAL-462 1 AV is located at 462 First Ave, New York, New York.

The facility operates the following combustion sources:
-Four new identical Caterpillar C27 (2008 manufactured) engines each with a capacity of 750 kW and one older 600 kW Rudox RM 900S (Engine: Mitsubishi S12N) generator/engine on 13th floor. All five engines on the 13th floor vent via a common stack. All five generators on the 13th floor participate in the CDRP (coordinated demand reduction program).
-Two identical older engines on the ground floor (inside a generator room) which vent via independent stacks. These two engines also participate in the CDRP.

Thus, a total of 7 generators will participate in the CDRP program. 4 engines out of the total 7 CDRP engines are new (2008). All new 2008 generators/engines have a maximum power less than 2237 kW each and a displacement capacity of less than 10 liters/cylinder.

One new additional 1500 kW Caterpillar 3512C generator has been installed in the basement. Two engine/generators installed in the basement will not participate in the demand response program but will be used for emergency purposes only. These two generators are exempt sources under 6NYCRR 201-3.2.

The facility also operates other exempt sources that include five 15,000 gallons underground storage fuel tanks and three 275 gallons above-ground storage fuel tanks.

New York State Department of Environmental Conservation
Facility DEC ID: 2620600032



The facility NOx emissions are limited to 24.9 tons per year. Records demonstrating compliance with this cap will be kept in accordance with the permit special conditions.

The facility is subject to the provisions of State Facility requirements specified under 6NYCRR 201-7.

The Air State Facility permit contains a listing of the applicable federal, state, and compliance monitoring requirements for the facility.

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified and any Special Conditions included as part of this permit.

Permit Administrator: JOHN F CRYAN
 NYSDEC
 47-40 21ST ST
 LONG ISLAND CITY, NY 11101-5407

Authorized Signature: _____ Date: ____ / ____ / ____



Notification of Other State Permittee Obligations

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification

The permittee expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the compliance permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in any compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit

The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits

The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights

This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.



LIST OF CONDITIONS

DEC GENERAL CONDITIONS

General Provisions

- Facility Inspection by the Department
- Relationship of this Permit to Other Department Orders and Determinations
- Applications for permit renewals, modifications and transfers
- Permit modifications, suspensions or revocations by the Department

Facility Level

- Submission of application for permit modification or renewal -
REGION 2 HEADQUARTERS



DEC GENERAL CONDITIONS
****** General Provisions ******
GENERAL CONDITIONS - Apply to ALL Authorized Permits.

Condition 1: Facility Inspection by the Department

Applicable State Requirement: ECL 19-0305

Item 1.1:

The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3).

Item 1.2:

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

Item 1.3:

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Condition 2: Relationship of this Permit to Other Department Orders and Determinations

Applicable State Requirement: ECL 3-0301 (2) (m)

Item 2.1:

Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Condition 3: Applications for permit renewals, modifications and transfers

Applicable State Requirement: 6 NYCRR 621.11

Item 3.1:

The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

Item 3.2:

The permittee must submit a renewal application at least 180 days before expiration of permits for Title V Facility Permits, or at least 30 days before expiration of permits for State Facility Permits.

Item 3.3:

Permits are transferrable with the approval of the department unless specifically prohibited by the statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.



Condition 4: Permit modifications, suspensions or revocations by the Department
Applicable State Requirement: 6 NYCRR 621.13

Item 4.1:

The Department reserves the right to exercise all available authority to modify, suspend, or revoke this permit in accordance with 6NYCRR Part 621. The grounds for modification, suspension or revocation include:

- a) materially false or inaccurate statements in the permit application or supporting papers;
- b) failure by the permittee to comply with any terms or conditions of the permit;
- c) exceeding the scope of the project as described in the permit application;
- d) newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;
- e) noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

****** Facility Level ******

Condition 5: Submission of application for permit modification or renewal - REGION 2 HEADQUARTERS
Applicable State Requirement: 6 NYCRR 621.6 (a)

Item 5.1:

Submission of applications for permit modification or renewal are to be submitted to:
NYSDEC Regional Permit Administrator
Region 2 Headquarters
Division of Environmental Permits
1 Hunters Point Plaza, 4740 21st Street
Long Island City, NY 11101-5407
(718) 482-4997

New York State Department of Environmental Conservation

Permit ID: 2-6206-00032/00004

Facility DEC ID: 2620600032



Permit Under the Environmental Conservation Law (ECL)

**ARTICLE 19: AIR POLLUTION CONTROL - AIR STATE FACILITY
PERMIT**

IDENTIFICATION INFORMATION

Permit Issued To: NYC HEALTH & HOSPITALS CORP
125 WORTH STREET
NEW YORK, NY 10013-4006

Facility: NYC-HH - NEW BELLEVUE HOSPITAL-462 1 AV
462 FIRST AVE
NEW YORK, NY 10016

Authorized Activity By Standard Industrial Classification Code:
8062 - GENERAL MEDICAL & SURGICAL HOSPITALS

Permit Effective Date: 11/04/2013

Permit Expiration Date: 11/03/2023



LIST OF CONDITIONS

FEDERALLY ENFORCEABLE CONDITIONS

Facility Level

- 1 6 NYCRR Subpart 201-7: Facility Permissible Emissions
- *2 6 NYCRR Subpart 201-7: Capping Monitoring Condition
- 3 6 NYCRR 211.1: Air pollution prohibited
- 4 6 NYCRR 225-1.2 (b): Compliance Demonstration
- 5 6 NYCRR 225-1.2 (g): Compliance Demonstration
- 6 6 NYCRR 225-1.2 (h): Compliance Demonstration
- 7 6 NYCRR 225-1.6 (f): Compliance Demonstration
- 8 6 NYCRR 227-1.3 (a): Compliance Demonstration
- 9 40CFR 60, NSPS Subpart IIII: Applicability
- 10 40CFR 63, Subpart ZZZZ: Engines at Area sources of HAP

STATE ONLY ENFORCEABLE CONDITIONS

Facility Level

- 11 ECL 19-0301: Contaminant List
- 12 6 NYCRR 201-1.4: Malfunctions and start-up/shutdown activities
- 13 6 NYCRR Subpart 201-5: Emission Unit Definition
- 14 6 NYCRR 201-5.2 (c): Renewal deadlines for state facility permits
- 15 6 NYCRR 201-5.3 (c): Compliance Demonstration
- 16 6 NYCRR 211.2: Visible Emissions Limited

Emission Unit Level

- 17 6 NYCRR Subpart 201-5: Emission Point Definition By Emission Unit
- 18 6 NYCRR Subpart 201-5: Process Definition By Emission Unit

NOTE: * preceding the condition number indicates capping.



FEDERALLY ENFORCEABLE CONDITIONS
****** Facility Level ******

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS

This section contains terms and conditions which are federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Sealing - 6 NYCRR 200.5

The Commissioner may seal an air contamination source to prevent its operation if compliance with 6 NYCRR Chapter III is not met within the time provided by an order of the Commissioner issued in the case of the violation.

Sealing means labeling or tagging a source to notify any person that operation of the source is prohibited, and also includes physical means of preventing the operation of an air contamination source without resulting in destruction of any equipment associated with such source, and includes, but is not limited to, bolting, chaining or wiring shut control panels, apertures or conduits associated with such source.

No person shall operate any air contamination source sealed by the Commissioner in accordance with this section unless a modification has been made which enables such source to comply with all requirements applicable to such modification.

Unless authorized by the Commissioner, no person shall remove or alter any seal affixed to any contamination source in accordance with this section.

Item B: Acceptable Ambient Air Quality - 6 NYCRR 200.6

Notwithstanding the provisions of 6 NYCRR Chapter III, Subchapter A, no person shall allow or permit any air contamination source to emit air contaminants in quantities which alone or in combination with emissions from other air contamination sources would contravene any applicable ambient air quality standard and/or cause air pollution. In such cases where contravention occurs or may occur, the Commissioner shall specify the degree and/or method of emission control required.

Item C: Maintenance of Equipment - 6 NYCRR 200.7

Any person who owns or operates an air contamination source which is equipped with an emission control device shall operate such device and keep it in a satisfactory state of maintenance and repair in accordance with ordinary and necessary practices, standards and procedures, inclusive of manufacturer's specifications,



required to operate such device effectively.

Item D: Unpermitted Emission Sources - 6 NYCRR 201-1.2

If an existing emission source was subject to the permitting requirements of 6 NYCRR Part 201 at the time of construction or modification, and the owner and/or operator failed to apply for a permit for such emission source then the following provisions apply:

- (a) The owner and/or operator must apply for a permit for such emission source or register the facility in accordance with the provisions of Part 201.
- (b) The emission source or facility is subject to all regulations that were applicable to it at the time of construction or modification and any subsequent requirements applicable to existing sources or facilities.

Item E: Emergency Defense - 6 NYCRR 201-1.5

An emergency constitutes an affirmative defense to an action brought for noncompliance with emissions limitations or permit conditions for all facilities in New York State.

(a) The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An emergency occurred and that the facility owner and/or operator can identify the cause(s) of the emergency;
- (2) The equipment at the permitted facility causing the emergency was at the time being properly operated;
- (3) During the period of the emergency the facility owner and/or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
- (4) The facility owner and/or operator notified the Department within two working days after the event occurred. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding, the facility owner and/or operator seeking to establish the occurrence of an emergency has the burden of proof.



(c) This provision is in addition to any emergency or upset provision contained in any applicable requirement.

Item F: Recycling and Salvage - 6 NYCRR 201-1.7

Where practical, any person who owns or operates an air contamination source shall recycle or salvage air contaminants collected in an air cleaning device according to the requirements of 6 NYCRR.

Item G: Prohibition of Reintroduction of Collected Contaminants to the Air - 6 NYCRR 201-1.8

No person shall unnecessarily remove, handle, or cause to be handled, collected air contaminants from an air cleaning device for recycling, salvage or disposal in a manner that would reintroduce them to the outdoor atmosphere.

Item H: Proof of Eligibility for Sources Defined as Exempt Activities - 6 NYCRR 201-3.2 (a)

The owner and/or operator of an emission source or unit that is eligible to be exempt, may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item I: Proof of Eligibility for Sources Defined as Trivial Activities - 6 NYCRR 201-3.3 (a)

The owner and/or operator of an emission source or unit that is listed as being trivial in 6 NYCRR Part 201 may be required to certify that it operates within the specific criteria described in 6 NYCRR Subpart 201-3. The owner or operator of any such emission source must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility which contains emission sources or units subject to 6 NYCRR Subpart 201-3, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations, or law.

Item J: Required Emission Tests - 6 NYCRR 202-1.1



An acceptable report of measured emissions shall be submitted, as may be required by the Commissioner, to ascertain compliance or noncompliance with any air pollution code, rule, or regulation. Failure to submit a report acceptable to the Commissioner within the time stated shall be sufficient reason for the Commissioner to suspend or deny an operating permit. Notification and acceptable procedures are specified in 6 NYCRR Subpart 202-1.

Item K: Open Fires Prohibitions - 6 NYCRR 215.2

Except as allowed by section 215.3 of 6 NYCRR Part 215, no person shall burn, cause, suffer, allow or permit the burning of any materials in an open fire.

Item L: Permit Exclusion - ECL 19-0305

The issuance of this permit by the Department and the receipt thereof by the Applicant does not and shall not be construed as barring, diminishing, adjudicating or in any way affecting any legal, administrative or equitable rights or claims, actions, suits, causes of action or demands whatsoever that the Department may have against the Applicant for violations based on facts and circumstances alleged to have occurred or existed prior to the effective date of this permit, including, but not limited to, any enforcement action authorized pursuant to the provisions of applicable federal law, the Environmental Conservation Law of the State of New York (ECL) and Chapter III of the Official Compilation of the Codes, Rules and Regulations of the State of New York (NYCRR). The issuance of this permit also shall not in any way affect pending or future enforcement actions under the Clean Air Act brought by the United States or any person.

Item M: Federally Enforceable Requirements - 40 CFR 70.6 (b)

All terms and conditions in this permit required by the Act or any applicable requirement, including any provisions designed to limit a facility's potential to emit, are enforceable by the Administrator and citizens under the Act. The Department has, in this permit, specifically designated any terms and conditions that are not required under the Act or under any of its applicable requirements as being enforceable under only state regulations.

FEDERAL APPLICABLE REQUIREMENTS
The following conditions are federally enforceable.

Condition 1: Facility Permissible Emissions



Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:6 NYCRR Subpart 201-7

Item 1.1:

The sum of emissions from the emission units specified in this permit shall not equal or exceed the following

Potential To Emit (PTE) rate for each regulated contaminant:

CAS No: 0NY210-00-0

PTE: 49,800 pounds per year

Name: OXIDES OF NITROGEN

Condition 2: Capping Monitoring Condition

Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:6 NYCRR Subpart 201-7

Item 2.1:

Under the authority of 6 NYCRR Part 201-7, this condition contains an emission cap for the purpose of limiting emissions from the facility, emission unit or process to avoid being subject to the following applicable requirement(s) that the facility, emission unit or process would otherwise be subject to:

6 NYCRR Subpart 201-6

6 NYCRR Subpart 231-2

Item 2.2:

Operation of this facility shall take place in accordance with the approved criteria, emission limits, terms, conditions and standards in this permit.

Item 2.3:

The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

Item 2.4:

On an annual basis, unless otherwise specified below, beginning one year after the granting of an emissions cap, the responsible official shall provide a certification to the Department that the facility has operated all emission units within the limits imposed by the emission cap. This certification shall include a brief summary of the emissions subject to the cap for that time period and a comparison to the threshold levels that would require compliance with an applicable requirement.

Item 2.5:

The emission of pollutants that exceed the applicability thresholds for an applicable requirement, for which the facility has obtained an emissions cap, constitutes a violation of Part 201 and of the Act.

Item 2.6:

New York State Department of Environmental Conservation

Permit ID: 2-6206-00032/00004

Facility DEC ID: 2620600032



The Compliance Demonstration activity will be performed for the Facility.

Regulated Contaminant(s):

CAS No: 0NY210-00-0 OXIDES OF NITROGEN

Item 2.7:

Compliance Demonstration shall include the following monitoring:

Capping: Yes

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

The NOx (oxides of nitrogen) emissions are capped at 24.9 tons per year.

The owner or operator shall maintain a record of the quantity of each fuel fired at the facility. Also, the owner or operator shall calculate NOx emissions based on the fuel quantity using the following formula:

$E1(0.2) + E2(0.44) < 49,800$ lbs/yr of Oxides of Nitrogen emissions.

Where:

E1 = 12-month rolling total distillate oil fired (from engine sources 0S001, 0S002, 0S003, 0S004 and new exempt engine in the basement) in gal/yr,
0.2 lb/gal - emission factor based on 6.4 g/kW.hr provided in Table 1 of 40CFR 89.112;

E2 = 12-month rolling total of distillate oil fired (from old engine sources including 0S005, 0S006, 0S007) in gals/yr,
0.44 lb/gal - AP-42 emission factor.

Parameter Monitored: OXIDES OF NITROGEN

Upper Permit Limit: 24.9 tons per year

Monitoring Frequency: MONTHLY

Averaging Method: ANNUAL MAXIMUM ROLLED MONTHLY

Reporting Requirements: ANNUALLY (CALENDAR)

Reports due 30 days after the reporting period.

The initial report is due 1/30/2014.

Subsequent reports are due every 12 calendar month(s).

Condition 3: Air pollution prohibited

Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:6 NYCRR 211.1

Item 3.1:

No person shall cause or allow emissions of air contaminants to the outdoor atmosphere of such

New York State Department of Environmental Conservation

Permit ID: 2-6206-00032/00004

Facility DEC ID: 2620600032



quantity, characteristic or duration which are injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life or property. Notwithstanding the existence of specific air quality standards or emission limits, this prohibition applies, but is not limited to, any particulate, fume, gas, mist, odor, smoke, vapor, pollen, toxic or deleterious emission, either alone or in combination with others.

Condition 4: Compliance Demonstration
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:6 NYCRR 225-1.2 (b)

Item 4.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 4.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: WORK PRACTICE INVOLVING SPECIFIC OPERATIONS

Monitoring Description:

Owners and/or operators of any stationary combustion installation that fires either solid fuels or oil are limited to the firing of solid fuels or oil with a sulfur content listed in paragraph 6 NYCRR 225-1.(2)(b) through June 30, 2014.

Data collected pursuant to this Subpart must be tabulated and summarized in a form acceptable to the Department, and must be retained for at least five years. The owner of a Title V facility must furnish to the Department such records and summaries, on a semiannual calendar basis, within 30 days after the end of the semiannual period. All other facility owners or distributors must submit these records and summaries upon request of the Department.

Work Practice Type: PARAMETER OF PROCESS MATERIAL

Process Material: DISTILLATES - NUMBER 1 AND NUMBER 2 OIL

Parameter Monitored: SULFUR CONTENT

Upper Permit Limit: 0.2 percent by weight

Monitoring Frequency: PER DELIVERY

Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 5: Compliance Demonstration
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:6 NYCRR 225-1.2 (g)

Item 5.1:



The Compliance Demonstration activity will be performed for the Facility.

Item 5.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: WORK PRACTICE INVOLVING SPECIFIC OPERATIONS

Monitoring Description:

Owners and/or operators of a stationary combustion installation that fires distillate oil other than number two heating oil are limited to the purchase of distillate oil with 0.0015 percent sulfur by weight or less on or after July 1, 2014. Compliance with this limit will be based on vendor certifications.

Data collected pursuant to this Subpart must be tabulated and summarized in a form acceptable to the Department, and must be retained for at least five years. The owner of a Title V facility must furnish to the Department such records and summaries, on a semiannual calendar basis, within 30 days after the end of the semiannual period. All other facility owners or distributors must submit these records and summaries upon request of the Department.

Work Practice Type: PARAMETER OF PROCESS MATERIAL

Process Material: DISTILLATES - NUMBER 1 AND NUMBER 2 OIL

Parameter Monitored: SULFUR CONTENT

Upper Permit Limit: 0.0015 percent by weight

Monitoring Frequency: PER DELIVERY

Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 6: Compliance Demonstration
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement: 6 NYCRR 225-1.2 (h)

Item 6.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 6.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: WORK PRACTICE INVOLVING SPECIFIC OPERATIONS

Monitoring Description:

Owners and/or operators of a stationary combustion installations that fire distillate oil are limited to the firing of distillate oil with 0.0015 percent sulfur by weight or less on or after July 1, 2016. Compliance with



this limit will be based on vendor certifications.

Data collected pursuant to this Subpart must be tabulated and summarized in a form acceptable to the Department, and must be retained for at least five years. The owner of a Title V facility must furnish to the Department such records and summaries, on a semiannual calendar basis, within 30 days after the end of the semiannual period. All other facility owners or distributors must submit these records and summaries upon request of the Department.

Work Practice Type: PARAMETER OF PROCESS MATERIAL
Process Material: DISTILLATES - NUMBER 1 AND NUMBER 2 OIL
Parameter Monitored: SULFUR CONTENT
Upper Permit Limit: 0.0015 percent by weight
Monitoring Frequency: PER DELIVERY
Averaging Method: MAXIMUM - NOT TO BE EXCEEDED AT ANY TIME (INSTANTANEOUS/DISCRETE OR GRAB)
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 7: Compliance Demonstration
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:6 NYCRR 225-1.6 (f)

Item 7.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 7.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

Facility owners subject to this Subpart must submit a written report of the fuel sulfur content exceeding the applicable sulfur-in-fuel limitation, measured emissions exceeding the applicable sulfur-in-fuel limitation, measured emissions exceeding the applicable equivalent emission rate, and the nature and cause of such exceedances if known, for each calendar quarter, within 30 days after the end of any quarterly period in which an exceedance takes place.

Data collected pursuant to this Subpart must be tabulated and summarized in a form acceptable to the Department, and must be retained for at least five years. The owner of a Title V facility must furnish to the Department such records and summaries, on a semiannual calendar basis, within 30 days after the end of the semiannual period. All other facility owners or distributors must submit these records and summaries upon request of the



Department.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING
DESCRIPTION

Averaging Method: AVERAGING METHOD - SEE MONITORING
DESCRIPTION

Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 8: Compliance Demonstration
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement: 6 NYCRR 227-1.3 (a)

Item 8.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 8.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: MONITORING OF PROCESS OR CONTROL
DEVICE PARAMETERS AS SURROGATE

Monitoring Description:

No person shall operate a stationary combustion installation which exhibits greater than 20 percent opacity (six minute average), except for one 6 minute period per hour of not more than 27 percent opacity. The Department reserves the right to perform or require the performance of a Method 9 opacity evaluation at any time during facility operation.

The permittee will conduct observations of visible emissions from the emission unit, process, etc. to which this condition applies at the monitoring frequency stated below while the process is in operation. The permittee will investigate, in a timely manner, any instance where there is cause to believe that visible emissions have the potential to exceed the opacity standard.

The permittee shall investigate the cause, make any necessary corrections, and verify that the excess visible emissions problem has been corrected. If visible emissions with the potential to exceed the standard continue, the permittee will conduct a Method 9 assessment within the next operating day of the sources associated with the potential noncompliance to determine the degree of opacity and will notify the NYSDEC if the Method 9 test indicates that the opacity standard is not met.

Records of visible emissions observations (or any follow-up Method 9 tests), investigations and corrective actions will be kept on-site. Should the Department determine that permittee's record keeping format is

New York State Department of Environmental Conservation

Permit ID: 2-6206-00032/00004

Facility DEC ID: 2620600032



inadequate to demonstrate compliance with this condition, it shall provide written notice to the permittee stating the inadequacies, and permittee shall have 90 days to revise its prospective record keeping format in a manner acceptable to the Department.

Parameter Monitored: OPACITY

Upper Permit Limit: 20 percent

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION

Averaging Method: 6-MINUTE AVERAGE (METHOD 9)

Reporting Requirements: UPON REQUEST BY REGULATORY AGENCY

Condition 9: Applicability
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:40CFR 60, NSPS Subpart IIII

Item 9.1:

Facilities that have stationary compression ignition internal combustion engines must comply with applicable portions of 40 CFR 60 Subpart IIII.

Condition 10: Engines at Area sources of HAP
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable Federal Requirement:40CFR 63, Subpart ZZZZ

Item 10.1:

Internal combustion engines, constructed or re-constructed on or after June 12, 2006, that meet the requirements of 40 CFR 60 Subpart IIII or Subpart JJJJ meet the requirements of 40 CFR 63 Subpart ZZZZ.



STATE ONLY ENFORCEABLE CONDITIONS
****** Facility Level ******

NOTIFICATION OF GENERAL PERMITTEE OBLIGATIONS
This section contains terms and conditions which are not federally enforceable. Permittees may also have other obligations under regulations of general applicability

Item A: Public Access to Recordkeeping for Facilities With State Facility Permits - 6 NYCRR 201-1.10 (a)

Where facility owners and/or operators keep records pursuant to compliance with the requirements of 6 NYCRR Subpart 201-5.4, and/or the emission capping requirements of 6 NYCRR Subpart 201-7, the Department will make such records available to the public upon request in accordance with 6 NYCRR Part 616 - Public Access to Records. Facility owners and/or operators must submit the records required to comply with the request within sixty working days of written notification by the Department.

Item B: General Provisions for State Enforceable Permit Terms and Condition - 6 NYCRR Part 201-5

Any person who owns and/or operates stationary sources shall operate and maintain all emission units and any required emission control devices in compliance with all applicable Parts of this Chapter and existing laws, and shall operate the facility in accordance with all criteria, emission limits, terms, conditions, and standards in this permit. Failure of such person to properly operate and maintain the effectiveness of such emission units and emission control devices may be sufficient reason for the Department to revoke or deny a permit.

The owner or operator of the permitted facility must maintain all required records on-site for a period of five years and make them available to representatives of the Department upon request. Department representatives must be granted access to any facility regulated by this Subpart, during normal operating hours, for the purpose of determining compliance with this and any other state and federal air pollution control requirements, regulations or law.

STATE ONLY APPLICABLE REQUIREMENTS

The following conditions are state only enforceable.

Condition 11: Contaminant List
Effective between the dates of 11/04/2013 and 11/03/2023



Applicable State Requirement:ECL 19-0301

Item 11.1:

Emissions of the following contaminants are subject to contaminant specific requirements in this permit(emission limits, control requirements or compliance monitoring conditions).

CAS No: 0NY210-00-0

Name: OXIDES OF NITROGEN

**Condition 12: Malfunctions and start-up/shutdown activities
Effective between the dates of 11/04/2013 and 11/03/2023**

Applicable State Requirement:6 NYCRR 201-1.4

Item 12.1:

(a) The facility owner or operator shall take all necessary and appropriate actions to prevent the emission of air pollutants that result in contravention of any applicable emission standard during periods of start-up, shutdown, or malfunction.

(b) The facility owner or operator shall compile and maintain records of all equipment malfunctions, maintenance, or start-up/shutdown activities when they can be expected to result in an exceedance of any applicable emission standard, and shall submit a report of such activities to the department when requested to do so, or when so required by a condition of a permit issued for the corresponding air contamination source. Such reports shall state whether any violations occurred and, if so, whether they were unavoidable, include the time, frequency and duration of the maintenance and/or start-up/shutdown activities, and an estimate of the emission rates of any air contaminants released. Such records shall be maintained for a period of at least five years and made available for review to department representatives upon request. Facility owners or operators subject to continuous stack monitoring and quarterly reporting requirements need not submit additional reports for equipment maintenance or start-up/shutdown activities for the facility to the department.

(c) In the event that emissions of air contaminants in excess of any emission standard in this Subchapter occur due to a malfunction, the facility owner or operator shall compile and maintain records of the malfunction and notify the department as soon as possible during normal working hours, but not later than two working days after becoming aware that the malfunction occurred. When requested by the department, the facility owner or operator shall submit a written report to the department describing the malfunction, the corrective action taken, identification of air contaminants, and an estimate of the emission rates.

(d) The department may also require the owner or operator to include, in reports described under Subdivisions (b) and (c) of this Section, an estimate of the maximum ground level concentration of each air contaminant emitted and the effect of such emissions.

(e) A violation of any applicable emission standard resulting from start-up, shutdown, or malfunction conditions at a permitted or registered facility may not be subject to an enforcement action by the department and/or penalty if the department determines, in its sole discretion, that such a violation was unavoidable. The actions and recordkeeping and reporting requirements listed above must be adhered to in such circumstances.



Condition 13: Emission Unit Definition
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 13.1:

The facility is authorized to perform regulated processes under this permit for:

Emission Unit: U-00001

Emission Unit Description:

This unit consists of seven (7) generators that participate in coordinated demand response program. Five of the seven generators are located on the 13th floor and emit via a common stack. Two other generators are on the ground floor and emit via independent stacks.

Building(s): 1
2

Condition 14: Renewal deadlines for state facility permits
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable State Requirement:6 NYCRR 201-5.2 (c)

Item 14.1:

The owner or operator of a facility having an issued state facility permit shall submit a complete application at least 180 days, but not more than eighteen months, prior to the date of permit expiration for permit renewal purposes.

Condition 15: Compliance Demonstration
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable State Requirement:6 NYCRR 201-5.3 (c)

Item 15.1:

The Compliance Demonstration activity will be performed for the Facility.

Item 15.2:

Compliance Demonstration shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES

Monitoring Description:

Any reports or submissions required by this permit shall be submitted to the Regional Air Pollution Control Engineer (RAPCE) at the following address:

Division of Air Resources
NYS Dept. of Environmental Conservation
Region 2
47-40 21st St.
Long Island City, NY 11101



Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: AVERAGING METHOD - SEE MONITORING DESCRIPTION
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Condition 16: Visible Emissions Limited
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable State Requirement:6 NYCRR 211.2

Item 16.1:

Except as permitted by a specific part of this Subchapter and for open fires for which a restricted burning permit has been issued, no person shall cause or allow any air contamination source to emit any material having an opacity equal to or greater than 20 percent (six minute average) except for one continuous six-minute period per hour of not more than 57 percent opacity.

****** Emission Unit Level ******

Condition 17: Emission Point Definition By Emission Unit
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 17.1:

The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: U-00001			
Emission Point: 00001			
Height (ft.): 220	Length (in.): 18	Width (in.): 18	
NYTMN (km.): 4510.2	NYTME (km.): 586.5	Building: 1	
Emission Point: 00002			
Height (ft.): 220	Diameter (in.): 6		
NYTMN (km.): 4510.2	NYTME (km.): 586.5	Building: 2	
Emission Point: 00003			
Height (ft.): 220	Diameter (in.): 6		
NYTMN (km.): 4510.2	NYTME (km.): 586.5	Building: 2	

Condition 18: Process Definition By Emission Unit
Effective between the dates of 11/04/2013 and 11/03/2023

Applicable State Requirement:6 NYCRR Subpart 201-5

Item 18.1:

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00001

New York State Department of Environmental Conservation

Permit ID: 2-6206-00032/00004

Facility DEC ID: 2620600032



Process: GEG Source Classification Code: 2-01-001-02

Process Description:

Generators located on the ground floor firing diesel fuel oil.

Emission Source/Control: 0S006 - Combustion

Design Capacity: 750 kilowatts

Emission Source/Control: 0S007 - Combustion

Design Capacity: 750 kilowatts

Item 18.2:

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00001

Process: GEN

Source Classification Code: 2-01-001-02

Process Description:

Generators located on the 13th floor firing diesel fuel oil.

Emission Source/Control: 0S001 - Combustion

Design Capacity: 750 kilowatts

Emission Source/Control: 0S002 - Combustion

Design Capacity: 750 kilowatts

Emission Source/Control: 0S003 - Combustion

Design Capacity: 750 kilowatts

Emission Source/Control: 0S004 - Combustion

Design Capacity: 750 kilowatts

Emission Source/Control: 0S005 - Combustion

Design Capacity: 600 kilowatts



Appendix A
Document 5.4-1
8-Step Floodplain Decision Making Notice

Appendix A, Document 5.4A 8- Step Floodplain Decision Making Notice

Executive Order 11988 (Floodplain Management) requires federal agencies “to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of the floodplain and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.” FEMA’s implementing regulations are at 44 CFR Part 9, which includes an eight-step decision making process for compliance with this part.

Bellevue Hospital (the Project Site) is located within the 500- and 100-year floodplains. Therefore, the Proposed Bellevue Hospital Hazard Mitigation Project, described in the Environmental Assessment, is required to follow the 8-Step Process. This Appendix summarizes how the 8-Step Floodplain Decision Making Process was applied to the Proposed Bellevue Hospital Hazard Mitigation Project.

Step 1: Determine if a proposed action is in the base floodplain (that area which has a one percent or greater chance of flooding in any given year).

The project site is located at 462 1st Ave, New York, NY (40.738440°, -73.975317°). As indicated in the FEMA Preliminary Flood Hazard Areas map for the Project Site (see Figure 5.4-1, FIRM panel 3604970201G), approximately 40 percent of the Project Site is located within the 100-year floodplain (Zone AE) with a Base Flood Elevation (BFE) for the Project Site of +11 feet North American Vertical Datum of 1988 (NAVD88) and approximately 50 percent of the Project Site is located within the 500-year floodplain with a BFE of +14 feet NAVD88.

The Proposed Project is defined as a *Critical Action* pursuant to 44 CFR Part 9, which means that the minimum floodplain of concern is the 500-year Floodplain.

Step 2: Conduct early public review, including public notice.

A cumulative initial public notice was published in the New York Post on December 14, 2012. An additional Notice of Availability for the draft NEPA document will be published when the document is ready for public comment.

Step 3: Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain.

Several alternative courses of action were evaluated for the Bellevue Hospital Hazard Mitigation project. The alternatives were evaluated based upon engineering constraints, environmental impacts and available property. Budgetary constraints were considered for feasibility of alternatives, but were not the controlling factor.

Alternative 1: No Action Alternative

Under the No Action Alternative, no additional alterations would be made to the Bellevue Hospital campus or facilities. No federal funds would be provided for restoration and hazard mitigation and the status quo would be maintained. Bellevue Hospital would remain in its

HHC Bellevue Hospital Hazard Mitigation

current condition with hospital facilities operating under temporary repair measures. The hospital would continue to operate with temporary repair measures to existing mechanical, electrical, and plumbing (MEP) systems installed following Hurricane Sandy, and no hazard mitigation would be pursued to enhance the hospital's resiliency. The Bellevue Hospital campus and facilities would remain at risk from future storm or flooding events with repetitive financial losses and disruption of critical healthcare services. The surrounding community would experience service interruptions and threats to human health due to the loss of healthcare functions, particularly emergency care, in the event a future storm or flooding event causes partial or full cessation of operations at Bellevue Hospital.

Alternative 2: Proposed Alternative, Comprehensive Mitigation System

Under this alternative, a perimeter boundary protection system would be constructed consisting of a series of connected permanent and removable walls with integrated flood gates that form a tight protection around the 7-acre campus. The floodwalls would be designed to the 0.2 percent annual probability flood ("500-year flood") elevation for the campus plus three feet of freeboard to account for sea level rise (Elevation 18 feet using the North American Vertical Datum of 1988, NAVD88). In addition, the roof of the I&K building, which is located below-grade on the northern part of the campus and would be submerged during a flooding event, would be replaced and reinforced to withstand the loads caused by flooding

In addition to the perimeter boundary protection system, the Proposed Alternative would include the following mitigation measures:

- The walls of the north and south vehicular loading dock areas would be strengthened with vertical steel beams to handle the loads caused by flooding and new flood gates would be installed at the ramp entrances.
- Two new flood-pumping stations would be installed to convey sanitary and storm flows to the sewer during a flood event.
- A new bank of exterior elevators would be constructed on the exterior side of the Hospital Building to provide up to four new service elevators, which would allow for critical operational needs during a storm event. An emergency power source would be provided for the new bank of exterior elevators and all controls would be placed on the roof of the structure, well above the proposed design elevation. The exterior elevators will also be dry flood proofed, flood planks will be installed in front of the elevators, and sump pumps will be installed in the elevator pits to protect the elevators from flood damage.
- The existing 22 elevators in the Hospital Building would be mitigated by installing sump pumps in the elevator pits, waterproofing walls and floors in each elevator pit, installing flood barriers in the front of each elevator, applying salt water resistant coating to the traveling cables, enclosing hoistway wiring in seal tight conduits, and providing high water level switches in each elevator pit.
- A secondary domestic water pumping system would be installed in the mechanical rooms in the Hospital Building to provide the hospital with continuous domestic water service during a flooding event.
- The oxygen tank vault would be hardened and the medical gas piping system would be reworked in order to provide continuous medical gas and vacuum to the ED.
- A backup heating system would be installed in case utility steam service is cut off, including a series of mobile boilers on the service road outside of the Ambulatory Care Building.

- HVAC equipment, including the air handling units in the cellar of the Hospital Building would be relocated to new mechanical rooms in the building located above the 500-year design flood elevation.
- Several improvements would be made to the normal and emergency power systems throughout the campus, including elevating the backup generator located on the loading dock, dry floodproofing the fuel oil pump room, installing a backup fuel oil pumping system for the emergency generators on the 13th floor of the Hospital Building, elevating the exhaust vents and tank fill port for the below-grade fuel oil tank, and relocating and elevating the service switchgears from the basement of the Ambulatory Care Building.

Alternative 3: Perimeter Boundary Protection

This alternative would include the perimeter boundary protection system described above, with a series of connected permanent and removable walls with integrated flood gates designed to the 500-year flood elevation for the Bellevue Hospital campus plus three feet of freeboard to account for sea level rise. No other mitigation measures would be included in the Perimeter Boundary Protection alternative.

This alternative was dismissed because while the floodwall provides a comparable level of protection as the Proposed Alternative, it does not achieve the goals of the MLD strategy that is recommended for critical infrastructure and would not provide the redundant systems for hospital infrastructure that are required for Bellevue Hospital. If floodwaters were to overtop the floodwall, the hospital would be inundated by flooding due to no other mechanisms to handle the floodwaters and would be susceptible to the same outcomes that occurred during Hurricane Sandy, necessitating evacuation of patients and staff and cessation of hospital operations.

Alternative Location

Relocating the existing Bellevue Hospital to another location outside of the 500-year floodplain is not practicable. Significant infrastructure investments have been made to the hospital over its nearly 300-year existence by the local, state, and federal government. Abandoning those investments is not practical. In addition, there are no sites in the vicinity of the Project Site that are of sufficient size and outside of the 500-year floodplain that are available to the Subgrantee. Therefore, relocation of the hospital complex is deemed impractical.

Step 4: Identify impacts of the proposed action.

The impacts of the Proposed Alternative, including those impacts to the natural function of the floodplain, have been identified and described in the Environmental Assessment. In summary, the Proposed Alternative supports the continued occupancy within the floodplain by restoring flood damaged facilities and equipment and by increasing the resiliency of the hospital through hazard mitigation projects, including a floodwall. The floodplain within the Project Site has been substantially developed prior to Hurricane Sandy. In addition, because the Project Site is located in a densely populated and built section of Manhattan, the Proposed Alternative does not encourage further development within the floodplain. Finally, as shown in the Hydrologic and Hydraulic (H&H) study (see Appendix A, Document 5.4B), the flood volume displaced by the Bellevue Hospital campus is much less than the storm tide volume of the East River. Therefore, there will be no significant impact on flood elevations in the immediate vicinity of the Project Site as a result of the construction of the floodwall and the resultant decrease in the amount of flood storage volume that is available.

HHC Bellevue Hospital Hazard Mitigation

The Proposed Alternative will have a tremendous positive impact on public health and safety. By repairing damaged components at this critical facility, the services being offered by the hospital can again be supported by permanent infrastructure. In addition, increasing the resiliency of the Project Site will allow for public health services to be maintained during future disasters. Finally, increasing the flood protection afforded to the hospital will save the city, state, and federal government significant expenses that would occur as a result of future flood events.

Step 5: If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate.

The Proposed Alternative is not expected to result in adverse effects, as discussed in the Environmental Assessment and summarized above in Step 4. Restoring the floodplain to its natural state is not a practical or viable alternative to the Proposed Alternative. The Proposed Alternative will be designed to meet or exceed all local, state, and federal permit rules, regulations, and permit conditions.

Step 6: Reevaluate alternatives.

The Proposed Alternative is the most practicable alternative based on the review of possible adverse effects on the floodplain and community/socioeconomic expectations. The public benefits of the Proposed Alternative outweigh the risk of investment in the floodplain located structures.

Step 7: Present the findings and a public explanation.

A cumulative initial public notice was published in the New York Post on December 14, 2012. An additional Notice of Availability of the draft Environmental Assessment will be published when the document is ready for public comment. Following the public comment period and consideration of any substantive comments received during the comment period, a Finding of No Significant Impact is anticipated. The Final Notice will be incorporated into this notice.

Step 8: Implement the action.

FEMA approval of the Proposed Alternative will be conditioned on review of implementation and post-implementation phases to ensure compliance with the order(s). All requirements stated in Section 6.0 of the Environmental Assessment will be fully implemented. Oversight responsibility shall be integrated into existing processes and project completion in accordance with all applicable local floodplain ordinances and codes and standards shall be verified at project closeout.

Appendix A
Document 5.4-2
Hydrology and Hydraulics

NEW YORK CITY HEALTH AND HOSPITALS CORPORATION

BELLEVUE HOSPITAL ENVIRONMENTAL ASSESSMENT

Appendix 5.4B

Hydrology and Hydraulics

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1.0 INTRODUCTION

Bellevue Hospital Campus lies within the 100-year and 500-year flood hazard area on FEMA’s Preliminary Flood Insurance Rate Maps (PFIRM) that were released on January 30, 2015. This identified flood risk supports a need to protect this critical facility from flooding. Bellevue Hospital plays a critical role in serving patients throughout and following extreme events such as 100-year and 500-year floods.

To reduce the Campus’s flood risk during the 100-year and 500-year flood events, a perimeter flood wall is proposed with a crest at 18 feet NAVD88, designed for the 500-year water level plus freeboard for sea level rise and wave action. In tandem, modifications to the interior drainage network are proposed to convey rainfall runoff and sanitary flow during a flood event where the perimeter flood wall would prevent normal conveyance of these flows. In addition, modifications to the connections to the existing New York City (NYC) sewers are proposed to prevent storm tide “backup” behind the proposed perimeter flood wall.

In the following, the Campus’s existing storm tide, wave, and interior drainage climate are discussed. This is the condition without the proposed floodwall and associated interior drainage modification, i.e. the no action scenario. Additionally, the storm tide, wave, and interior drainage climate is discussed with the proposed floodwall and associated interior drainage modifications. Emphasis will be placed on the potential impacts that these proposed modifications could have on adjacent properties.

2.0 EXISTING CONDITIONS

2.1 STORM TIDE

The storm tide elevations (referred to as stillwater elevations in FEMA’s flood insurance studies) that are contributing to the return interval flood risk that is displayed on FEMA’s PFIRM for the Bellevue Hospital Campus are as shown in Table 1. The storm tide (addition of storm surge and tide) is combined with waves to develop the preliminary Base Flood Elevations.

TABLE 1: FEMA PRELIMINARY BASE FLOOD AND STORM TIDE ELEVATIONS (FEET-NAVD88)

	100-year	500-year
Preliminary Base Flood Elevation	11	15
Storm Tide Elevation	11	14

Source: FEMA

2.2 WAVES

FEMA’s Preliminary Flood Insurance Study shows that the 100-year wave at the shoreline of the East River near Bellevue Hospital is 3.1 feet. For the 500-year wave, values are not reported as part of FEMA’s studies; therefore, ARCADIS developed a 500-year wave estimate of 3.9 feet. This estimate is based on the extraction of the wave characteristics from the FEMA simulated storm events that had peak storm tide elevations close to the 500-year storm tide. Bellevue Hospital is mostly sheltered from these waves by the Alexandria Center building to the north of 28th street and the Waterside Plaza buildings to the east of FDR Drive. However, the northeast corner of the campus is exposed to waves when water levels are high enough to cover FDR Drive. For the 100-year water level, waves are unable to penetrate the campus because inland topography is high enough to dissipate waves.

For the 500-year water level, waves from the northeast can penetrate to the northeast corner of the campus. For the 500-year water level scenario, the offshore 500-year wave height estimate of 3.9 feet was propagated to the northeast corner of the hospital campus using FEMA’s inland wave propagation model, Wave Height Analysis for Flood Insurance Studies known as WHAFIS (Version 4.0G, Watershed Concepts, 2007). WHAFIS accounts for the following wave processes as waves move inland:

- Dissipation and shoaling of wave energy by bathymetry
- Dissipation of wave energy by structural features such as building elements
- Wave growth due to wind forcing

For this analysis, the bathymetry that was used by FEMA for the coastal study associated with the PFIRMs was reviewed and deemed appropriate. Wave forcing was applied using FEMA’s recommended value of 75 mph for 500-year events. Once the waves are propagated inland to the wall of the hospital, local effects that account for the reflection and uprush of wave energy at a vertical wall are included to develop a total wave height. The resulting wave climate at the northeast corner of the campus for the 100-year and 500-year water elevations are shown in Table 2.

TABLE 2: WAVE CLIMATE AT THE NORTHEAST CORNER OF THE BELLEVUE HOSPITAL CAMPUS

	100-year	500-year
Significant Wave Height (ft)	0	0.4 - 0.5
Peak Wave Period (s)	0	3.5

2.3 INTERIOR DRAINAGE

The existing stormwater and sanitary flows from the Bellevue Hospital Campus are conveyed by gravity drainage to NYC sewers on 29th Street and 26th Street. The campus is roughly split in half, with the northern half of the campus conveying to 29th Street and the southern half of the campus conveying to 26th Street. These flows include contributions from bathrooms, showers, etc. and during rainfall events, runoff from rooftops, parking areas, sidewalks, etc. Because these flows are conveyed to NYC sewers on 29th and 26th Street, during a significant storm tide event, water can “backup” through the connections to the NYC sewer system via the interceptor mains, outfalls at the East River, or even through catch basins on nearby streets that are flooded.

The details of the existing NYC sewers are shown in Figure 1. The 29th Street sewer flows are conveyed towards the East River, north to 30th street, and then west again to the 102” diameter interceptor on 1st Avenue. This interceptor is the main interceptor for most of Manhattan and connects to the 13th Street Manhattan Pump Station where flows are conveyed by five 100 million gallon per day (MGD) pumps to the Newtown Creek Wastewater Treatment Plant in Brooklyn. It is also noted that the sewer on 29th Street can overflow to the East River if the interceptor main on 1st Avenue is at capacity. Similarly, the 26th Street sewer conveys flows east towards the East River, south to 25th Street, then west to the 108” interceptor main on 1st Avenue, south to the Manhattan Pump Station on 13th Street, and then to the Newtown Creek Wastewater Treatment Plant. The 26th Street sewer also can overflow to the East River, if the system is at capacity.

This overview description of the sewer system highlights the numerous opportunities for storm tide to back up into the Bellevue Hospital Campus at existing connections to the NYC sewer because of:

- Outfalls directly connected to storm tide at the East River
- Storm tide street flooding penetrating catch basins connected to the 1st Avenue interceptor

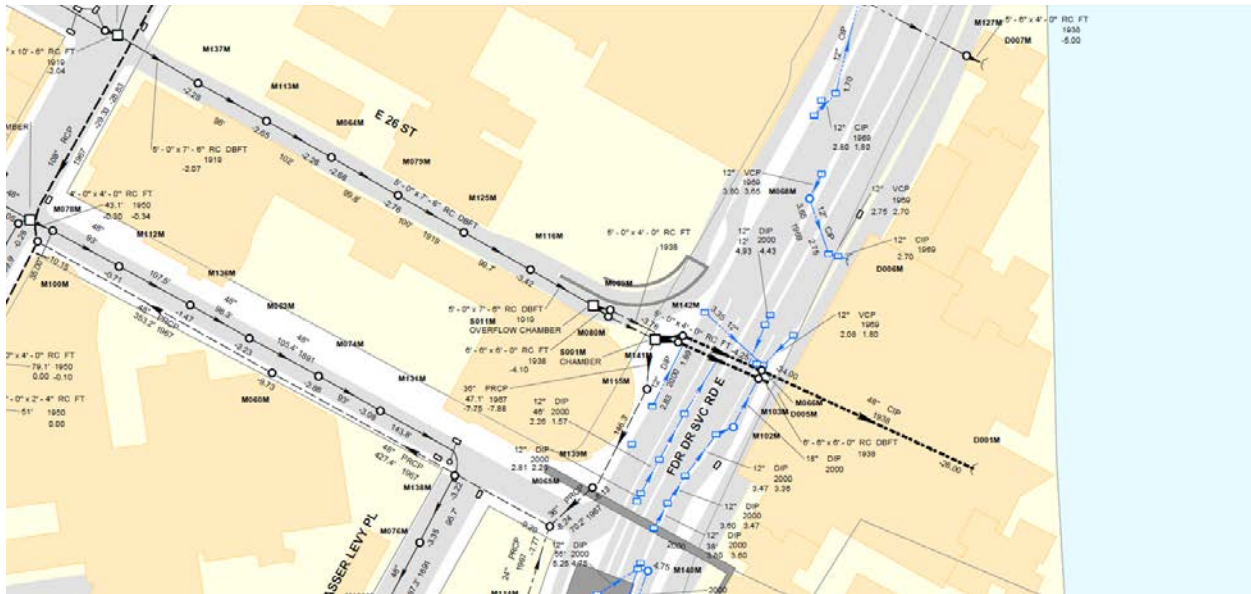
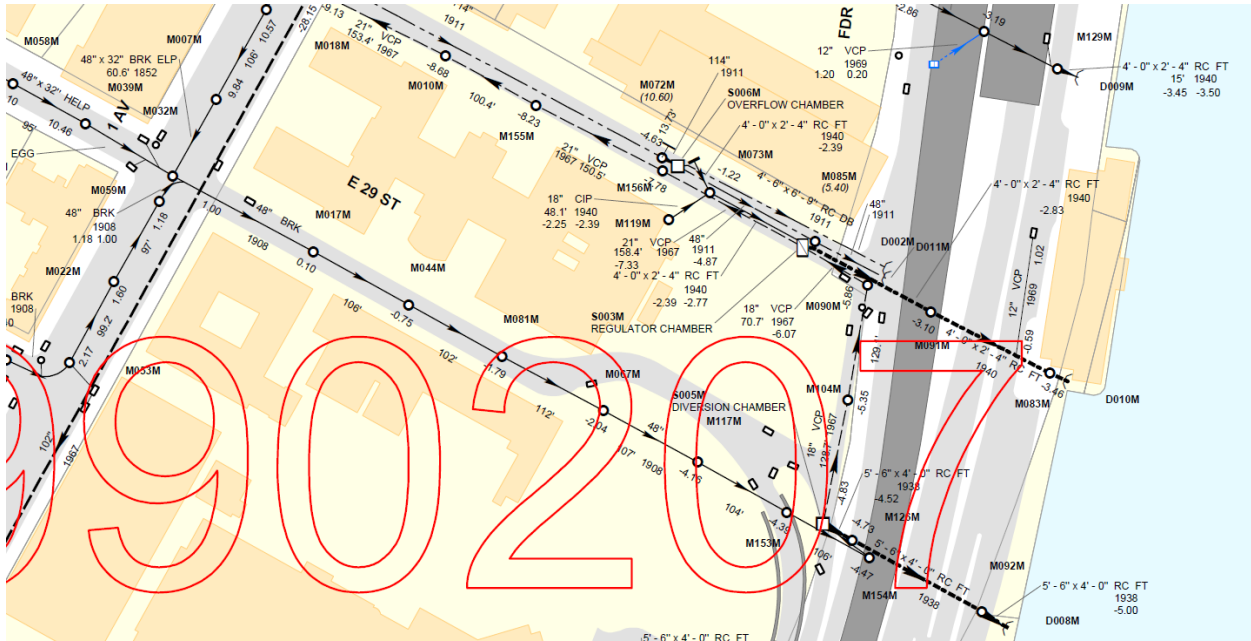


FIGURE 1. NYCDEP SEWER MAP SHOWING EXISTING SEWERS ADJACENT TO BELLEVUE HOSPITAL. TOP-ZOOM INTO 29TH STREET SEWER. BOTTOM-ZOOM INTO 26TH STREET SEWER.

2.4 SUMMARY

The following points summarize the existing conditions at the Bellevue Hospital Campus:

- 100-year storm tide of 11 feet + negligible waves
- 500-year storm tide of 14 feet + 0.4-0.5 feet of wave exposure at the northwest portion of the campus
- Interior drainage system connected to NYC sewers on 26th and 29th streets that are exposed to storm tide at multiple:
 - East River outfalls
 - Street catch basins connected to the 108" 1st Avenue interceptor main

3.0 PROPOSED CONDITIONS

3.1 STORM TIDE REDUCTION AT BELLEVUE HOSPITAL CAMPUS

With the proposed perimeter floodwall, the Bellevue Hospital Campus will be sheltered from the direct effects of both the 100-year and 500-year storm tide. As design progresses through to completed construction, a letter of map revision can be pursued to demonstrate the reduced flood risk on the Flood Insurance Rate Maps.

The height of the proposed wall (elevation 18 feet NAVD88) is above the 500-year storm tide level, but waves on top of storm tide could overtop the perimeter floodwall in the northeast corner of the property during the 500-year event. However, this overtopping is expected to be minimal due to the alignment of the floodwall close to the existing building face. Any overtopping will be conveyed by the proposed drainage features from behind the wall to the sewer system. Additionally, storm tide could penetrate behind the wall through any open pipes (combined sewer, storm sewer, etc.), but sufficient closure of these pipes through valves or tide gates are included in the proposed design. The details of the waves and interior drainage are discussed in the following sections.

3.2 STORM TIDE: NO-IMPACT TO ADJACENT PROPERTIES

By removing the storm tide risk to Bellevue Hospital by the construction of a perimeter floodwall, the storm tide risk to adjacent properties will not be increased. This is because the storm tide volume that enters the East River is much larger than the flood volume displaced by the Bellevue Hospital Campus. Additionally, the volume of water that is conveyed through the East River is controlled by water elevation differences that convey water through the inlets to the East River, i.e. the Long Island Sound, the Harlem River, and the Upper New York Bay as shown in Figure 2.

Without significant modification to the cross sectional geometry of those three inlets, the volume of water conveyed through the East River will be relatively fixed for a given set of water surface elevations in the Long Island Sound, Upper New York Bay, and Harlem River.

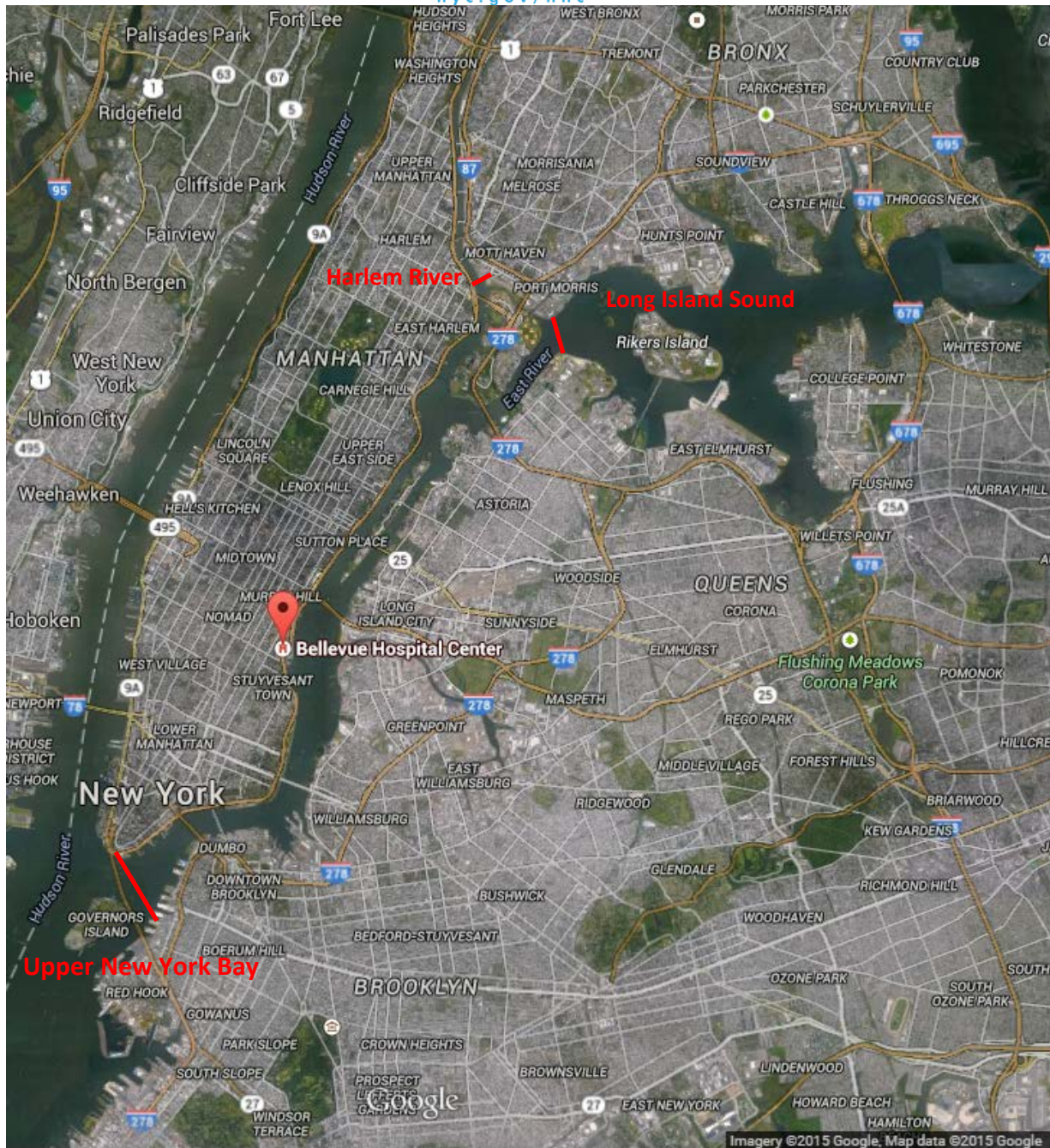


FIGURE 2. INLETS TO THE EAST RIVER SHOWN IN RED, I.E. HARLEM RIVER, LONG ISLAND SOUND, AND UPPER NEW YORK BAY.

To demonstrate the size of the volumes conveyed through the East River, during routine tide events the surface area of the lower East River is reported as 2,562 acres. With a tidal range of 4.5 feet, this results in the conveyance of 11,518 acre-feet of routine tidal volume (Jay, D.A. and M. J. Bowman. 1975. *The Physical Oceanography and Water Quality of New York Harbor and Western Long Island Sound*). A 500-

year storm tide event expands the routine “tidal” range and increases the surface area of the East River, expanding the volume of water conveyed through the East River beyond 11,518 acre-feet.

In comparison, the Bellevue Hospital Campus is roughly 7 acres, and when exposed to the 500-year storm tide event (elevation 14 feet NAVD88), average depths of flooding on site would be in the 1-3 feet range. Assuming an average of 2 feet, the total volume of flood on campus is 14 acre-feet. Therefore, even the routine tidal volume in the East River is more than 1,000 times larger than the flood volume of the Bellevue Hospital Campus, demonstrating the small effect of the campus on the total volume conveyed through the East River.

The cross sectional area of the East River adjacent to Bellevue Hospital Campus is shown in Figure 3. For a given volume that needs to be conveyed through the East River during a storm event, significant modification of the cross sectional area at any point along the East River could modify average flow velocities that could modify the distribution of water levels throughout the East River. But again, the scale of the modification to the flow area by the proposed flood wall is small so that any modifications of water levels throughout the East River are expected to be small as well, at least within the uncertainty of the mapped flood elevations, i.e. +/- 0.5 feet.

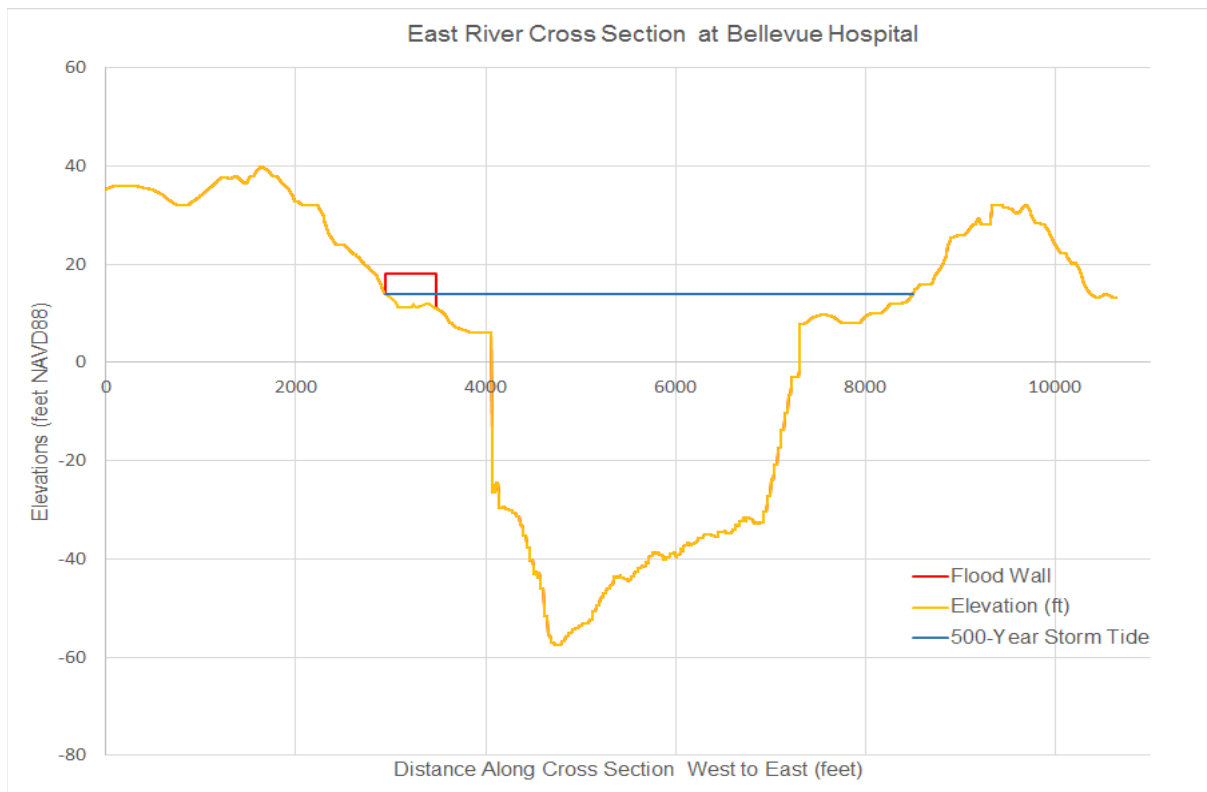


FIGURE 3. CROSS SECTIONAL AREA OF THE EAST RIVER AT BELLEVUE HOSPITAL AS EXTRACTED FROM THE FEMA DEM USED IN THE COASTAL ANALYSIS THAT GENERATED THE PFIRMS. THE CROSS SECTION RUNS WEST TO EAST WITH BELLEVUE HOSPITAL LOCATED WITHIN THE FLOODWALL.

3.3 WAVE REDUCTION AT THE BELLEVUE HOSPITAL CAMPUS

The proposed perimeter floodwall will shelter the Bellevue Hospital Campus from waves. The impacts of this reduced exposure are most significant in the northeast corner of the building which is exposed to waves approaching from the northeast.

Wave overtopping could occur during the 500-year event at the northeast corner of the site, but because the perimeter wall in the northeast corner of the campus aligns closely with the existing building face and because of appropriate freeboard designed into the wall height, the overtopping contribution is likely to be minimal. Any wave overtopping that does occur will be conveyed away from the interior of the wall by the proposed drainage system.

3.4 WAVE REFLECTION: NO-IMPACT TO ADJACENT PROPERTIES

The Alexandria Center building to the north and the Waterside Plaza building to the east of Bellevue Hospital were considered for the reflection of waves from the proposed floodwall, as shown in Figure 4.



FIGURE 4. RED ARROWS DEMONSTRATE WAVES APPROACHING FROM THE NORTHEAST AND IMPACTING THE NORTHEAST CORNER OF THE HOSPITAL. YELLOW ARROWS SHOW WAVE REFLECTION PATHWAYS TO ADJACENT PROPERTIES TO THE EAST (LEFT IMAGE) AND TO THE NORTH (RIGHT IMAGE).

Because the proposed floodwall aligns closely with the existing building face, the reflection of the incoming waves to adjacent properties will be unchanged with the proposed wall. Waves reflect from the solid, vertical faces of the existing building in the same manner as they would from the proposed vertical perimeter wall. Even under existing conditions, because the wave climate is less than 0.5 feet even during a 500-year event, reflections of wave energy to nearby properties are minimal.

3.5 INTERIOR DRAINAGE

With the proposed perimeter floodwall in place, the existing sanitary and stormwater drainage systems will be modified to continue conveying drainage from behind the wall during a storm tide event and also to prevent storm tide backup from NYC sewers into the Bellevue Hospital Campus. The following will be required and are schematically highlighted in Figure 5:

- New Diversion Chamber Connections to NYC sewers on 26th and 29th Streets
 - Valves on existing connections installed to prevent exterior storm tide backflows during storm tide events
 - Diversion of combined stormwater and sanitary flows to a new pump station during storm tide events
- New pump stations to convey sanitary, stormwater, and wave overtopping during storm tide events
 - Designed to convey campus rainfall runoff during the 5.95 inches/hour event plus concurrent sanitary flows from all hospital fixtures
 - Designed to supply pump head sufficient to evacuate water from basements to elevations above the 500-year storm tide

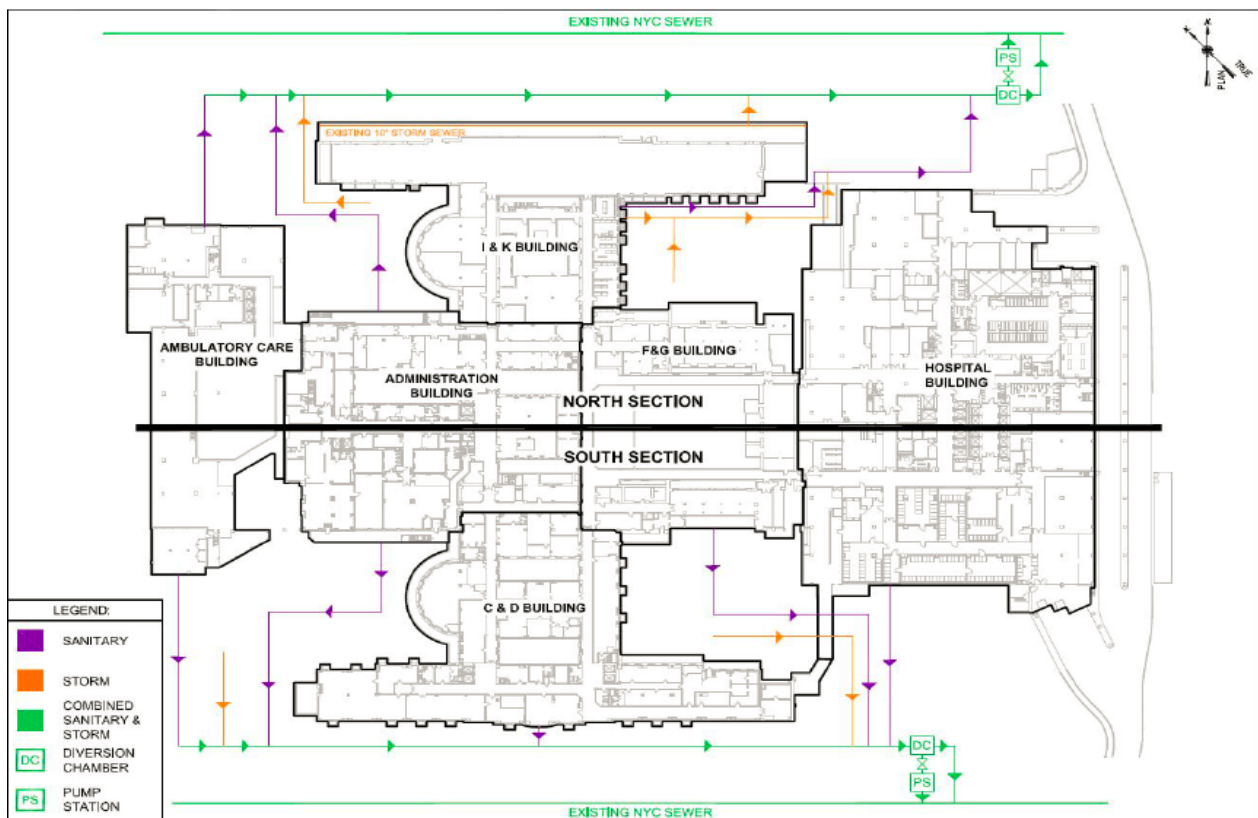


FIGURE 5. PROPOSED INTERIOR DRAINAGE SYSTEM FOR THE BELLEVUE HOSPITAL CAMPUS.

3.6 SUMMARY

The following points summarize conditions with the proposed perimeter floodwall and associated interior drainage modifications:

- Direct storm tide and wave risk reduced behind the wall
- No storm tide or wave impact to adjacent properties
- Interior drainage modified to prevent storm tide backflow behind the wall and to convey the following during a storm tide event:
 - The 5.95 inches/hour rainfall event
 - Sanitary flows from all hospital fixtures

Appendix A
Document 5.7-1
U.S. Department of the Interior
Correspondence



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Long Island Ecological Services Field Office
340 SMITH ROAD
SHIRLEY, NY 11967
PHONE: (631)286-0485 FAX: (631)286-4003

Consultation Code: 05E1LI00-2015-SLI-0073

March 03, 2015

Event Code: 05E1LI00-2015-E-00073

Project Name: HHC Bellevue Hospital Hazard Mitigation

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: HHC Bellevue Hospital Hazard Mitigation

Official Species List

Provided by:

Long Island Ecological Services Field Office
340 SMITH ROAD
SHIRLEY, NY 11967
(631) 286-0485

Consultation Code: 05E1LI00-2015-SLI-0073

Event Code: 05E1LI00-2015-E-00073

Project Type: Development

Project Name: HHC Bellevue Hospital Hazard Mitigation

Project Description: HHC is seeking funding from FEMA pursuant to section 406 and 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act for the proposed project, which would prevent damage to the hospital from future storm or flooding events by providing a flood barrier around the hospital campus as well as elevated and/or hardened space for critical mechanical, electrical, and plumbing (MEP) equipment.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: HHC Bellevue Hospital Hazard Mitigation

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-73.9733403 40.7396294, -73.9734272 40.7392725, -73.9744572 40.7376792, -73.9770643 40.7387685, -73.9757334 40.740589, -73.9733403 40.7396294)))

Project Counties: New York, NY



United States Department of Interior
Fish and Wildlife Service

Project name: HHC Bellevue Hospital Hazard Mitigation

Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
northern long-eared Bat (<i>Myotis septentrionalis</i>)	Proposed Endangered		



United States Department of Interior
Fish and Wildlife Service

Project name: HHC Bellevue Hospital Hazard Mitigation

Critical habitats that lie within your project area

There are no critical habitats within your project area.