NPS Form 10-900
(Oct 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer to complete all items.

1. Name of Property

historic name: Substation 409

other name/site number: Stanton Street Substation

2. Location

street & number: 163 Essex Street [ ] not for publication

city or town: New York [ ] vicinity

state: New York code: NY county: New York code: 061 zip code: 10012

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this [X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements as set forth in 36 CFR Part 60. In my opinion, the property [X] meets [ ] does not meet the National Register criteria. I recommend that this property be considered significant [ ] nationally [ ] statewide [X] locally. ([ ] See continuation sheet for additional comments.)

Signature of certifying official/Title — Date 9/19/05

State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. ([ ] See continuation sheet for additional comments.)

Signature of certifying official/Title — Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

[ ] entered in the National Register
[ ] see continuation sheet
[ ] determined eligible for the National Register
[ ] see continuation sheet
[ ] determined not eligible for the National Register
[ ] removed from the National Register
[ ] other (explain) _____

Signature of the Keeper — Date of Action

Substation 409 | New York County, New York
Name of Property | County and State

5. Classification

Ownership of Property
(check as many boxes as apply)

[ ] private
[ ] public-local
[X] public-State
[ ] public-Federal

Category of Property
(check only one box)

[ ] building (s)
[ ] district
[ ] site
[X] structure
[ ] object

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing	Noncontributing	
		Buildings
		Sites
1	0	Structures
		Objects
1	0	**TOTAL**

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)
Historic Resources of the New York City Subway System

Number of contributing resources previously listed in the National Register
1 (in Lower East Side Historic District)

6. Function or Use

Historic Functions
(Enter categories from instructions)
Transportation/rail-related
Government/public works

Current Functions
(Enter categories from instructions)
Transportation/rail-related
Government/public works

7. Description

Architectural Classification
(Enter categories from instructions)
Modern Movement/Art Deco

Materials
(Enter categories from instructions)
Foundation: Concrete
Walls: Brick. Limestone. Concrete.
Roof: Steel, concrete
Other:

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets)
See continuation sheet

7. Narrative Description

The Substation 409 (Stanton Street Substation) is located in the Lower East Side of Manhattan. The substation was constructed in 1936 as part of the IND system. It currently provides power for the F, J, M, and Z lines of the IND and BMT systems. It is aligned in an east-west direction at 163 Essex Street between Stanton and East Houston Streets. The substation is rectangular in plan and measures approximately 100 feet in length and 50 feet in width. The substation was previously listed as a contributing building in the Lower East Side Historic District (7 September 2000), but the current nomination focuses on the structure's significance as part of the New York City Subway System.

General Characteristics and Construction Methods

The construction of IND Substations in the early 1930s marked the end of the manually operated substation. All but five of the 75-plus stations built for the IND system used mercury arc rectifiers in place of the manually operated rotary converters (Payne, 48). These rectifiers functioned by placing a mercury electrode in contact with mercury vapor – a process that resulted in the current being conducted in only one direction. The most conspicuous change seen in the design of the IND substations was the lack of windows and as a result natural light. The majority of the IND substations built after 1932 were smaller underground vaults that used a single mercury arc rectifier. The smaller type of station allowed the power to be more evenly spaced along the line.

The above-ground IND substations were constructed in a simple Art Deco style. Brick facades set with ornamental limestone and aluminum doors embossed with geometric and sunburst patterns (Payne, 49). One consistent element found throughout the IND stations is the ornamental limestone door surround carved with zig-zag designs and topped by a tall, inscribed lintel that reads, "CITY of NEW YORK" and the substation name.

Exterior Elements

The Stanton Street Substation (#409) is a two-story, double-height masonry building constructed in the Art Deco style on an infill lot (Photo 1). The main façade, which faces Essex Street, is topped by a low, brick parapet that is capped by a band of limestone coping. Below this band is a frieze that is comprised of diamond-shaped limestone pieces and a chevron pattern in brick.

This facade is symmetrically arranged around a central doorway. A carved plaque above the lintel reads "City of New York Stanton Substation". Above the limestone surround of the doorway is a six-by-six foot metal louver and exhaust fan that were added during a 1969 renovation. The doorway is flanked by two monumental portals. The portals are fitted with rolling metal doors that were added in the 1970s. Each portal is topped by a decorated, limestone spandrel panel fitted with a pair of openings. The openings feature a repeating chevron motif that extends vertically to the building's top edge and also frames the two square casement windows above. The façade is covered in various-colored bricks arranged in a subtle, vertical diamond pattern accented by recessed mortar joints. The entire elevation is set on a massive, four-foot tall stone plinth that has been faced with cement.

Interior Description

The interior of the substation is a large street-level windowless volume with painted brick infill walls, concrete slab floors and a concrete ceiling. A ceiling-height brick partition divides this space longitudinally in half. There are openings in the front for machinery to pass, and in the rear a human-sized passage and punched openings in four places allow for the bus to pass from AC transformer to solid state rectifier (the original four mercury arc rectifiers have been replaced). A 20-foot crane serves only the south half of this space. The original telephone booth with pressed tin interior and folding door with porcelain handle, and wind up alarms bells (still in use) remains. The stairways have utilitarian ball and tube railings and some original light fixtures remain (Photo 3).

The second floor space is well lit with large windows and serves as offices and storerooms for power diodes, fuses, and relays for Zones 1, 2 & 3.

Substation 409 | New York County, New York

Name of Property | County and State

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

[X] **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.

[ ] **B** Property is associated with the lives of persons significant in our past.

[X] **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

[ ] **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all boxes that apply.)

Property is:

[ ] **A** owned by a religious institution or used for religious purposes.

[ ] **B** removed from its original location.

[ ] **C** a birthplace or grave.

[ ] **D** a cemetery.

[ ] **E** a reconstructed building, object, or structure.

[ ] **F** a commemorative property.

[ ] **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance

(Enter categories from instructions)

Transportation

Architecture

Engineering

Community Planning and Development

Period of Significance

1936-1940 (IND Period)

Significant Dates

1936

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

[ ] preliminary determination of individual listing (36 CFR 67) has been requested

[ ] previously listed in the National Register

[ ] previously determined eligible by the National Register

[ ] designated a National Historic Landmark

[ ] recorded by Historic American Buildings Survey

_____

[ ] recorded by Historic American Engineering Record

_____

Primary location of additional data:

[ ] State Historic Preservation Office

[X] Other State agency

[ ] Federal Agency

[X] Local Government

[ ] University

[X] Repository name:

NYC Transit Archives

NYC Landmarks Preservation Commission

8. Narrative Statement of Significance

As part of the Multiple Property Submission of the Historic Resources of the New York City Subway System, the Substation 409 (Stanton Street Substation) is significant under Criterion A in the areas of transportation, community planning and development, and social history. The station also meets Criterion C in the areas of engineering, architectural design, and art. The Substation 409 was constructed and began operation in 1936 as part of the IND system. This station originally served Bowery, Madison Street, Stanton Street and the Thompson Street Circuit Breaker House. Today it provides power to IND F line from East Broadway to Broadway and Lafayette.

Substations play a vital role as part of the New York Subway system. A substation is an electrical plant built to convert high voltage alternating current (AC) to low voltage (about 600 volts) direct current (DC) used to provide traction power for the trains. The technology has changed over the years. Originally, large rotary converters were used and house in large buildings as in the case of the original IRT and BMT substations. By the time the IND was built, mercury arc rectifiers (MRCs) became the state-of-the-art technology, and most of the original IND substations are of this type. The building of the city-owned IND system brought significant changes in the supply technology .Instead of generating its own 11,000 volt 25 cycle AC, the city opted to purchase 13,200 volt 60 cycle AC from Con Edison (who coincidentally had purchased the original IRT powerhouse on West 59th Street in Manhattan).

The IND substations are usually housed in masonry structures designed in a distinctively Art Deco tradition prevalent at the time, much like the telephone company buildings of the same era. Like other IND substations, this one is architecturally notable for its highly articulated Art Deco facade of brick and limestone, which masks its true function of converting power for the subway system. Art deco motifs are found throughout the facade design including basket weave brick patterns; pressed geometric patterns on the metal-clad doors; and stylized lettering bearing the name of the substation carved in the limestone frames over the main portal. The overall integrity of the building remains intact. The addition of the large louvered metal panel above the central entry and installation of new roll-down metal doors in the monumental portals, while detrimental, do not affect the overall exterior integrity in a major way. Less intrusive is the addition of incandescent lighting at the central entry.

While new equipment has replaced the original mercury arc rectifiers, the overall integrity of the interior has remained intact, save for new penetrations in the brick dividing wall of the main space to accommodate the new bus for the solid state rectifiers. The Stanton Street Substation is architecturally and historically significant in the areas of architecture and engineering.

The neighborhood has changed significantly since the station was first constructed. The adjacent building to the north has been demolished there is now a parking lot located there. A low, two-story brick commercial building shares the south party wall. To the rear are five story masonry tenement buildings which dominate the neighborhood. Across Essex Street is a two-story brick masonry grammar school.

9. Bibliography

Cudahy, Brian. *A Century of Subways: Celebrating 100 Years of the New York City's Underground Railways.* New York: Fordham University Press, 2003.

Hood, Clifton. *722 Miles: The Building of the Subways and How they Transformed New York.* Baltimore: Johns Hopkins University Press, 1993.

Interborough Rapid Transit Company. *The New York Subway: Its Construction and Equipment.* 1904. Reprinted on website managed by David Pirmann (2004). Retrieved 03/14/04 from source: http://www.nycsubway.org/irt/irtbook/.

National Park Service, Department of the Interior Historic American Engineering Record NY-122, "Interborough Rapid Transit Subway (Original Line): The NY Rapid Transit Decision of 1900: Economy, Society, Politics" prepared by Walter B. Katz, 1979.

New York City Landmarks Preservation Commission. *IRT Subway System Underground Interior Designation Report.* New York: NYC LPC, October, 1979.

Orlando, Barbara. "Recapturing the Past: Station Architecture," *At Your Service: MTA New York City Transit Employee Newsletter*, March, 2004.

Parsons, Brinckerhoff, Quade & Douglas, Inc., Historical Perspectives, Inc. and Robert E Olmstead, P.E. "Phase I: Reconnaissance Level Historical Survey of Transit Authority Properties," June, 1991.

Payne, Christopher. *New York's Forgotten Substations: The Power Behind the Subway* New York: Princeton Architectural Press, 2002.

Substation 409 | New York County, New York

Name of Property | County and State

10. Geographical Data

Acreage of Property Less than 1 acre

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	18	585510	4508100	3			
2				4			

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By (*See Continuation Sheet for authors*)

name/title Contact: Kathleen A. Howe, Historic Preservation Specialist

Organization NYS Office of Parks, Recreation & Historic Preservation Date March 30, 2004

street & number Peebles Island, PO Box 189 Telephone 518-237-8643 ext. 3266

city or town Waterford State NY zip code 12188

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional Items
(Check with SHPO or FPO for any additional items)

Property Owner (Complete this item at the request of the SHPO or FPO)

name MTA New York City Transit Contact: Hollie Wells, Project Administrator

street & number 2 Broadway, 6th Floor, D6.125 telephone 646-252-4268

city or town New York State NY zip code 10004

10. Geographical Data

Verbal Boundary Description

The boundary of Substation 409 is shown as the bold line on the accompanying site plan entitled, "CITI Map – Substation 409 – 163 Essex Street." The above-ground station boundaries are also shown on the accompanying location map entitled, "insert." The designation for Substation 409 includes all portions of the station structure and the property included within the boundaries of the NYCTA right-of way.

Boundary Description

The boundary for Substation 409 encompasses the entire station building and the NYCTA right-of way associated with the structure.

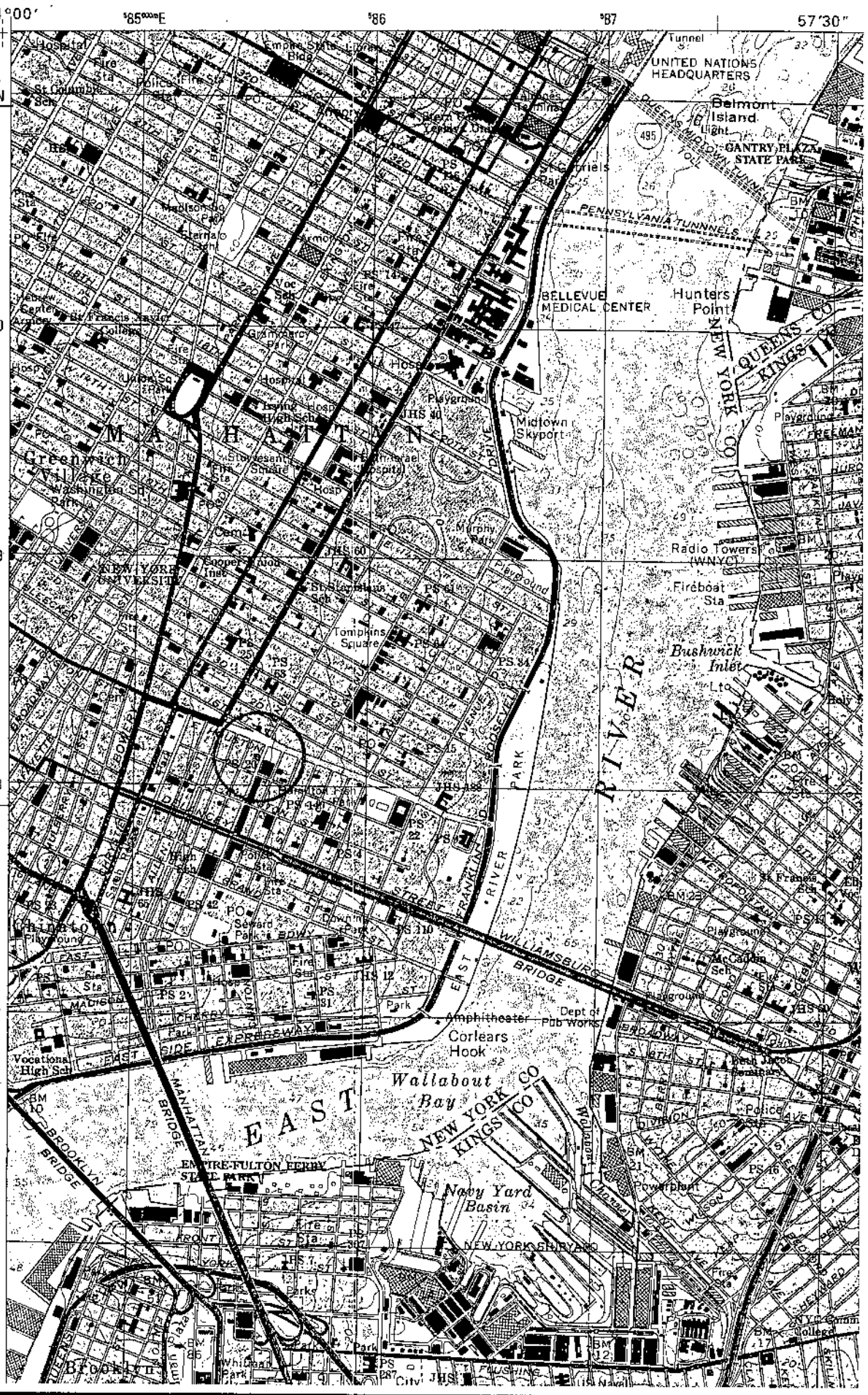
11. Form Prepared By:

Steven Bedford, Principal Architectural Historian
Stacey Vairo, Architectural Historian
Fitzgerald & Halliday, Inc.
72 Cedar Street
Hartford, CT 06106
860-247-7200

Additional Documentation

List of Black and White Photos
Substation 409
New York County, NY
Photographer: Stacey Vairo
Date: November 2004
Negatives on file: Fitzgerald & Halliday, Inc.
72 Cedar Street
Hartford, CT 06106

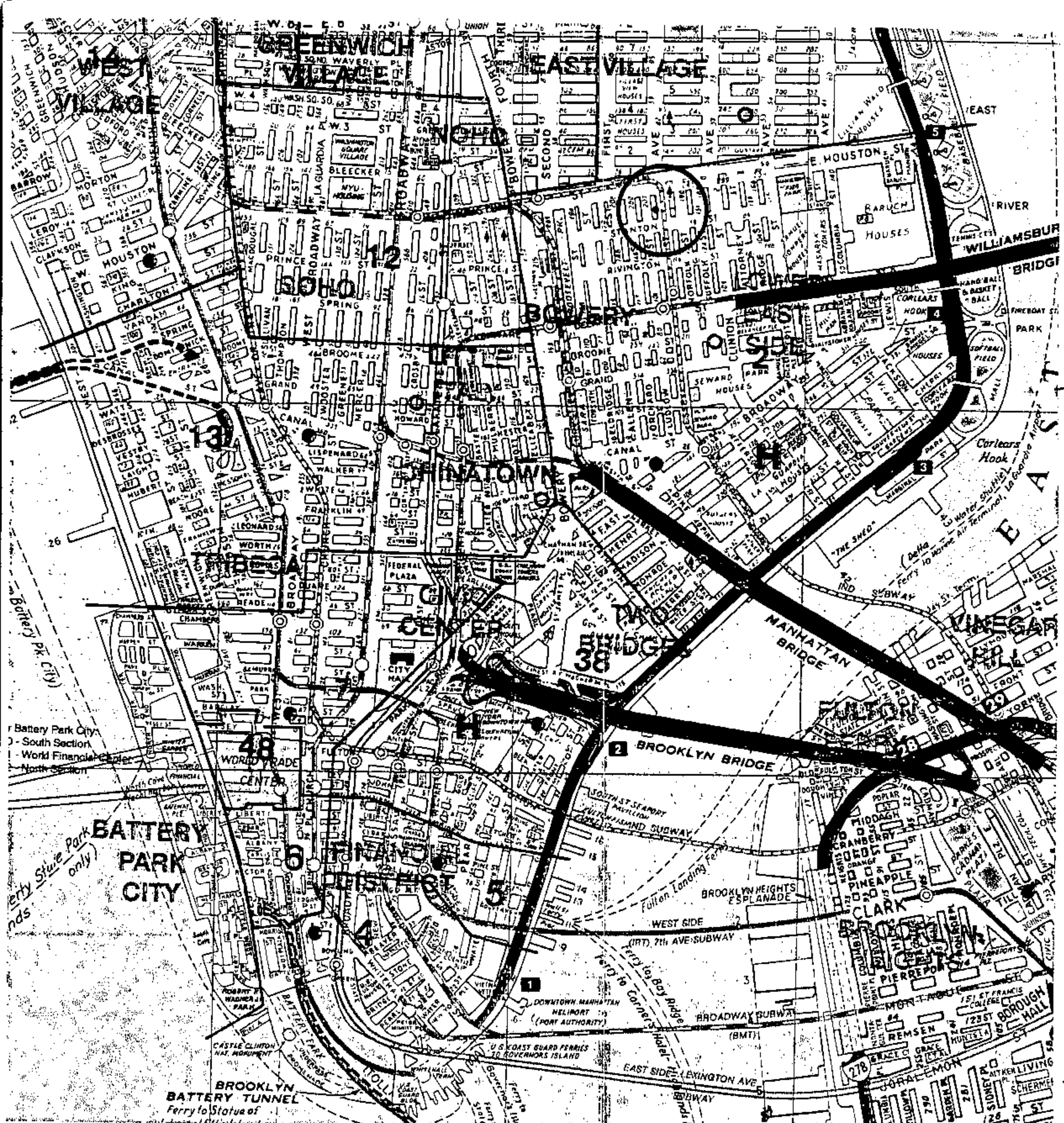
1. Eastern façade. View west.
2. Detail of doorway on eastern façade. View west.
3. Interior. View west.



Substation 409
163 Essex St.
New York Co, NY

Zone 18
Easting 585510
Northing 4508100

USGS
Brooklyn Quad
1:24000



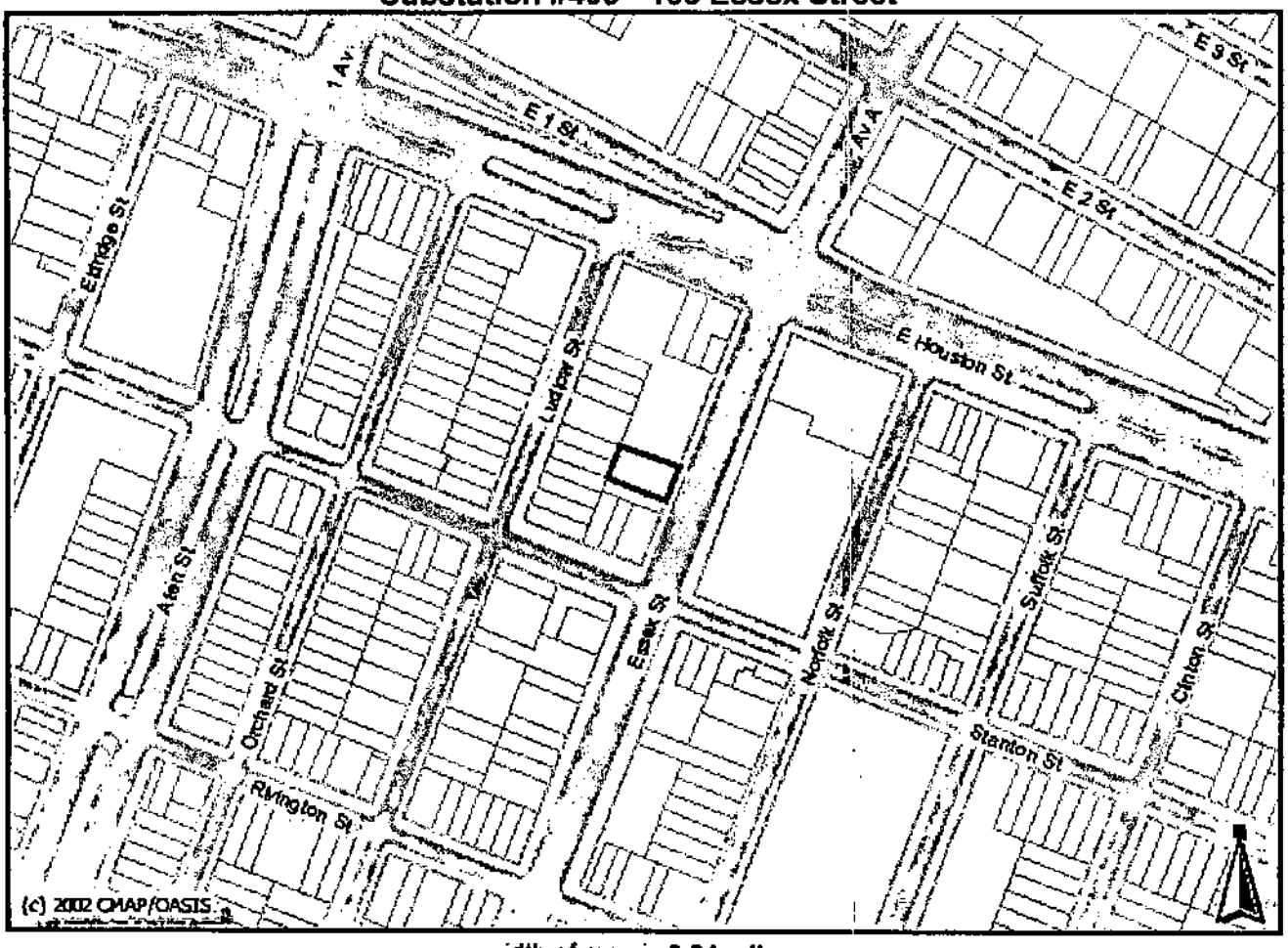
Substation 409
163 Essex Street
New York County, NY

↑
N

Hagstrom map, 1998
1" = 1,750'

CITI Map

Substation #409 - 163 Essex Street



width of map is **0.34 miles.**

Property Land Use
- Block/Lot Boundaries
- 1 & 2 Family Residential
- Multi-Family Residential
- Mixed Residential/Commercial
- Commercial
- Institutions
- Parking & Transportation
- Industrial
- Vacant

Transportation
- Streets/Bridges
- Subway Stations
- Subway Routes

General Land Use
- Community Gardens
- Parks
- Playgrounds
- Open Spaces along Streets
- Cemeteries

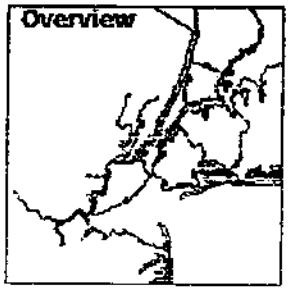
Community Facilities
- Schools

Planning Proposals
- Open Space Proposals
- Rezoning Areas
- Olympic Transportation Hubs
- Olympic Transportation Rtes
- Olympic Trails
- Olympic Venues

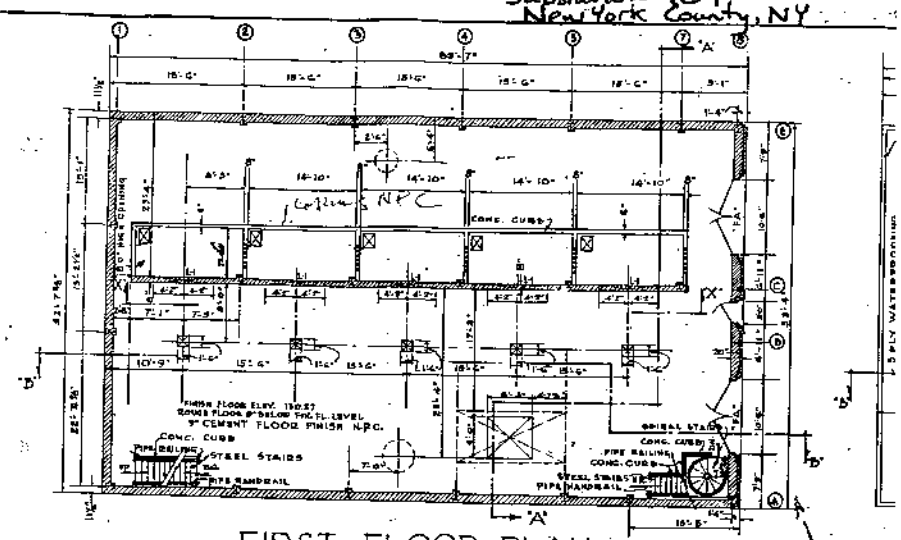
Political Districts
- 6 Community Districts
- 10 City Council Districts

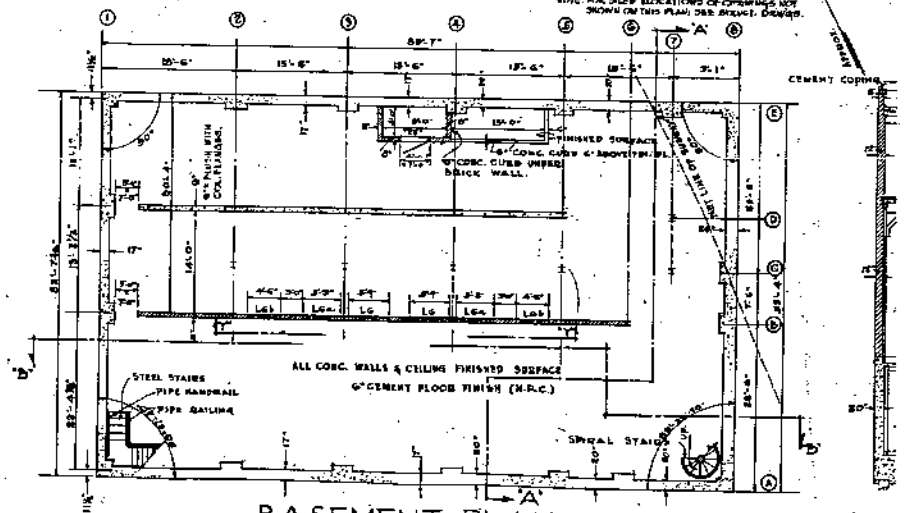
COMMUNITY INFORMATION TECHNOLOGY INITIATIVE • citi •

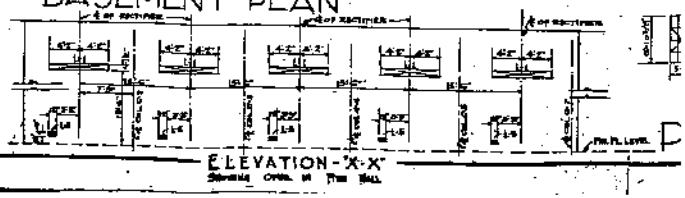
Map provided by the **Open Accessible Space Information System (OASIS)** of New York City



Substation 409
New York County, NY







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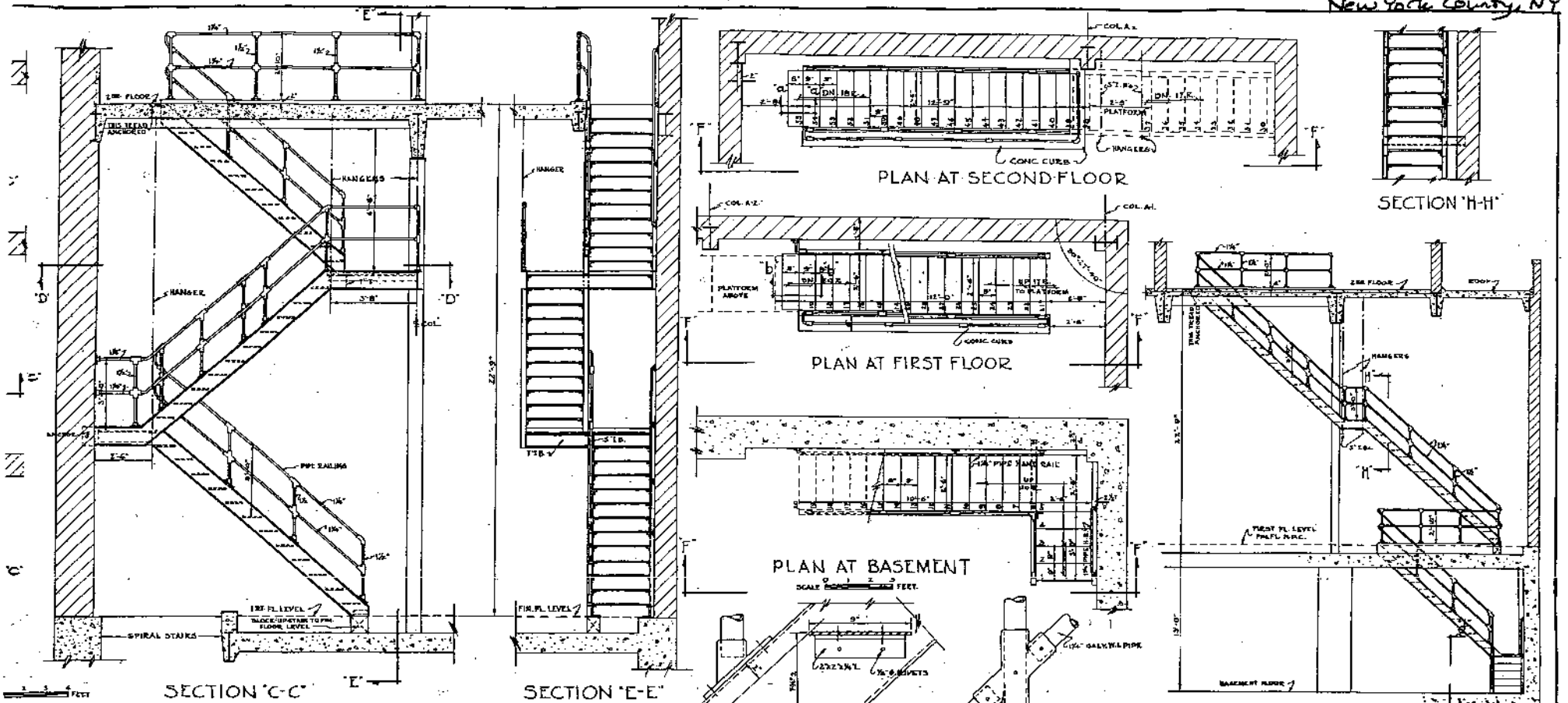
CHECKED BY: STEIERT
IN CHARGE: GARDNER
ARCHITECT

Substation 409
New York County, N.Y.



STAIR DETAILS

ROUTE NO. 103 SECTION NO. 2

STANTON SUB-STATION

CONTRACT DRAWING NO. F-503

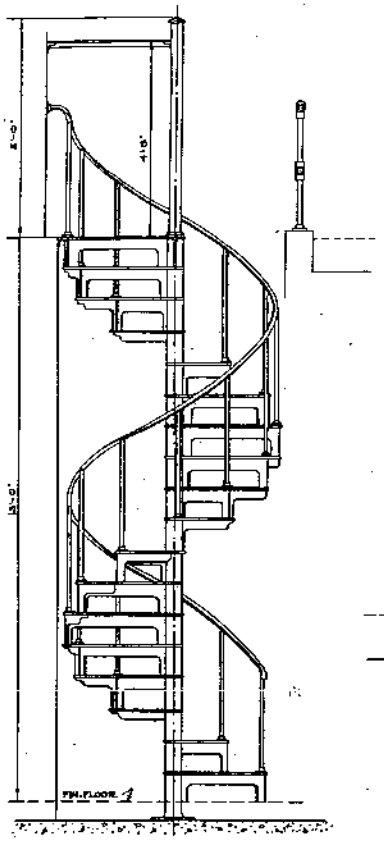
Scale: AS SHOWN.
Date: MARCH 10, 1932

Chief Engineer

Division Engineer

M. B. BROWN PRINTING & BINDING CO., N. Y.

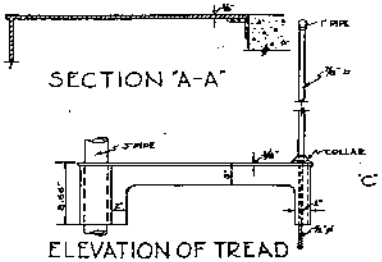
Substation 409
New York County, NY



ELEVATION

SCALE 0 1 2 FEET

SPIRAL STAIRS



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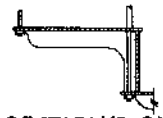

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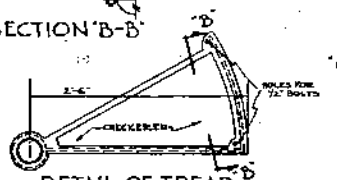
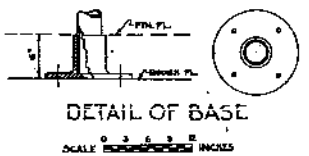


DETAIL OF TREAD



DETAIL OF BASE

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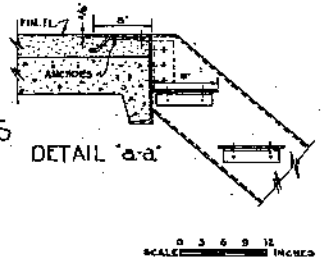

DETAIL "a-a"

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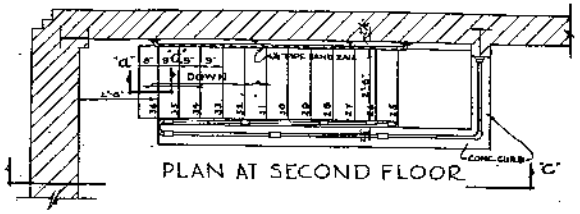
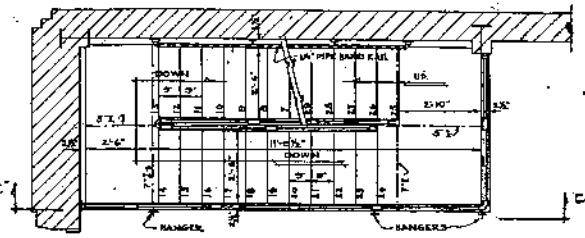


PLAN AT SECOND FLOOR



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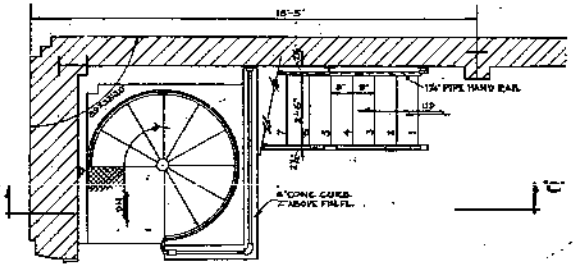

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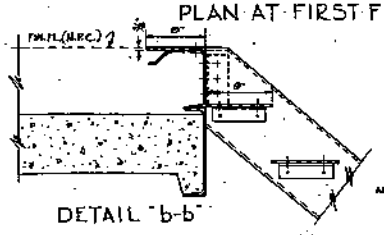

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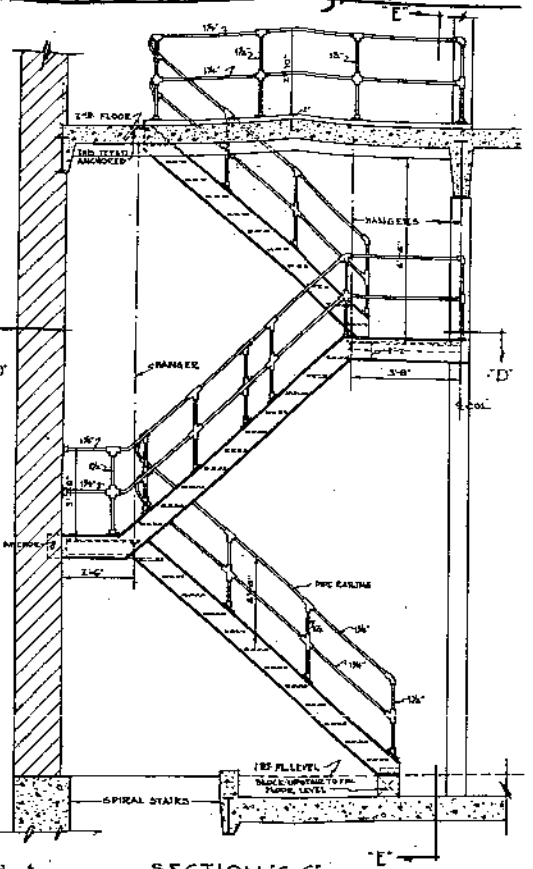
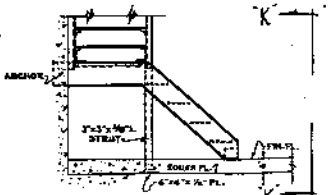


SECTION "C-C"

SCALE 0 1 2 3 FEET

FRONT STAIRS



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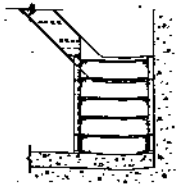

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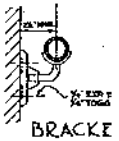
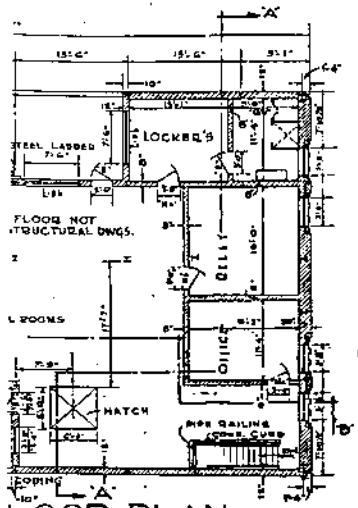


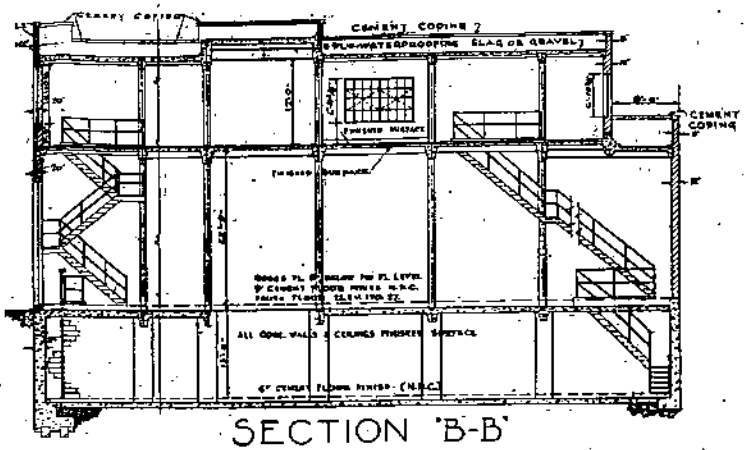
BRACKE

DRAWN BY: VARALL & KOHLER
CHECKED BY: STUART G. VARALL
IN CHARGE: GARDNER
ARCHITECT:

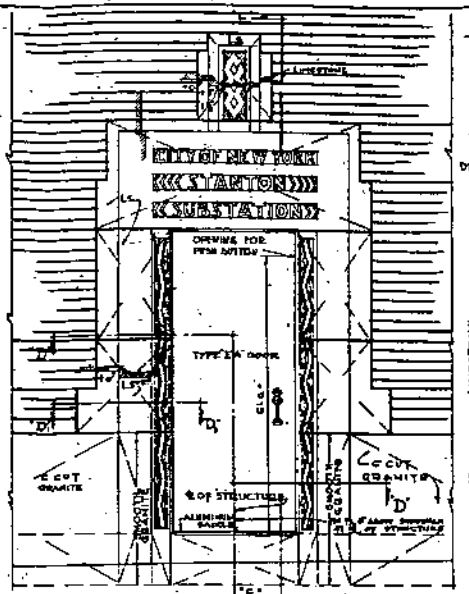
S

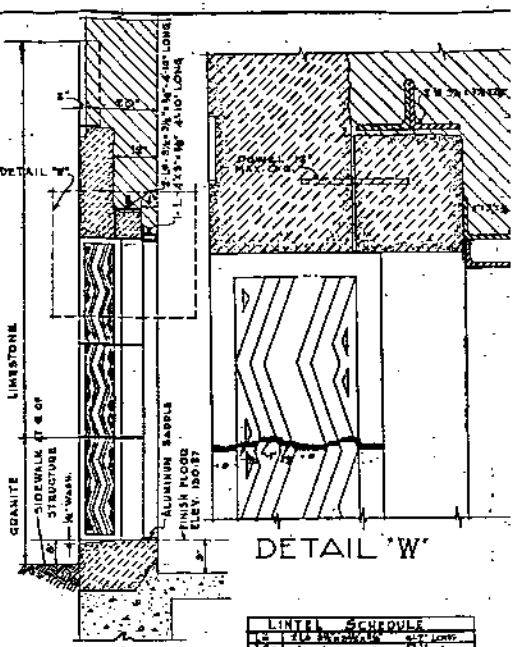
Substation 409
New York County, NY

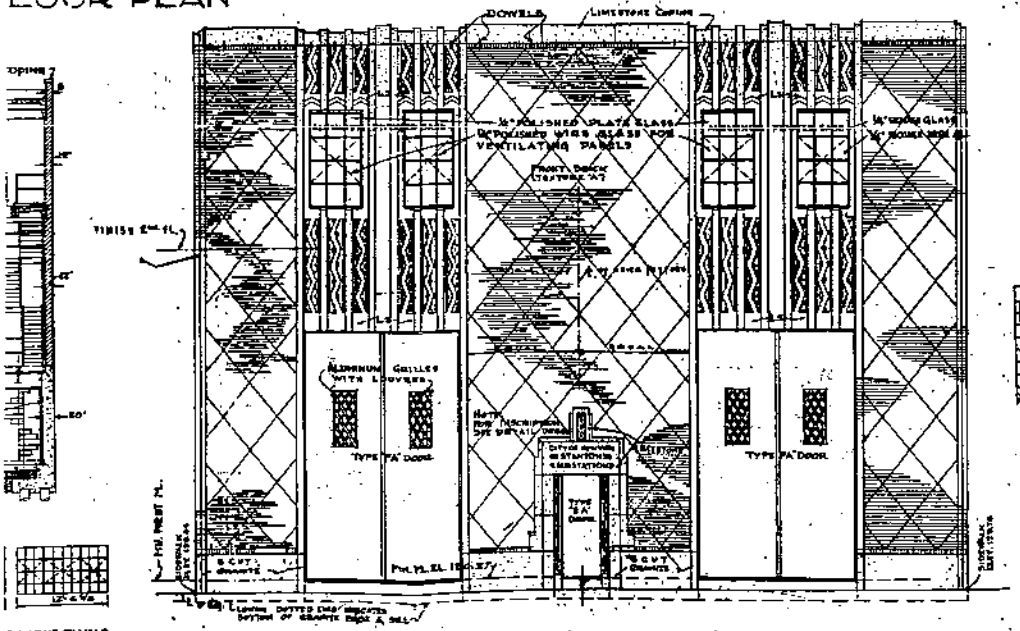


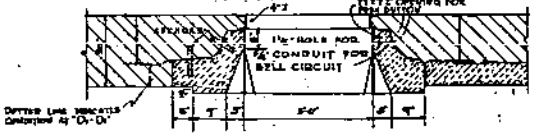


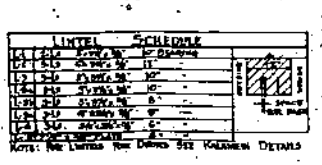
FLOOR PLAN

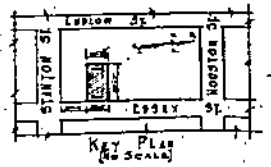


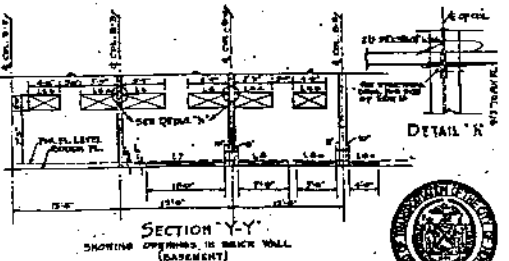












OF VENT GRILLS

I F.V., & DETAILS

GENERAL NOTES

SASH: ALL SASH UNLESS OTHERWISE INDICATED SHALL BE STANDARD STEEL SASH OF SIZES AS INDICATED.
TYPE OF DOORS ARE INDICATED BY TYPE LETTER IN DOOR OPENINGS.
FOR STRUCTURAL, CONCRETE, PLUMBING, DRAINAGE, DUCT MANHOLES AND ELECTRICAL WORK SEE OTHER CONTRACT DRAWINGS.
CONTRACTOR TO VERIFY ALL DIMENSIONS WITH PLANS AND AT THE SITE.
FOR DETAIL OF SLATE PARTITION SEE PLUMBING DRAWINGS.
GLAZING: ALL GLASS EXCEPT AS OTHERWISE INDICATED SHALL BE GLAZED WITH 3/16" SQUARE GLASS AND 1/4" SQUARE WIRE GLASS IN VENTILATING PANELS.

WALLS: FRONT WALL SHALL BE OF FRONT BRICK TEXTURE 'A' OF A PATTERN AS INDICATED AND SHALL BE BACKED WITH "COMMON BRICK."
ALL OTHER EXTERIOR WALLS SHALL BE OF FRONT BRICK TEXTURE 'B' AMERICAN BOND AND SHALL BE BACKED WITH "COMMON BRICK."
ALL WALLS SHALL BE OF A THICKNESS AS INDICATED. FRONT BRICK WALL SHALL BE RETURNED AT ALL WINDOW AND DOOR REVEALS.
ALL EXPOSED PORTIONS OF CONCRETE SHALL HAVE FINISHED SURFACE.

CROSS REFERENCE

FOR DETAIL OF STONE & BRICK PATTERN SEE DWG. NO. F-304
FOR STAIR DETAILS " " F-303
FOR KALAMEIN, ALUMINUM & MISCELLANEOUS DETAILS SEE DWG. NO. F-304

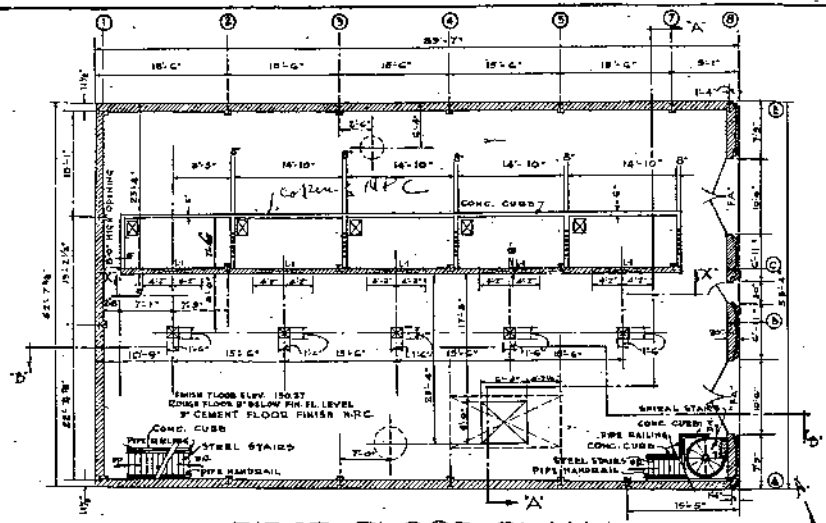
ROUTE NO. 103 SECTION NO. 2

STANTON SUB-STATION
CONTRACT DRAWING NO. I

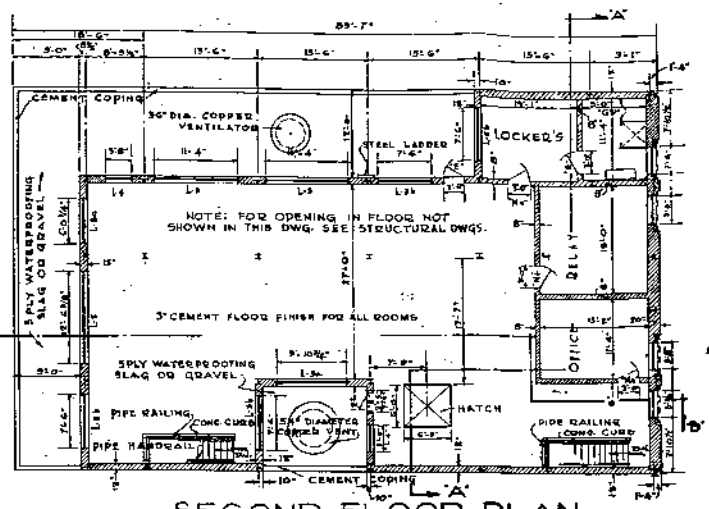
Scale AS SHOWN
Date MARCH 25th 1932

Chief Engineer
Division Engineer

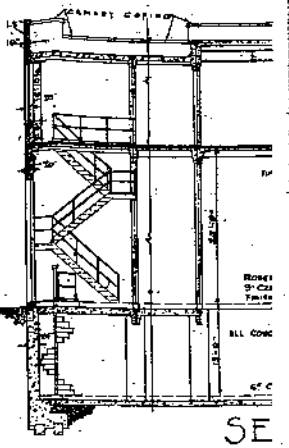
Substation 409
New York Co, NY



FIRST FLOOR PLAN



SECOND FLOOR PLAN



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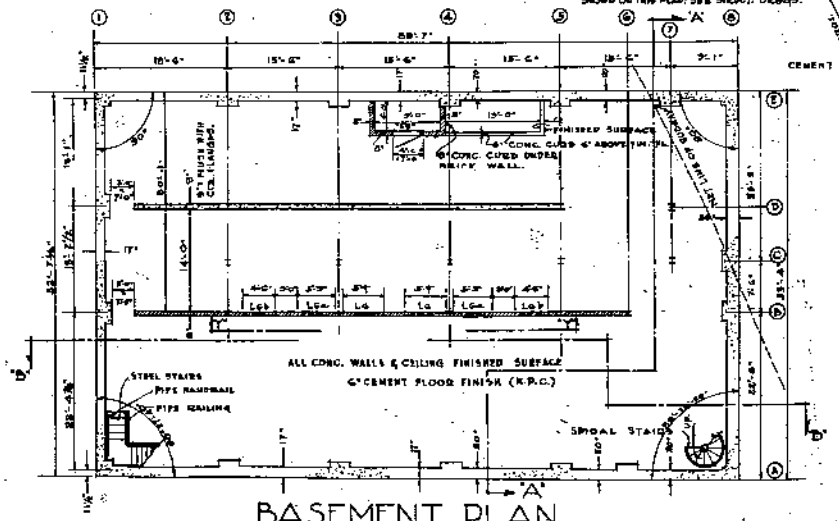
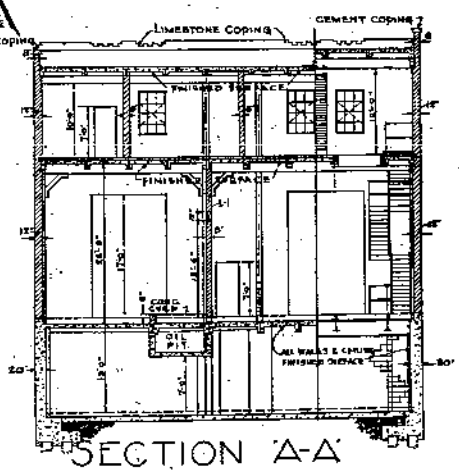
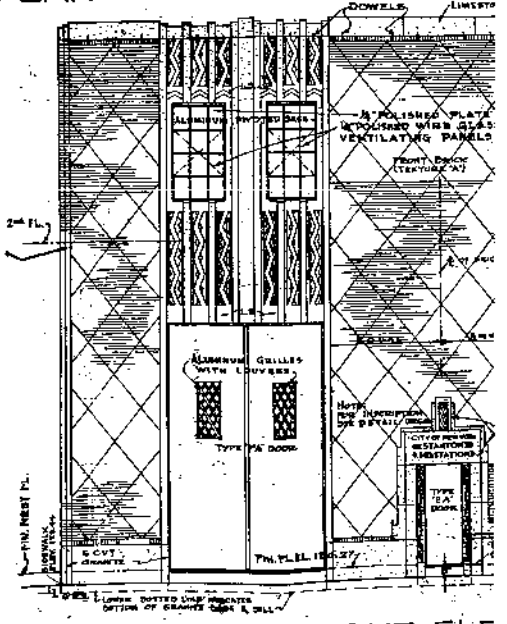


BASEMENT PLAN

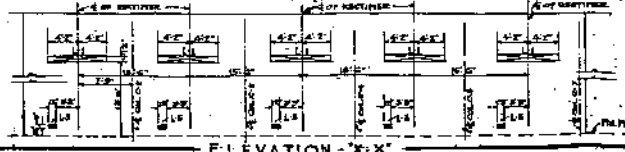


SECTION 'A-A'



FRONT ELE

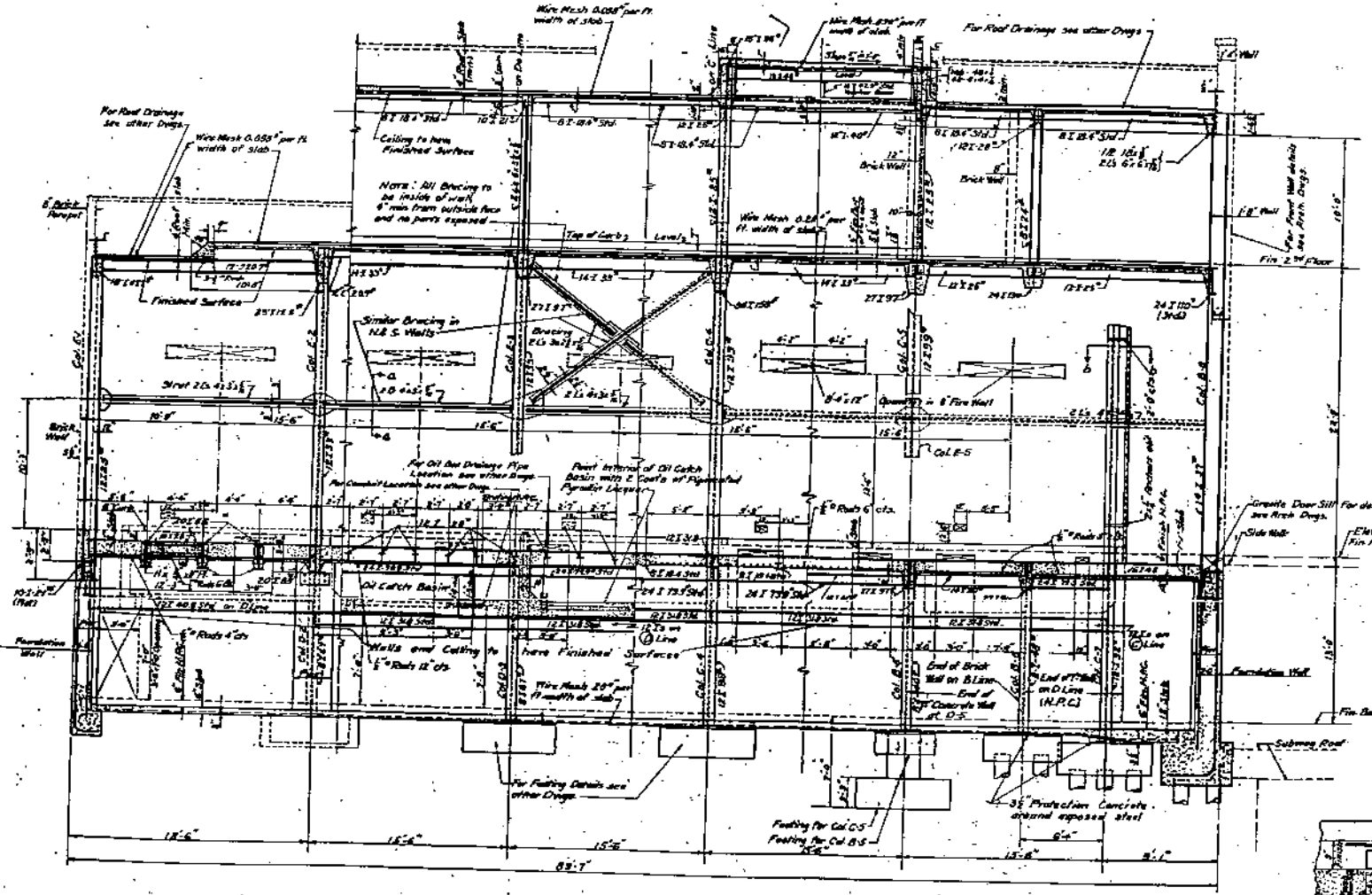
ELEV. OF STEEL SASH SHOWING LOCATION OF VENT. PANELS



ELEVATION - 'X-X'

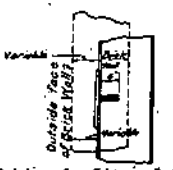
PLANS, SECT., ELEV., & DETAILS

Substation 409
New York Co, NY



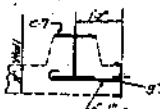
SECTION A-A

Scale:

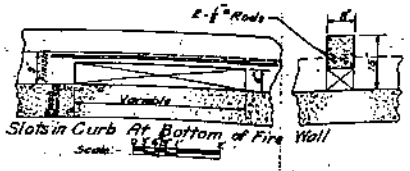


Relation of wall bracing to brick walls
No parts of bracing to be exposed

Section a-a
Scale:



Section b-b
Scale:



Scale:

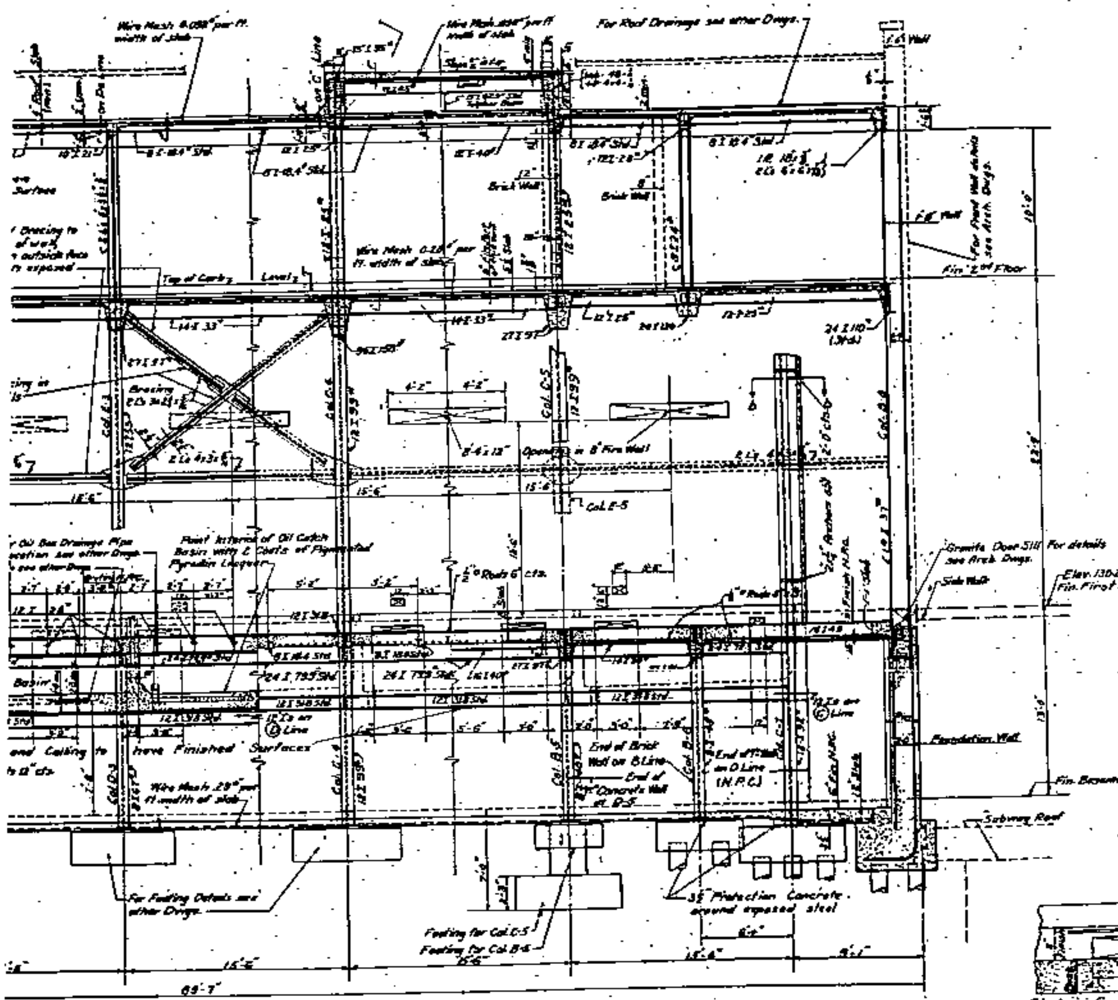
CROSS REFERENCES

For Foundation Plan	see Dwg.	C-1
" 1st Floor "	"	C-2
" 2nd " & Roof Plan	"	C-3
" Section B-B	"	C-4
" Column Schedule	"	C-

STANTON SUBSTATION

Substation 409
New York Co, NY

SHEET No.

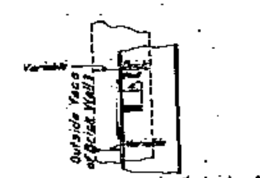


SECTION A-A

Scale:

CROSS REFERENCES

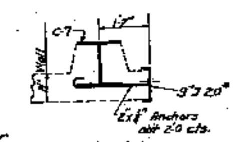
For Foundation Plan	see Dwg.	C-1
" 1st Floor	"	C-2
" 2nd " & Roof Plan	"	C-3
" Section B-B	"	C-6
" Column Schedule	"	C



Relation of wall bracing to brick walls
Noparts of bracing to be exposed

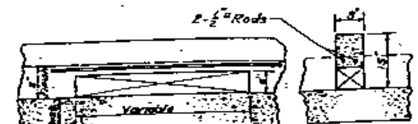
Section a-a

Scale:



Section b-b

Scale:



Slots in Curb At Bottom of Fire Wall

Scale:

STANTON SUBSTATION

GENERAL NOTES

Unit Stresses

Tension & Compression; Steel Beams & Girders ---------- 18,000 #/□"

Shear

- Webs, gross area ---------- 12,000 #/□"
- Shop Rivets ---------- 13,500 #/□"
- Field Rivets Machine Driven ---------- 13,500 #/□"

Bearing

- Stiffeners; net bearing area ---------- 18,000 #/□"
- Shop Rivets (Single Shear) ---------- 24,000 #/□"
- Shop Rivets (Double Shear) ---------- 30,000 #/□"
- Field Rivets (Single Shear) Machine Driven ---------- 24,000 #/□"
- Field " (Double ") " " ---------- 30,000 #/□"
- Steel on Concrete ---------- 500 #/□"

Workmanship

For beams use ¾" ϕ Rivets 13/16" ϕ holes unless otherwise noted.

For girders, cols. & connections to same; use ⅞" ϕ Rivets 15/16" ϕ holes unless otherwise noted

All abutting surfaces to be milled

All connections to be designed to develop the full strength of members

Anchor Wire Mesh about 2'-0" c.c. thru webs of structural members

Provide 13/16" ϕ holes 3'-0" c.c. for wall anchors in webs of all beams & channels adjacent to walls

Provide 2 or more 1½" ϕ grout holes in each column base plate

Beams with webs horizontal are to have 1 5/16" ϕ grout holes spaced one ft. centers on the center line of the web

Bolts except where shown will not be permitted unless permission has first been obtained

Waterproofing may be required as directed by the Engineer

Painting:

All steel to be painted one shop coat before assembling

Exposed steel surfaces shall be painted one shop & two field coats except when in contact with concrete where surfaces shall be painted one shop coat

The single rolled sections shown on these Contract Drawings are generally known as Special Shapes.

It will be equally satisfactory to use other special shapes approximately the same depth, weight & strength as well as so called Standard Beam sections manufactured by the various Rolling Mills provided the cost of construction is not increased thereby

The drawings included in this portfolio were prepared for the purpose of indicating to the prospective bidders the general type of construction and the tentative arrangement of the structure and its appurtenances. They are subject to amplification and modification in the working drawings to be prepared later, or as otherwise directed by the Engineer. Because of the modifications which may develop in preparation of working drawings, a Unit Price form of Contract has been adopted for this work.

ROUTE NO. 103 SECTION NO. 2

STANTON SUB-STATION
CONTRACT DRAWING NO. C-4

Scale as shown

Date March 14 1932

Division Engineer

Chief Engineer

The New York City Landmarks Preservation Commission

1 Centre Street, 9th Floor North, New York NY 10007 TEL: 212-669-7922 FAX: 212-669-7797
http://nyc.gov/landmarks/

RONDA WIST
EXECUTIVE DIRECTOR
rwist@lpc.nyc.gov

February 3, 2005

Ms. Ruth Pierpont, Director
New York State Office of Parks Recreation
and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island
P.O. Box 189
Waterford, New York 12188-0189

Re: The Historic Resources of the New York City Subway System, various counties, New York

Dear Ms. Pierpont:

I write on behalf of Chair Robert B. Tierney in response to your request for comment on the eligibility of The Historic Resources of the New York City Subway System (Bronx, Kings and New York Counties) and the individual substations and related buildings nominated for the State and National Registers of Historic Places.

The Commission has reviewed the materials submitted by the Historic Preservation Field Services Bureau and believes that the Joralemon Street Tunnel, Subway Substation 7, Substation 13, Substation 17, Substation 42, Substation 409, Substation 235, Central IND Substation, Substation 219, the 207th Street Yard—Signal Service Building and Tower B, the Coney Island Yard Gatehouse, the Coney Island Electric Motor Repair Shop, the Concourse Yard Entry Buildings, and the Concourse Yard Substation appear to meet the criteria for inclusion on the State and National Registers of Historic Places.

Sincerely yours,

Ronda Wist

Ronda Wist

cc: Robert B. Tierney, Chair
Mary Beth Betts

CITY OF NEW YORK
SUBSTATION
DANGER
High Voltage
13,200 volts