



MANHATTAN WEST: NORTH TOWER

ISSUED FOR BUILDING PERMIT
APRIL 1ST, 2015



MANHATTAN WEST:
NORTH TOWER
375 Ninth Avenue, New York, NY 10001

Client
Brookfield

Brookfield Plaza
250 Vesey Street, 15th Floor, New York, NY 10021

Architecture/Structural Engineering

SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Civil Engineering
Philip Habb & Associates
102 Madison Avenue #11, New York, NY 10016

MEP Engineering
Jaros Baum & Bolles
80 Pine Street, New York, NY 10005

Vertical Transportation
Edgett Williams Consulting Group, Inc.
102 East Blinnedale Ave, Suite 1, Mill Valley, California 94041

Sustainable Design
Viridian Energy & Environmental
50 Washington Street, Newark, CT 06854

Geotechnical Engineering
Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 W. 34th Street, New York, NY 10122

Landscape Consultant
Field Operations
475 10th Avenue, New York, NY 10018

Security Consultant
Ducibella, Ventor & Santore
250 State Street #F1, North Haven, CT 06473

Blast Consultant
Weidinger Associates, Inc.
40 Wall Street, New York, NY 10005

Acoustical Consultant
Cerami & Associates
404 Fifth Avenue #8, New York, NY 10016

Vibration Consultant
Wilson, Uhrig & Associates, Inc.
65 Broadway, Suite 401, New York, NY 10006

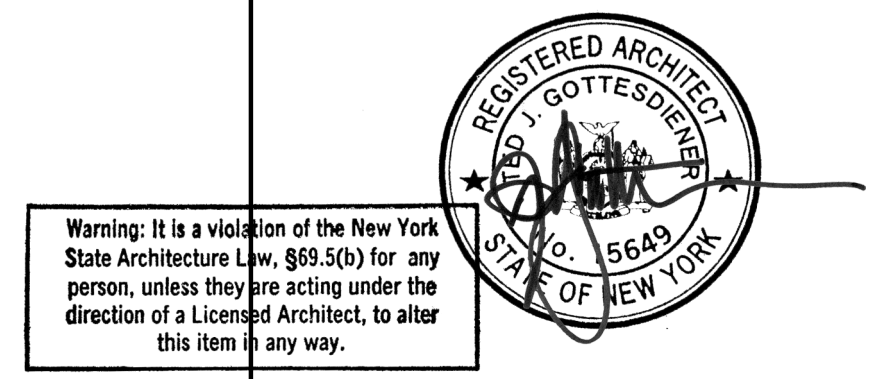
Code Consultant
Code Consultants Professional Engineers PC
215 West 40th Street, 15th Floor, New York, NY 10018

Facade Maintenance Consultant
Entek Engineering LLC
166 Ames Street, Hackensack, NJ 07601

Wind Tunnel Consultant
Rowan Williams Davies & Irwin Inc.
650 Woodlawn Road West, Guelph Ontario, Canada N1K 1B9

Key Plan:

Seal & Signature:



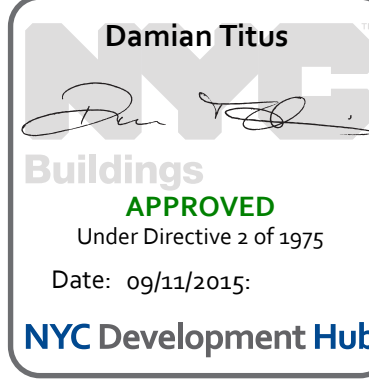
Warning: It is a violation of the New York State Architecture Law, §20-150(3) for any person, unless they are acting under the direction of a Licensed Architect, to alter this form in any way.

9	1 APR 2015	ISSUED FOR BUILDING PERMIT
8	30 JAN 2015	ISSUED FOR BUILDING PERMIT
7	12 SEPT 2014	ISSUED FOR FOUNDATION PERMIT
6	20 JUN 2014	ISSUED FOR FOUNDATION PERMIT
5	20 JUN 2014	ISSUED FOR FOUNDATION PERMIT
4	20 DEC 2013	ISSUED FOR FOUNDATION PERMIT
3	15 NOV 2013	ISSUED FOR 50% DESIGN DEVELOPMENT
2	12 JUL 2013	ISSUED FOR 50% DESIGN DEVELOPMENT
1	16 MAR 2012	ISSUED FOR RECONCILIATION

No. Date Description

Sheet Name:

COVER SHEET

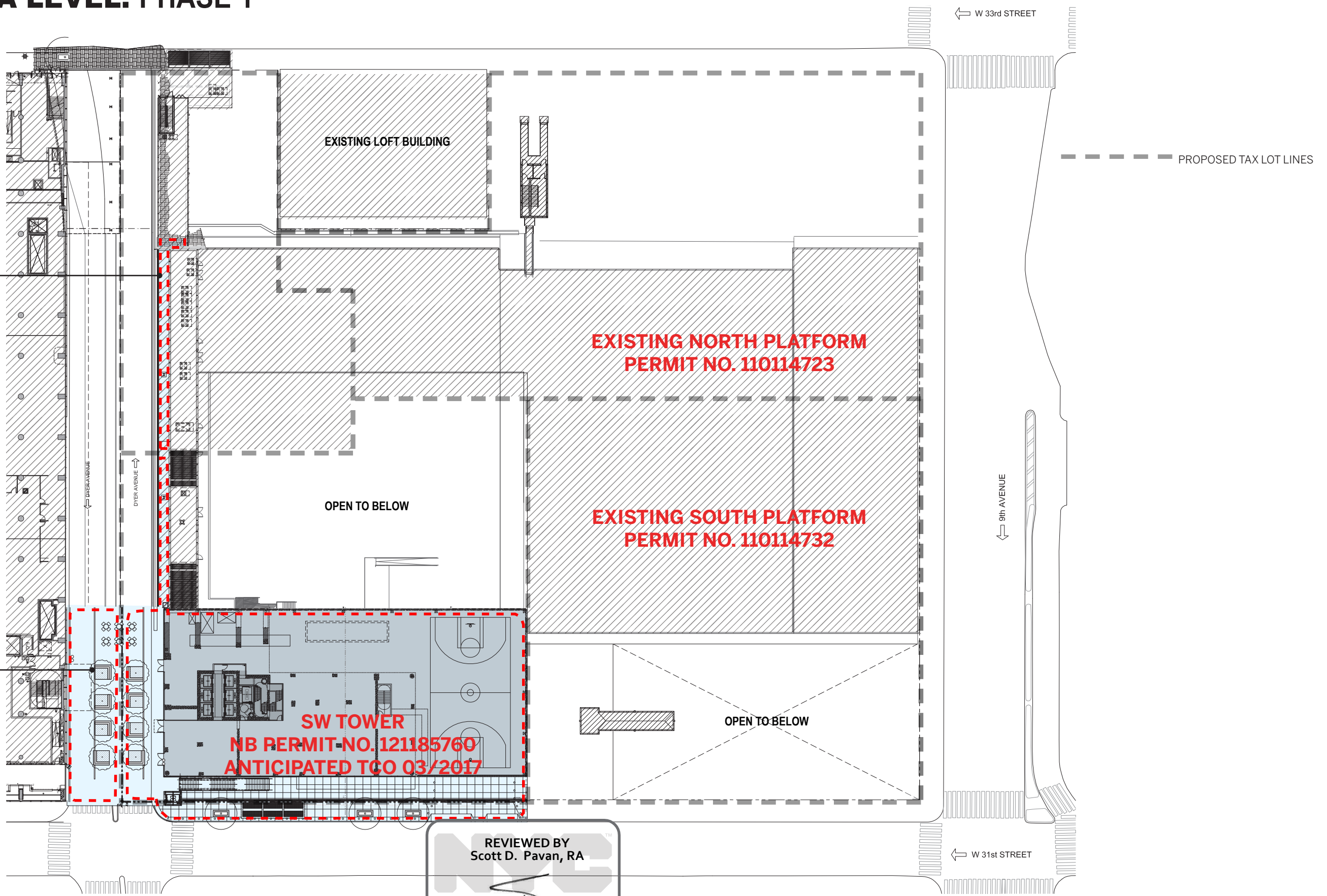


Project No:	207150	B-SCAN Sheet No.:	G-001.00
Date:	1 APR 2015	Sheet No.:	G-001
Scale:	NTS	Page No.:	1 OF 30
File No.:	G-001		

PLAZA LEVEL: PHASE 1

**DYER AVENUE PHASE 1
ALT2 TO
PERMIT NO. 122450533
ANTICIPATED TCO 12/2019**

**DYER AVENUE PHASE 1
ALT2 TO
PERMIT NO. 122445407
IN CONJUNCTION WITH
ALT1 TO 121186368
ANTICIPATED TCO 03/2017**



REVIEWED BY
Scott D. Pavan, RA

NEC
Building

APPROVED

Page 7 of 9
Date: 10/28/2015

MANHATTAN WEST: MASTER PLAN



Job Number: 207120
Date: 10-09-2015
Scale: NTS

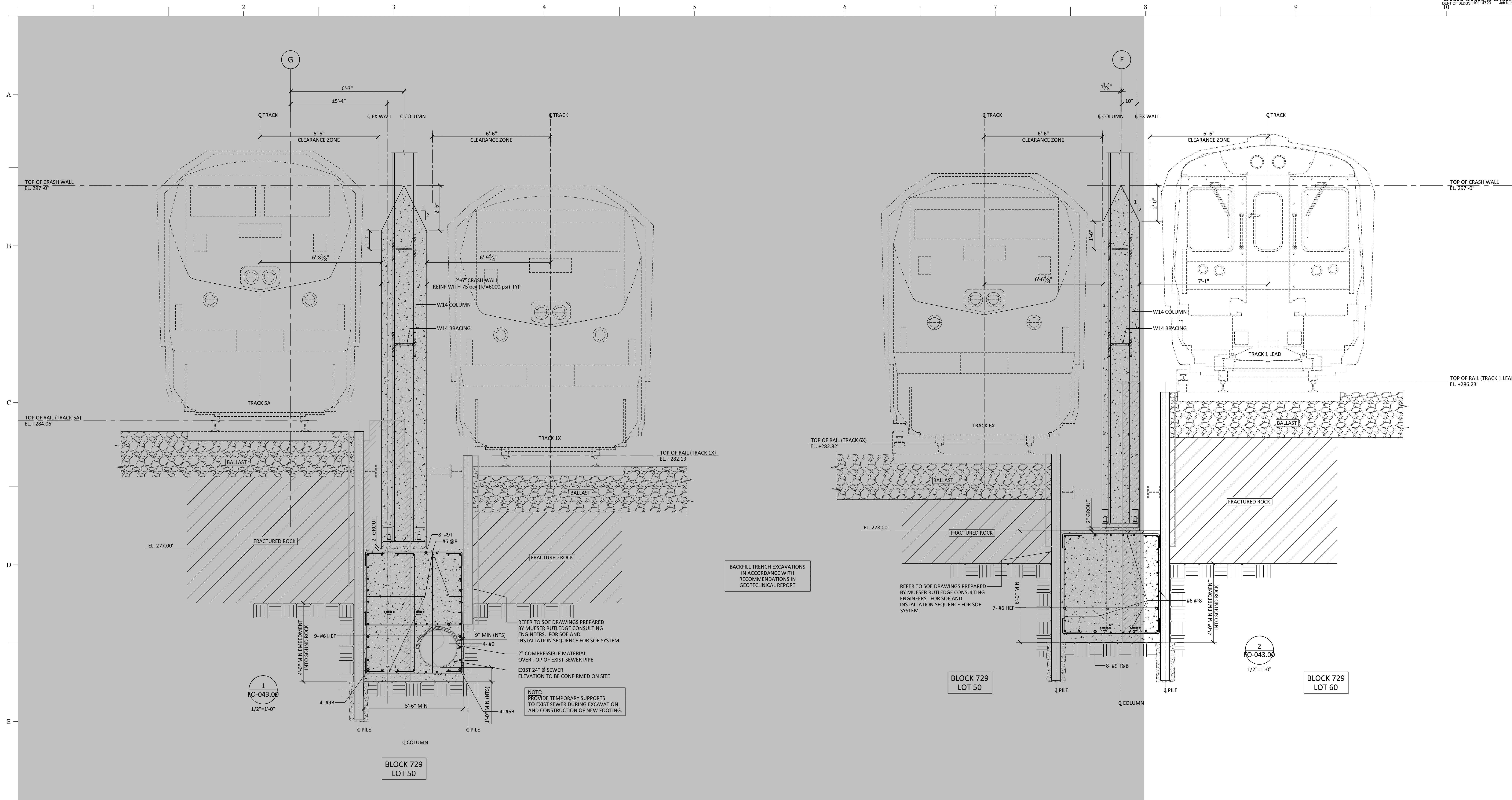


9th Avenue
Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, L.P.
110 West Street, New York, NY 10038

Structural:
ENTUITIVE
Entuitive Corporation
170 West Street, Suite 2002
New York, NY 10038
entuitive.com



BACKFILL TRENCH EXCAVATIONS
IN ACCORDANCE WITH
RECOMMENDATIONS IN
GEO TECHNICAL REPORT

REFER TO SOE DRAWINGS PREPARED
BY MUESER RUTLEDGE CONSULTING
ENGINEERS. FOR SOE AND
INSTALLATION SEQUENCE FOR SOE
SYSTEM.

REFER TO SOE DRAWINGS PREPARED
BY MUESER RUTLEDGE CONSULTING
ENGINEERS. FOR SOE AND
INSTALLATION SEQUENCE FOR SOE SYSTEM.

NOTE:
PROVIDE TEMPORARY SUPPORTS
TO EXIST SEWER DURING EXCAVATION
AND CONSTRUCTION OF NEW FOOTING.

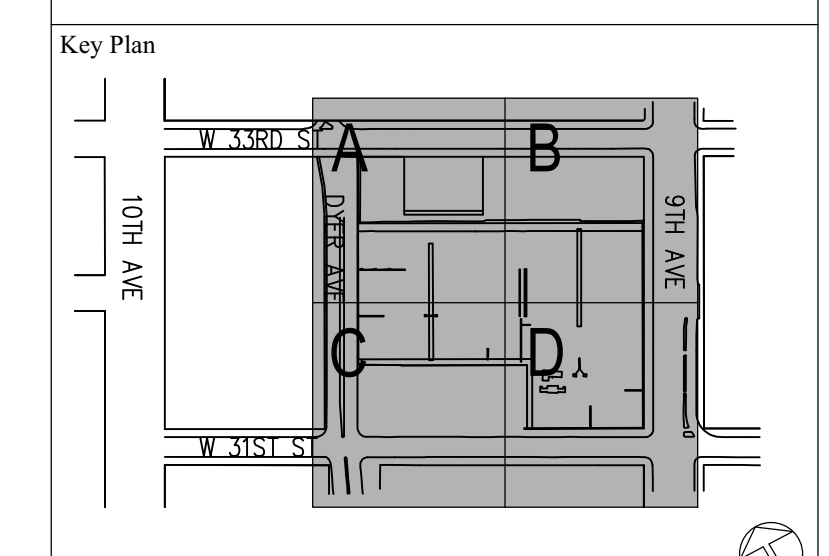
1
FO-043.00
1/2"=1'-0"

2
FO-043.00
1/2"=1'-0"

BLOCK 729
LOT 50

BLOCK 729
LOT 50

BLOCK 729
LOT 60



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
TEMPORARY PROTECTION
PLATFORM
SECTIONS AND DETAILS
(LOT 60)**

Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Checked By: BC/DS
Date: MARCH 2011
File No:

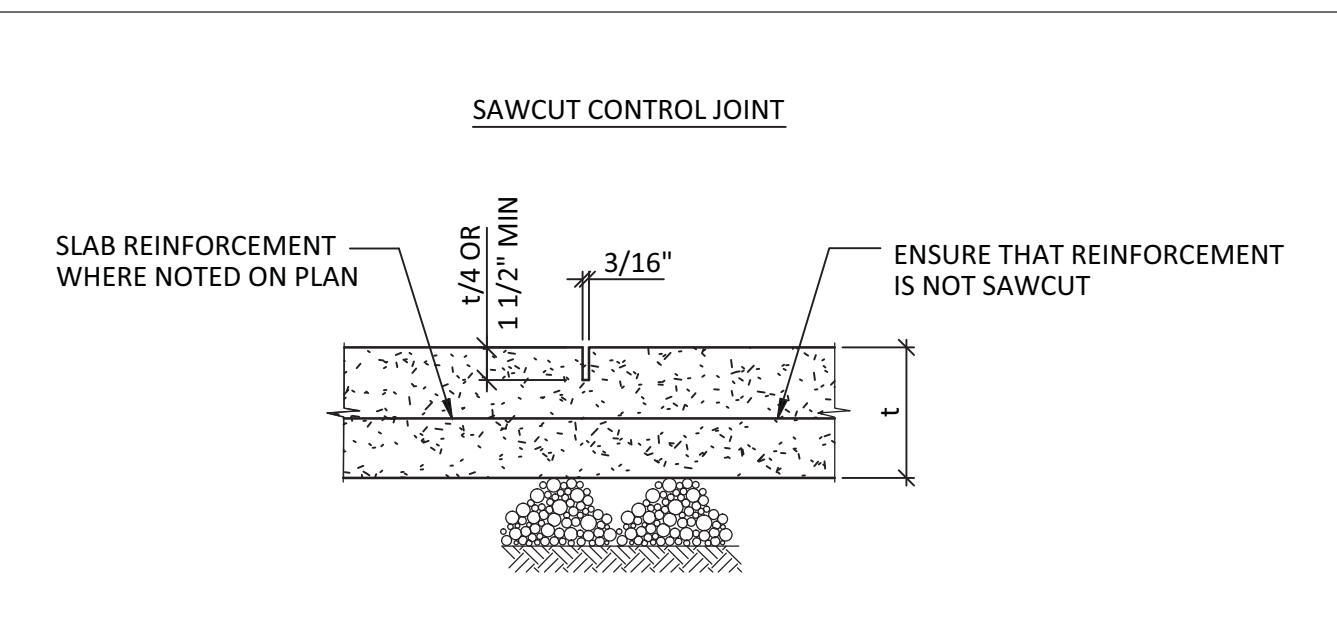
Scale:
FO-043.00

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

FOR BUILDING DEPARTMENT APPROVAL

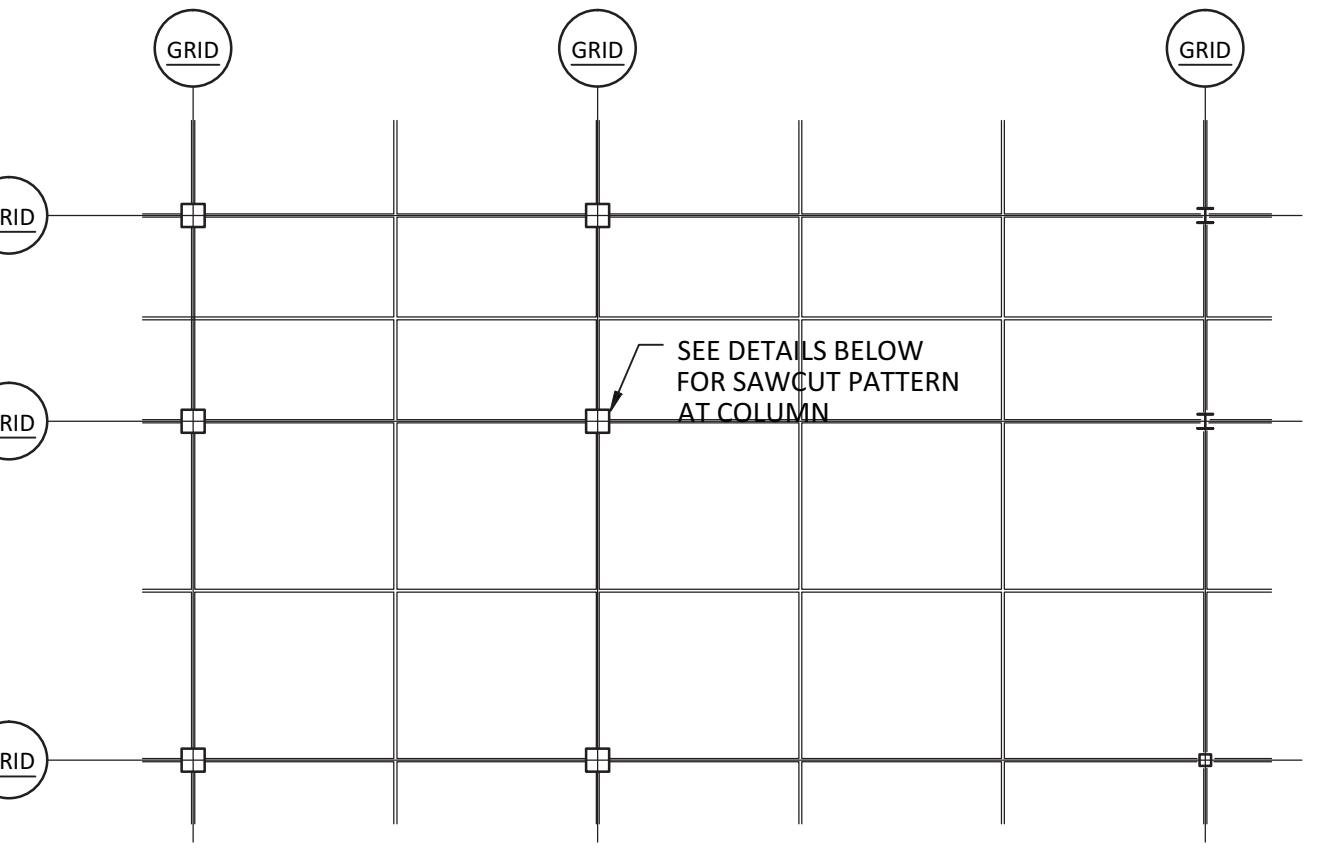
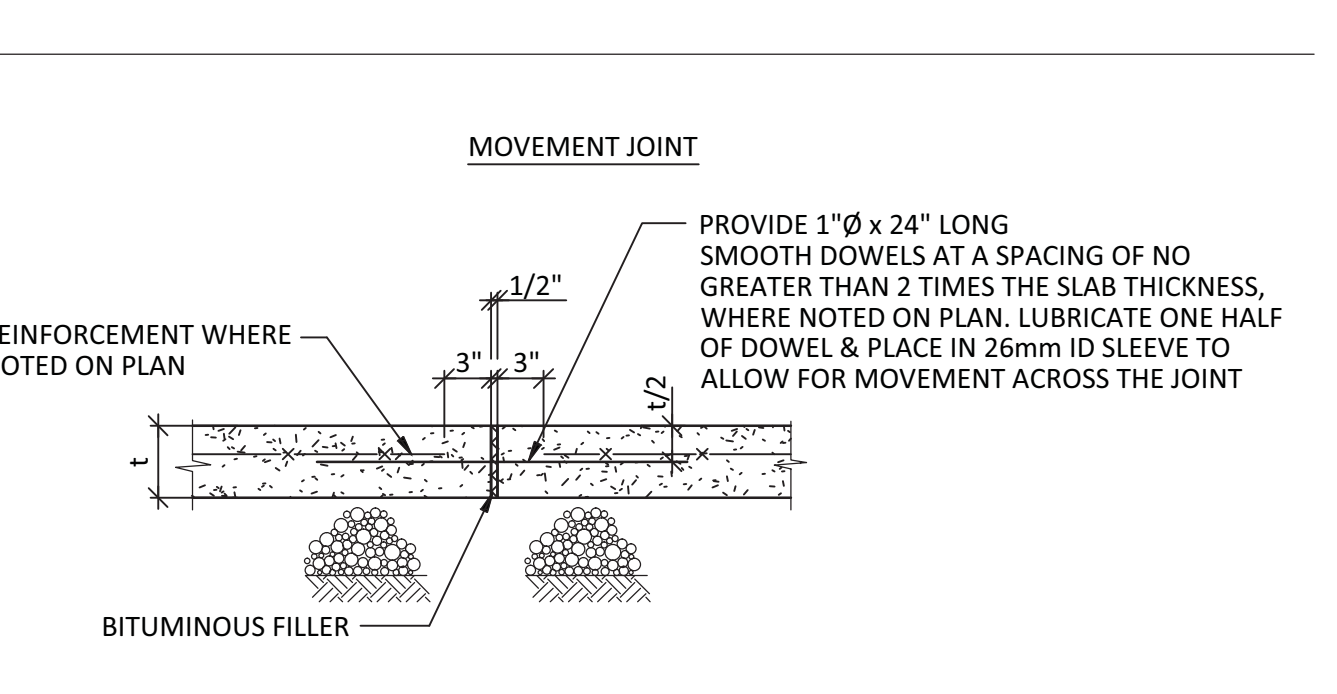
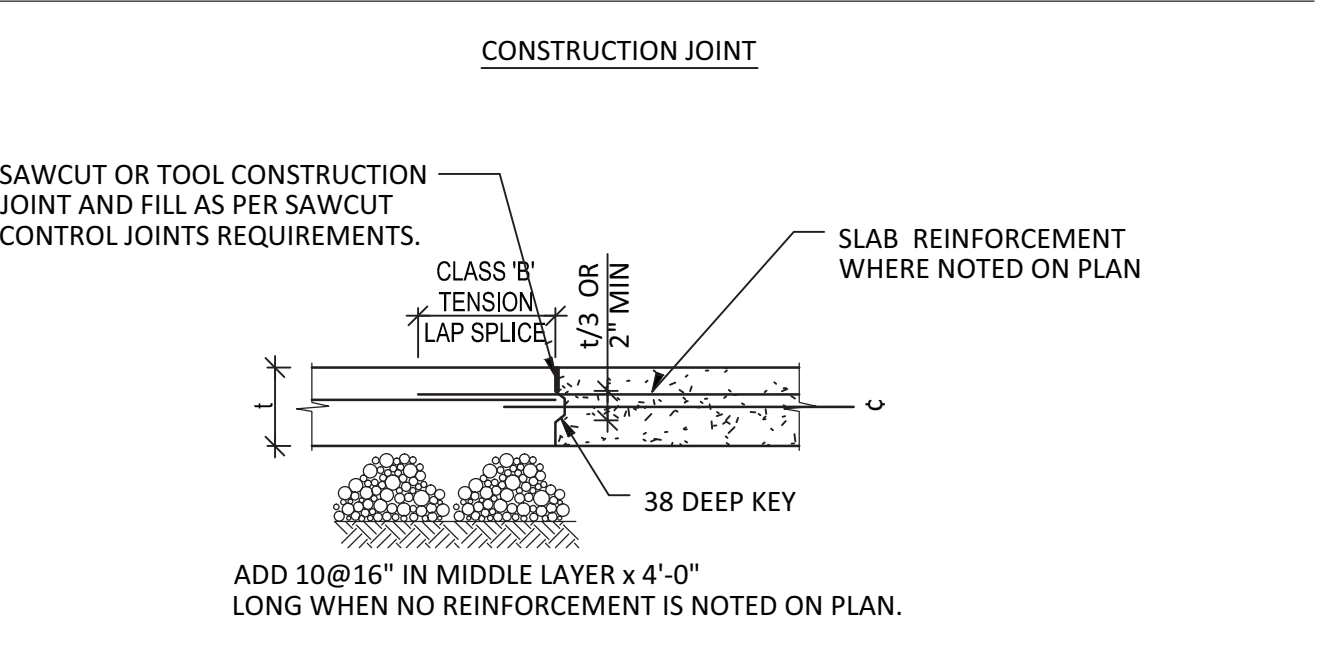


Page Count:

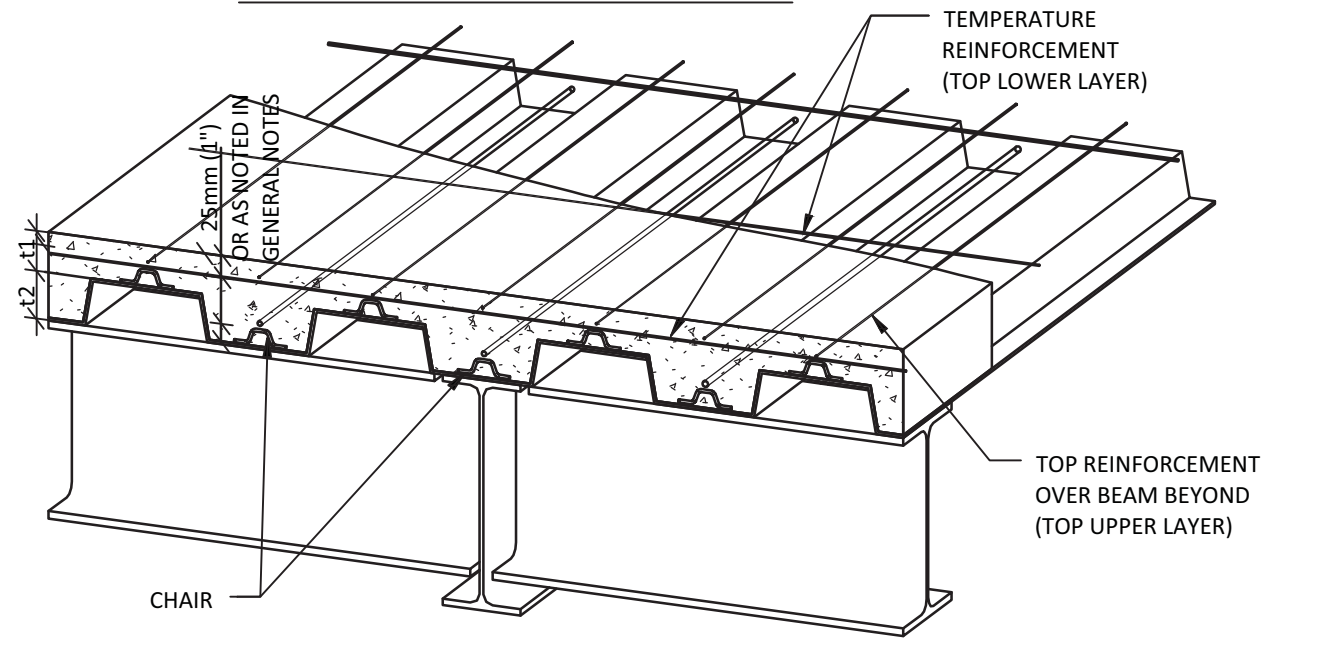
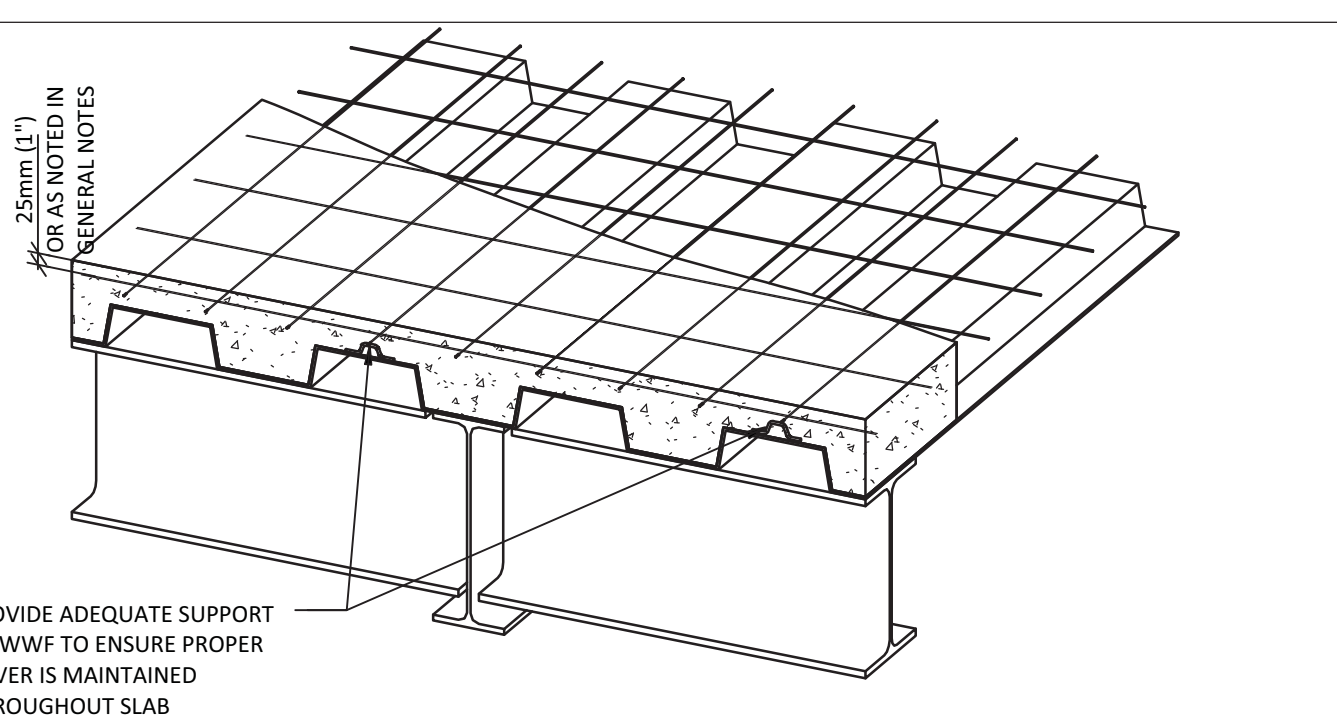


- NOTES: 1. SAW CUT SLAB ON GRADE WITHIN 6 TO 8 HOURS OF PLACING CONCRETE. 2. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, GROUT ALL CRACKS IN THE SLAB ON GRADE AND FILL WITH MORTAR CONTAINING CEMENT, SAND AND LATEX BONDING AGENT OR AS NOTED IN SPECIFICATIONS. 3. COORDINATE EXACT LOCATIONS OF SAWCUTS IN SLAB ON GRADE WITH ARCHITECTURAL REQUIREMENTS. 4. MAXIMUM SPACING OF SAWCUTS IN SLAB ON GRADE SHALL NOT EXCEED THE FOLLOWING, U/N.

Table with 2 columns: Slab Thickness and Maximum Spacing. Rows include 4" slab and 5" or greater slab.



CS9 CONSTRUCTION JOINTS IN SLAB ON GRADE



- NOTES: 1. REFER TO PLAN FOR SLAB REINFORCEMENT ON TYPICAL DETAILS. 2. WHERE REINFORCEMENT IS SPECIFIED IN ONE DIRECTION ONLY, REFER TO TYPICAL DETAIL SC-X FOR TEMPERATURE REINFORCEMENT. 3. WHERE SPACING OF BOTTOM BARS IS NOT CONSISTENT WITH STEEL DECK FLUTE SPACING, REVERSE BAR SIZE/SPACING TO ENSURE AREA OF REINFORCEMENT PER METRE WIDTH IS EQUAL TO OR GREATER THAN THAT SPECIFIED.

SD6 PLACEMENT OF REINFORCEMENT IN SLABS ON STEEL DECK

Table of abbreviations including terms like A. ROD, AEC, AEA, ALT, ARCH, ASL, etc., and their corresponding definitions.

GD1 ABBREVIATIONS

Table of symbols including terms like @, C, M, O, S, T, etc., and their corresponding definitions.

GD1a SYMBOLS

Table of concrete surface exposure and minimum concrete clear cover for various slab and foundation types.

Table of compression development length and compression lap splice length for various bar sizes and concrete strengths.

NOTE: 1. PROVIDE MECHANICAL ANCHORAGE FOR #14 AND #18 BARS, AS REQUIRED.

Table of tension development length (inches) for various bar sizes and concrete strengths (Fc = 4500 PSI to 9500 PSI).

Table of tension lap splice length (inches) for various bar sizes and concrete strengths (Fc = 4500 PSI to 9500 PSI).

- NOTE: 1. CASE 1 AND 2 DEPEND UPON CONCRETE COVER AND THE CENTER-TO-CENTER SPACING OF BARS, AS FOLLOWS: CASE 1: CLEAR SPACING AT LEAST ONE (1) BAR DIAMETER. CASE 2: ALL OTHER CASES. 2. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE BELOW THE BARS. 3. TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED BASED ON NORMAL WEIGHT CONCRETE. 4. PROVIDE MECHANICAL ANCHORAGE DEVICES FOR #14 AND #18 BARS.

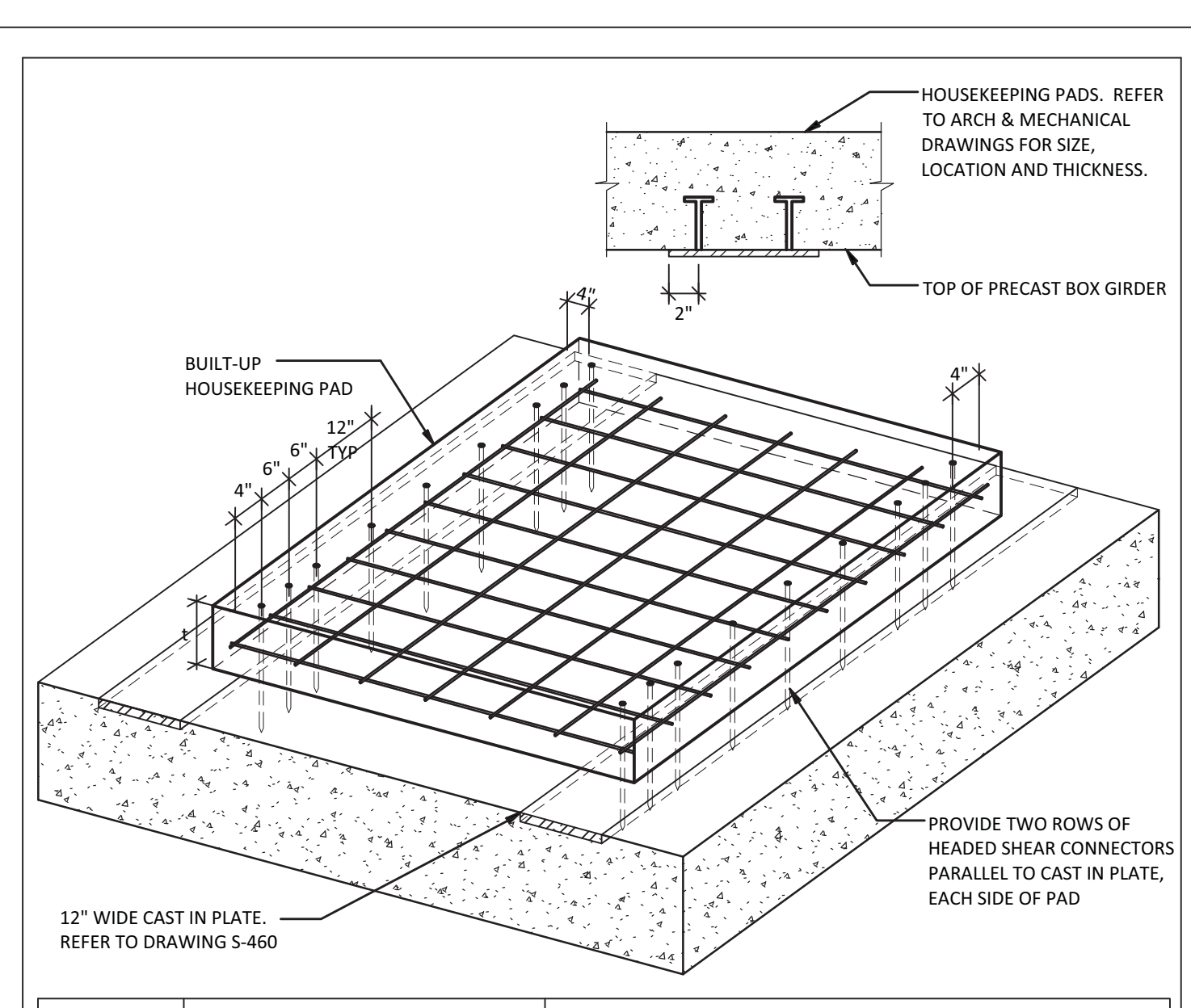


Table showing pad thickness, reinforcement, and headed shear connectors for housekeeping pads.

- NOTES: 1. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT ROUT ALL CRACKS IN THE HOUSEKEEPING PADS AND FILL WITH MORTAR CONTAINING CEMENT, SAND AND LATEX BONDING AGENT OR AS NOTED IN SPECIFICATIONS. 2. FOR PAD THICKNESSES BETWEEN THOSE NOTED ABOVE, PROVIDE REINFORCEMENT FOR PAD THICKNESS IMMEDIATELY ABOVE ACTUAL THICKNESS (E.G. FOR 9" PAD PROVIDE REINFORCEMENT NOTED FOR 6" PAD). 3. REFER TO ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF PADS. ADJUST SIZE OF PADS AS NECESSARY TO MAINTAIN MINIMUM DIMENSIONS SHOWN AND TO SUIT LOCATION OF LOW DECK FLUTES.

CS16 HOUSEKEEPING PADS

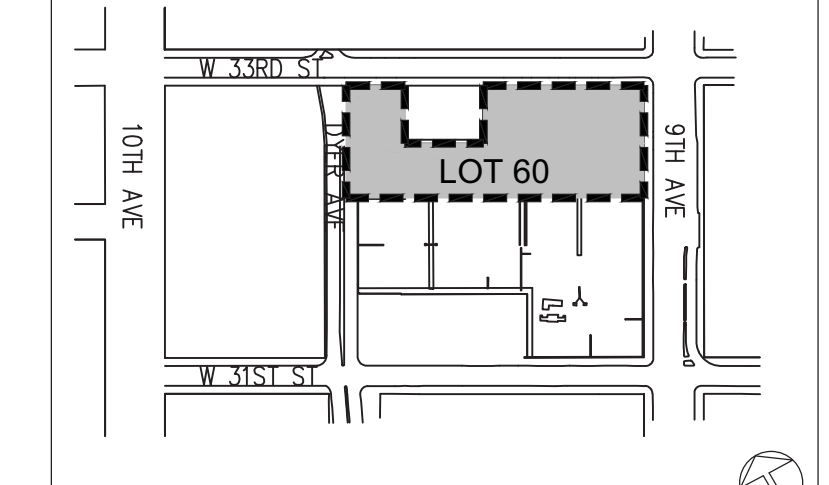
Client:

Brookfield logo and address: 3 World Financial Center, New York, NY 10281.

SOM logo and address: 170 West Street, Suite 1000, New York, NY 10038.

ENTUITIVE logo and address: 170 West Street, Suite 1000, New York, NY 10038.

FOR BUILDING DEPARTMENT APPROVAL



Revisions table with columns for No., Revisions, Date, and By.

D.O.B. SUBMISSION TYPICAL DETAILS (LOT 60) section with project information and a professional seal for Damian Titus.

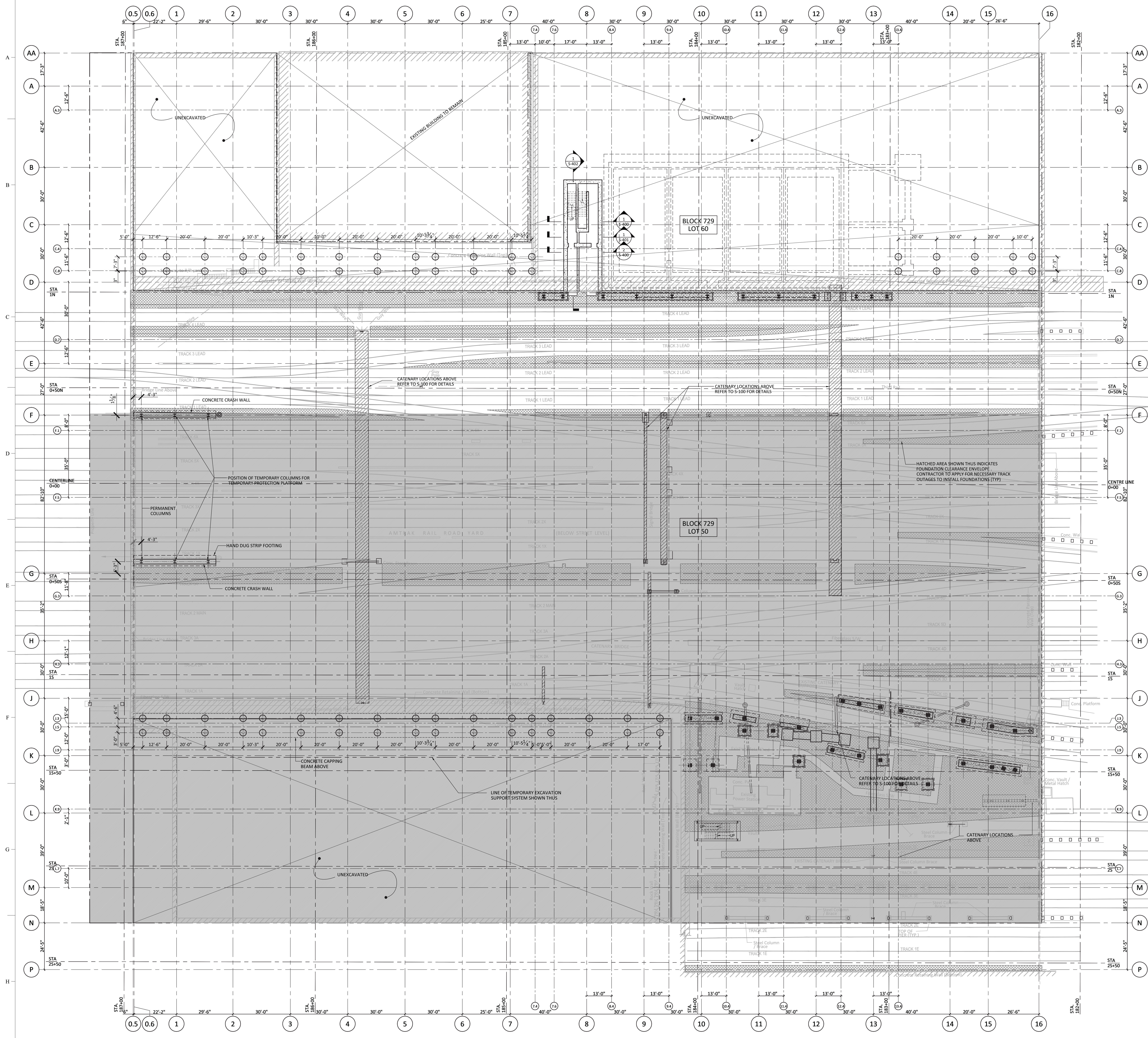
9th Avenue Development

New York, NY

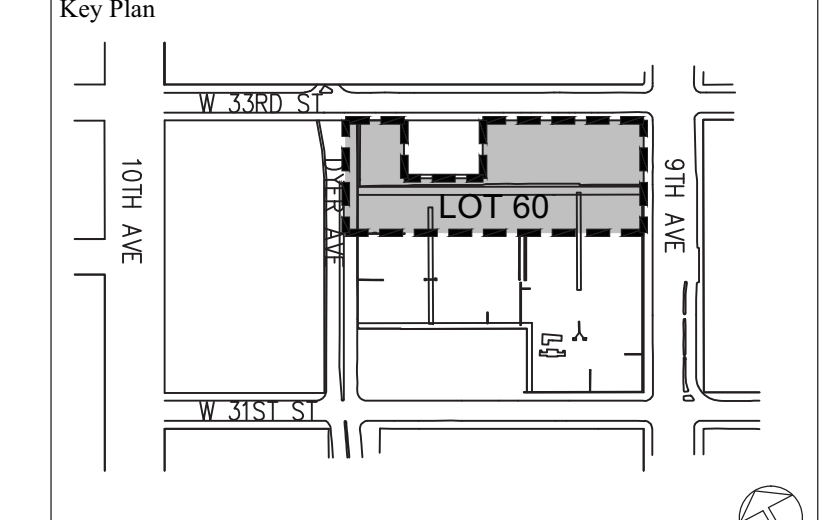
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOMERSET, DENNIS & MERRILL LLP
18 WALL STREET, NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
179th Street, Suite 2002
Towson, MD 21286
Canada: entuitive.com



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

D.O.B. SUBMISSION
TRACK LEVEL PLAN
(LOT 60)

Drawn By: TRG
Scale: 1/16"=1'-0"
Project No: T011-0003
Sheet No:

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:
S-102.00

Damian Titus
[Signature]
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub



9th Avenue Development

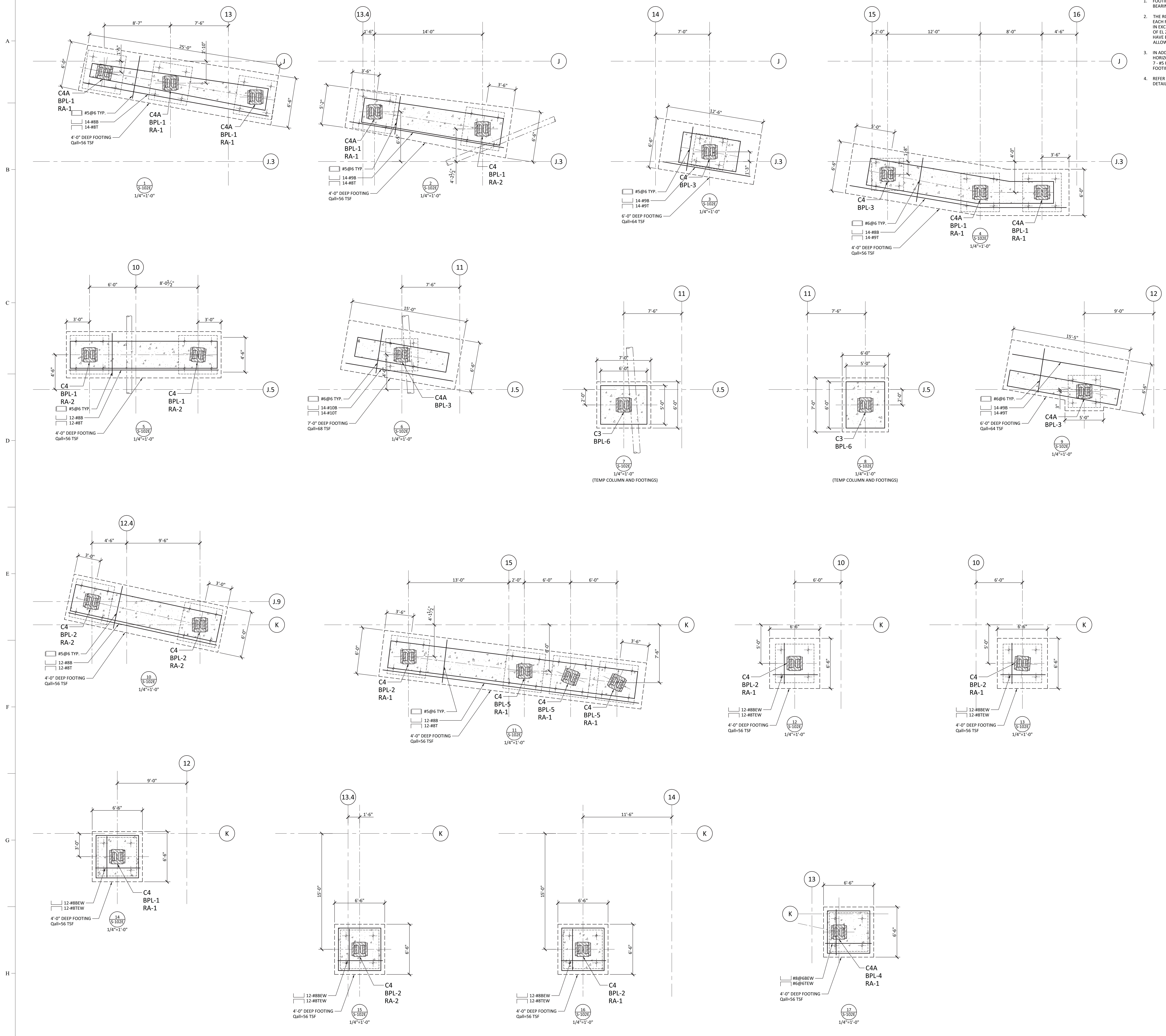
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

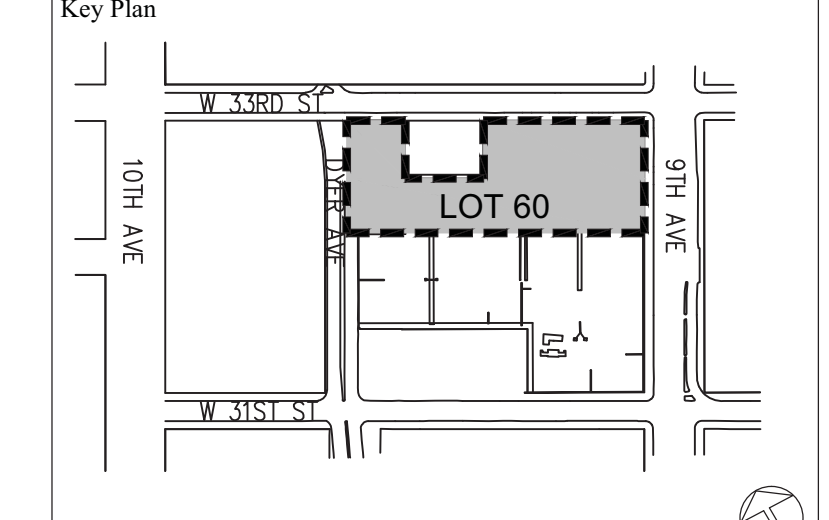
Architect:
SOM
SHoP Architects & Merrill LLP
14 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
170 West Street, Suite 2002
New York, NY 10038
Tel: 416.477.5832
entuitive.com

- NOTES:**
- FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE ROCK BEARING CAPACITY OF 40 TSF.
 - THE ROCK BEARING CAPACITY HAS BEEN INCREASED BY 10% FOR EACH FOOT OF EMBEDMENT, OF THE FOOTING INTO THE ROCK, IN EXCESS OF ONE FOOT. AN ASSUMED TOP OF ROCK ELEVATION OF EL. 280'-0" AND TOP OF FOOTING ELEVATION OF EL. 279'-0" HAVE BEEN USED AS THE BASIS OF DETERMINING THE ACTUAL ALLOWABLE ROCK BEARING VALUES NOTED.
 - IN ADDITION TO REINF NOTED ON PLAN, PROVIDE 4 - #5 HORIZONTAL AROUND PERIMETER OF 4'-0" DEEP FOOTINGS AND 7 - #5 HORIZONTAL AROUND PERIMETER OF 6'-0" DEEP FOOTINGS. PROVIDE CLASS 'B' TENSION LAPS.
 - REFER TO DRAWING S-301 FOR ROCK ANCHOR SCHEDULE AND DETAILS.



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.D.A. APPROVAL	MAY 31, 2012	rw

Sheet Name:
D.O.B. SUBMISSION PLAN DETAILS FOR FOOTINGS AT E-YARD (LOT 60)

Drawn By: TRG
Scale: 1/4"=1'-0"
Project No.: T011-0003
Date/Time: Oct 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-102E.00

Page Count:

Damian Titus

Buildings

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION

Date/Time: Oct 25, 2012 - 4:04 PM

NYC Development Hub

9th Avenue Development

New York, NY

Client:

Brookfield

3 World Financial Center, New York, NY 10281

Architect:

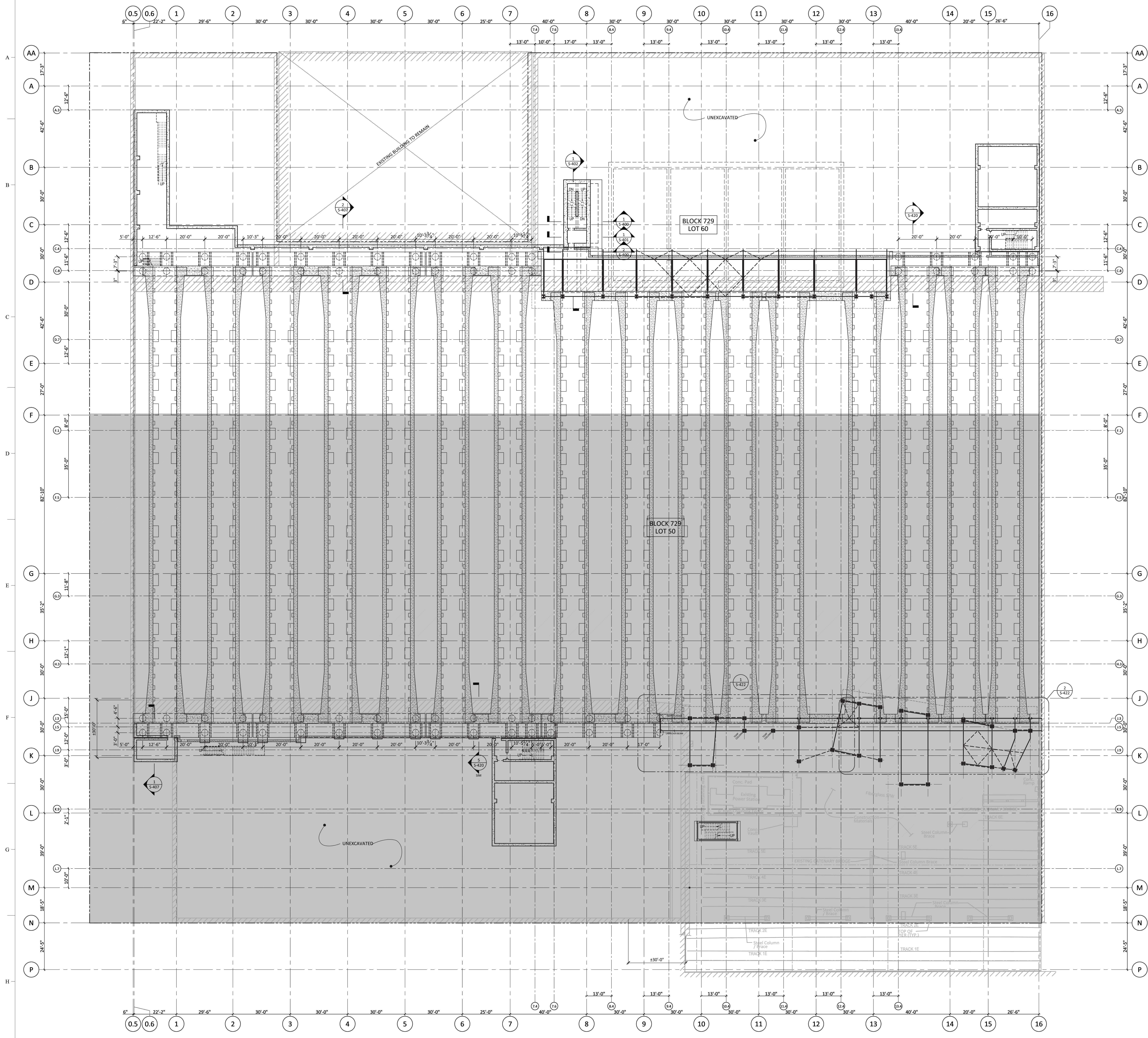
SOM

SHoP Architects, P.C. & PERKINS+WILL LLP
14 WALL STREET, NEW YORK, NY 10005

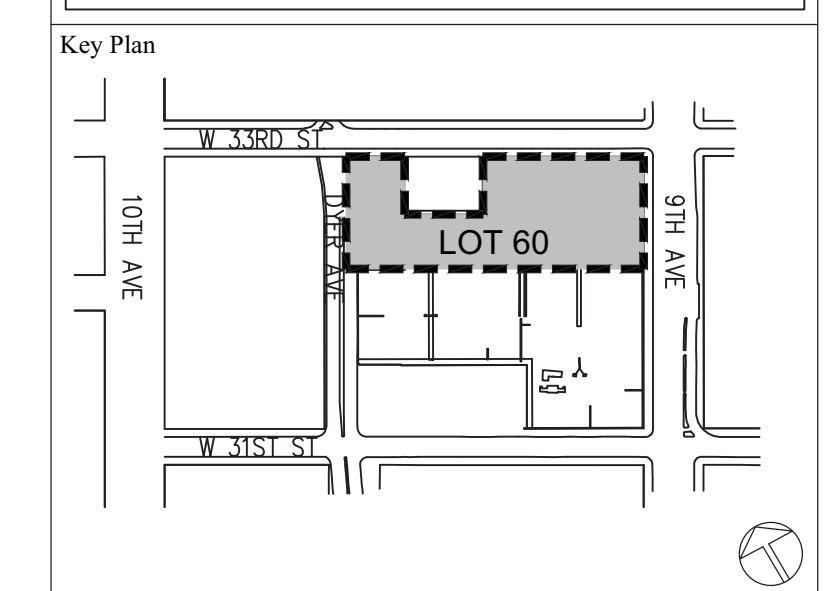
Structural:

ENTUITIVE

Entuitive Corporation
1700 Avenue of the Americas, Suite 2002
New York, NY 10014
entuitive.com



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

D.O.B. SUBMISSION LEVEL B1 PLAN (LOT 60)

Drawn By: TRG	Checked By: BC/DS
Scale: 1/16"=1'-0"	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub



S-104.00

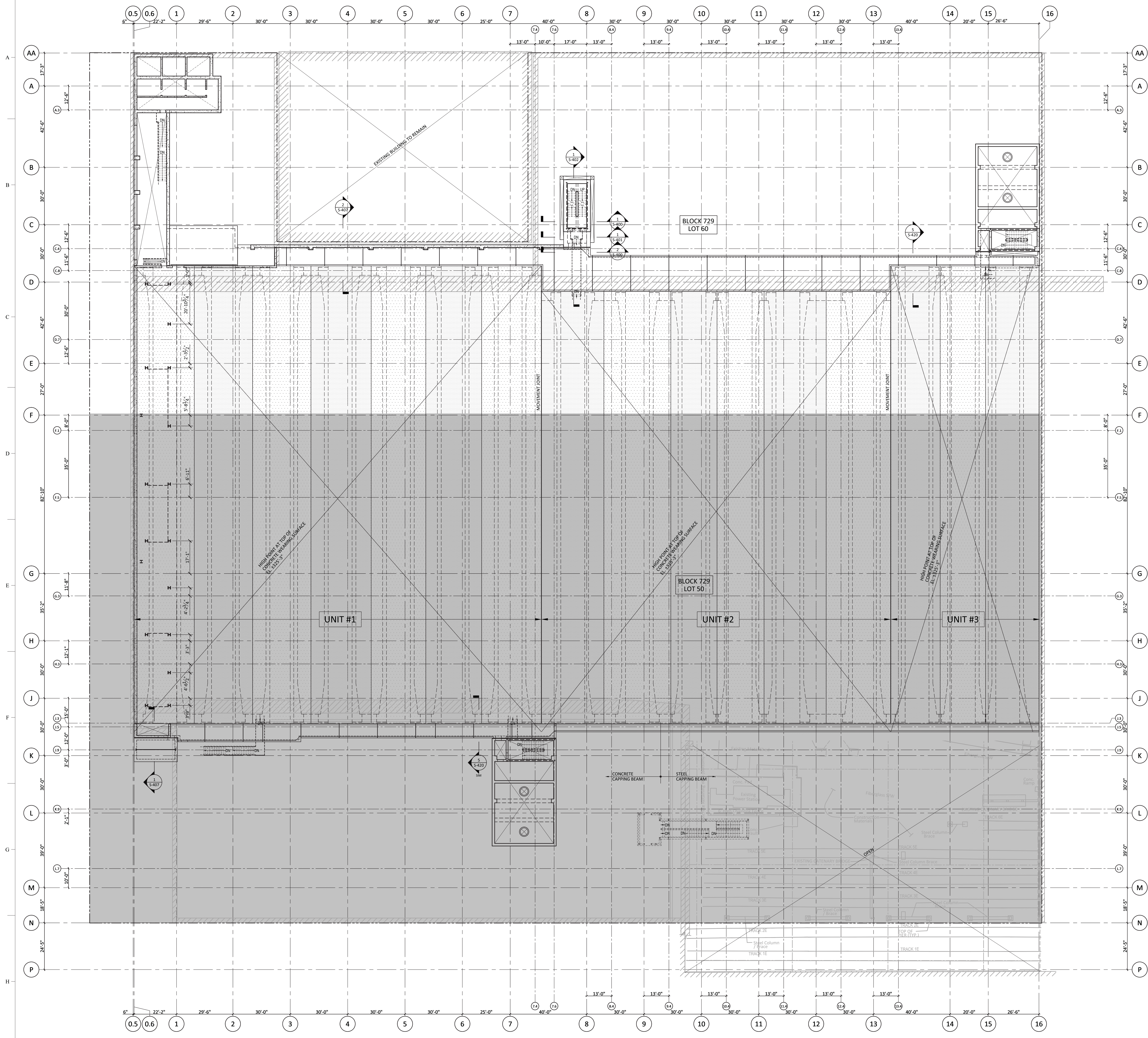
9th Avenue Development
 New York, NY

- NOTES:**
1. PROVIDE WATER PROOFING, PROTECTION BOARD AND A REINFORCED CONCRETE WEARING SURFACE OVER ANY AREAS SUBJECT TO CONSTRUCTION TRAFFIC OR AREAS USED FOR STAGING OR STORAGE OF MATERIALS. PROVIDE SAWCUTS IN CONCRETE TOPPING @ 15' C/C MAX EACH WAY. THICKNESS OF CONCRETE TOPPING TO VARY FROM 3" AT LOCAL AREA DRAINS TO 6" AT HIGH POINTS.
 2. REFER TO DRAWING S-020 FOR LOADING & DESIGN REQUIREMENTS.
 3. REFER TO DRAWING S-060, S-061 & S-062 FOR STAGING PLANS.

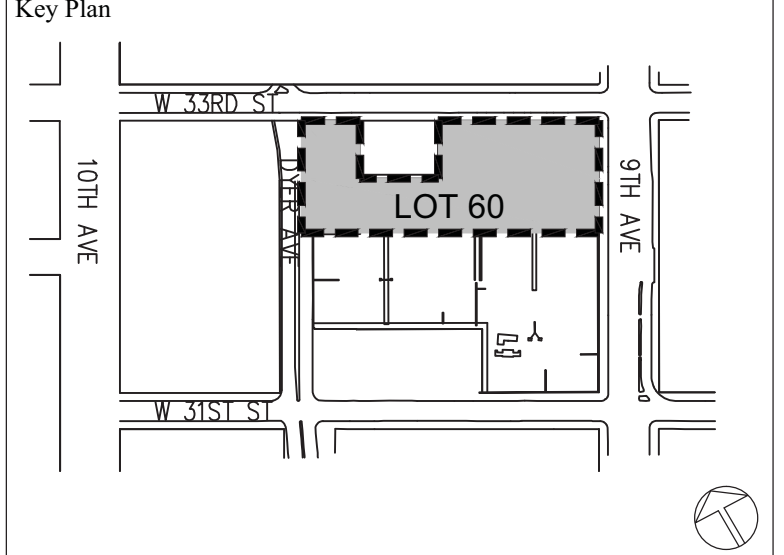
Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
SHoP Architects, Architects & Planners, L.P.
 14 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
 170 West Street, Suite 2002
 Toronto, ON M5E 1B4
 Canada
 entuitive.com



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:

D.O.B. SUBMISSION
LEVEL B PLAN
(LOT 60)

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

Drawn By: TRG
 Scale: 1/16"=1'-0"
 Project No.: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:
S-105.00

9th Avenue Development

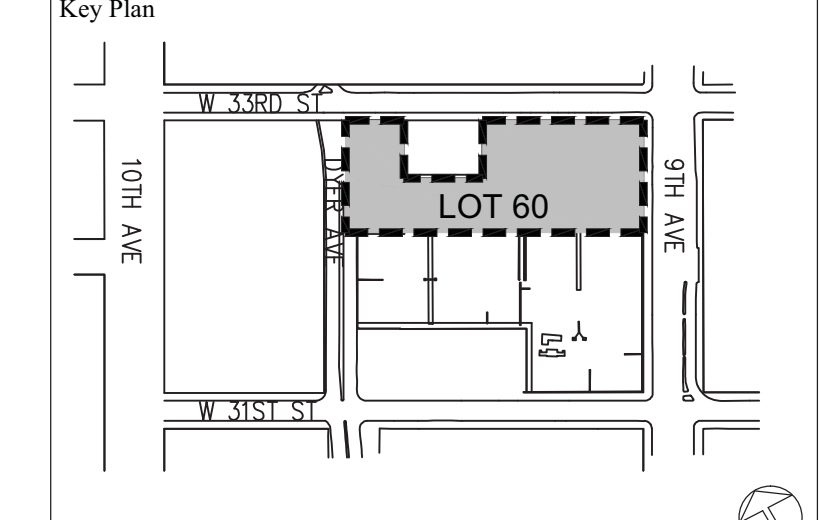
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Tring Street, Suite 2002
Toronto, ON M5E 1W4
Canada
entuitive.com

FOR BUILDING DEPARTMENT APPROVAL



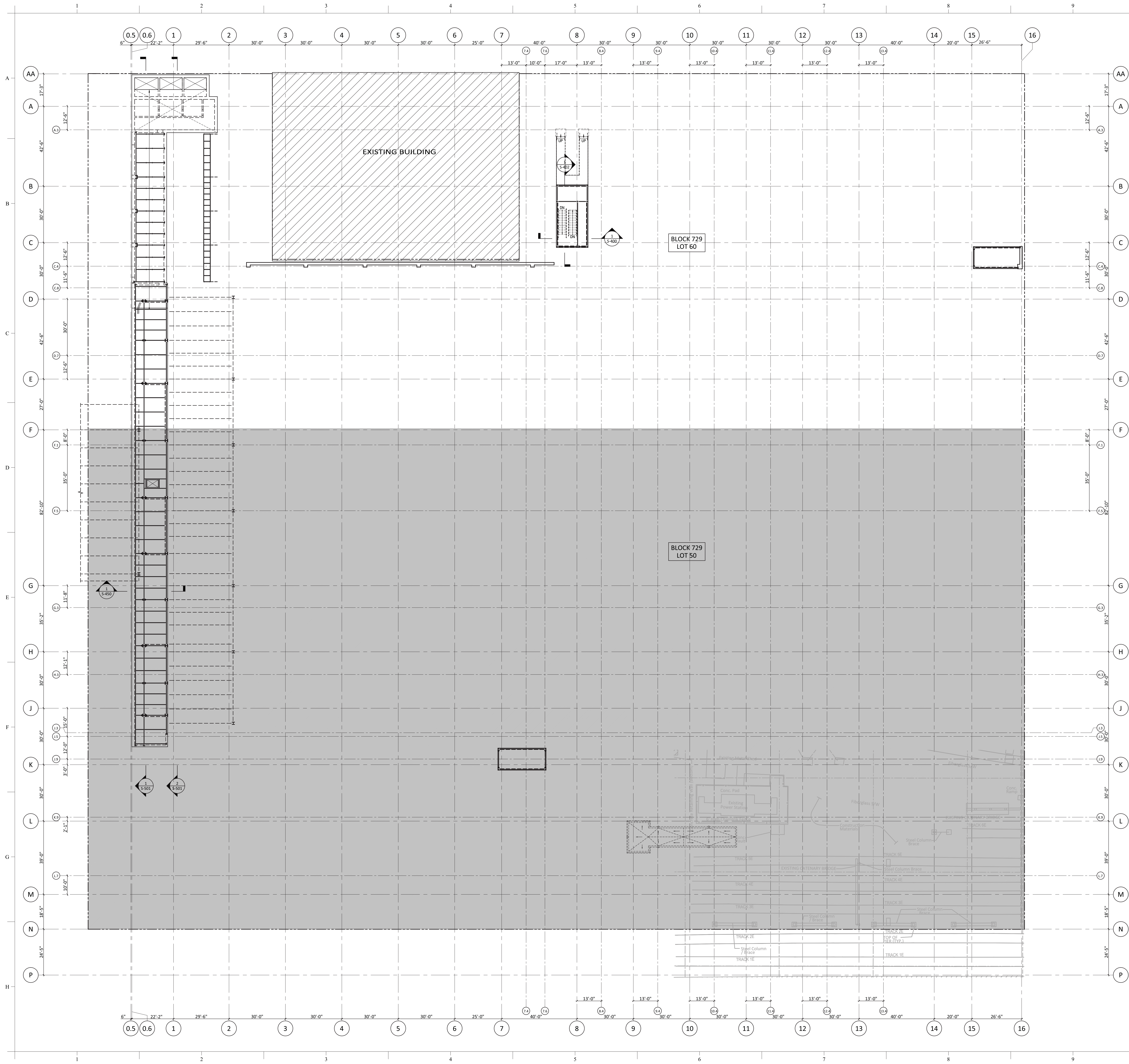
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

D.O.B. SUBMISSION GROUND LEVEL FRAMING PLAN (LOT 60)

Drawn By: TRG
Scale: 1/16"=1'-0"
Project No.: T011-0003
Date/Time: Oct 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-106.00

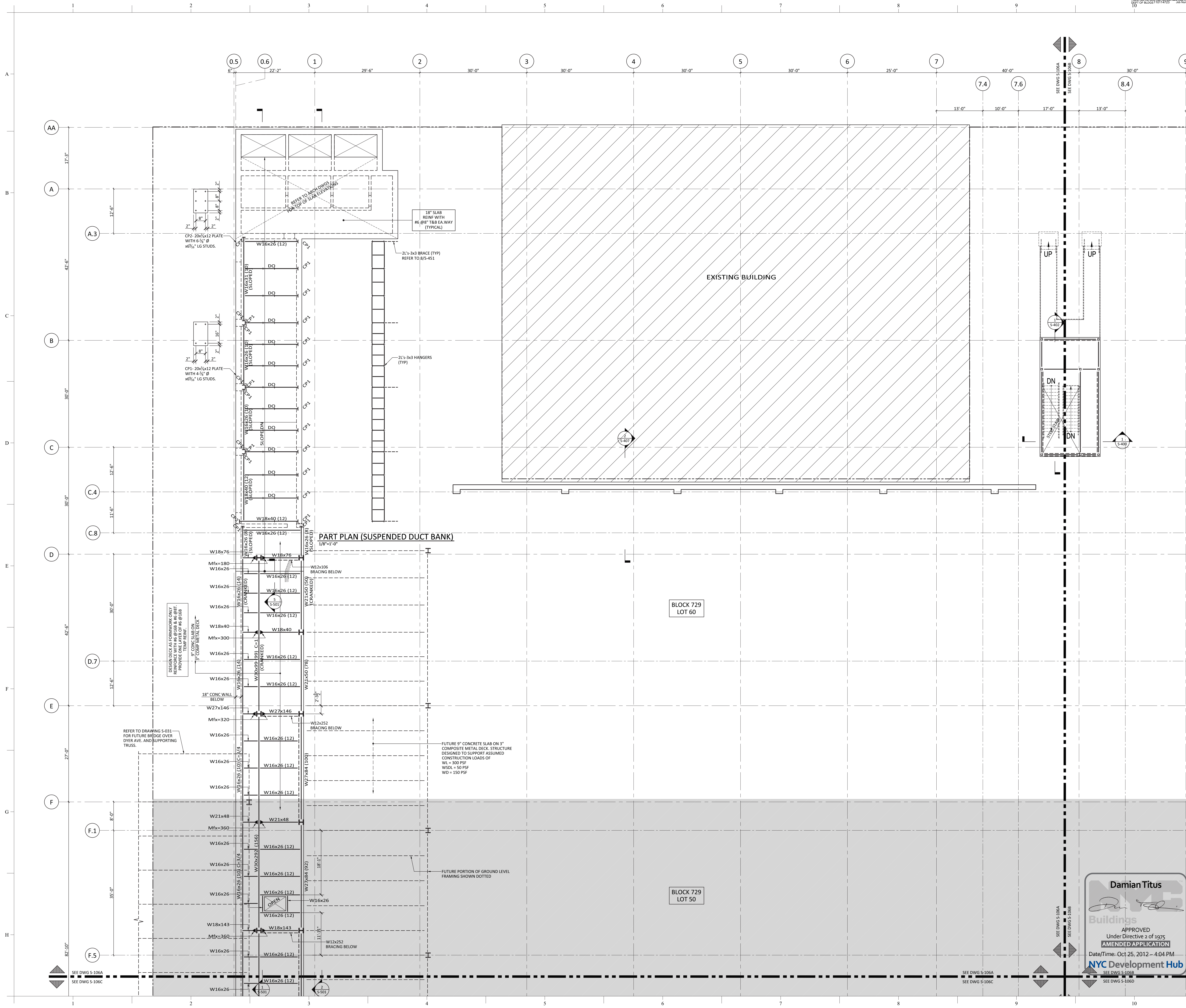
Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub



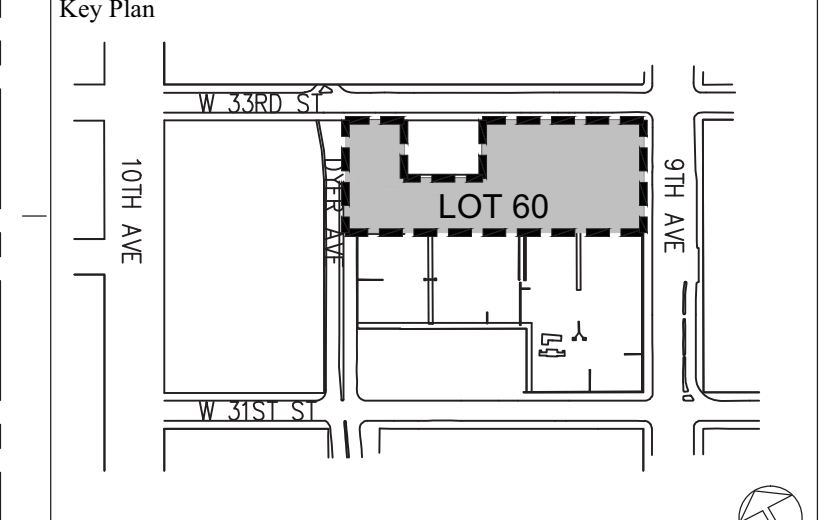
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
Skidmore, OWINGS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Temple Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com
T 416.477.5832



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
D.O.B. SUBMISSION GROUND LEVEL PARTIAL FRAMING PLAN A (LOT 60)

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Date/Time: Oct 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-106A.00

Page Count:

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

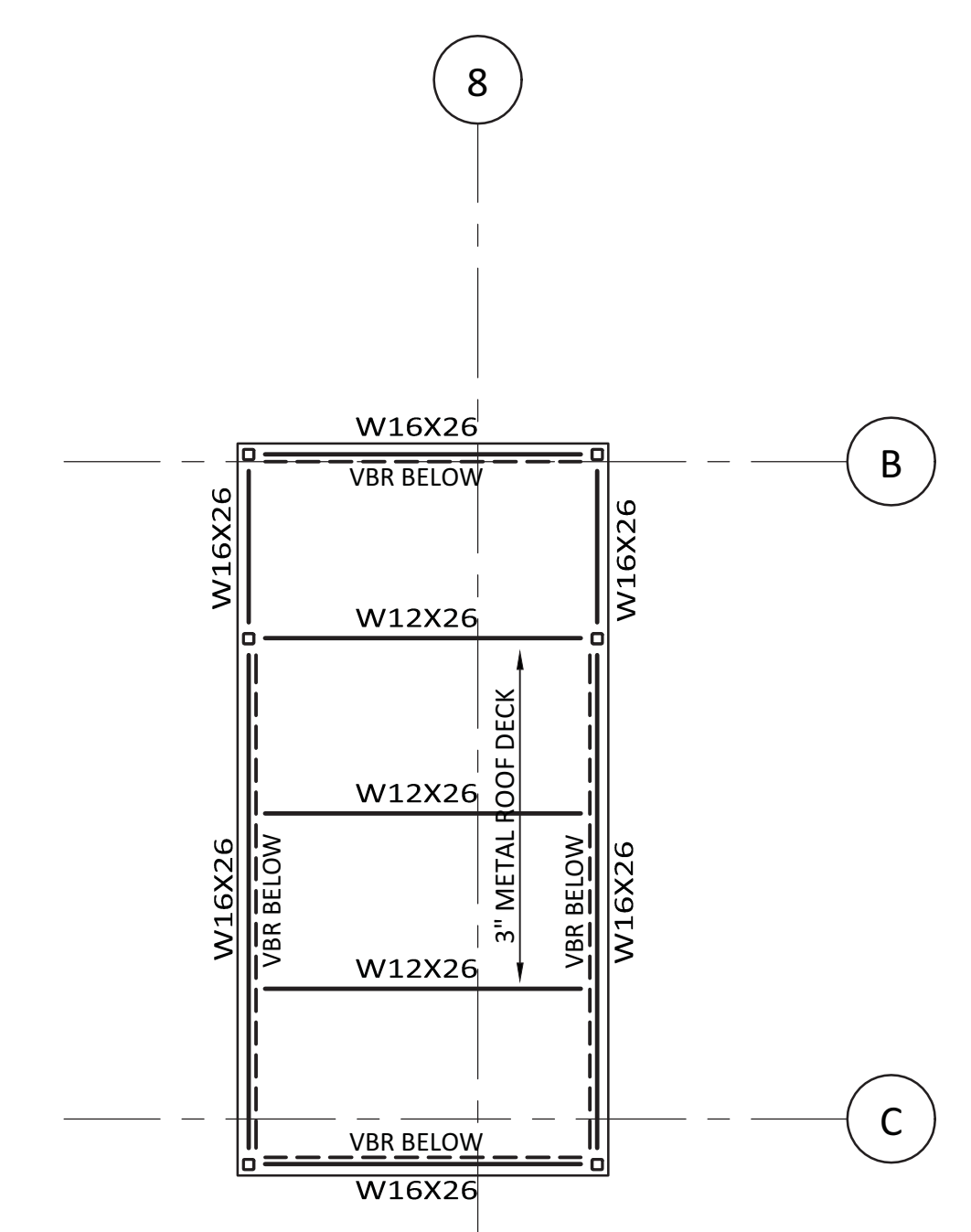
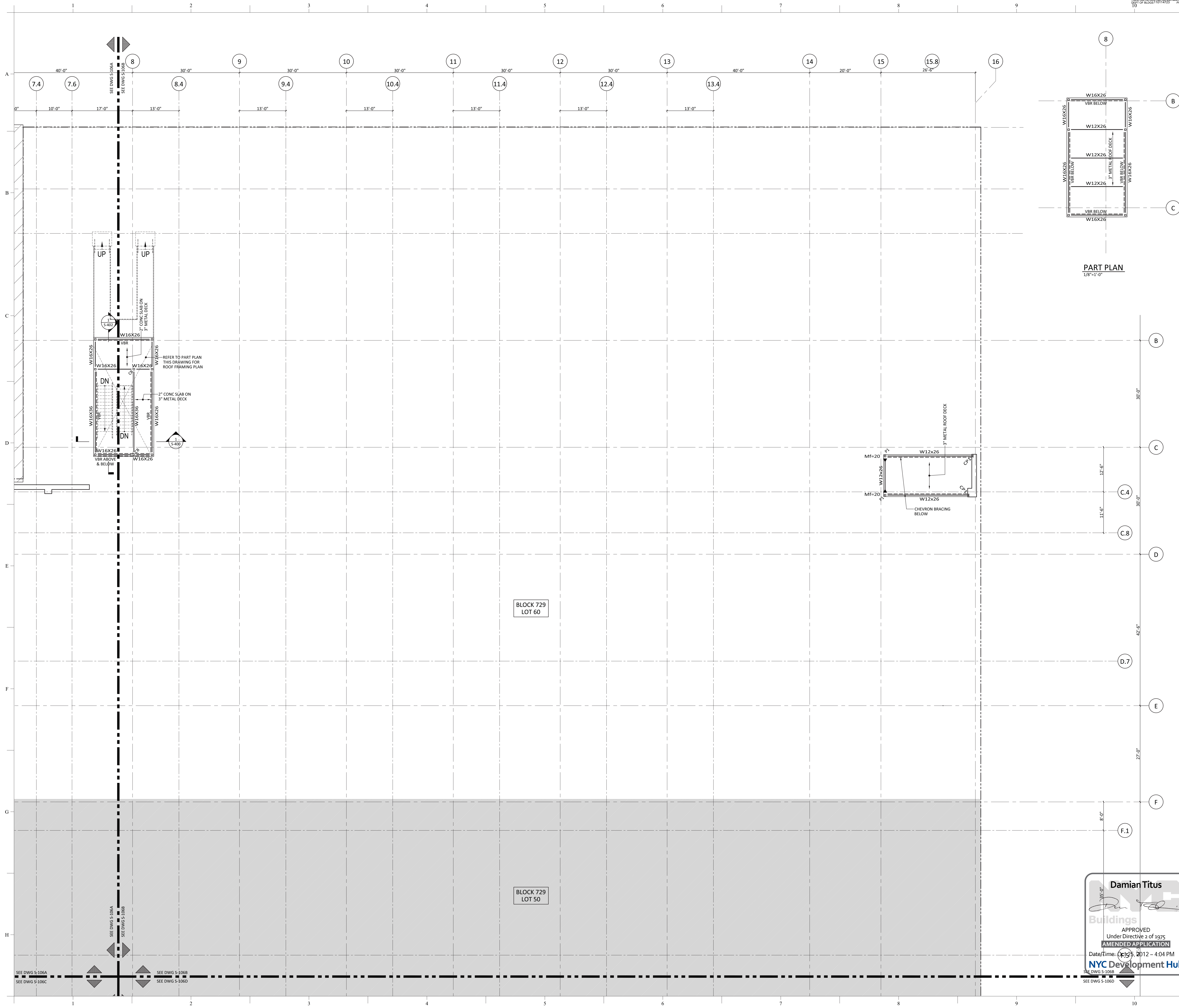


**9th Avenue
Development**
New York, NY

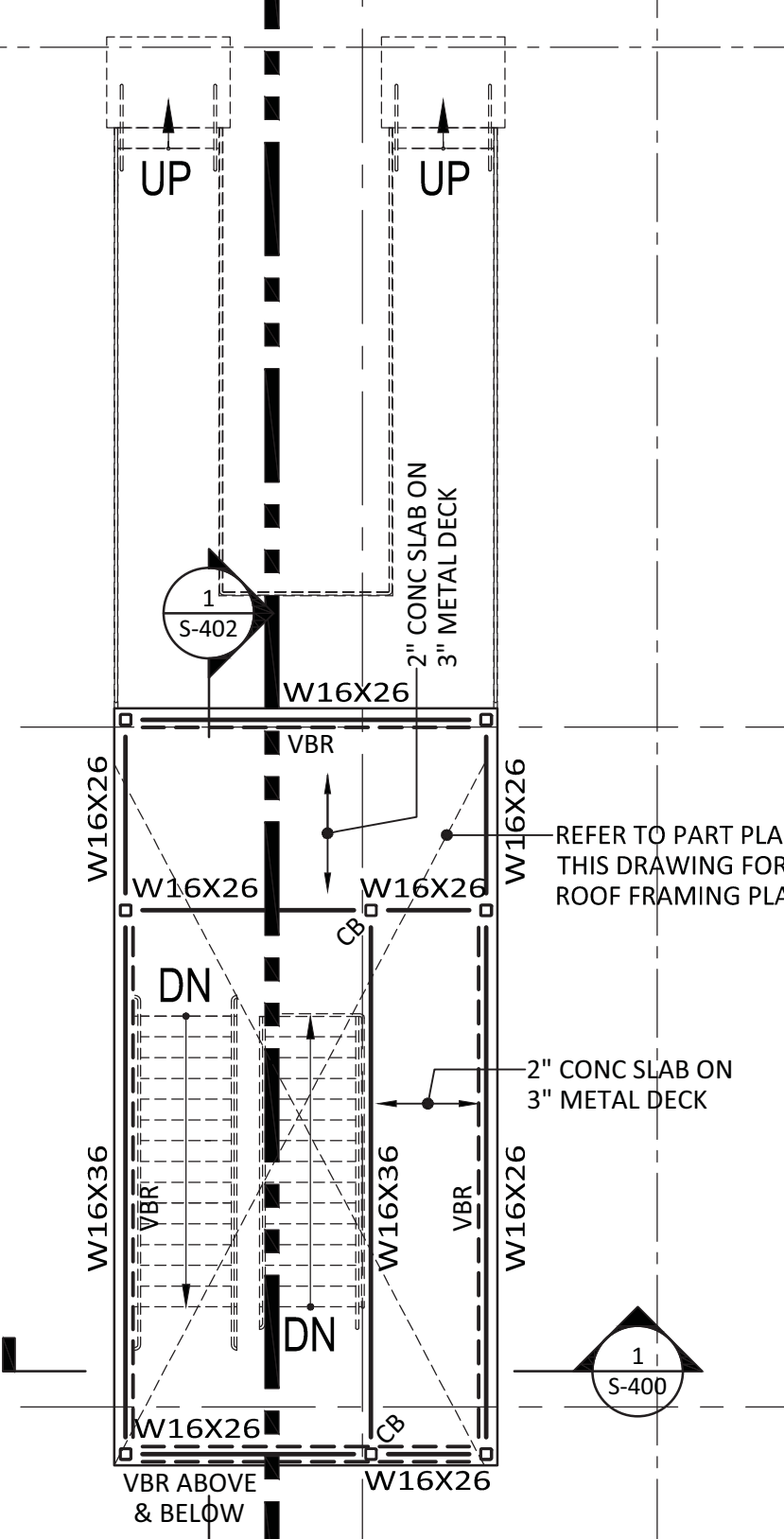
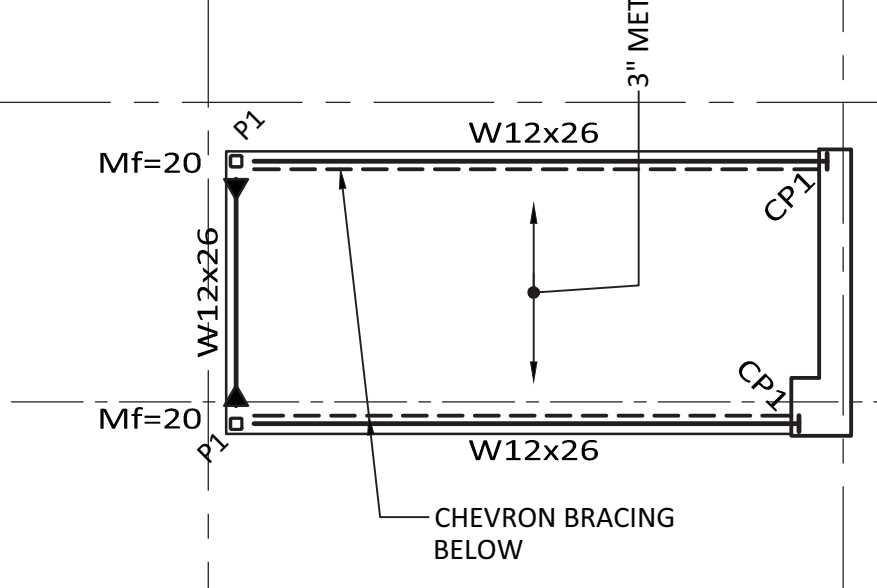
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
Skidmore, OWINGS & MERRILL LLP
18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
3 Temple Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com
T: 416.477.5832



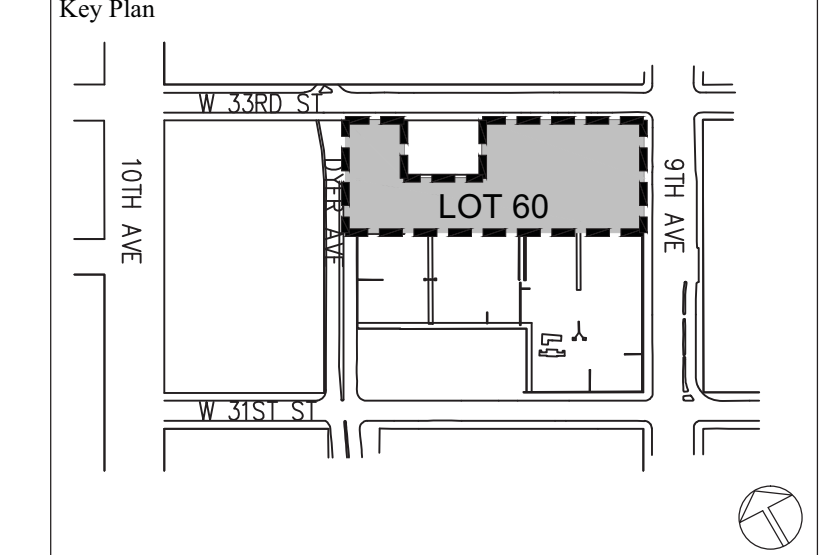
PART PLAN
1/8"=1'-0"



BLOCK 729
LOT 60

BLOCK 729
LOT 50

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAR 21, 2012	EN

Sheet Name:
**D.O.B. SUBMISSION
GROUND LEVEL PARTIAL
FRAMING PLAN B
(LOT 60)**

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Date/Time: OCT 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: OCT 25, 2012 - 4:04 PM
NYC Development Hub
SEE DWG S-106B

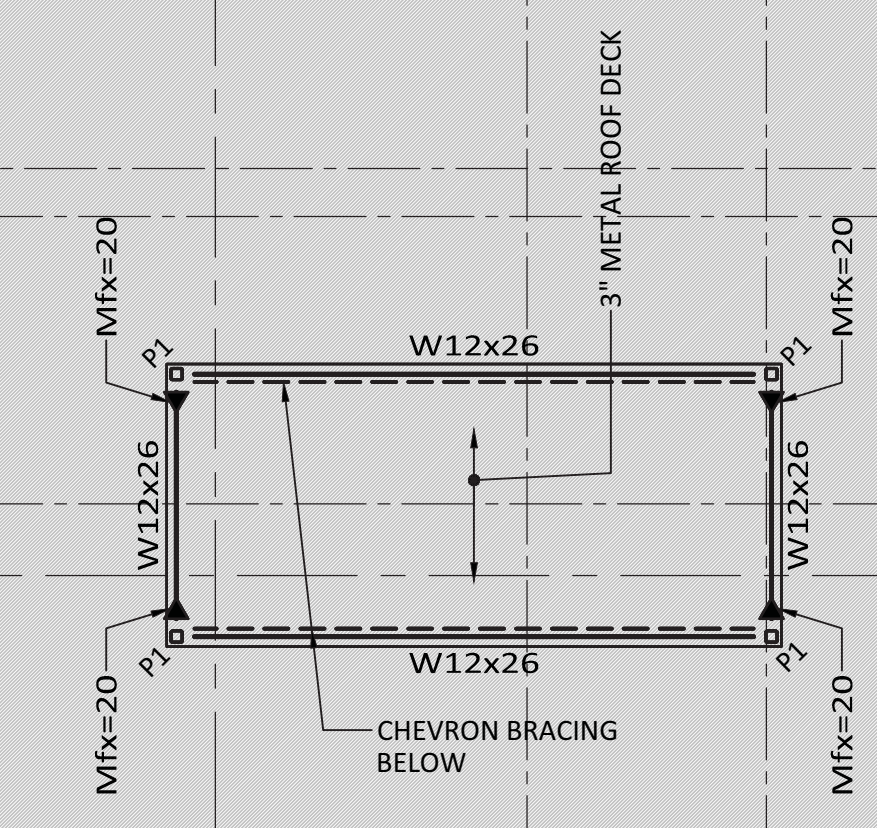
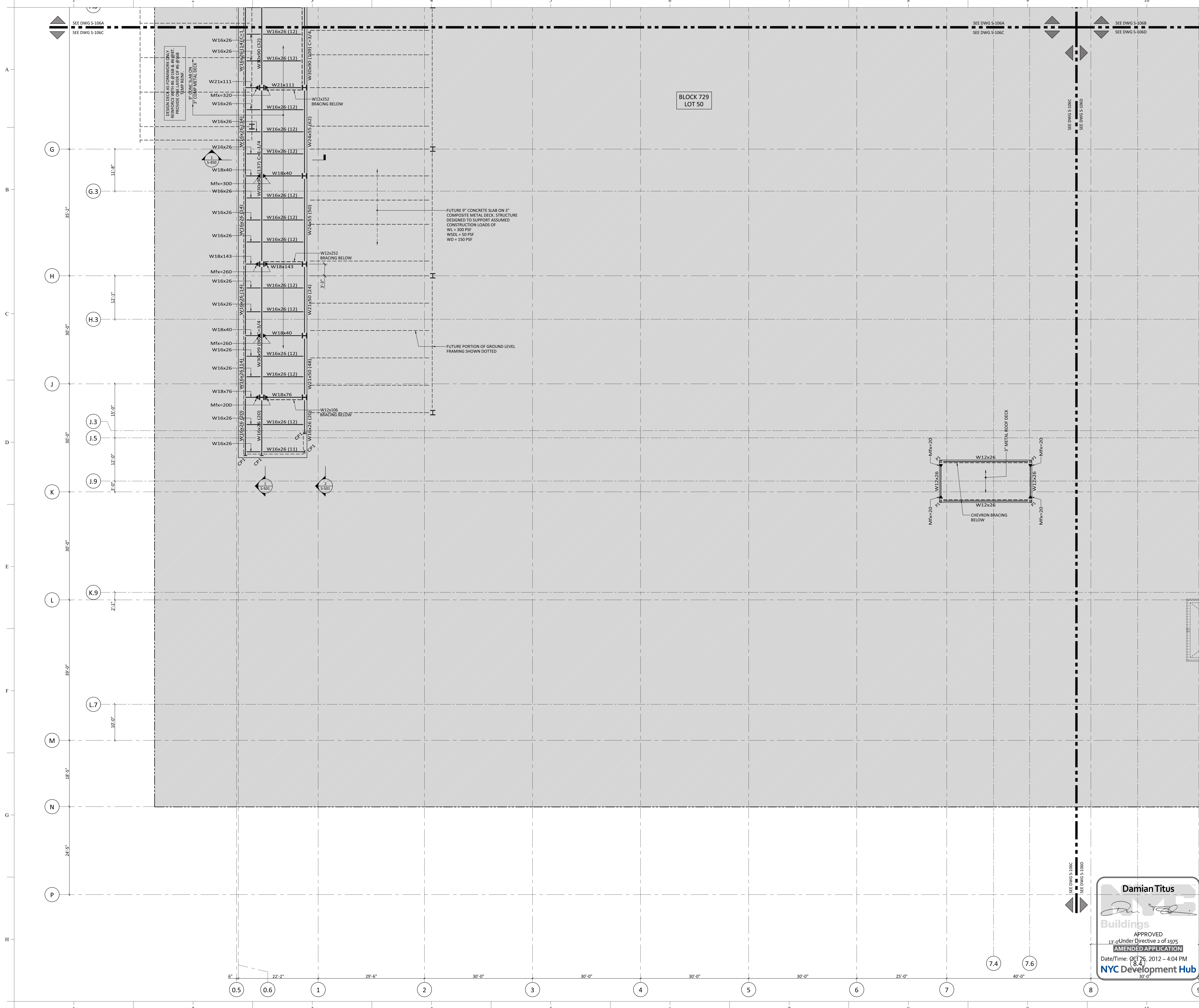
S-106B.00
Page Count:

9th Avenue Development
 New York, NY

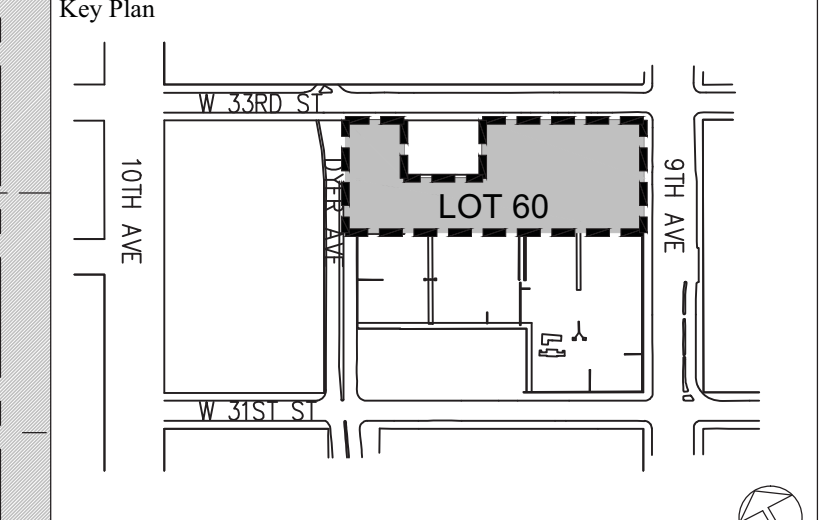
Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SKIDMORE, OWINGS & MERRILL LLP
 18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 1700 West 12th Street, Suite 2002
 Toronto, ON M5E 1W4
 Canada
 entuitive.com
 T: 416.477.5832



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
 GROUND LEVEL PARTIAL
 FRAMING PLAN C
 (LOT 60)**

Drawn By: TRG
 Scale: 1/8"=1'-0"
 Project No.: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:

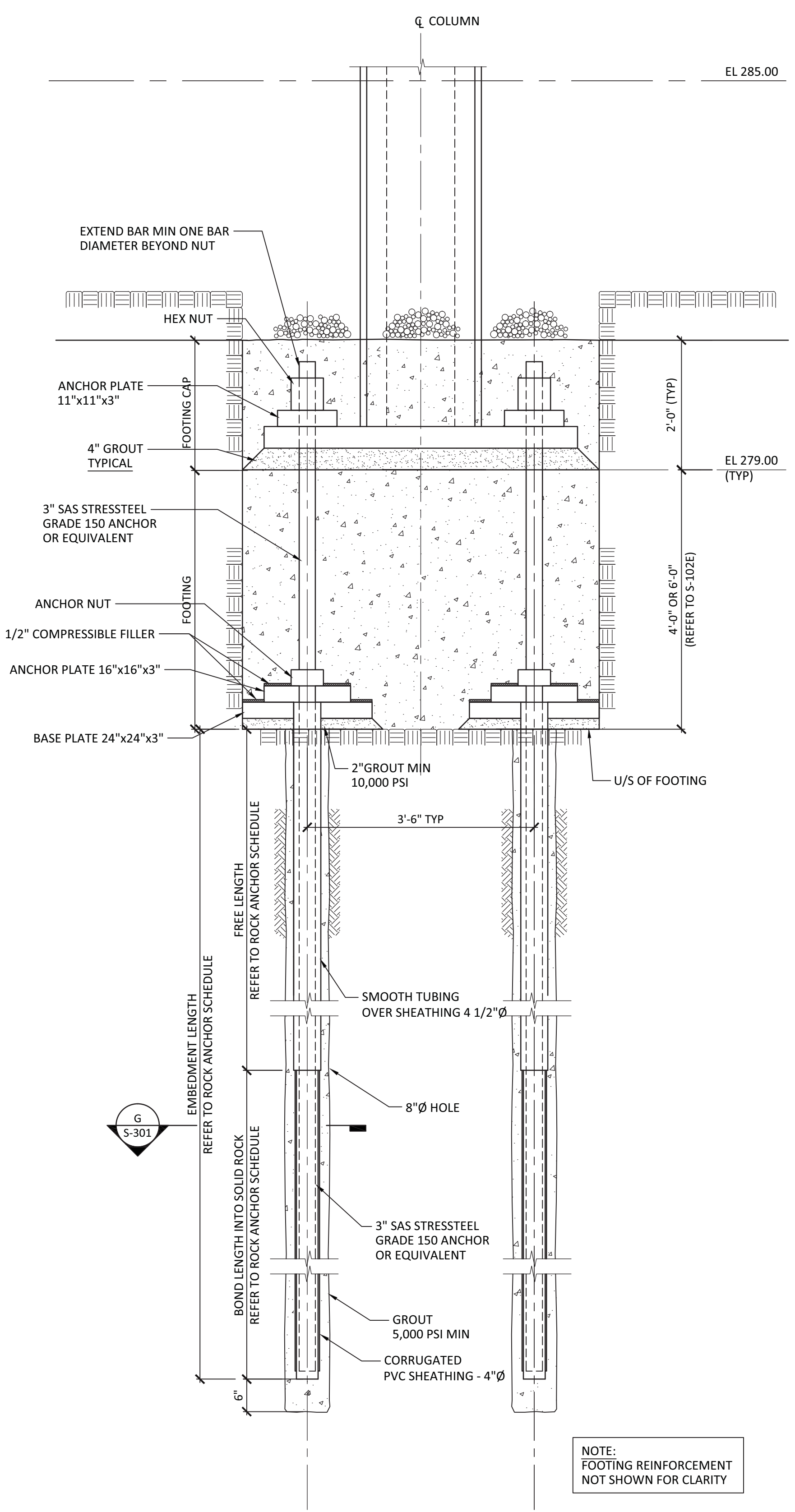
Damian Titus
 Buildings
 APPROVED
 13'-0" Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: OCT 25, 2012 - 4:04 PM
 8.4
 NYC Development Hub

S-106C.00
 Page Count:

ROCK ANCHOR SCHEDULE							
ROCK ANCHOR TYPE	WORKING LOAD (KIPS)	ANCHOR		FREE LENGTH (ft)	BOND LENGTH (ft)	EMBEDMENT LENGTH (ft)	REMARKS
		No	SIZE				
RA'1	2700	4	3"Ø	15'	45'	60'	
RA'2	1500	4	3"Ø	10'	25'	35'	
RA'3	1000	2	3"Ø	10'	35'	45'	

- NOTES:**
- ROCK ANCHORS ARE TO BE SAS STRESSTEEL GRADE 150 ANCHORS OR EQUIVALENT.
 - ROCK ANCHORS TO HAVE DOUBLE CORROSION PROTECTION SYSTEM TYPICAL.
 - MIN SPACING OF ROCK ANCHORS IS 3'-0" c/c, INCLUDING ALLOWABLE CONSTRUCTION TOLERANCES OF 3" PER ANCHOR. ANCHORS ARE TO BE LAID OUT AND DRILLED AT 3'-6" c/c. AFTER ANCHORS ARE DRILLED, FIELD MEASURE LOCATION OF ROCK ANCHORS AND DRILL BASE PLATES TO SUIT AS BUILT ROCK ANCHOR LOCATIONS.
- INSTALLATION PROCEDURE**
- DETERMINE ANCHOR LOCATION AS INDICATED ON DRAWINGS.
 - DRILL 8"Ø HOLE TO SPECIFIED DEPTH.
 - CLEAN DRILL HOLE OF ALL DEBRIS.
 - INSERT A GROUT PIPE TO THE BOTTOM OF THE ANCHOR HOLE, PUMP FULL OF CEMENT GROUT AND DISPLACE ANY STANDING WATER.
 - REMOVE GROUT PIPE AND INSTALL THE PRE-ASSEMBLED ANCHOR INTO GROUTED HOLE.
 - AFTER GROUT REACHES SPECIFIED STRENGTH, TEST ANCHORS USING A CALIBRATED CENTER HOLE JACK.
 - AFTER SUCCESSFUL TESTING, LOCK OFF ANCHOR AT SPECIFIED LOAD, USING EXTERNAL WRENCH AND RELEASE PRESSURE FROM JACK.
 - INSTALL FOOTING REINFORCEMENT.
 - INSTALL TEMPLATE FOR ROCK ANCHORS AND SECURE IN PLACE TO AVOID SHIFTING OF ANCHORS DURING CONCRETING.
 - POUR CONCRETE FOOTINGS.
 - MEASURE AS BUILT LOCATION OF ROCK ANCHORS. DRILL BASE PLATE TO SUIT AS BUILT LOCATION OF ROCK ANCHORS.
 - ERECT STEEL COLUMNS AND INSTALL ROCK ANCHOR PLATE WASHERS AND HEX NUTS.
 - INSTALL FOOTING CAP REINFORCEMENT AND CONCRETE FOOTING CAP.

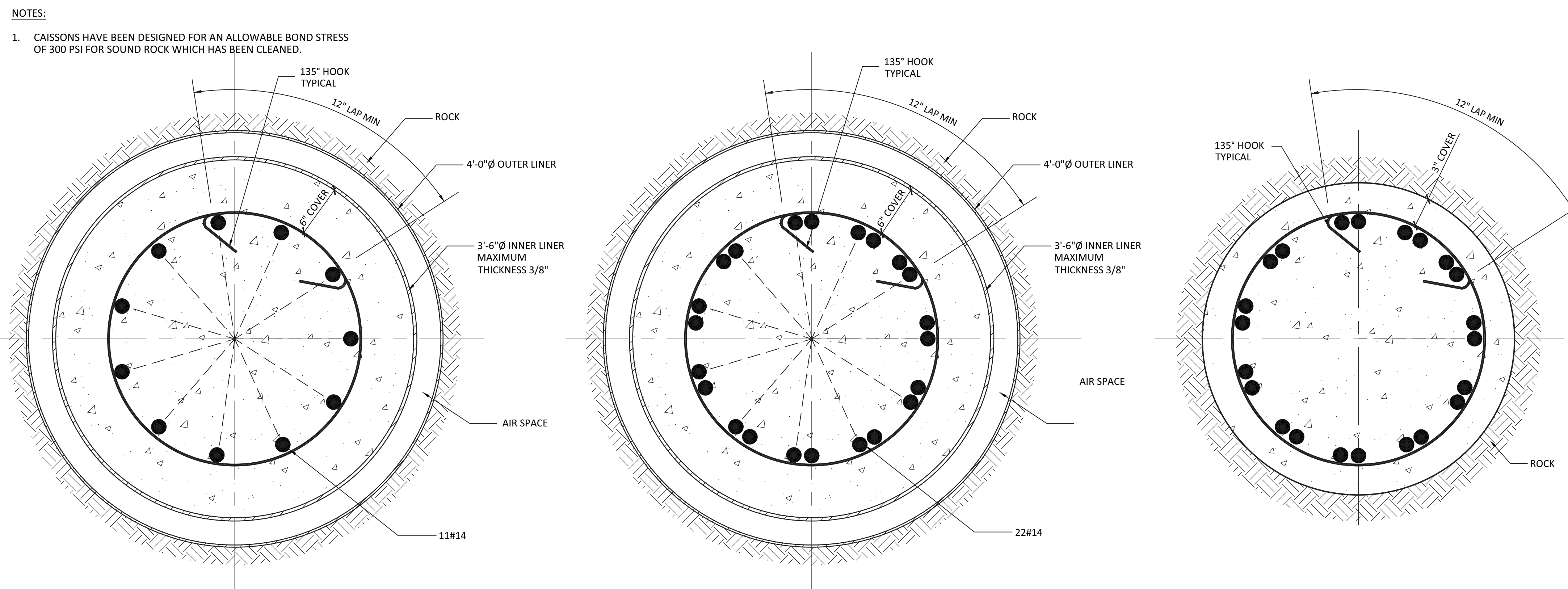
- GENERAL NOTES**
- ROCK ANCHORS SHALL BE IN CONFORMANCE WITH PTI (POST TENSIONING INSTITUTE) LATEST RECOMMENDATIONS ON ROCK & SOIL ANCHORS.
 - ALL ANCHORS SHALL BE 3" DIAMETER SAS STRESSTEEL THREADED BARS OR EQUIVALENT, GRADE 150 KSI, MEETING OR EXCEEDING PROPERTIES OF ASTM A-722.
 - PROVIDE DOUBLE CORROSION PROTECTION SYSTEM ON ALL ROCK ANCHORS.
 - ANCHOR NUTS & COUPLERS SHALL BE CAPABLE OF DEVELOPING 100% OF THE ULTIMATE STRENGTH OF THREADBAR.
 - CARE MUST BE TAKEN NOT TO DAMAGE THE THREADED BARS DURING FABRICATION OR INSTALLATION.
 - DO NOT WELD IN THE VICINITY OF THE HIGH STRENGTH BARS.
 - DO NOT USE ANCHORS AS A GROUND FOR WELDING.
 - THE FIRST THREE ANCHORS INSTALLED AND A MINIMUM OF 10% OF THE REMAINING ANCHORS SHALL BE PERFORMANCE TESTED, ALL OTHER ANCHORS SHALL BE PROOF TESTED AS NOTED BELOW.
 - PERFORMANCE TEST SHALL BE CONDUCTED BY LOADING AND UNLOADING THE ANCHOR AS NOTED BELOW:
25P, 50P, 75P, 100P, 1.20P, 1.33P
P VARIES, REFER TO ROCK ANCHOR SCHEDULE
HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS AT 0.1, 2.2, 4.5, 6 AND 10 MINUTES. THE ANCHOR IS ACCEPTABLE IF ANCHOR MOVEMENT BETWEEN THE 1 MIN AND 10 MIN DOES NOT EXCEED 0.040". RELEASE TO TRANSFER LOAD AND LOCK OFF ANCHOR NUT.
 - PROOF TESTS SHALL BE CONDUCTED BY INCREMENTALLY LOADING THE ANCHOR AS NOTED BELOW:
25P, 50P, 75P, 100P, 1.20P, 1.33P
HOLD 1.33P FOR CREEP TEST AS ABOVE.



TYPICAL ROCK ANCHOR DETAIL
1 3/4" - 1'-0"

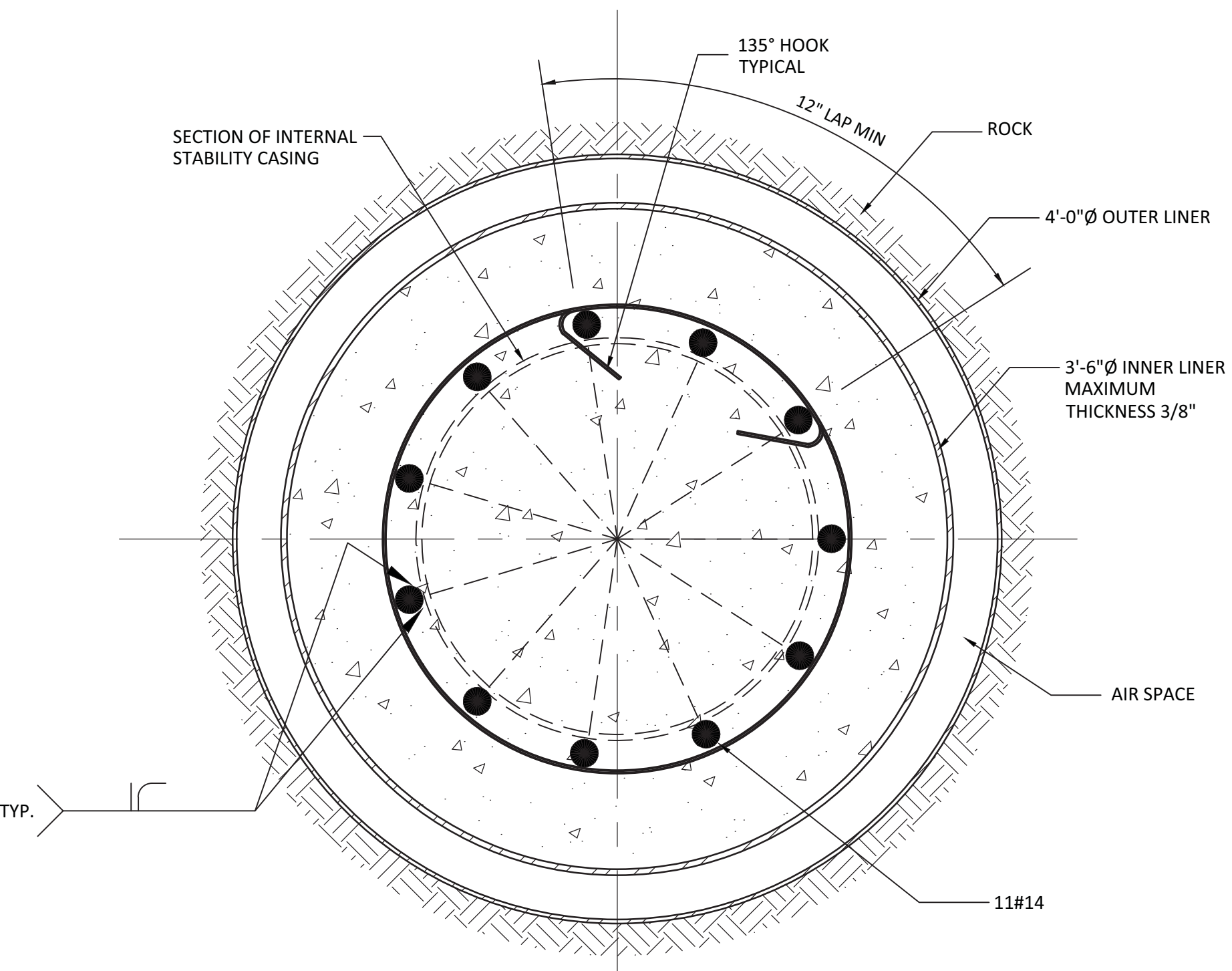
NOTE: FOOTING REINFORCEMENT NOT SHOWN FOR CLARITY

CAISSON SCHEDULE															
CAISSON MARK	SERVICE LOAD CAPACITY DOWN (+ve) (Kips)	SERVICE LOAD CAPACITY UP (-ve) (Kips)	SERVICE MOMENT (Kips.FT)	ROCK SOCKET DIAMETER	ROCK SOCKET LENGTH	FRICTIONLESS LENGTH	SHAFT DIAMETER	TOP OF CAISSON ELEVATION	CAISSON LENGTH	LONGITUDINAL REINF BARS		CIRCULAR TIES		CONCRETE GRADE (PSI)	REMARKS
										No	SIZE	SIZE	SPACING (IN)		
CA'1	3925	-	1900	3'-0"	12'-0"	23'-4"	3'-6"	303'-4"	35'-4"	11 (FULL HEIGHT) 11 (ADDED IN ROCK SOCKET)	#14	#5	12	9500	'INNER' CAISSON
CA'2	1650	-255	1900	3'-0"	12'-0"	23'-4"	3'-6"	303'-4"	35'-4"	22 (FULL HEIGHT)	#14	#5	12	9500	'OUTER' CAISSON
CA'3	1650	-730	1900	3'-0"	15'-0"	23'-4"	3'-6"	303'-4"	38'-4"	-	-	#5	12	9500	'OUTER' CAISSON

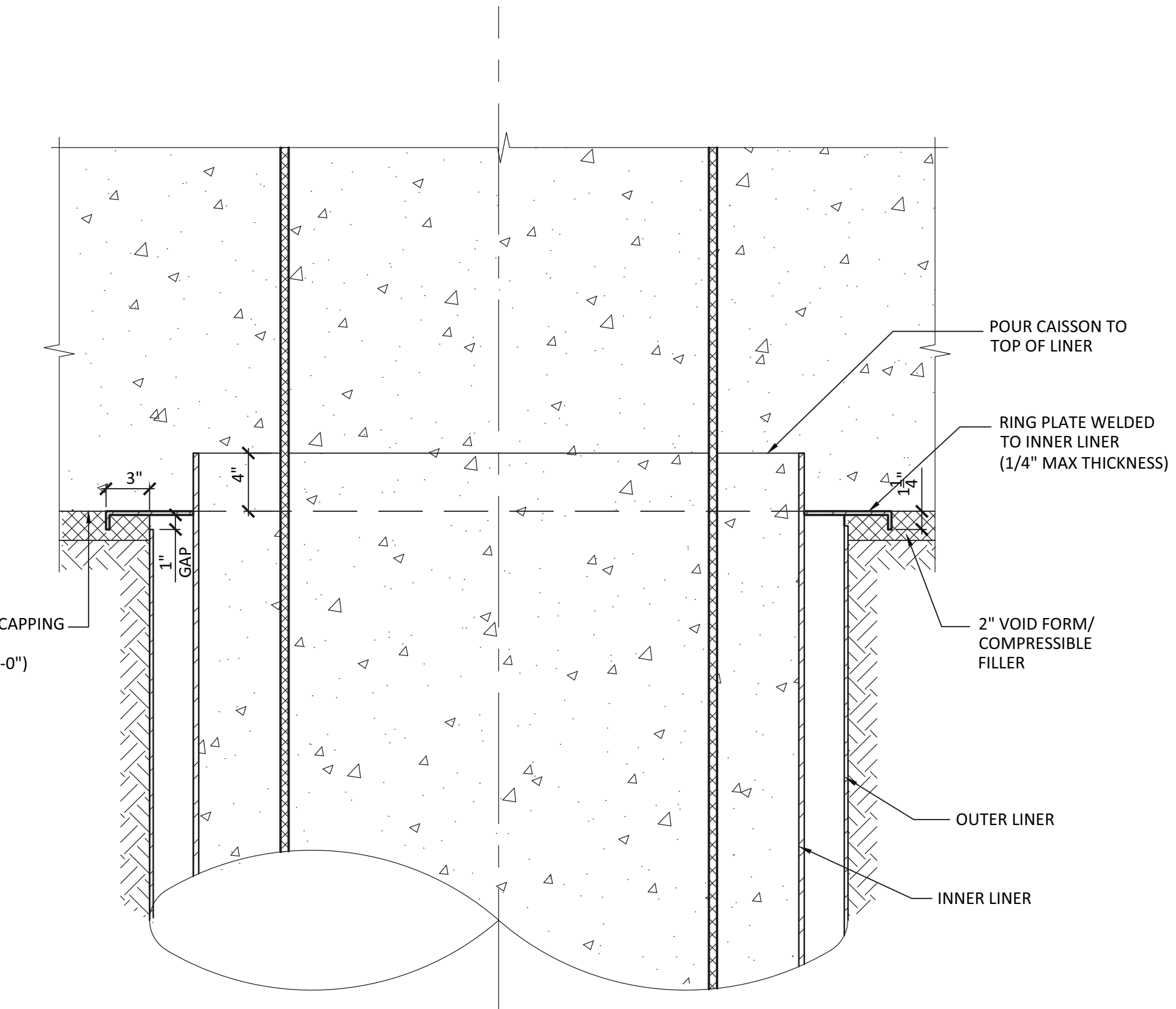


TYPICAL REINFORCED CAISSON 'CA1'
1 1/2" - 1'-0"

TYPICAL REINFORCED CAISSON 'CA2'
1 1/2" - 1'-0"



TYPICAL DETAIL AT INTERNAL STABILITY CASING
1 1/2" - 1'-0"



SECTION
1 1/2" - 1'-0"

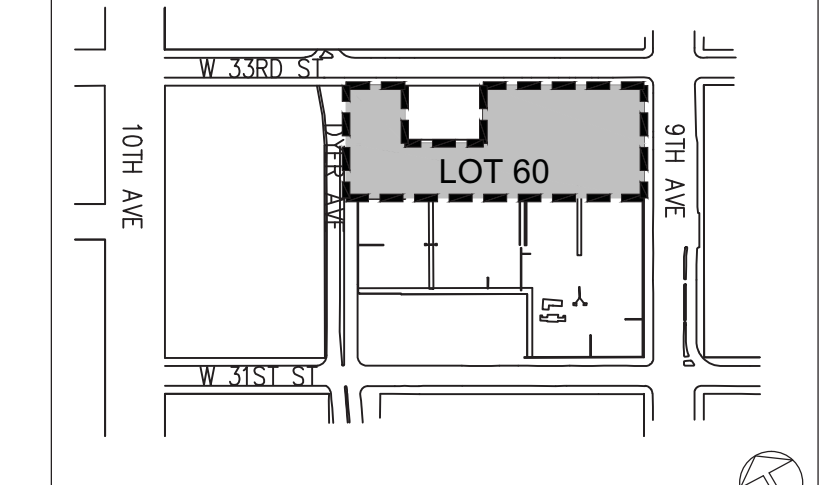
Project:
9th Avenue Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, L.P.
18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1700 Broadway, Suite 2002
Toronto, ON M5E 1H4
Canada
entuitive.com
T. 416.477.5832

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
D.O.B. SUBMISSION CAISSON/ROCK ANCHOR SCHEDULE (LOT 60)

Drawn By: TRG
Scale: N.T.S.
Project No.: T011-0003
Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:

Damian Titus
Buildings
APPROVED Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

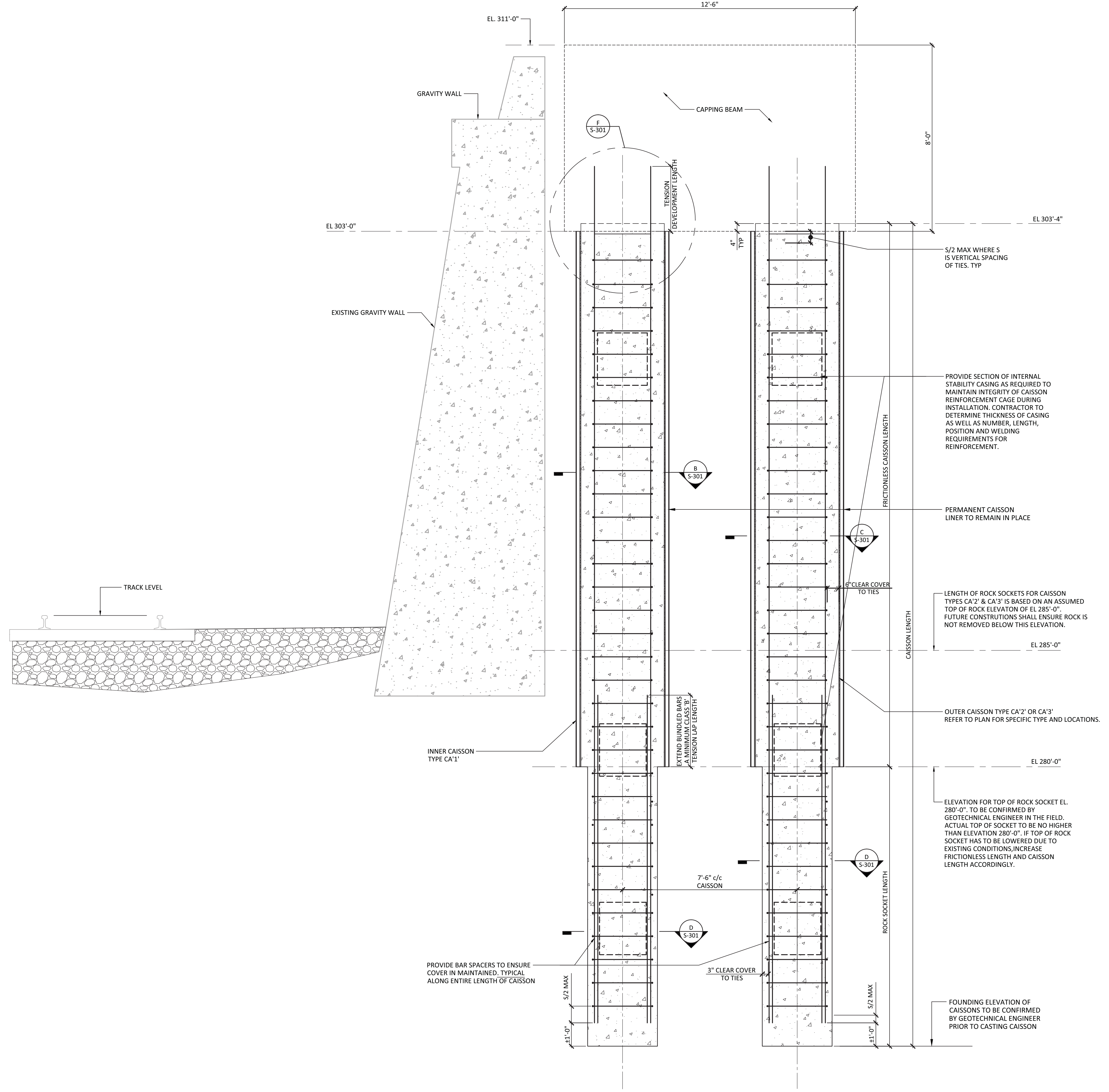
Scale: 1/8" = 1'-0"
Professional Seal: **SEAN R. MCCORMACK**, P.E., No. 088742, State of New York
Page Count:

**9th Avenue
Development**
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

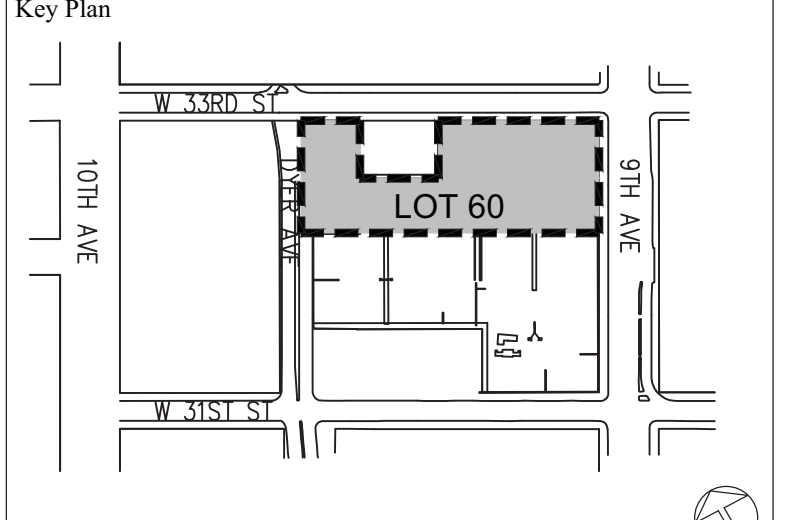
Architect:
SOM
SOMERSET, DENNIS & MERRILL LLP
18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com
T: 416.477.5832



A
S-302
TYPICAL CAISSON SHAFT DETAIL
1/2"=1'-0"

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	DN

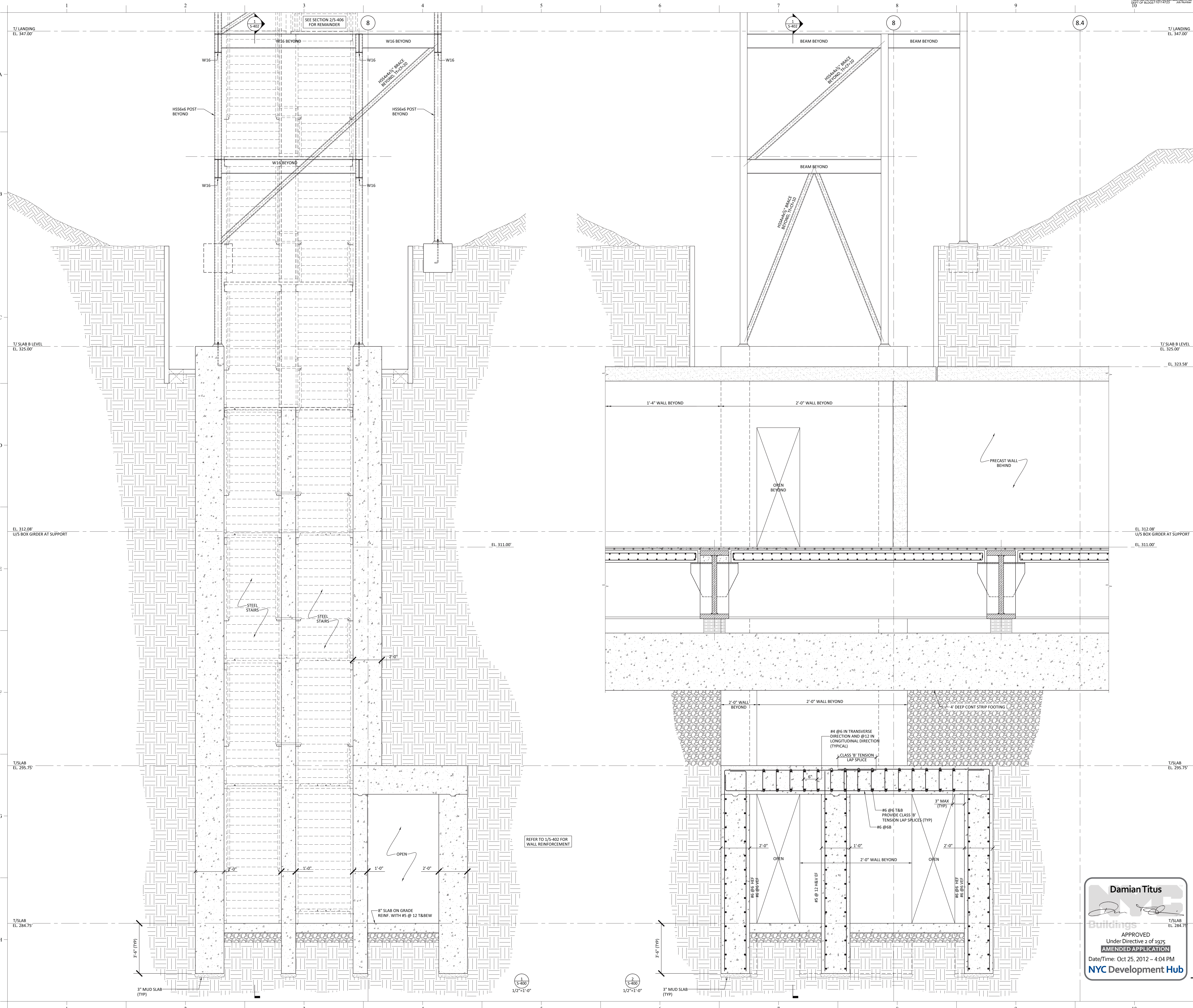
Sheet Name:
**D.O.B. SUBMISSION
CAISSON DETAILS
(LOT 60)**

Drawn By: TRG	Checked By: BC/DS
Date: 1/2"=1'-0"	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:

S-302.00

Damian Titus
(Signature)
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub





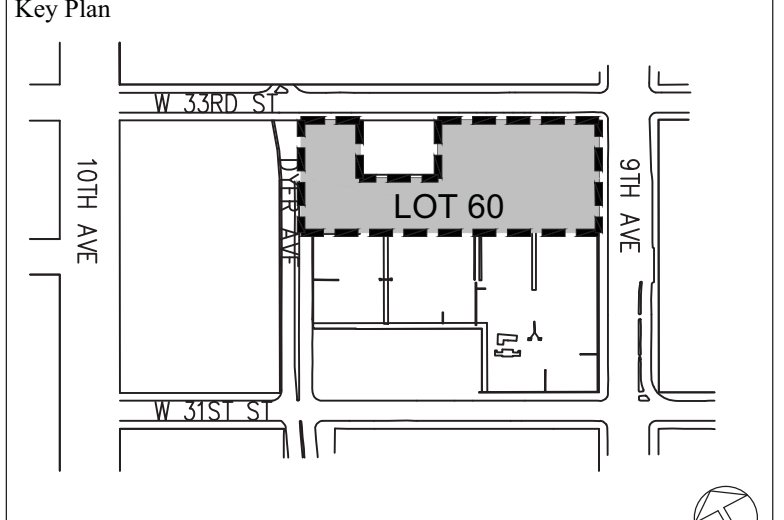
Project:
9th Avenue Development
 New York, NY

Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SKIDMORE, OWINGS & MERRILL LLP
 19 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 170 West Street, Suite 2002
 Toronto, ON M5E 1Y4
 Canada
 entuitive.com
 T: 416-477-5802

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

D.O.B. SUBMISSION
FOUNDATION SECTIONS (LOT 60)

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
 NYC Development Hub

Drawn By: TRG
 Scale: AS SHOWN
 Project No: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No:
 Sheet No:
S-400.00
 Page Count:

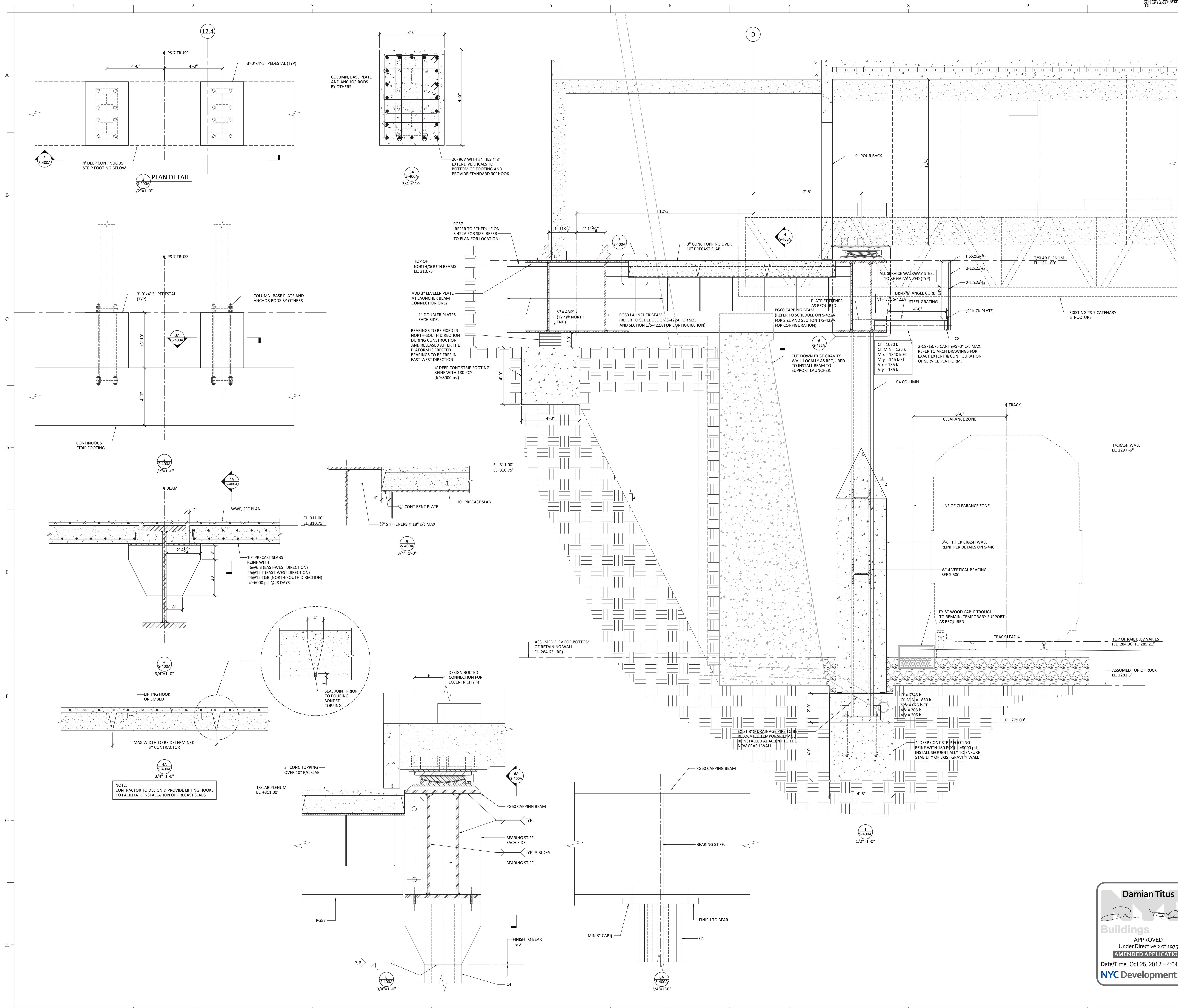


**9th Avenue
 Development**
 New York, NY

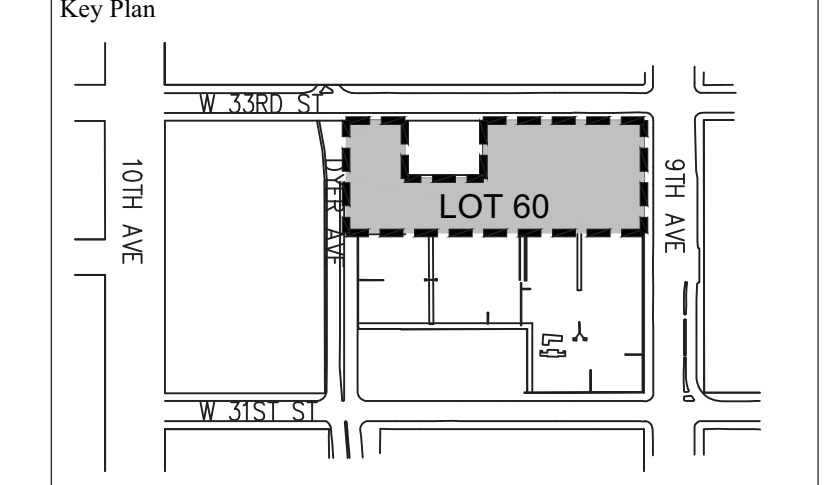
Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SKIDMORE, OWINGS & MERRILL LLP
 14 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 1 Bridge Street, Suite 2002
 Toronto, ON M5E 1B4
 Canada
 entuitive.com
 T: 416.477.5832



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TRG

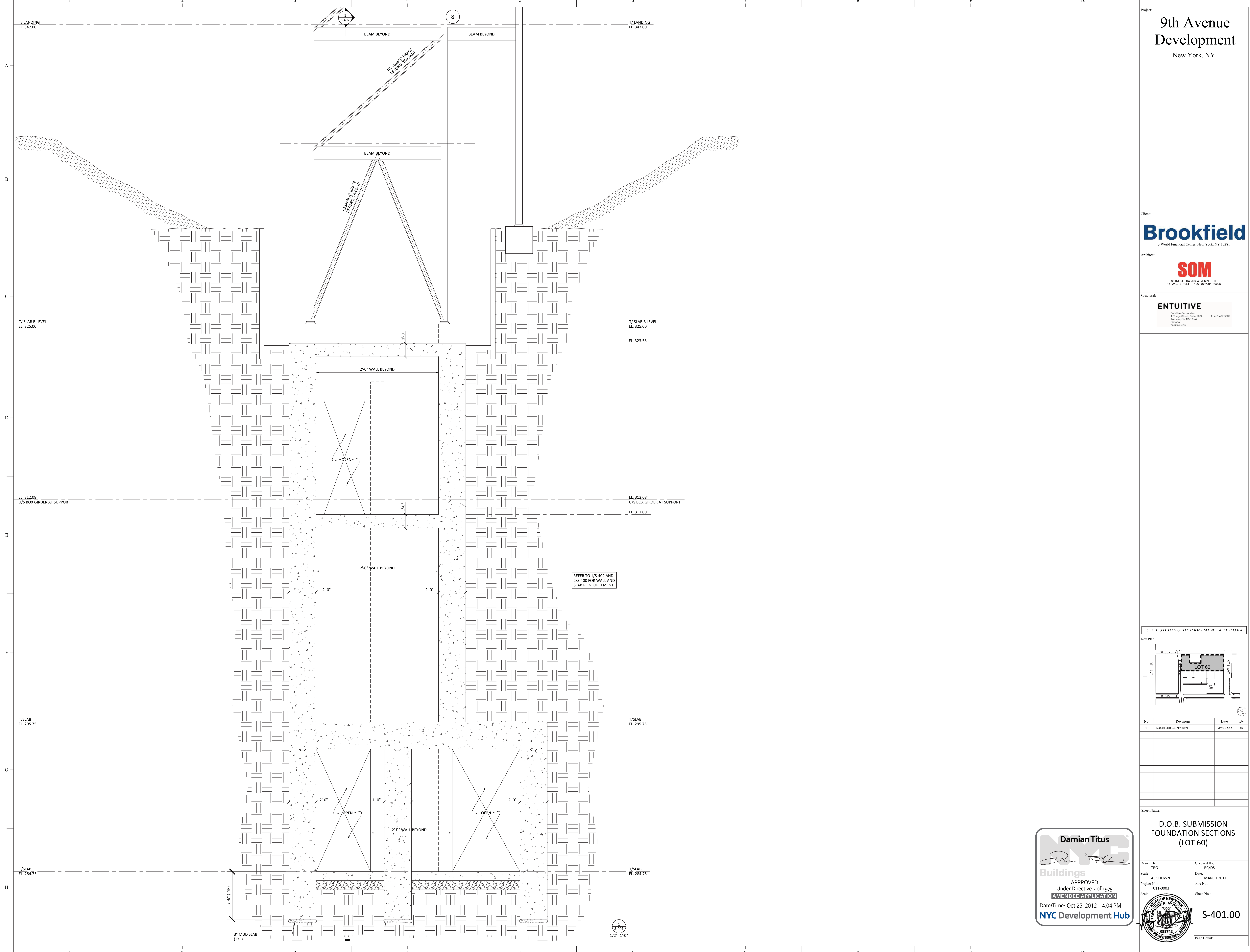
Sheet Name:

**D.O.B. SUBMISSION
 FOUNDATION SECTIONS
 (LOT 60)**

Drawn By: TRG
 Scale: AS SHOWN
 Project No.: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

S-400A.00
 Page Count:



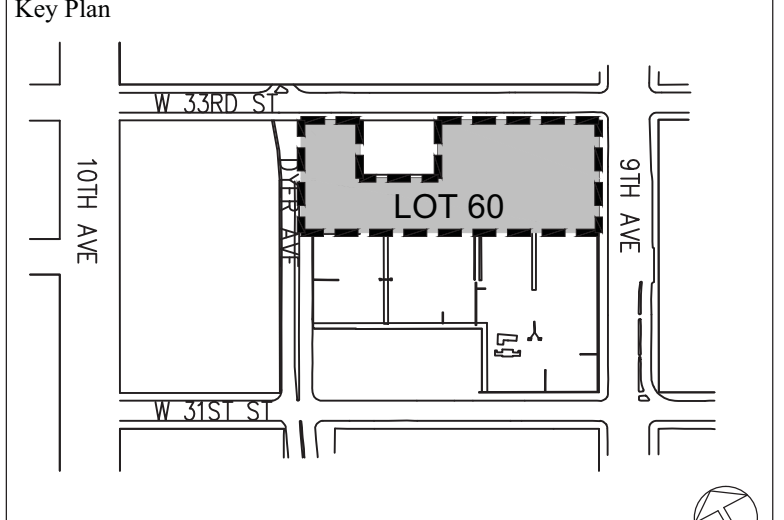
Project:
9th Avenue Development
 New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
 18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
 8 Temple Street, Suite 2002
 Toronto, ON M5E 1Y4
 Canada
 entuitive.com
 T. 416.477.5802

FOR BUILDING DEPARTMENT APPROVAL

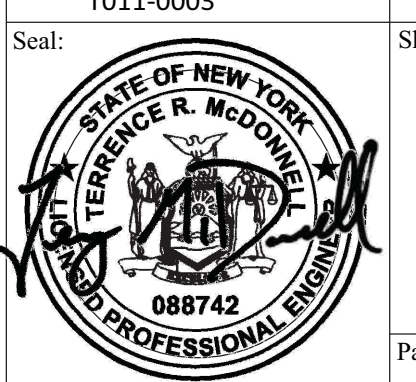


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
D.O.B. SUBMISSION FOUNDATION SECTIONS (LOT 60)

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

Drawn By: TRG
 Scale: AS SHOWN
 Project No.: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:
S-401.00



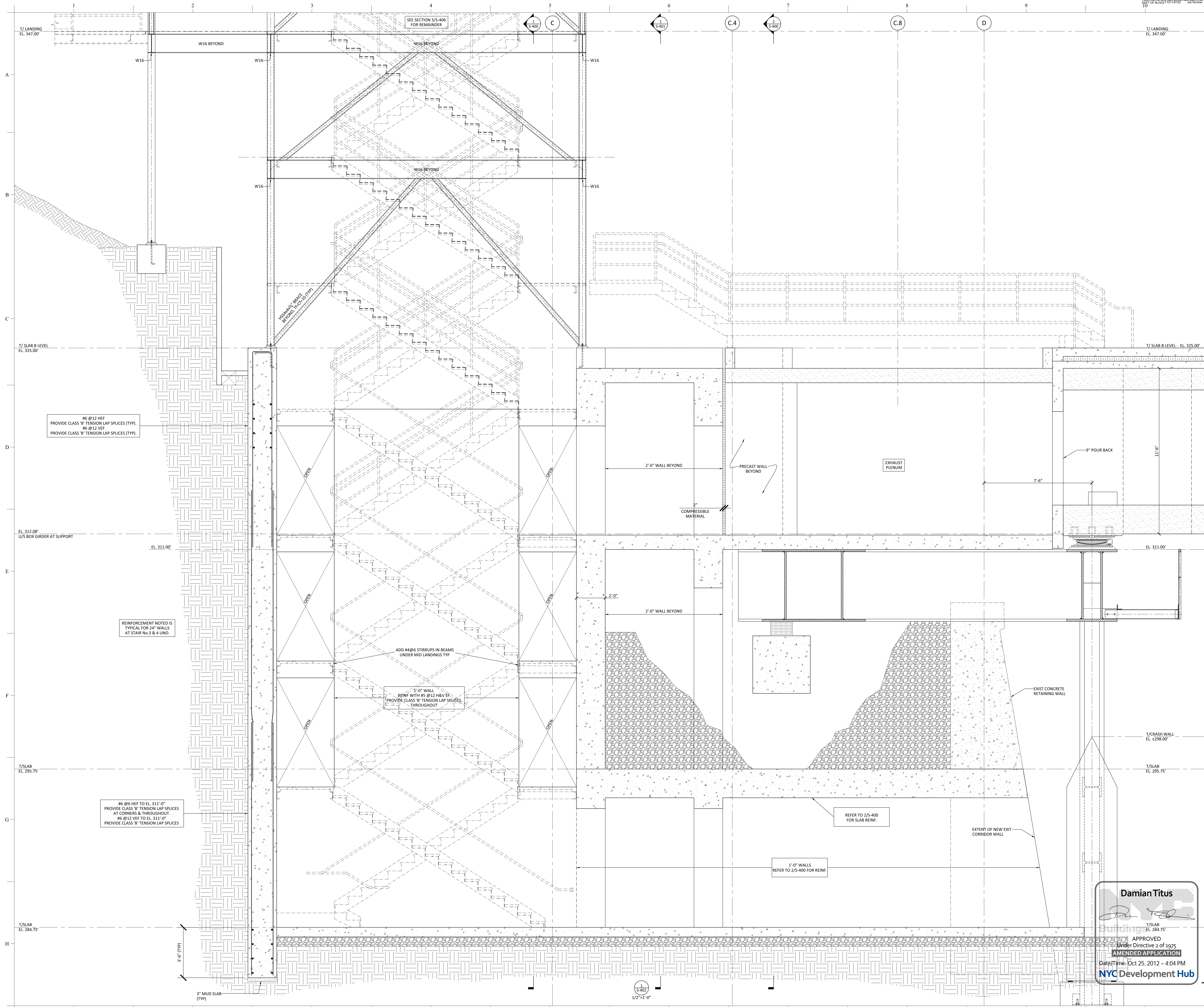
9th Avenue Development

New York, NY

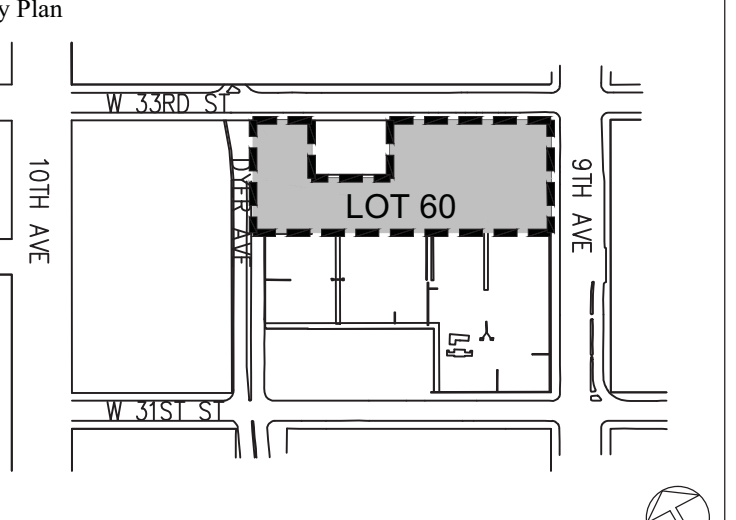
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
DEWEY, WHITE & BERTELLO LLP
14 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com
T: 416.477.5802



FOR BUILDING DEPARTMENT APPROVAL

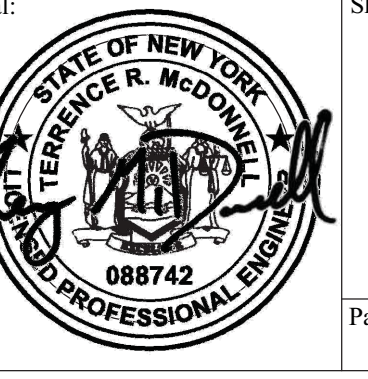


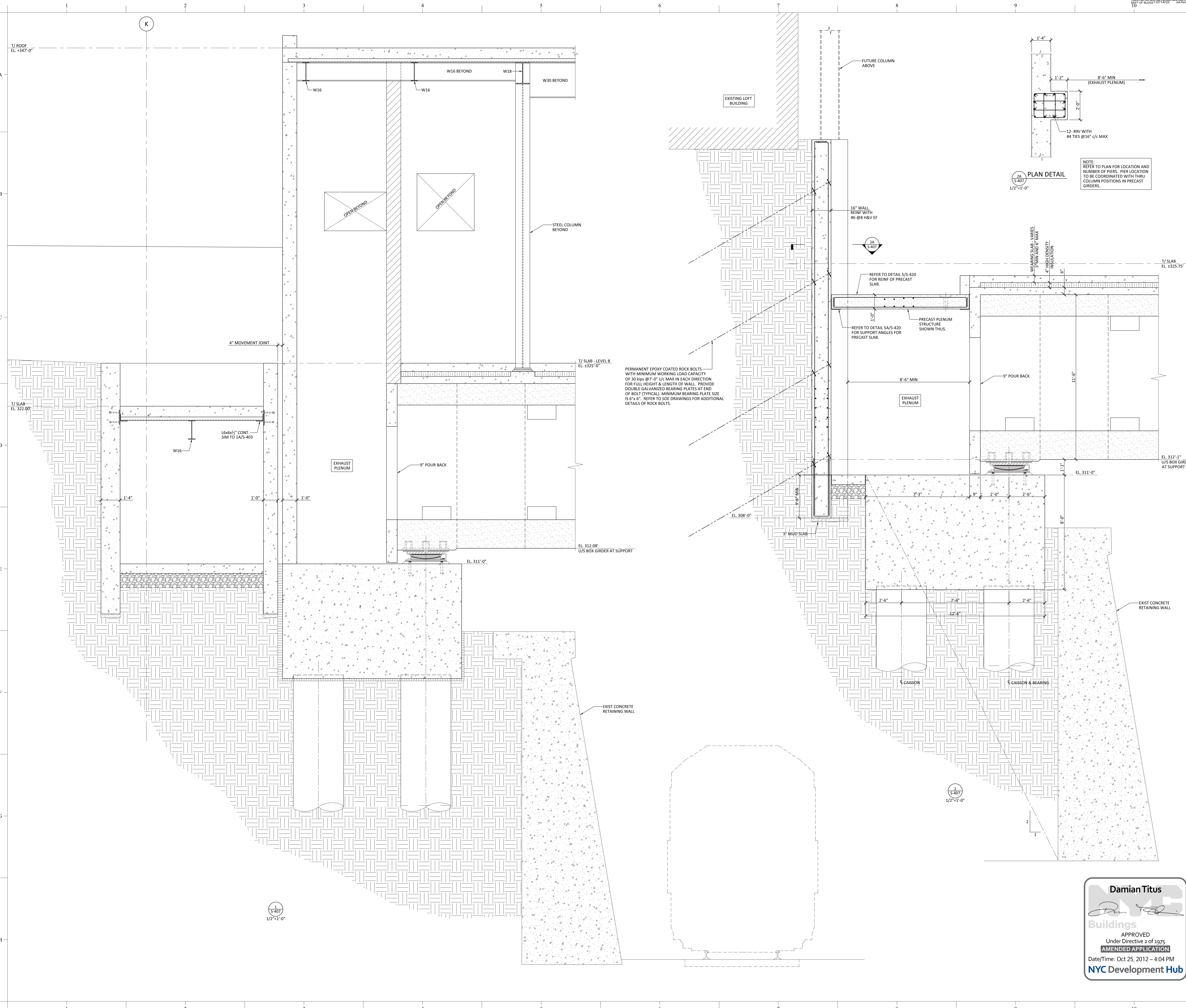
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

D.O.B. SUBMISSION
FOUNDATION SECTIONS
(LOT 60)

Damian Titus
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Sheet No: S-402.00
Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:
Page Count:





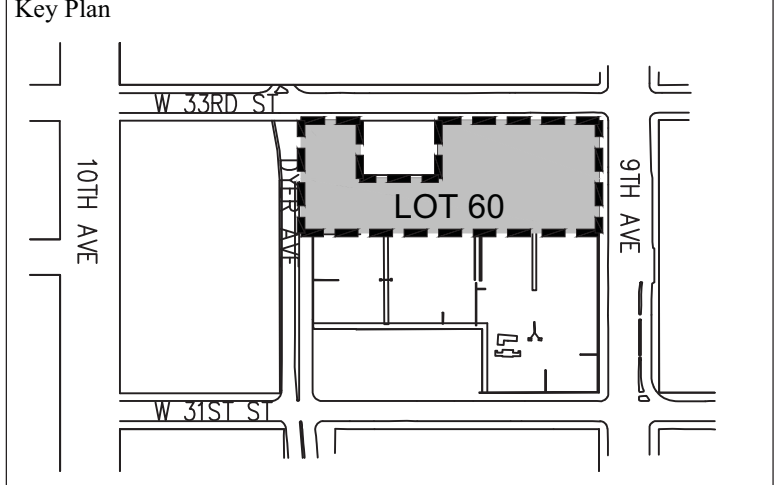
Project:
9th Avenue Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOMWORKS, DENNIS & MERRILL LLP
14 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Truog Street, Suite 2002
Toronto, ON M5E 1H4
Canada
entuitive.com
T. 416.477.5832

FOR BUILDING DEPARTMENT APPROVAL



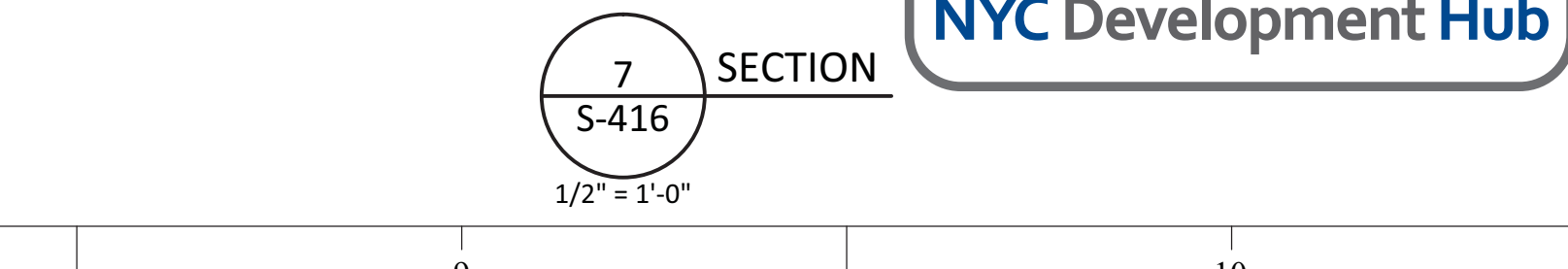
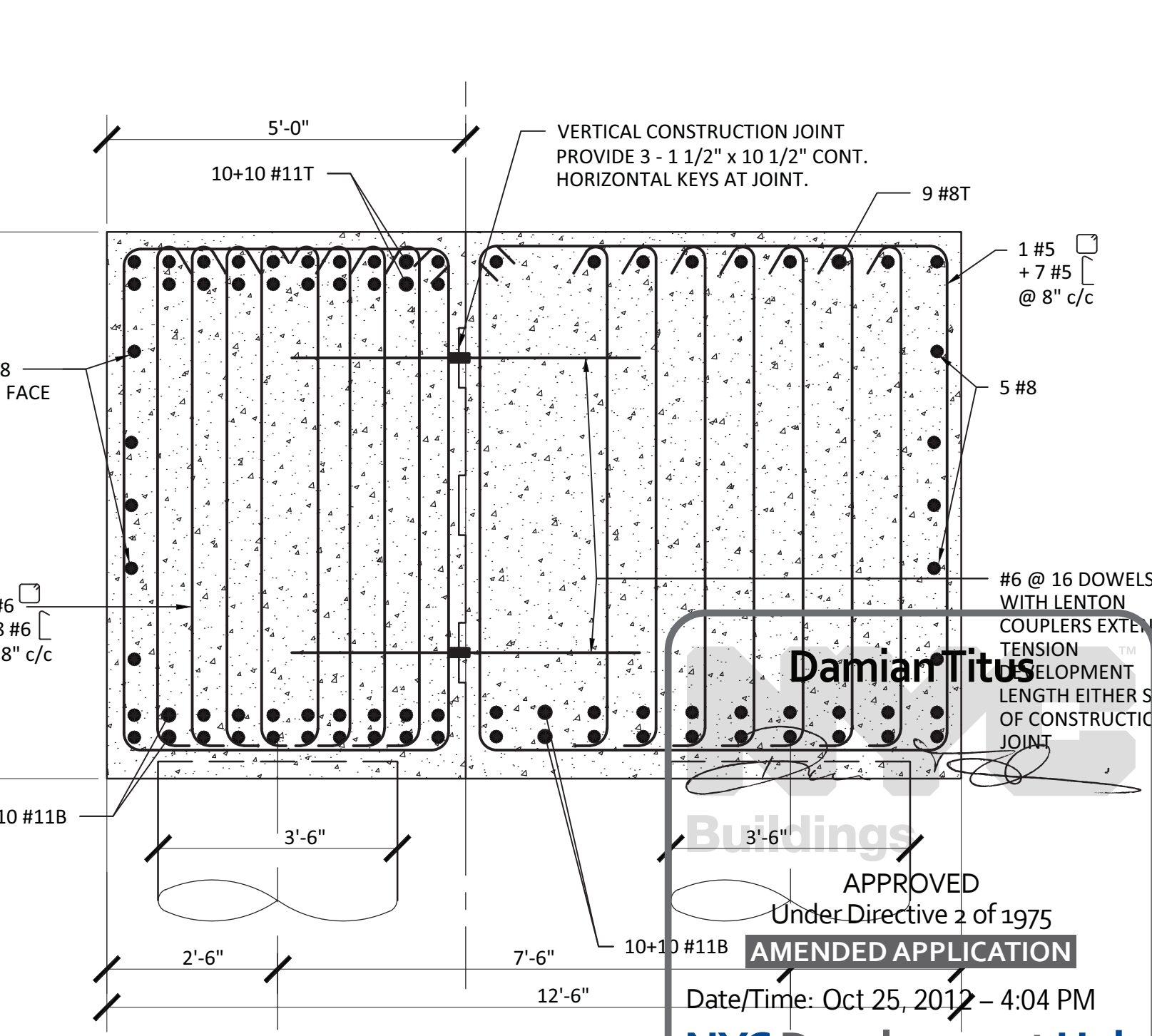
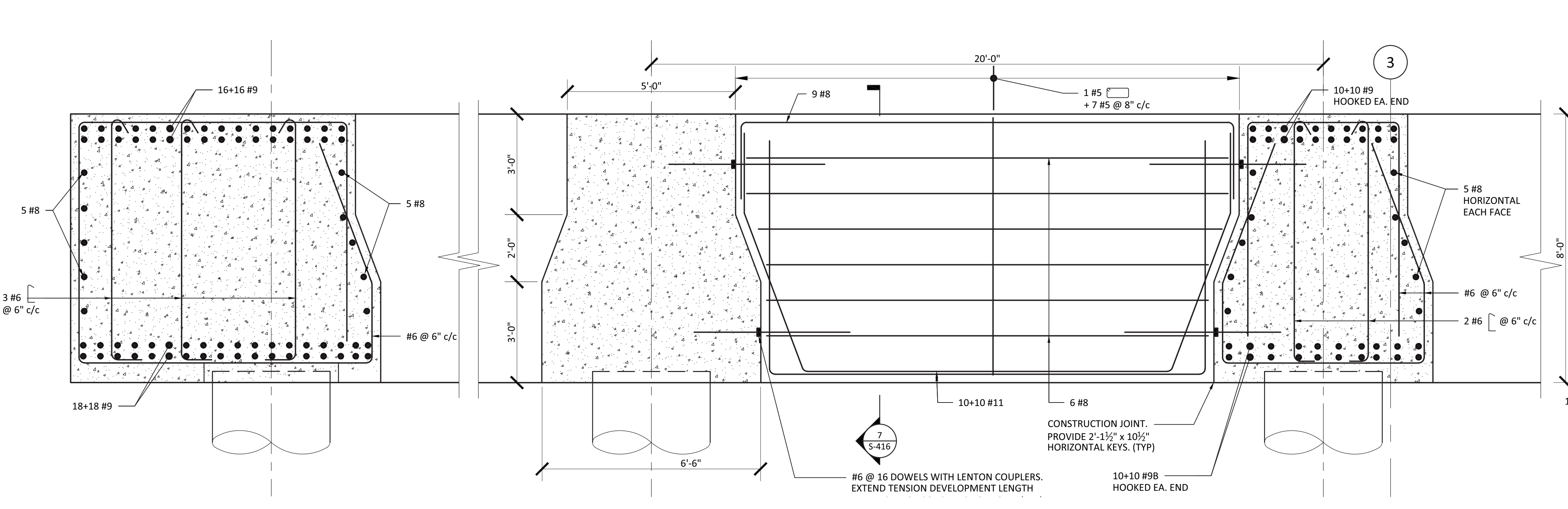
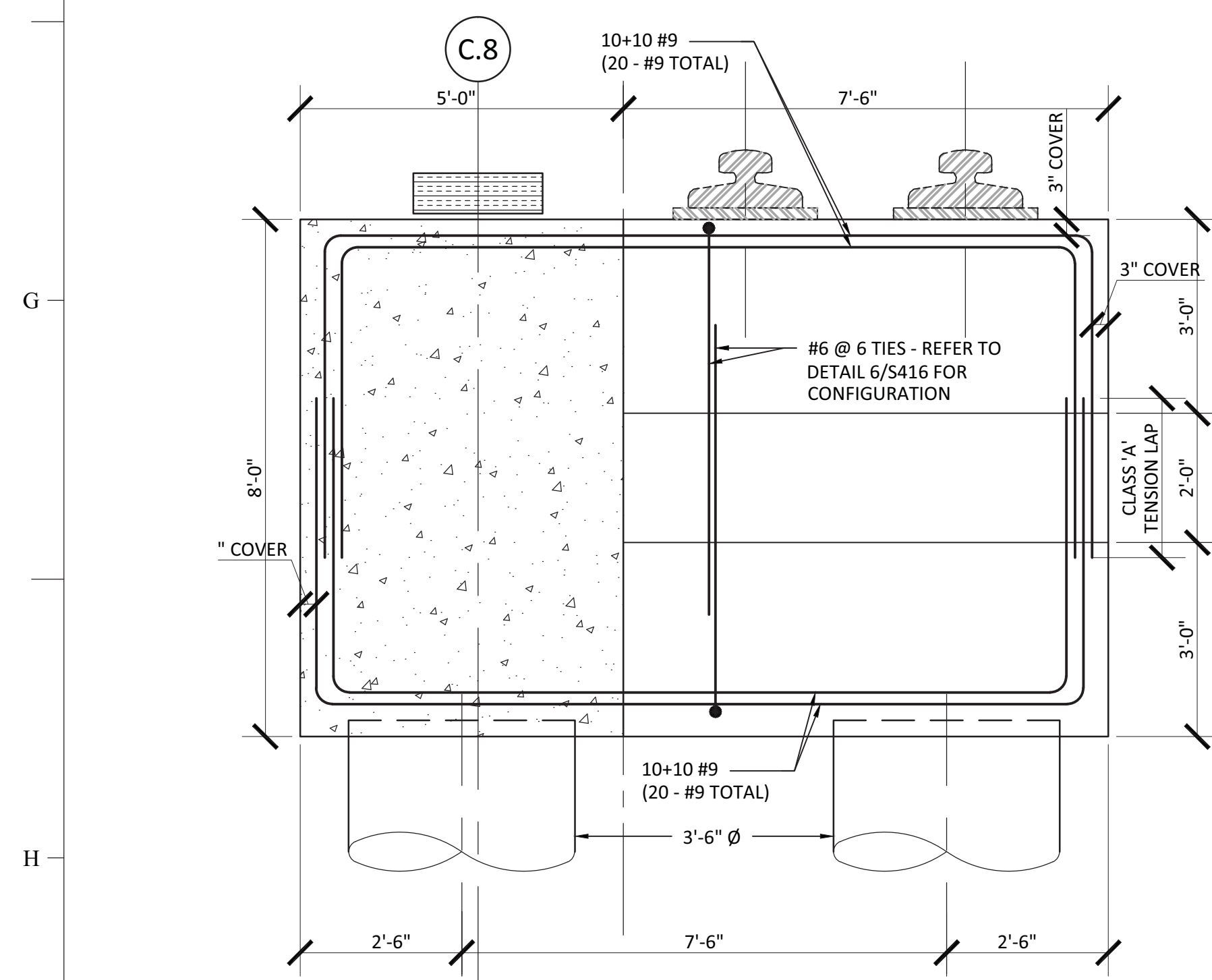
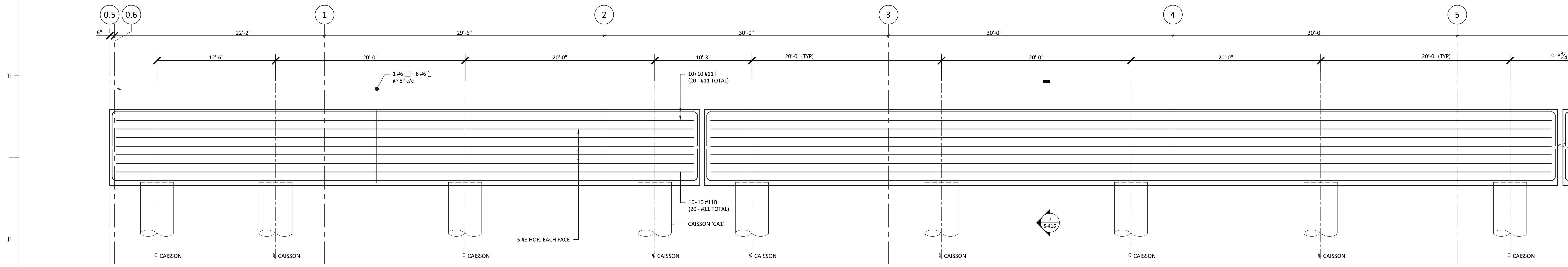
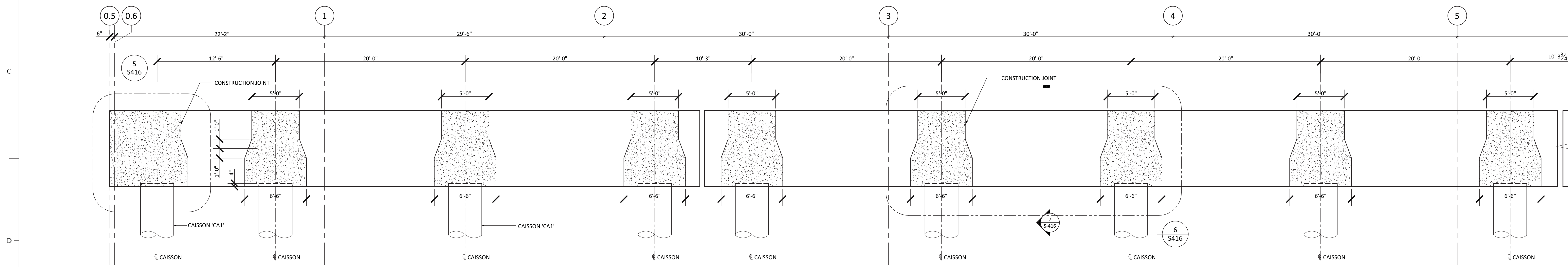
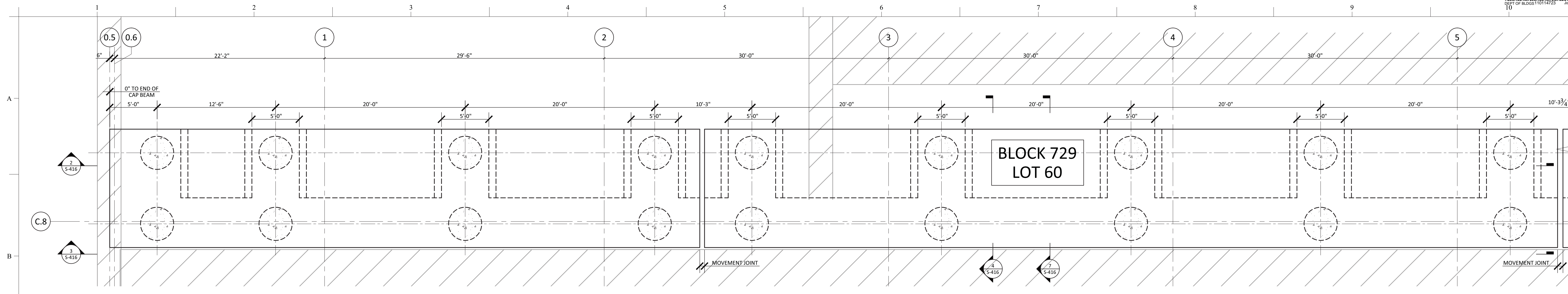
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
D.O.B. SUBMISSION FOUNDATION SECTIONS (LOT 60)

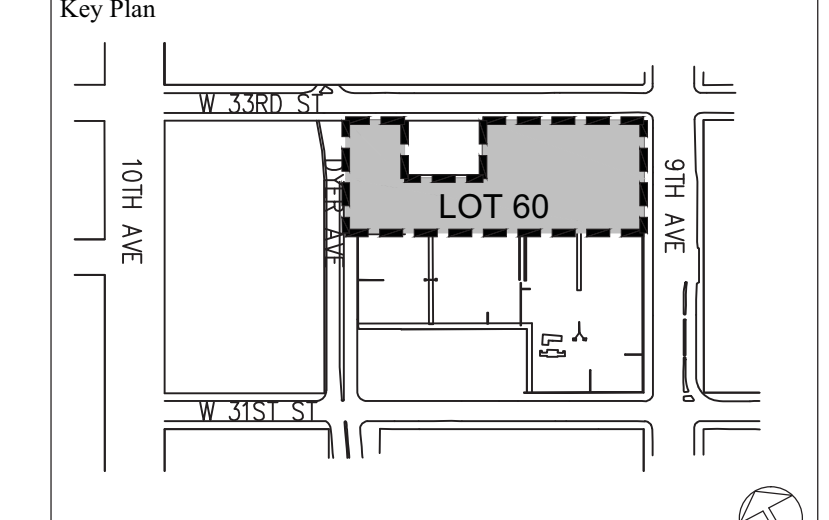
Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

Drawn By:	Checked By:
TRG	BC/DS
AS SHOWN	Date: MARCH 2011
Project No: T011-0003	File No:
Scale:	Sheet No:

S-407.00



FOR BUILDING DEPARTMENT APPROVAL

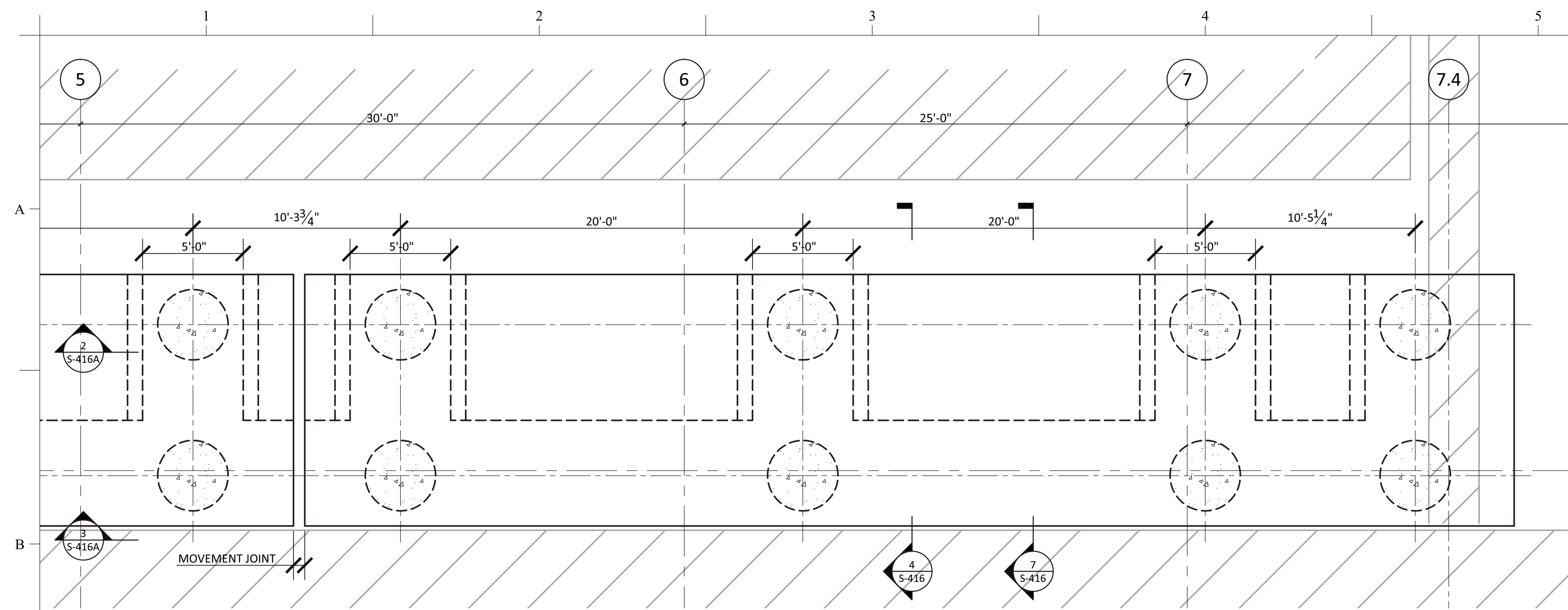


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

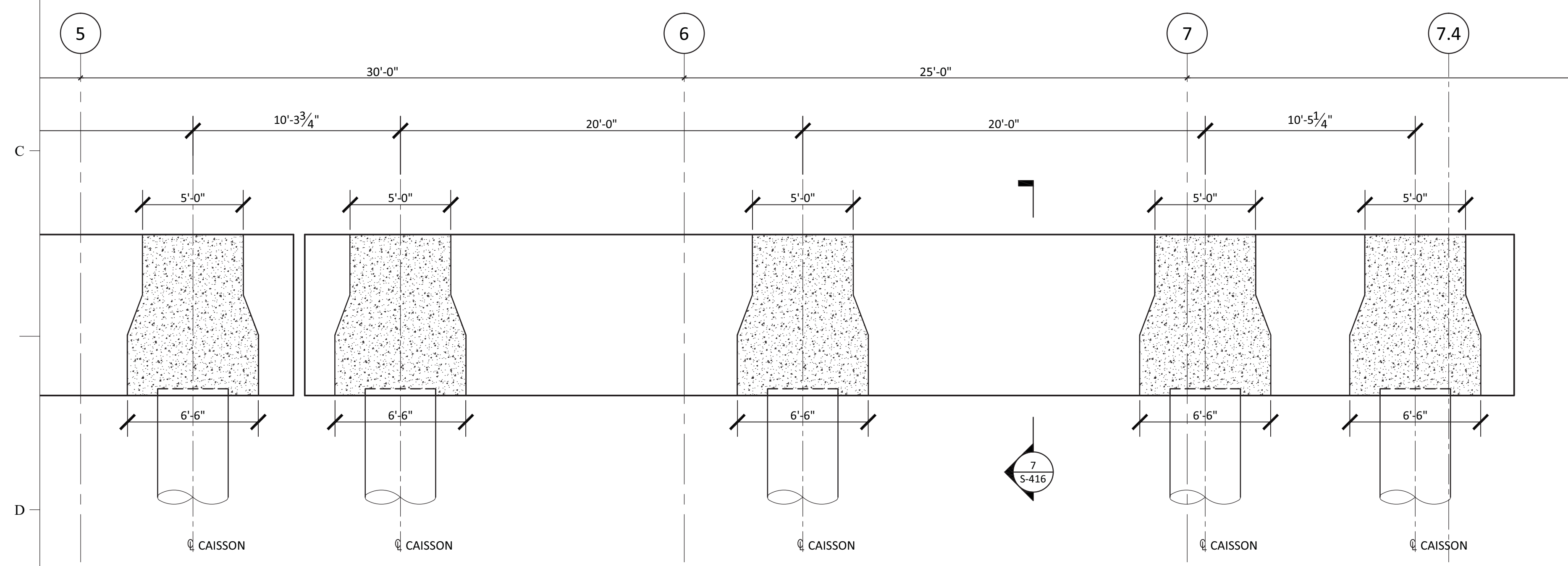
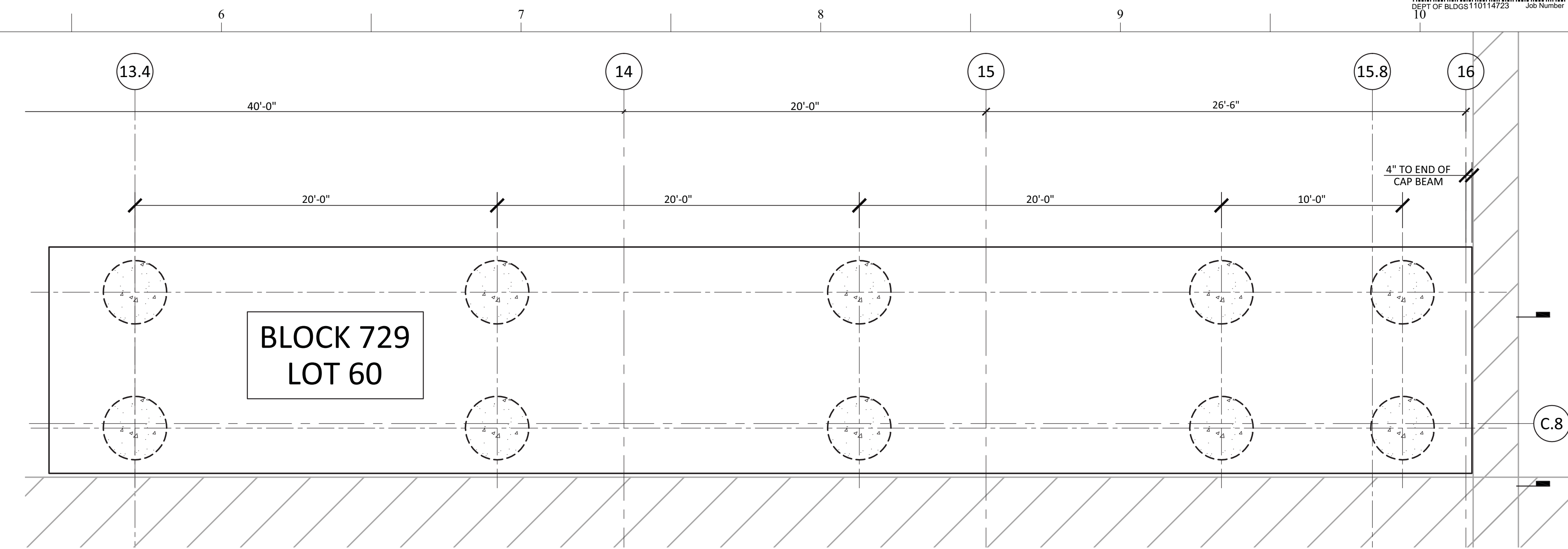
Sheet Name:
**D.O.B. SUBMISSION
 CONCRETE CAPPING BEAM
 (NORTH)
 (LOT 60)**

Drawn By:
 TRG
 Scale:
 AS SHOWN
 Project No.:
 T011-0003
 Checked By:
 BC/DS
 Date:
 MARCH 2011
 File No.:
 Sheet No.:

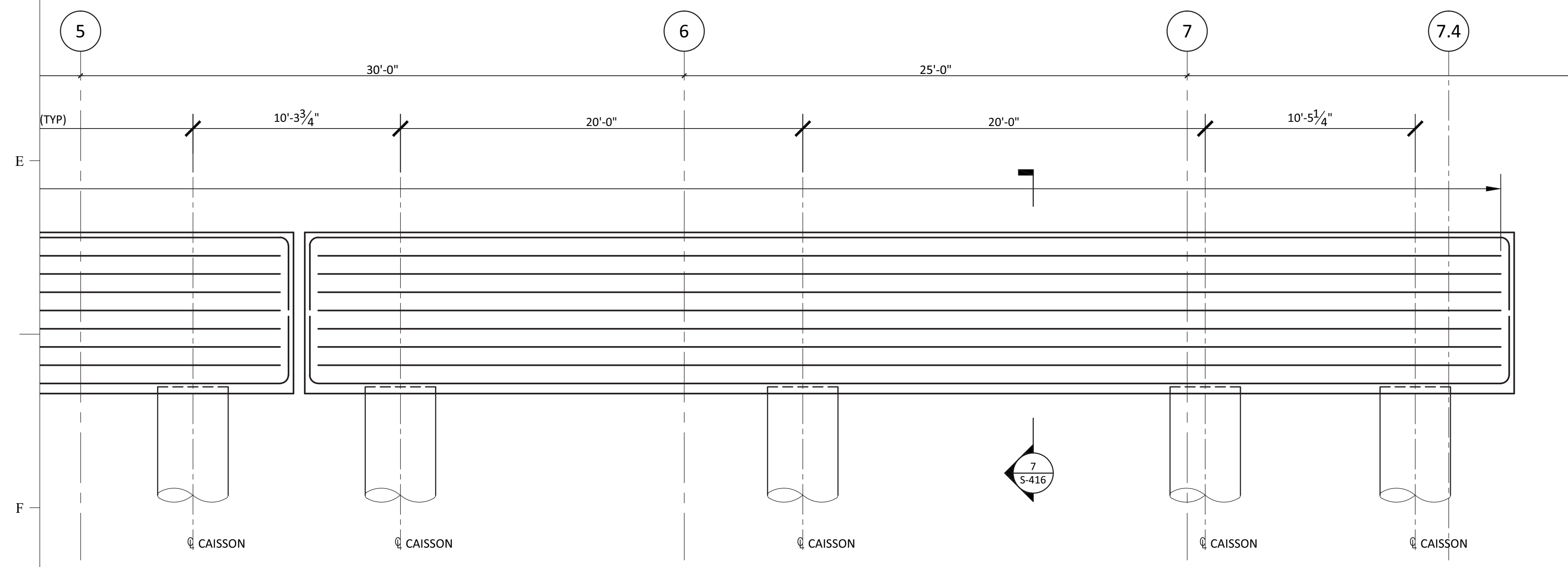
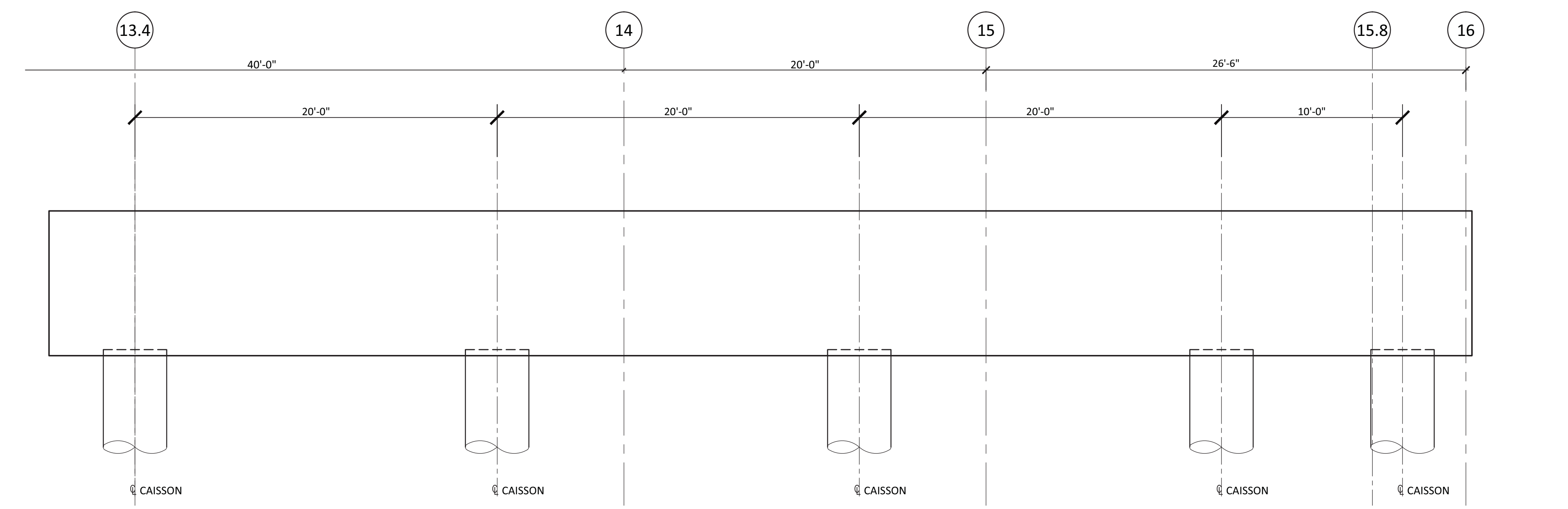
Date/Time: Oct 25, 2012 - 4:04 PM
APPROVED
 Under Directive 2 of 1975
AMENDED APPLICATION
 NYC Development Hub
 S-416.00
 Page Count:



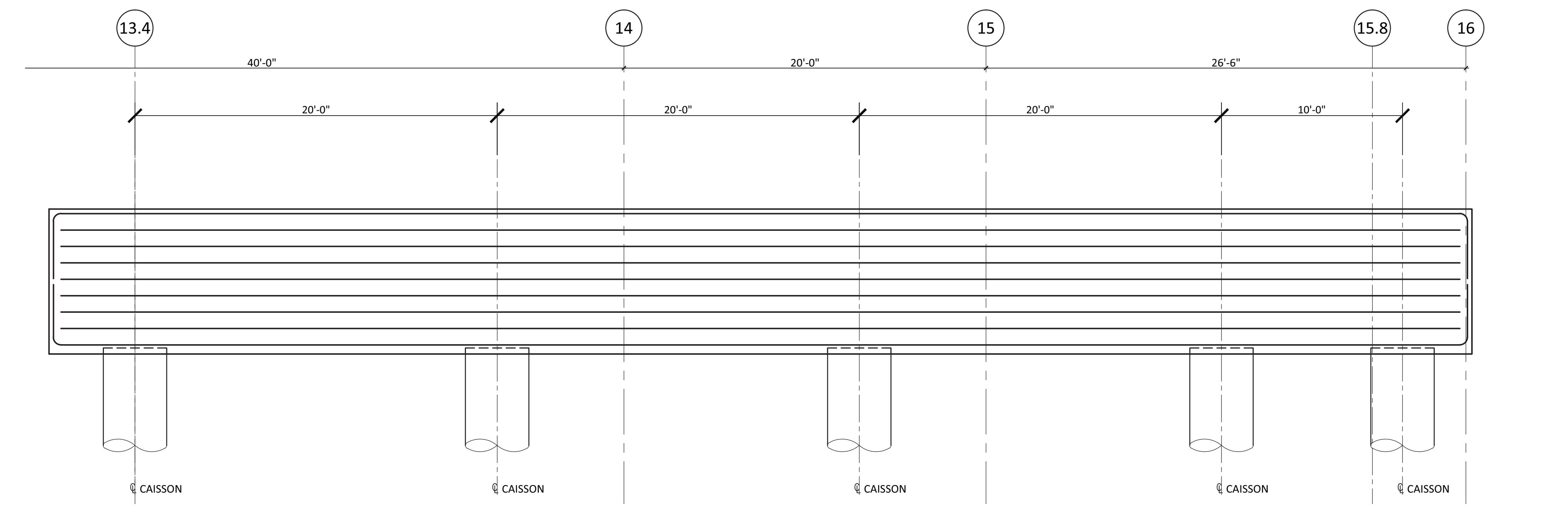
1 NORTH CAPPING BEAM PARTIAL PLAN
 S-416A
 1/4" = 1'-0"



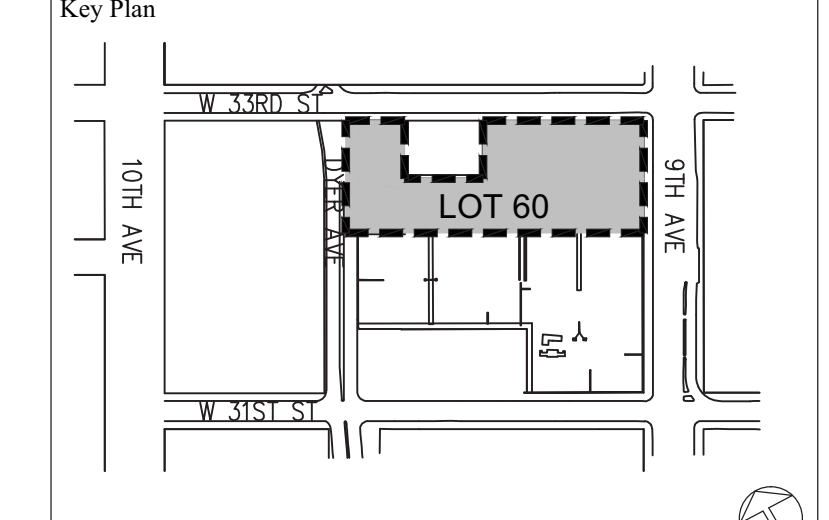
2 NORTH CAPPING BEAM PARTIAL SECTION
 S-416A
 1/4" = 1'-0"



3 NORTH CAPPING BEAM PARTIAL ELEVATION
 S-416A
 1/4" = 1'-0"



FOR BUILDING DEPARTMENT APPROVAL



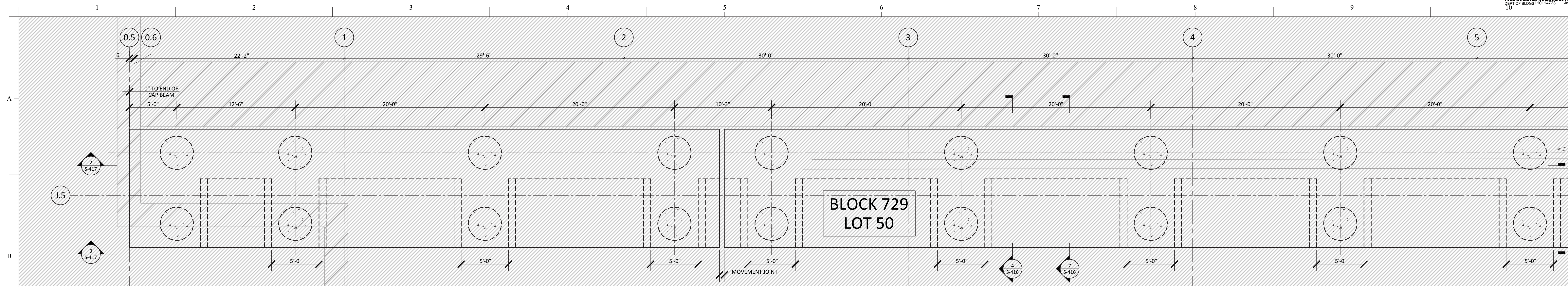
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
 CONCRETE CAPPING BEAM
 (NORTH)
 (LOT 60)**

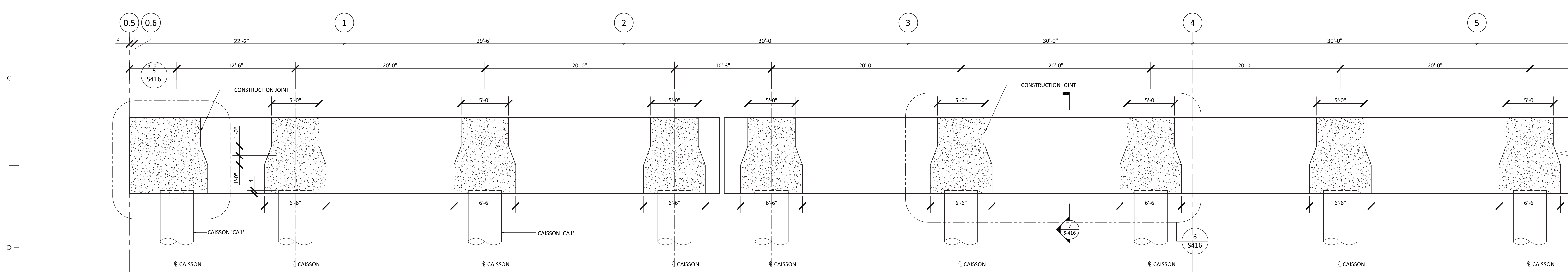
Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
 NYC Development Hub

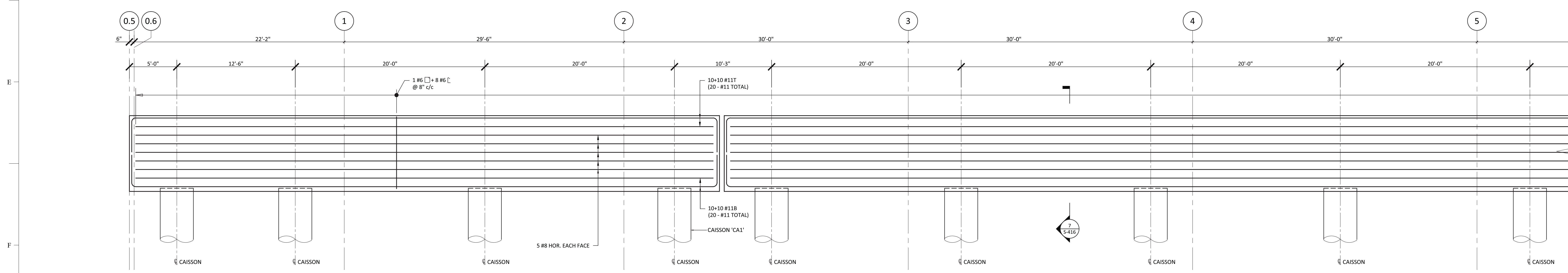
S-416A.00
 Page Count:



1 SOUTH CAPPING BEAM PARTIAL PLAN
 S-417
 1/4" = 1'-0"

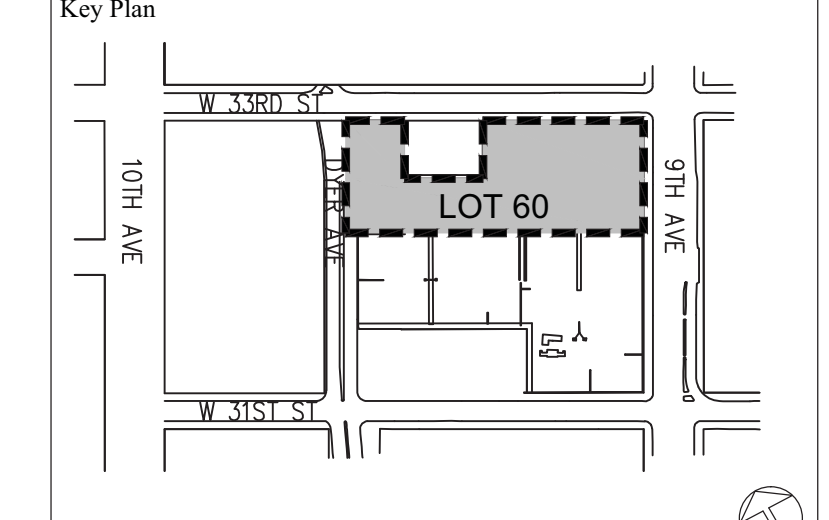


2 SOUTH CAPPING BEAM PARTIAL SECTION
 S-417
 1/4" = 1'-0"



3 SOUTH CAPPING BEAM PARTIAL ELEVATION
 S-417
 1/4" = 1'-0"

FOR BUILDING DEPARTMENT APPROVAL



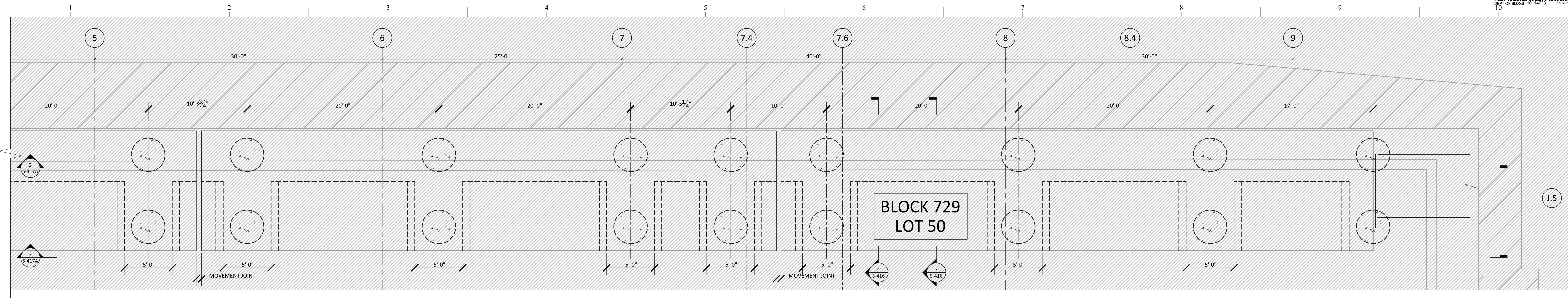
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
 CONCRETE CAPPING BEAM
 (SOUTH)
 (LOT 60)**

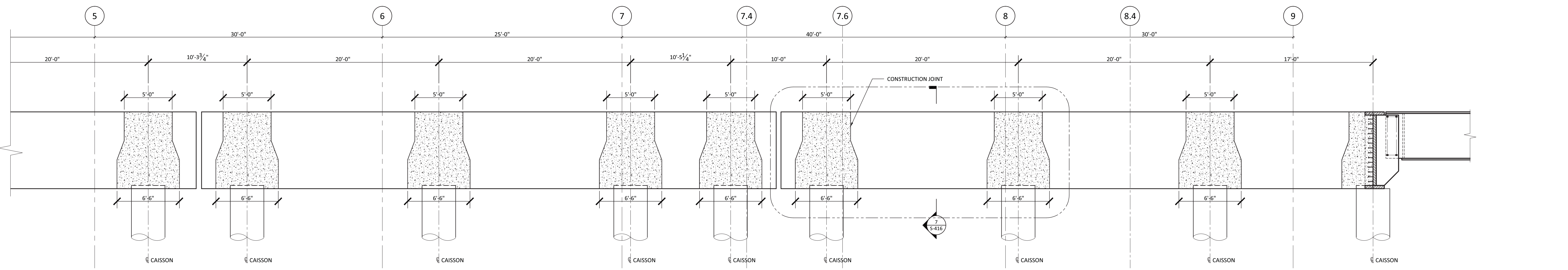
Drawn By: TRG
 Checked By: BC/DS
 Scale: AS SHOWN
 Date: MARCH 2011
 Project No: T011-0003
 File No:
 Sheet No:

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
 NYC Development Hub

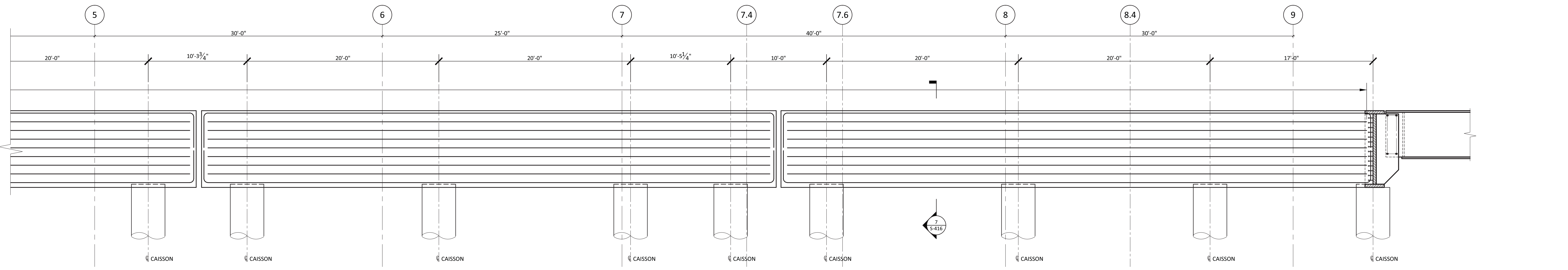
Professional Engineer Seal
 State of New York
 No. 088742
 Damian Titus
 S-417.00



1 SOUTH CAPPING BEAM PARTIAL PLAN
 S-417A
 1/4" = 1'-0"

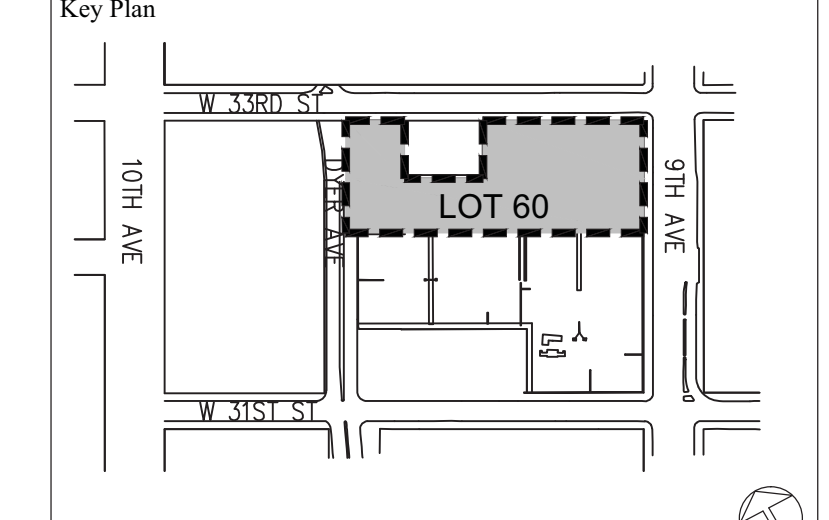


2 SOUTH CAPPING BEAM PARTIAL SECTION
 S-417A
 1/4" = 1'-0"



3 SOUTH CAPPING BEAM PARTIAL ELEVATION
 S-417A
 1/4" = 1'-0"

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
 CONCRETE CAPPING BEAM
 (SOUTH)
 (LOT 60)**

Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:

Damian Titus
Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Oct 25, 2012 - 4:04 PM
 NYC Development Hub

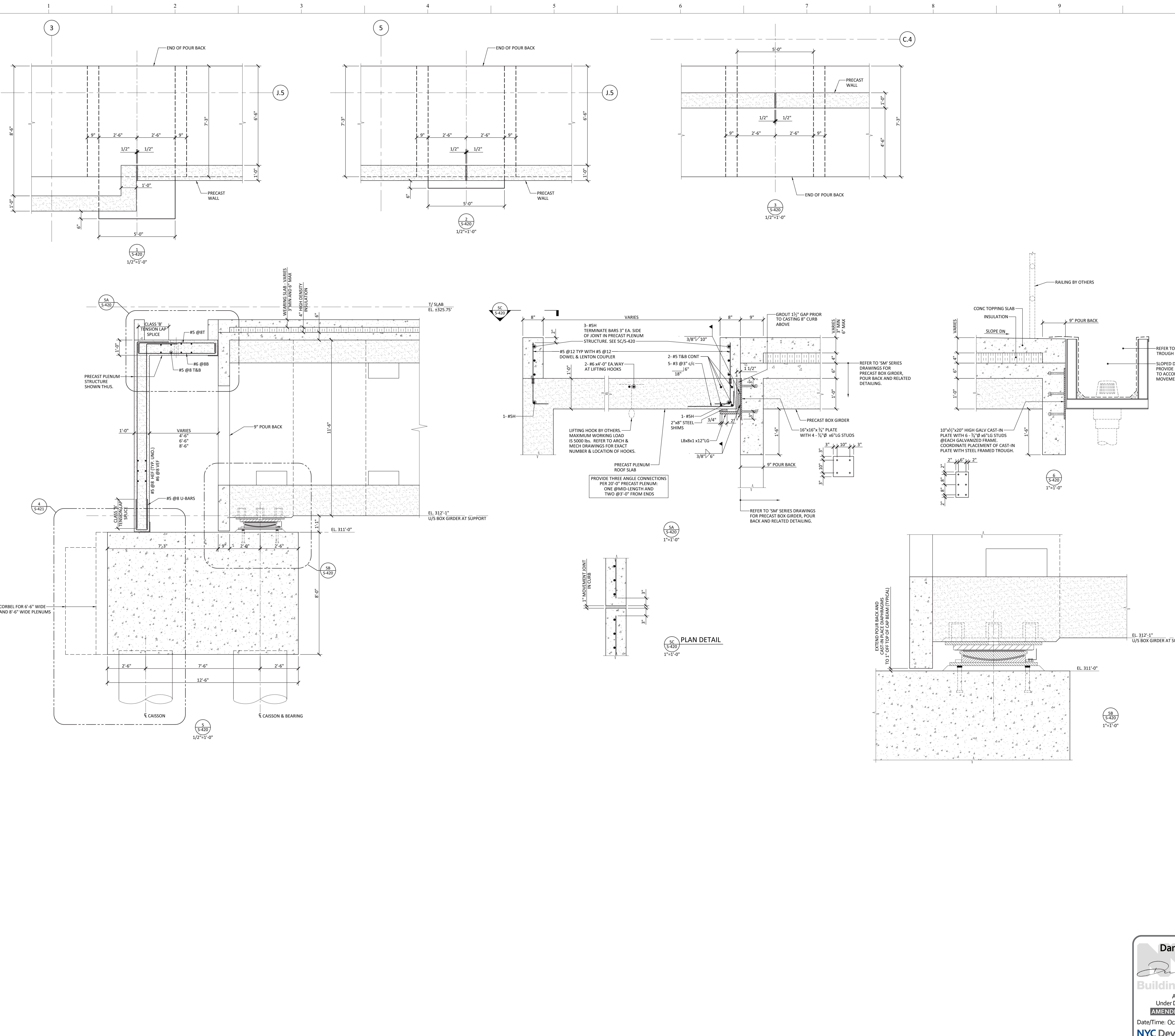
S-417A.00
 Page Count:

9th Avenue Development
New York, NY

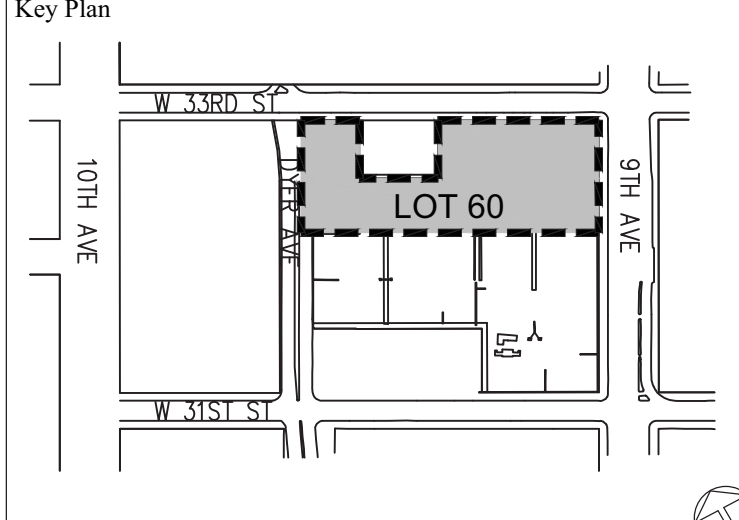
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
110 MADISON AVENUE, NEW YORK, NY 10017
Tel: 212 904 7000

Structural:
ENTUITIVE
170 WEST 57TH STREET, SUITE 2002, NEW YORK, NY 10019
Tel: 212 417 5802



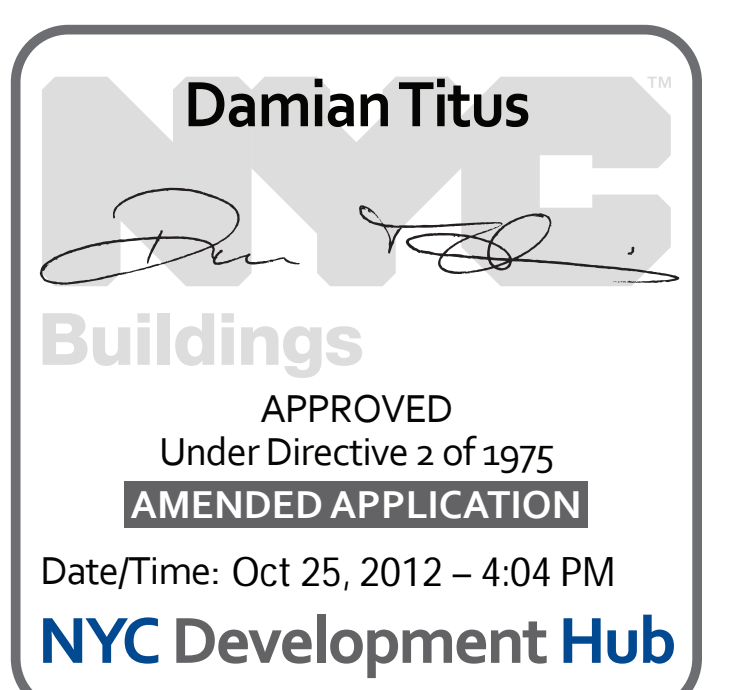
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
TYPICAL PLENUM
SECTIONS AND DETAILS
(LOT 60)**

Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No: T011-0003	File No.:
Scale:	Sheet No.:



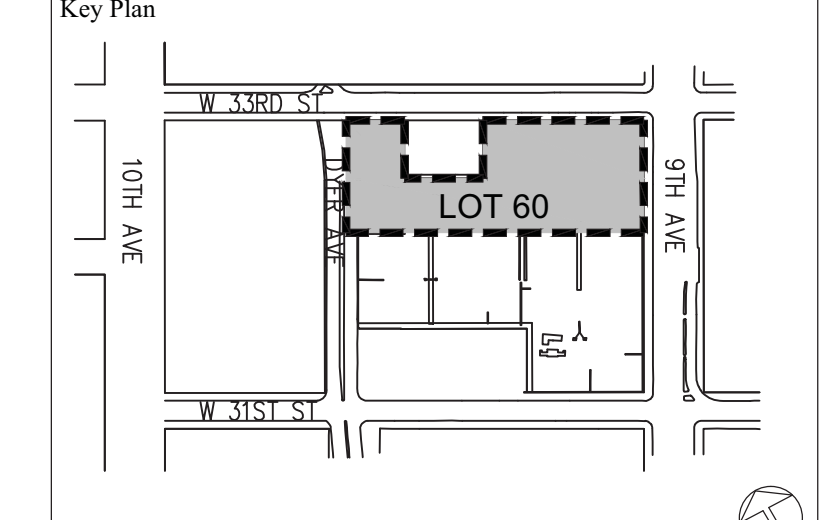
9th Avenue
Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, L.P.
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com

FOR BUILDING DEPARTMENT APPROVAL



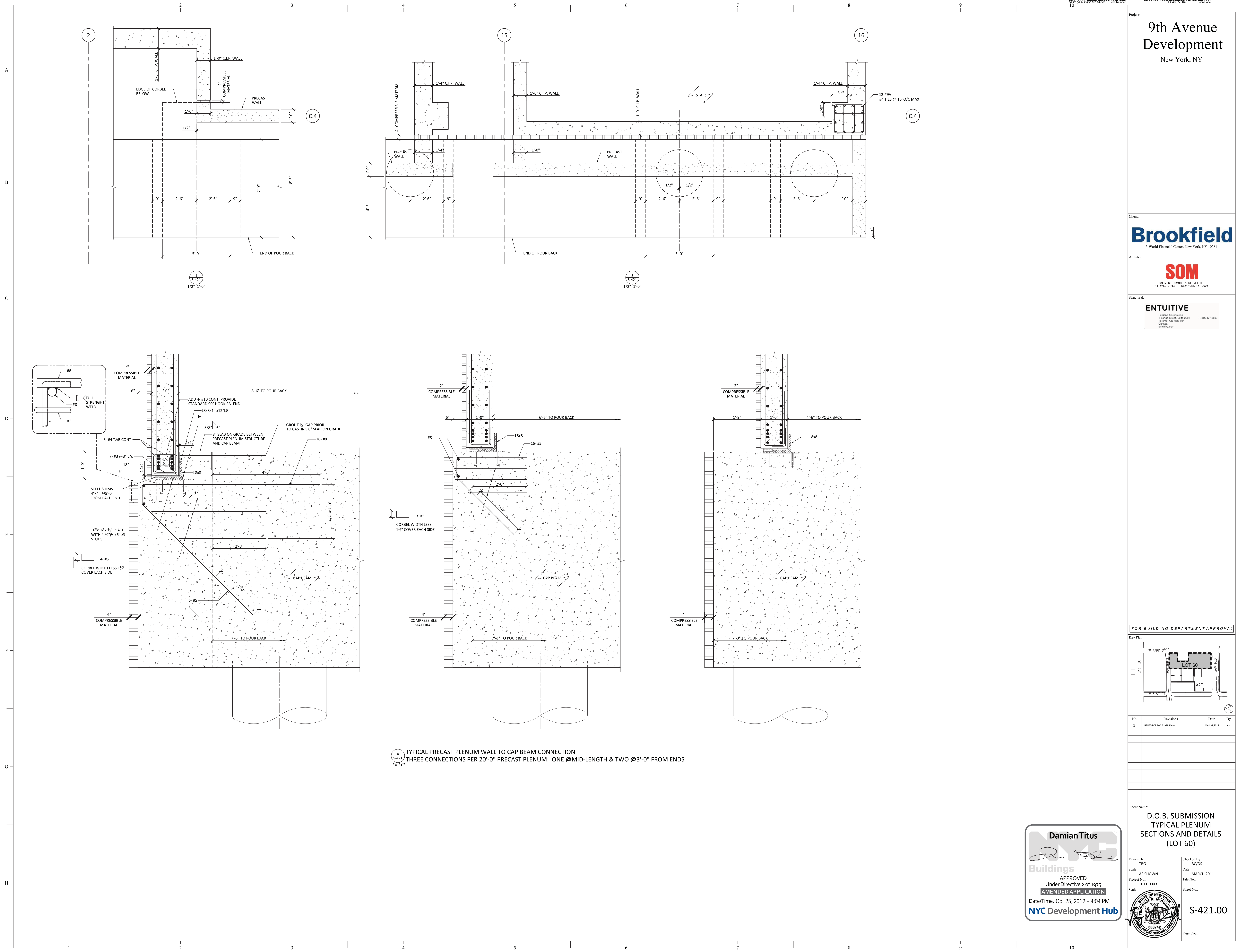
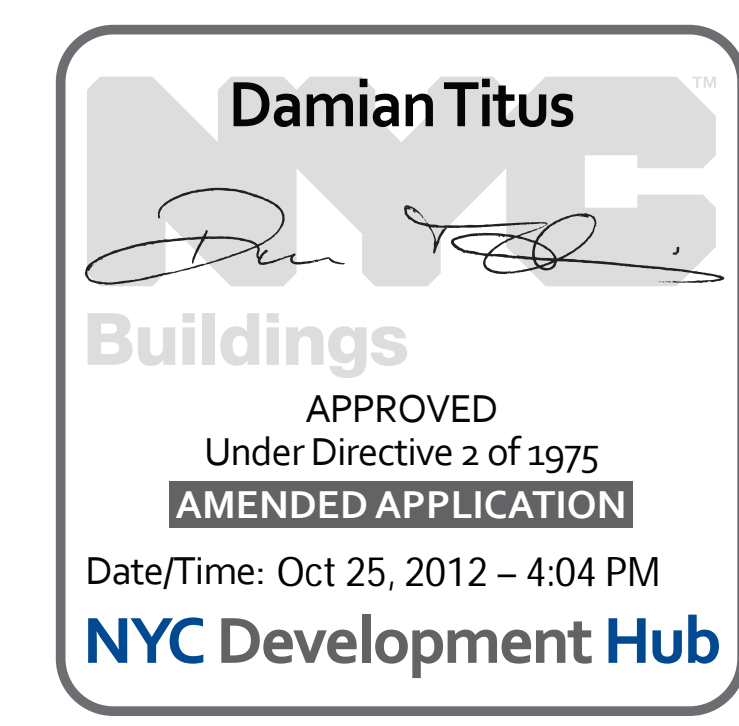
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
TYPICAL PLENUM
SECTIONS AND DETAILS
(LOT 60)**

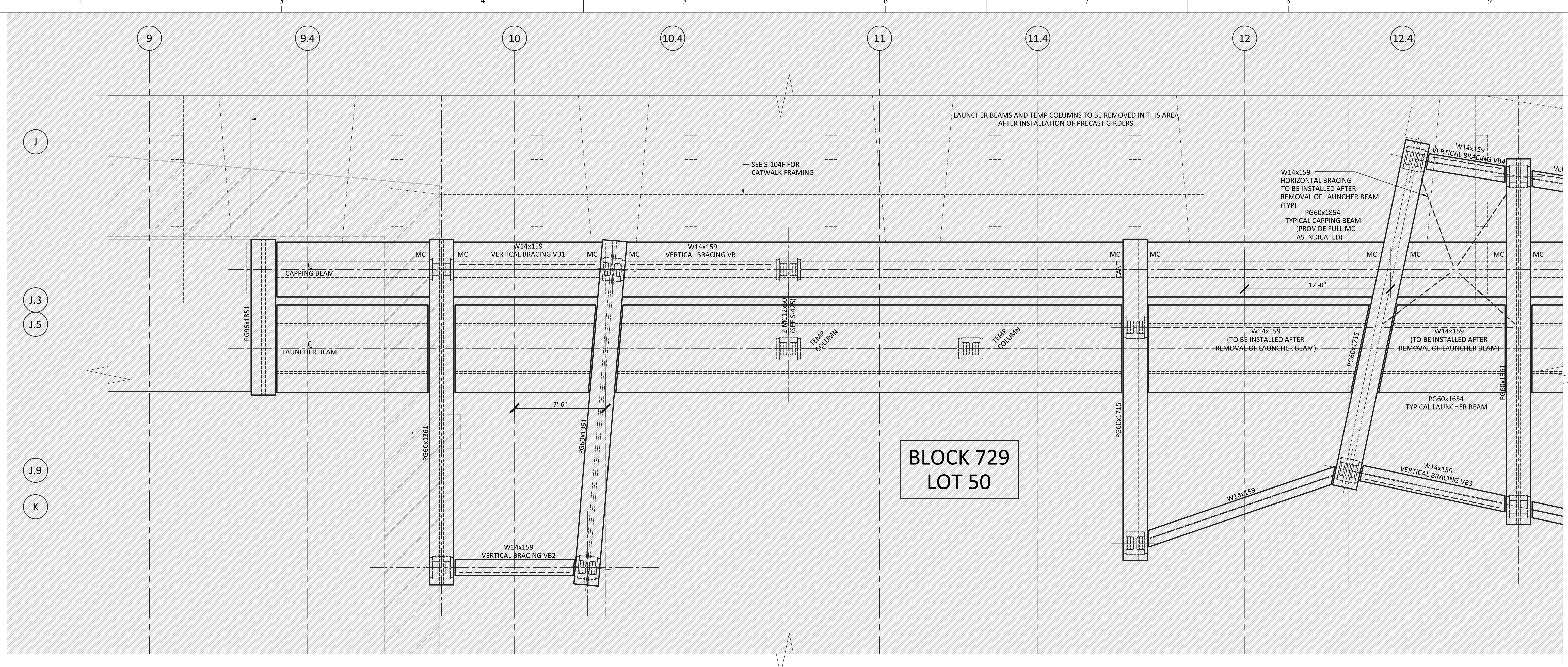
Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Date/Time: Oct 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:
S-421.00

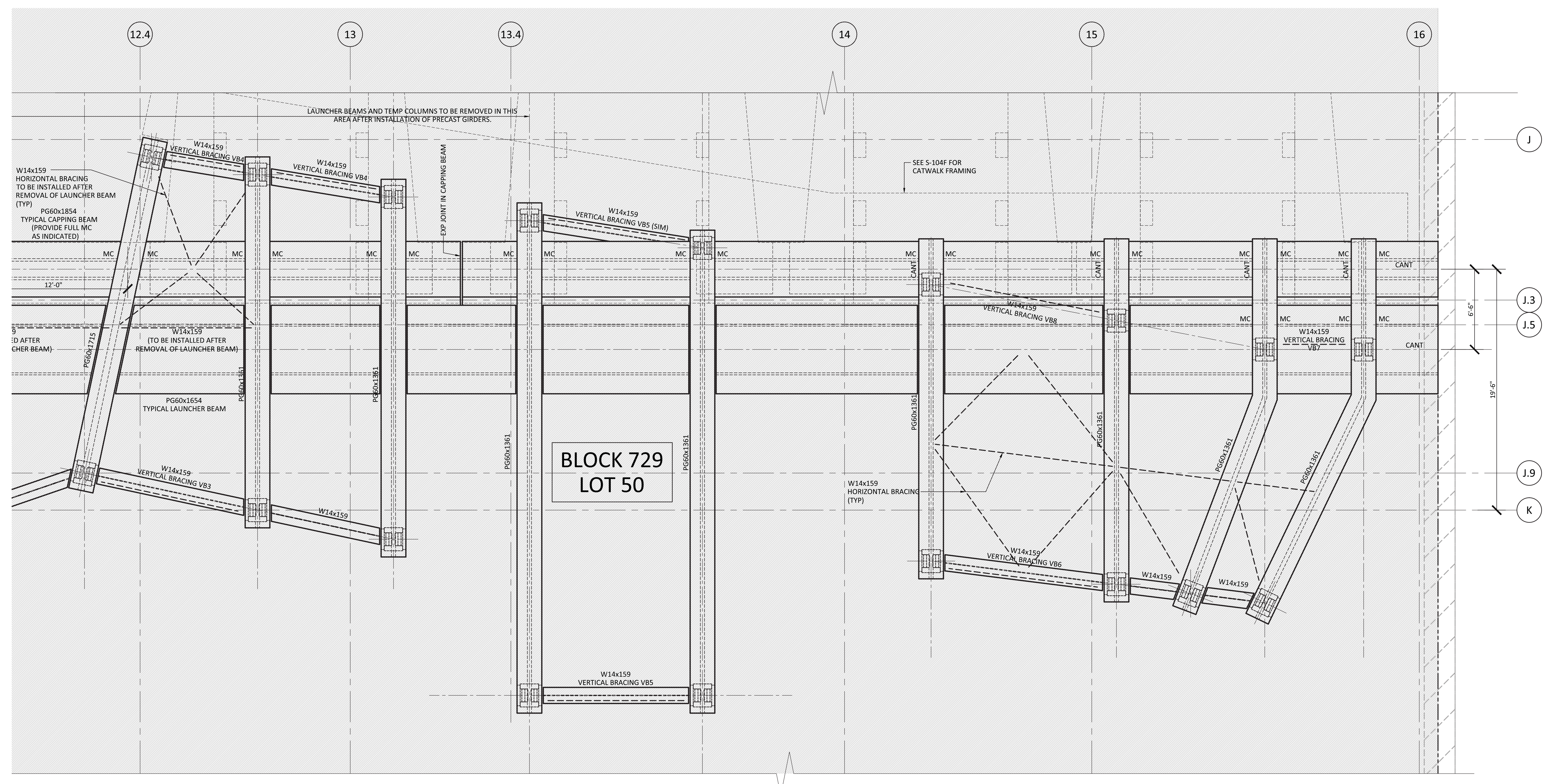
Page Count:



S-421 TYPICAL PRECAST PLENUM WALL TO CAP BEAM CONNECTION
THREE CONNECTIONS PER 20'-0" PRECAST PLENUM: ONE @ MID-LENGTH & TWO @ 3'-0" FROM ENDS
1'-11/2" x 1'-0"

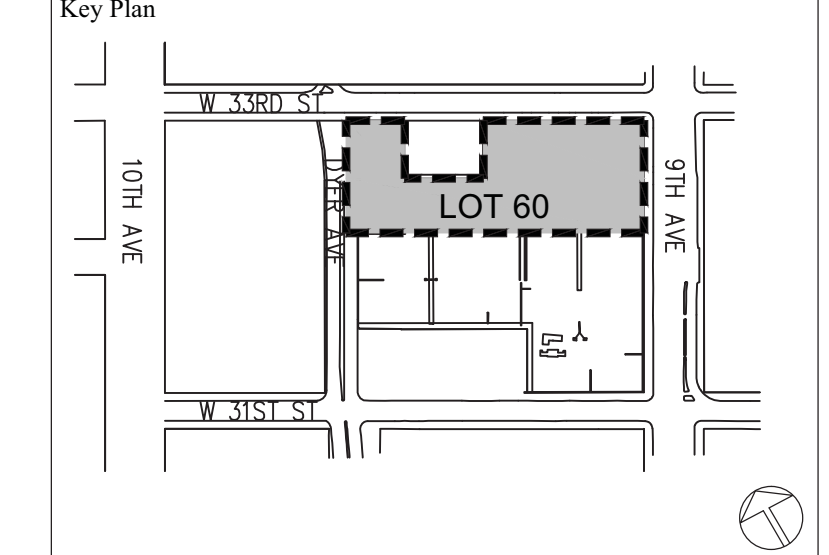


1 PARTIAL STEEL CAPPING BEAM PLAN
AT "E-YARD"
1/4"=1'-0"



2 PARTIAL STEEL CAPPING BEAM PLAN
AT "E-YARD"
1/4"=1'-0"

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

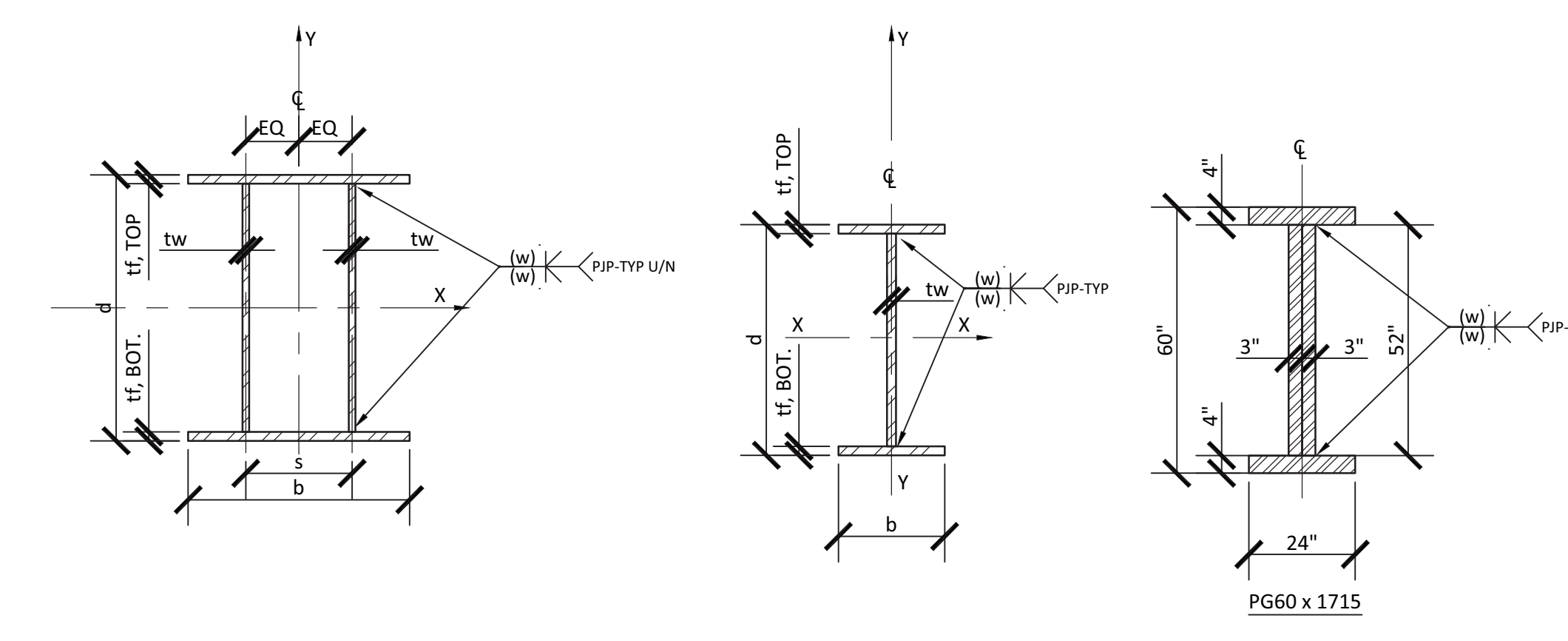
Sheet Name:
**D.O.B. SUBMISSION
STEEL CAPPING BEAM PLAN
(LOT 60)**

Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub



S-422.00



WELDED PLATE GIRDERS SCHEDULE

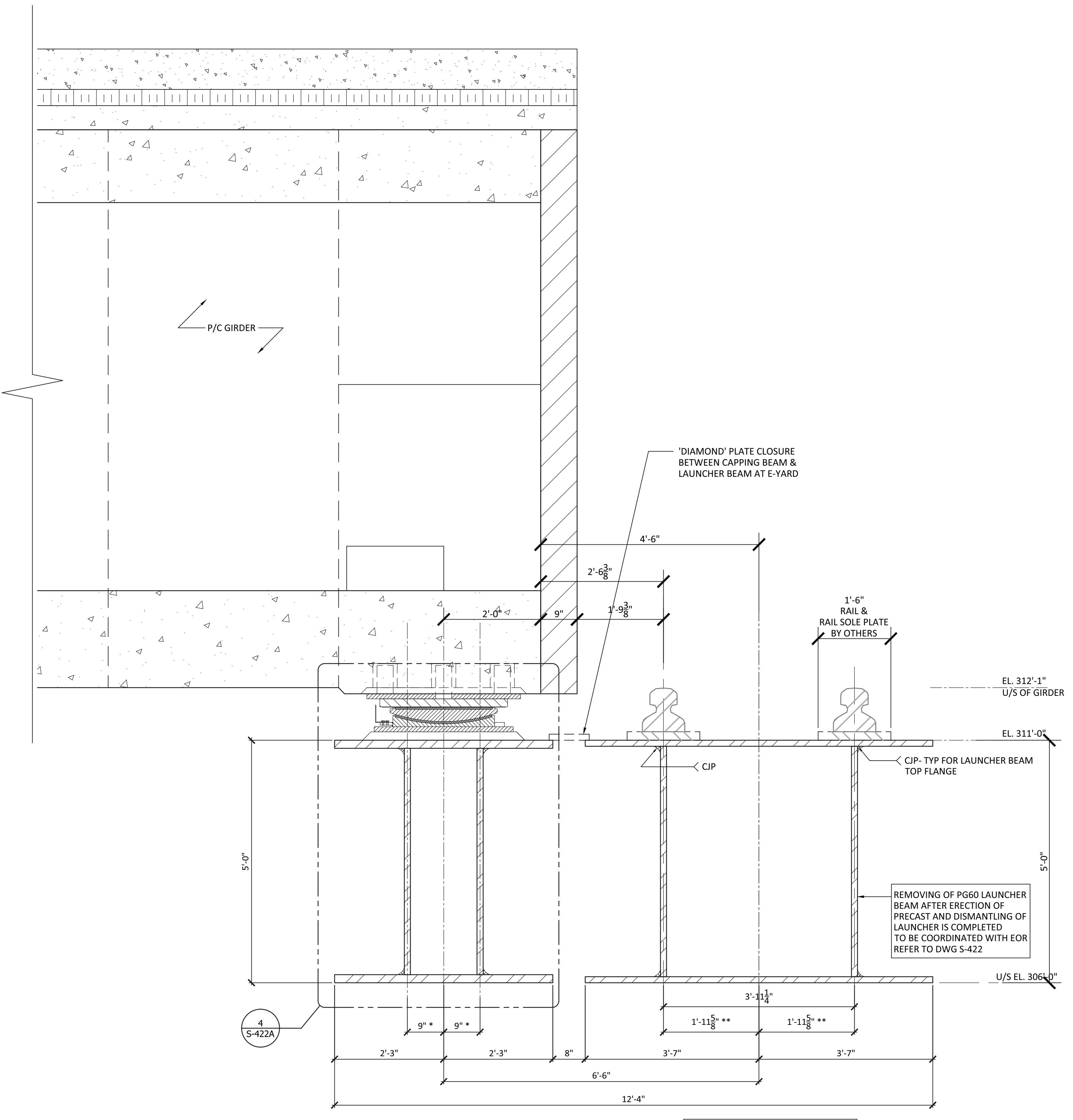
DESIGNATION	d (in)	tw (in)	b (in)	tf, TOP (in)	tf, BOT. (in)	s (in)	Vy, f (k)	Vx, f (k)	Mx, f (k-FT)	Pf (k)	NOTES
PG60 x 1650	60	2 1/2	42	2 1/2	2 1/2	16					CAPPING BEAM
PG60 x 1854	60	2 1/2	54	2 1/2	2 1/2	18					CAPPING BEAM
PG60 x 1654	60	2	86	1 1/2	1 1/2	47 1/2					LAUNCHER BEAM
PG60 x 1715	60	6	24	4	4	N/A					PORTAL FRAME BEAM
PG60 x 1361	60	4	24	4	4	N/A					PORTAL FRAME BEAM
PG96 x 1851	96	4	24	4	4	N/A					
PG57 x 837	57	2	24	3	3	N/A					

- NOTES:
- PLATES FOR PG'S TO BE A572 STEEL GR. 50
 - ALTERNATIVELY, PLATES FOR PG'S CAN BE A588 STEEL GR. 50 TO ELIMINATE THE CORROSION PROTECTION OF THE BEAMS.
 - SHOULD A588 STEEL IS USED THIS WILL REQUIRE CORROSION MATCHING ELECTRODES FOR ALL WELDS OF THE PLATE GIRDERS.
 - Vy, f & Vx, f ARE FACTORED END REACTIONS - TYP. U/N ON PLAN.
 - Mx, f IS FACTORED END MOMENT - TYP. U/N ON PLAN.
 - Pf IS A FACTORED AXIAL LOAD - TYP. U/N ON PLAN.
 - PIP WELD SIZE (w) TO BE DETERMINED BY STRUCTURAL STEEL CONTRACTOR.

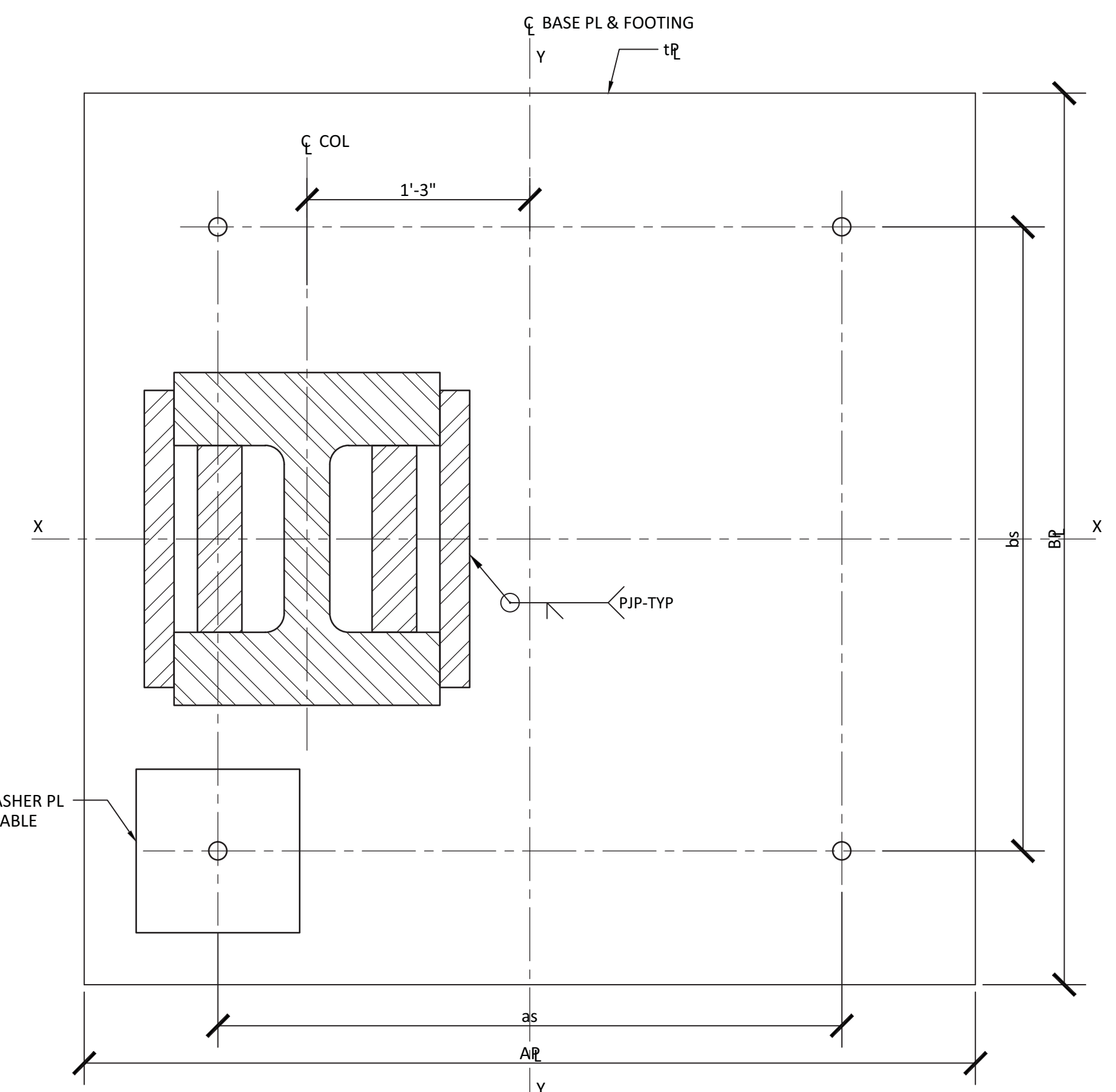
BASE PLATE SCHEDULE

BPL	AR	as	BR	bs	te	STEEL GRADE	WASHER PLATE	HOLES Ø (in)	ANCHOR RODS OR ROCK ANCHORS	NOTES
BPL-1	5'-0"	3'-6"	5'-0"	3'-6"	6"	42	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-2	5'-0"	3'-6"	5'-0"	3'-6"	4"	50	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-3	4'-2"	3'-0"	4'-2"	3'-0"	6"	42	-	-	ANCHOR ROD AR-1	SEE NOTES BELOW FOR 'RA' SPACING.
BPL-4	5'-0"	3'-6"	5'-0"	3'-6"	8"	36	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-5	5'-0"	3'-0"	5'-0"	3'-0"	6"	42	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-6	4'-2"	3'-0"	4'-2"	3'-0"	4"	50	-	-	ANCHOR ROD AR-1	SEE NOTES BELOW FOR 'RA' SPACING.

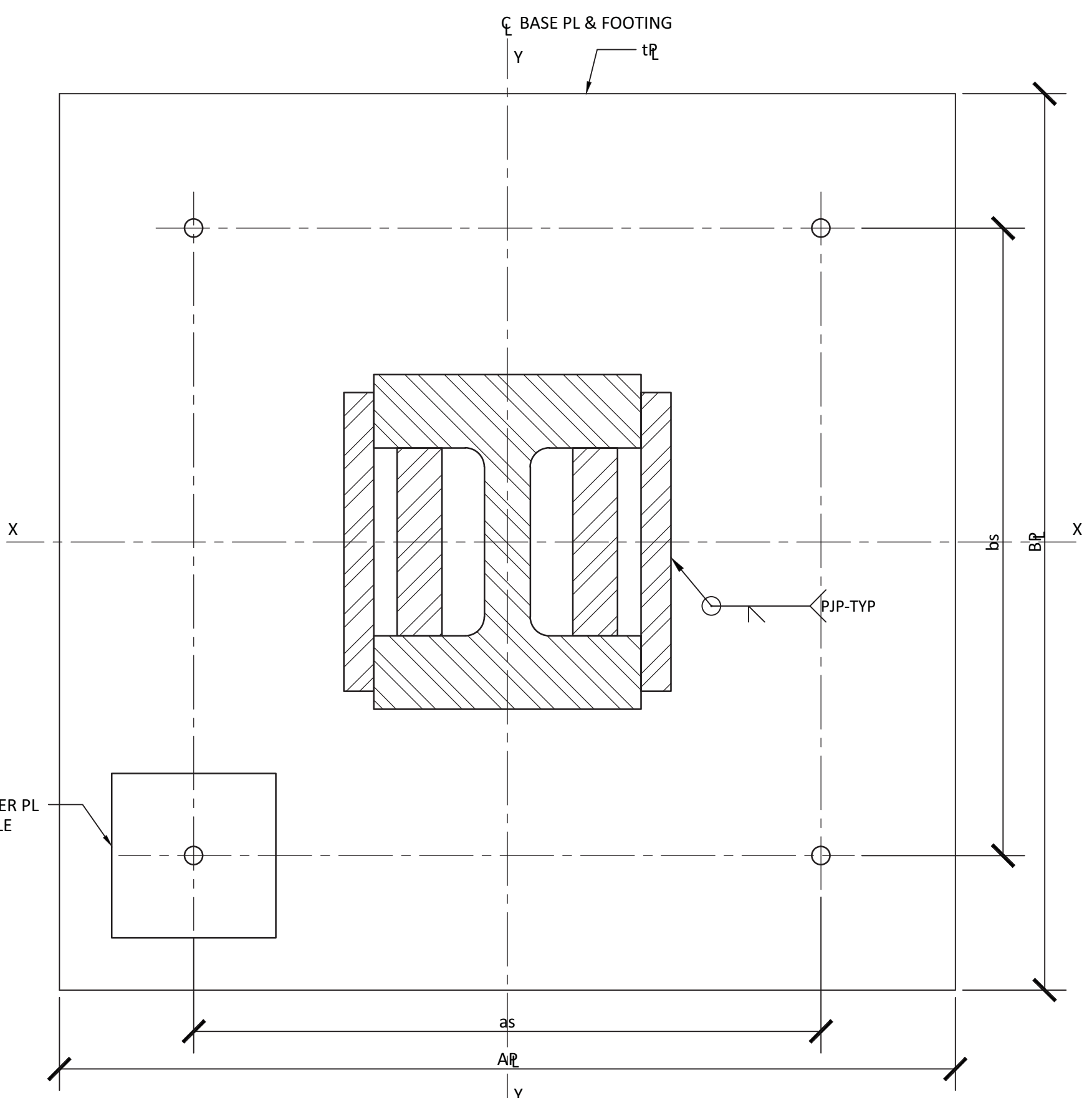
- NOTES:
- FOR FOOTING PLAN DETAILS SEE DWG S-102E
 - FOR ROCK ANCHOR SCHEDULE AND DETAILS SEE DWG S-301
 - ALLOW BASE PLATES DIMENSIONS TO INCORPORATE +/- 3" TOLERANCE FOR ROCK ANCHOR LOCATIONS.
 - DRILL HOLES IN BASE PLATE BASED ON SITE MEASUREMENT OF ROCK ANCHOR LOCATIONS.
 - MINIMUM SPACING as & bs, FOR ROCK ANCHORS TO BE 3'-0"
 - MAXIMUM SPACING as & bs, FOR ROCK ANCHORS TO BE 4'-0"
 - PROVIDE GROUT HOLES AS REQUIRED.



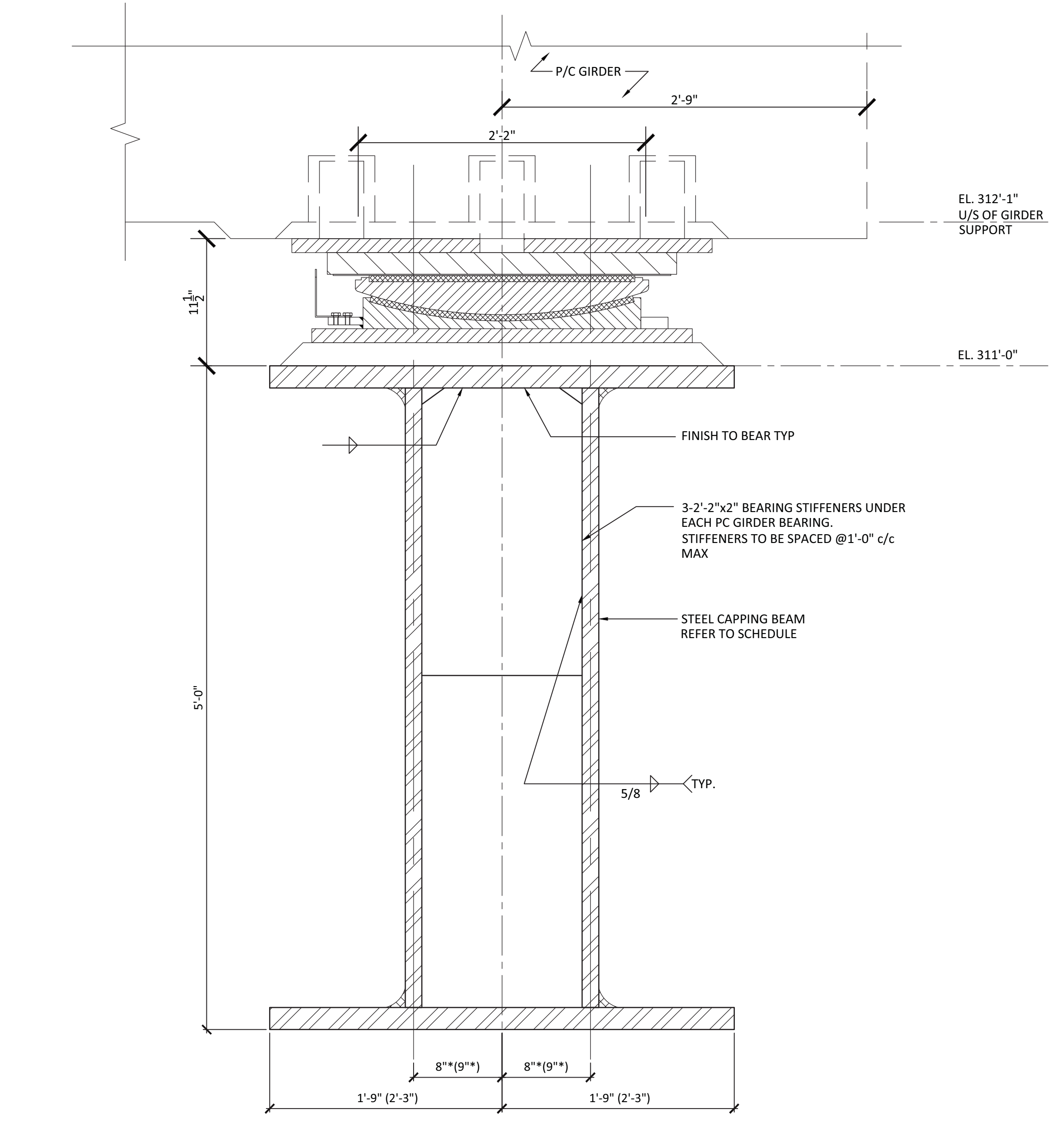
1 TYPICAL STEEL CAPPING BEAM DETAIL AT E-YARD
 3/4"=1'-0"



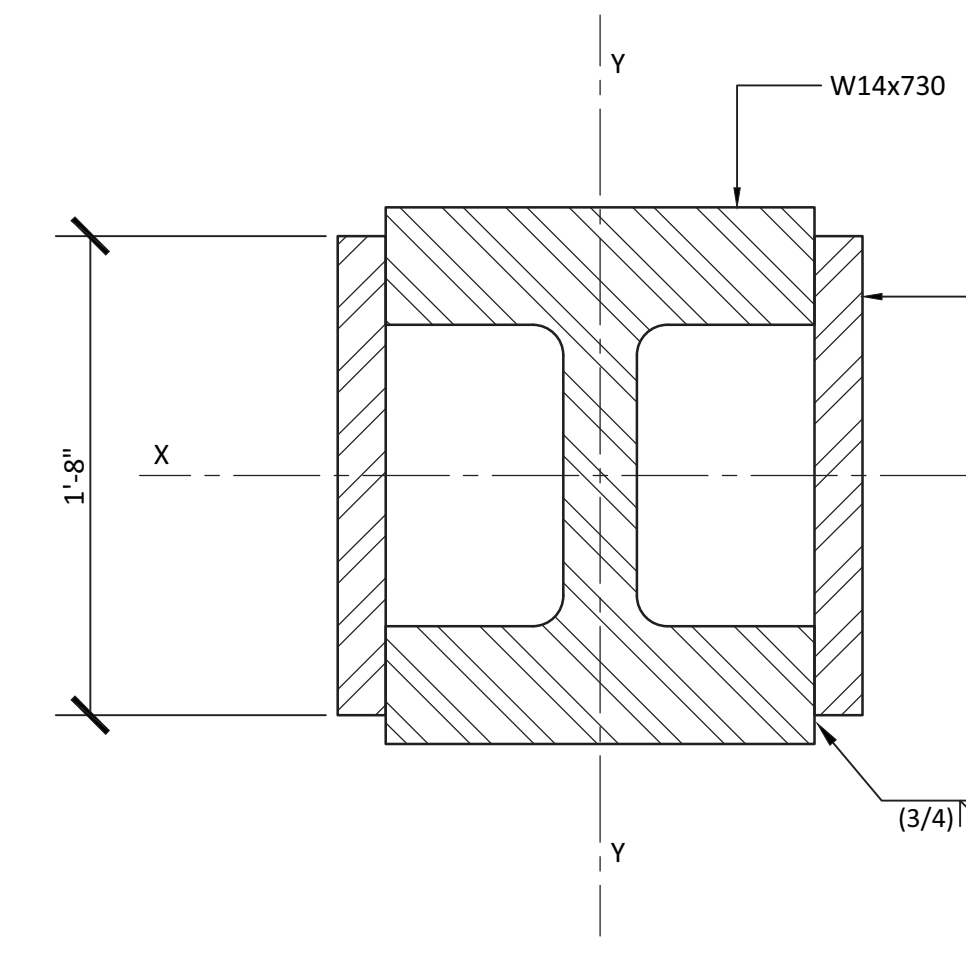
2 BASE PLATE BPL-4 DETAIL
 1-1/2"=1'-0"



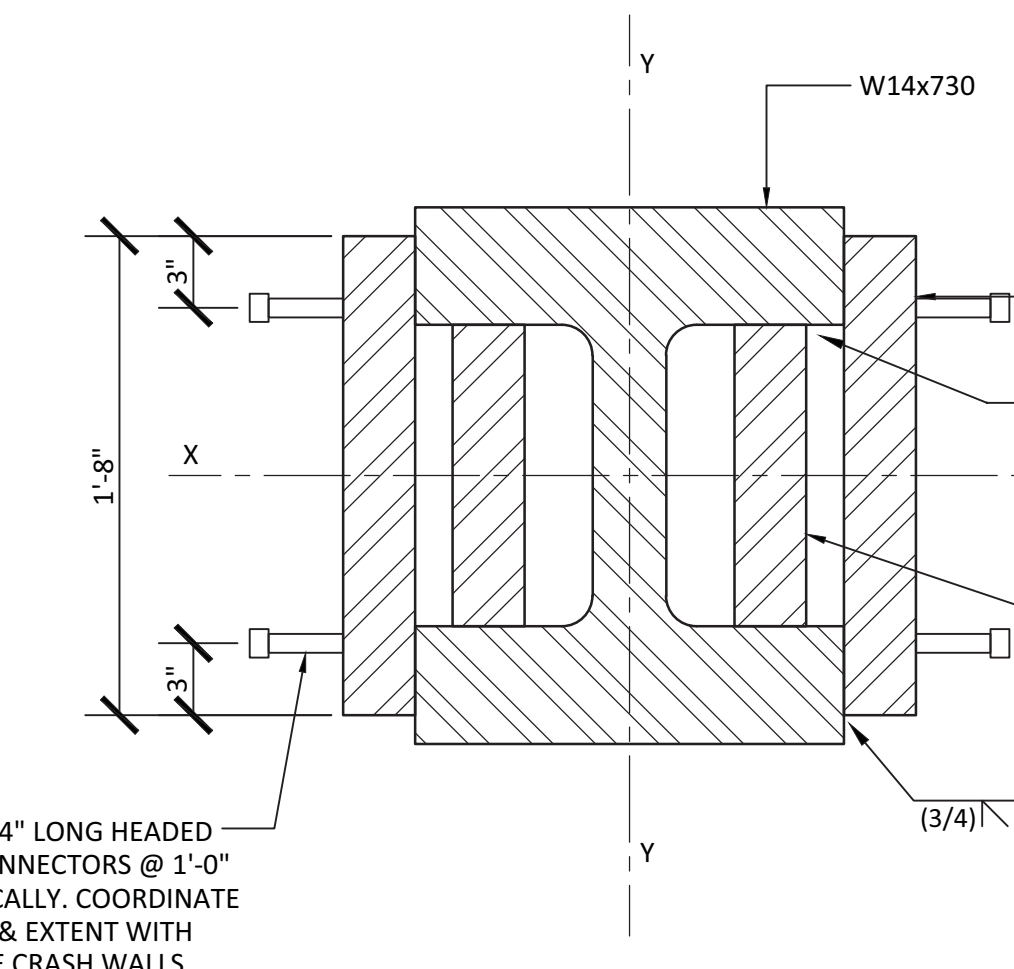
3 BASE PLATE DETAIL
 1-1/2"=1'-0"



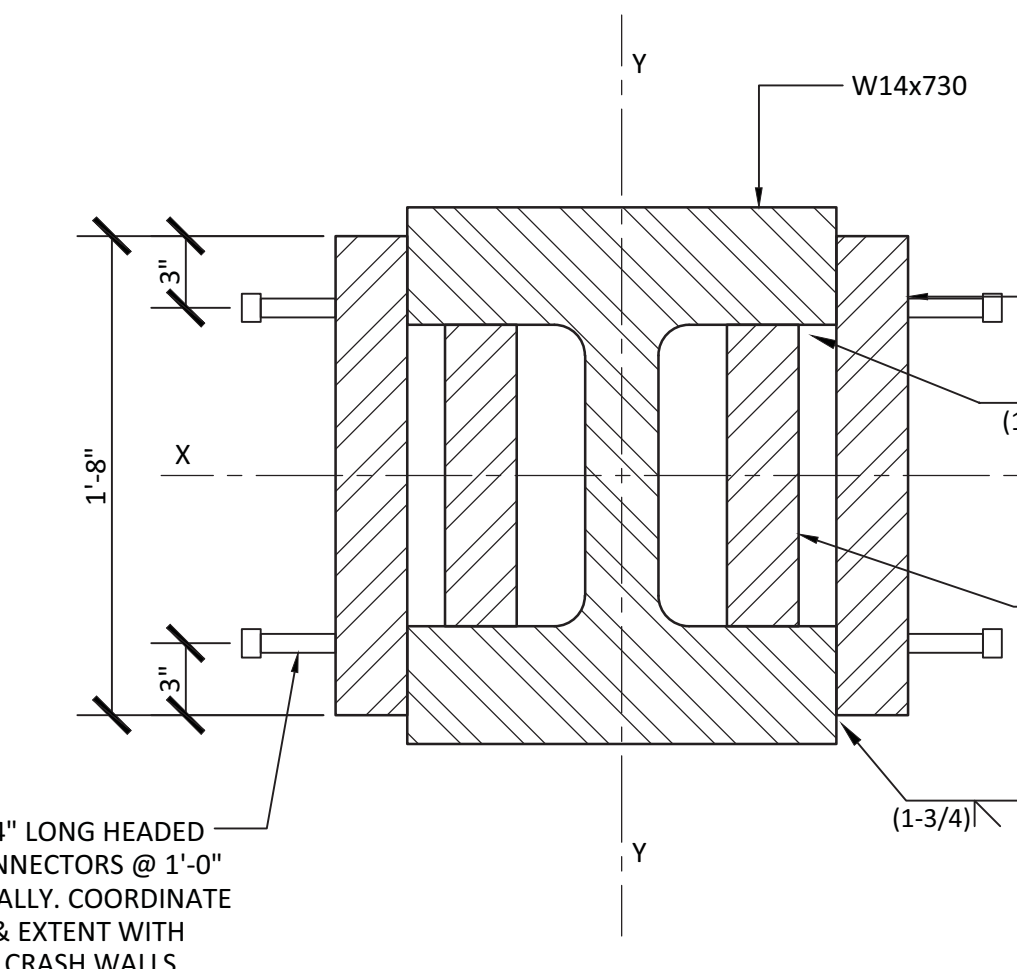
4 C3 COLUMNS TEMP COLUMN
 1-1/2"=1'-0"



5 C4 COLUMNS
 1-1/2"=1'-0"



6 C4A COLUMNS
 1-1/2"=1'-0"

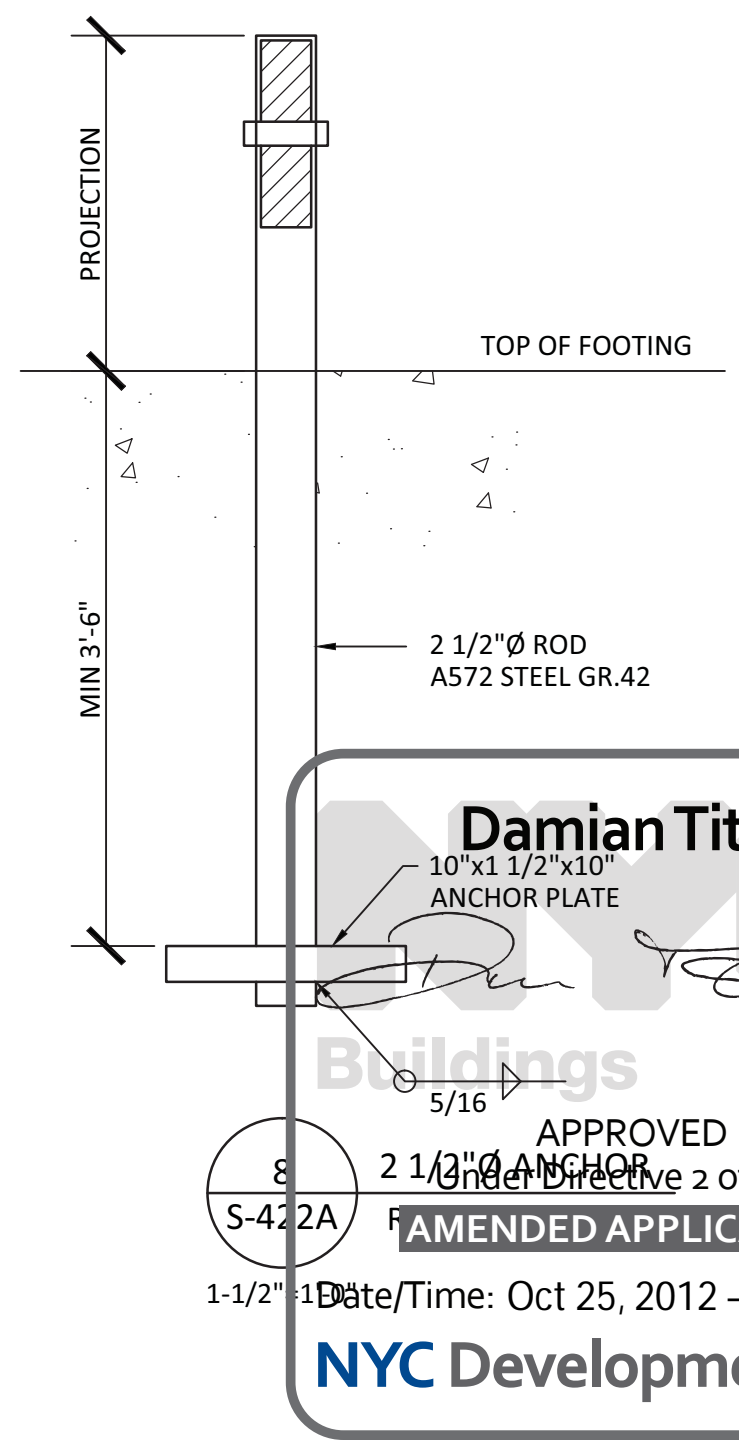


7 C4A COLUMNS
 1-1/2"=1'-0"

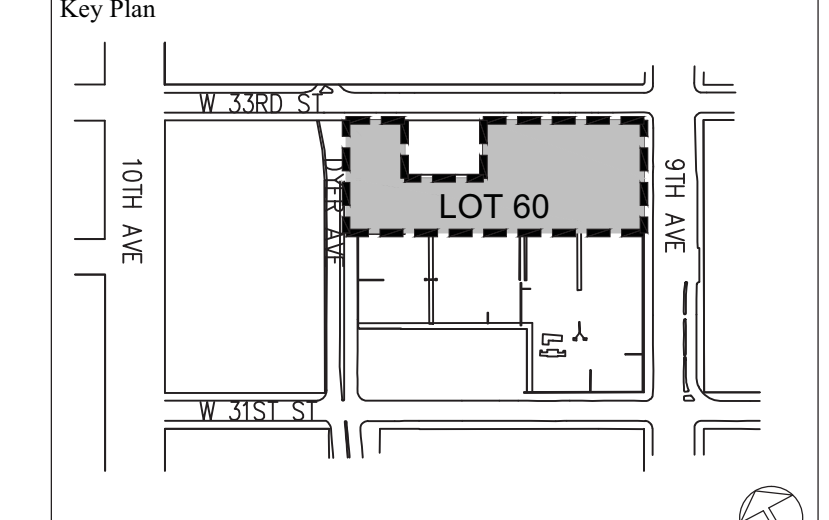
COLUMN SCHEDULE

COL. NO.	COLUMN SECTION
C3	W14 x 730 + 2 PL. 3x20
C4&C4A	W14 x 730 + 2 PL. 3x20 + 2 PL. 3x12 1/2

- NOTES:
- ALL REINFORCING PLATES TO BE A572 STEEL GR. 50
 - COLUMN FACTORED ENVELOPE FORCES FOR CONNECTION DESIGN ARE INDICATED ON THE STEEL FRAME ELEVATIONS.
 - FORCES FROM DIFFERENT LOAD COMBINATIONS ARE AVAILABLE IF REQ'D.
 - BUF COLUMN WELDS TO BE CHECKED IN BEAM/COLUMN CONNECTION ZONES FOR TRANSFERRING THE SPECIFIED AXIAL LOADS & BENDING MOMENTS.



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	EW

Sheet Name:
D.O.B. SUBMISSION STEEL CAPPING BEAM SECTIONS AND DETAILS (LOT 60)

Drawn By: TRG
 Checked By: BC/DS

Scale: AS SHOWN
 Date: MARCH 2011

Project No.: T011-0003
 File No.:

Scale: 1/8"=1'-0"
 Sheet No.:

APPROVED
 2/21/2012
 DAMIEN TITUS
 1-1/2"=1'-0"
 Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

S-422A.00

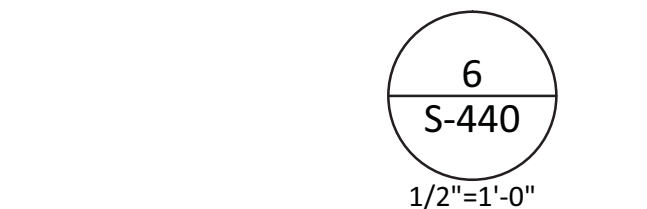
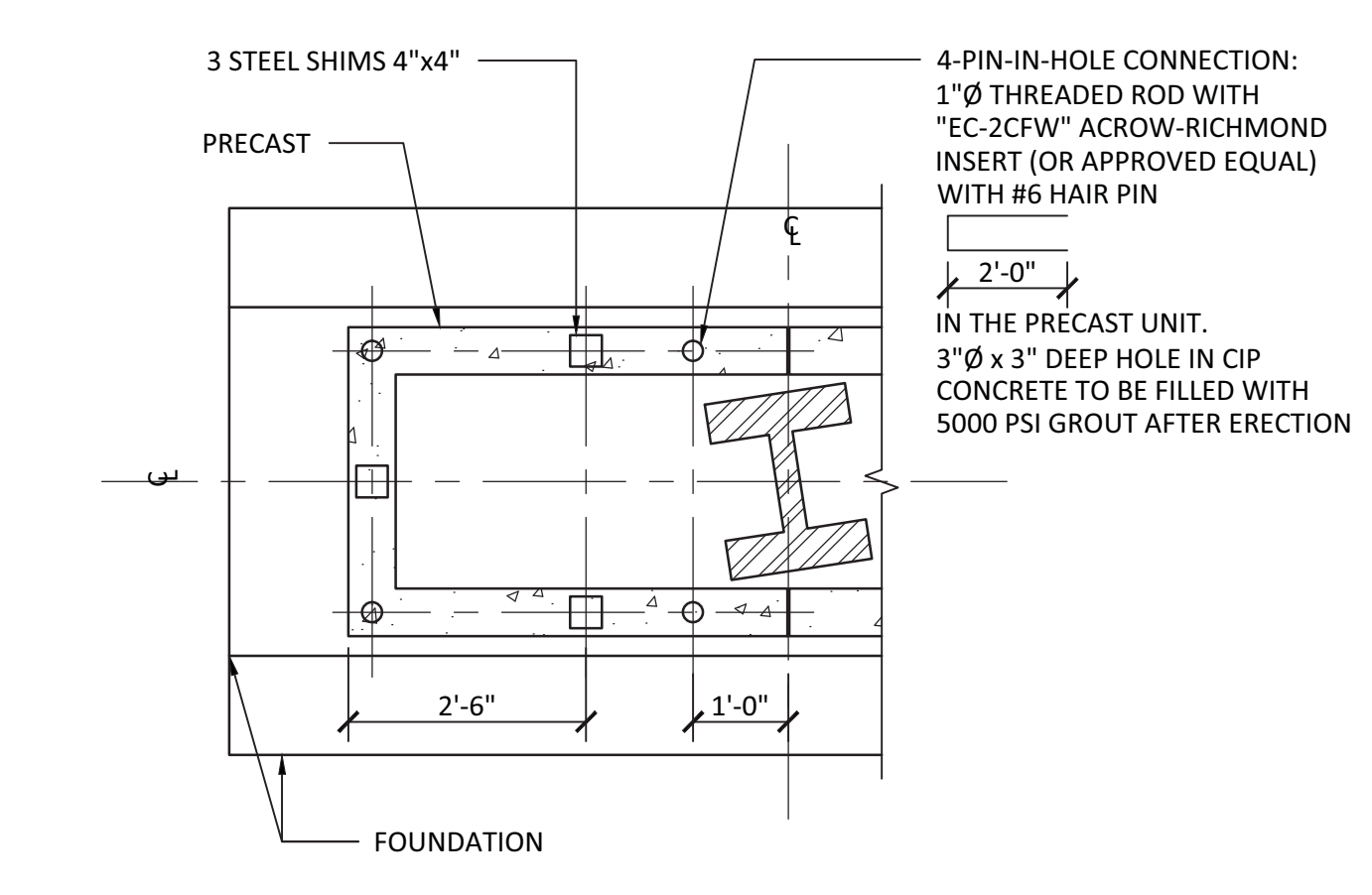
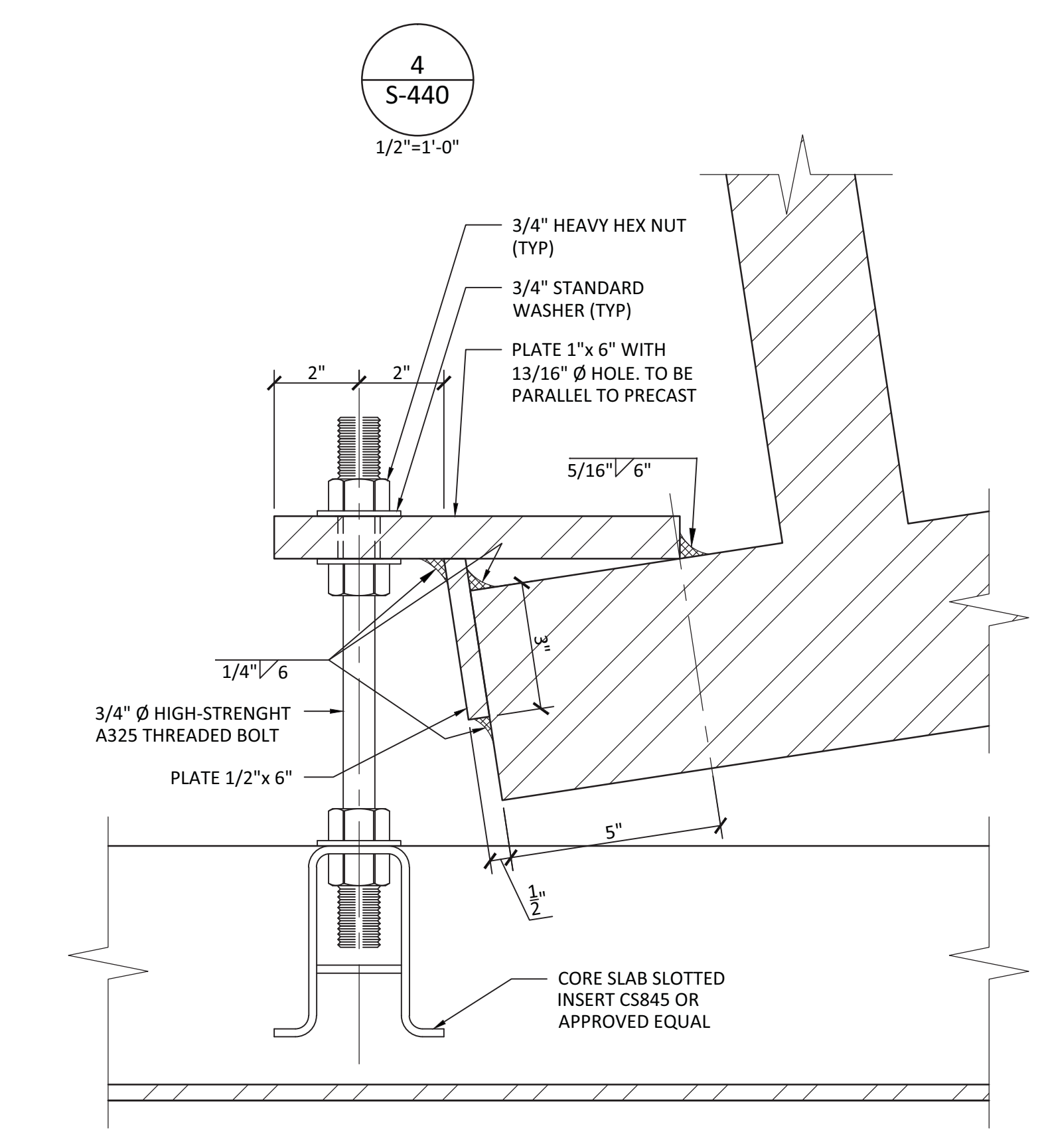
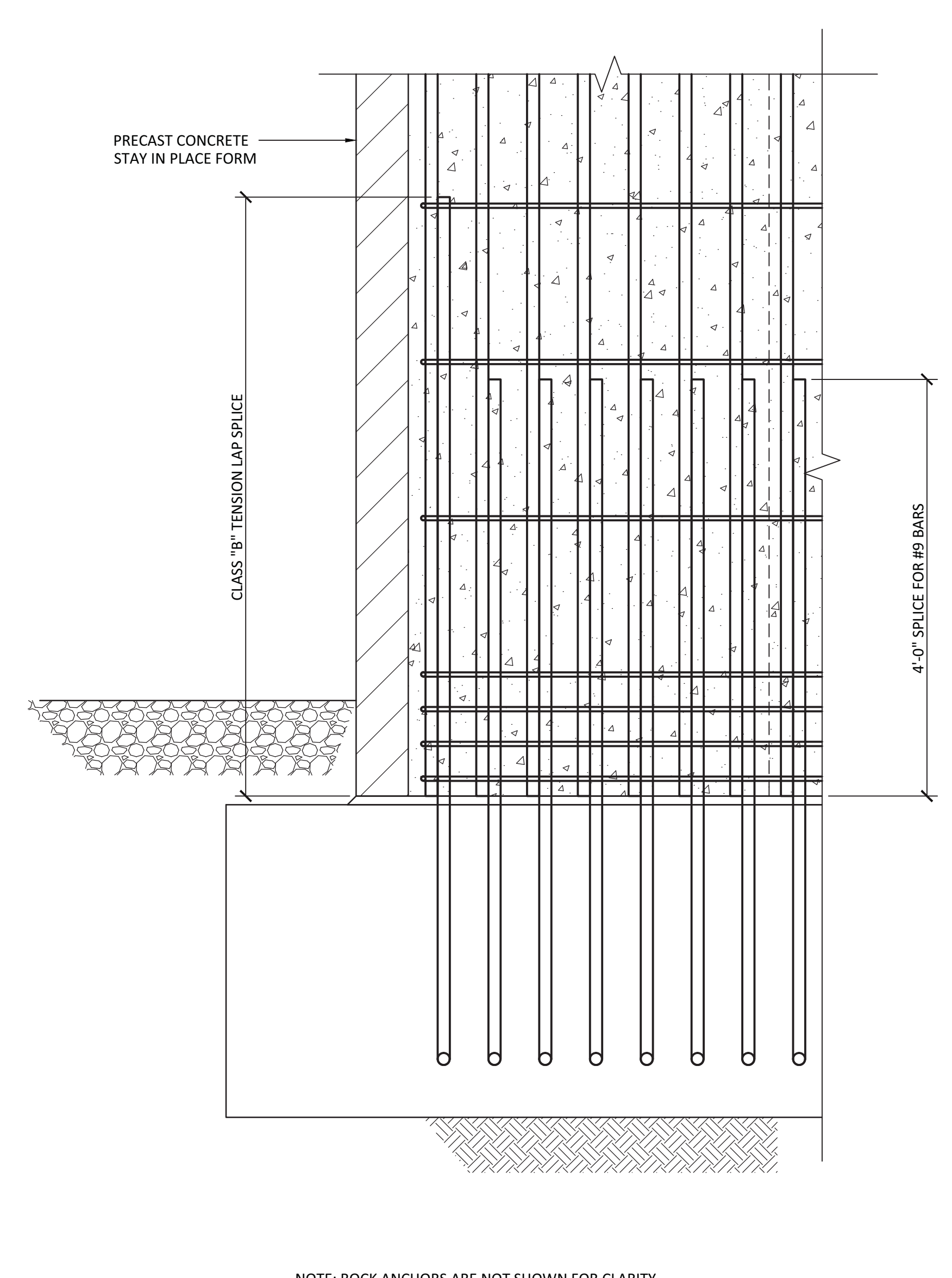
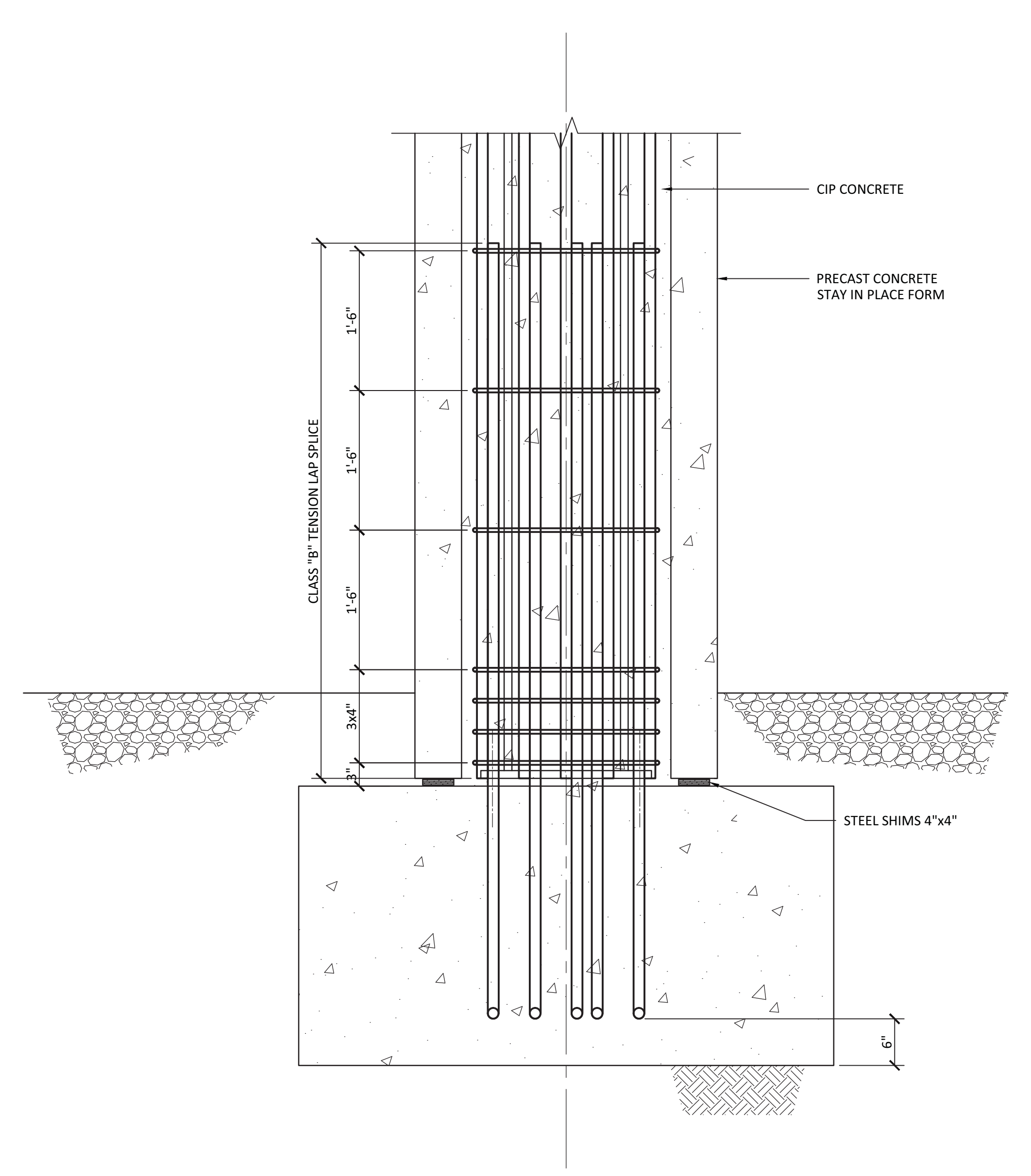
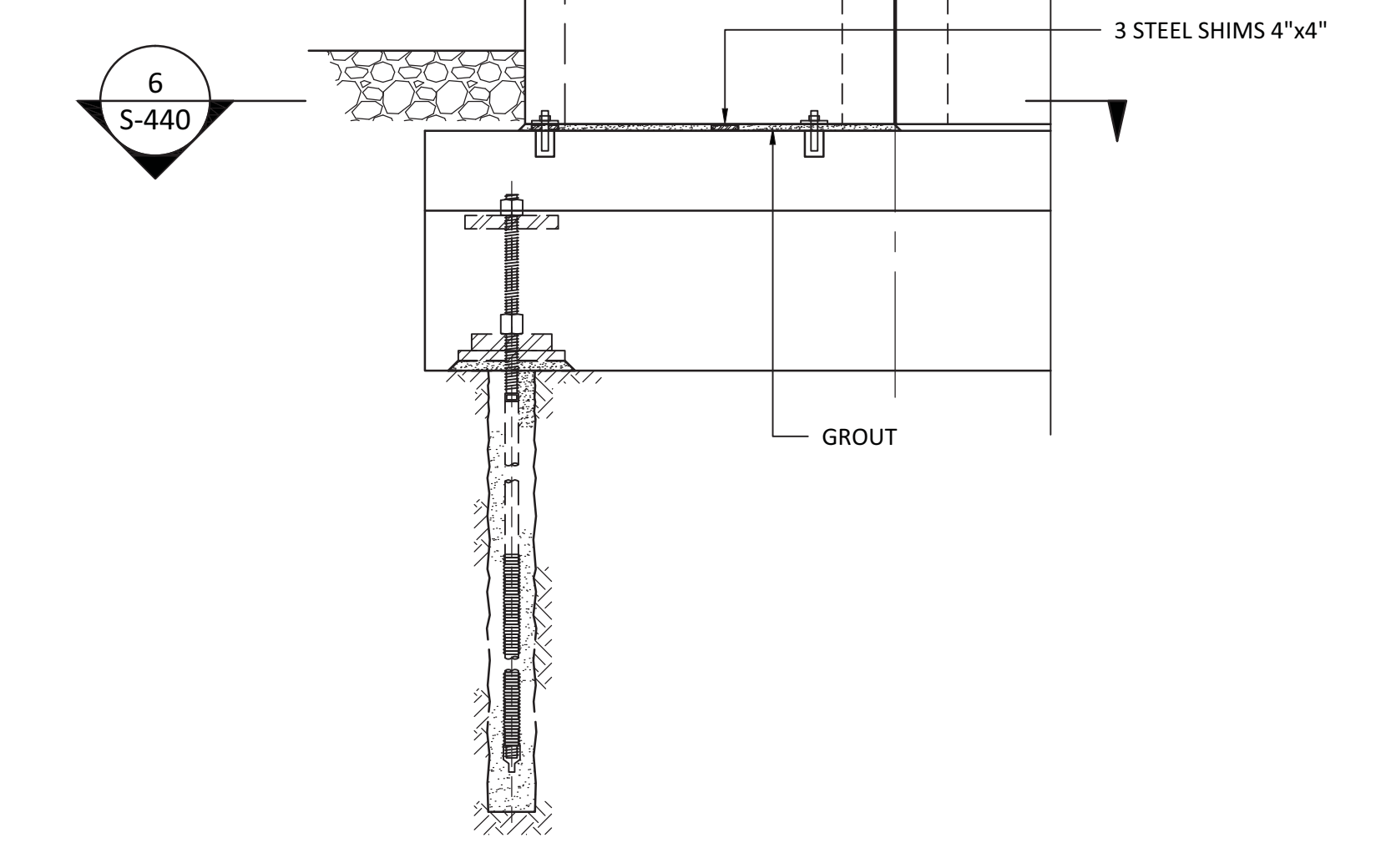
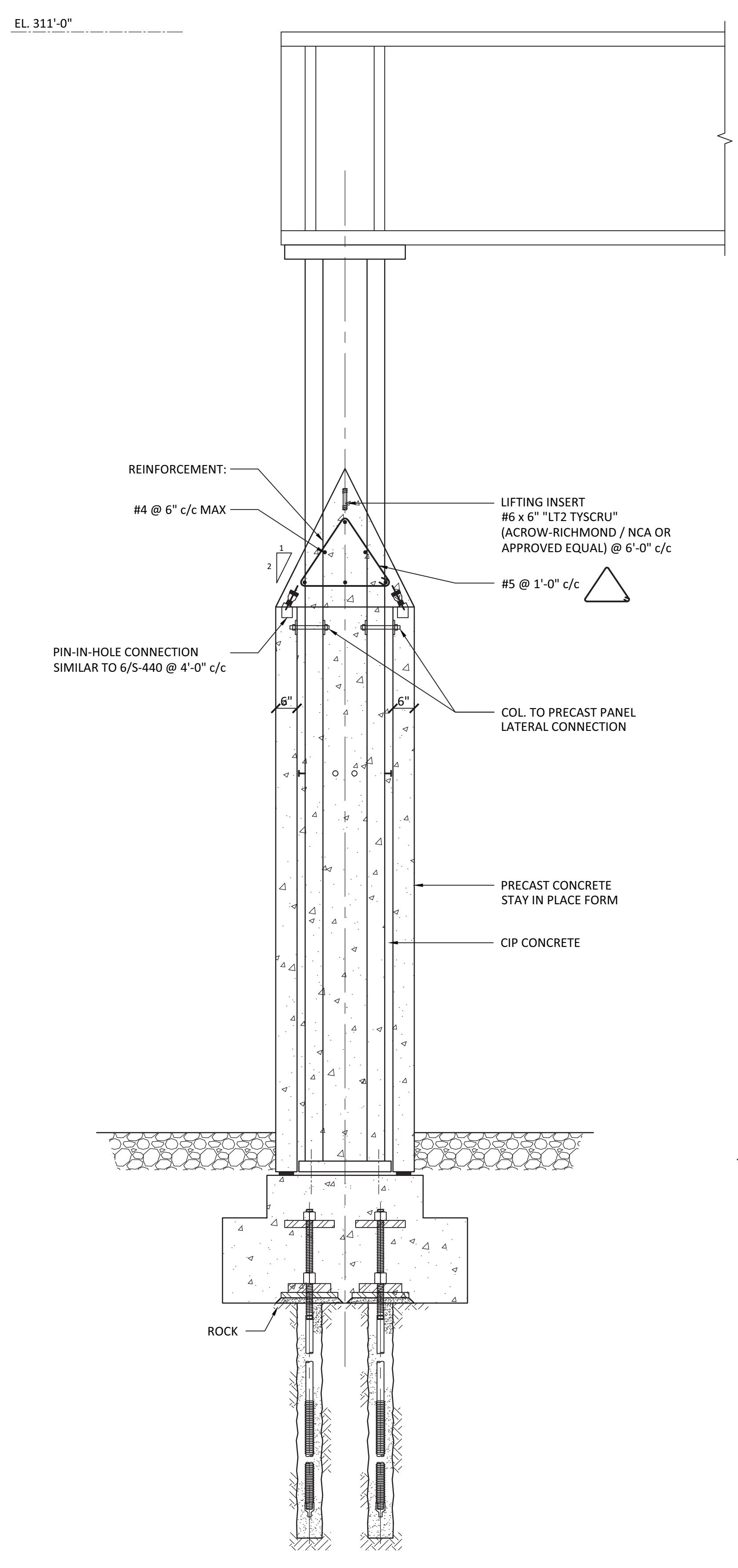
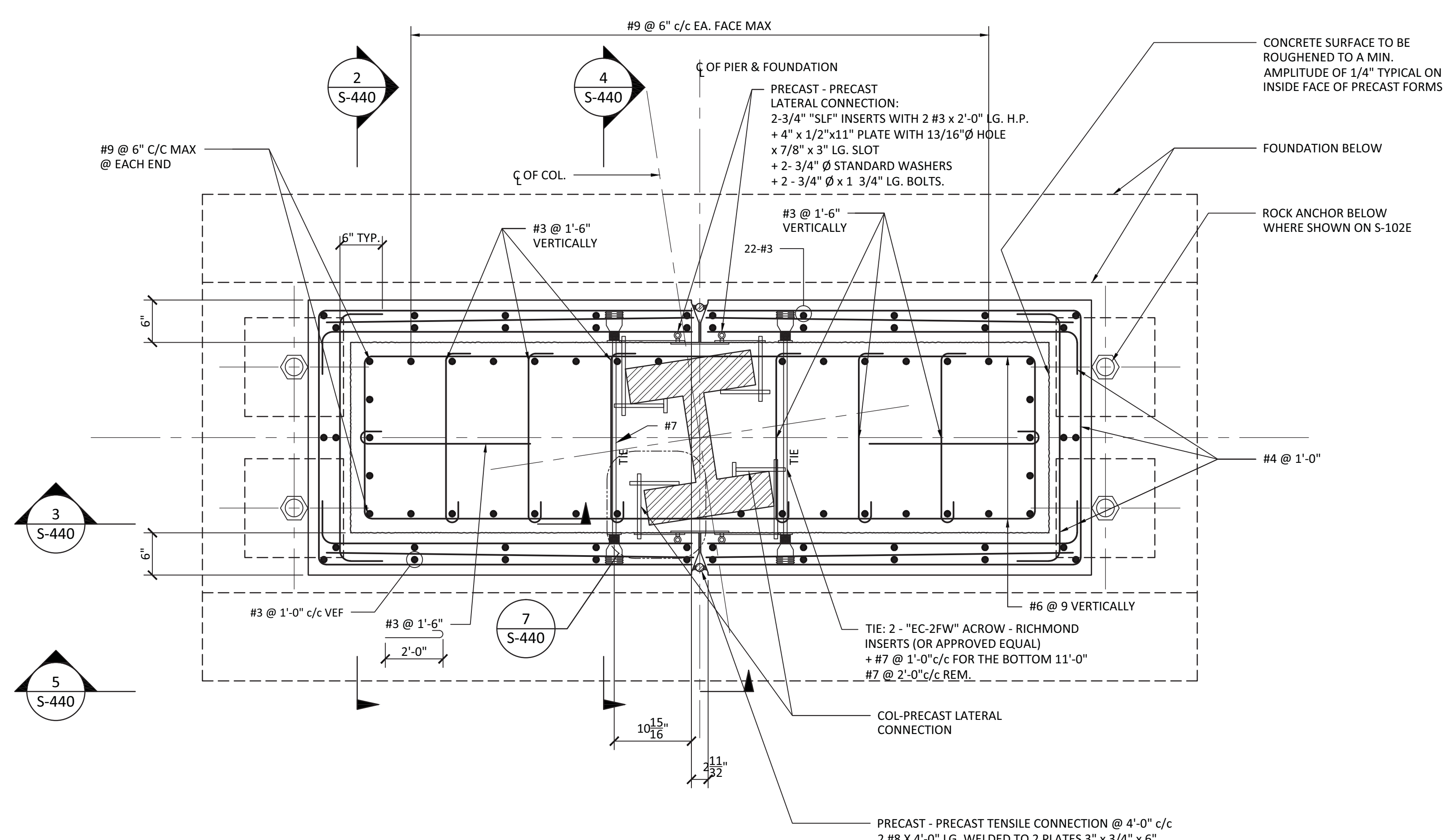
Page Count:

9th Avenue
Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

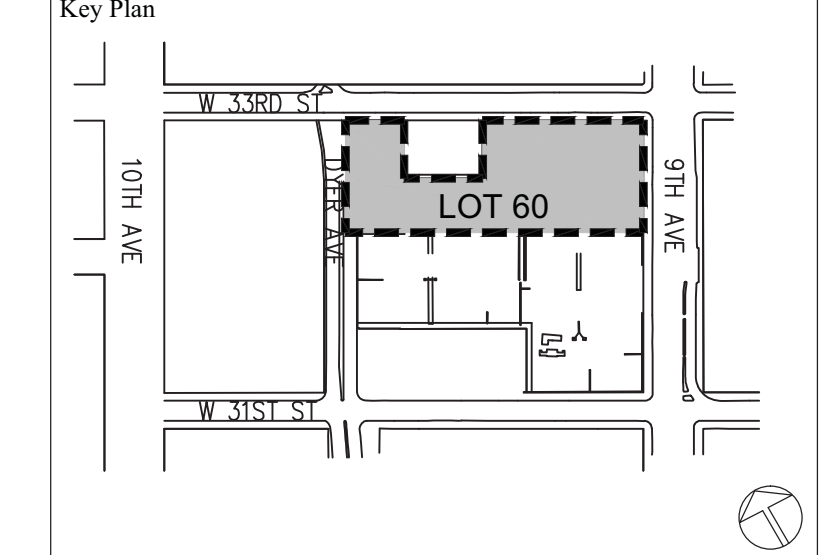
Architect:
SOM
SEYMOUR, SWANOFF & MERRILL LLP
19 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Truitt Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com



- NOTES:
- DETAILS SHOWN ARE INDICATIVE ONLY. CONTRACTOR TO DESIGN AND DETAIL PRECAST CONNECTIONS, INSERTS AND THE LIKE TO SUIT THEIR SPECIFIC MEANS AND METHODS.
 - IN ADDITION TO MEETING THE DIMENSIONAL REQUIREMENTS FOR CRASH WALLS AS SPECIFIED IN AMTRAK'S ENGINEERING PRACTICES, DESIGN AND CONSTRUCTION CRITERIA FOR OVERHEAD BRIDGES DATED MARCH 26, 2002, THE WALLS HAVE BEEN DESIGNED TO RESIST AN ULTIMATE OUT OF PLANE FORCE OF 30 kIP APPLIED 5'-0" ABOVE THE TOP OF RAIL ELEVATION.
 - LIMIT CONCRETE PLACEMENT RATE (cubic/ft/hr) SUCH THAT PRECAST STAY IN PLACE FORMS AND THEIR CONNECTIONS ARE NOT OVERLOADED DURING CONSTRUCTION.
 - REFER TO STEEL CAPPING BEAM SECTIONS AND STEEL BRACING ELEVATIONS FOR TOP OF CRASH WALL PROFILES.

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	EN

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

D.O.B. SUBMISSION
PRECAST COLUMN
PROTECTION DETAILS
(LOT 60)

Drawn By: DT
Scale: AS SHOWN
Project No: T011-0003

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:

S-440.00

Page Count:

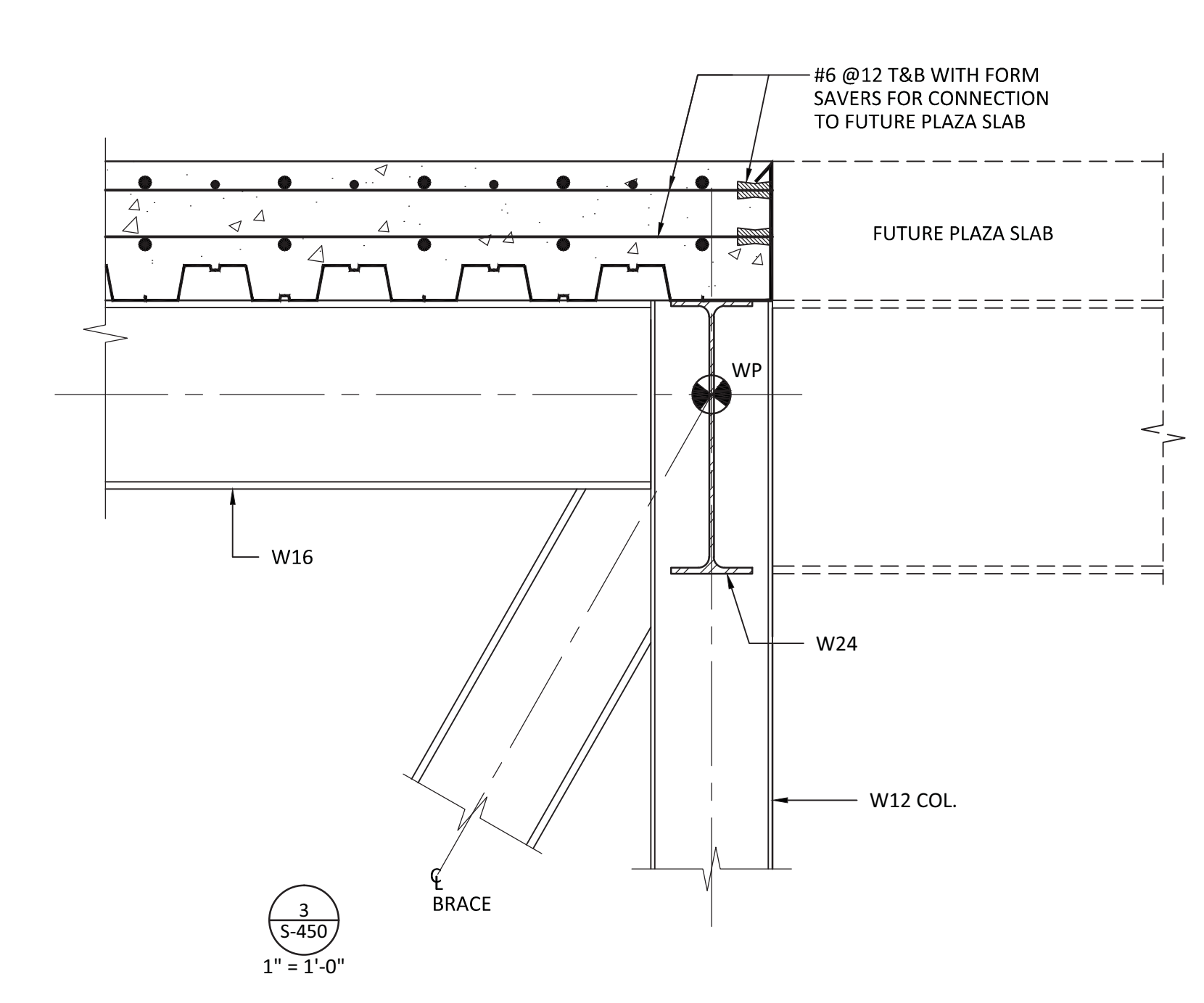
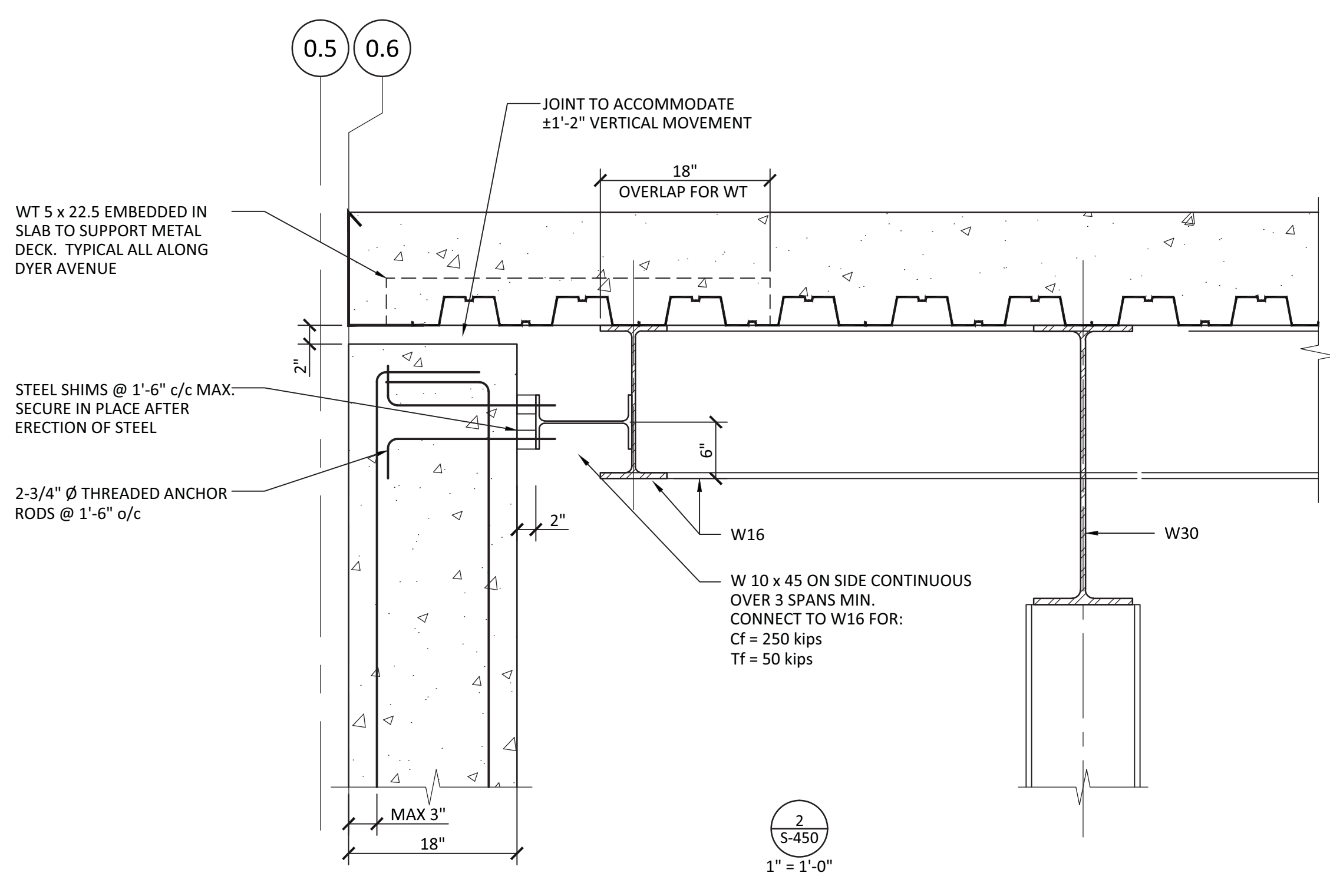
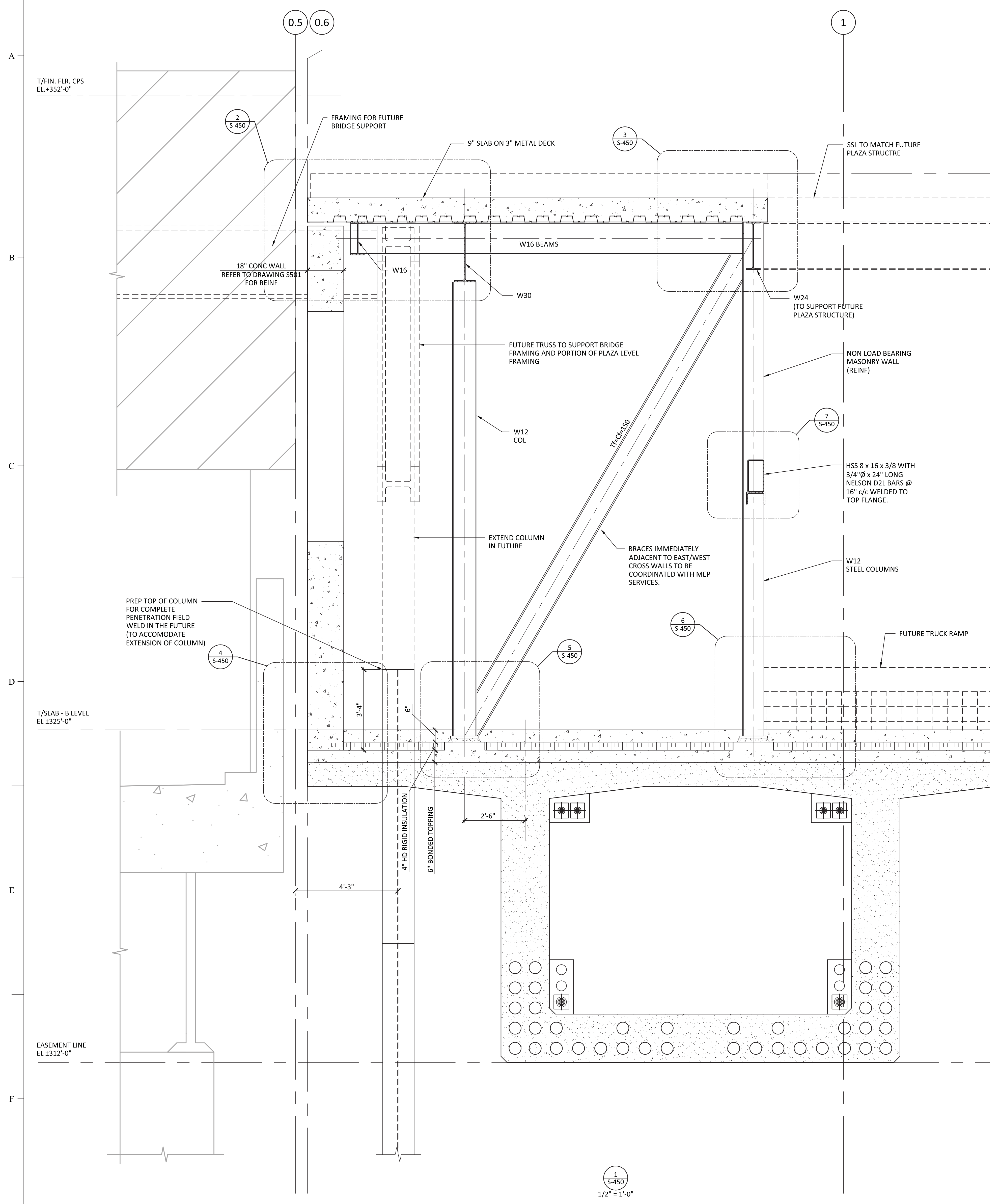
9th Avenue Development

New York, NY

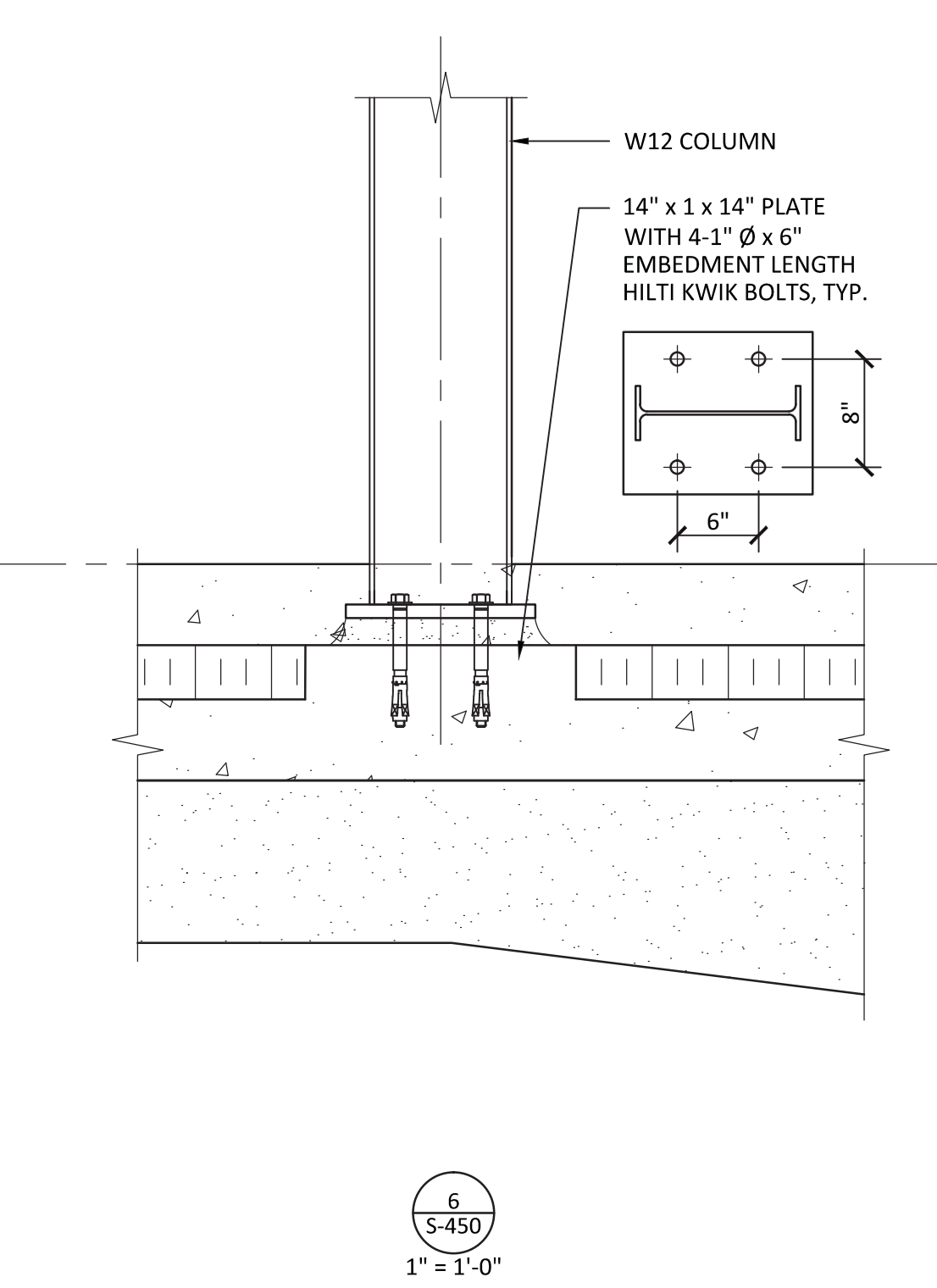
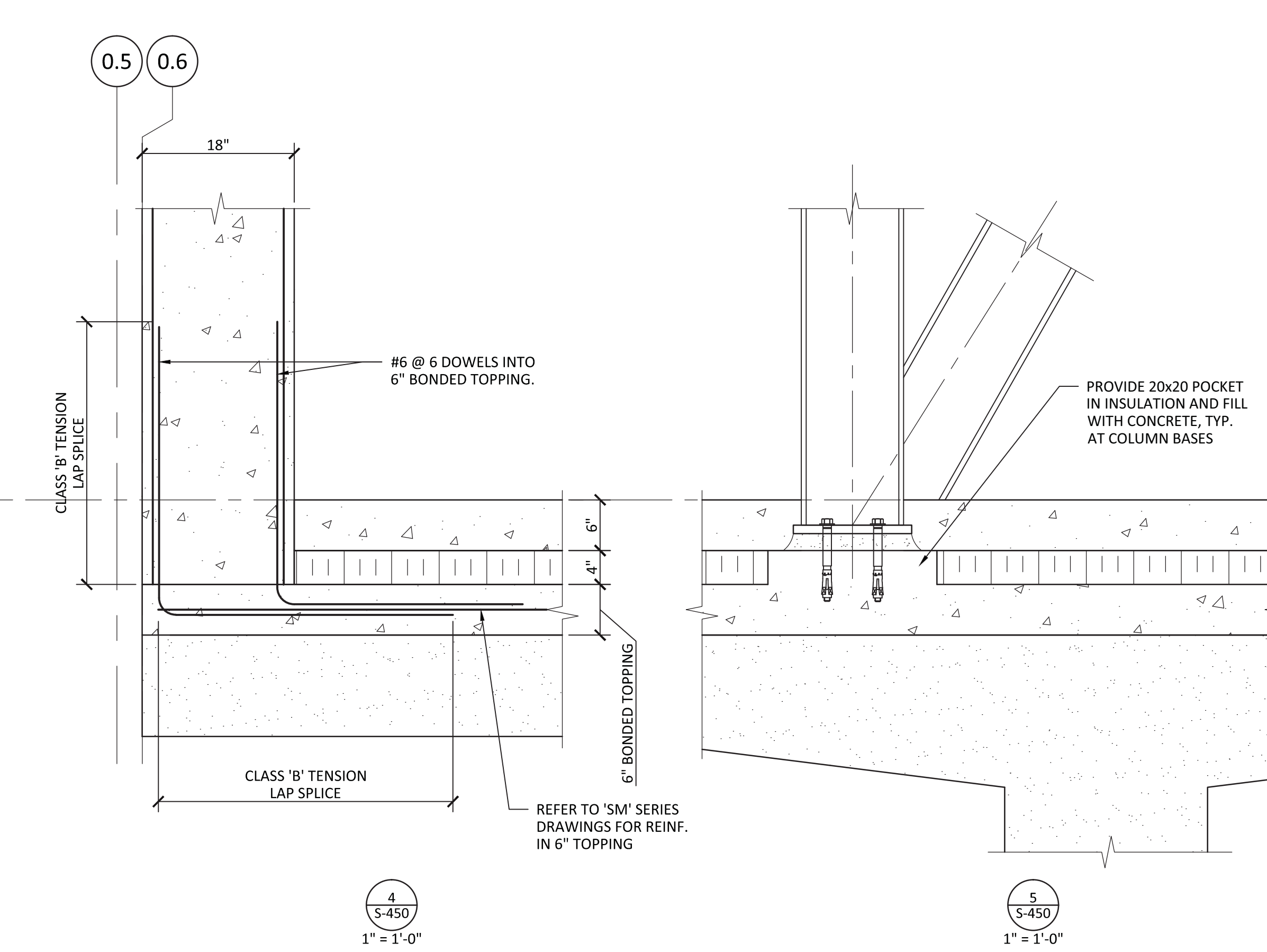
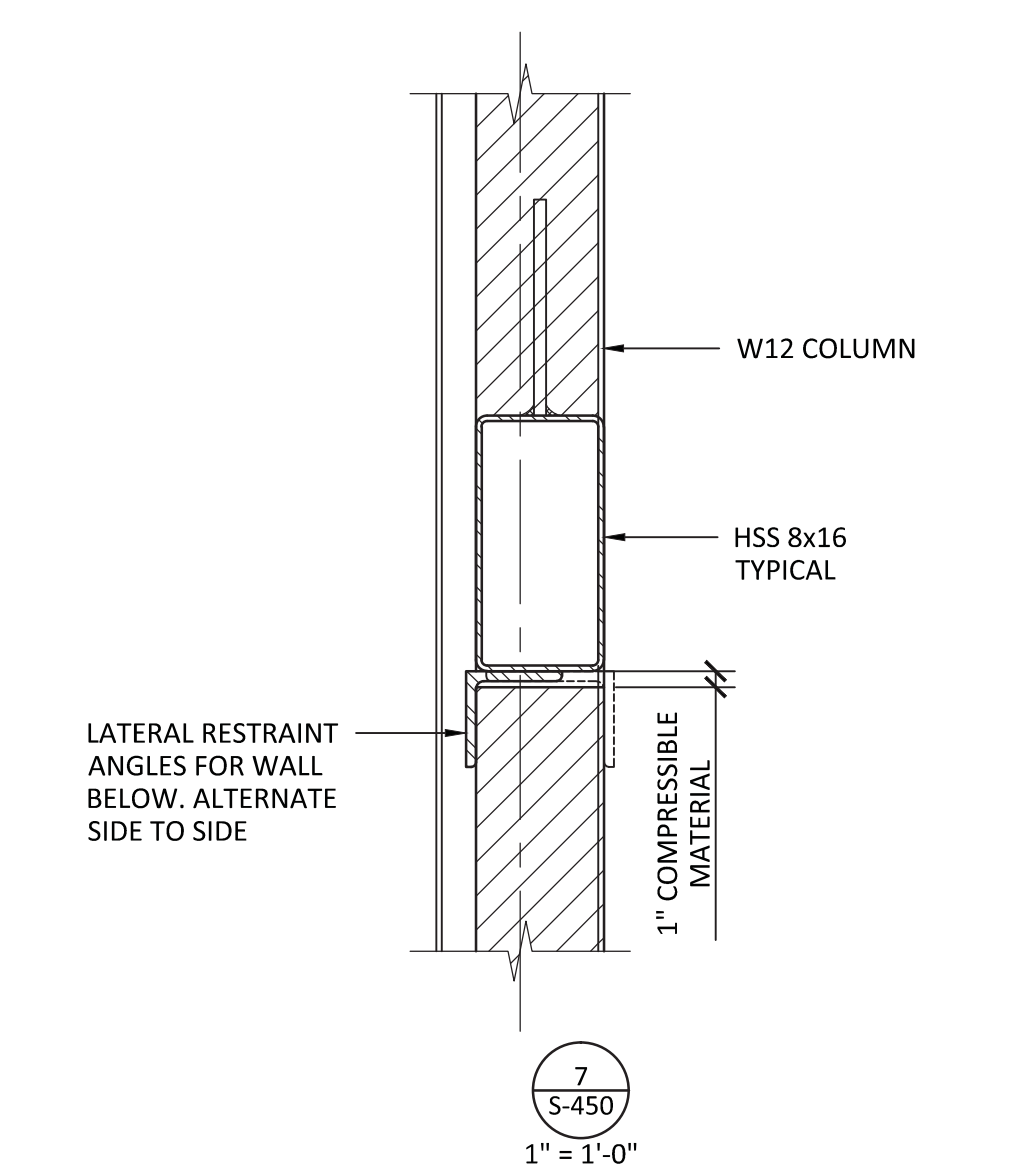
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
Skidmore, OWINGS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

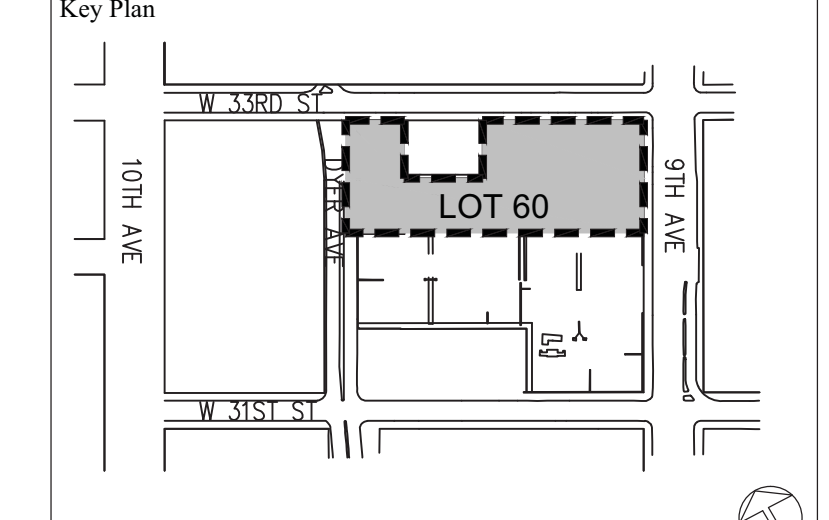
Structural:
ENTUITIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com
T: 416.477.5802



NOTE: CONNECTION TO 18\"/>



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:

D.O.B. SUBMISSION
LEVEL B SECTIONS
(LOT 60)

Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Date/Time: Oct 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub



S-450.00

Page Count:

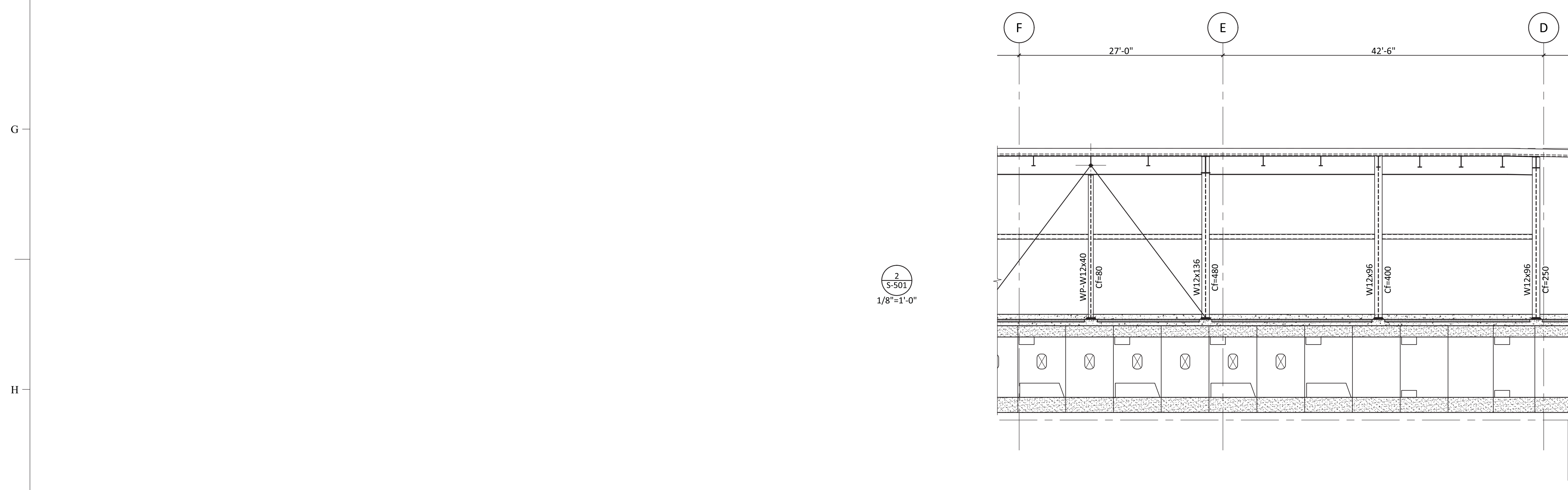
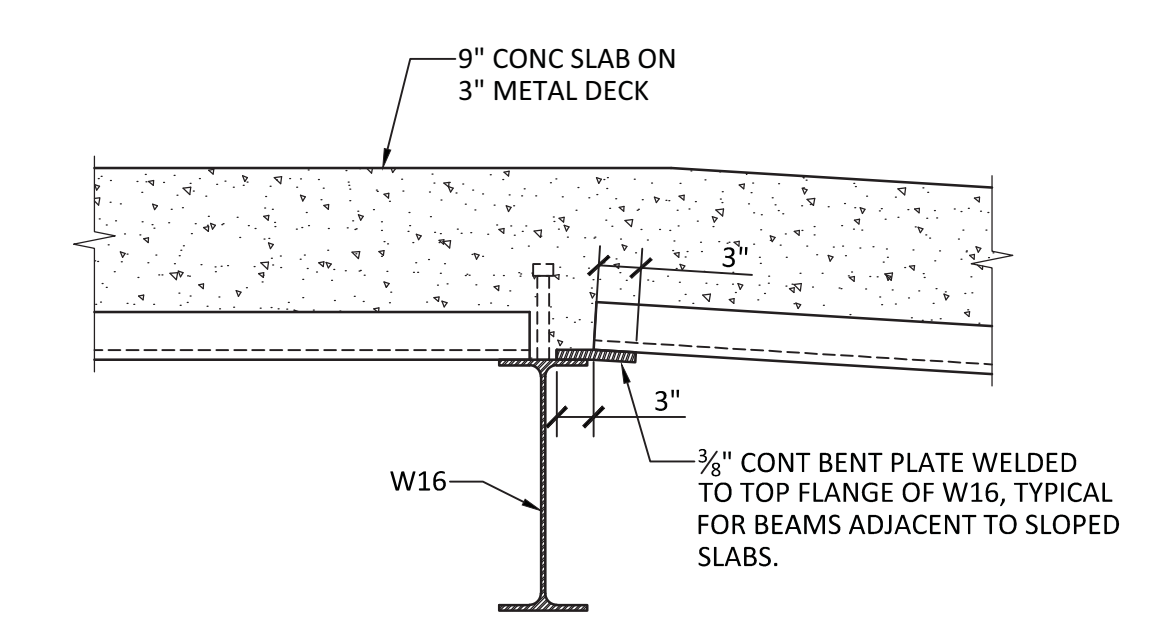
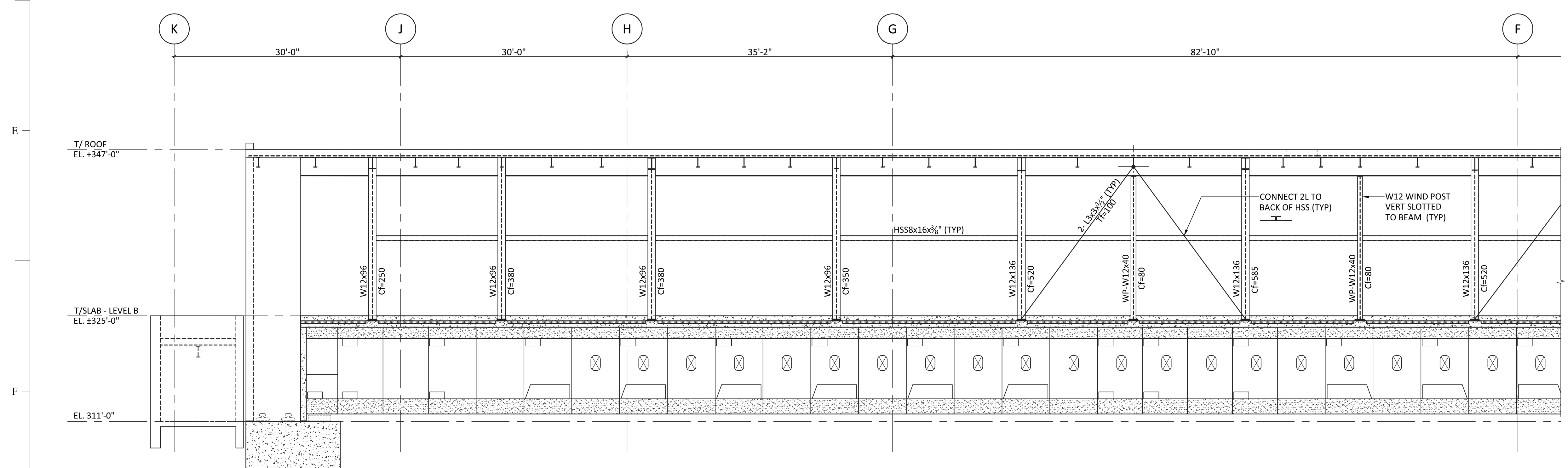
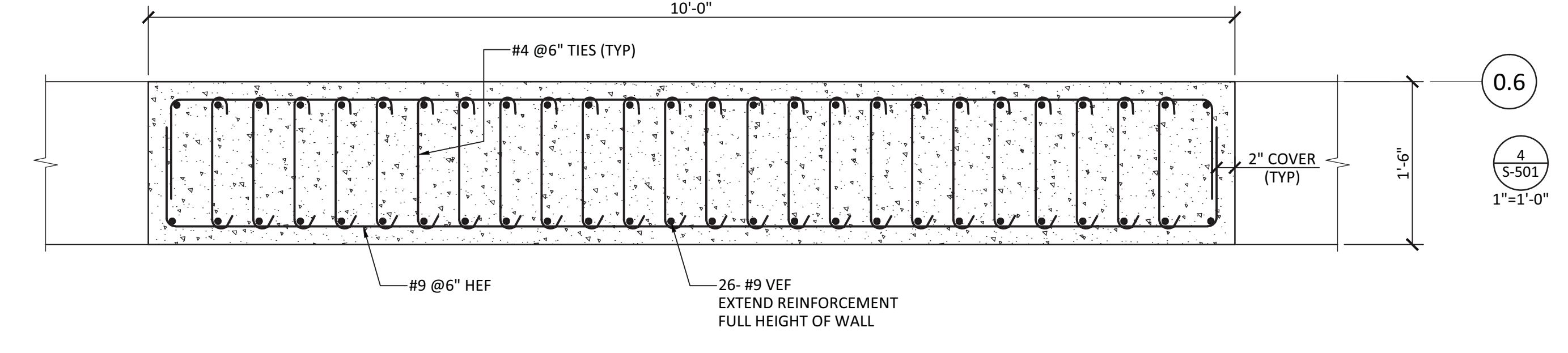
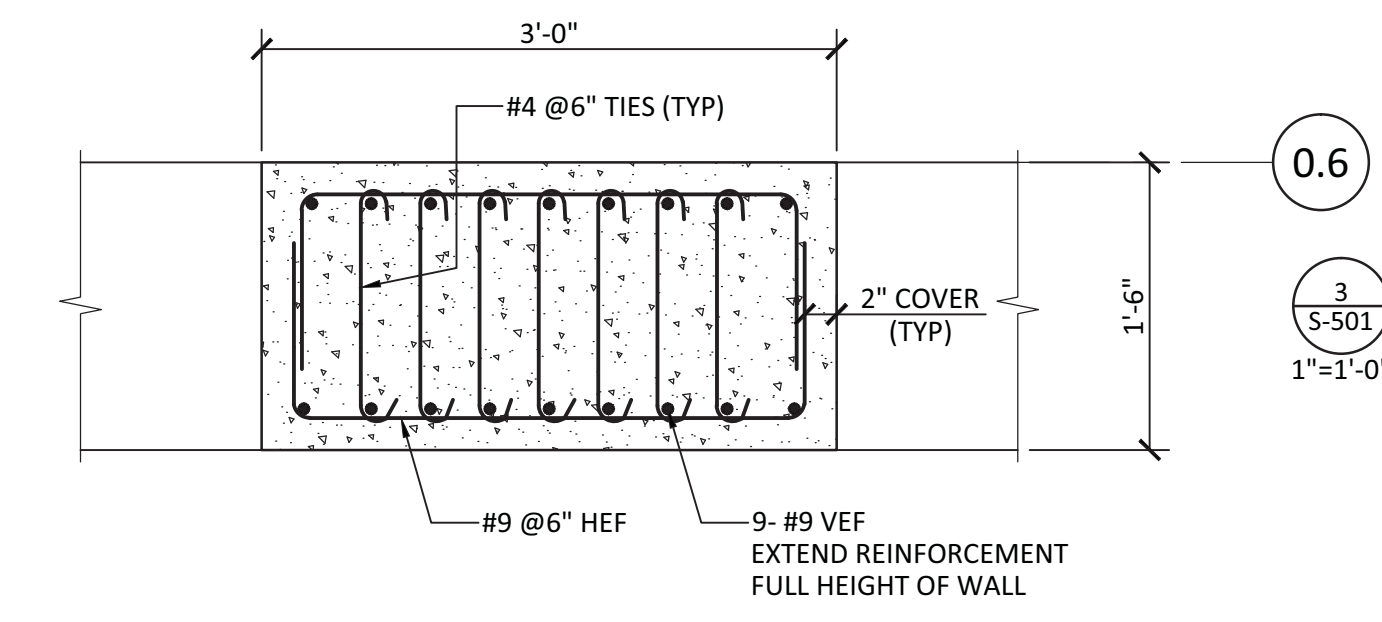
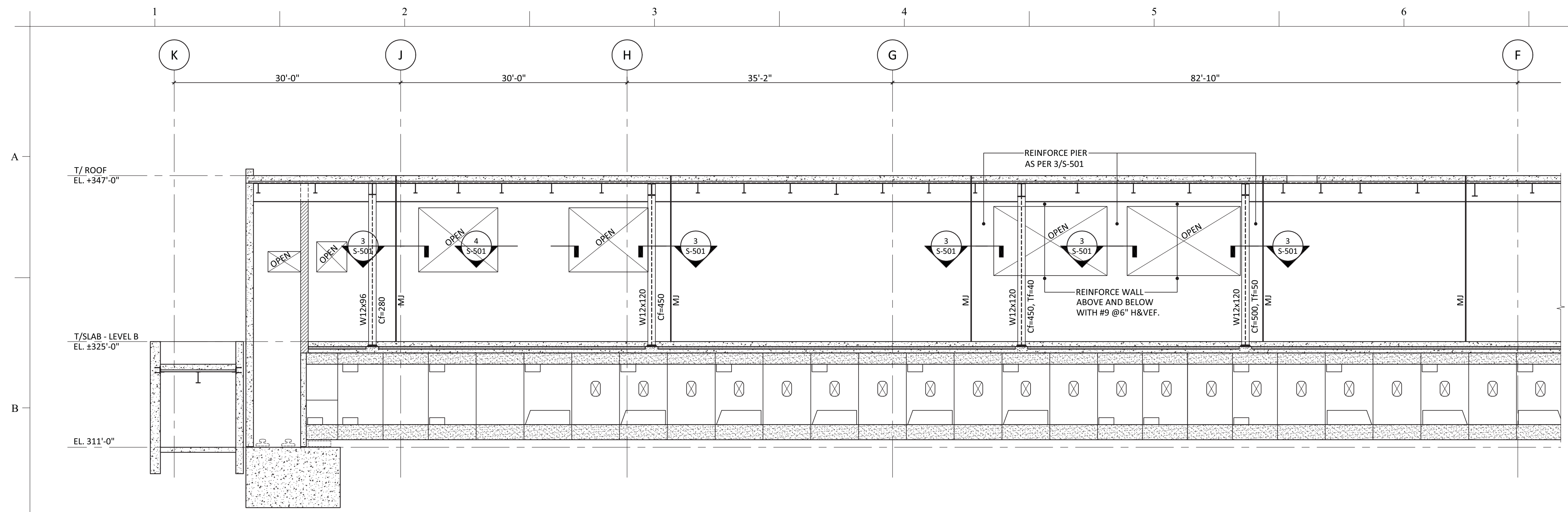
9th Avenue Development

New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

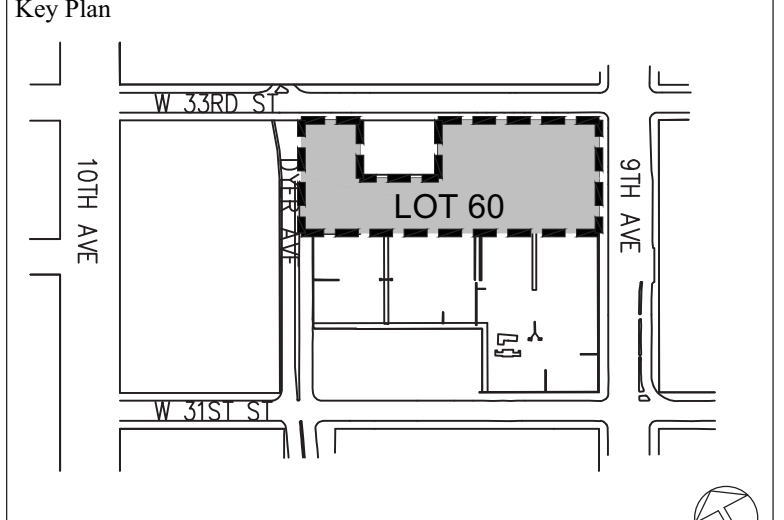
Architect:
SOM
375 Madison Avenue, New York, NY 10017

Structural:
ENTUITIVE
170 West Street, Suite 2002
New York, NY 10038
entuitive.com



Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Oct 25, 2012 - 4:04 PM
NYC Development Hub

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

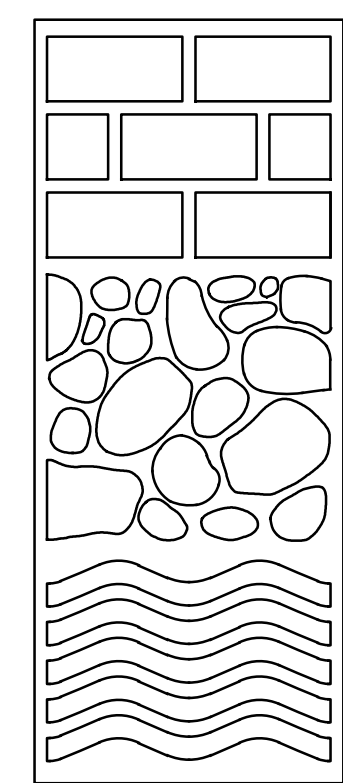
D.O.B. SUBMISSION
ELEVATIONS
(LOT 60)

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Date/Time: Oct 25, 2012 - 4:04 PM

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-501.00

9TH AVENUE DEVELOPMENT BROOKFIELD PROPERTIES

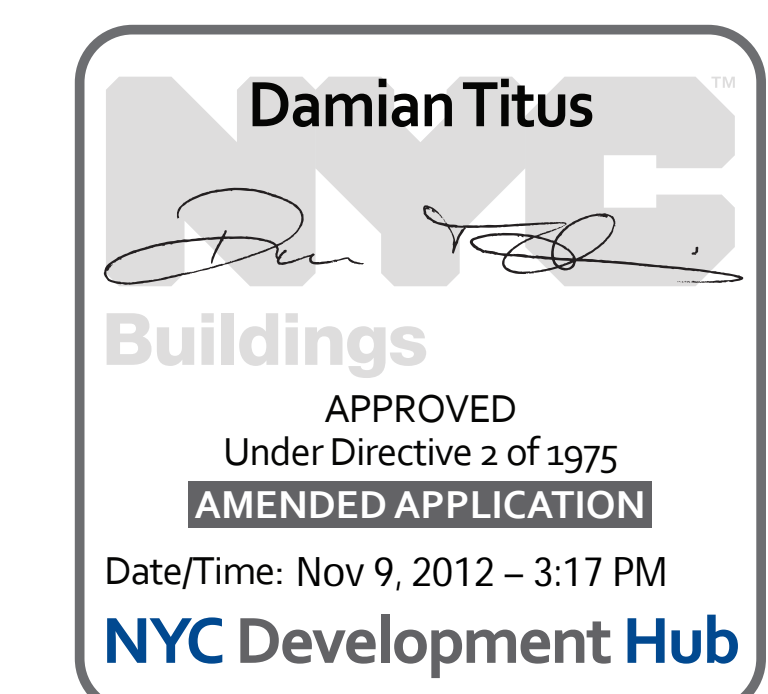
NORTH SIDE SUPPORT OF EXCAVATION

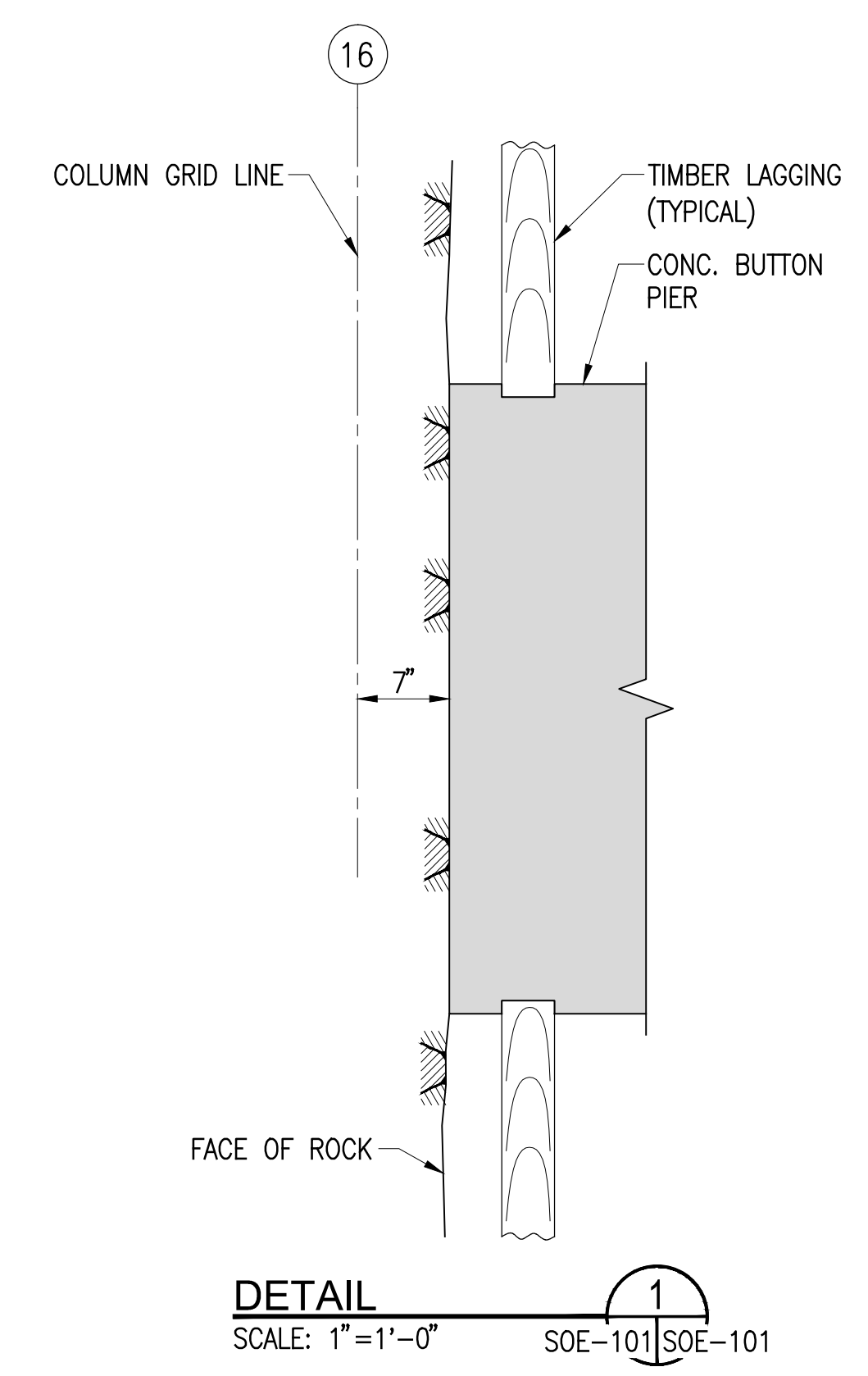
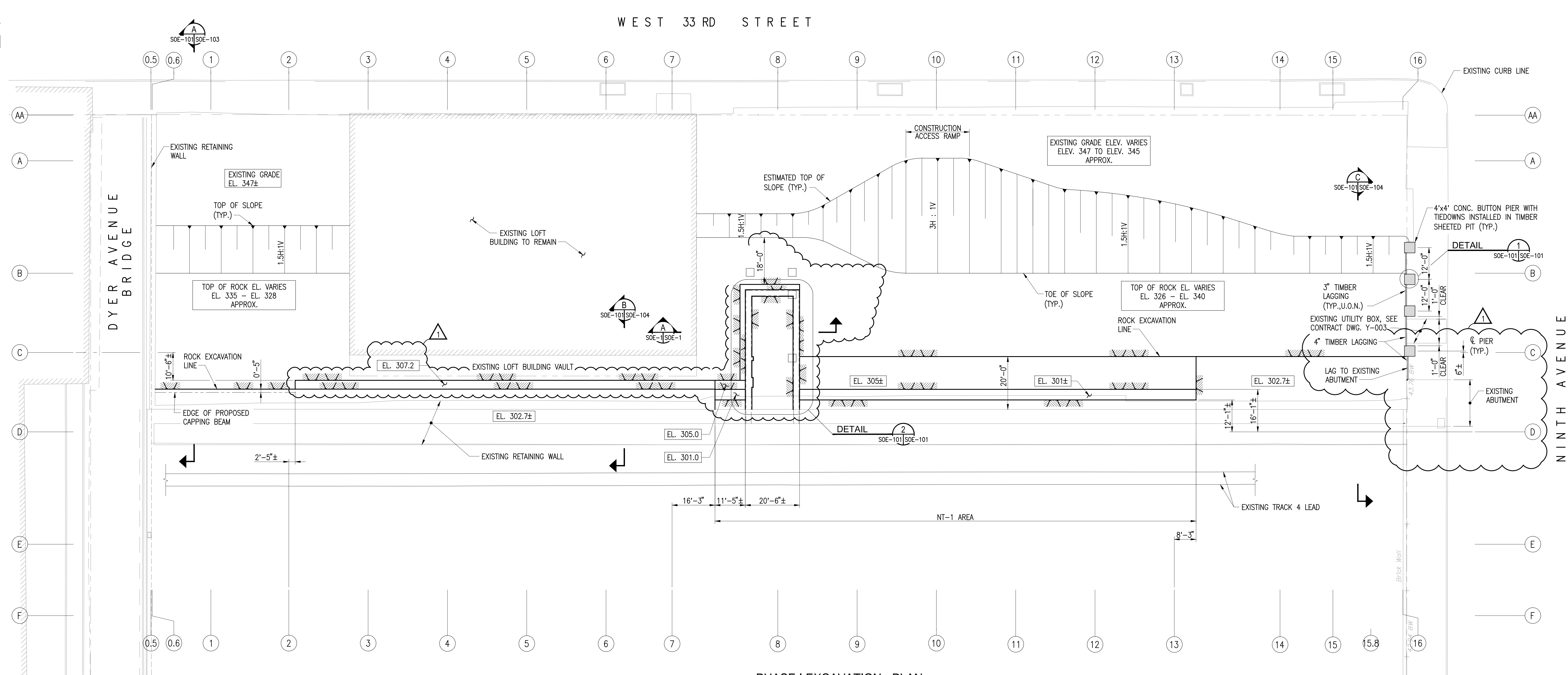


MUESER RUTLEDGE CONSULTING ENGINEERS

14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

OCTOBER 4, 2012
SUBMITTAL NUMBER: 8 REV. 1





PHASE I EXCAVATION - PLAN
SCALE: 1/16"=1'-0"

LIST OF DRAWINGS	
DRAWING NUMBER	DRAWING TITLE
SOE-101	SUPPORT OF EXCAVATION - PHASE I PLAN
SOE-102	SUPPORT OF EXCAVATION - PHASE II PLAN
SOE-103	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1
SOE-104	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 2
SOE-105	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3

GENERAL NOTES:

- ELEVATIONS ON PLANS ARE GIVEN RELATIVE TO PENN RAIL ROAD TUNNELS DATUM. FOR REFERENCE, 0.0' MANHATTAN BOROUGH PRESIDENT DATUM = 300.025'.
- THE SUPPORT OF EXCAVATION SYSTEM HAS BEEN DESIGNED FOR 600 PSF VERTICAL SURCHARGE AT EXISTING GRADE ALONG THE EXTERIOR OF THE SITE.
- MATERIALS:
 - A. CONCRETE REINFORCING: ASTM A 615, GRADE 60
 - B. CONCRETE: MIN. 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - C. TIMBER LAGGING: SOUTHERN PINE OR EQUAL
FB = 1250 PSI (MIN)
FV = 175 PSI (MIN)
 - D. ROCK BOLTS AND DOWELS: ASTM A 615, GRADE 75
 - E. STEEL BEARING PLATES: ASTM A 36 (AT ROCK BOLTS)
 - F. GROUT: MIN. 5000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - F. WELDING: AWS D 1.1, E70XX ELECTRODES
- ALL ROCK BOLTS SHALL BE INSTALLED ACCORDING TO THE DETAILS SHOWN ON DRAWING SOE-105.
- SOIL EXCAVATION SHALL NOT PROCEED DEEPER THAN 2 FEET BELOW THE LAST INSTALLED LAGGING. ALL LAGGING SHALL BE PLACED HORIZONTAL AND BACKPACKED PRIOR TO ADVANCING THE EXCAVATION. THE EXCAVATION SHALL BE SEQUENCED SO THAT STABILITY OF ADJACENT STRUCTURES IS MAINTAINED AT ALL TIMES.
- ROCK EXCAVATION:
 - A. LINE DRILL PERIMETER OF ALL EXCAVATIONS, TYPICALLY, HOLES WILL BE SPACED BY ONE DRILL HOLE DIAMETER.
 - B. INSTALL ROCK BOLTS AS REQUIRED AND AS DIRECTED BY THE ENGINEER. AT LOFT BUILDING INSTALL BOLT PATTERNS AS SHOWN ON CONTRACT DRAWINGS, OR CLOSER.
- CONTRACTOR SHALL LOCATE ALL UTILITIES AND EXISTING UNDERGROUND STRUCTURES PRIOR TO INSTALLING CONCRETE BUTTON PIERS AND ROCK BOLTS. NOTIFY ENGINEER OF ANY CONFLICTS.
- PROPOSED WORK ON DRAWINGS ARE SUBJECT TO SPECIAL INSPECTION IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE.
- CONTRACTOR SHALL ESTABLISH OPTICAL MONITORING POINTS AT 15' CENTERS ALONG THE CONCRETE BUTTON AND LAGGING WALLS. PIERS SHALL BE MONITORED DAILY DURING ACTIVE EXCAVATION ADJACENT TO THEM. WEEKLY OTHERWISE.
- PROTECT ALL SOIL SLOPES FROM RAVELLING. CONTRACTOR TO PROVIDE DRAINAGE DITCH AS REQUIRED TO CONTROL ANY SURFACE WATER RUNOFF. CONTRACTOR SHALL PROVIDE SUMPS AS REQUIRED TO Dewater THE SITE AND FOLLOW SEDIMENT AND EROSION CONTROL REQUIREMENTS.
- SPECIAL DRAINAGE REQUIREMENTS EXIST AT THE EXISTING DRAINAGE PORTALS OF THE AMTRAK RETAINING WALL. PROTECT THE WALL DRAINAGE CHASES AT ALL TIMES FROM DAMAGE AND SILT LAIDEN WATER.
- BACKFILL WITH 3" STONE UP TO A LEVEL OF 4 FEET BELOW BOTTOM OF COLUMN FOOTING. BACKFILL IN 12 INCH LIFTS AND COMPACT WITH 3 PASSES OF A SOIL VIBRATORY PLATE TAMPER. CAP STONE FILL WITH A SEPARATION GEOTEXTILE, 12" FLOWABLE FILL AND THEN FILL TO UNDERSIDE OF COLUMN FOOTING WITH CONTROLLED FILL OR CONTINUE WITH FLOWABLE FILL.

PHASE I AND PHASE II EXCAVATION NOTES:

- EXCAVATION SUBGRADE SHOWN AT PROPOSED CONCRETE CAPPING BEAM IS THE BOTTOM OF THE PROPOSED 4" THICK EXTRUDED POLYSTYRENE LAYER. DRAINAGE TRENCHES AT CAPPING BEAM NOT SHOWN SEE CONTRACT DRAWING DR-1. SEE SECTION B ON SOE-101 FOR SUBGRADE AT PROPOSED WALL.
- EXCAVATION SUBGRADE SHOWN AT PROPOSED SLABS-ON-GRADE IN STAIR AREA IS BASED ON AN 8" GRAVEL LAYER BELOW PROPOSED SLAB. CONTRACTOR TO VERIFY THICKNESS OF GRAVEL LAYER REQUIRED.
- SEE DRAWING SOE-102 FOR PHASE II EXCAVATION.
- CONTRACTOR SHALL PLACE A CONTINUOUS RUN OF HAY BALES AT THE TOE OF THE SLOPE TO FILTER RUN-OFF WATER. OTHER SEDIMENT AND EROSION CONDITIONS APPLY.

REFERENCE DRAWINGS:

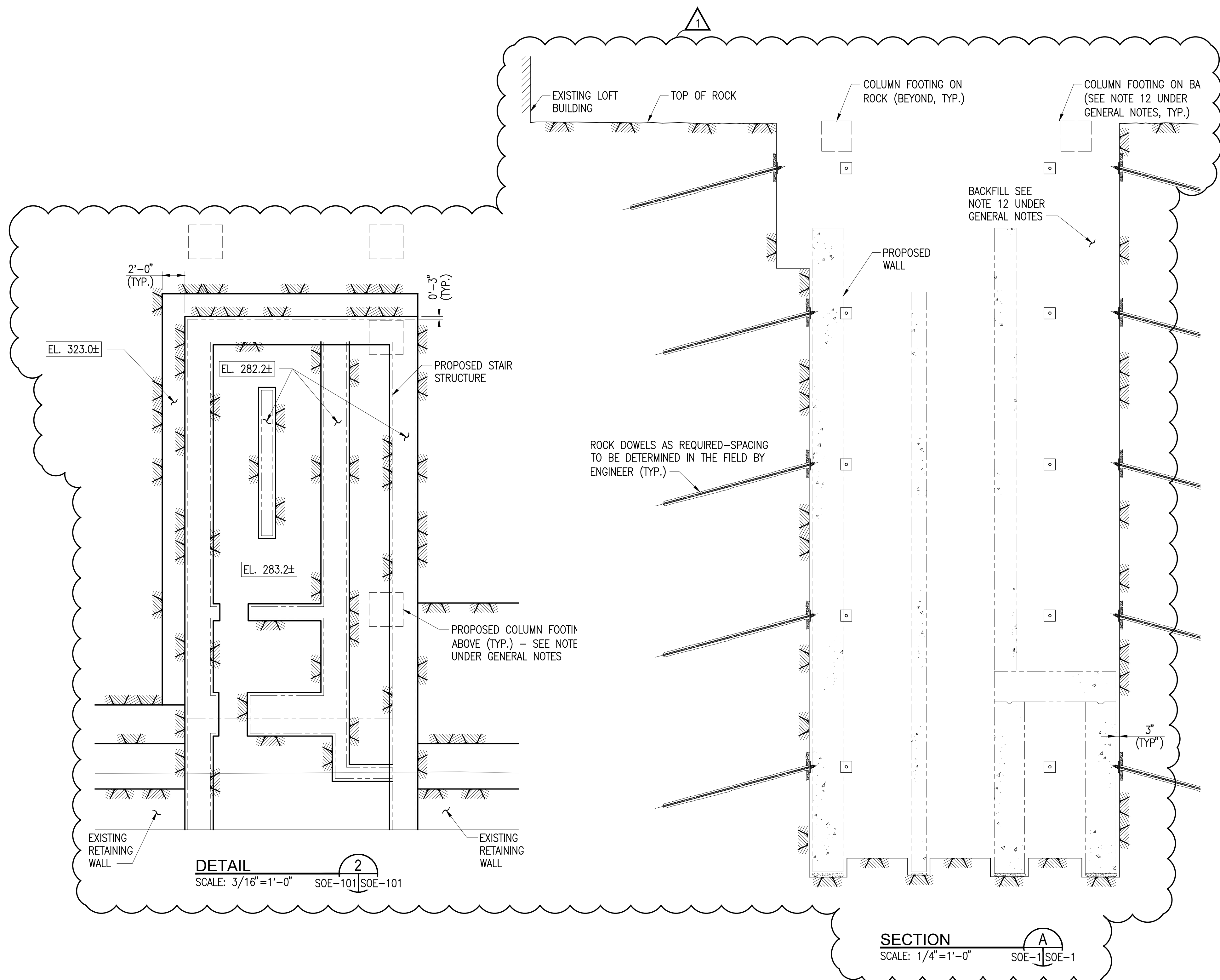
- EXISTING UTILITIES, RETAINING WALLS AND OTHER EXISTING STRUCTURES AND EXISTING GRADE ELEVATIONS SHOWN ARE BASED ON CONTRACT DRAWINGS Y-002 AND Y-003.
- TRACK LAYOUT SHOWN IS FROM CONTRACT DRAWING S-102.

ROCK DOWEL/BOLT NOTES:

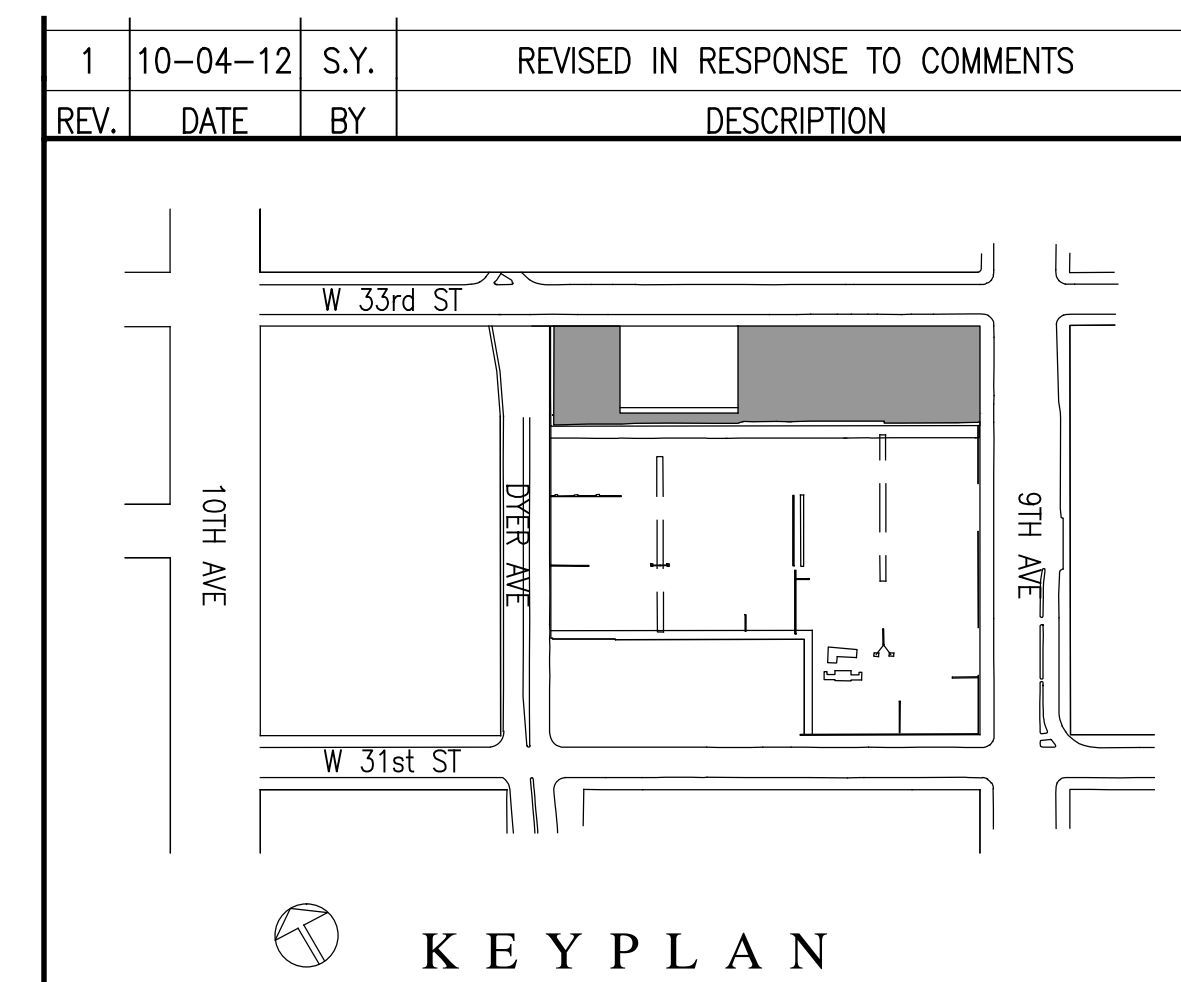
- CLEAN HOLES WITH WATER PRIOR TO INSERTING STEEL BARS.
- TENSIONED ANCHORS SHALL BE TESTED IN ACCORDANCE WITH "RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS", POST-TENSIONING INSTITUTE.

DEFINITIONS:

- PHASE I - EXCAVATION FOR CAPPING BEAM.
- PHASE II - EXCAVATION FOR STRUCTURES WEST OF LOFT BUILDING.
- ROCK BOLT - TENSIONED ANCHOR.
- ROCK DOWEL - UNTENSIONED ANCHOR.



SECTION
SCALE: 1/4"=1'-0"



9TH AVENUE DEVELOPMENT
NEW YORK

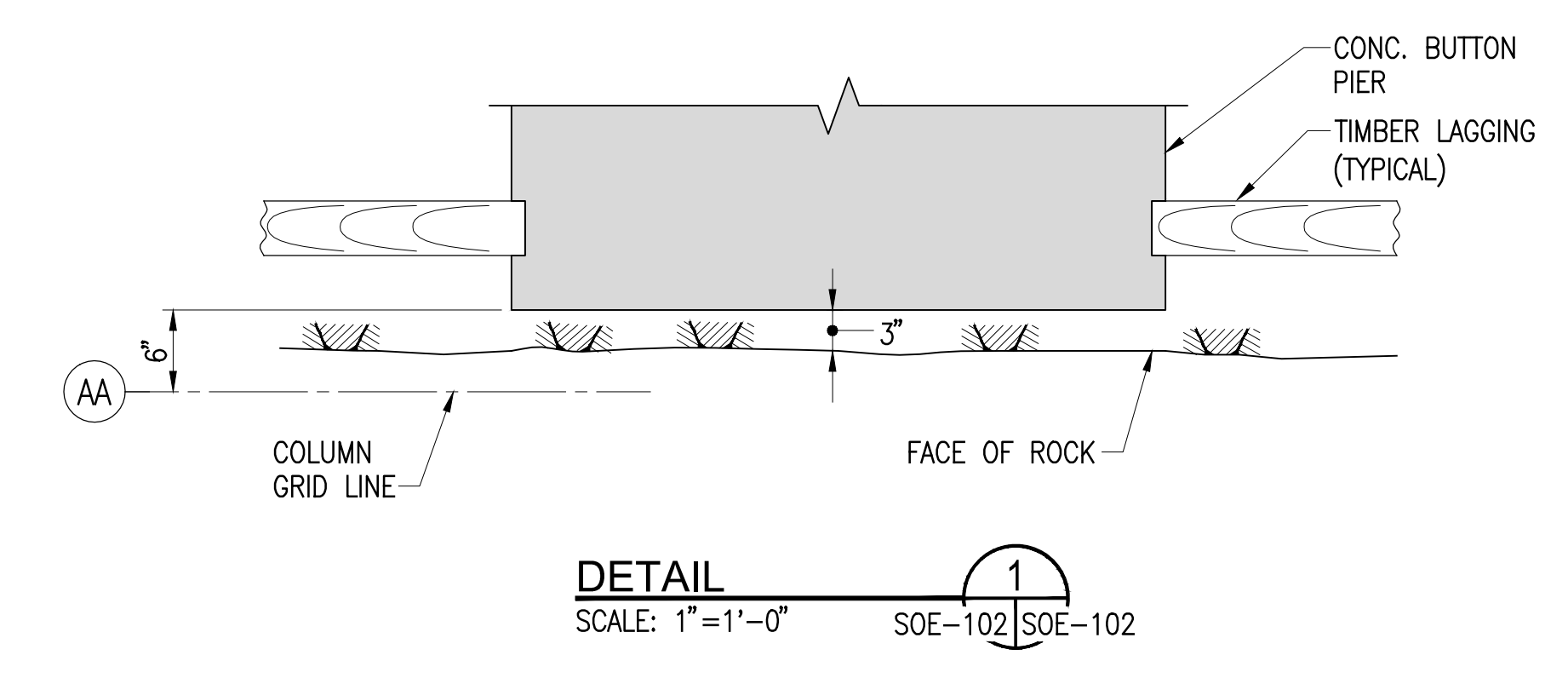
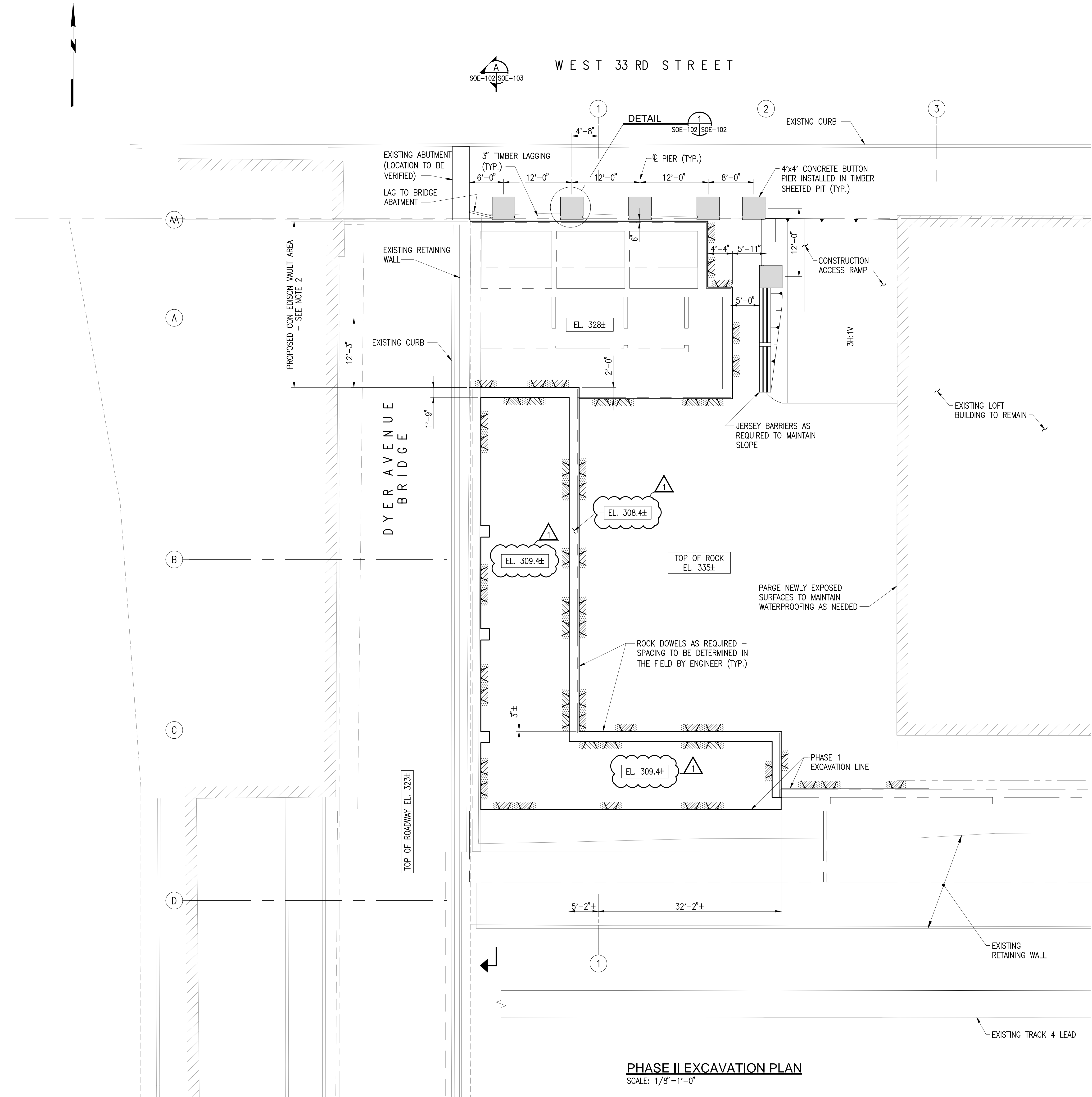
BROOKFIELD PROPERTIES
NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
NEW YORK

APPROVED UNDER DIRECTIVE 013785
AMENDED APPLICATION
DATE: 08-06-2012
FILE NUMBER: 11797

PHASE I EXCAVATION PLAN
DRAWING NUMBER: SOE-101
SHEET OF

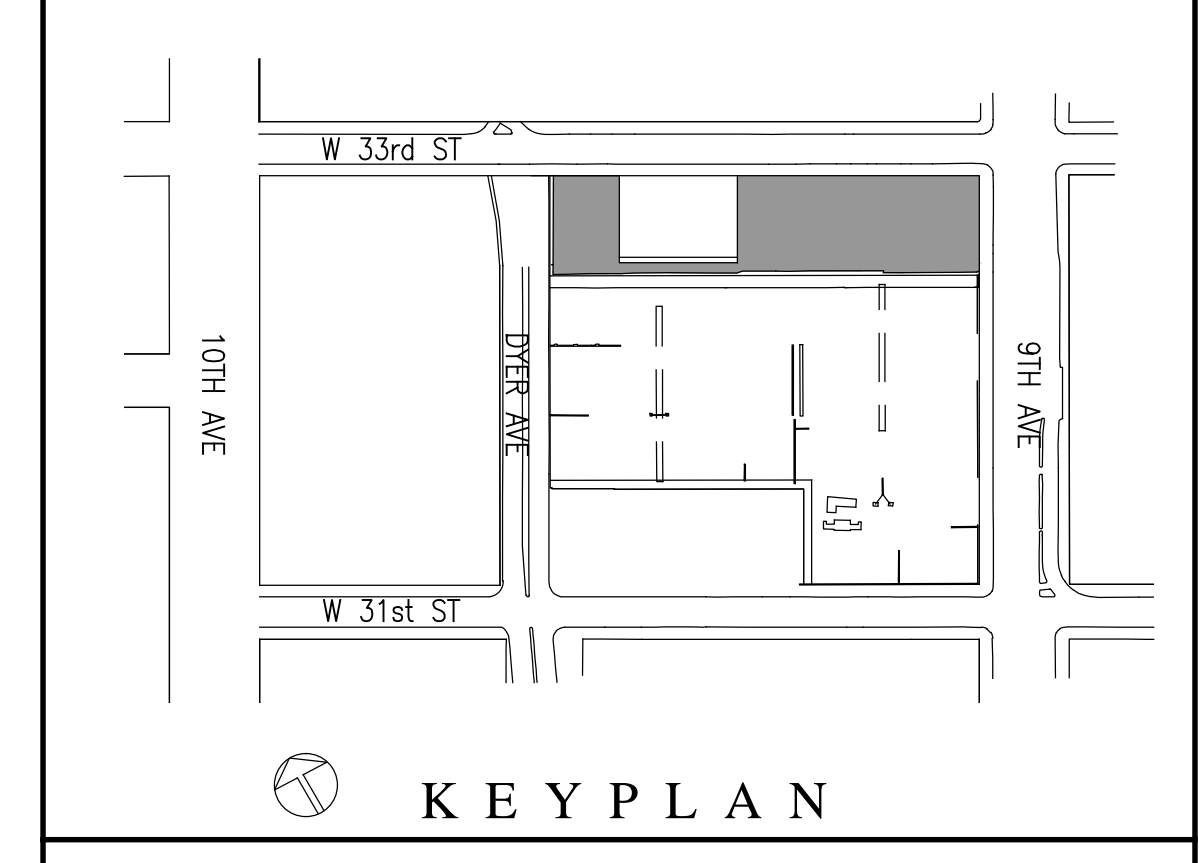
WEST 33 RD STREET



- NOTES:**
1. SEE DRAWING SOE-101 FOR PHASE I EXCAVATION SLOPES AND ROCK CUTS IN THIS AREA.
 2. SUBGRADE ELEVATION SHOWN IS BASED ON 2'-0" BELOW TOP OF SLAB. REFER TO CON EDISON STANDARD DETAILS FOR REQUIRED EXCAVATION DEPTH UNDER PROPOSED SLAB AND WALLS IN THIS AREA.

PHASE II EXCAVATION PLAN
SCALE: 1/8"=1'-0"

REV.	DATE	BY	DESCRIPTION
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



9TH AVENUE DEVELOPMENT
NEW YORK

BROOKFIELD PROPERTIES
NEW YORK

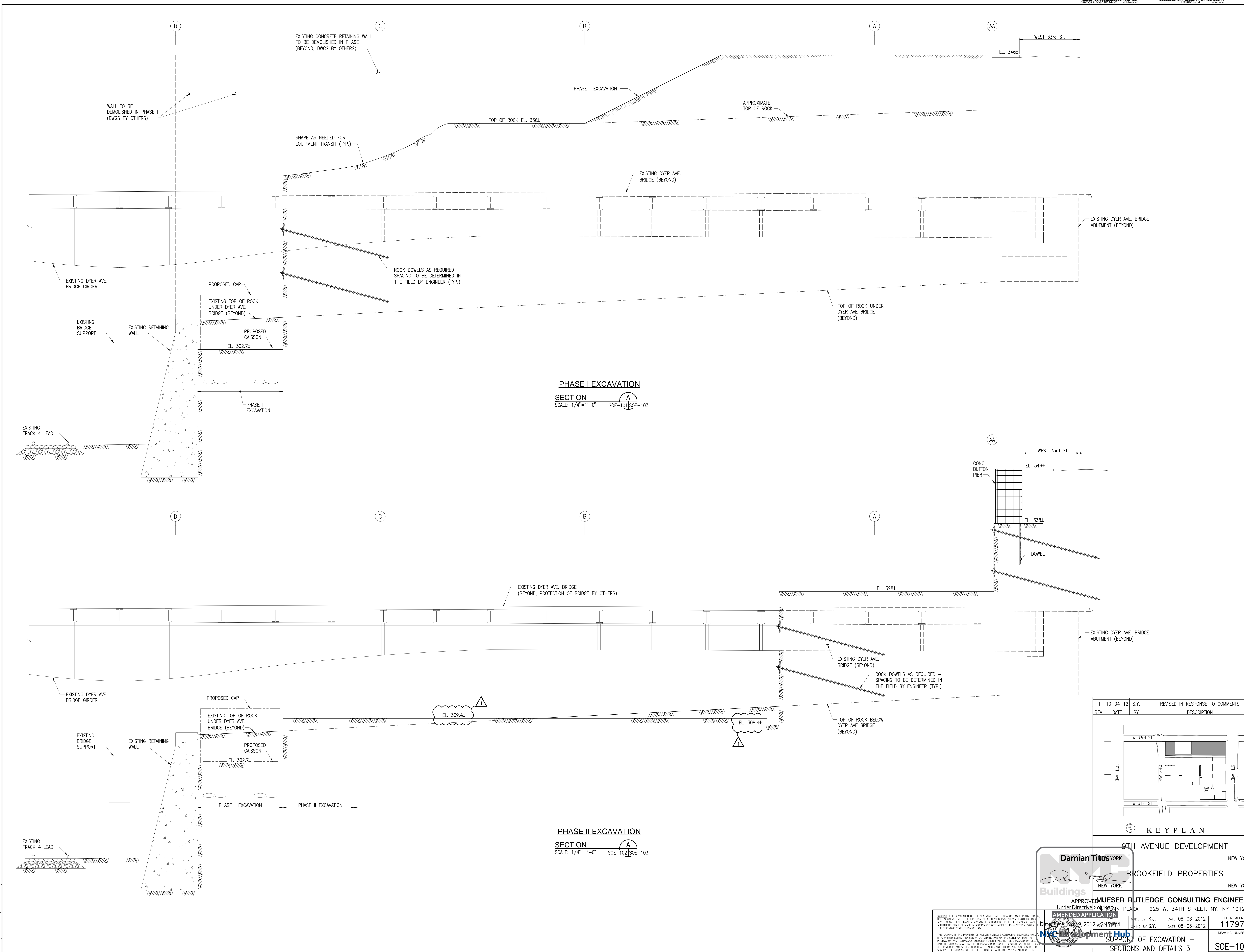
MUESER RUTLEDGE CONSULTING ENGINEERS
Under Directives of the Board of Regents
100 WEST 31ST STREET, NEW YORK, NY 10012

APPROVED BY: *[Signature]*
DATE: 08-06-2012

MADE BY: K.J. DATE: 08-06-2012
CHECKED BY: S.Y. DATE: 08-06-2012

FILE NUMBER: 11797
DRAWING NUMBER: SOE-102
SHEET OF

WARNING: IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, FIRM OR COMPANY TO REPRODUCE OR TRANSMIT THIS DRAWING OR ANY PART THEREOF IN ANY MANNER WITHOUT THE WRITTEN AUTHORIZATION OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY REPRODUCTION OR TRANSMISSION OF THIS DRAWING WITHOUT THE WRITTEN AUTHORIZATION OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. IS PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.



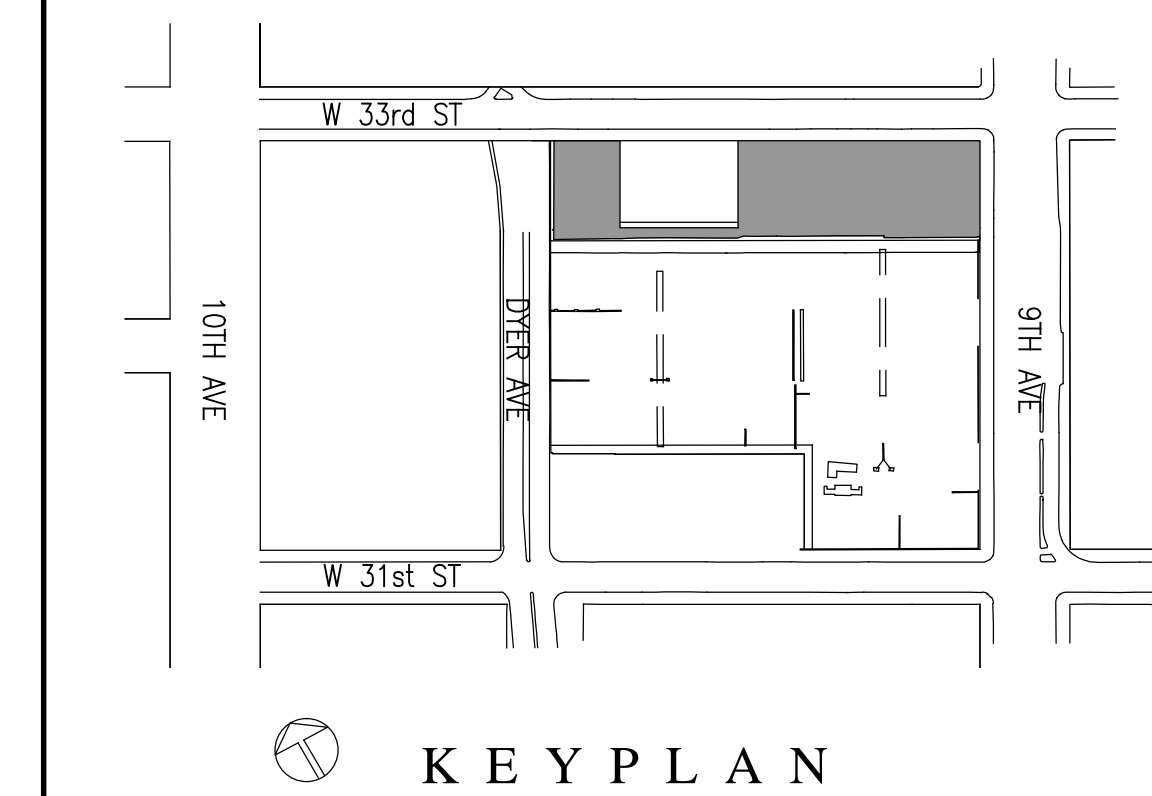
PHASE I EXCAVATION

SECTION **A**
SCALE: 1/4"=1'-0" SOE-101|SOE-103

PHASE II EXCAVATION

SECTION **A**
SCALE: 1/4"=1'-0" SOE-102|SOE-103

1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS
REV.	DATE	BY	DESCRIPTION



9TH AVENUE DEVELOPMENT
NEW YORK

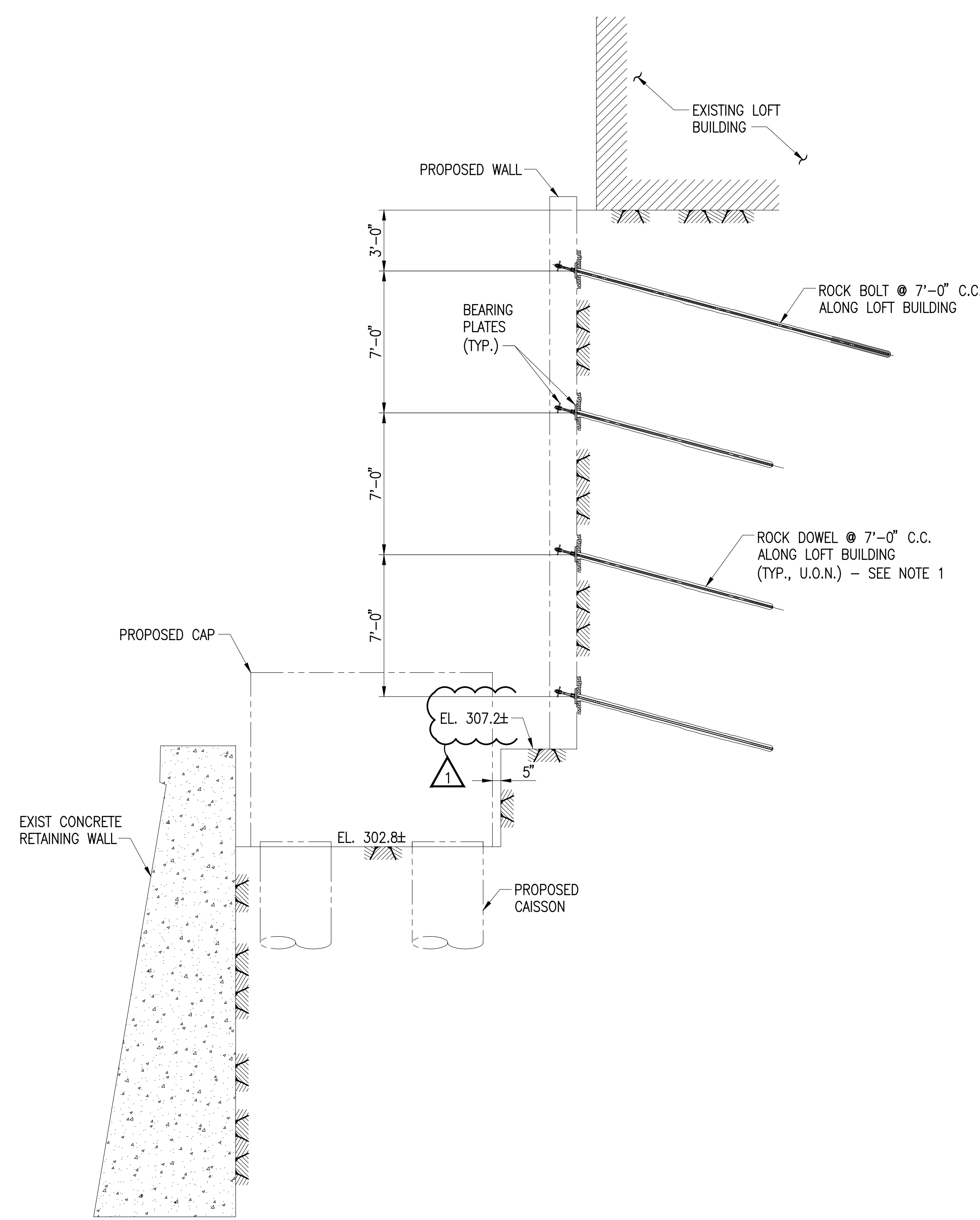
BROOKFIELD PROPERTIES
NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
Under Directives of the City of New York
111 W. 31st Street, New York, NY 10018
DATE: 08-06-2012
CHECKED BY: S.Y.

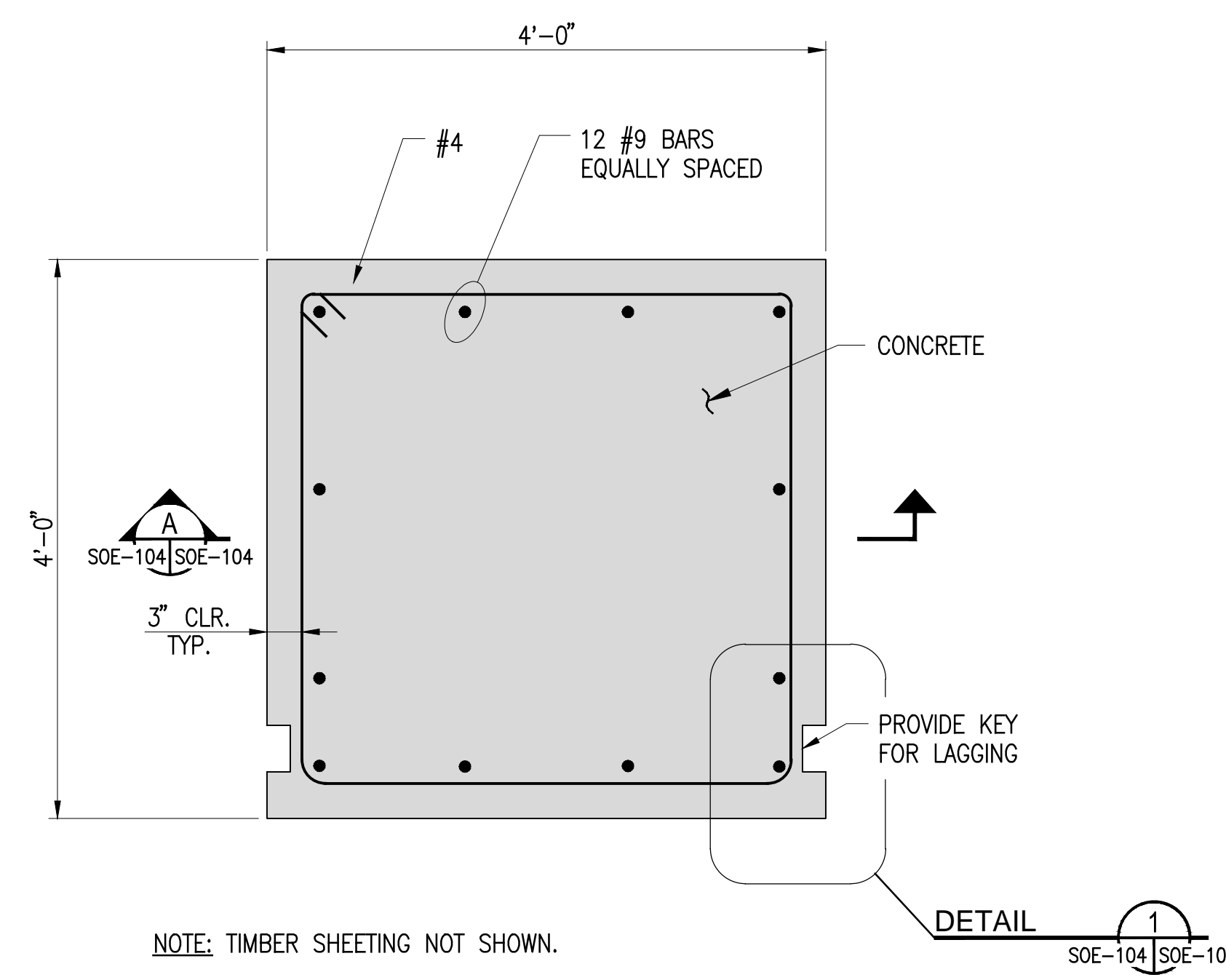
DAMIAN TITUS BUILDINGS
AMENDED APPLICATION
DATE: 08-06-2012
FILE NUMBER: 11797

SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3
DRAWING NUMBER: **SOE-103**
SHEET OF

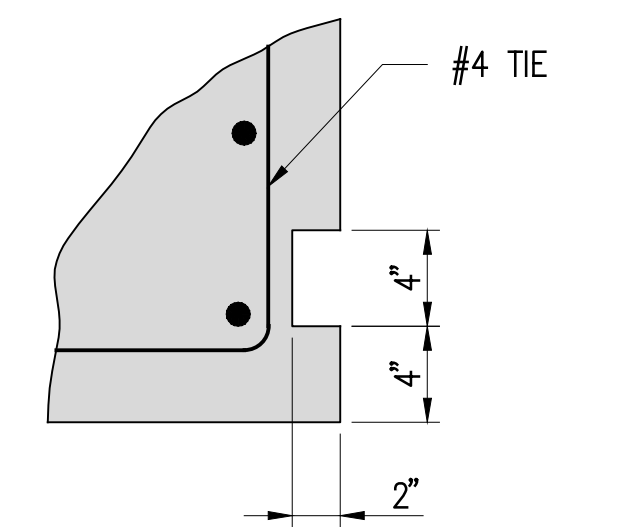
NOTICE: THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DRAWING IS STRICTLY PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW. THE DRAWING SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DRAWING IS STRICTLY PROHIBITED AND WILL BE PROSECUTED TO THE FULL EXTENT OF THE LAW.



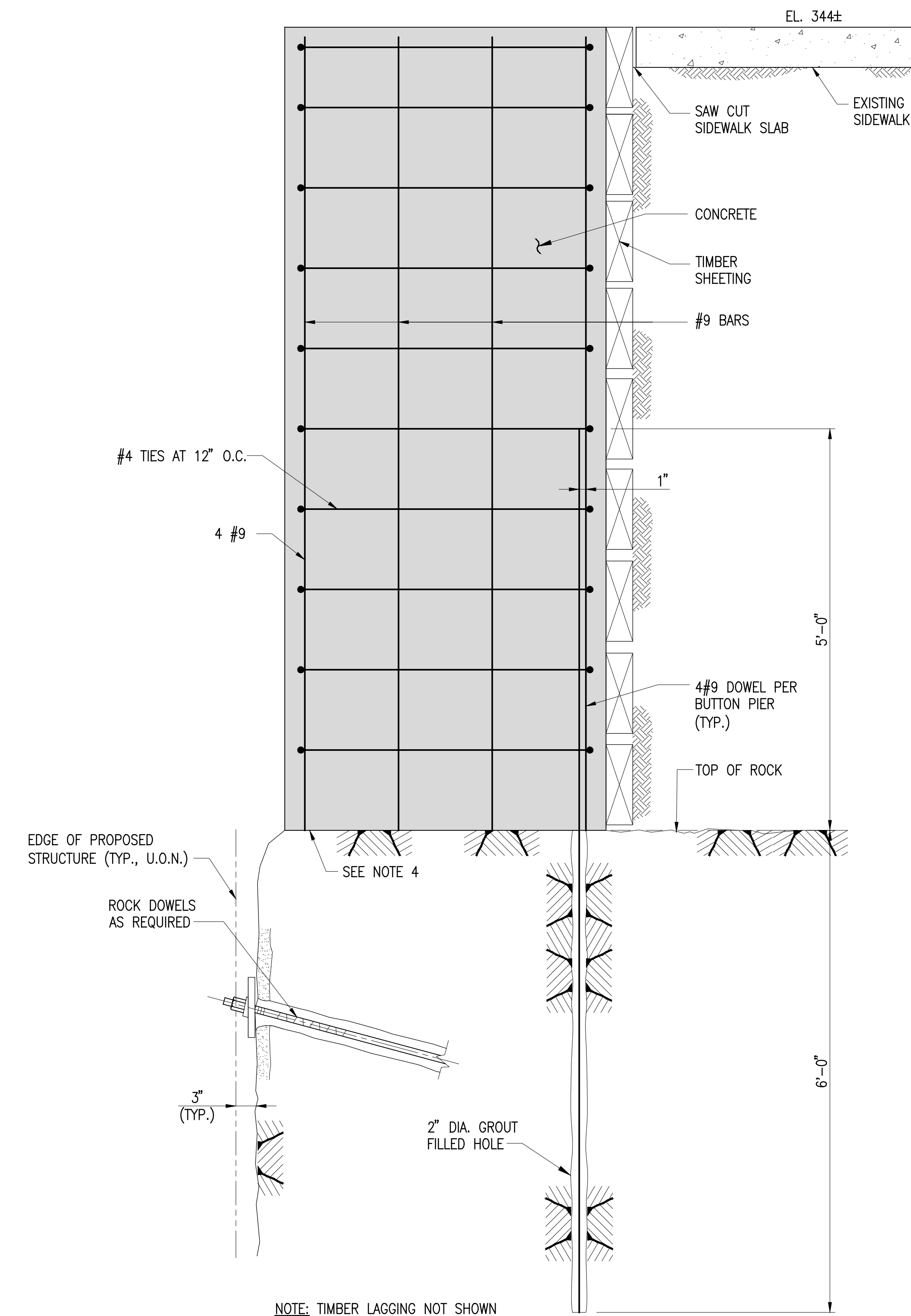
SECTION B
SCALE: 1/4"=1'-0" SOE-101 SOE-103



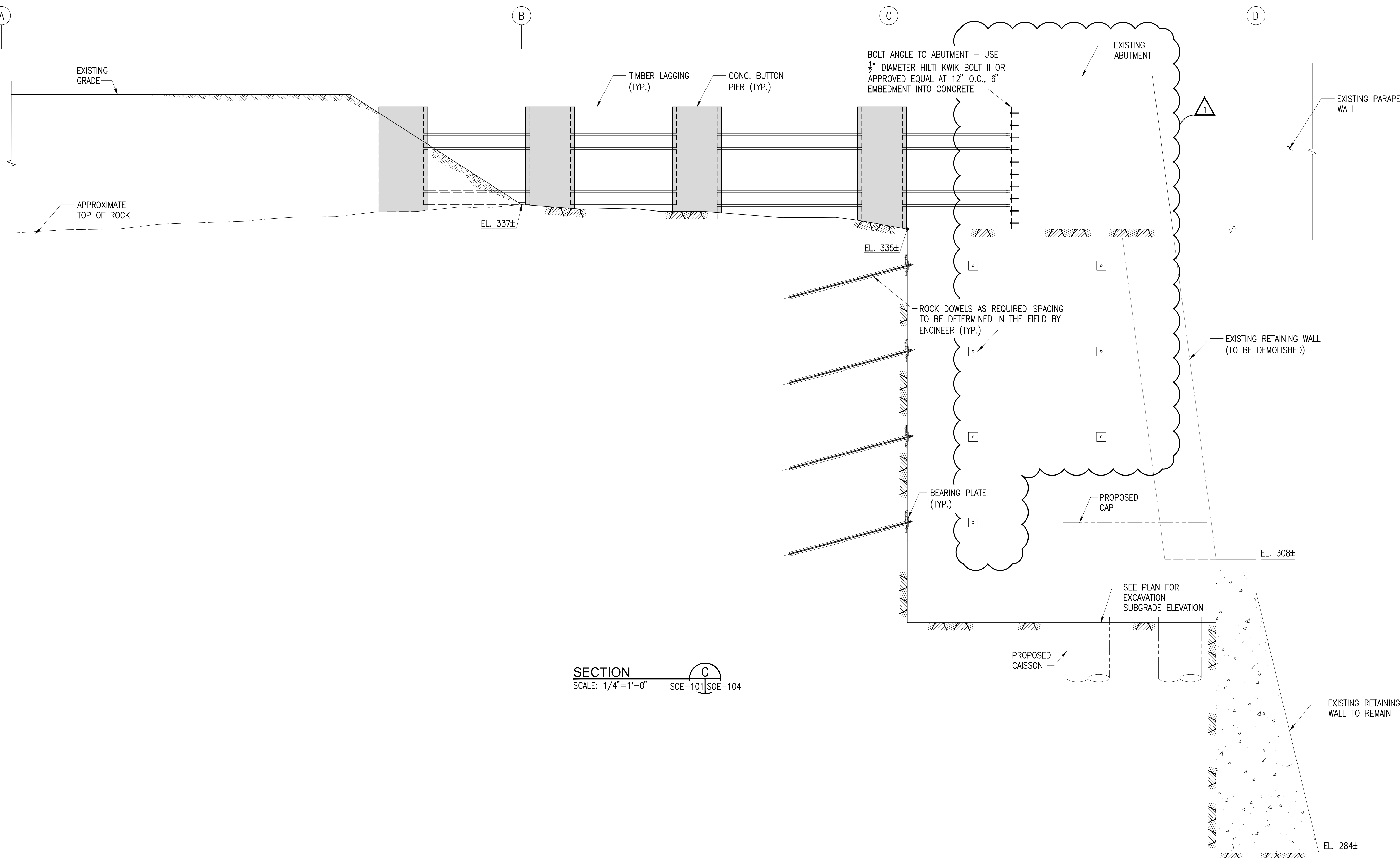
NOTE: TIMBER SHEETING NOT SHOWN.
TYPICAL CONCRETE BUTTON PIER PLAN
SCALE: 1"=1'-0"



DETAIL 1
SCALE: 1 1/2"=1'-0" SOE-104 SOE-104



NOTE: TIMBER LAGGING NOT SHOWN
SECTION A
SCALE: 1"=1'-0" SOE-104 SOE-104



SECTION C
SCALE: 1/4"=1'-0" SOE-101 SOE-104

- NOTES:**
- ROCK BOLT SPACING SHOWN IS MINIMUM. IF ROCK QUALITY IS POOR ADDITIONAL ROCK BOLTS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
 - ALL ROCK BOLTS ADJACENT TO THE LOFT BUILDING SHALL BE EPOXY COATED (SEE CONTRACT DRAWING S-407).
 - BEARING PLATES AT LOFT BUILDING SHALL BE GALVANIZED (SEE CONTRACT DRAWING S-407).
 - ROCK SUBGRADE FOR CONCRETE BUTTON PIER SHALL BE NYC CLASS IC OR BETTER.

REV.	DATE	BY	S.Y.	DESCRIPTION
1	10-04-12	S.Y.		REVISED IN RESPONSE TO COMMENTS

KEY PLAN

9TH AVENUE DEVELOPMENT
NEW YORK

BROOKFIELD PROPERTIES
NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
225 W. 34TH STREET, NY, NY 10122

APPROVED BY: [Signature]
Under Directives of [Signature]

AMENDED APPLICATION
Date of Application: Nov 9, 2012 AS/NPM

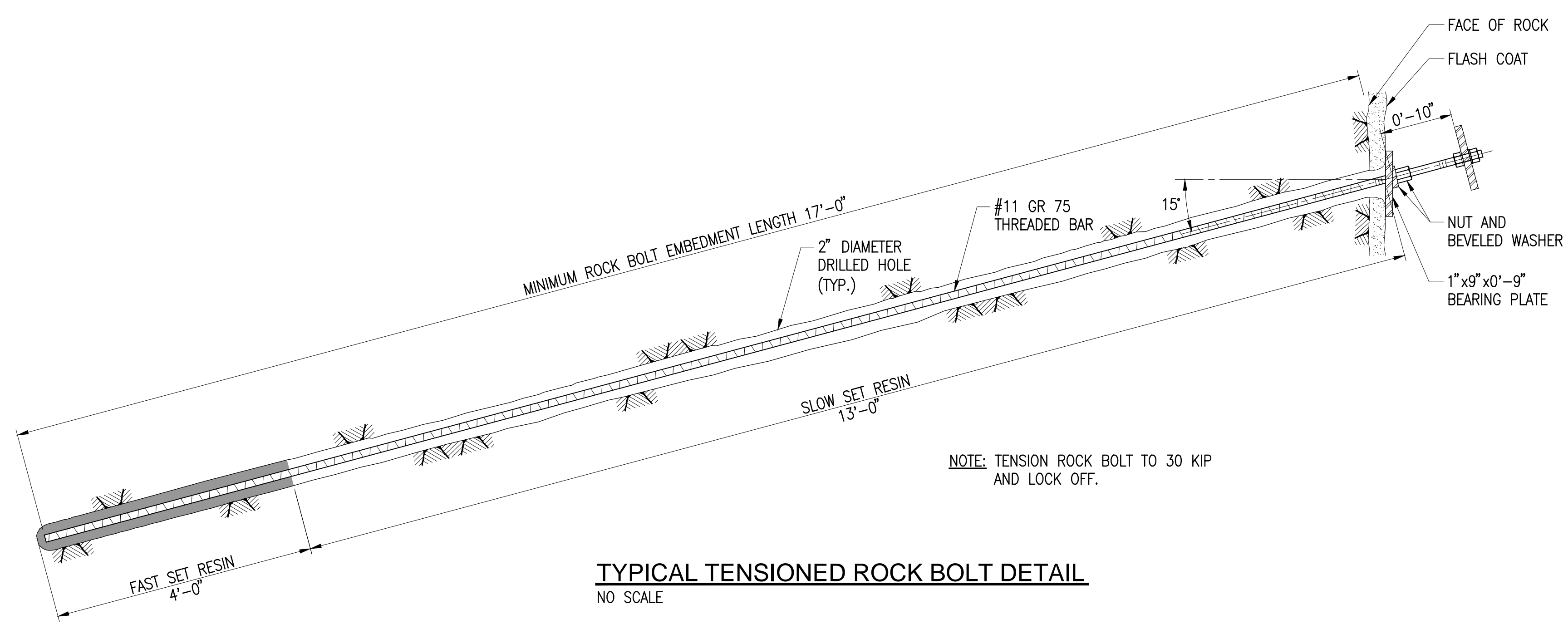
MADE BY: K.J. DATE: 08-06-2012 FILE NUMBER: 11797
CHECKED BY: S.Y. DATE: 08-06-2012

SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1

DRAWING NUMBER: **SOE-104**
SHEET OF

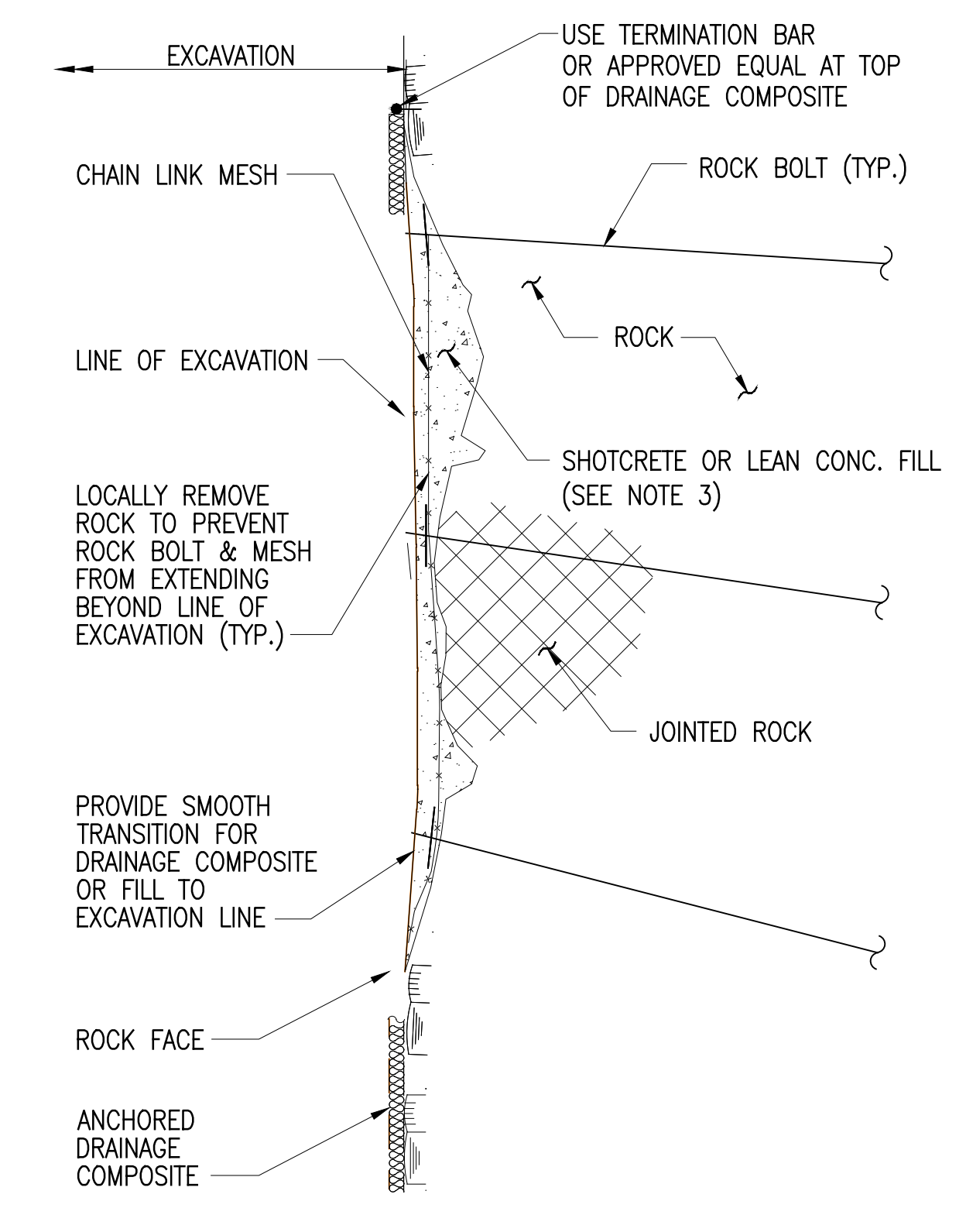
AMENDING IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON UNLESS PERMITTED BY THE DIRECTOR OF A LICENSED PROFESSIONAL ENGINEER. NO ONE SHALL PERFORM UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER UNLESS HE OR SHE IS A LICENSED PROFESSIONAL ENGINEER. ANY PERSON WHO VIOLATES THIS SECTION SHALL BE PENALIZED AS PROVIDED IN ARTICLE 160, SECTION 160.1 OF THE NEW YORK STATE EDUCATION LAW.

THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS. ANY REPRODUCTION OR TRANSMISSION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS IS PROHIBITED. ANY PERSON WHO VIOLATES THIS NOTICE, WHETHER WILLFULLY OR NEGLIGENT, SHALL BE PENALIZED AS PROVIDED IN ARTICLE 160, SECTION 160.1 OF THE NEW YORK STATE EDUCATION LAW.

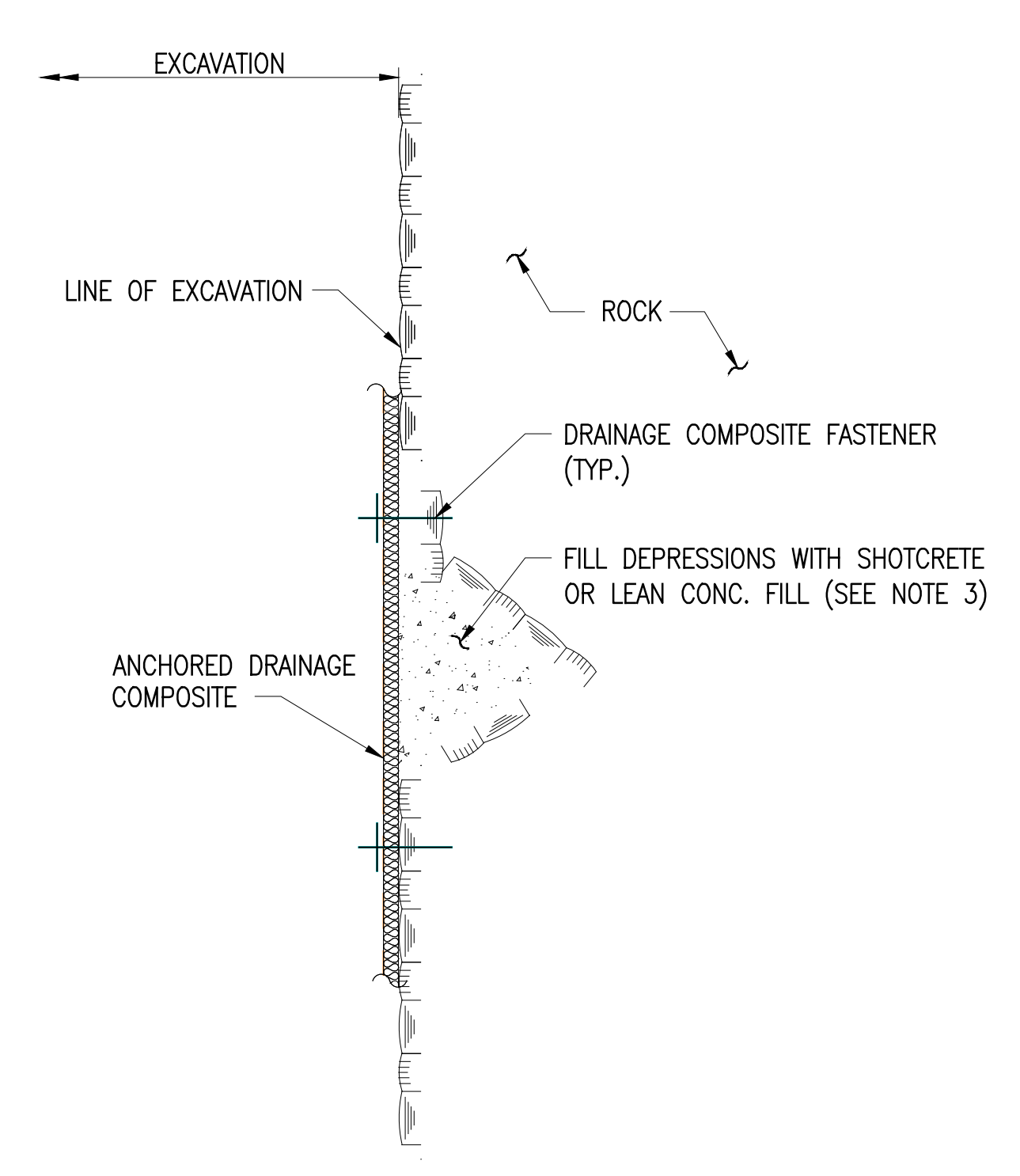


TYPICAL TENSIONED ROCK BOLT DETAIL
NO SCALE

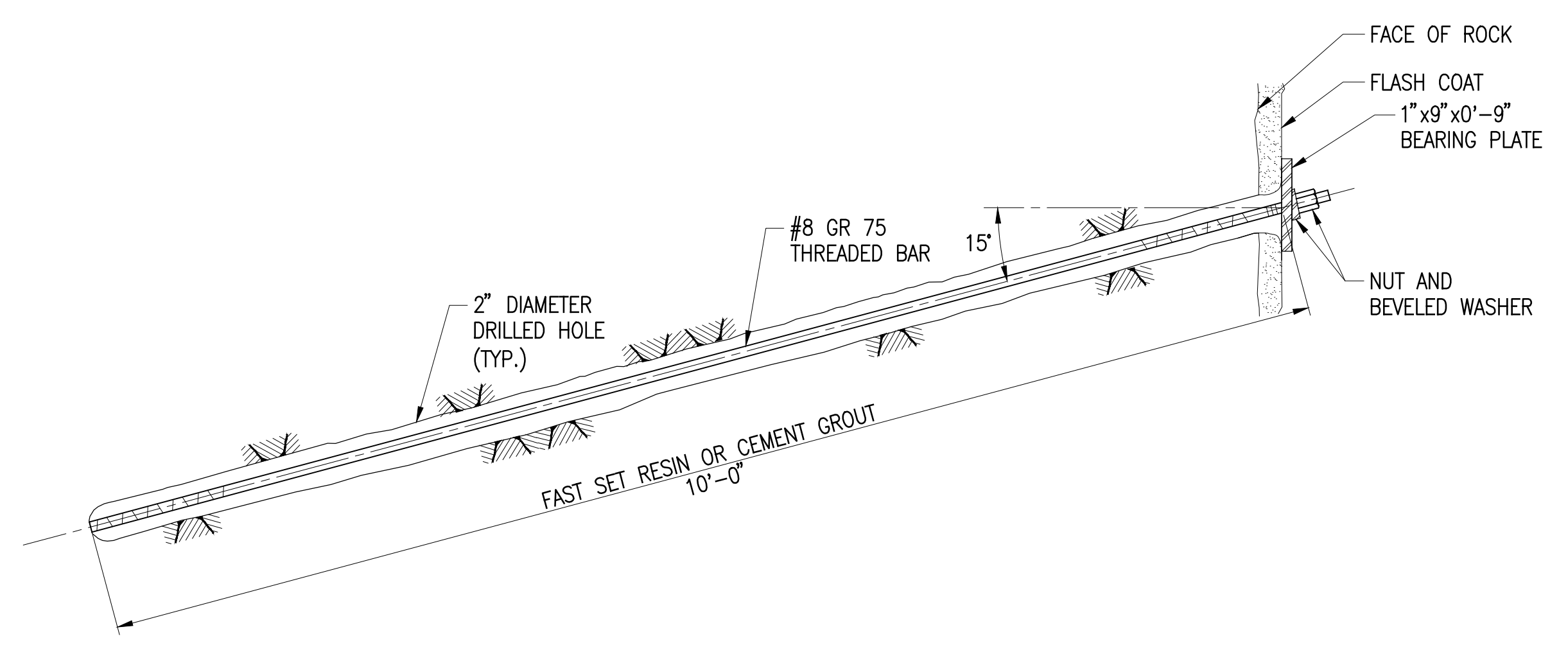
NOTE: TENSION ROCK BOLT TO 30 KIP AND LOCK OFF.



ROCK FACE SUPPORT WITH CHAIN LINK MESH
NO SCALE

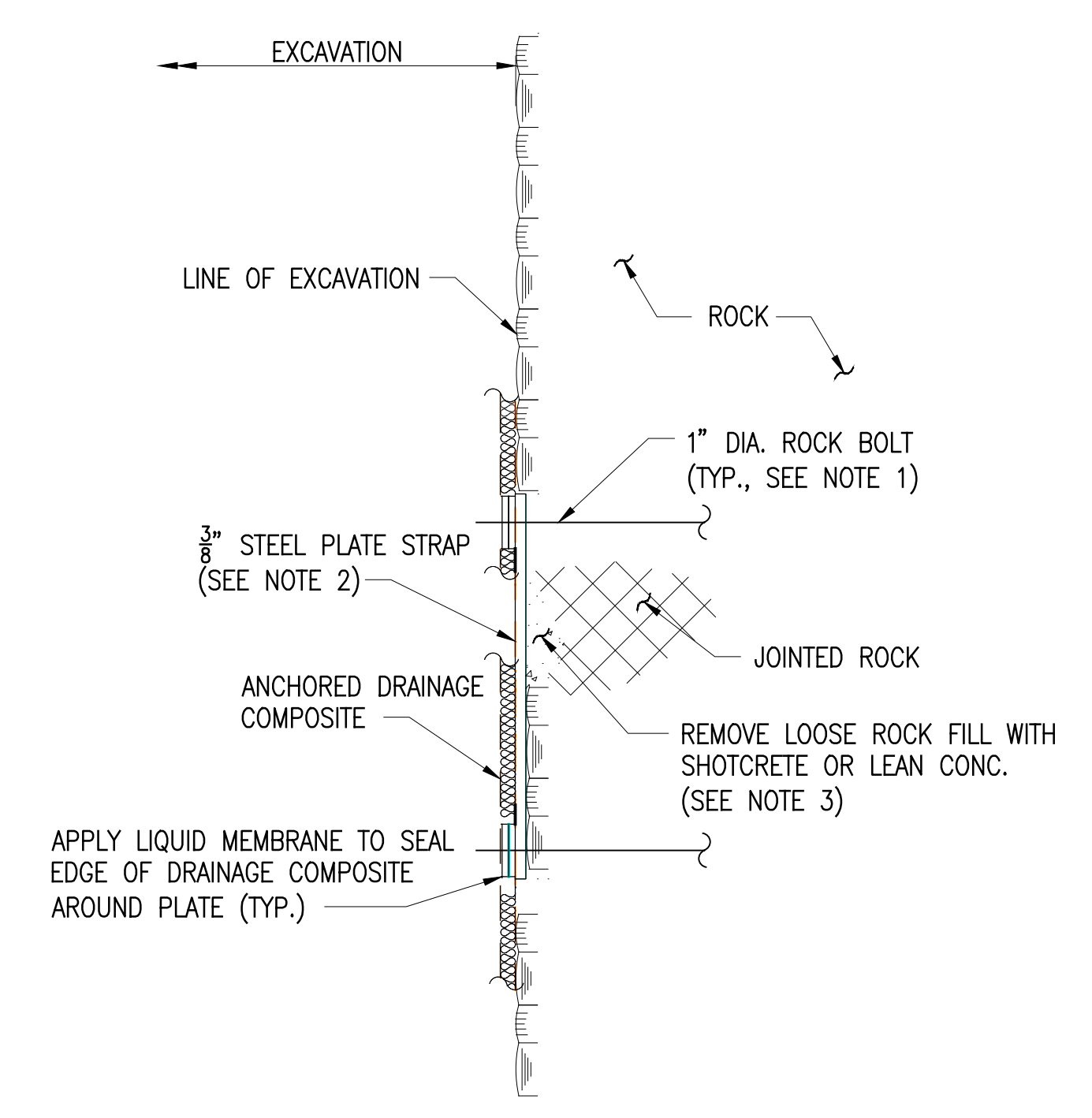


ROCK SURFACE PREPARATION
NO SCALE

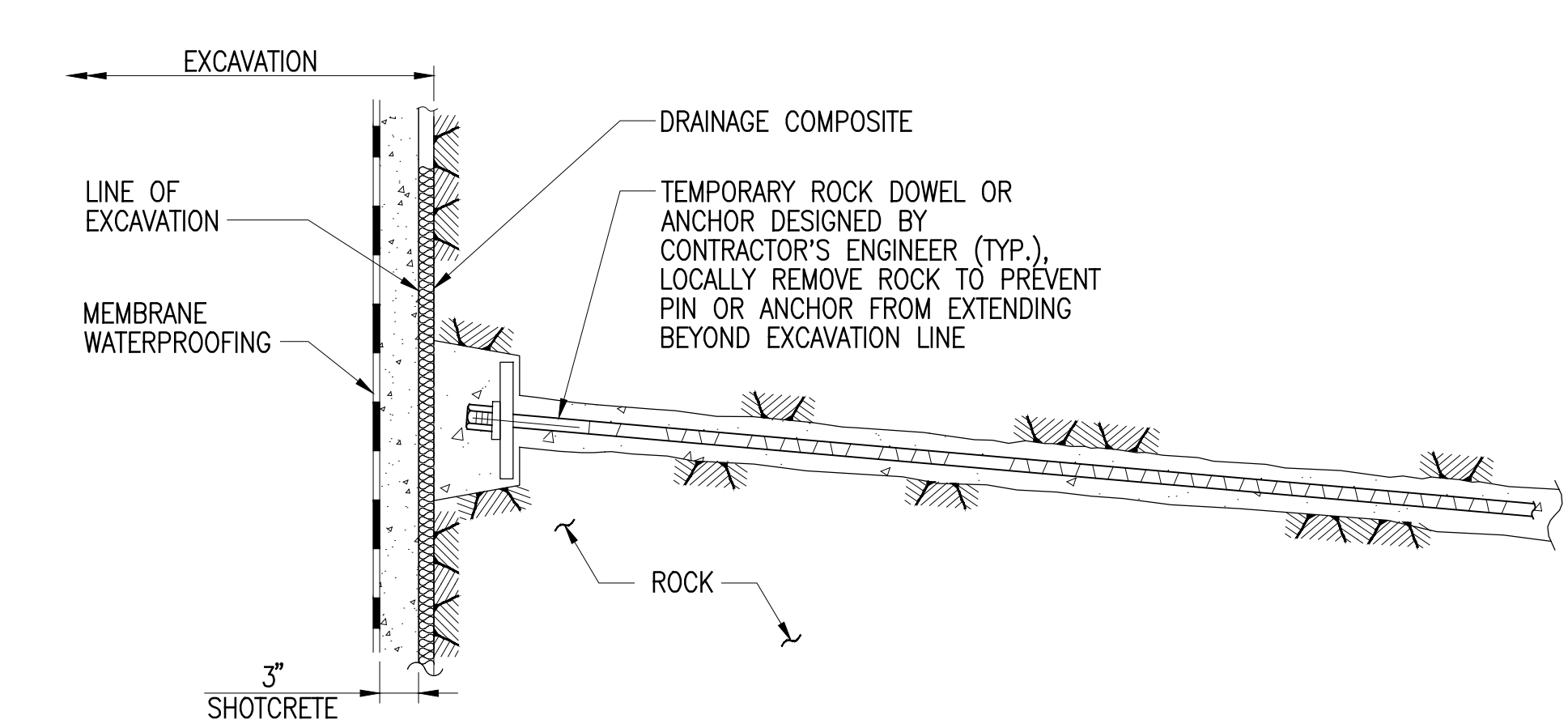


TYPICAL UNTENSIONED ROCK DOWEL DETAIL
NO SCALE

NOTE: AT LOFT BUILDING PROVIDE SECOND BEARING PLATE. SEE TYPICAL TENSIONED ROCK BOLT DETAIL.



ROCK FACE SUPPORT AT HIGHLY JOINTED AREAS BELOW EXISTING FOUNDATIONS
NO SCALE

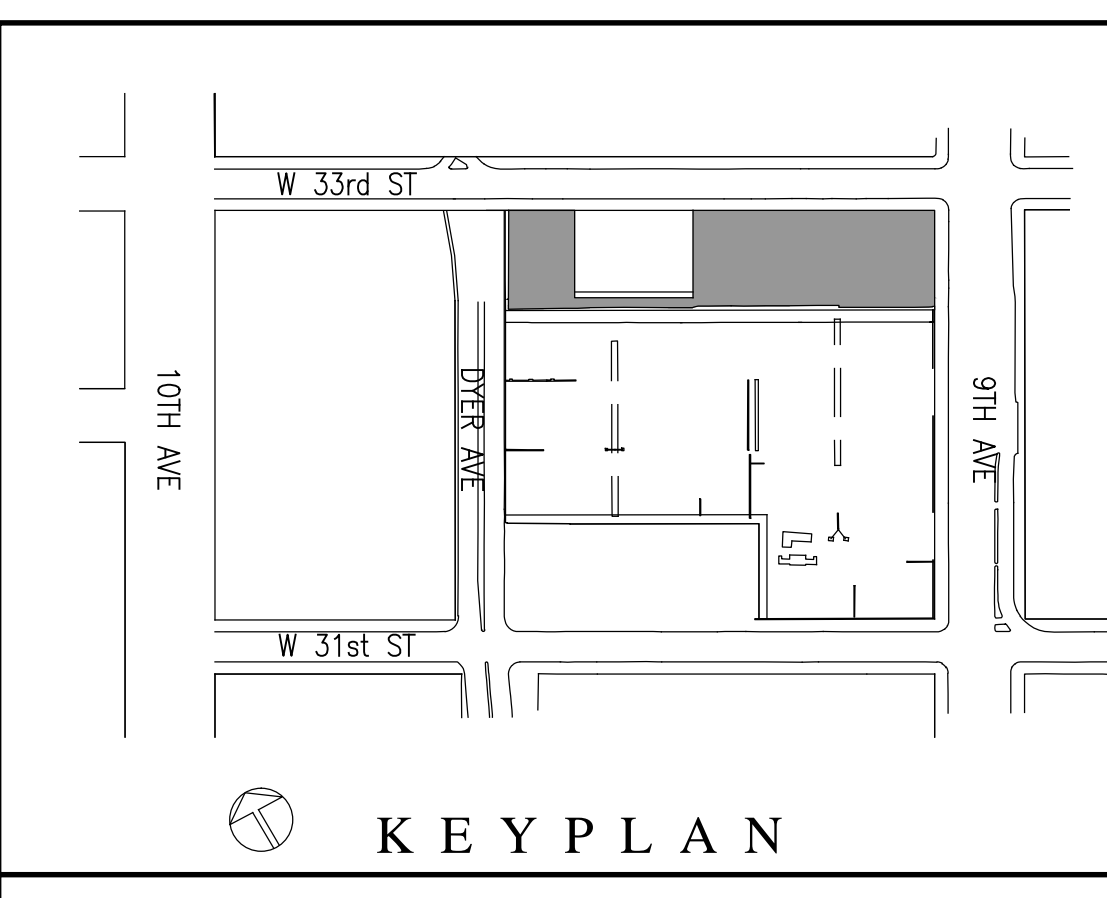


ROCK FACE SUPPORT IN AREA WITH MEMBRANE WATERPROOFING
NO SCALE

NOTE: INTERFACE BETWEEN DRAINAGE COMPOSITE AND PERMANENT PIPING NOT SHOWN. SEE CONTRACT DOCUMENTS.

NOTES:

- STEEL PLATE STRAPS SHALL ALSO BE INSTALLED BETWEEN ANCHORS IF CONDITIONS REQUIRE IT.
- LOCALLY REMOVE ROCK BEHIND PLATE STRAP, AS REQUIRED, TO PREVENT PLATE STRAP AND ROCK BOLT PLATE FROM EXTENDING BEYOND LINE OF EXCAVATION. THE END OF THE ROCK BOLT SHALL NOT PROJECT MORE THAN 2 INCHES BEYOND THE LINE OF EXCAVATION, EXCEPT WHERE WATERPROOFING IS APPLIED. (SEE DETAIL ON SOE-105)
- INSTALL 1" DIA PVC PIPE SLEEVES OR DRILL 1" DIA DRILL HOLES IN SHOTCRETE AND CONCRETE USED TO FILL DEPRESSIONS IN ROCK TO PROVIDE A FLOW PATH FROM THE ROCK SURFACE TO THE DRAINAGE COMPOSITE. DRAIN HOLES SHALL BE ALIGNED WITH ROCK JOINTS AND SPACED NO MORE THAN 2 FEET CENTER TO CENTER. INSTALL WEAP HOLES WHERE PATCHED AREA EXCEEDS 20 SQUARE FEET OR IF SEEPAGE IS VISIBLE.



9TH AVENUE DEVELOPMENT

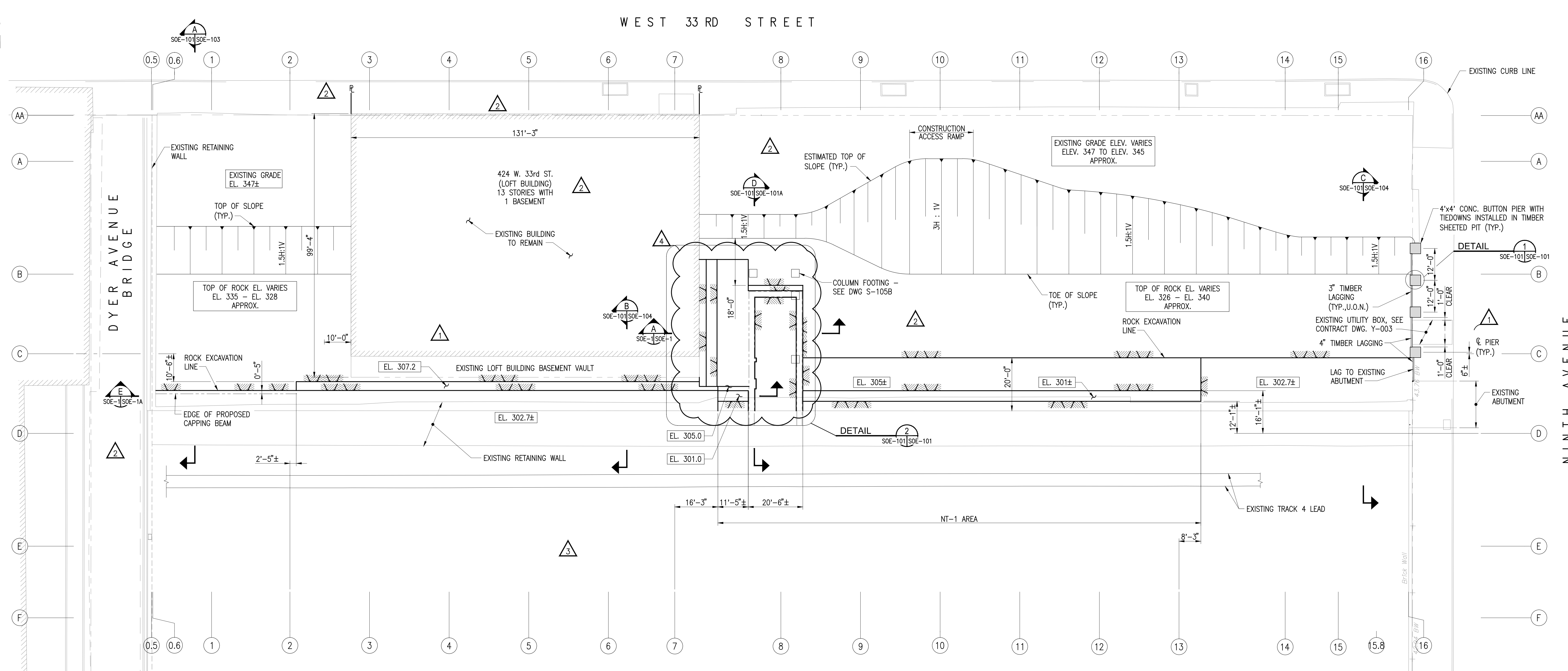
Damian Titus
Buildings
APPROVED
Under Directive 2012-01-19

MUESER RUTLEDGE CONSULTING ENGINEERS
11797
SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3
SOE-105

DATE: 08-06-2012
DATE: 08-06-2012

FILE NUMBER: 11797
DRAWING NUMBER: SOE-105
SHEET OF

THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY UNAUTHORIZED REPRODUCTION OR TRANSMISSION OF THIS DRAWING IS STRICTLY PROHIBITED AND WILL BE TREATED AS A VIOLATION OF THE PROFESSIONAL ENGINEERING AND ARCHITECTURE ACTS OF THE STATE OF NEW YORK.



PHASE I EXCAVATION - PLAN
SCALE: 1/16"=1'-0"

LIST OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE
SOE-101	SUPPORT OF EXCAVATION - PHASE I PLAN
SOE-101 A	SUPPORT OF EXCAVATION - PHASE I SECTIONS
SOE-102	SUPPORT OF EXCAVATION - PHASE II PLAN
SOE-103	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1
SOE-104	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 2
SOE-105	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3

- PHASE I AND PHASE II EXCAVATION NOTES:**
- EXCAVATION SUBGRADE SHOWN AT PROPOSED CONCRETE CAPPING BEAM IS THE BOTTOM OF THE PROPOSED 4" THICK EXTRUDED POLYSTYRENE LAYER. DRAINAGE TRENCHES AT CAPPING BEAM NOT SHOWN SEE CONTRACT DRAWING DR-1. SEE SECTION B ON SOE-101 FOR SUBGRADE AT PROPOSED WALL.
 - EXCAVATION SUBGRADE SHOWN AT PROPOSED SLABS-ON-GRADE IN STAIR AREA IS BASED ON AN 8" GRAVEL LAYER BELOW PROPOSED SLAB. CONTRACTOR TO VERIFY THICKNESS OF GRAVEL LAYER REQUIRED.
 - SEE DRAWING SOE-102 FOR PHASE II EXCAVATION.
 - CONTRACTOR SHALL PLACE A CONTINUOUS RUN OF HAY BALES AT THE TOE OF THE SLOPE TO FILTER RUN-OFF WATER. OTHER SEDIMENT AND EROSION CONDITIONS APPLY.

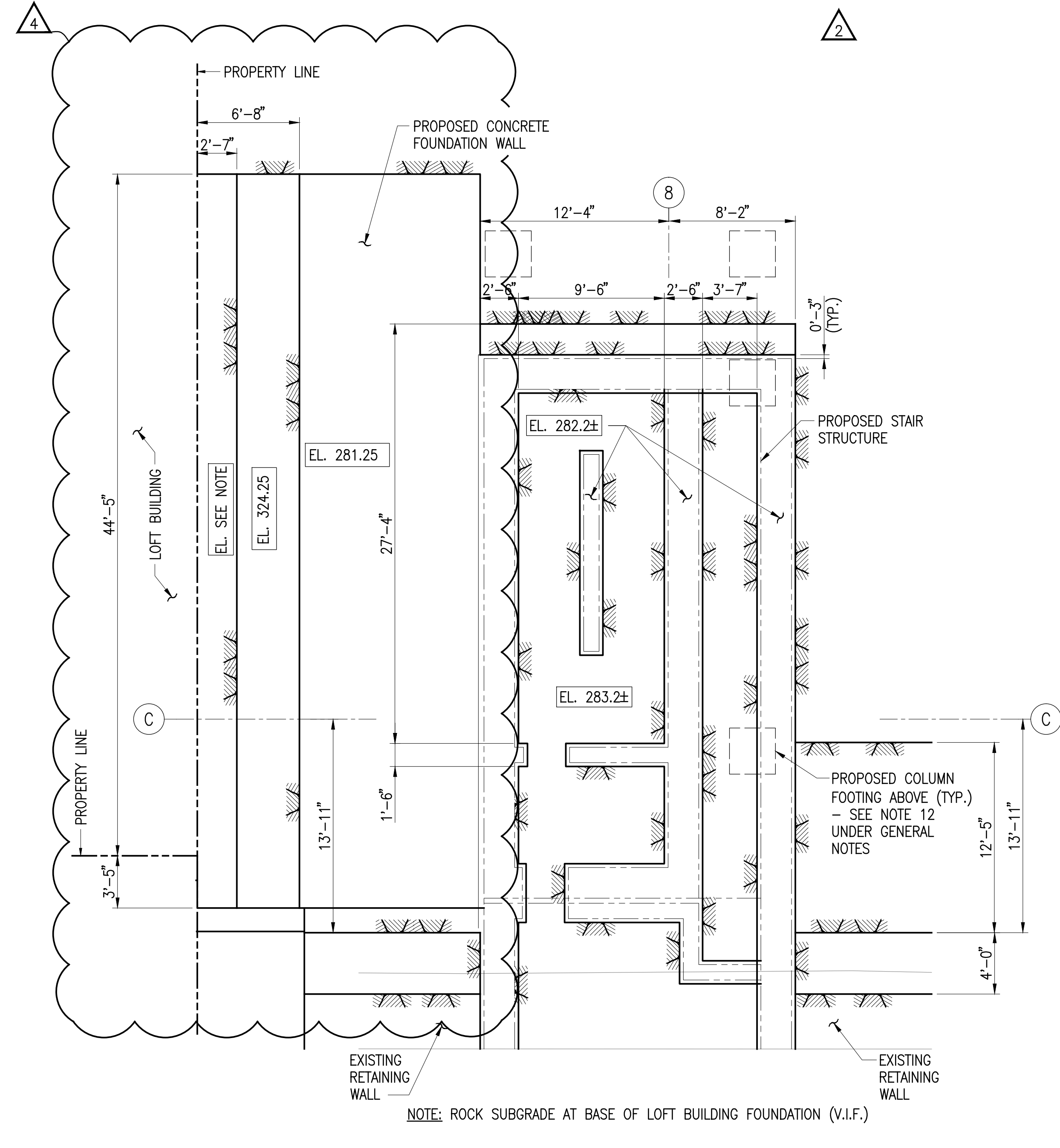
- REFERENCE DRAWINGS:**
- EXISTING UTILITIES, RETAINING WALLS AND OTHER EXISTING STRUCTURES AND EXISTING GRADE ELEVATIONS SHOWN ARE BASED ON CONTRACT DRAWINGS Y-002 AND Y-003.
 - TRACK LAYOUT SHOWN IS FROM CONTRACT DRAWING S-102.

- ROCK DOWEL/BOLT NOTES:**
- CLEAN HOLES WITH WATER PRIOR TO INSERTING STEEL BARS.
 - TENSIONED ANCHORS SHALL BE TESTED IN ACCORDANCE WITH "RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS", POST-TENSIONING INSTITUTE.

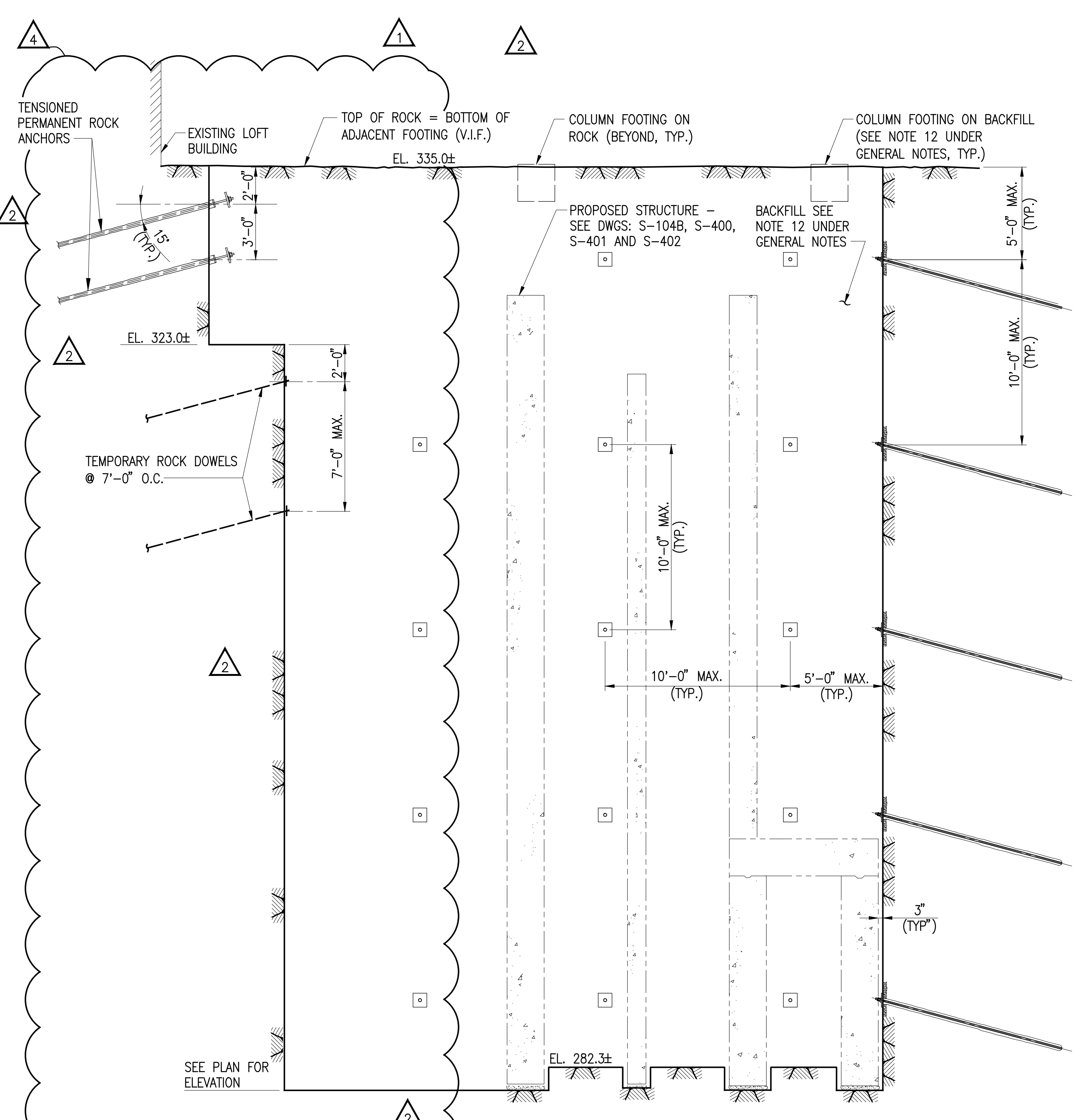
- DEFINITIONS:**
- PHASE I - EXCAVATION FOR CAPPING BEAM.
PHASE II - EXCAVATION FOR STRUCTURES WEST OF LOFT BUILDING.
- ROCK BOLT - TENSIONED ANCHOR.
ROCK DOWEL - UNTENSIONED ANCHOR.

GENERAL NOTES:

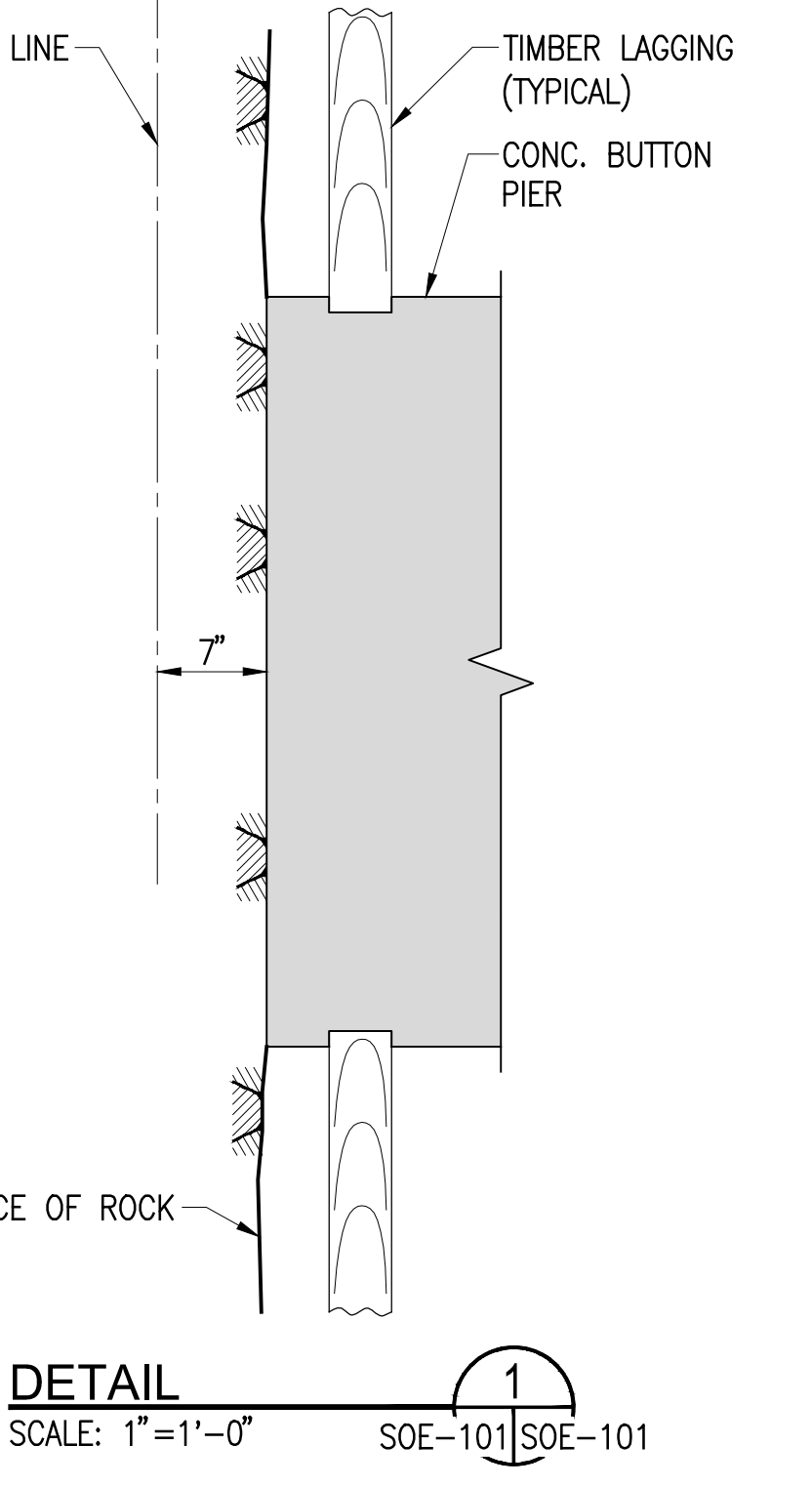
- ELEVATIONS ON PLANS ARE GIVEN RELATIVE TO PENN RAIL ROAD TUNNELS DATUM. FOR REFERENCE, 0.0' MANHATTAN BOROUGH PRESIDENT DATUM = 300.025'.
- THE SUPPORT OF EXCAVATION SYSTEM HAS BEEN DESIGNED FOR 600 PSF VERTICAL SURCHARGE AT EXISTING GRADE ALONG THE EXTERIOR OF THE SITE.
- MATERIALS:
 - A. CONCRETE REINFORCING: ASTM A 615, GRADE 60
 - B. CONCRETE: MIN. 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - C. TIMBER LAGGING: SOUTHERN PINE OR EQUAL
FB = 1250 PSI (MIN)
FV = 175 PSI (MIN)
 - D. ROCK BOLTS AND DOWELS: ASTM A615, GRADE 75
 - E. STEEL BEARING PLATES: ASTM A36 (AT ROCK BOLTS)
 - F. GROUT: MIN. 5000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - G. WELDING: AWS D1.1, E70XX ELECTRODES
- ALL ROCK BOLTS SHALL BE INSTALLED ACCORDING TO THE DETAILS SHOWN ON DRAWING SOE-105.
- SOIL EXCAVATION SHALL NOT PROCEED DEEPER THAN 2 FEET BELOW THE LAST INSTALLED LAGGING. ALL LAGGING SHALL BE PLACED HORIZONTAL AND BACKPACKED PRIOR TO ADVANCING THE EXCAVATION. THE EXCAVATION SHALL BE SEQUENCED SO THAT STABILITY OF ADJACENT STRUCTURES IS MAINTAINED AT ALL TIMES.
- ROCK EXCAVATION:
 - A. LINE DRILL PERIMETER OF ALL EXCAVATIONS, TYPICALLY, HOLES WILL BE SPACED BY ONE DRILL HOLE DIAMETER.
 - B. THE OWNER'S ENGINEER WILL INSPECT THE EXPOSED ROCK FACES AS THE EXCAVATION PROCEEDS. ROCK BOLTS SHALL BE INSTALLED AS REQUIRED AND AS DIRECTED BY THE OWNER'S ENGINEER. AT LOFT BUILDING INSTALL BOLT PATTERN AS SHOWN ON DRAWING SOE-101A. AT STAIR EXCAVATION AND ALONG 9TH AVE, MAXIMUM SPACING OF ROCK BOLTS SHOWN ON DRAWINGS SOE-101, SOE-101A AND SOE-104.
- CONTRACTOR SHALL LOCATE ALL UTILITIES AND EXISTING UNDERGROUND STRUCTURES PRIOR TO INSTALLING CONCRETE BUTTON PIERS AND ROCK BOLTS. NOTIFY ENGINEER OF ANY CONFLICTS.
- PROPOSED WORK ON DRAWINGS ARE SUBJECT TO SPECIAL INSPECTION IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE.
- CONTRACTOR SHALL ESTABLISH OPTICAL MONITORING POINTS AT 15' CENTERS ALONG THE CONCRETE BUTTON AND LAGGING WALLS. PIERS SHALL BE MONITORED DAILY DURING ACTIVE EXCAVATION ADJACENT TO THEM. WEEKLY OTHERWISE.
- PROTECT ALL SOIL SLOPES FROM RAVELLING. CONTRACTOR TO PROVIDE DRAINAGE DITCH AS REQUIRED TO CONTROL ANY SURFACE WATER RUNOFF. CONTRACTOR SHALL PROVIDE SUMPS AS REQUIRED TO DEWATER THE SITE AND FOLLOW SEDIMENT AND EROSION CONTROL REQUIREMENTS.
- SPECIAL DRAINAGE REQUIREMENTS EXIST AT THE EXISTING DRAINAGE PORTALS OF THE AMTRAK RETAINING WALL. PROTECT THE WALL DRAINAGE CHASES AT ALL TIMES FROM DAMAGE AND SILT LADEN WATER.
- BACKFILL WITH 3/4" STONE UP TO A LEVEL OF 4 FEET BELOW BOTTOM OF COLUMN FOOTING. BACKFILL IN 12 INCH LIFTS AND COMPACT WITH 3 PASSES OF A SOIL VIBRATORY PLATE TAMPER. CAP STONE FILL WITH A SEPARATION GEOTEXTILE, 12" FLOWABLE FILL AND THEN FILL TO UNDERSIDE OF COLUMN FOOTING WITH CONTROLLED FILL OR CONTINUE WITH FLOWABLE FILL.



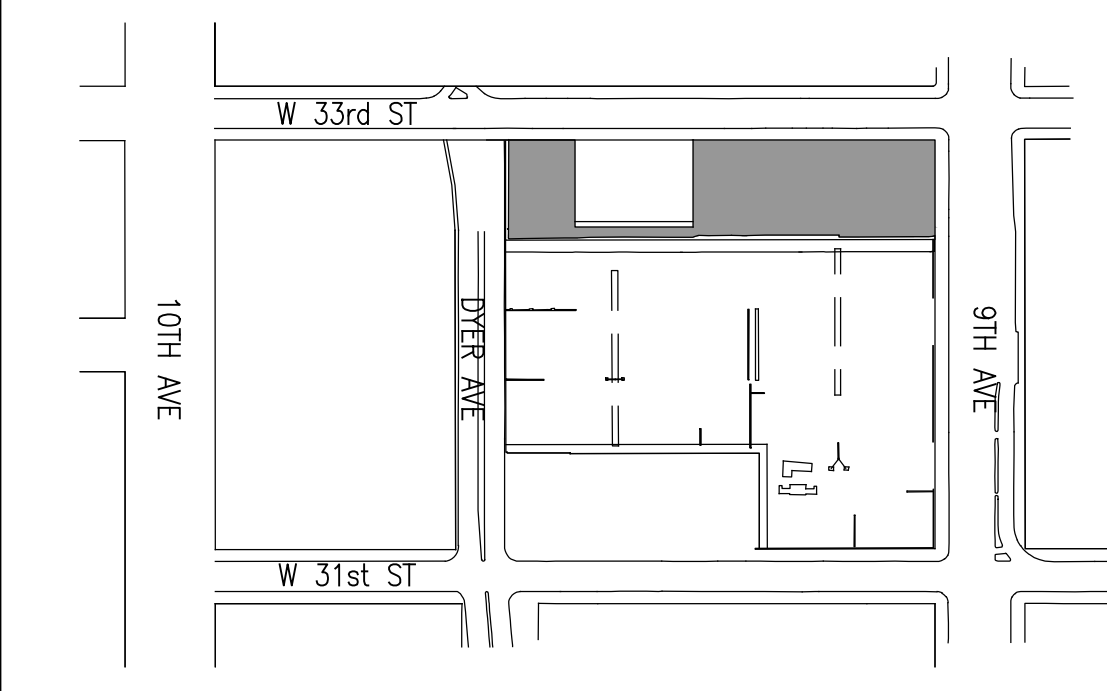
DETAIL 2
SCALE: 3/16"=1'-0" SOE-101/102



SECTION A
SCALE: 1/4"=1'-0" SOE-101/102



DETAIL 1
SCALE: 1"=1'-0" SOE-101/102



9TH AVENUE DEVELOPMENT

NEW YORK NEW YORK

BROOKFIELD PROPERTIES

NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

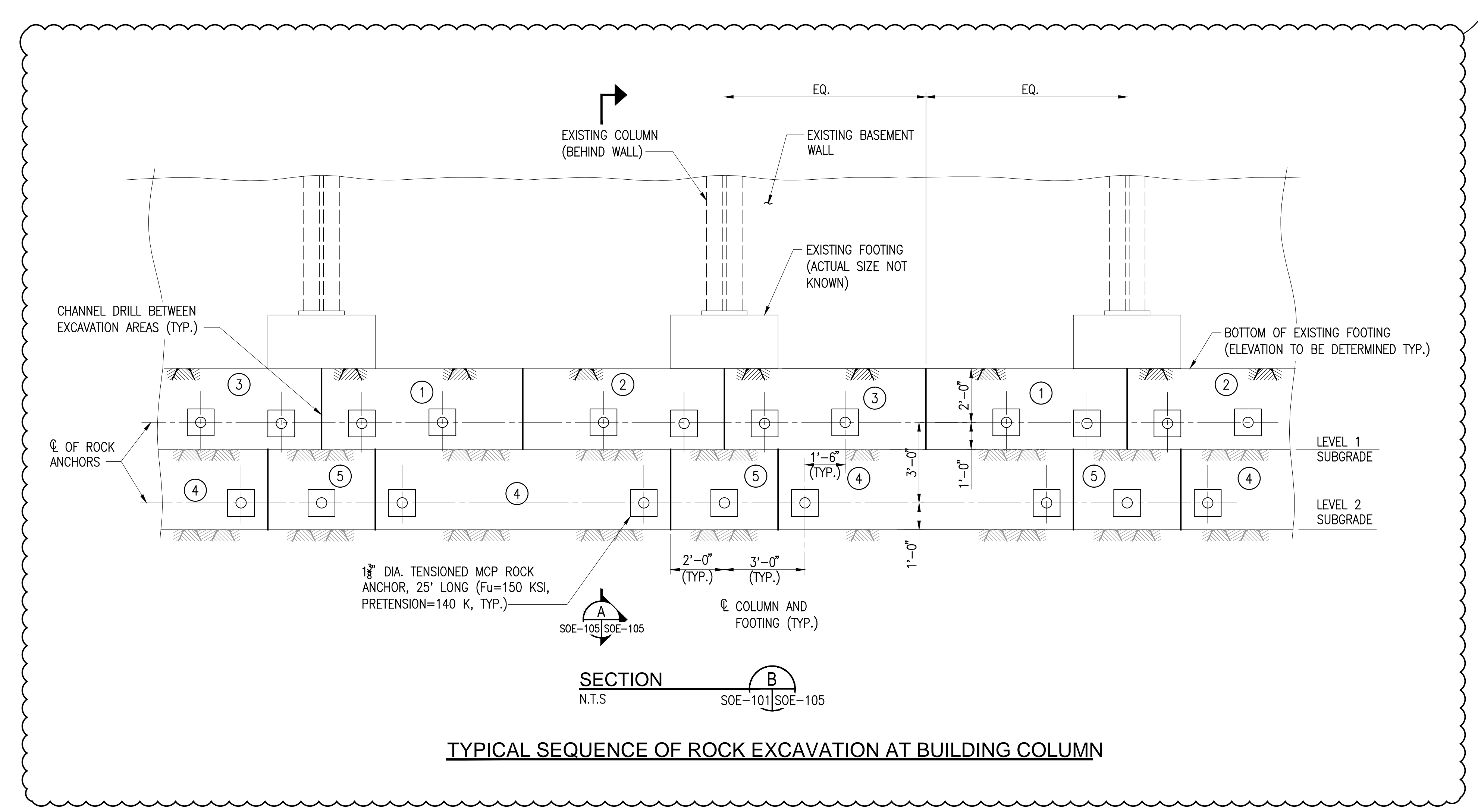
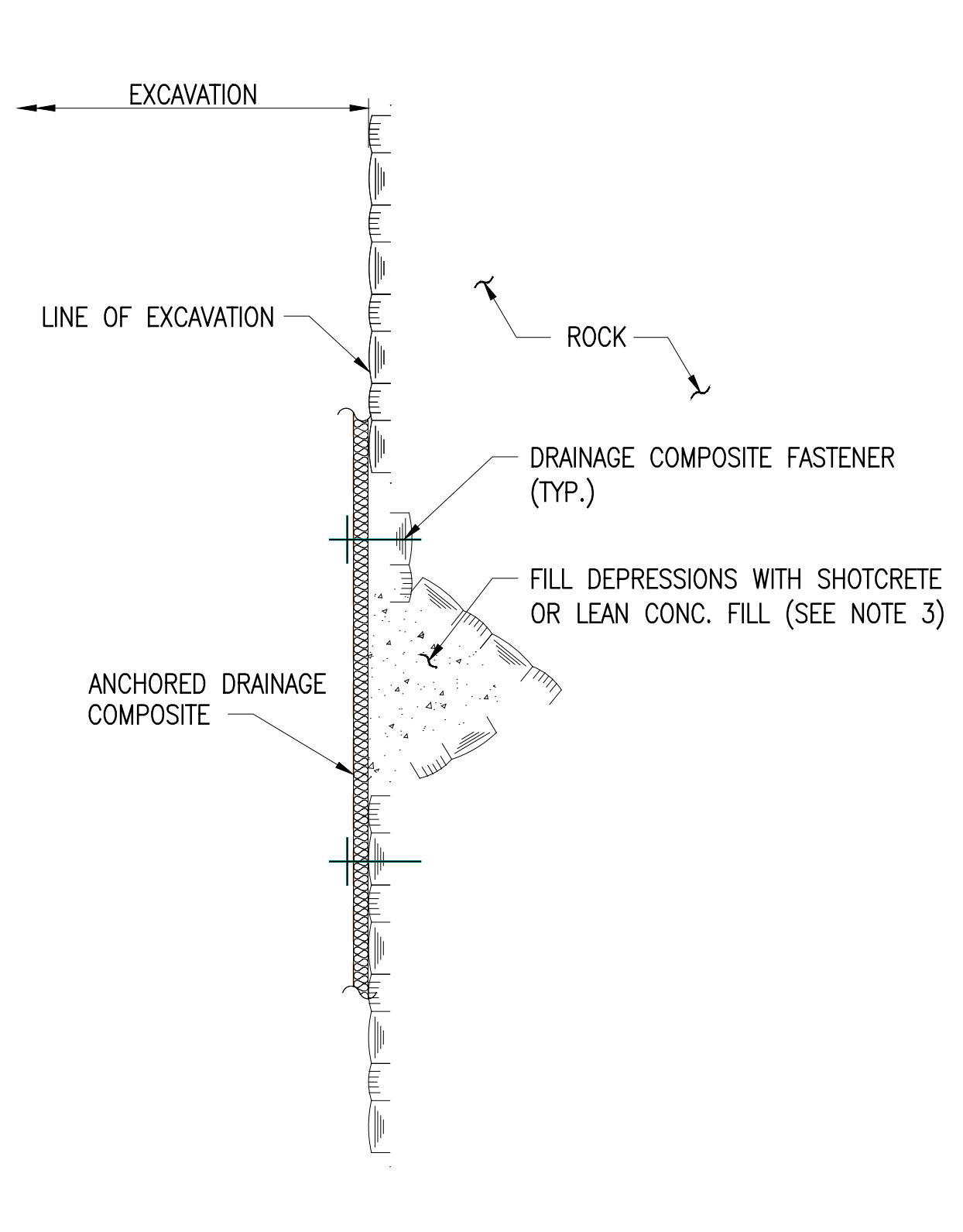
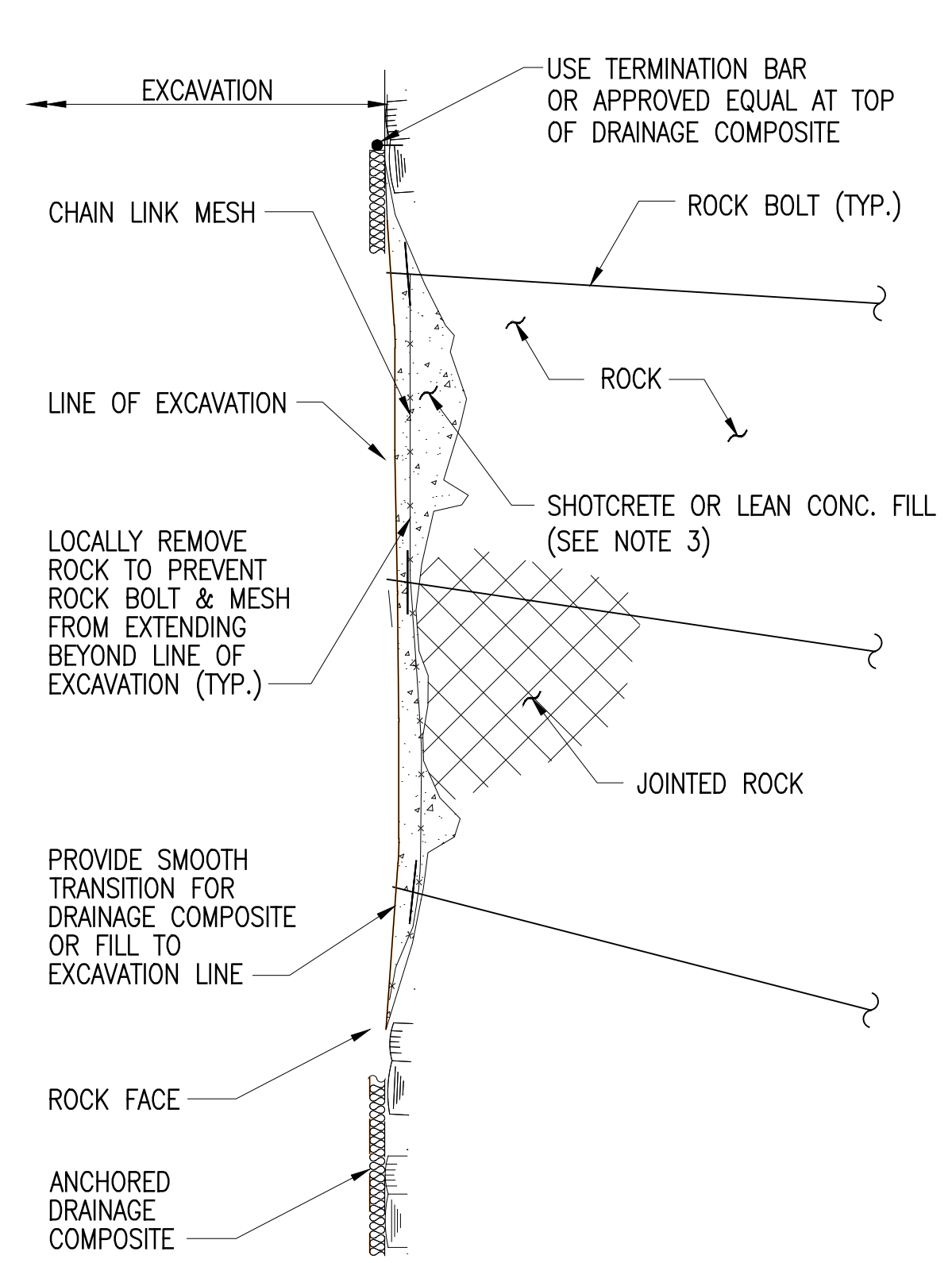
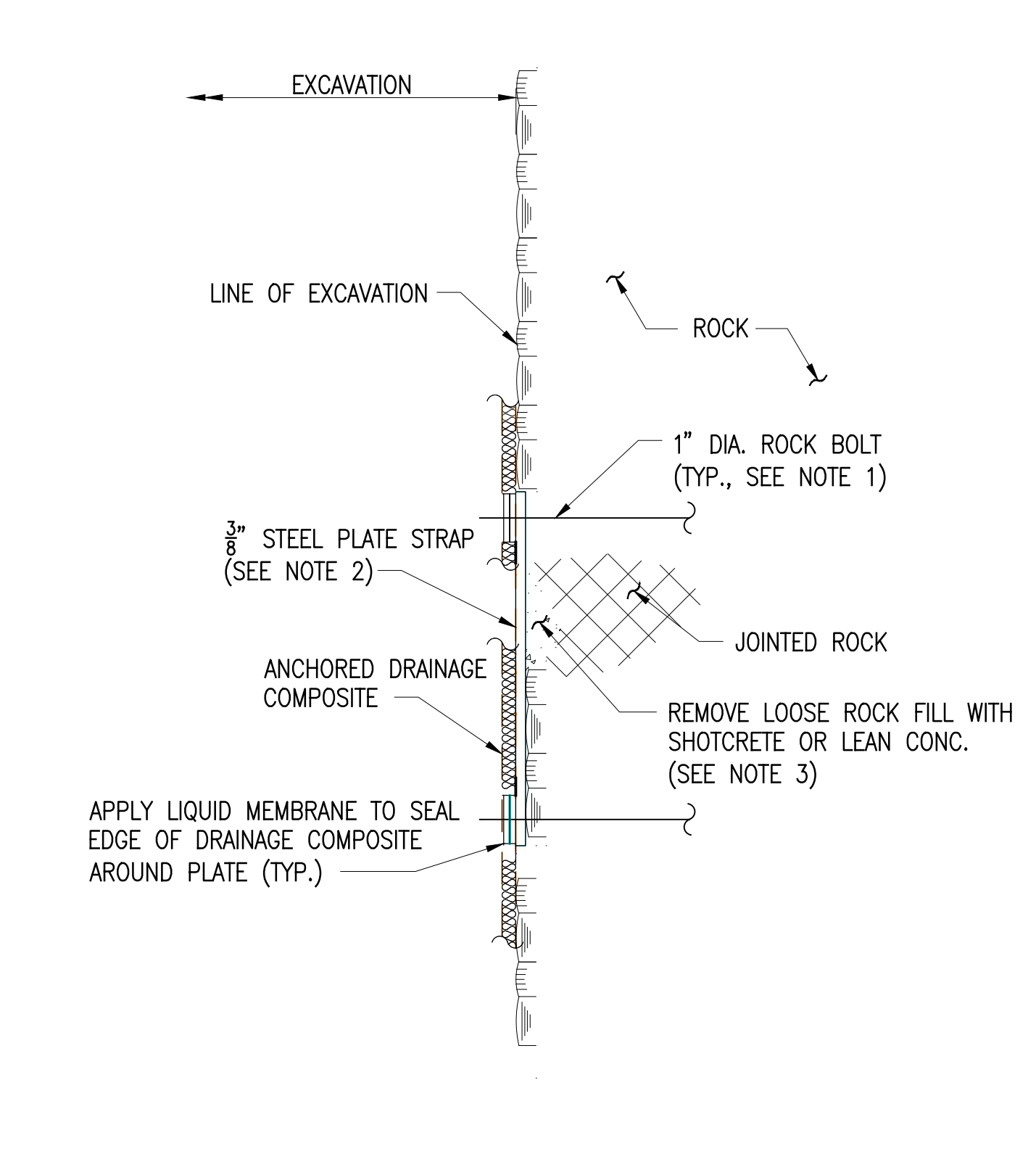
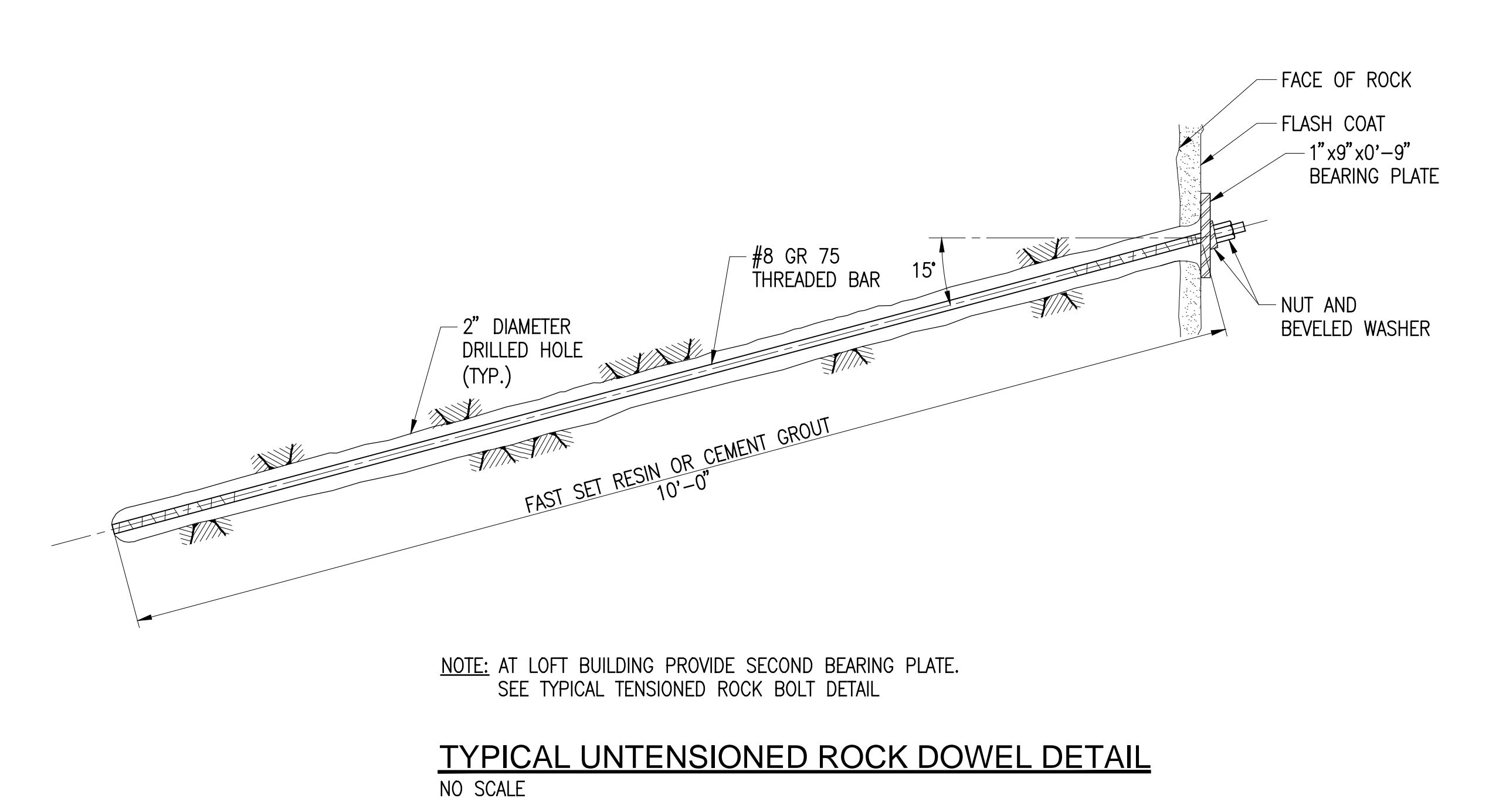
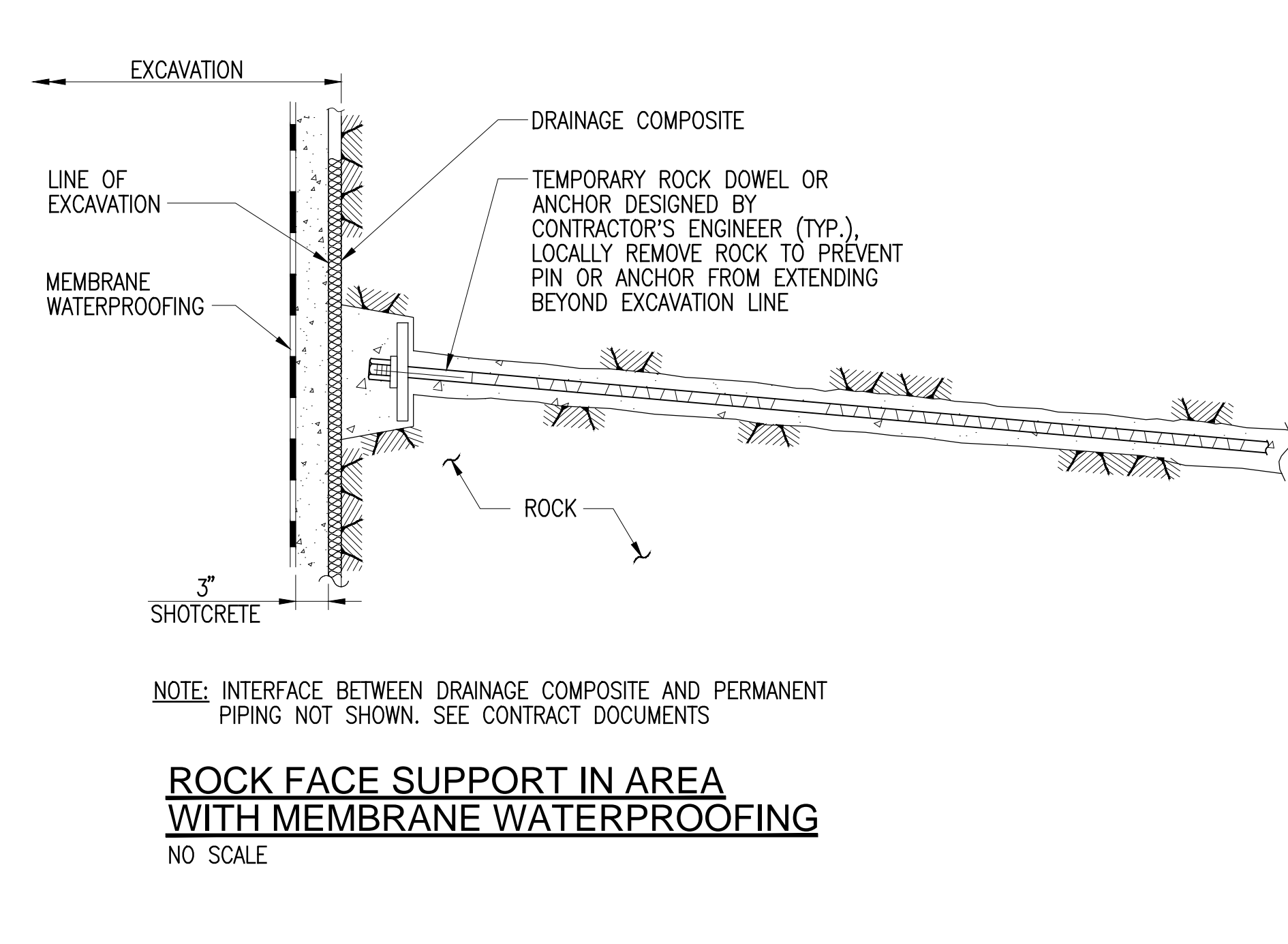
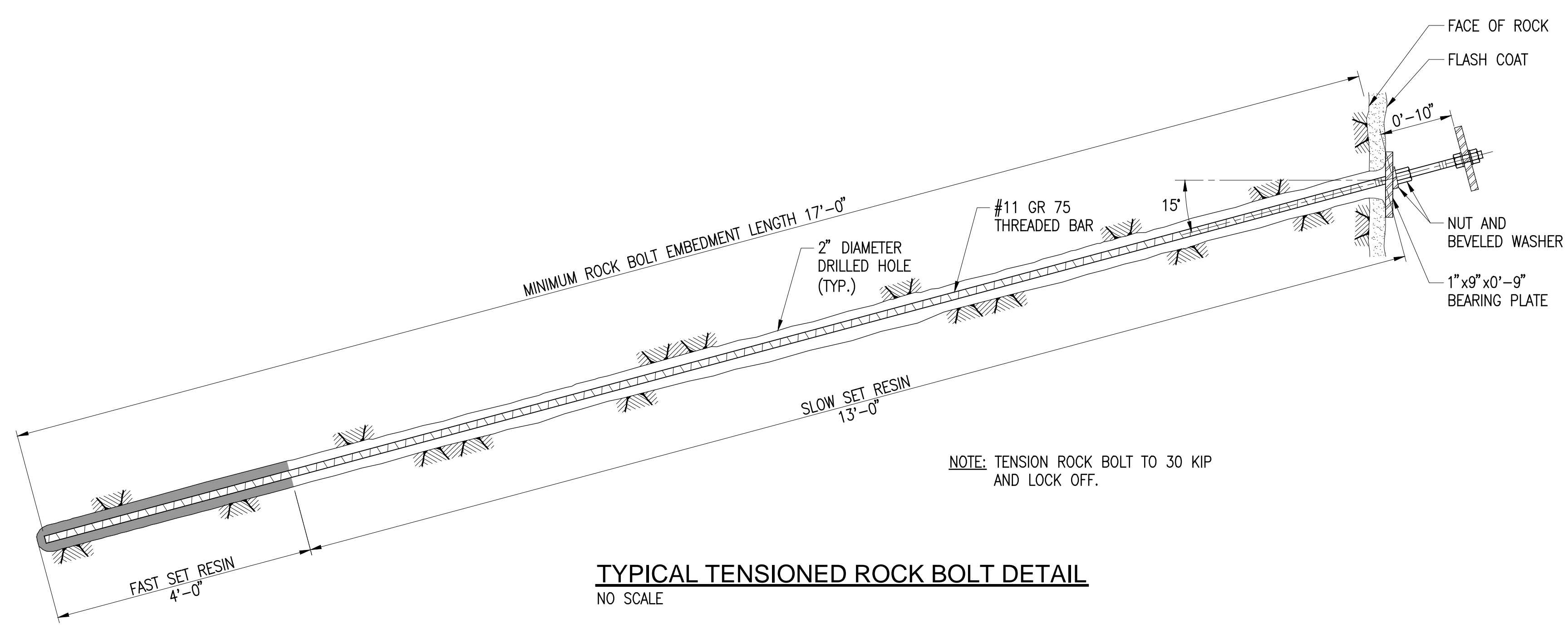
SCALE	MADE BY	DATE	FILE NUMBER
AS NOTED	K.J.	08-06-2012	11797
AS NOTED	BY S.Y.	08-06-2012	11797

PHASE I EXCAVATION PLAN

DRAWING NUMBER: **SOE-101**

SHEET OF

THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN CONSENT OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. IS STRICTLY PROHIBITED. ANY PERSON WHO REUSE OR MODIFY THIS DRAWING WILL BE HELD STRICTLY LIABLE FOR ANY VIOLATION OF THE NOTICE, WHETHER WILLFUL OR NEGLIGENT.

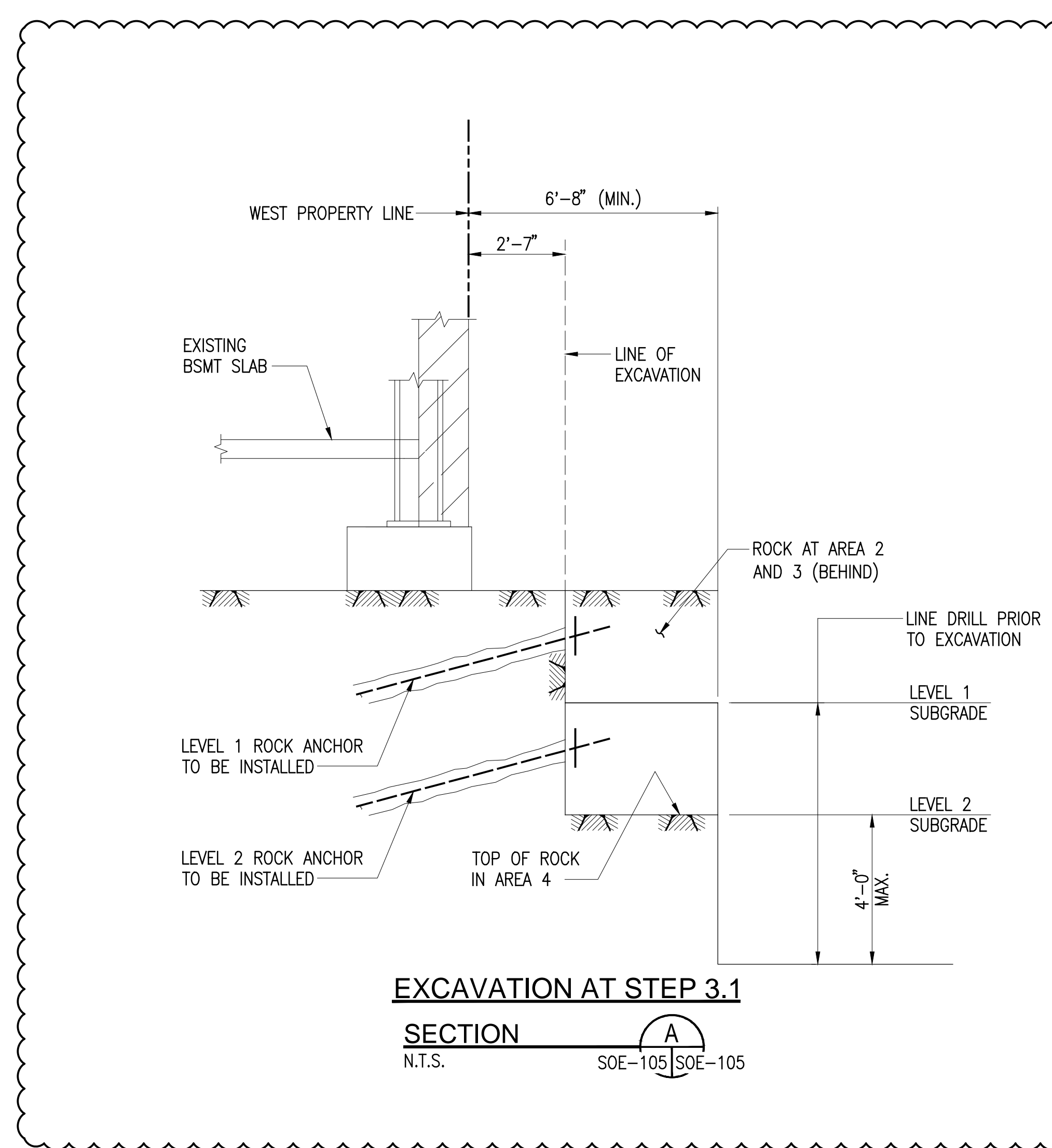


ROCK FACE SUPPORT AT HIGHLY JOINTED AREAS BELOW EXISTING FOUNDATIONS
NO SCALE

ROCK FACE SUPPORT WITH CHAIN LINK MESH
NO SCALE

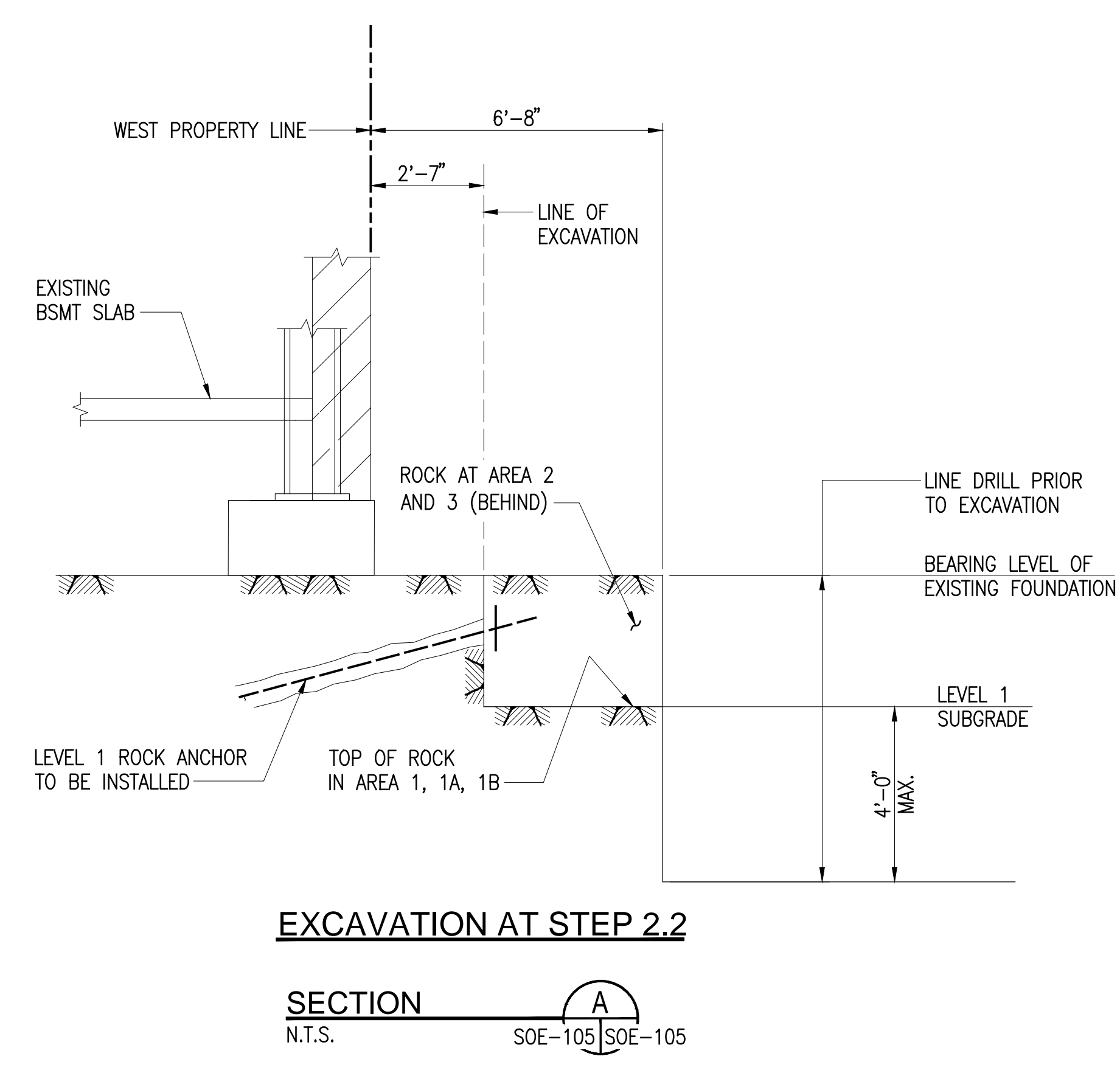
ROCK SURFACE PREPARATION
NO SCALE

TYPICAL SEQUENCE OF ROCK EXCAVATION AT BUILDING COLUMN



EXCAVATION SEQUENCE AT BUILDING COLUMN:

1. EXCAVATE TO BEARING LEVEL OF EXISTING COLUMN FOUNDATIONS.
2. LEVEL 1 PERMANENT ANCHOR INSTALLATION BELOW FOOTINGS
 - 2.1 BEYOND 6'-8" FROM THE WESTERN PROPERTY LINE EXCAVATE TO A MAXIMUM OF FOUR (4) FEET BELOW LEVEL 1 SUBGRADE (SEE SECTION A AT STEP 2.2 ON THE LEFT SIDE OF THIS DRAWING).
 - 2.2 WITHIN 6'-8" OF THE WESTERN PROPERTY LINE, EXCAVATE ROCK TO LEVEL 1 SUBGRADE IN AREAS MARKED 1, (SEE SECTION A AT STEP 2.2 ON THE LEFT SIDE OF THIS DRAWING).
 - 2.3 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
 - 2.4 WITHIN 6'-8" OF THE WESTERN PROPERTY LINE, EXCAVATE ROCK TO LEVEL 1 SUBGRADE IN AREA MARKED (2).
 - 2.5 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
 - 2.6 WITHIN 6'-8" OF THE WESTERN PROPERTY LINE, EXCAVATE ROCK TO LEVEL 1 SUBGRADE IN AREA MARKED (3).
 - 2.7 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
3. LEVEL 2 PERMANENT ANCHOR INSTALLATION
 - 3.1 INSTALL ANCHORS AT LEVEL 2 USING THE LEVEL 1 CRITERIA STARTING WITH THE LOWEST NUMBERED AREAS (SEE SECTION A EXCAVATION AT STEP 3.1, ON THE RIGHT SIDE OF THIS DRAWING).
4. INSTALLATION AT REMAINING PERMANENT ANCHOR LEVELS (INSTALL ANCHORS ON NORTH FACE AS ANCHOR LOCATIONS ARE EXPOSED)
 - 4.1 EXCAVATE TO A MAXIMUM OF FOUR (4) FEET BELOW THE ANCHOR ELEVATION.
 - 4.2 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
 - 4.3 REPEAT STEPS 2.1 AND 4.2 UNTIL ALL PERMANENT ROCK ANCHORS HAVE BEEN INSTALLED AND TENSIONED.

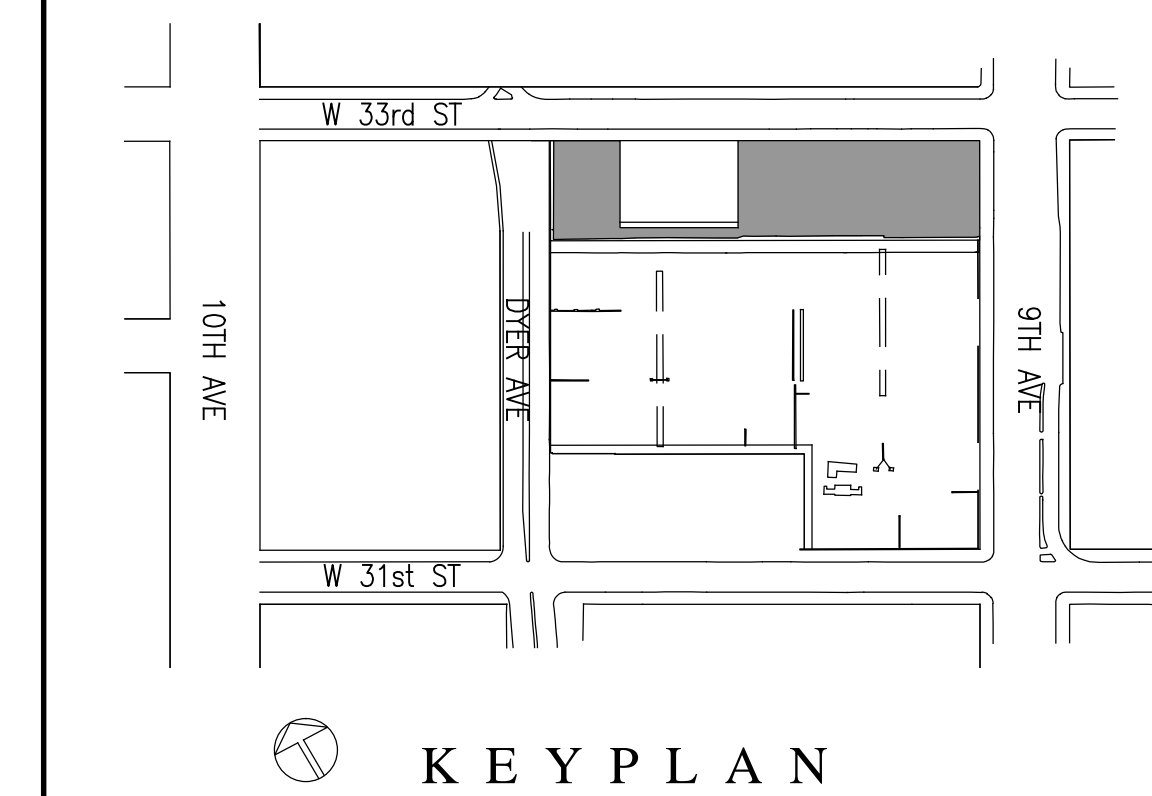


NOTES:

1. STEEL PLATE STRAPS SHALL ALSO BE INSTALLED BETWEEN ANCHORS IF CONDITIONS REQUIRE IT.
2. LOCALLY REMOVE ROCK BEHIND PLATE STRAP, AS REQUIRED, TO PREVENT PLATE STRAP AND ROCK BOLT FROM EXTENDING BEYOND LINE OF EXCAVATION. THE END OF THE ROCK BOLT SHALL NOT PROJECT MORE THAN 2 INCHES BEYOND THE LINE OF EXCAVATION, EXCEPT WHERE WATERPROOFING IS APPLIED. (SEE DETAIL ON SOE-105)
3. INSTALL 1" DIA PVC PIPE SLEEVES OR DRILL 1" DIA DRILL HOLES IN SHOTCRETE AND CONCRETE USED TO FILL DEPRESSIONS IN ROCK TO PROVIDE A FLOW PATH FROM THE ROCK SURFACE TO THE DRAINAGE COMPOSITE. DRAIN HOLES SHALL BE ALIGNED WITH ROCK JOINTS AND SPACED NO MORE THAN 2 FEET CENTER TO CENTER. INSTALL WEAP HOLES WHERE PATCHED AREA EXCEEDS 20 SQUARE FEET OR IF SEEPAGE IS VISIBLE.

Clinton Peterson, RA
 Building APPROVED
 Under Directive 2 of 2015
 NYC Development Hub

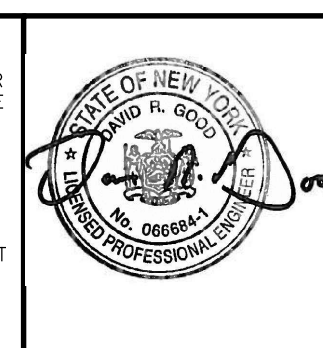
REV.	DATE	BY	DESCRIPTION
1	06-18-14	S.R.L.	ADDITIONAL ROCK EXCAVATION

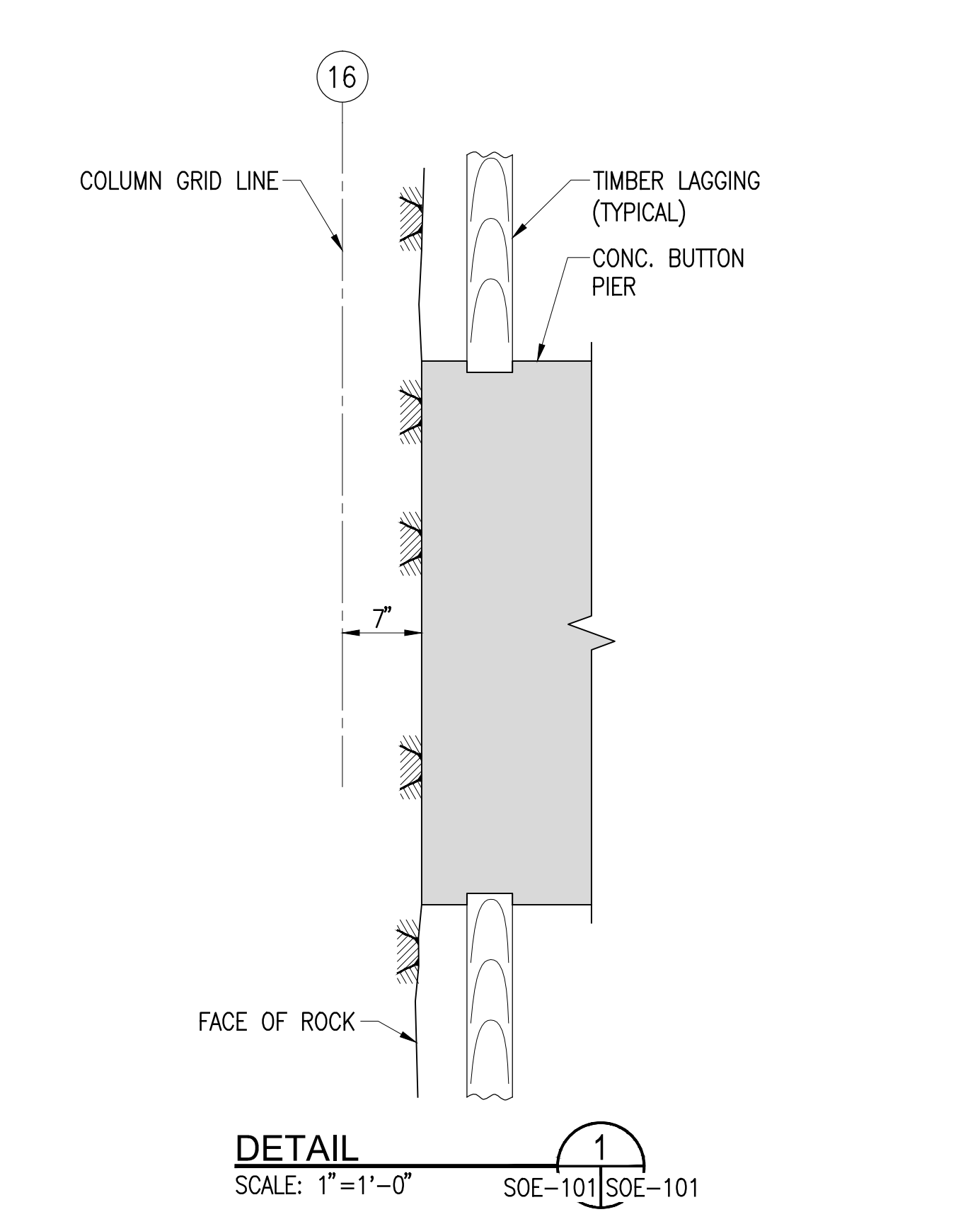
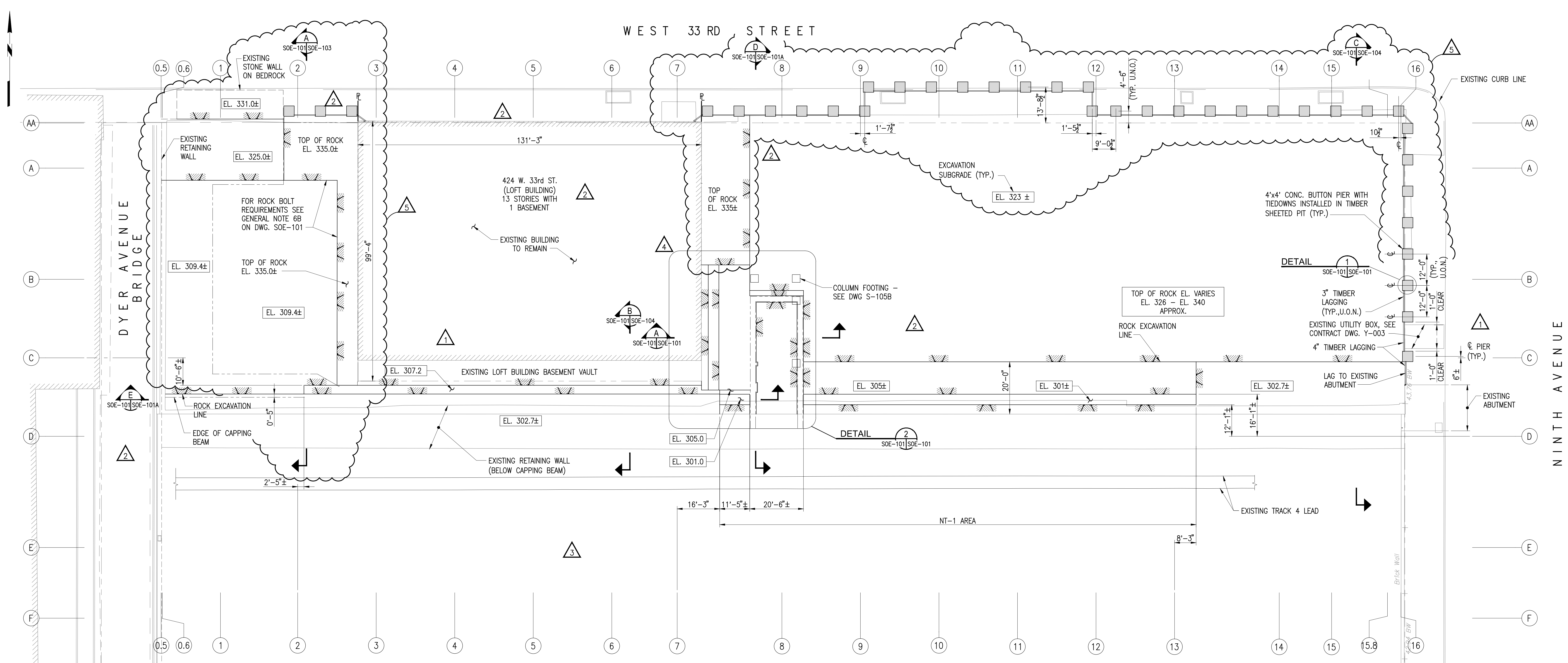


9TH AVENUE DEVELOPMENT	
NEW YORK	NEW YORK
BROOKFIELD PROPERTIES	
NEW YORK	NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS	
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122	
SCALE	MADE BY: K.J. DATE: 08-06-2012 FILE NUMBER: 11797
AS NOTED	CHECKED BY: S.Y. DATE: 08-06-2012
SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3	
DRAWING NUMBER: SOE-105	
SHEET OF	

WARNING: IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ASSURE ANY TEST OR THESE DRAWINGS OR ANY PART THEREOF TO THESE PLANS ARE MADE. THE ALTERATION SHEET IS MADE IN ACCORDANCE WITH ARTICLE 160 - SECTIONS 2000 OF THE NEW YORK STATE EDUCATION LAW.

THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS (MRC). IT IS FURNISHED SUBJECT TO RETURN ON DEMAND AND ON THE CONDITION THAT THE INFORMATION AND TECHNICAL SKILLS THEREIN SHALL NOT BE REPRODUCED OR USED FOR ANY PURPOSES WITHOUT THE WRITTEN PERMISSION OF MRC. ANY REUSE OR ALTERATION OF THIS DRAWING WILL BE HELD STRICTLY LIABLE FOR ANY VIOLATION OF THIS NOTICE, WHETHER WILLFUL OR NEGLIGENT.





LIST OF DRAWINGS	
DRAWING NUMBER	DRAWING TITLE
SOE-101	SUPPORT OF EXCAVATION - PHASE I PLAN
SOE-101A	SUPPORT OF EXCAVATION - PHASE I SECTIONS
SOE-102	SUPPORT OF EXCAVATION - PHASE II PLAN
SOE-103	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1
SOE-104	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 2
SOE-105	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3

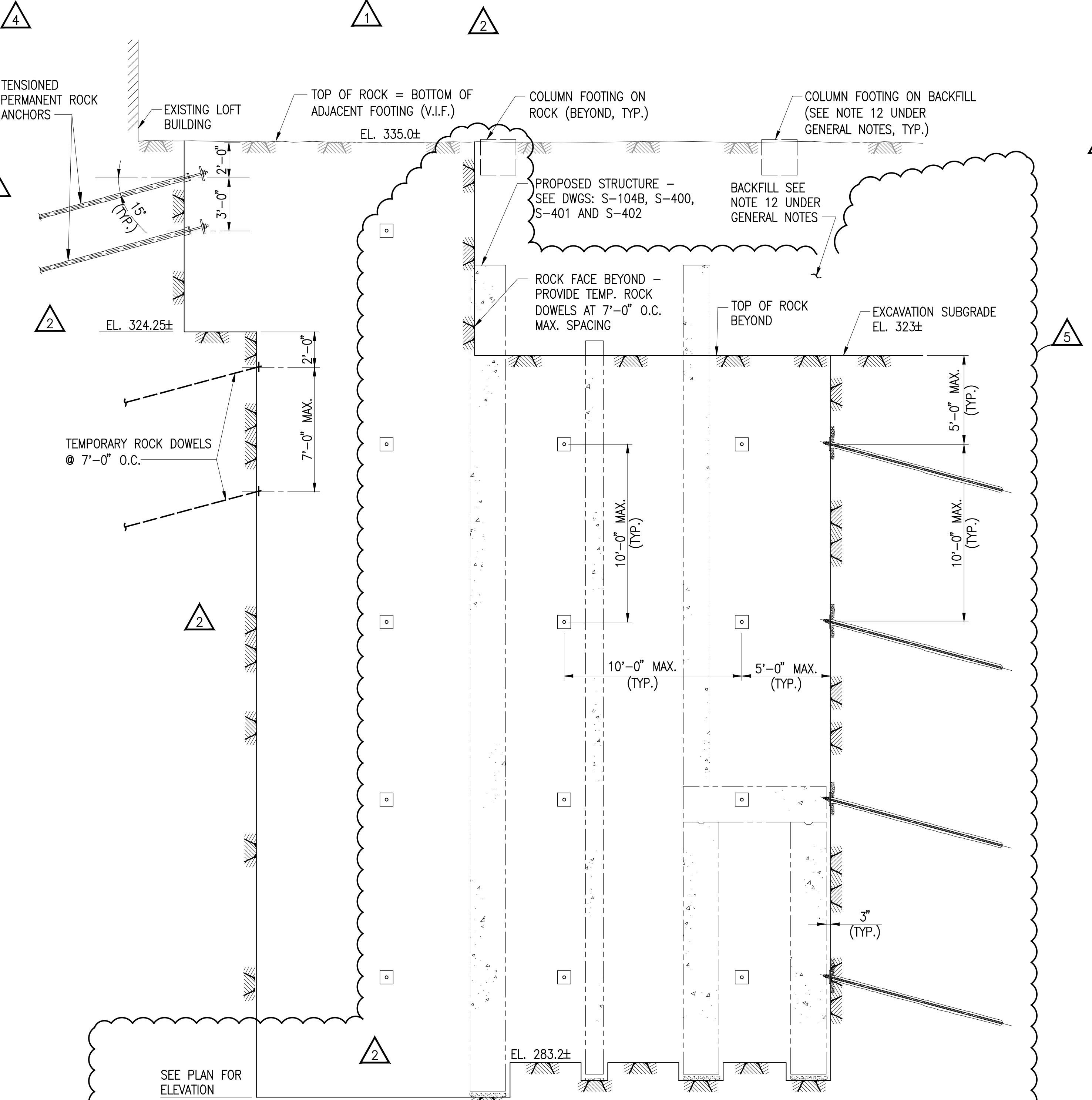
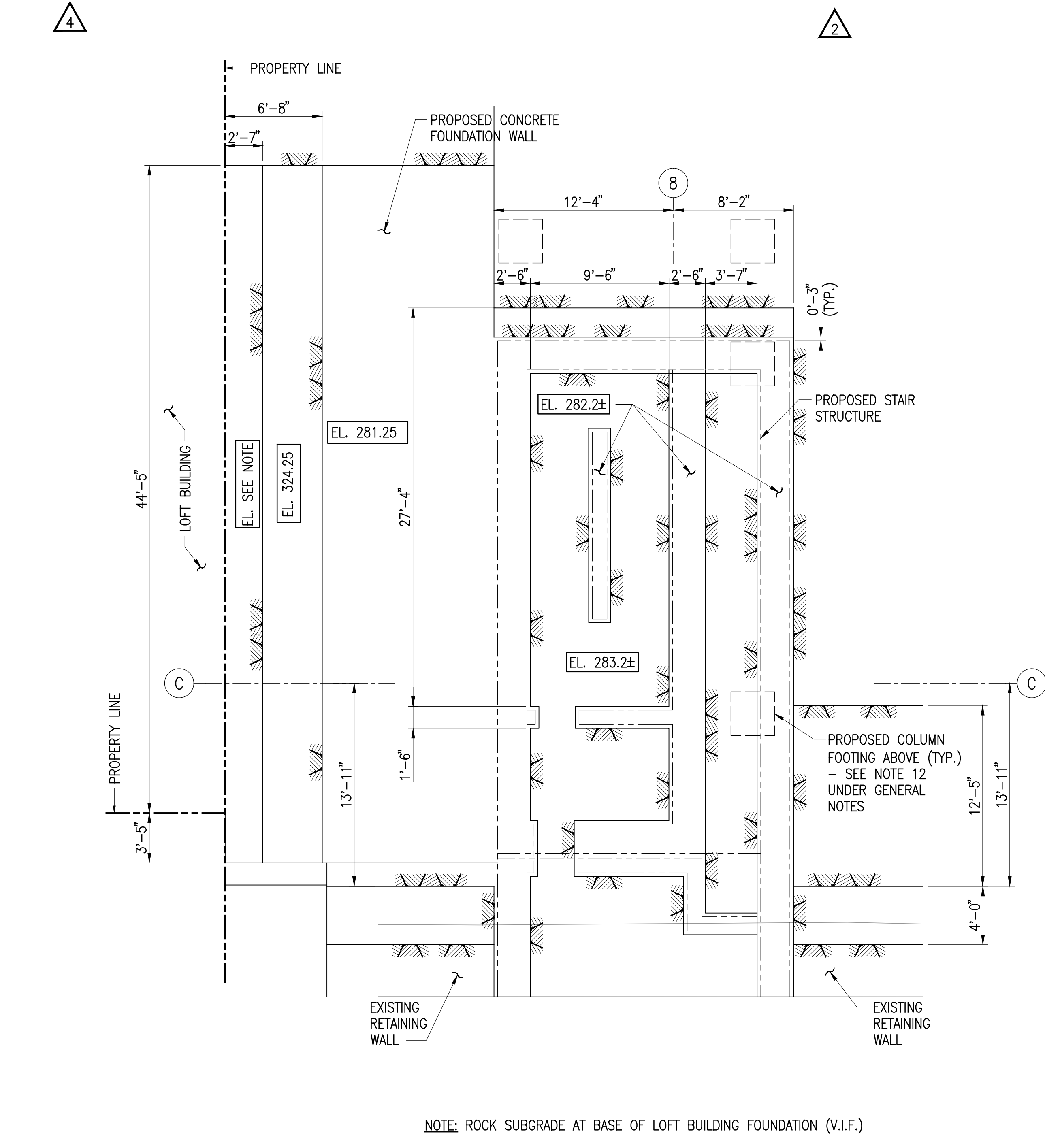
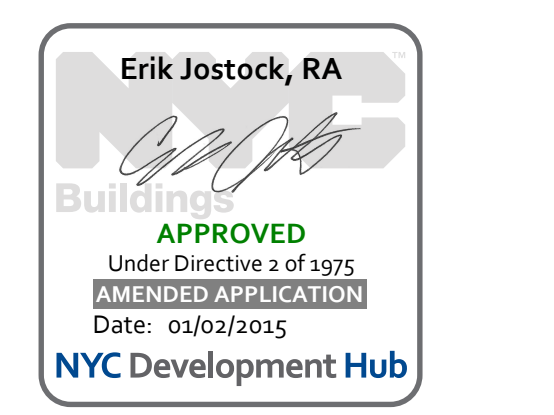
- PHASE I AND PHASE II EXCAVATION NOTES:**
- EXCAVATION SUBGRADE SHOWN AT CONCRETE CAPPING BEAM IS THE BOTTOM OF THE PROPOSED 4" THICK EXTRUDED POLYSTYRENE LAYER. DRAINAGE TRENCHES AT CAPPING BEAM NOT SHOWN SEE CONTRACT DRAWING DR-1. SEE SECTION B ON SOE-101 FOR SUBGRADE AT PROPOSED WALL.
 - EXCAVATION SUBGRADE SHOWN AT PROPOSED SLABS-ON-GRADE IN STAIR AREA IS BASED ON AN 8" GRAVEL LAYER BELOW PROPOSED SLAB. CONTRACTOR TO VERIFY THICKNESS OF GRAVEL LAYER REQUIRED.
 - SEE DRAWING SOE-102 FOR PHASE II EXCAVATION.
 - CONTRACTOR SHALL PLACE A CONTINUOUS RUN OF HAY BALES AT THE TOE OF THE SLOPE TO FILTER RUN-OFF WATER. OTHER SEDIMENT AND EROSION CONDITIONS APPLY.

- REFERENCE DRAWINGS:**
- EXISTING UTILITIES, RETAINING WALLS AND OTHER EXISTING STRUCTURES AND EXISTING GRADE ELEVATIONS SHOWN ARE BASED ON CONTRACT DRAWINGS Y-002 AND Y-003.
 - TRACK LAYOUT SHOWN IS FROM CONTRACT DRAWING S-102.

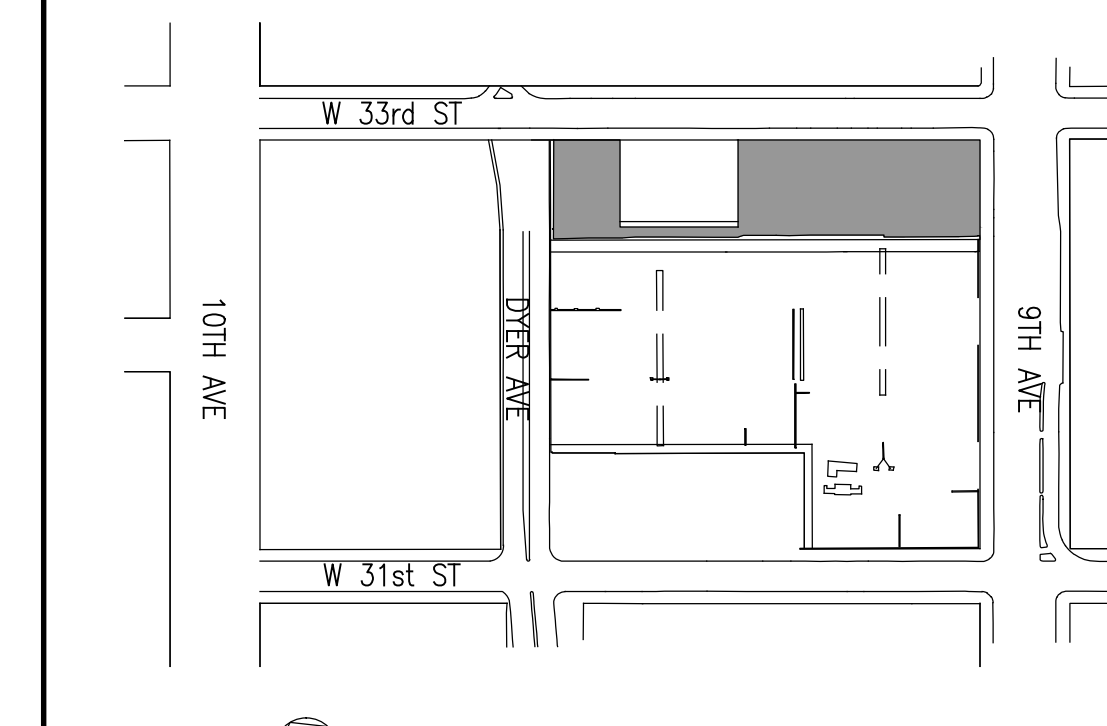
- ROCK DOWEL/BOLT NOTES:**
- CLEAN HOLES WITH WATER PRIOR TO INSERTING STEEL BARS.
 - TENSIONED ANCHORS SHALL BE TESTED IN ACCORDANCE WITH "RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS", POST-TENSIONING INSTITUTE.

- DEFINITIONS:**
- PHASE I - EXCAVATION FOR CAPPING BEAM.
 PHASE II - EXCAVATION FOR STRUCTURES WEST OF LOFT BUILDING.
 ROCK BOLT - TENSIONED ANCHOR.
 ROCK DOWEL - UNTENSIONED ANCHOR.

- GENERAL NOTES:**
- ELEVATIONS ON PLANS ARE GIVEN RELATIVE TO PENN RAIL ROAD TUNNELS DATUM. FOR REFERENCE, 0.0' MANHATTAN BOROUGH PRESIDENT DATUM = 300.025'.
 - THE SUPPORT OF EXCAVATION SYSTEM HAS BEEN DESIGNED FOR 600 PSF VERTICAL SURCHARGE AT EXISTING GRADE ALONG THE EXTERIOR OF THE SITE.
 - MATERIALS:
 - A. CONCRETE REINFORCING: ASTM A 615, GRADE 60
 - B. CONCRETE: MIN. 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - C. TIMBER LAGGING: SOUTHERN PINE OR EQUAL
FB = 1250 PSI (MIN)
FV = 175 PSI (MIN)
 - D. ROCK BOLTS AND DOWELS: ASTM A615, GRADE 75
 - E. STEEL BEARING PLATES: ASTM A36 (AT ROCK BOLTS)
 - F. GROUT: MIN. 5000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - G. WELDING: AWS D1.1, E70XX ELECTRODES
 - ALL ROCK BOLTS SHALL BE INSTALLED ACCORDING TO THE DETAILS SHOWN ON DRAWING SOE-105.
 - SOIL EXCAVATION SHALL NOT PROCEED DEEPER THAN 2 FEET BELOW THE LAST INSTALLED LAGGING. ALL LAGGING SHALL BE PLACED HORIZONTAL AND BACKPACKED PRIOR TO ADVANCING THE EXCAVATION. THE EXCAVATION SHALL BE SEQUENCED SO THAT STABILITY OF ADJACENT STRUCTURES IS MAINTAINED AT ALL TIMES.
 - ROCK EXCAVATION:
 - A. LINE DRILL PERIMETER OF ALL EXCAVATIONS, TYPICALLY, HOLES WILL BE SPACED BY ONE DRILL HOLE DIAMETER.
 - B. THE OWNER'S ENGINEER WILL INSPECT THE EXPOSED ROCK FACES AS THE EXCAVATION PROCEEDS. ROCK BOLTS SHALL BE INSTALLED AS REQUIRED AND AS DIRECTED BY THE OWNER'S ENGINEER. AT LOFT BUILDING INSTALL BOLT PATTERN AS SHOWN ON DRAWING SOE-101A. AT STAIR EXCAVATION AND ALONG 9TH AVE, MAXIMUM SPACING OF ROCK BOLTS SHOWN ON DRAWINGS SOE-101, SOE-101A AND SOE-104.
 - CONTRACTOR SHALL LOCATE ALL UTILITIES AND EXISTING UNDERGROUND STRUCTURES PRIOR TO INSTALLING CONCRETE BUTTON PIERS AND ROCK BOLTS. NOTIFY ENGINEER OF ANY CONFLICTS.
 - PROPOSED WORK ON DRAWINGS ARE SUBJECT TO SPECIAL INSPECTION IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE.
 - CONTRACTOR SHALL ESTABLISH OPTICAL MONITORING POINTS AT 15' CENTERS ALONG THE CONCRETE BUTTON AND LAGGING WALLS. PIERS SHALL BE MONITORED DAILY DURING ACTIVE EXCAVATION ADJACENT TO THEM. WEEKLY OTHERWISE.
 - PROTECT ALL SOIL SLOPES FROM RAVELLING. CONTRACTOR TO PROVIDE DRAINAGE DITCH AS REQUIRED TO CONTROL ANY SURFACE WATER RUNOFF. CONTRACTOR SHALL PROVIDE SUMPS AS REQUIRED TO DEWATER THE SITE AND FOLLOW SEDIMENT AND EROSION CONTROL REQUIREMENTS.
 - SPECIAL DRAINAGE REQUIREMENTS EXIST AT THE EXISTING DRAINAGE PORTALS OF THE AMTRAK RETAINING WALL. PROTECT THE WALL DRAINAGE CHASES AT ALL TIMES FROM DAMAGE AND SILT LADEN WATER.
 - BACKFILL WITH 3/4" STONE UP TO A LEVEL OF 4 FEET BELOW BOTTOM OF COLUMN FOOTING. BACKFILL IN 12 INCH LIFTS AND COMPACT WITH 3 PASSES OF A SOIL VIBRATORY PLATE TAMPER. CAP STONE FILL WITH A SEPARATION GEOTEXTILE, 12" FLOWABLE FILL AND THEN FILL TO UNDERSIDE OF COLUMN FOOTING WITH CONTROLLED FILL OR CONTINUE WITH FLOWABLE FILL.



REV.	DATE	BY	DESCRIPTION
5	12-05-14	F.V.	REVISED SOE
4	06-18-14	S.R.L.	ADDITIONAL ROCK EXCAVATION
3	11-28-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



9TH AVENUE DEVELOPMENT

NEW YORK NEW YORK

BROOKFIELD PROPERTIES

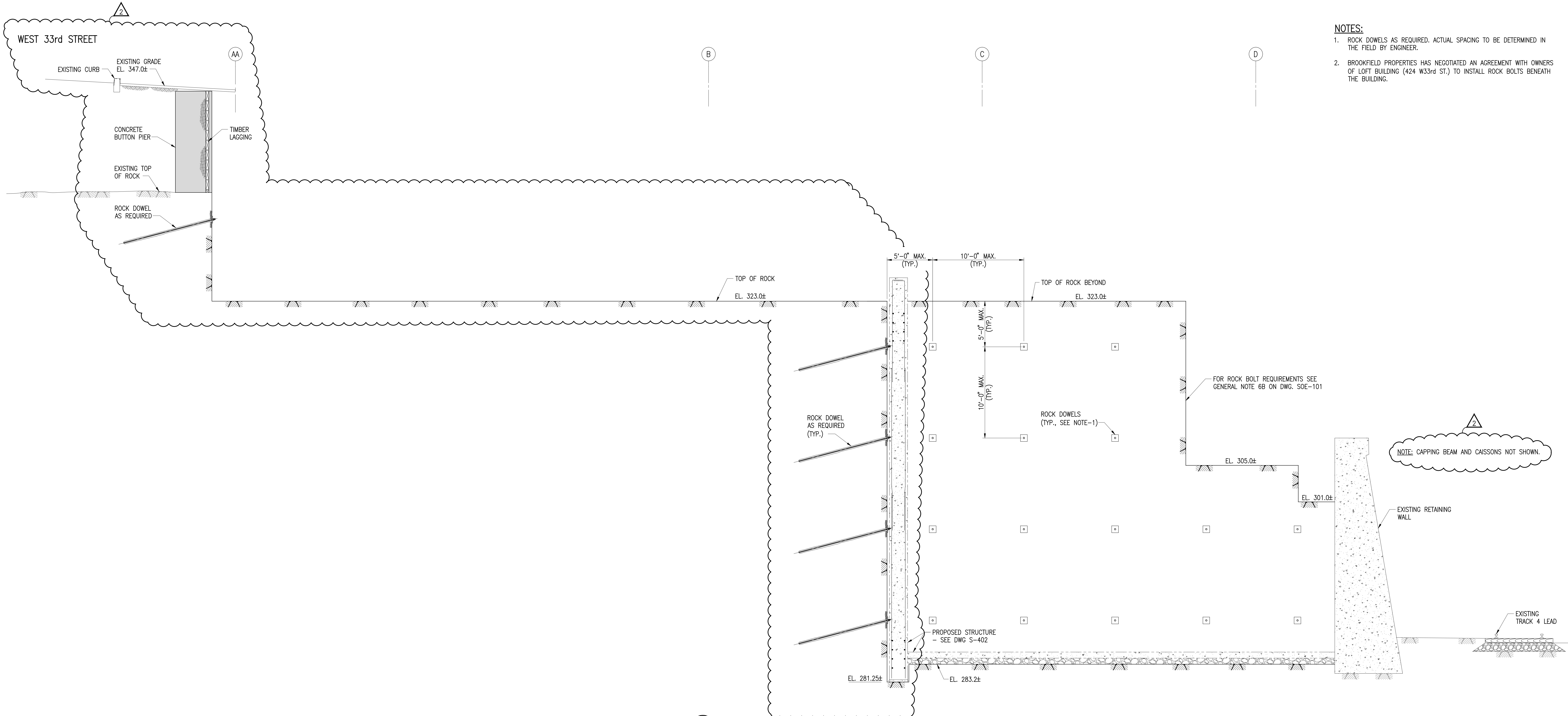
NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
 14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE: AS NOTED
 MADE BY: K.J.L. DATE: 08-06-2012
 CHECKED BY: S.Y. DATE: 08-06-2012

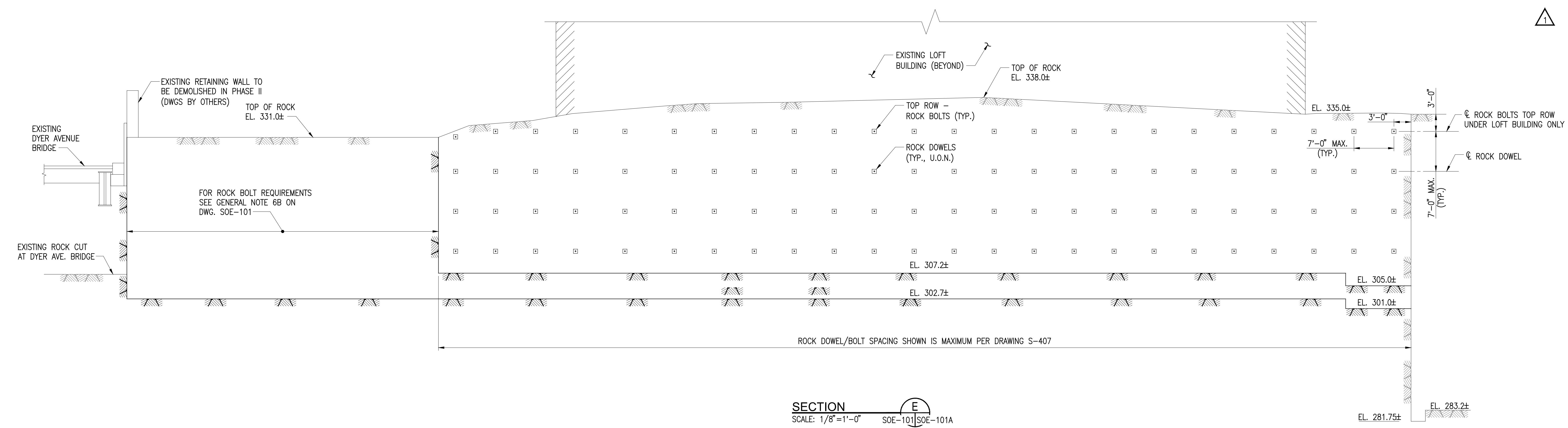
PHASE I EXCAVATION PLAN

FILE NUMBER: 11797
 DRAWING NUMBER: SOE-101.01
 SHEET: OF 101



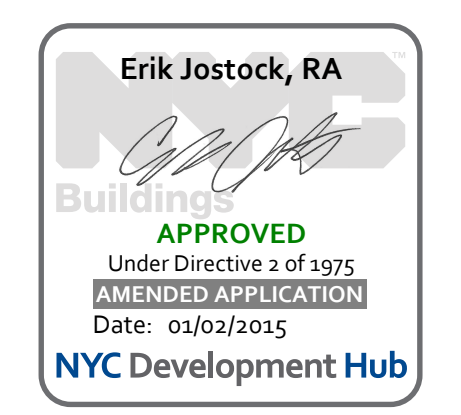
- NOTES:**
1. ROCK DOWELS AS REQUIRED. ACTUAL SPACING TO BE DETERMINED IN THE FIELD BY ENGINEER.
 2. BROOKFIELD PROPERTIES HAS NEGOTIATED AN AGREEMENT WITH OWNERS OF LOFT BUILDING (424 W33rd ST.) TO INSTALL ROCK BOLTS BENEATH THE BUILDING.

SECTION D
SCALE: 1/4"=1'-0"
SOE-101|SOE-101A

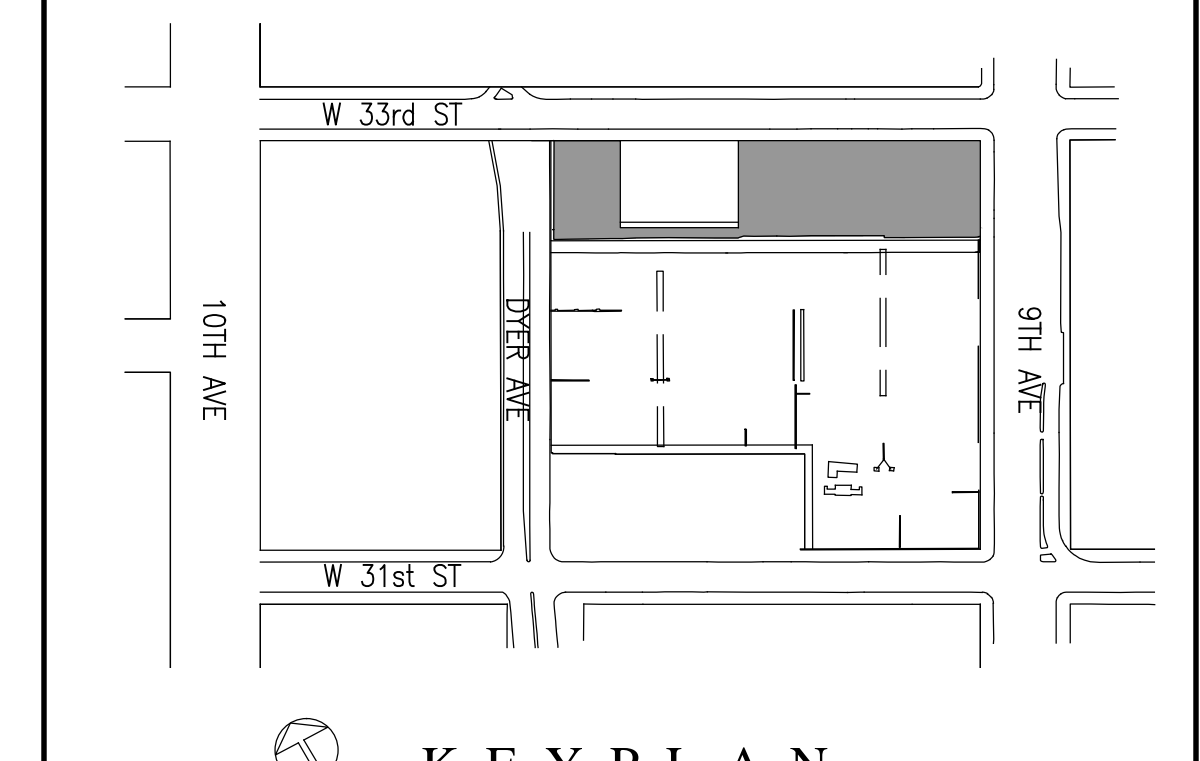


SECTION E
SCALE: 1/8"=1'-0"
SOE-101|SOE-101A

NOTE: CAPPING BEAM AND CAISSONS NOT SHOWN.



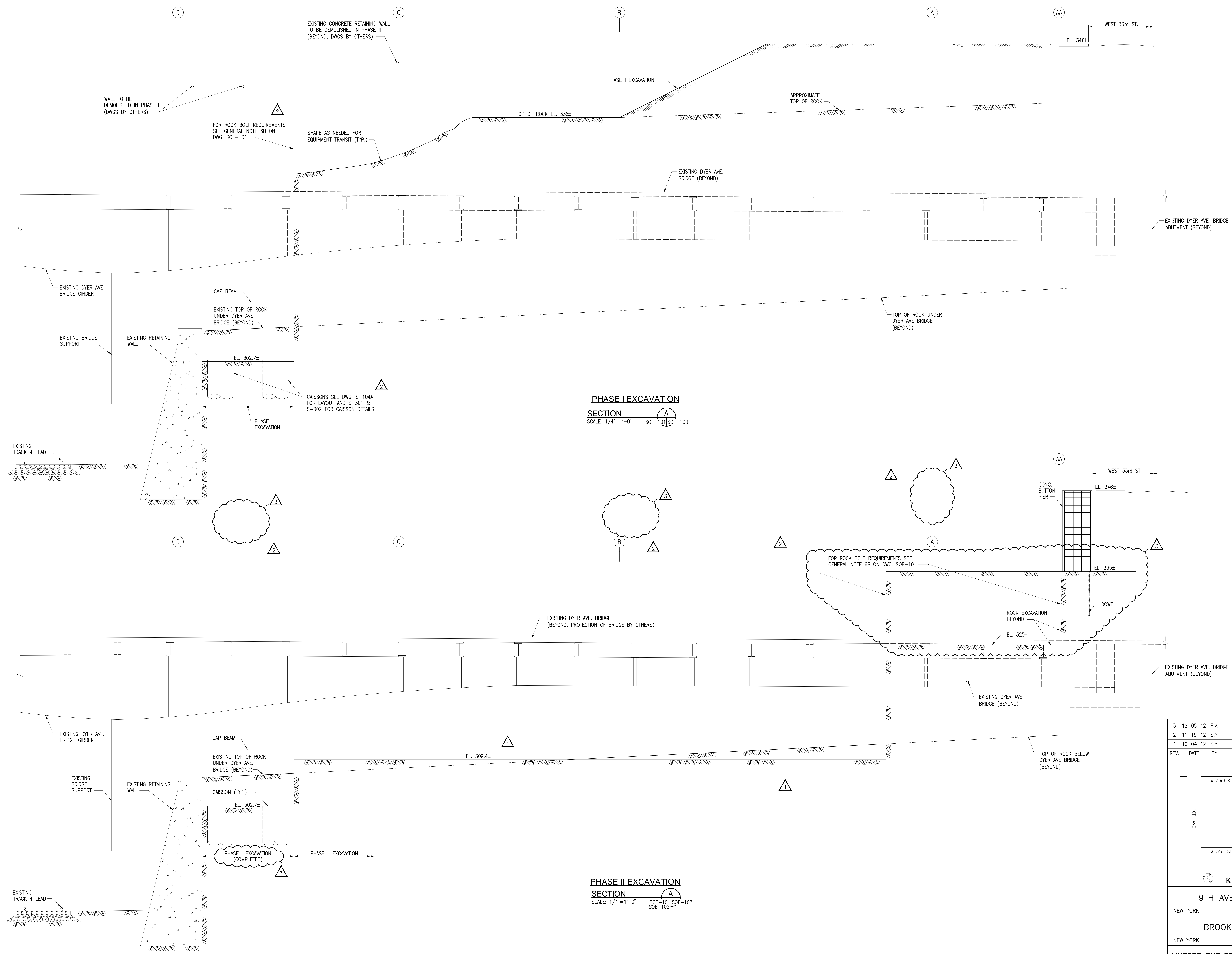
REV.	DATE	BY	DESCRIPTION
2	12-05-14	F.V.	REVISED SOE
1	11-28-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
0	11-19-12	S.Y.	DRAWING ADDED IN RESPONSE TO D.O.B. REVIEW



9TH AVENUE DEVELOPMENT			
NEW YORK			NEW YORK
BROOKFIELD PROPERTIES			
NEW YORK			NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS			
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122			
SCALE	MADE BY: K.J.	DATE: 08-06-2012	FILE NUMBER
AS NOTED	CHKD BY: S.Y.	DATE: 08-06-2012	11797
PHASE I EXCAVATION SECTIONS			DRAWING NUMBER
			SOE-101A.01
			SHEET OF

NOTING: IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO SEAL ANY PLAN OR THESE DRAWINGS IN ANY MANNER. ATTENDING TO THESE PLANS ARE MADE, THE ATTENDING ENGINEER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION AND TECHNICAL DATA SHOWN HEREON AND SHALL NOT BE RESPONSIBLE FOR THE DESIGN OR CONSTRUCTION OF THE WORK SHOWN HEREON. THE DRAWING SHALL NOT BE REPRODUCED OR COPIED IN WHOLE OR IN PART EXCEPT AS EXPRESSLY AUTHORIZED IN WRITING BY MUESER RUTLEDGE CONSULTING ENGINEERS. NOTICE: THESE DRAWINGS WILL BE USED STRICTLY AS A REFERENCE FOR ANY VIOLATION OF THE NOTICE, WHETHER WILLFUL OR NEGLECT.



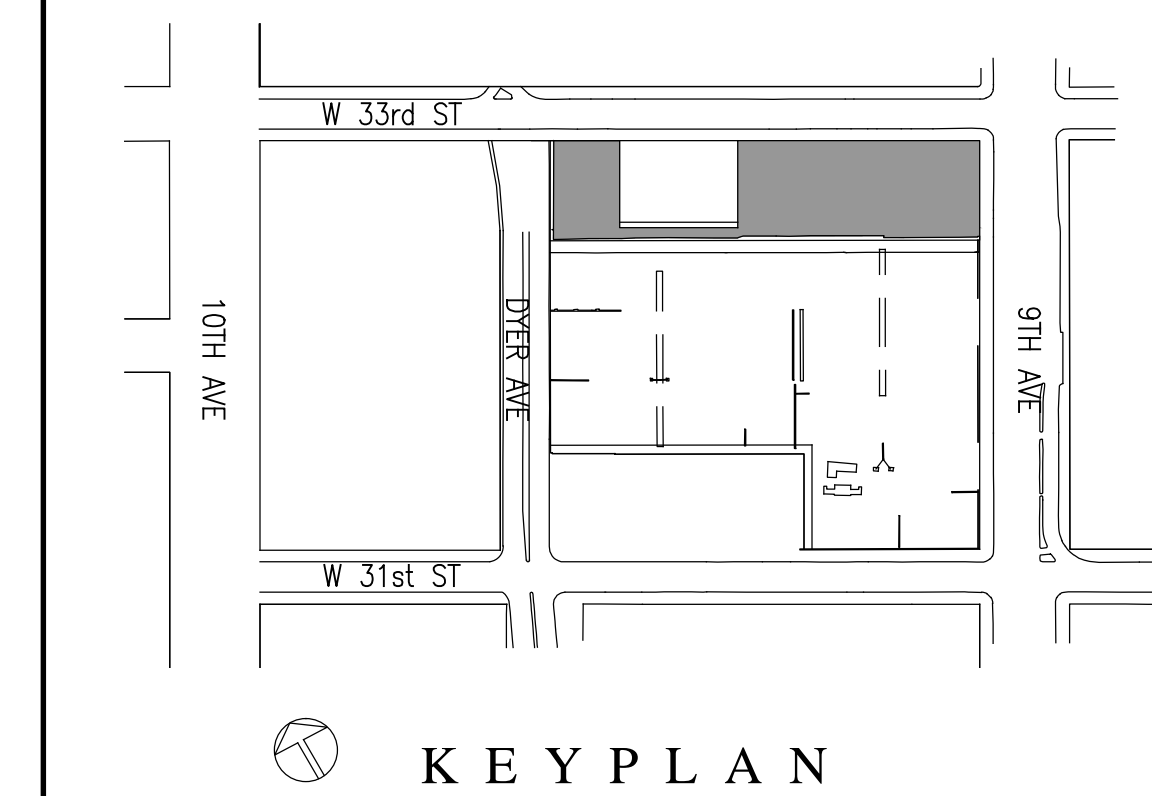


PHASE I EXCAVATION
SECTION A
SCALE: 1/4"=1'-0" SOE-101|SOE-103

PHASE II EXCAVATION
SECTION A
SCALE: 1/4"=1'-0" SOE-101|SOE-102

Erik Jostock, RA
APPROVED
Under Direction of S.P.S.
LICENSED PROFESSIONAL ENGINEER
Date: 08/06/2012
NYC Development Hub

REV.	DATE	BY	DESCRIPTION
3	12-05-12	F.V.	REVISED SOE
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



9TH AVENUE DEVELOPMENT
NEW YORK NEW YORK

BROOKFIELD PROPERTIES
NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

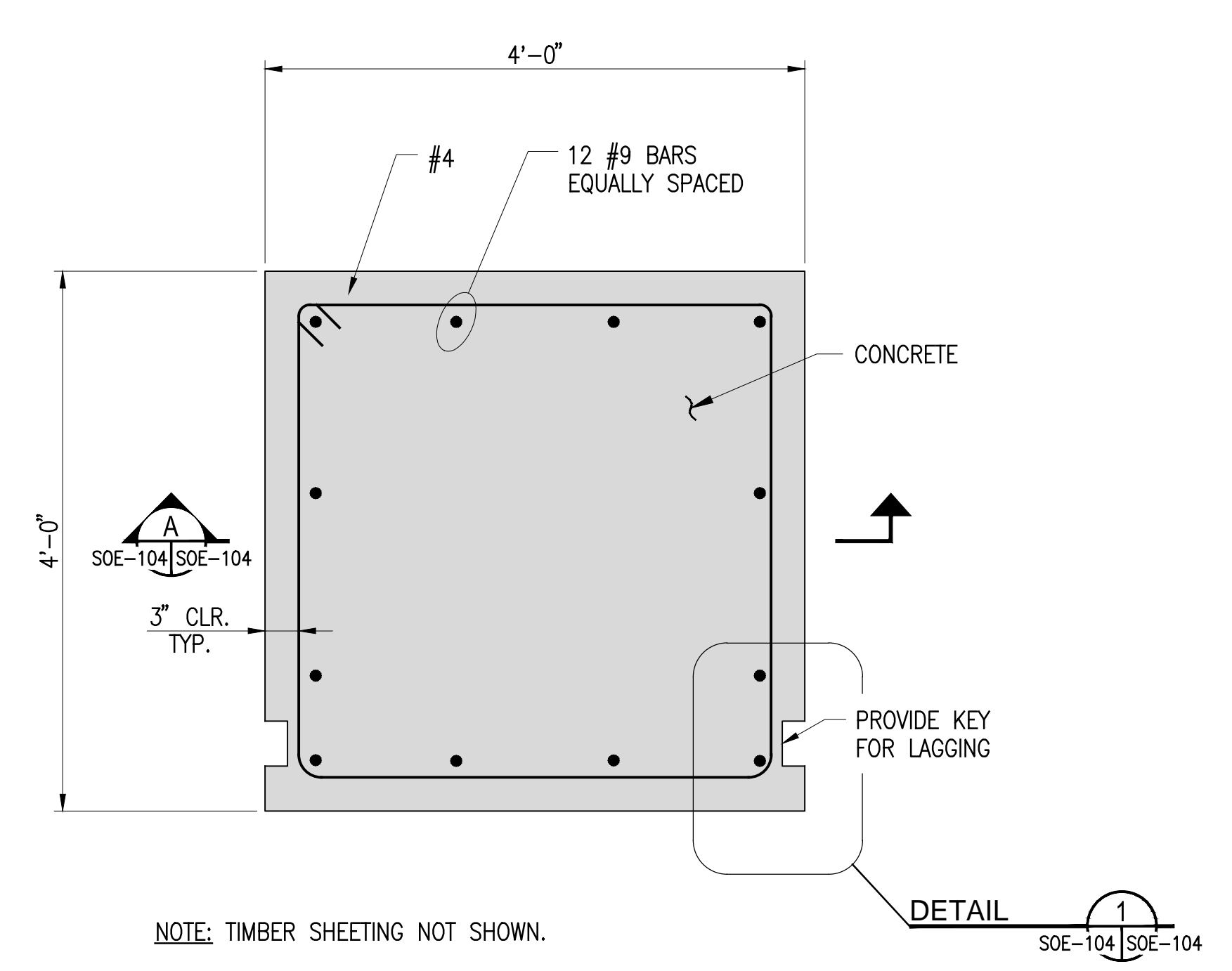
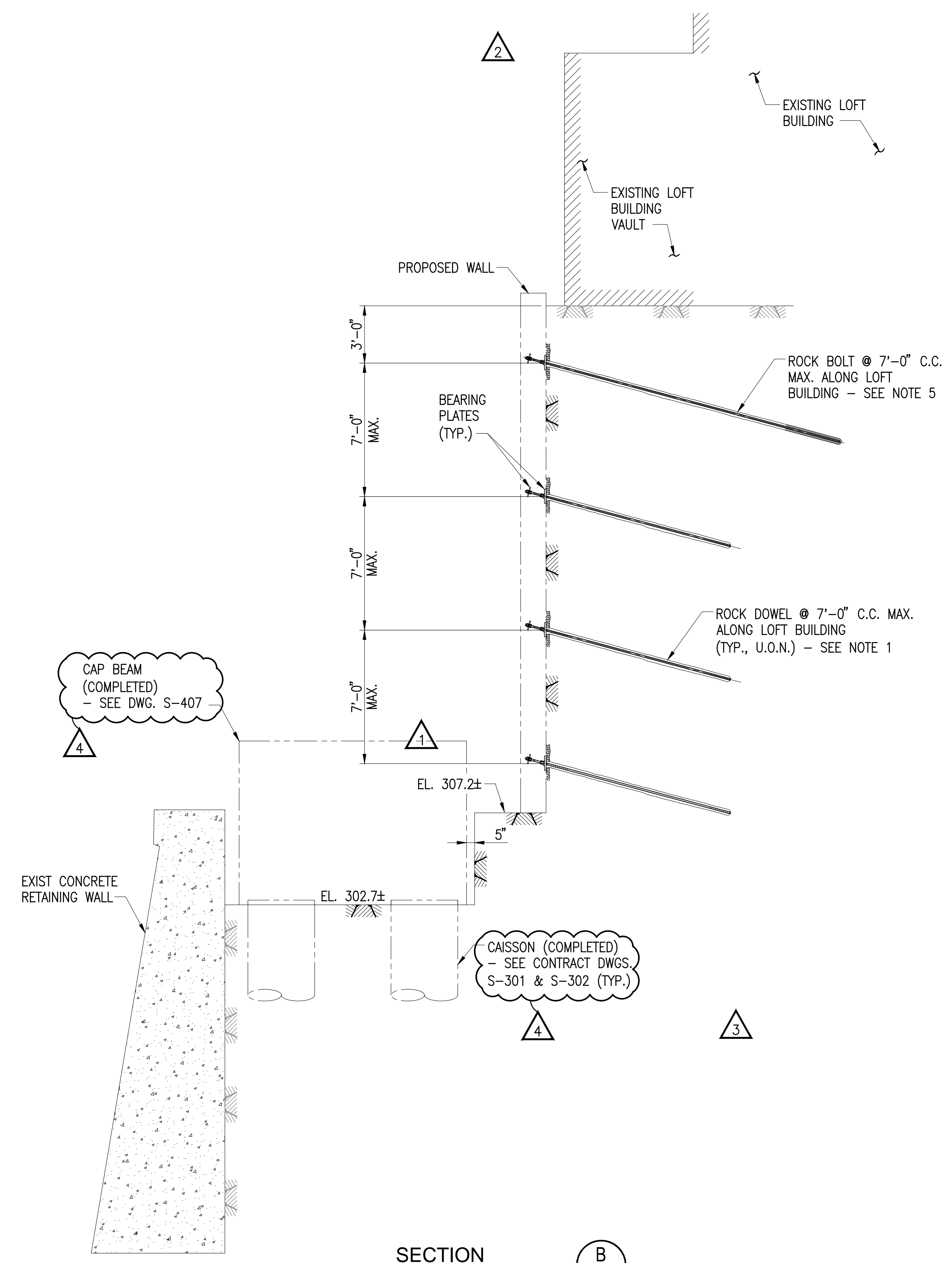
SCALE: AS NOTED MADE BY: K.J. DATE: 08-06-2012 FILE NUMBER: 11797
AS NOTED CHECKED BY: S.Y. DATE: 08-06-2012

SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3
DRAWING NUMBER: SOE-103.01
SHEET OF

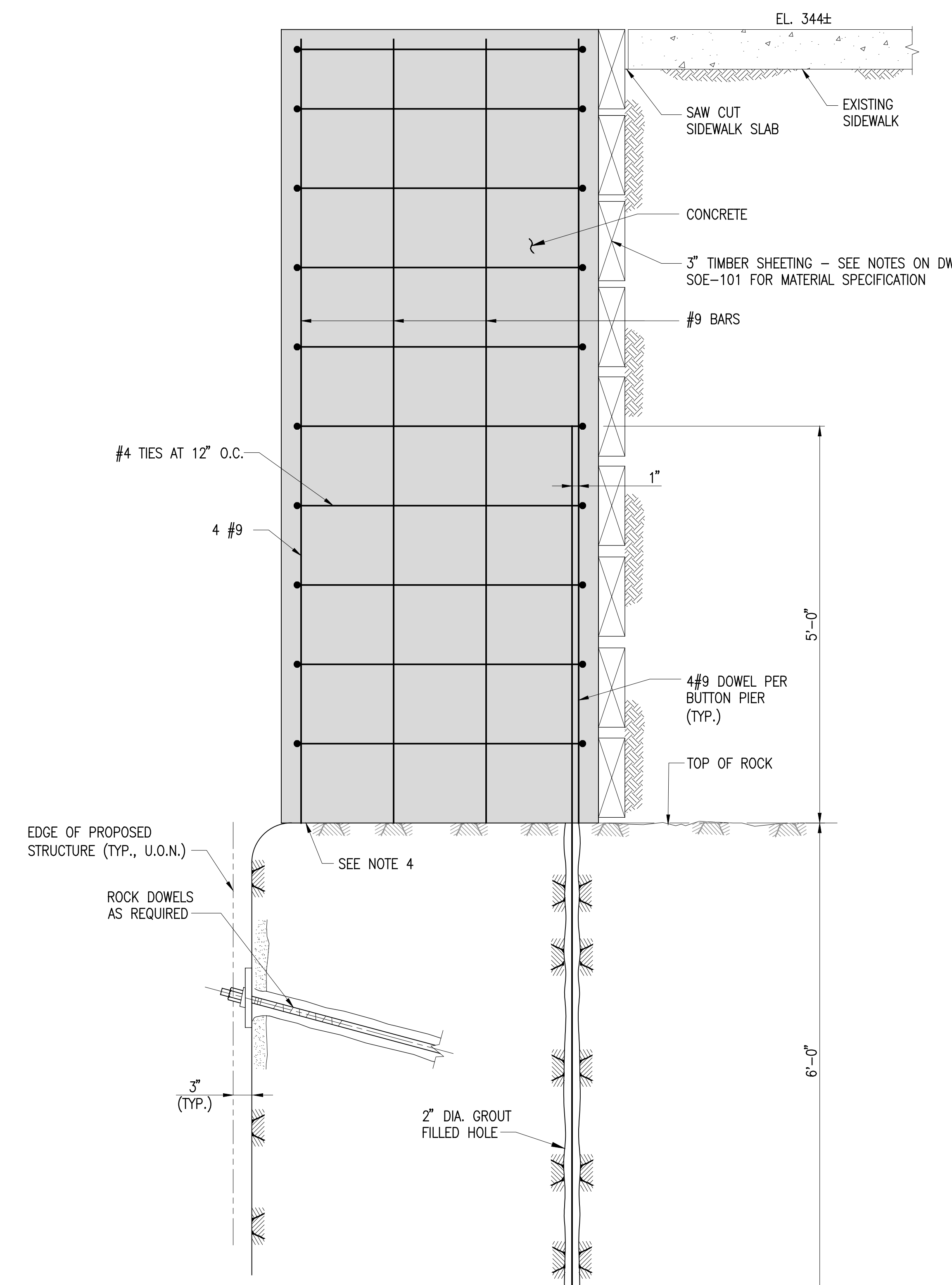
WARNING: IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ASSUME ANY TITLE OR POSITION OR ANY NAME, OR ATTENDING TO THESE PLANS AND MAKE, OR ALTERATIONS THEREON, OR ANY PART THEREOF, IN ACCORDANCE WITH ARTICLE 160 - SECTIONS 1700(1) OF THE NEW YORK STATE EDUCATION LAW.

THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. AND IS FURNISHED SUBJECT TO RETURN ON DEMAND AND ON THE CONDITION THAT THE INFORMATION AND KNOWLEDGE EMPLOYED HEREON SHALL NOT BE DISCLOSED OR USED AS PROVIDED AUTHORIZED IN WRITING BY MUESER RUTLEDGE CONSULTING ENGINEERS, INC. WITHOUT THE WRITING WILL BE HELD STRICTLY LIABLE FOR ANY VIOLATION OF THIS NOTICE, WHETHER WILLFUL OR NEGLIGENT.

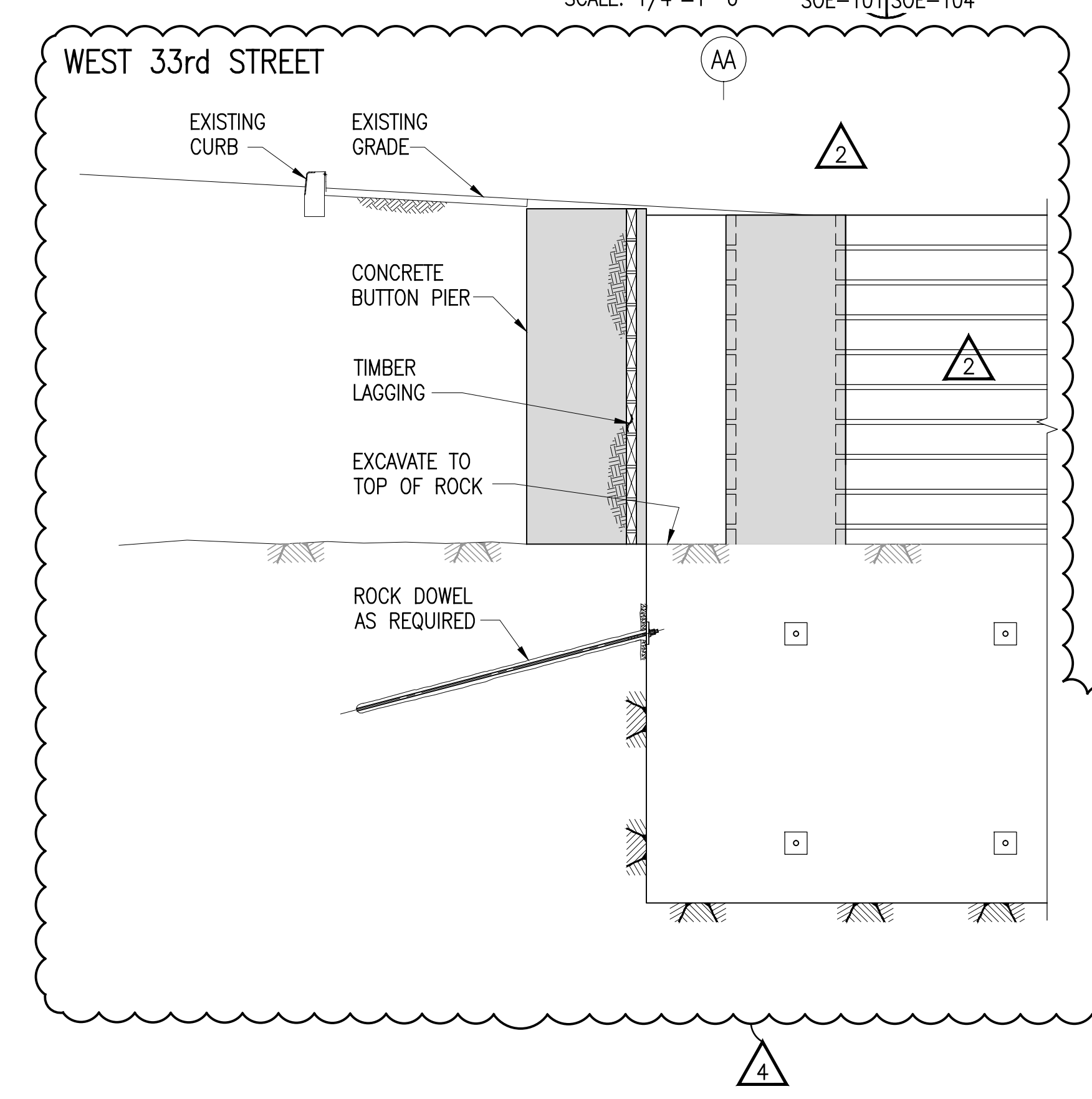




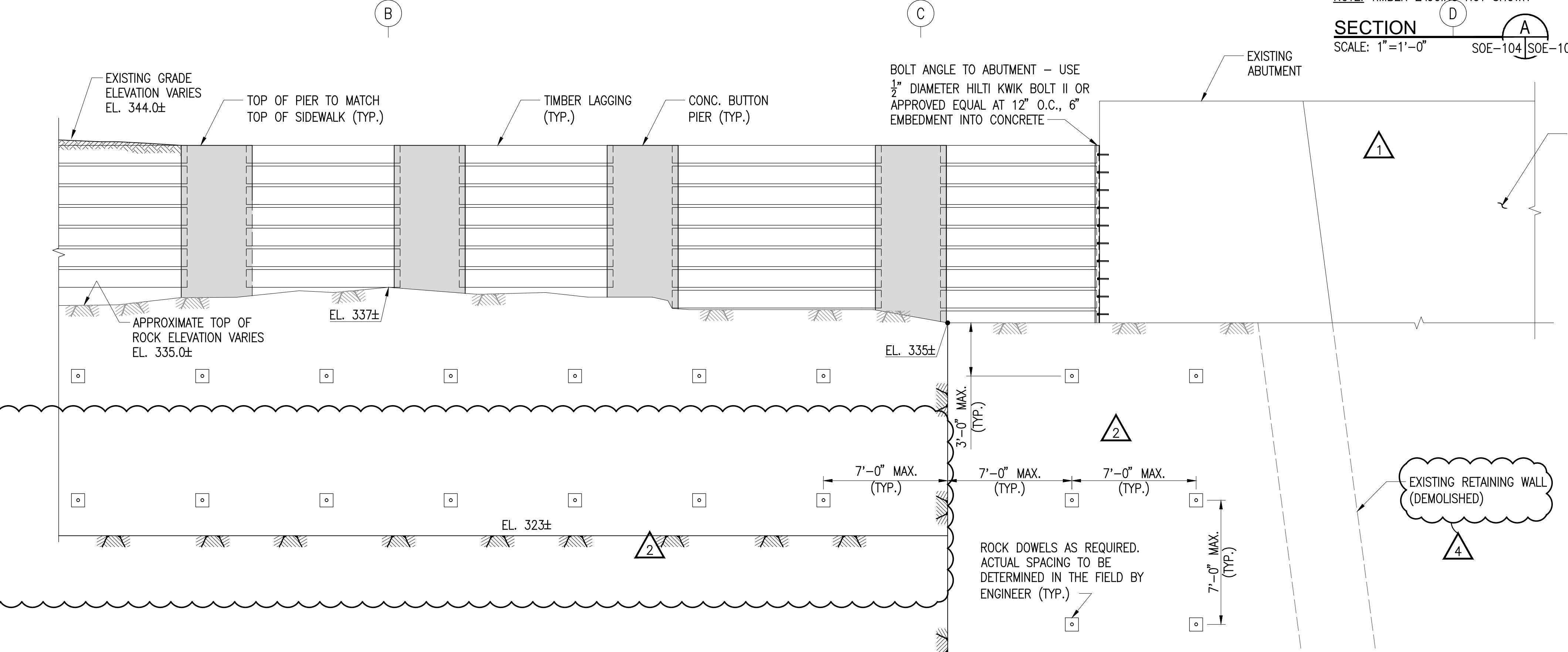
TYPICAL CONCRETE BUTTON PIER PLAN
SCALE: 1"=1'-0"



SECTION B-B
SCALE: 1"=1'-0"

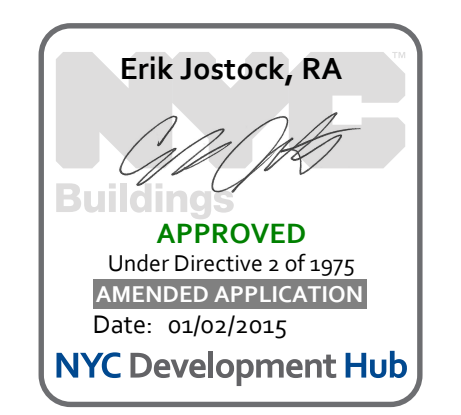


SECTION A-A
SCALE: 1/4"=1'-0"

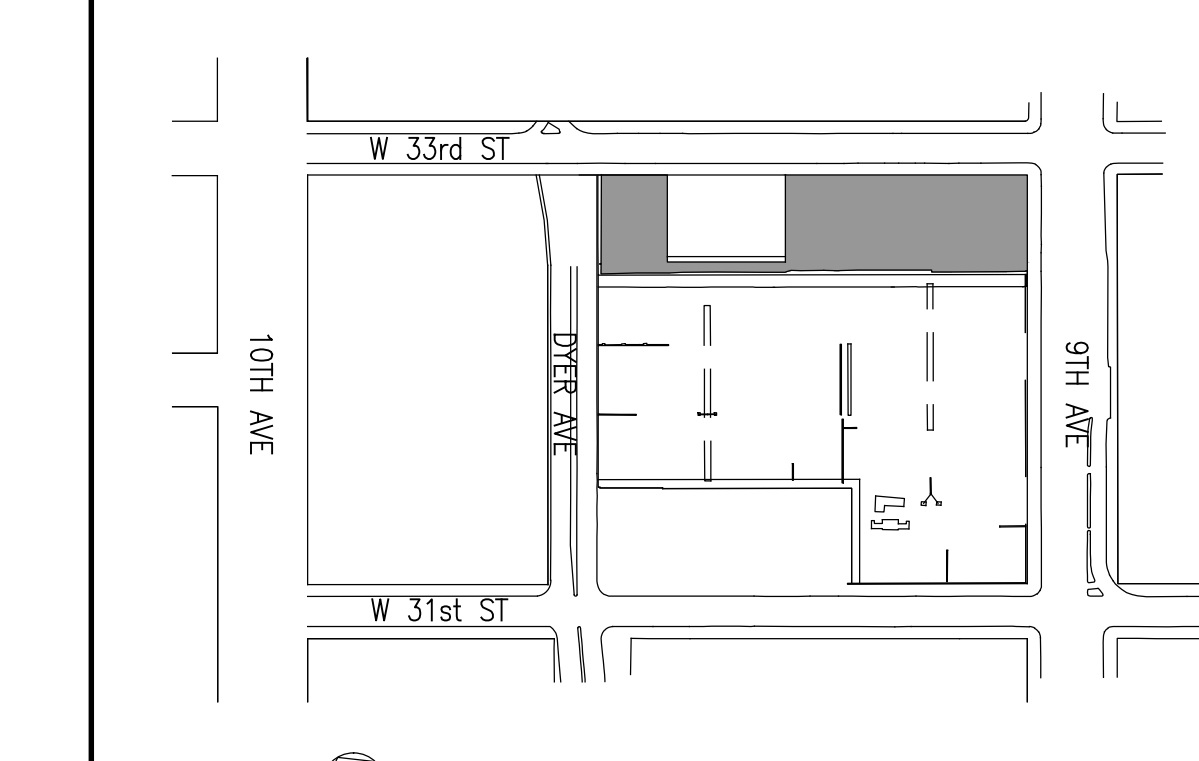


SECTION C-C
SCALE: 1/4"=1'-0"

- NOTES:**
- ROCK BOLT SPACING SHOWN IS MAXIMUM, IF ROCK QUALITY IS POOR ADDITIONAL ROCK BOLTS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
 - ALL ROCK BOLTS ADJACENT TO THE LOFT BUILDING SHALL BE EPOXY COATED (SEE CONTRACT DRAWING S-407).
 - BEARING PLATES AT LOFT BUILDING SHALL BE GALVANIZED (SEE CONTRACT DRAWING S-407).
 - ROCK SUBGRADE FOR CONCRETE BUTTON PIER SHALL BE NYC CLASS IC OR BETTER.
 - BROOKFIELD PROPERTIES HAS NEGOTIATED AN AGREEMENT WITH OWNERS OF LOFT BUILDING (424 W. 33rd ST.) TO INSTALL ROCK BOLTS UNDERNEATH THE BUILDING.



REV.	DATE	BY	DESCRIPTION
4	12-05-14	F.V.	REVISED SOE
3	11-28-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



9TH AVENUE DEVELOPMENT
NEW YORK NEW YORK

BROOKFIELD PROPERTIES
NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE: AS NOTED
MADE BY: K.J.
DATE: 08-06-2012
FILE NUMBER: 11797

AS NOTED
CHECKED BY: S.Y.
DATE: 08-06-2012
DRAWING NUMBER: 11797

SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1
SHEET 104 OF 104

ANYBODY IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ASSURE ANY TIME IN THESE DRAWINGS OR ANY PART THEREOF IS NOT BEING USED AS A BASIS FOR ANY OTHER PROJECT OR FOR ANY OTHER PURPOSE. ANY PERSON WHO RECEIVES OR REPRODUCES THESE DRAWINGS SHALL BE RESPONSIBLE FOR ANY VIOLATION OF THE LAW. NOTICE, WHETHER ORAL OR WRITTEN.

Client:
Brookfield
3 World Financial Center, New York, NY 10281

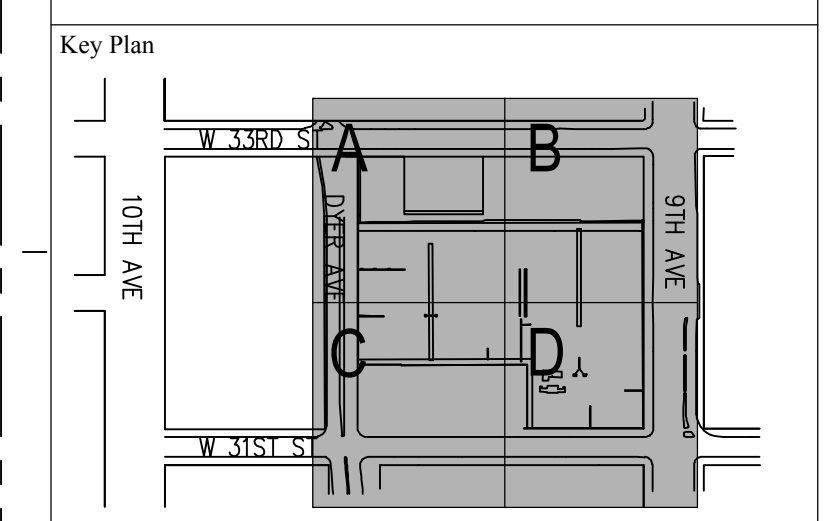
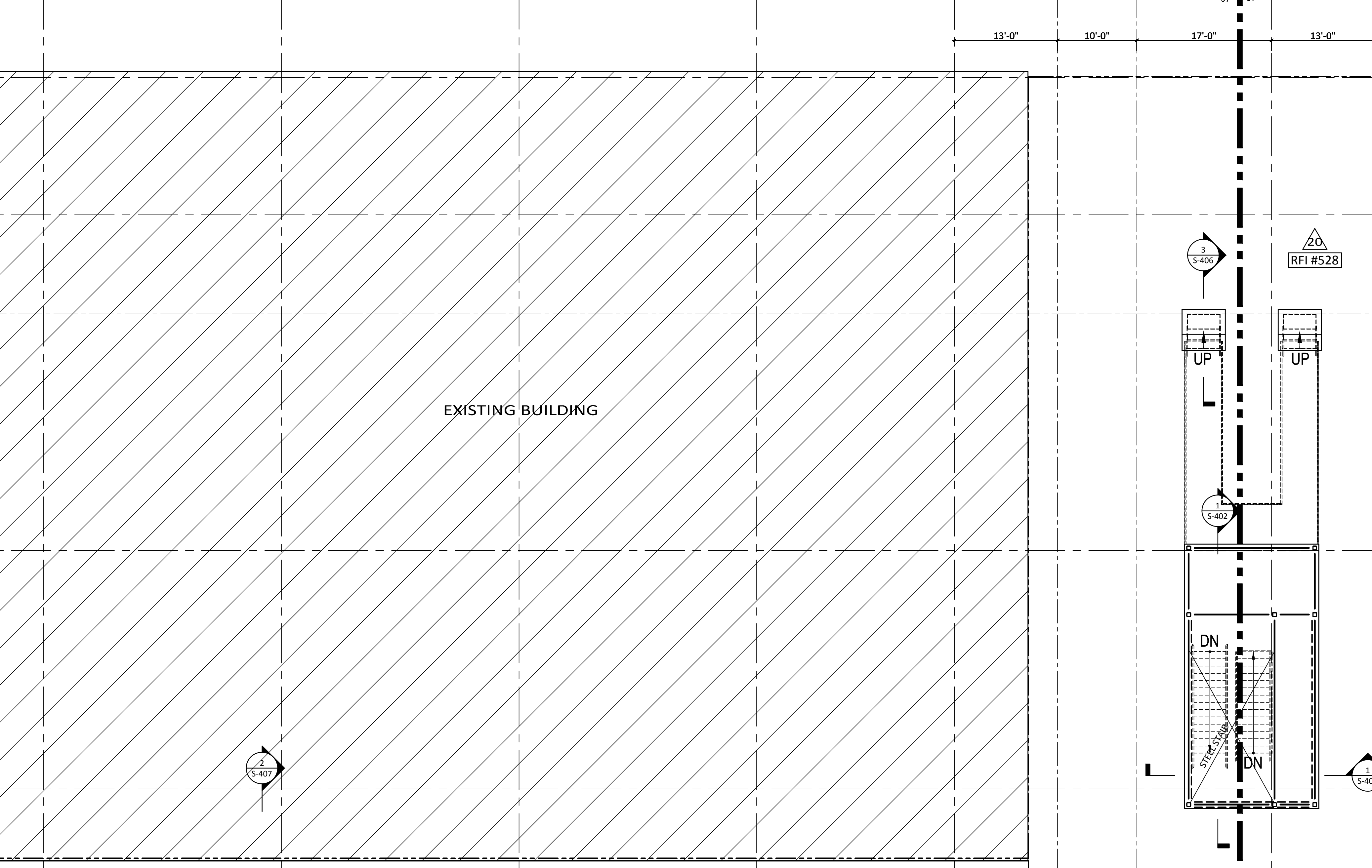
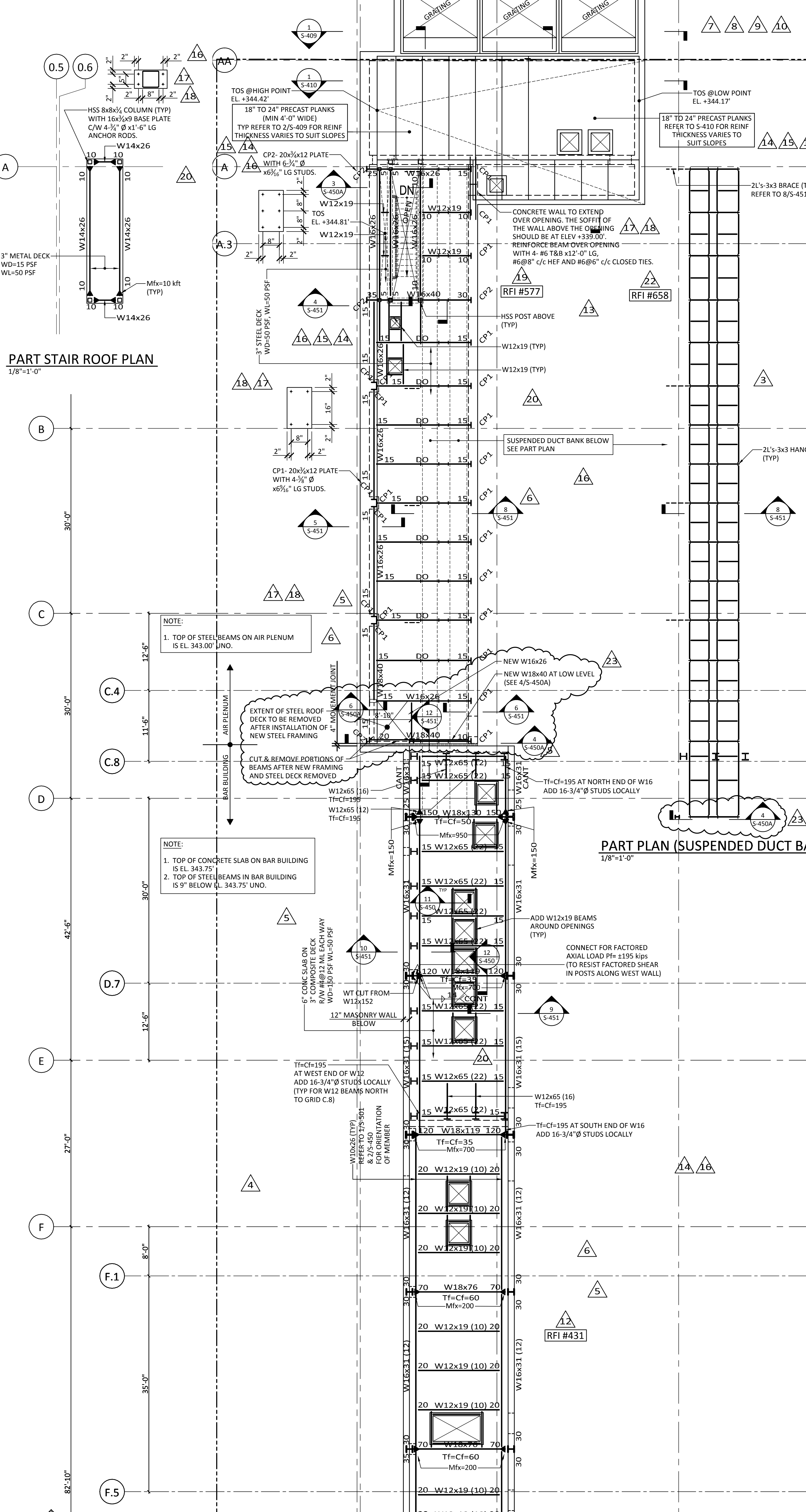
Architect:
SOM
300 University Avenue, 7th Floor
New York, NY 10017-2484, USA
som.com

Structural:
ENTUITIVE
Entuitive Corporation
235 University Avenue, 7th Floor
New York, NY 10017-2484, USA
entuitive.com

Railroad Engineering:
PB Americas, Inc.
One Penn Plaza, New York, NY 10119

Utility:
Jacobs Engineering Group
One Penn Square West, 30 South 15 Street, Philadelphia, PA 19102

Geotechnical Engineer:
**Mueser Rutledge
Consulting Engineers**
14 Penn Plaza, New York, NY 10122



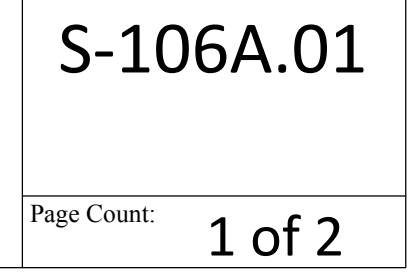
No.	Revisions	Date	By
1	ISSUED FOR D.D. APPROVAL	MAY 31, 2012	TRG
2	ISSUED FOR PERMIT FILING	MAY 31, 2012	TRG

Sheet Name:
**GROUND LEVEL PARTIAL
FRAMING PLAN A**

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Date: 05/31/2012

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.: S-106A.01

Approved:
Damian Titus
NYC Development Hub
APPROVED
Under Direction of all applicable
LIMITED APPLICATION
Date: 05/31/2012



9th Avenue Development

New York, NY

Client:

Brookfield
3 World Financial Center, New York, NY 10281

Architect:

SOM
300 MADISON AVENUE, 31ST FLOOR
NEW YORK, NY 10017

Structural:

ENTUITIVE
Entuitive Corporation
200 University Avenue, 2nd Floor
Toronto, ON, M5H 2C4, Canada
entuitive.com

Railroad Engineering:

PB Americas, Inc.
One Penn Plaza, New York, NY 10119

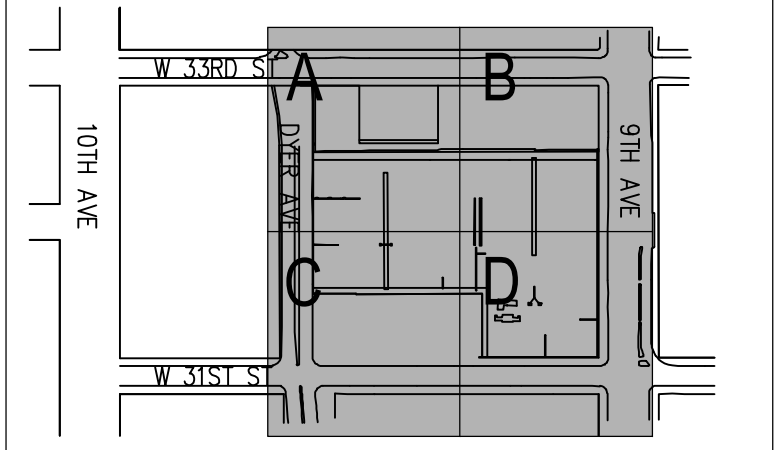
Utility:

Jacobs Engineering Group
One Penn Square West, 30 South 15 Street, Philadelphia, PA 19102

Geotechnical Engineer:

Mueser Rutledge Consulting Engineers
14 Penn Plaza, New York, NY 10122

Key Plan

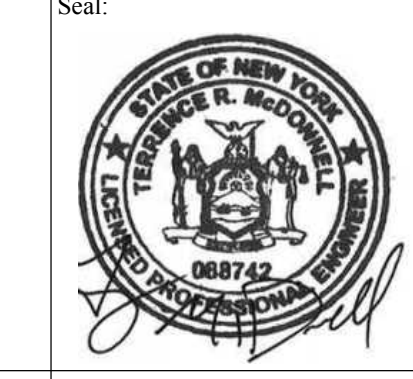


No.	Revisions	Date	By
1	ISSUED FOR PERMIT FILING	1/17/2015	TR

Sheet Name:

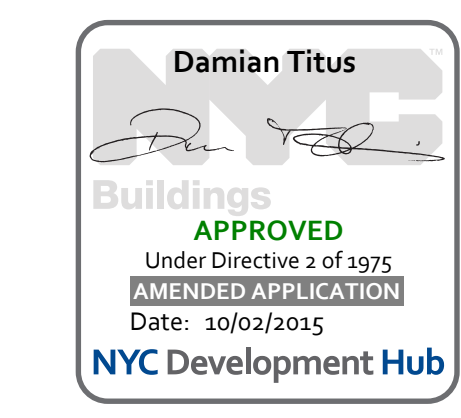
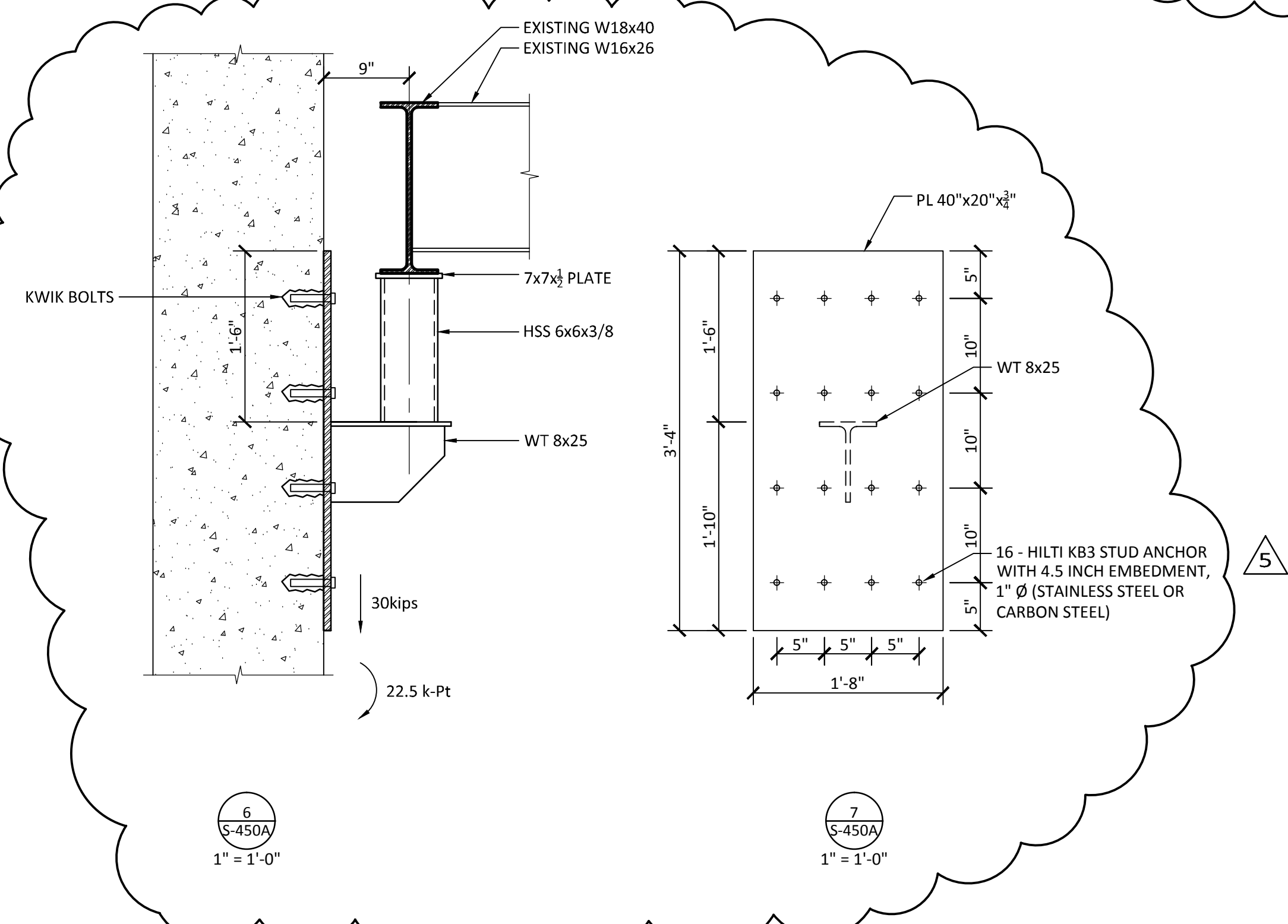
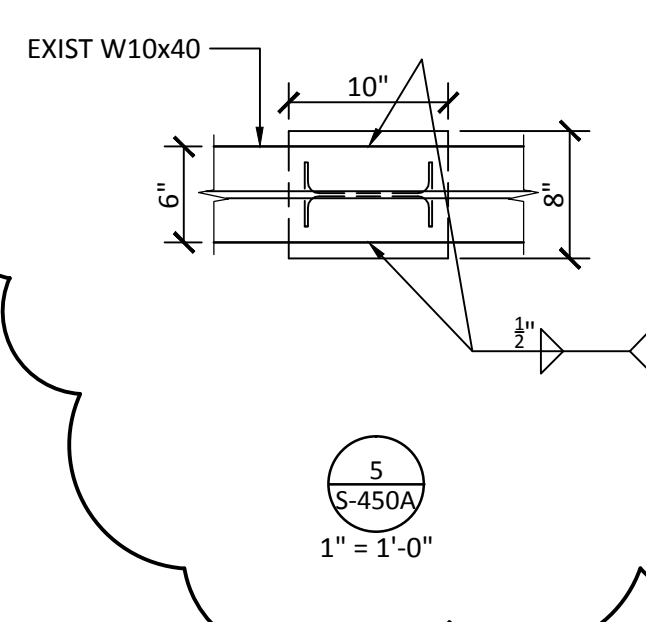
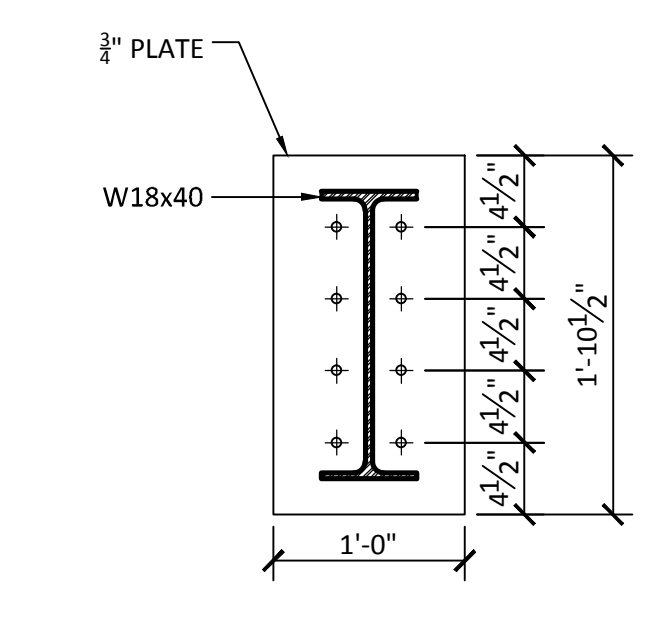
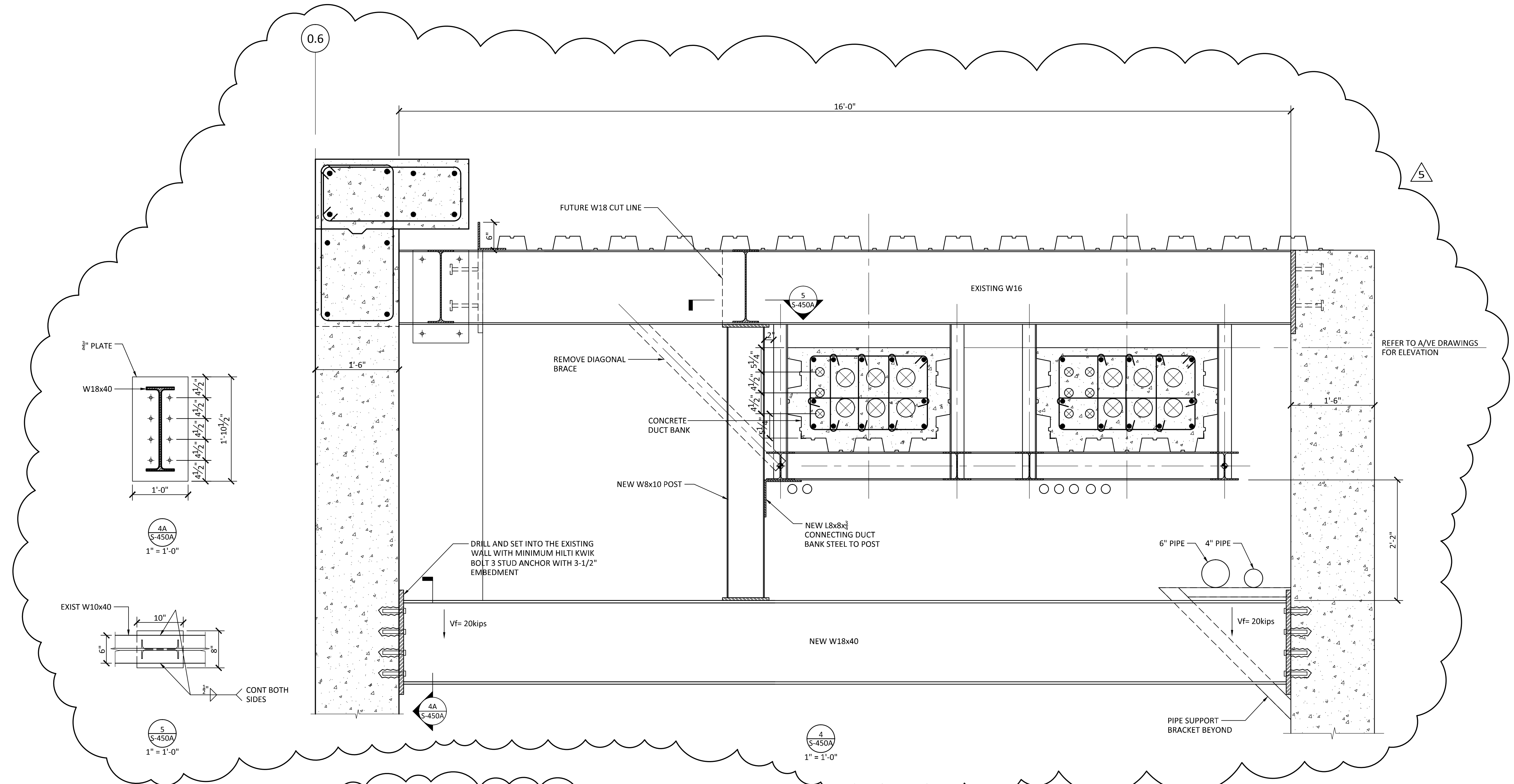
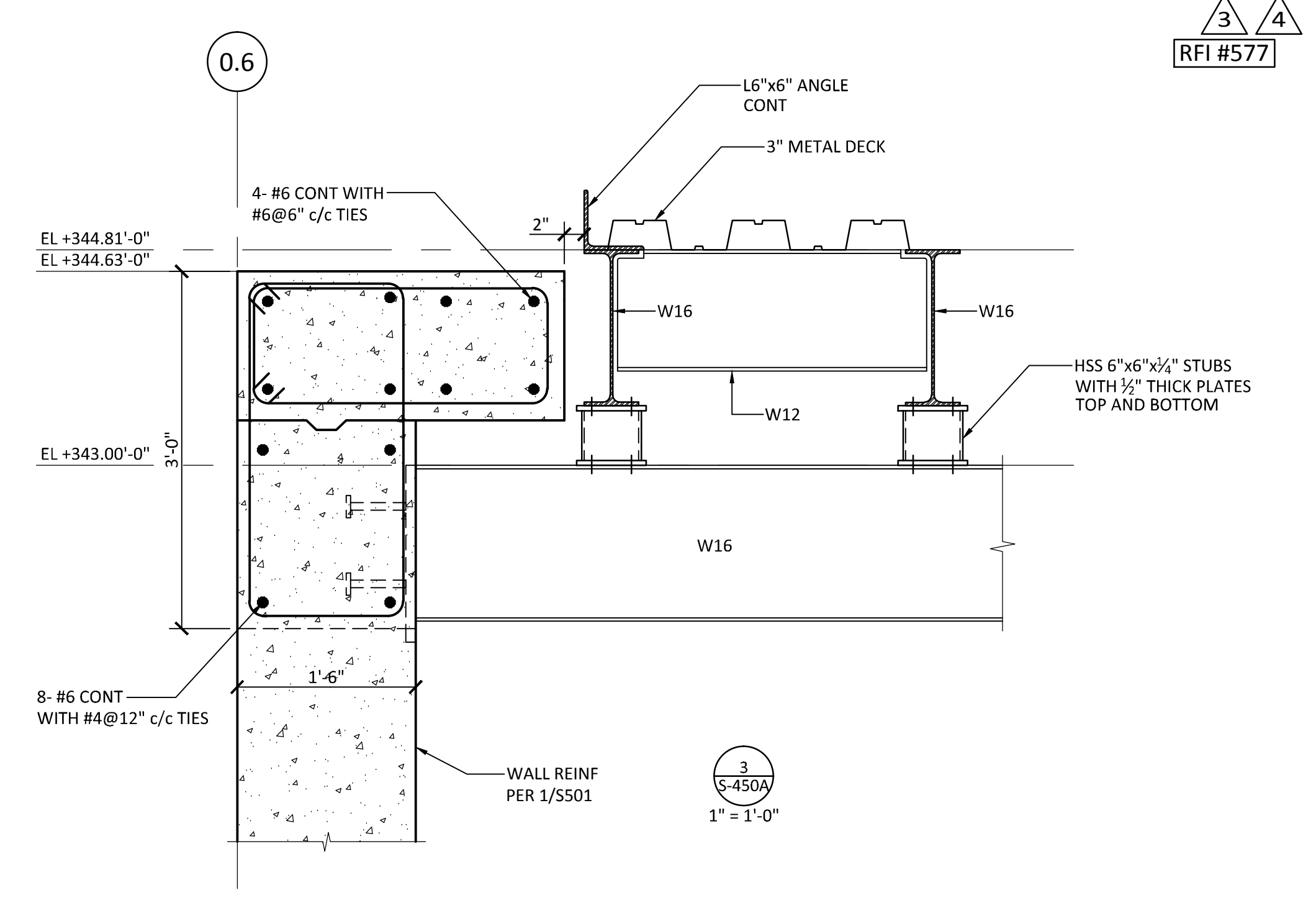
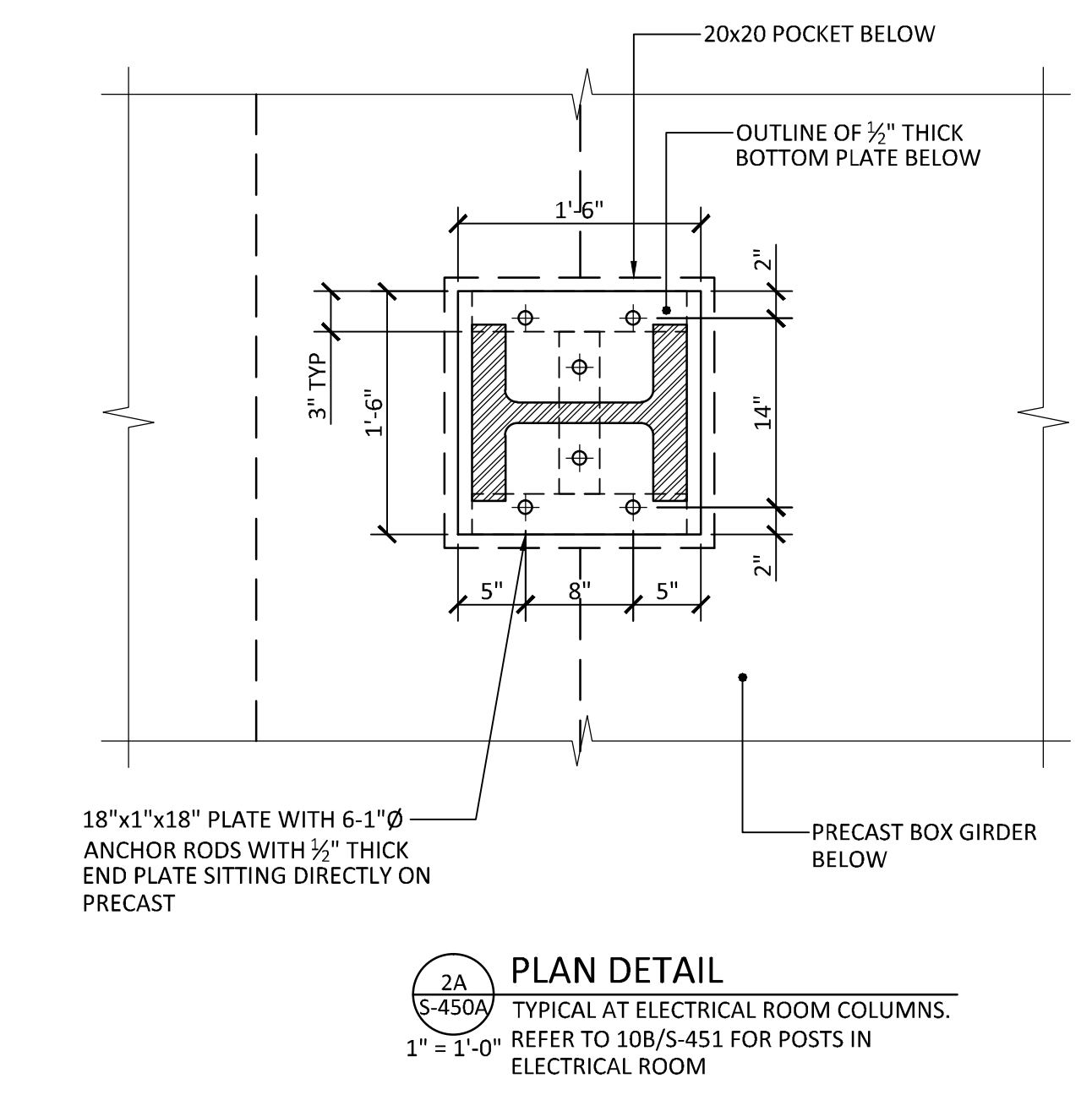
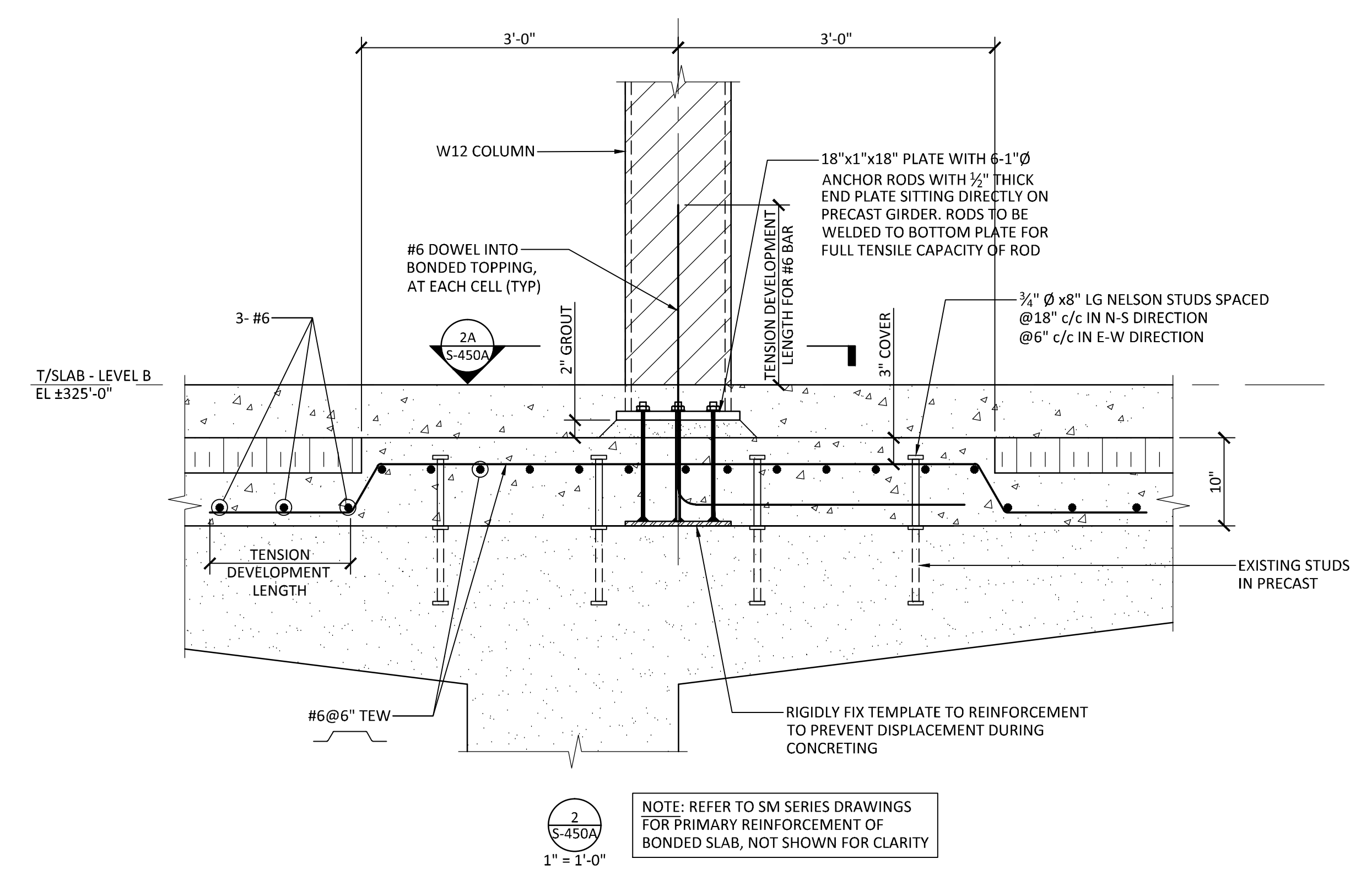
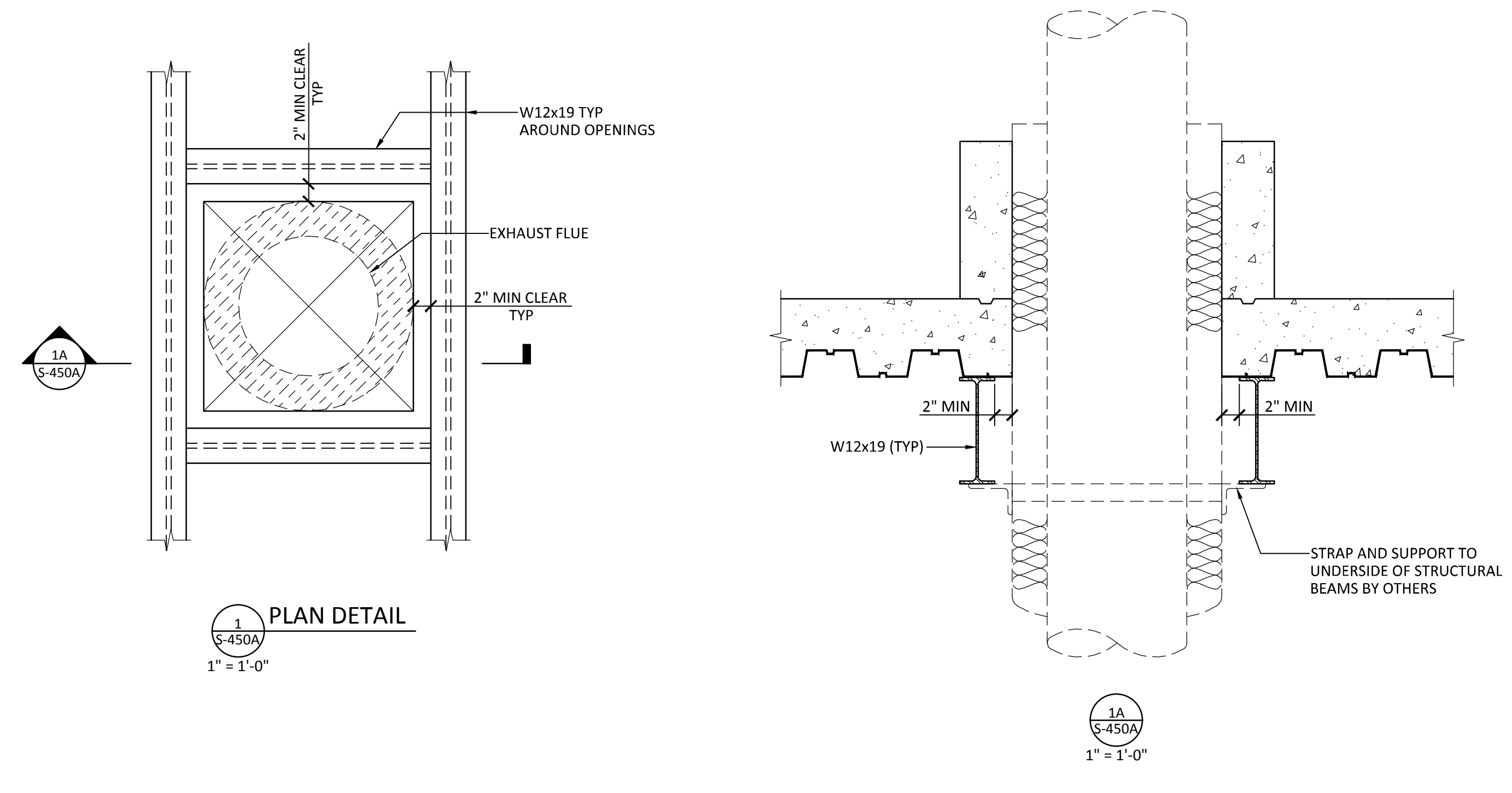
GROUND LEVEL SECTIONS AND DETAILS

Drawn By: TRG Checked By: BC/DS
 Scale: AS SHOWN Date: MARCH 2011
 Project No: T011-0003 File No:
 Scale: Sheet No:



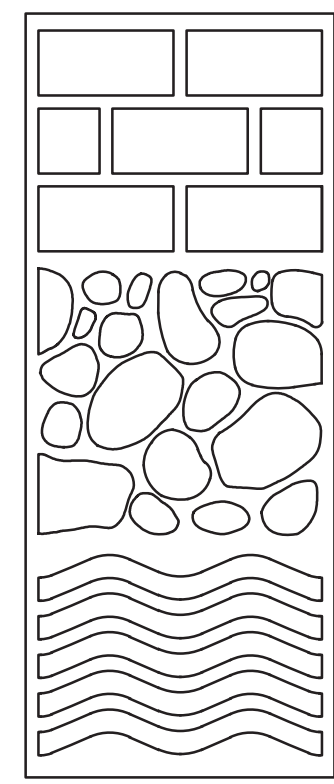
S-450A.00
Page Count: 2 of 2

2/4
RFI #537



9TH AVENUE DEVELOPMENT
BROOKFIELD PROPERTIES

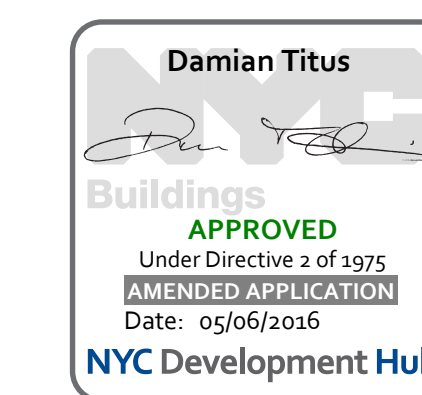
NORTH SIDE SUPPORT OF EXCAVATION

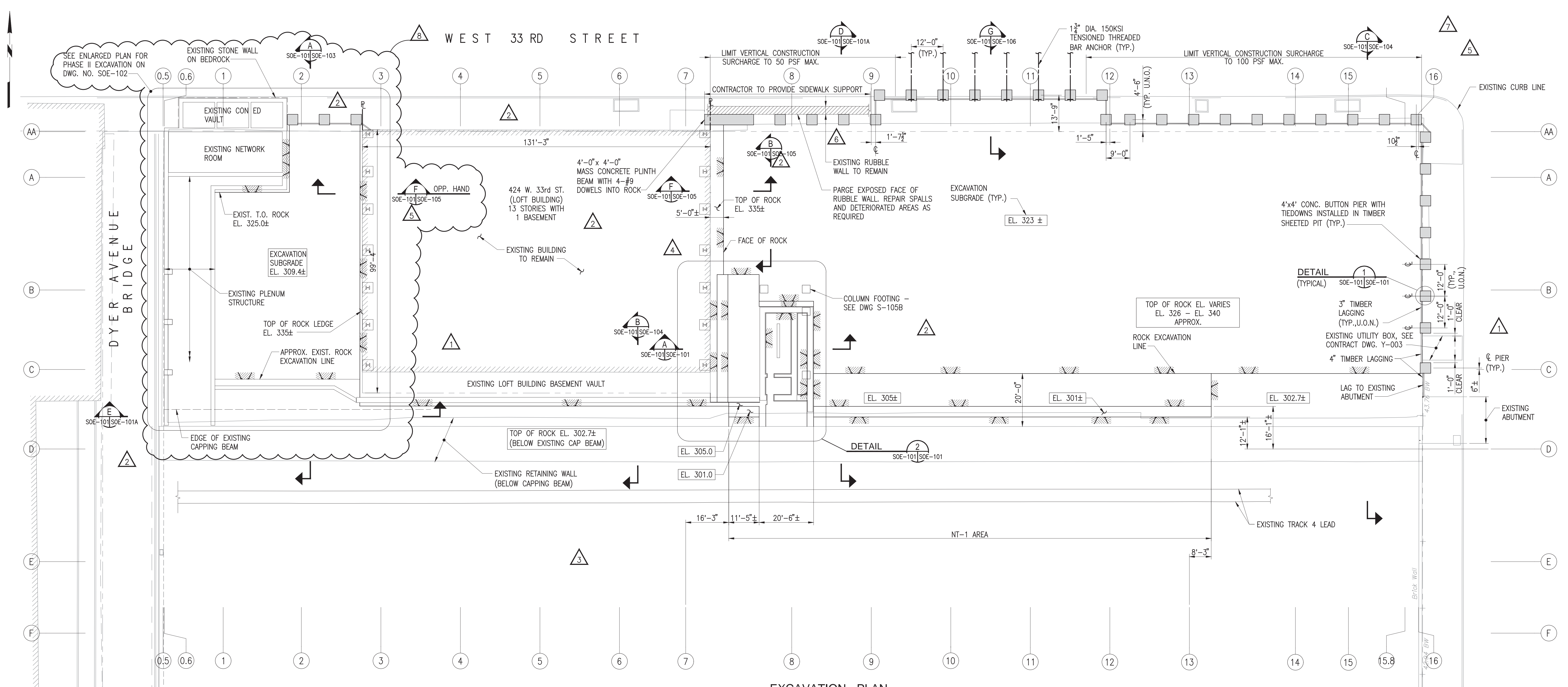


MUESER RUTLEDGE
CONSULTING ENGINEERS

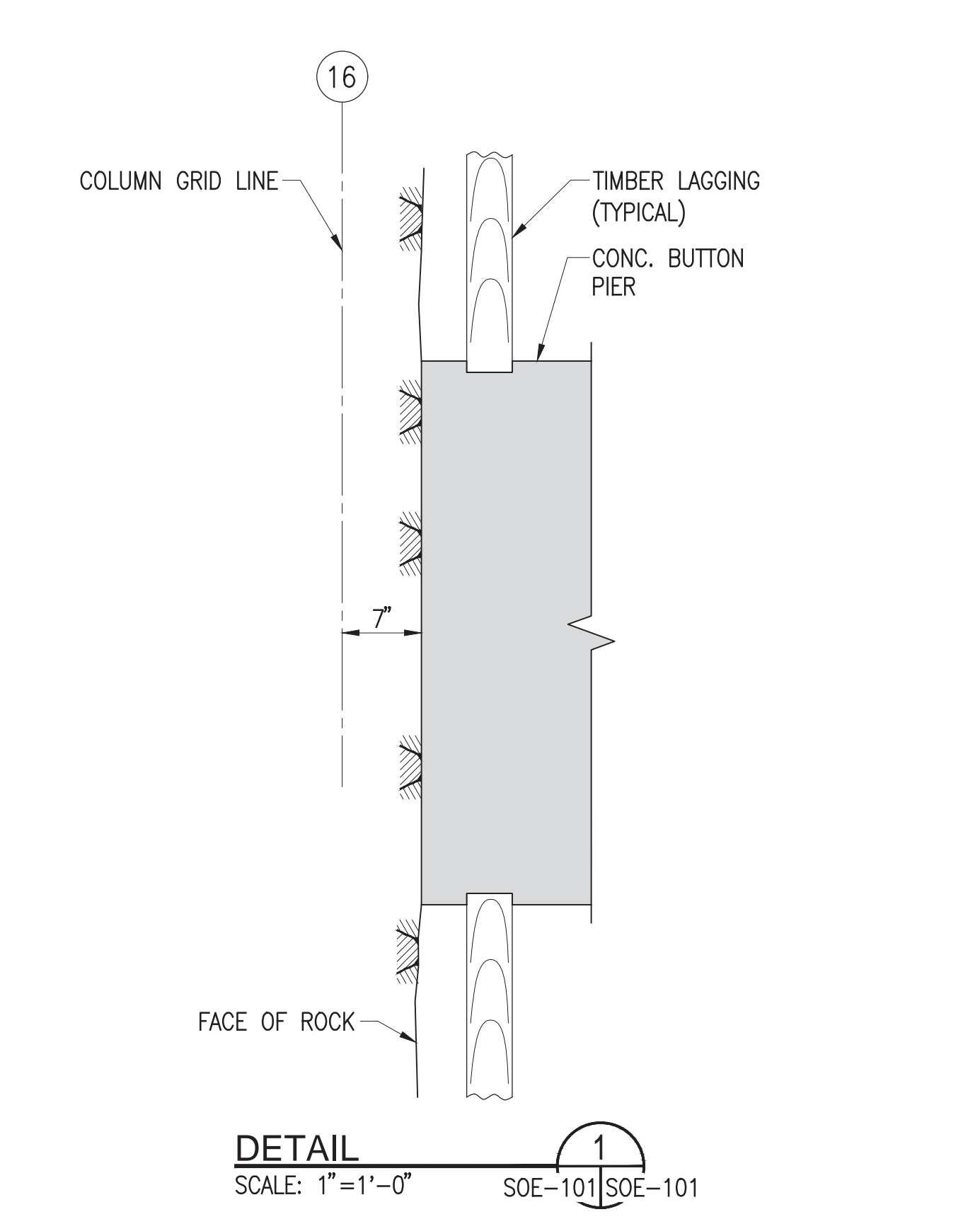
14 PENN PLAZA – 225 WEST 34TH STREET, NEW YORK, NY 10122

MARCH 10, 2016
SUBMITTAL NUMBER: 12 REV. 8





EXCAVATION - PLAN
SCALE: 1/16"=1'-0"



DETAIL 1
SCALE: 1"=1'-0"
SOE-101/102

LIST OF DRAWINGS	
DRAWING NUMBER	DRAWING TITLE
SOE-101	SUPPORT OF EXCAVATION - PHASE I PLAN
SOE-101A	SUPPORT OF EXCAVATION - PHASE I SECTIONS
SOE-102	SUPPORT OF EXCAVATION - PHASE II PLAN
SOE-103	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1
SOE-104	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 2
SOE-105	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3
SOE-106	SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 4

- PHASE I AND PHASE II EXCAVATION NOTES:**
- EXCAVATION SUBGRADE SHOWN AT CONCRETE CAPPING BEAM IS THE BOTTOM OF THE PROPOSED 4" THICK EXTRUDED POLYSTYRENE LAYER. DRAINAGE TRENCHES AT CAPPING BEAM NOT SHOWN SEE CONTRACT DRAWING DR-1. SEE SECTION B ON SOE-101 FOR SUBGRADE AT PROPOSED WALL.
 - EXCAVATION SUBGRADE SHOWN AT PROPOSED SLABS-ON-GRADE IN STAIR AREA IS BASED ON AN 8" GRAVEL LAYER BELOW PROPOSED SLAB. CONTRACTOR TO VERIFY THICKNESS OF GRAVEL LAYER REQUIRED.
 - SEE DRAWING SOE-102 FOR PHASE II EXCAVATION.
 - CONTRACTOR SHALL PLACE A CONTINUOUS RUN OF HAY BALES AT THE TOE OF THE SLOPE TO FILTER RUN-OFF WATER. OTHER SEDIMENT AND EROSION CONDITIONS APPLY.

- REFERENCE DRAWINGS:**
- EXISTING UTILITIES, RETAINING WALLS AND OTHER EXISTING STRUCTURES AND EXISTING GRADE ELEVATIONS SHOWN ARE BASED ON CONTRACT DRAWINGS Y-002 AND Y-003.
 - TRACK LAYOUT SHOWN IS FROM CONTRACT DRAWING S-102.

- GENERAL NOTES:**
- ELEVATIONS ON PLANS ARE GIVEN RELATIVE TO PENN RAIL ROAD TUNNELS DATUM. FOR REFERENCE, 0.0' MANHATTAN BOROUGH PRESIDENT DATUM = 300.025'.
 - THE SUPPORT OF EXCAVATION SYSTEM HAS BEEN DESIGNED FOR 600 PSF VERTICAL SURCHARGE AT EXISTING GRADE ALONG THE EXTERIOR OF THE SITE, EXCEPT WHERE NOTED ON PLAN.
 - MATERIALS:**
 - A. CONCRETE REINFORCING: ASTM A 615, GRADE 60
 - B. CONCRETE: MIN. 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - C. TIMBER LAGGING: SOUTHERN PINE OR EQUAL
FB = 1250 PSI (MIN)
FV = 175 PSI (MIN)
 - D. ROCK BOLTS AND DOWELS: ASTM A615, GRADE 75
 - E. STEEL BEARING PLATES: ASTM A36 (AT ROCK BOLTS)
 - F. GROUT: MIN. 5000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
 - G. WELDING: AWS D1.1, E70XX ELECTRODES

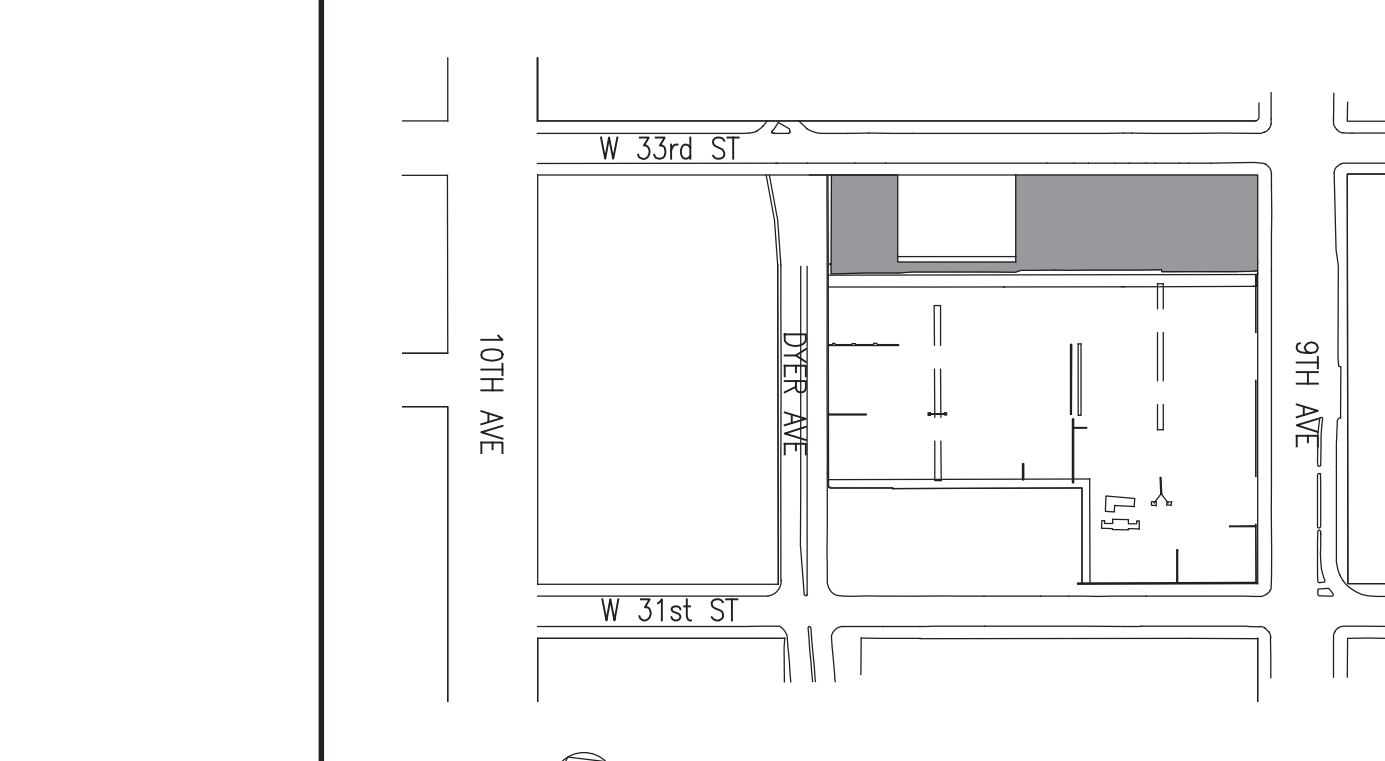
- ALL ROCK BOLTS SHALL BE INSTALLED ACCORDING TO THE DETAILS SHOWN ON DRAWING SOE-105.
- SOIL EXCAVATION SHALL NOT PROCEED DEEPER THAN 2 FEET BELOW THE LAST INSTALLED LAGGING. ALL LAGGING SHALL BE PLACED HORIZONTAL AND BACKPACKED PRIOR TO ADVANCING THE EXCAVATION. THE EXCAVATION SHALL BE SEQUENCED SO THAT STABILITY OF ADJACENT STRUCTURES IS MAINTAINED AT ALL TIMES.
- ROCK EXCAVATION:**
 - A. LINE DRILL PERIMETER OF ALL EXCAVATIONS, TYPICALLY, HOLES WILL BE SPACED BY ONE DRILL HOLE DIAMETER.
 - B. THE OWNER'S ENGINEER WILL INSPECT THE EXPOSED ROCK FACES AS THE EXCAVATION PROCEEDS. ROCK BOLTS SHALL BE INSTALLED AS REQUIRED AND AS DIRECTED BY THE OWNER'S ENGINEER. AT LOFT BUILDING INSTALL BOLT PATTERN AS SHOWN ON DRAWING SOE-101A. AT STAIR EXCAVATION AND ALONG 9TH AVE. MAXIMUM SPACING OF ROCK BOLTS SHOWN ON DRAWINGS SOE-101, SOE-101A AND SOE-104.
- CONTRACTOR SHALL LOCATE ALL UTILITIES AND EXISTING UNDERGROUND STRUCTURES PRIOR TO INSTALLING CONCRETE BUTTON PIERS AND ROCK BOLTS. NOTIFY ENGINEER OF ANY CONFLICTS.
- PROPOSED WORK ON DRAWINGS ARE SUBJECT TO SPECIAL INSPECTION IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE.
- CONTRACTOR SHALL ESTABLISH OPTICAL MONITORING POINTS AT 15' CENTERS ALONG THE CONCRETE BUTTON AND LAGGING WALLS. PIERS SHALL BE MONITORED DAILY DURING ACTIVE EXCAVATION ADJACENT TO THEM. WEEKLY OTHERWISE.
- PROTECT ALL SOIL SLOPES FROM RAVELLING. CONTRACTOR TO PROVIDE DRAINAGE DITCH AS REQUIRED TO CONTROL ANY SURFACE WATER RUNOFF. CONTRACTOR SHALL PROVIDE SUMPS AS REQUIRED TO DEWATER THE SITE AND FOLLOW SEDIMENT AND EROSION CONTROL REQUIREMENTS.
- SPECIAL DRAINAGE REQUIREMENTS EXIST AT THE EXISTING DRAINAGE PORTALS OF THE AMTRAK RETAINING WALL. PROTECT THE WALL DRAINAGE CHASES AT ALL TIMES FROM DAMAGE AND SILT LADEN WATER.
- BACKFILL WITH 3/4" STONE UP TO A LEVEL OF 4 FEET BELOW BOTTOM OF COLUMN FOOTING. BACKFILL IN 12 INCH LIFTS AND COMPACT WITH 3 PASSES OF A SOIL VIBRATORY PLATE TAMPER. CAP STONE FILL WITH A SEPARATION GEOTEXTILE, 12" FLOWABLE FILL AND THEN FILL TO UNDERSIDE OF COLUMN FOOTING WITH CONTROLLED FILL OR CONTINUE WITH FLOWABLE FILL.

DEFINITIONS:

PHASE I - EXCAVATION FOR CAPPING BEAM.
PHASE II - EXCAVATION FOR STRUCTURES WEST OF LOFT BUILDING.

ROCK BOLT - TENSIONED ANCHOR.
ROCK DOWEL - UNTENSIONED ANCHOR.

REV.	DATE	BY	DESCRIPTION
8	03-10-16	F.V.	REVISED ROCK EXCAVATION
7	05-01-15	F.V.	REVISED NORTH SOE
6	04-10-15	F.V.	REVISED ROCK EXCAVATION
5	12-05-14	F.V.	REVISED SOE
4	06-18-14	S.R.L.	ADDITIONAL ROCK EXCAVATION
3	11-28-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



9TH AVENUE DEVELOPMENT

NEW YORK NEW YORK

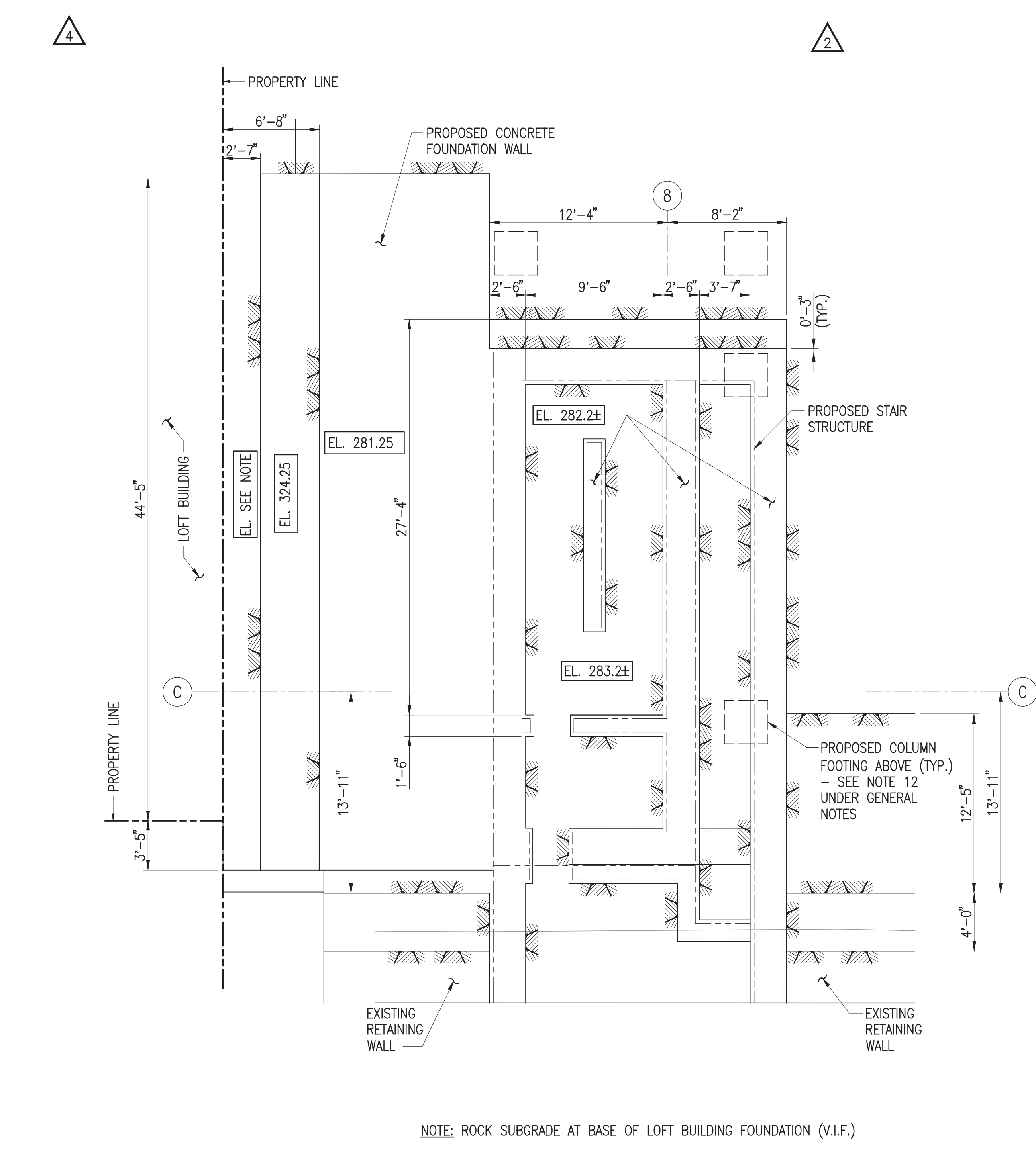
BROOKFIELD PROPERTIES

NEW YORK NEW YORK

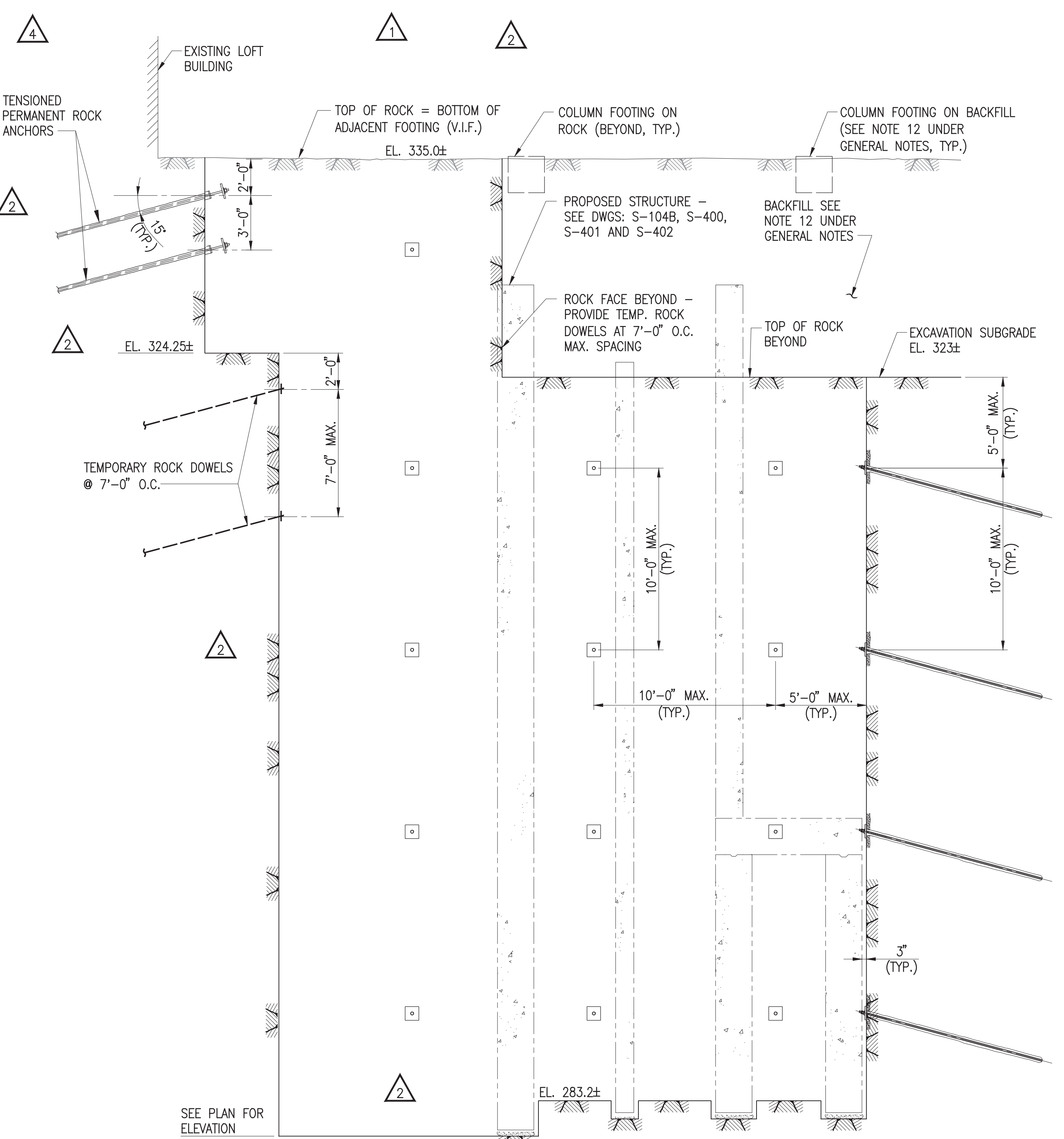
MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE: AS NOTED MADE BY: K.J.L. DATE: 08-06-2012 FILE NUMBER: 11797
AS NOTED CHECKED BY: S.Y. DATE: 08-06-2012

PHASE I EXCAVATION PLAN DRAWING NUMBER: **SOE-101.03** SHEET OF 03



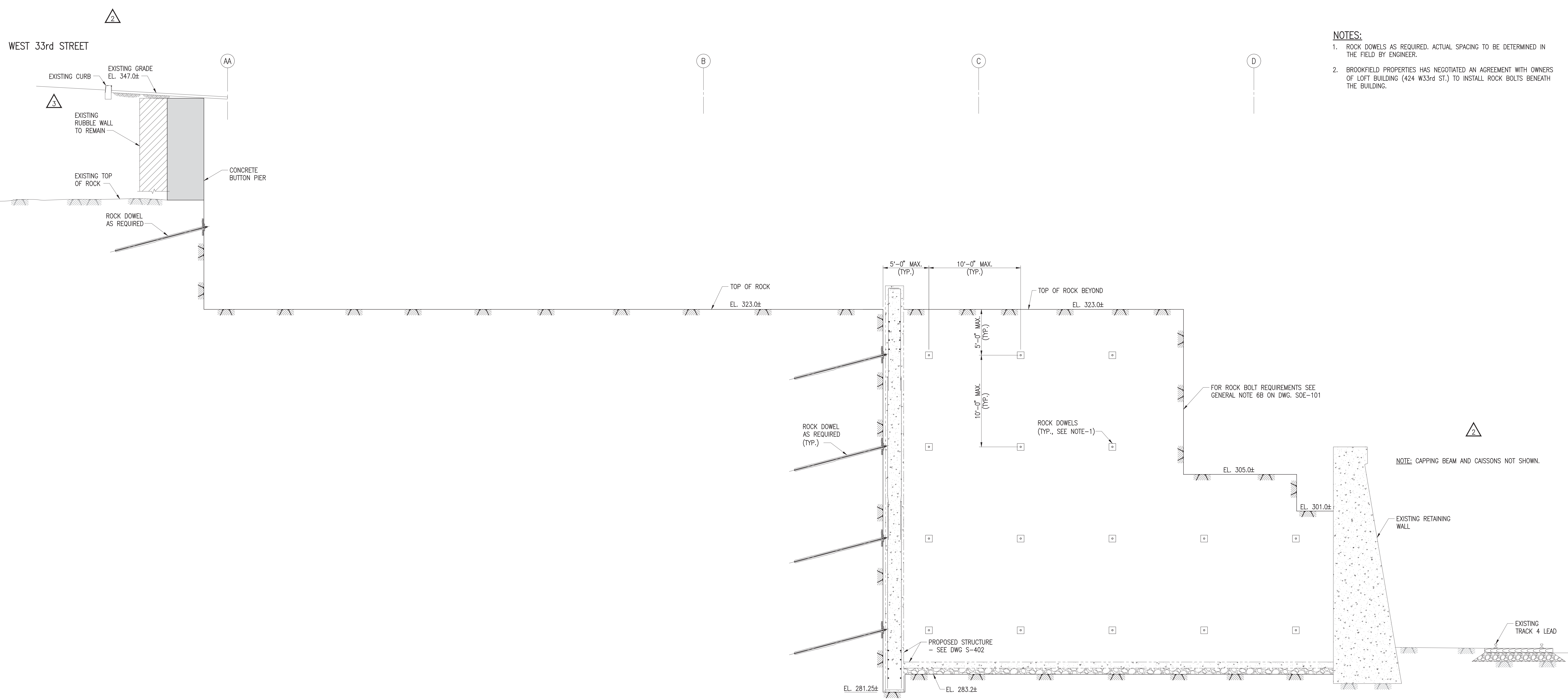
DETAIL 2
SCALE: 3/16"=1'-0"
SOE-101/102



SECTION A
SCALE: 1/4"=1'-0"
SOE-101/102

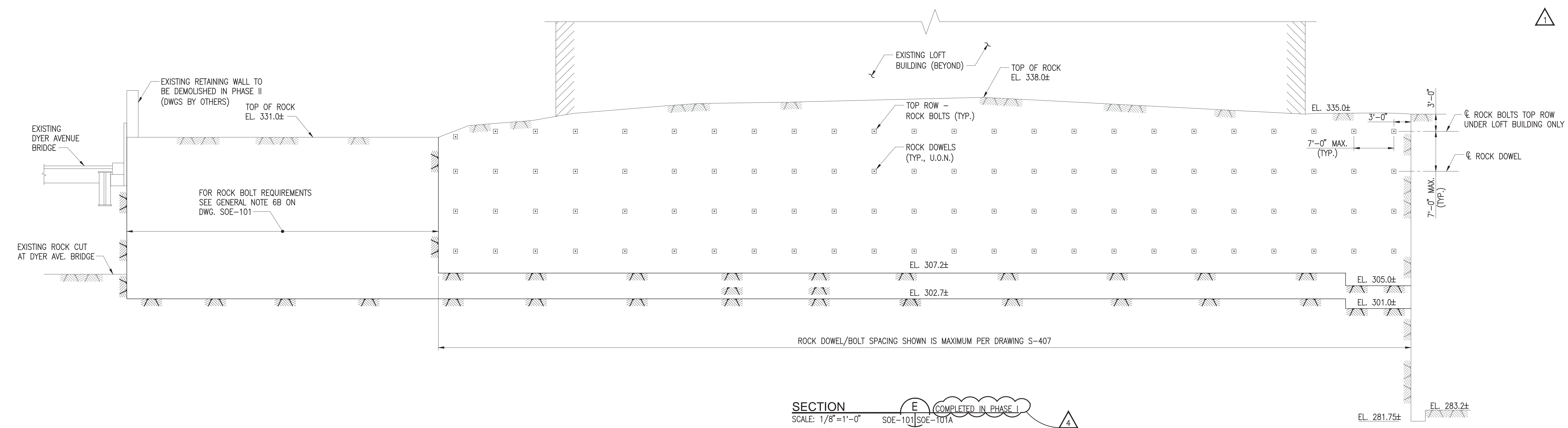
APPROVED
Under Directive 2 of 99s
MUESER RUTLEDGE CONSULTING ENGINEERS
Date: 08/06/2012

NYC Development Hub



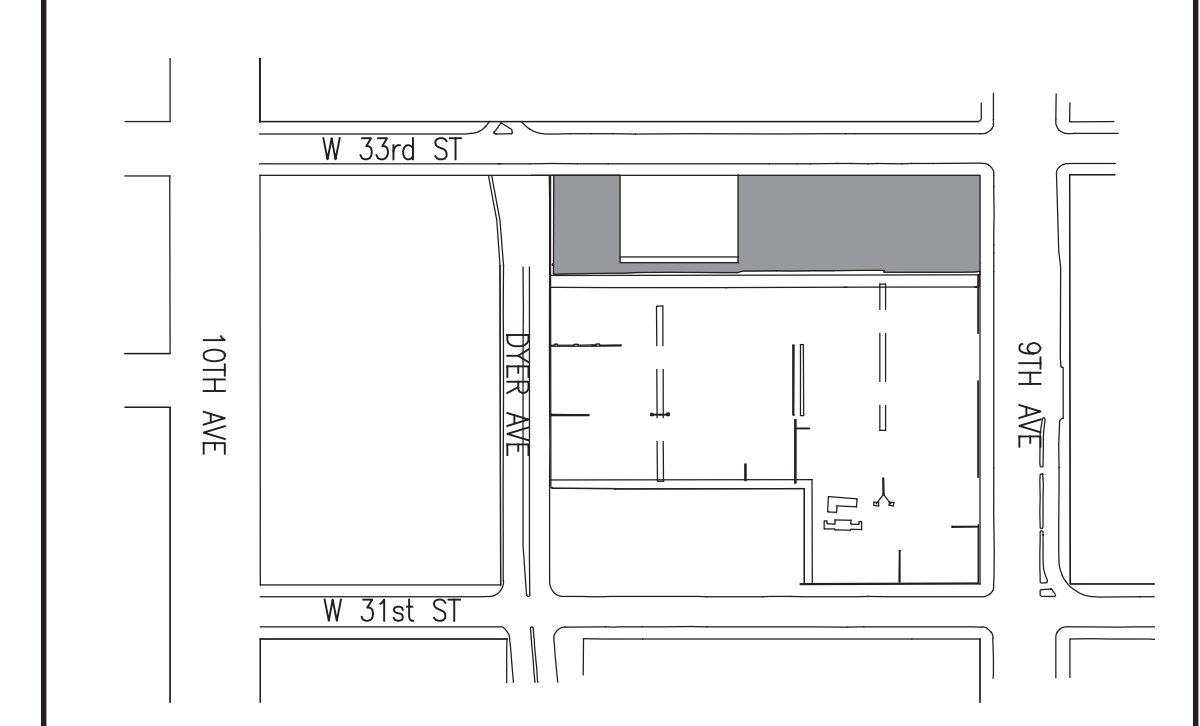
- NOTES:**
- ROCK DOWELS AS REQUIRED. ACTUAL SPACING TO BE DETERMINED IN THE FIELD BY ENGINEER.
 - BROOKFIELD PROPERTIES HAS NEGOTIATED AN AGREEMENT WITH OWNERS OF LOFT BUILDING (424 W33rd ST.) TO INSTALL ROCK BOLTS BENEATH THE BUILDING.

SECTION D
SCALE: 1/4"=1'-0"
SOE-101|SOE-101A



SECTION E
SCALE: 1/8"=1'-0"
SOE-101|SOE-101A

REV.	DATE	BY	DESCRIPTION
4	03-10-16	F.V.	NOTE ADDED TO SECTION E
3	05-01-15	F.V.	REVISED SECTION
2	12-05-14	F.V.	REVISED SOE
1	11-28-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
0	11-19-12	S.Y.	DRAWING ADDED IN RESPONSE TO D.O.B. REVIEW



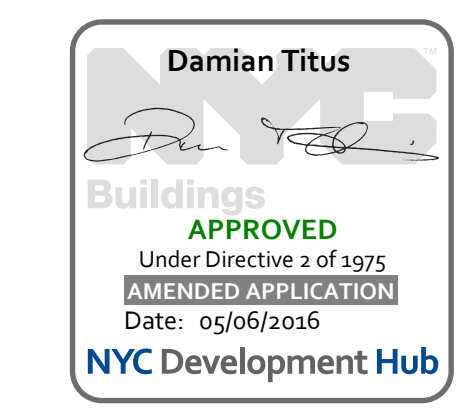
9TH AVENUE DEVELOPMENT
NEW YORK NEW YORK

BROOKFIELD PROPERTIES
NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE: AS NOTED
MADE BY: K.J.
DATE: 08-06-2012
FILE NUMBER: 11797

PHASE I EXCAVATION SECTIONS
DRAWING NUMBER: SOE-101A.03
SHEET 03 OF 03

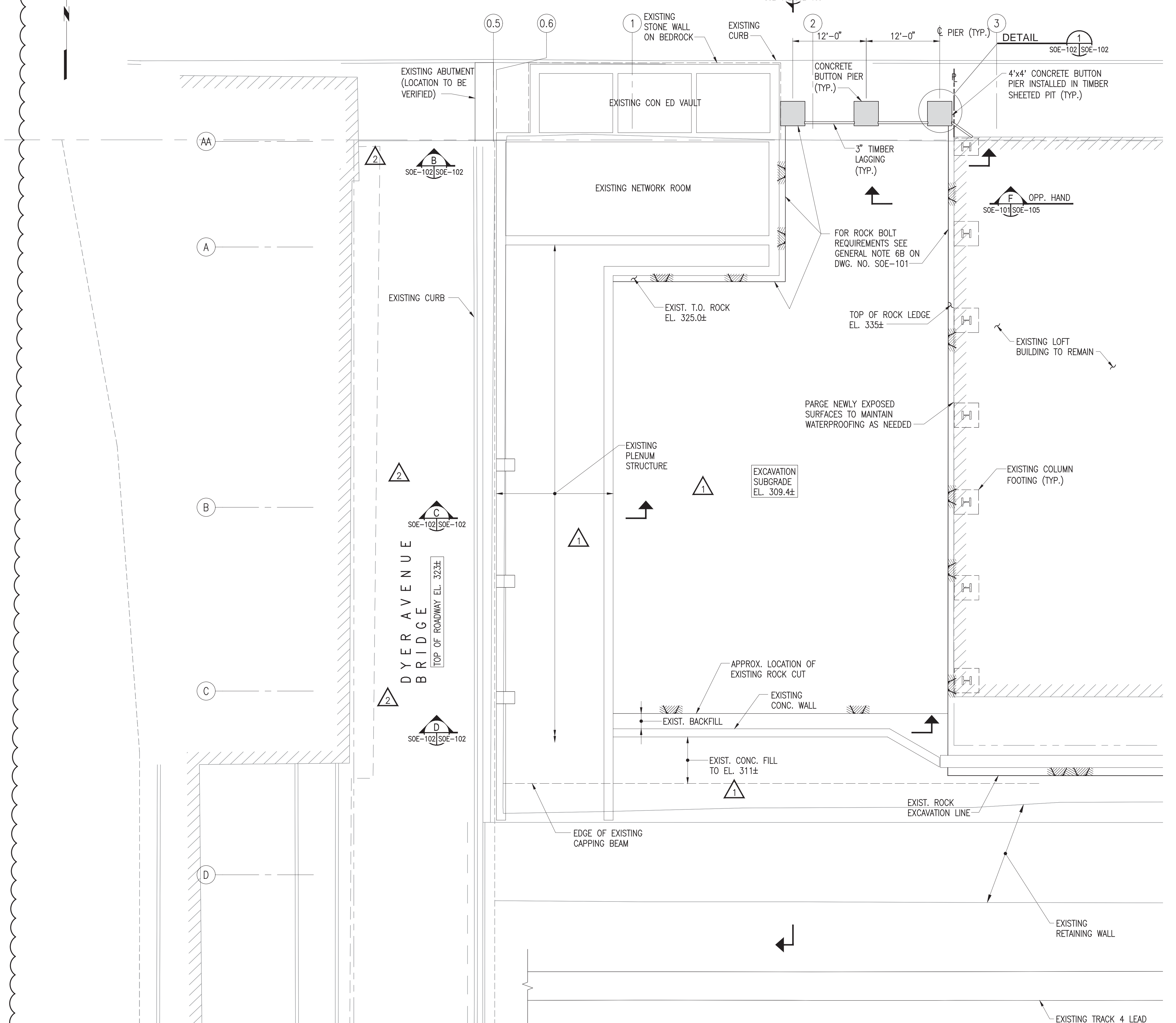


WARNING: IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ASSURE ANY ITEM ON THESE DRAWINGS OR ANY PART OF ATTENDANCE TO THESE PLANS ARE MADE. THE NEW YORK STATE EDUCATION LAW.

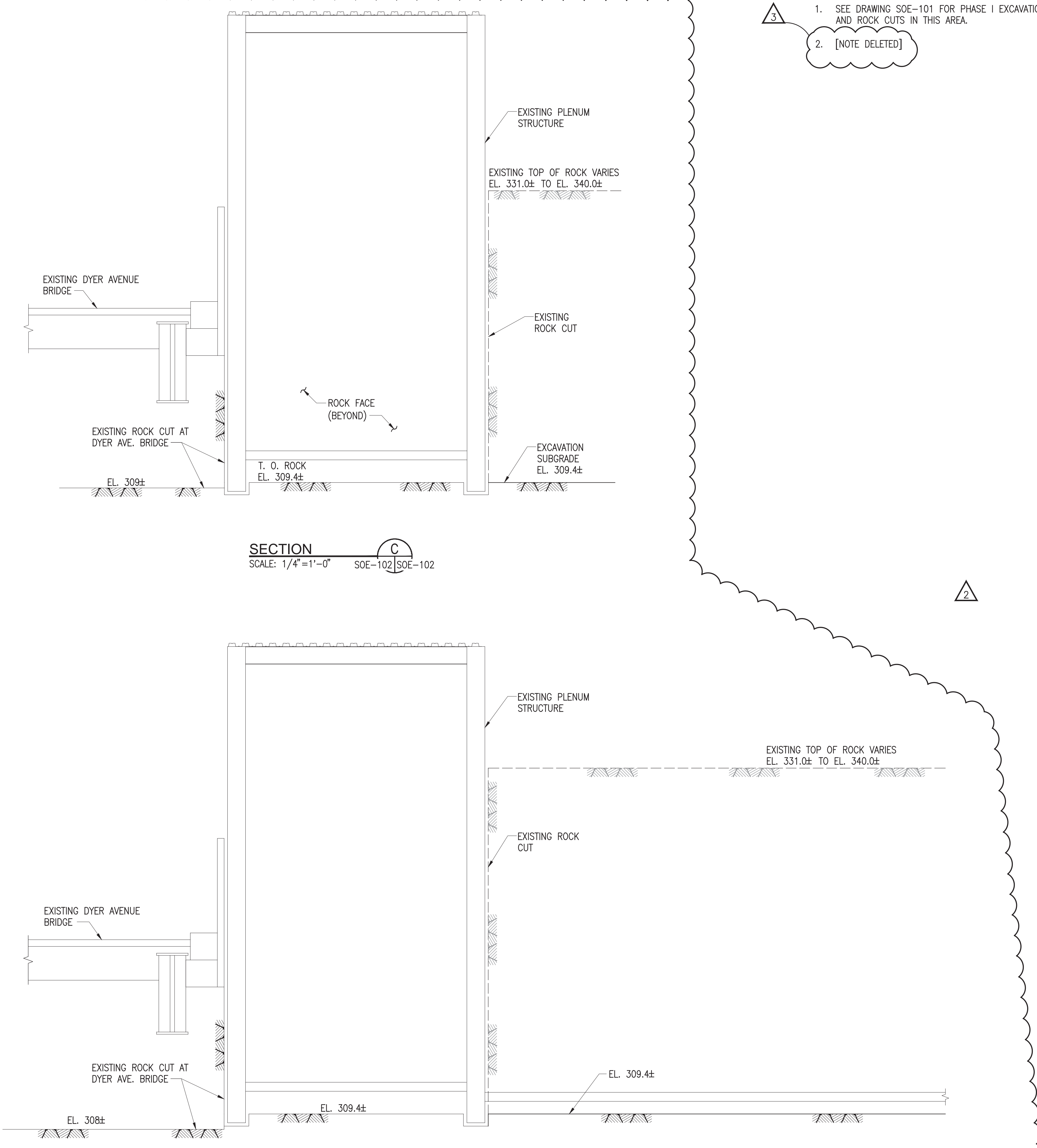
THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS (MUESER). INFORMATION AND TECHNICAL SERVICES PROVIDED HEREIN SHALL NOT BE REPRODUCED OR USED AS PROVIDED WITHOUT THE WRITTEN AUTHORIZATION OF MUESER. ANY PERSON WHO RECEIVES OR OBTAINS THIS DRAWING SHALL BE HELD STRICTLY LIABLE FOR ANY VIOLATION OF THIS NOTICE, WHETHER WILLFUL OR NEGLIGENT.

- NOTES:**
- SEE DRAWING SOE-101 FOR PHASE I EXCAVATION SLOPES AND ROCK CUTS IN THIS AREA.
 - [NOTE DELETED]

WEST 33 RD STREET

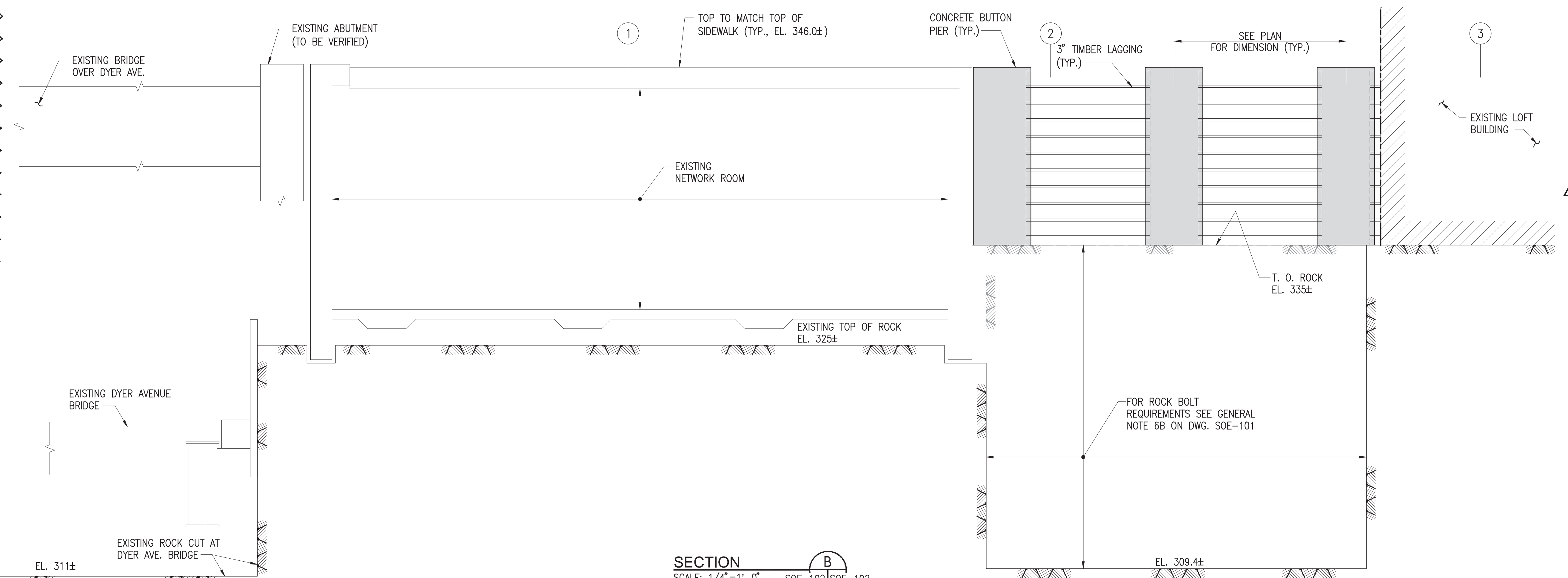


PHASE II EXCAVATION PLAN
SCALE: 1/8"=1'-0"

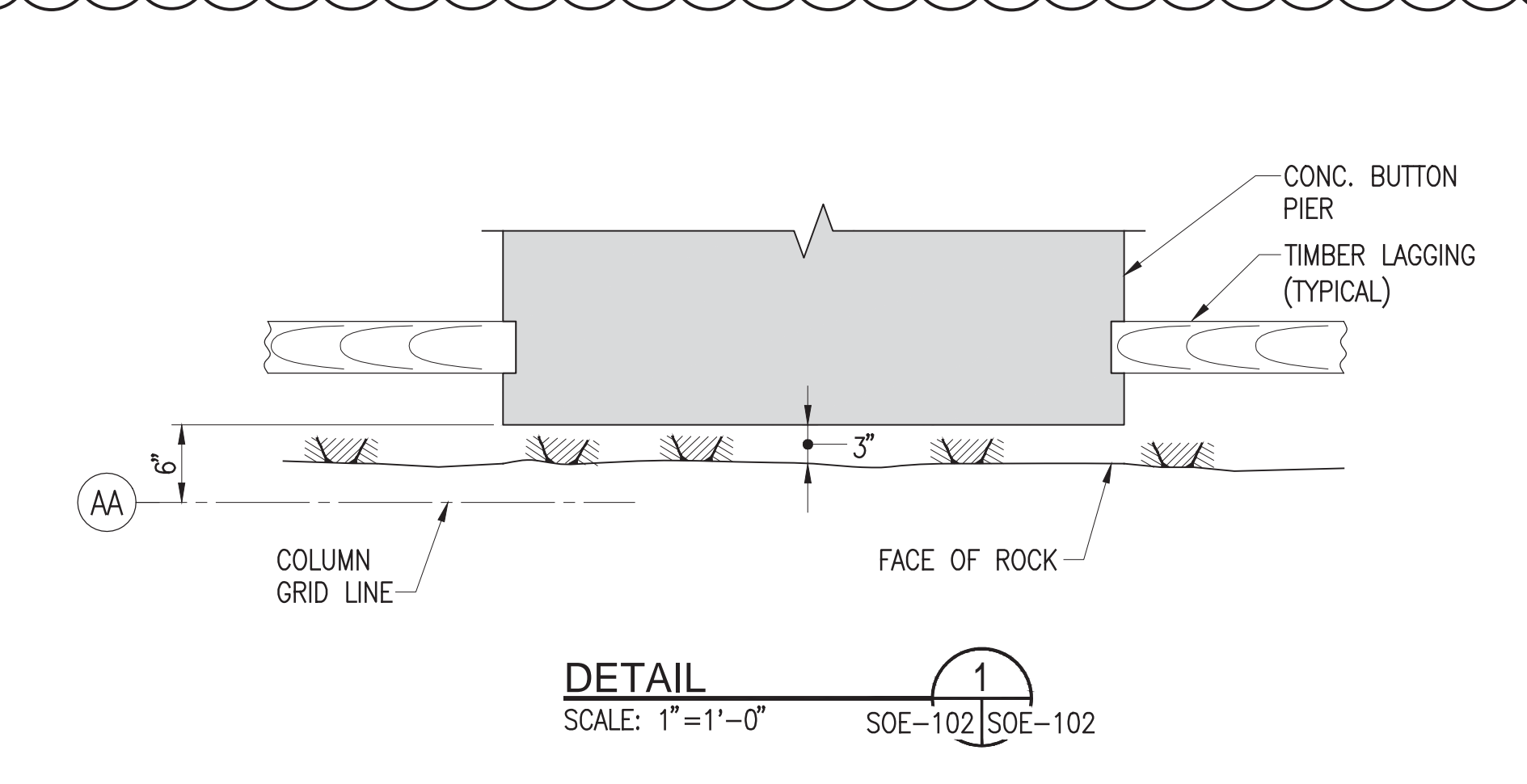


SECTION C
SCALE: 1/4"=1'-0" SOE-102 SOE-102

SECTION D
SCALE: 1/4"=1'-0" SOE-102 SOE-102

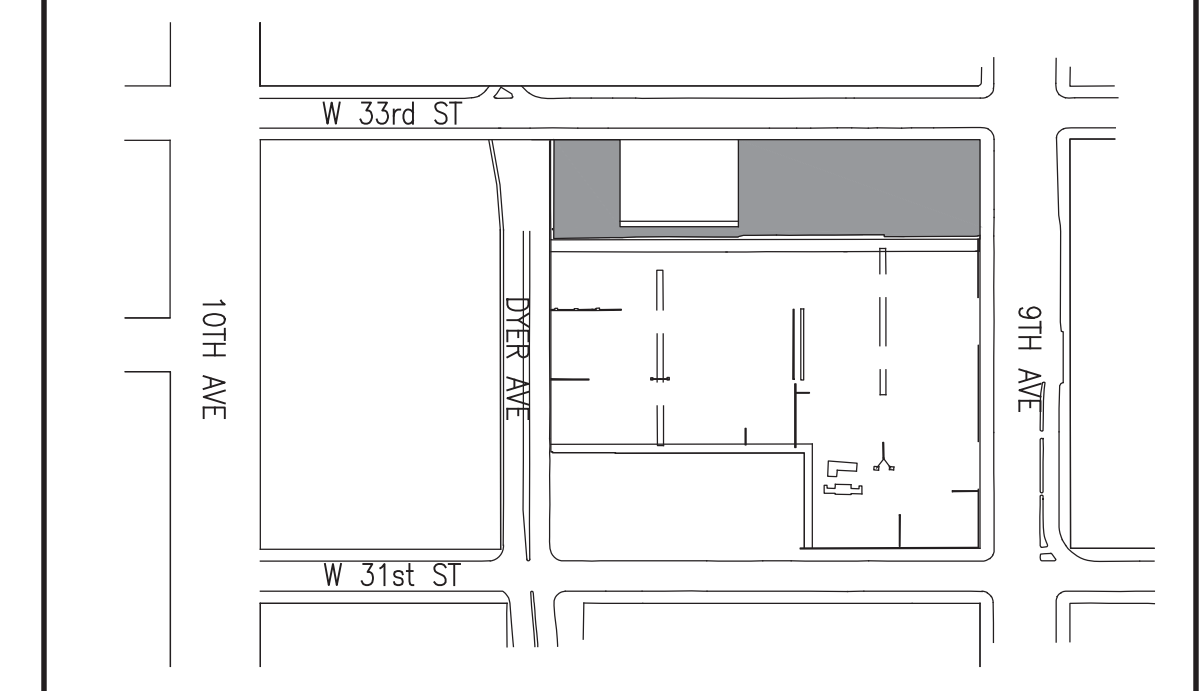


SECTION B
SCALE: 1/4"=1'-0" SOE-102 SOE-102



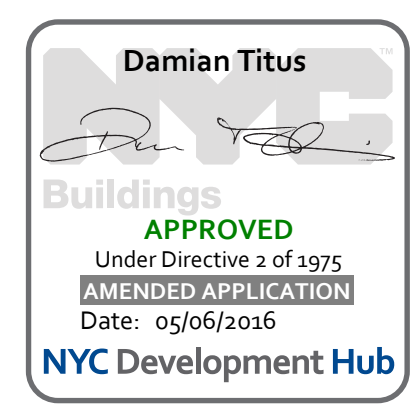
DETAIL 1
SCALE: 1"=1'-0" SOE-102 SOE-102

REV.	DATE	BY	DESCRIPTION
3	03-10-16	F.V.	REVISED PHASE II ROCK EXCAVATION
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



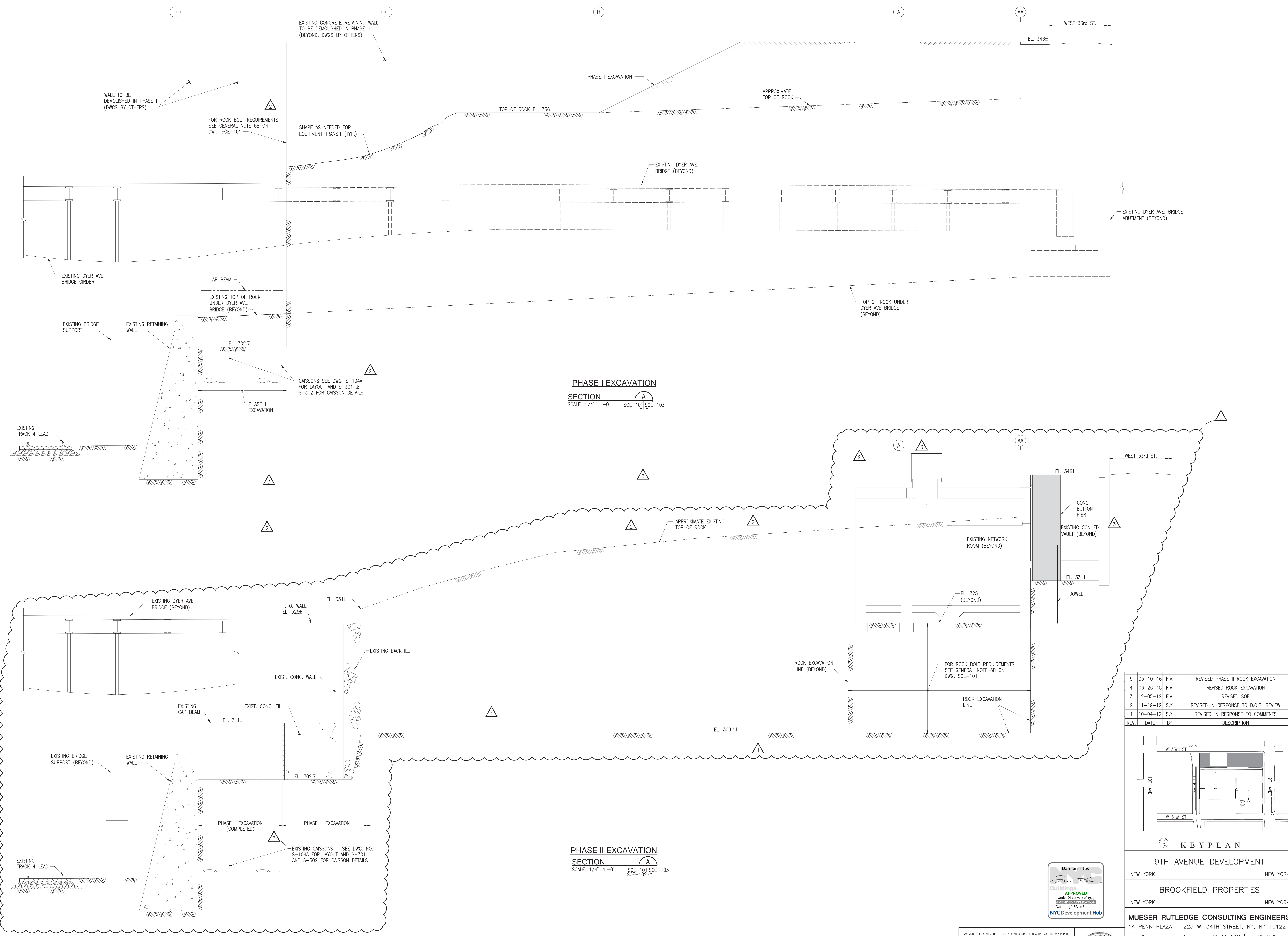
KEY PLAN

9TH AVENUE DEVELOPMENT	
NEW YORK	NEW YORK
BROOKFIELD PROPERTIES	
NEW YORK	NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS	
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122	
SCALE	MADE BY: K.J. DATE: 08-06-2012
AS NOTED	CHK'D BY: S.Y. DATE: 08-06-2012
PHASE II EXCAVATION PLAN	11797
SOE-102.01	DRAWING NUMBER
SHEET OF	



THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS (MUESER). IT IS HEREBY SUBMITTED TO YOU ON THE CONDITION THAT THE INFORMATION AND TECHNICAL SERVICES HEREIN SHALL NOT BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MUESER. ANY REPRODUCTION OR USE OF THIS DRAWING SHALL BE AT YOUR OWN RISK AND WITHOUT LIABILITY TO MUESER. ANY PERSON WHO REPRODUCES OR USES THIS DRAWING SHALL BE HELD RESPONSIBLE FOR ANY VIOLATION OF THIS NOTICE, WHETHER WILLFUL OR NEGLIGENT.

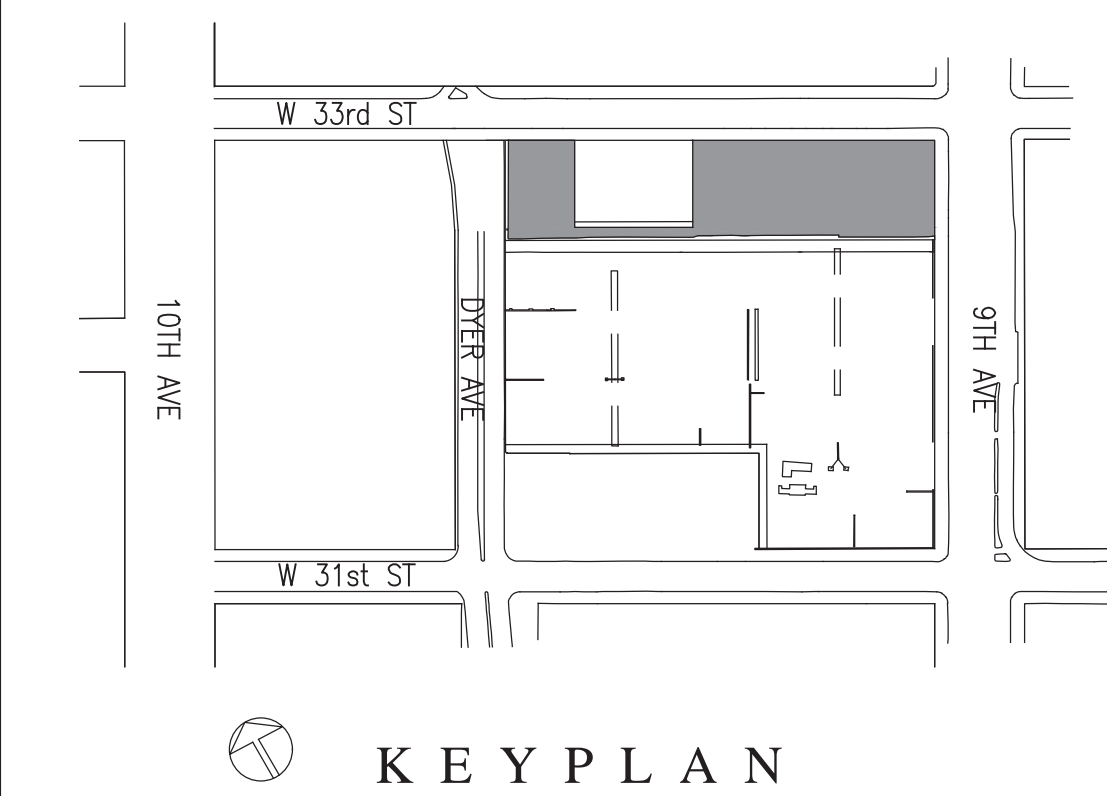
Printed by: Paul Porpiglia
Printed on: Wednesday, Apr 20, 2016 - 02:32:18 PM
Last saved by: pporpiglia
SA:\MESA\11797\SOE-102.01.dwg



PHASE I EXCAVATION
 SECTION
 SCALE: 1/4"=1'-0" SOE-101/102/103

PHASE II EXCAVATION
 SECTION
 SCALE: 1/4"=1'-0" SOE-101/102/103

REV.	DATE	BY	DESCRIPTION
5	03-10-16	F.V.	REVISED PHASE II ROCK EXCAVATION
4	06-26-15	F.V.	REVISED ROCK EXCAVATION
3	12-05-12	F.V.	REVISED SOE
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



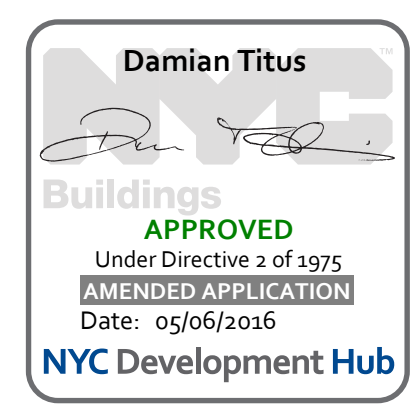
9TH AVENUE DEVELOPMENT
 NEW YORK NEW YORK

BROOKFIELD PROPERTIES
 NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
 14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

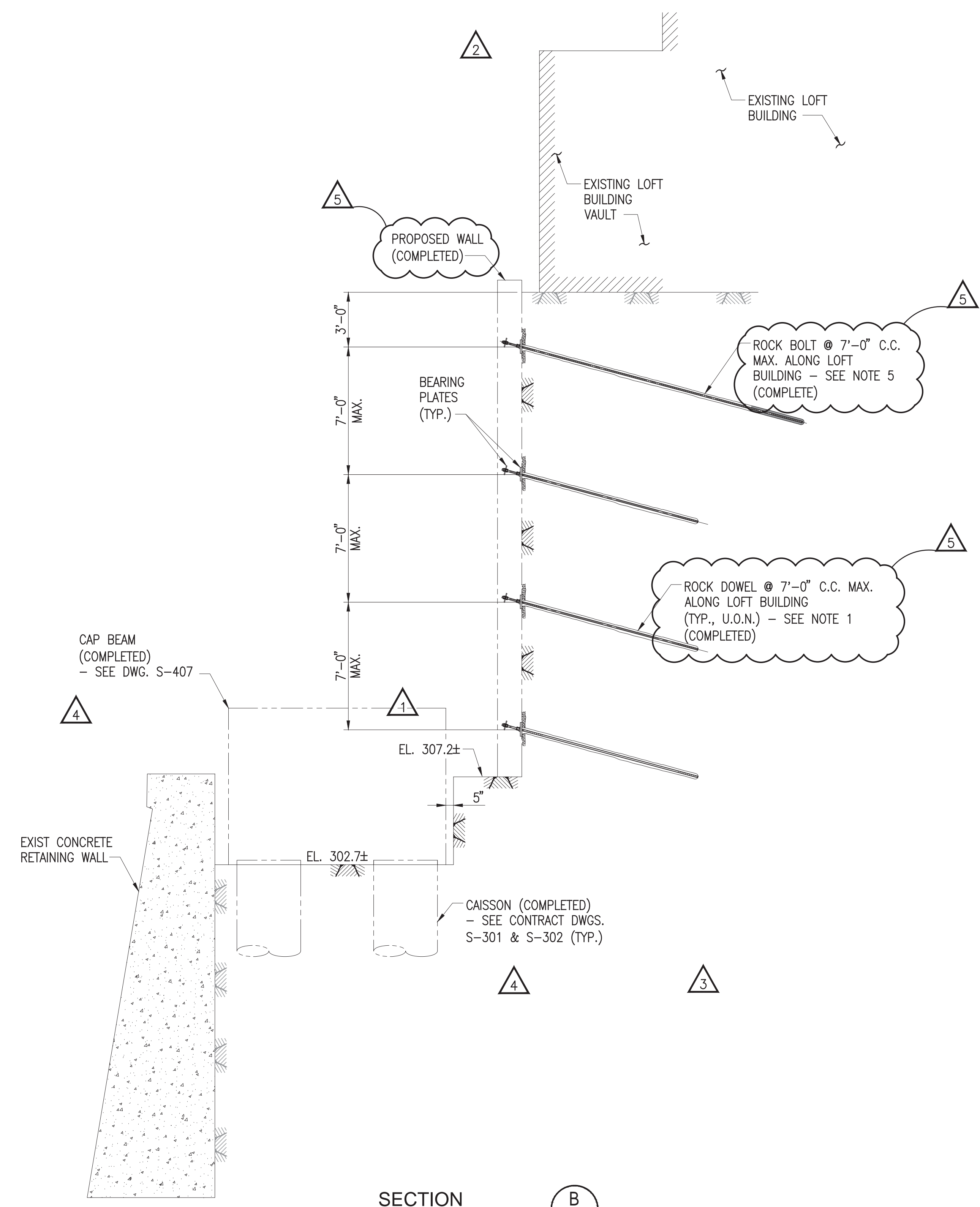
SCALE: AS NOTED MADE BY: K.J. DATE: 08-06-2012 FILE NUMBER: 11797
 AS NOTED CHECKED BY: S.Y. DATE: 08-06-2012 DRAWING NUMBER: 11797

SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 3
 SHEET 103 OF 103

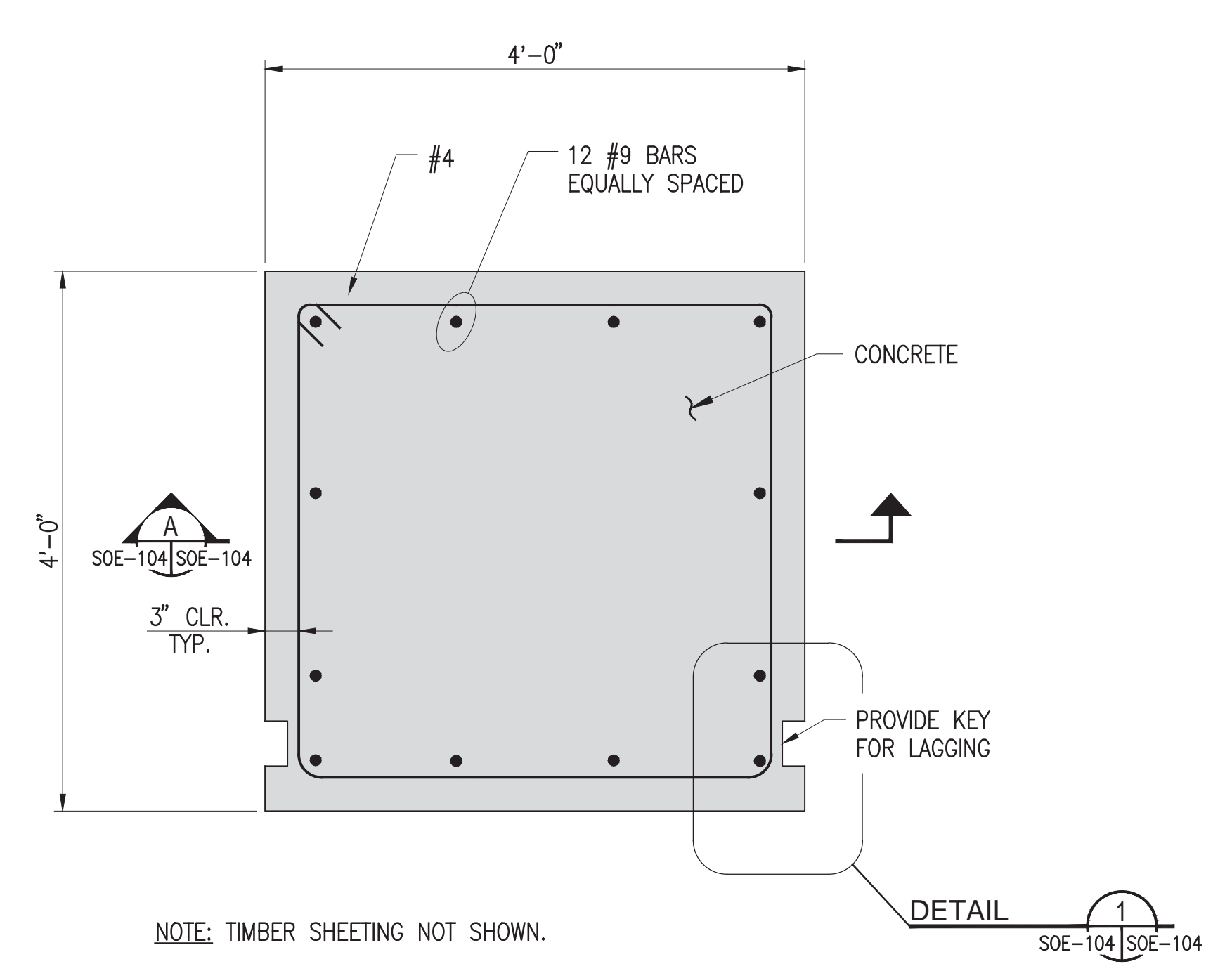


APPROVED Under Directive 2 of 1995 AUTHORIZED REPRESENTATIVE Date: 08/06/2012

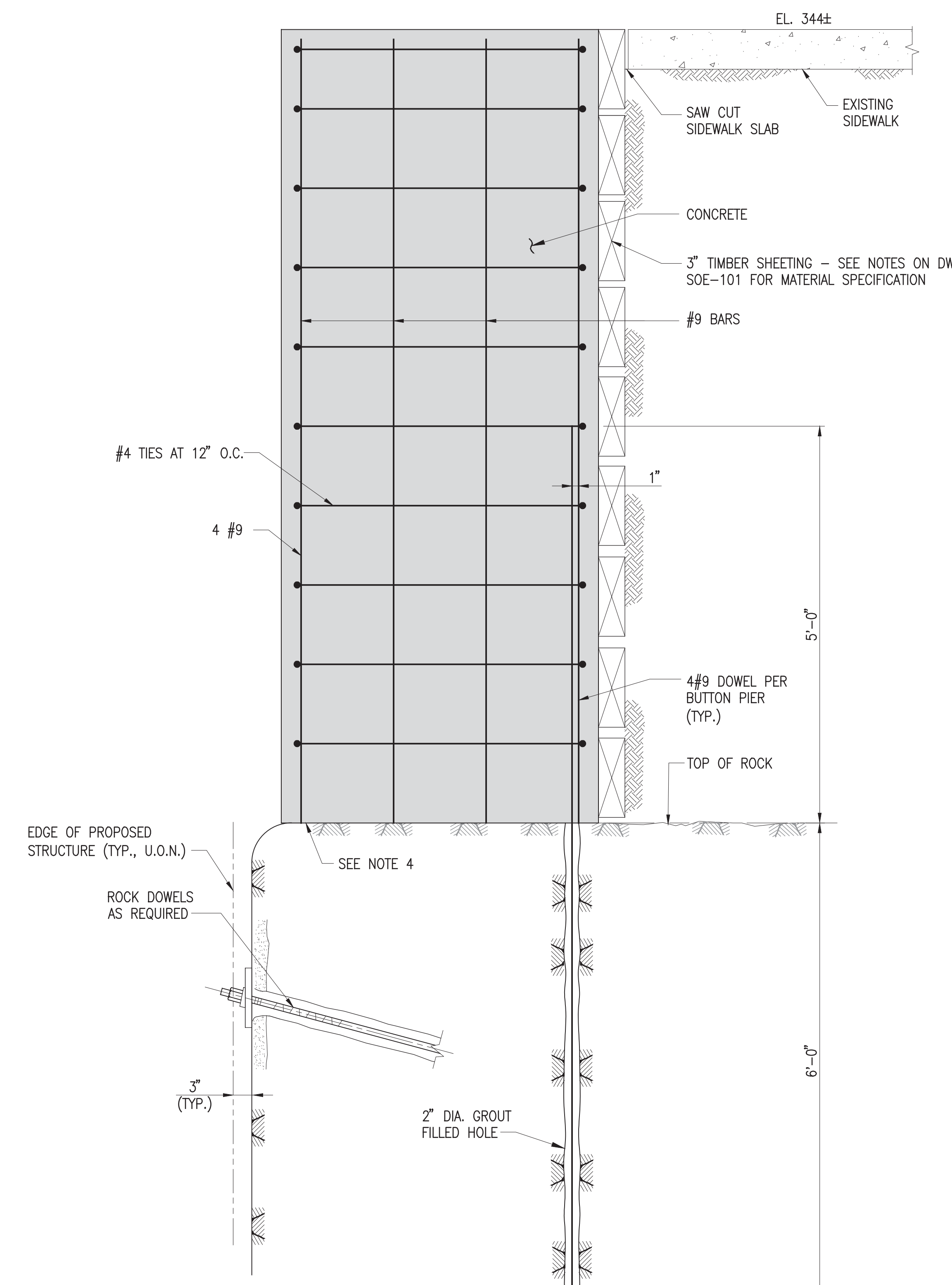
THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. IT IS FURNISHED SUBJECT TO RETURN ON DEMAND AND ON THE CONDITION THAT THE INFORMATION AND TECHNICAL SERVICES THEREON SHALL NOT BE REPRODUCED OR USED AS PREVIOUSLY AUTHORIZED IN WRITING BY MUESER RUTLEDGE CONSULTING ENGINEERS, INC. WITHOUT THE WRITING AUTHORIZATION OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY REPRODUCTION OR USE OF THIS DRAWING SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY REPRODUCTION OR USE OF THIS DRAWING SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO MUESER RUTLEDGE CONSULTING ENGINEERS, INC.



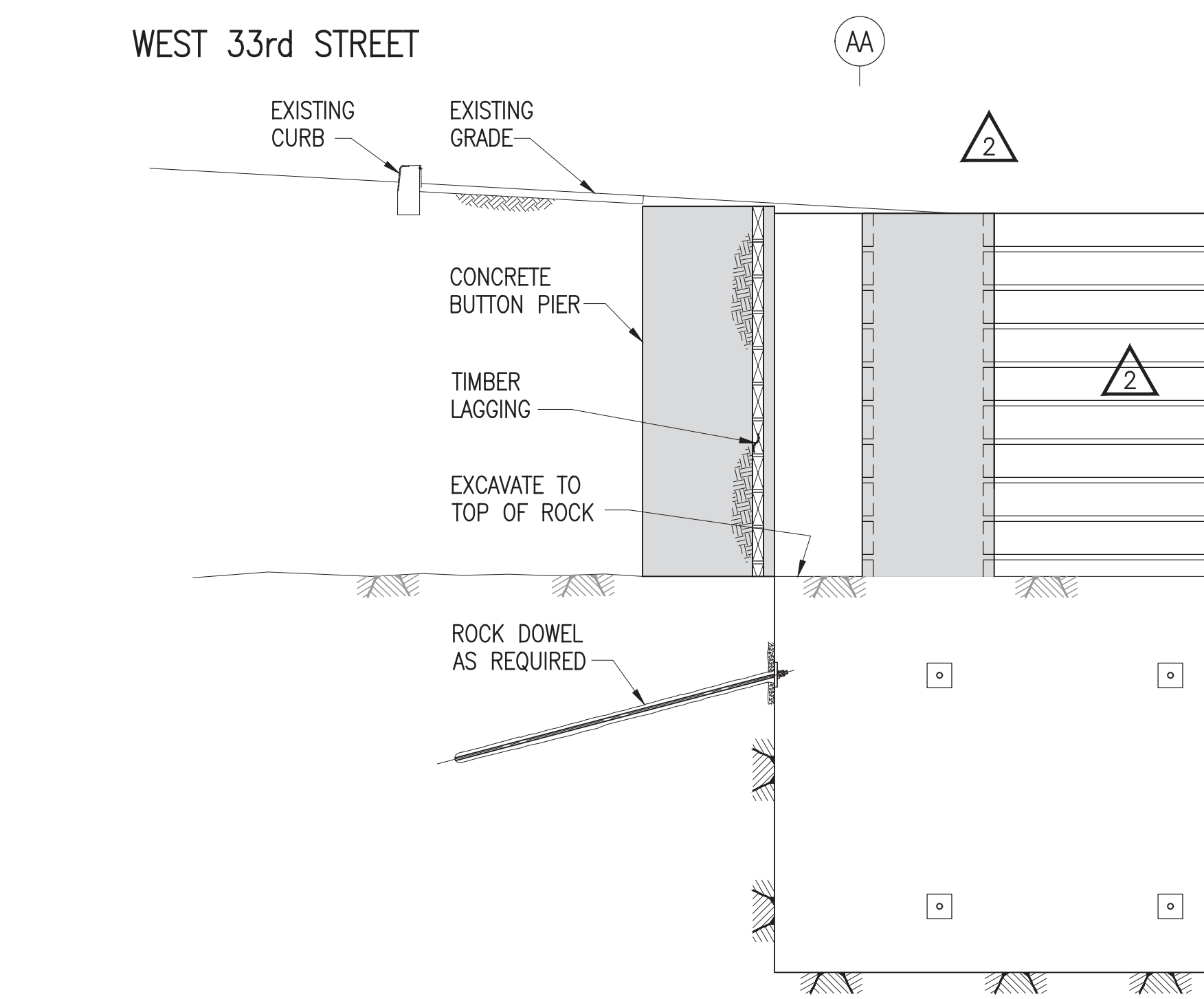
SECTION A-A
 SCALE: 1/4"=1'-0"
 SOE-101|SOE-104



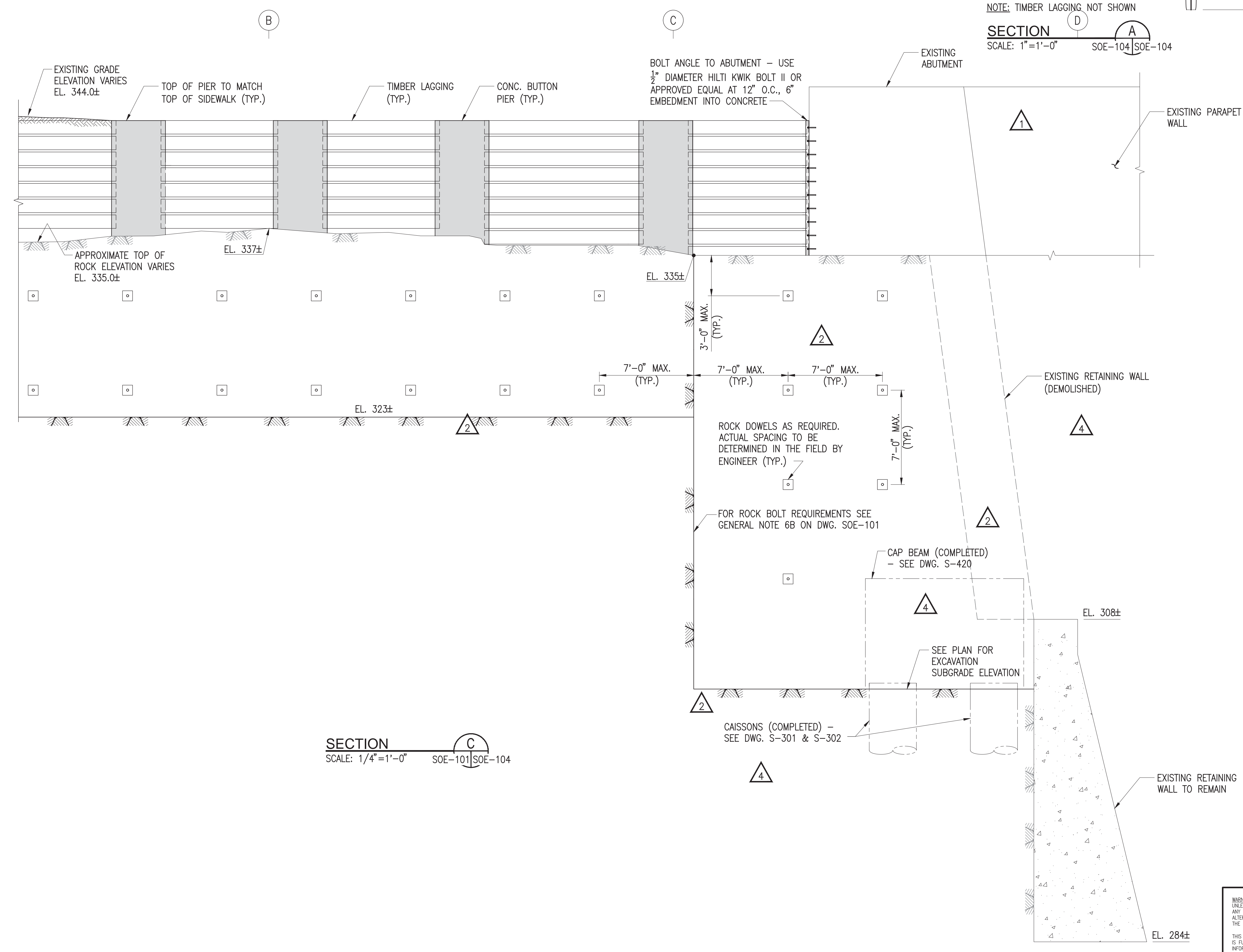
TYPICAL CONCRETE BUTTON PIER PLAN
 SCALE: 1"=1'-0"
 SOE-104|SOE-104



SECTION B-B
 SCALE: 1"=1'-0"
 SOE-104|SOE-104



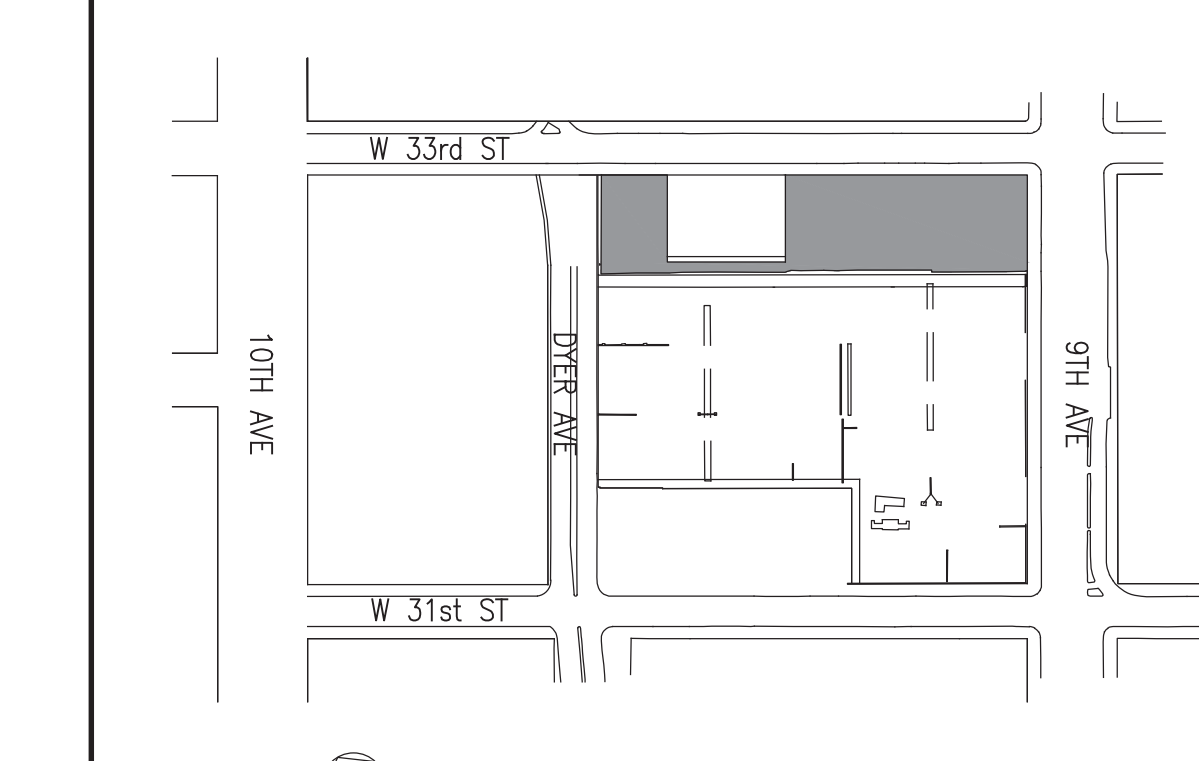
SECTION C-C
 SCALE: 1/4"=1'-0"
 SOE-101|SOE-104



SECTION D-D
 SCALE: 1/4"=1'-0"
 SOE-101|SOE-104

- NOTES:**
- ROCK BOLT SPACING SHOWN IS MAXIMUM, IF ROCK QUALITY IS POOR ADDITIONAL ROCK BOLTS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
 - ALL ROCK BOLTS ADJACENT TO THE LOFT BUILDING SHALL BE EPOXY COATED (SEE CONTRACT DRAWING S-407).
 - BEARING PLATES AT LOFT BUILDING SHALL BE GALVANIZED (SEE CONTRACT DRAWING S-407).
 - ROCK SUBGRADE FOR CONCRETE BUTTON PIER SHALL BE NYC CLASS IC OR BETTER.
 - BROOKFIELD PROPERTIES HAS NEGOTIATED AN AGREEMENT WITH OWNERS OF LOFT BUILDING (424 W. 33rd ST.) TO INSTALL ROCK BOLTS UNDERNEATH THE BUILDING.

REV.	DATE	BY	DESCRIPTION
5	03-10-16	F.V.	REVISED SECTION B
4	12-05-14	F.V.	REVISED SOE
3	11-28-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
2	11-19-12	S.Y.	REVISED IN RESPONSE TO D.O.B. REVIEW
1	10-04-12	S.Y.	REVISED IN RESPONSE TO COMMENTS



9TH AVENUE DEVELOPMENT
 NEW YORK NEW YORK

BROOKFIELD PROPERTIES
 NEW YORK NEW YORK

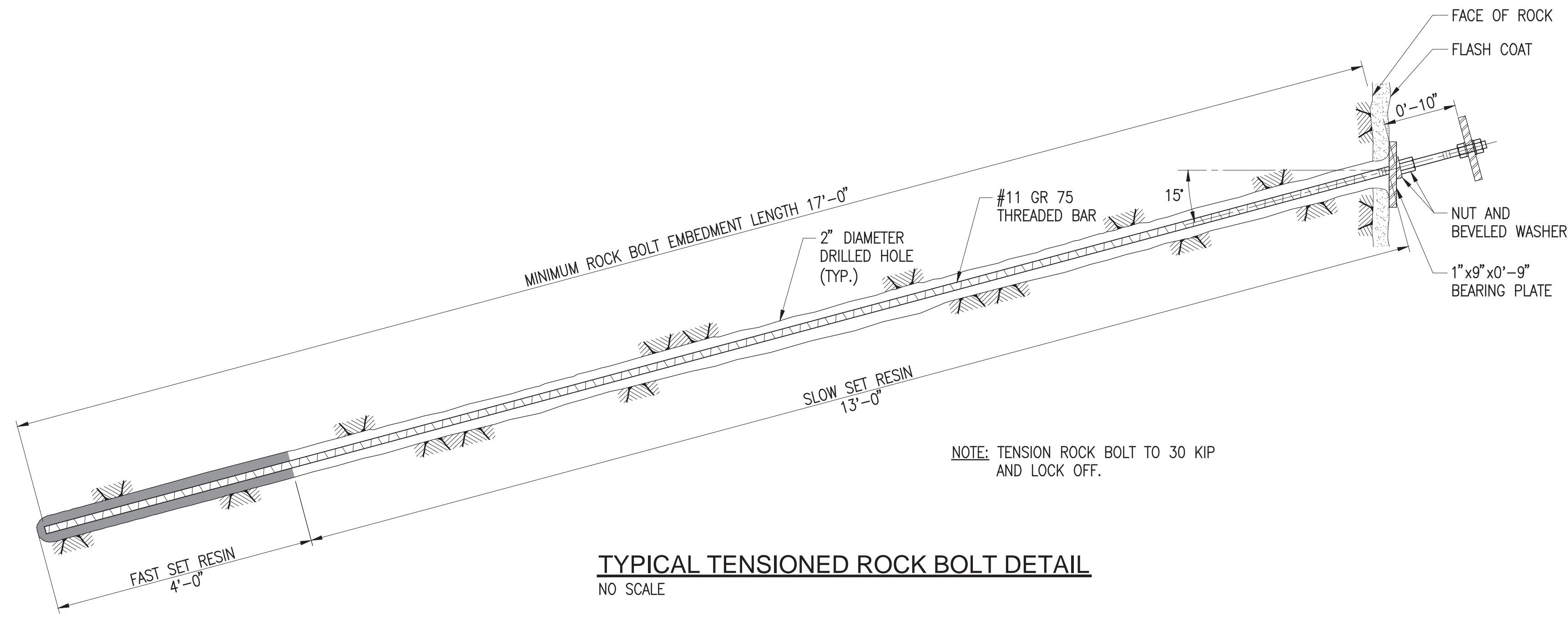
MUESER RUTLEDGE CONSULTING ENGINEERS
 14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE: MADE BY: K.J. DATE: 08-06-2012 FILE NUMBER: 11797
 AS NOTED CHK'D BY: S.Y. DATE: 08-06-2012

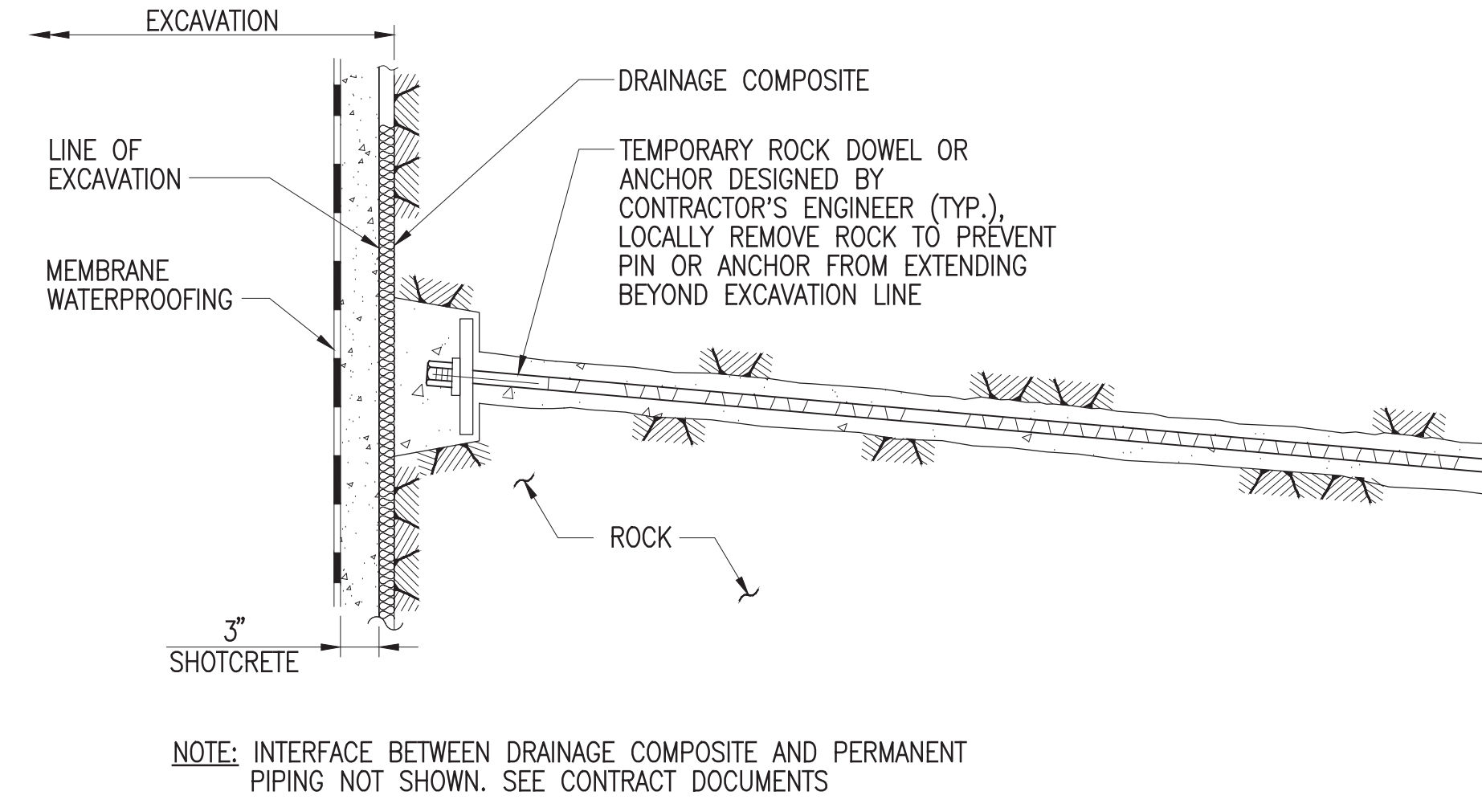
SUPPORT OF EXCAVATION - SECTIONS AND DETAILS 1
 DRAWING NUMBER: SOE-104.02
 SHEET 104 OF 104

APPROVED Under Directive 2 of 1995
 AUTHORIZED SIGNATURE
 Date: 08/06/2012
 Damian Titus
 NYC Development Hub

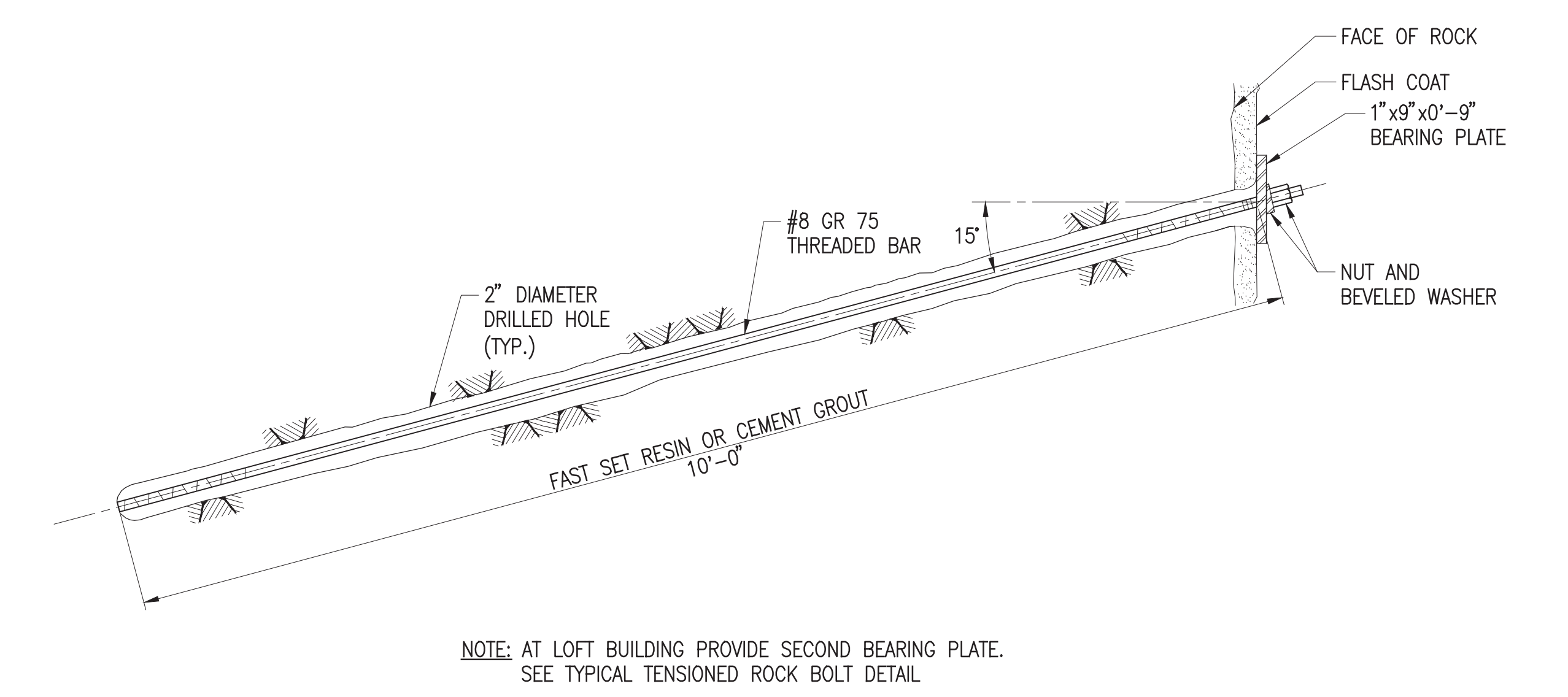
ANYBODY IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, FIRM OR ENTITY, UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ASSIST ANY FIRM OR INDIVIDUAL IN ANY MANNER IN OBTAINING OR ATTEMPTING TO OBTAIN ANY CONTRACT OR BUSINESS OPPORTUNITY IN ANY MANNER THAT IS UNLAWFUL OR UNETHICAL. THE ENGINEER'S SIGNATURE SHALL NOT BE REPRODUCED OR USED AS A PROPRIETARY MARK OR TRADE NAME. ANY PERSON WHO REPRODUCES OR OBTAINS THIS DRAWING SHALL BE HELD STRICTLY LIABLE FOR ANY VIOLATION OF THIS NOTICE, WHETHER WILLFUL OR NEGLIGENT.



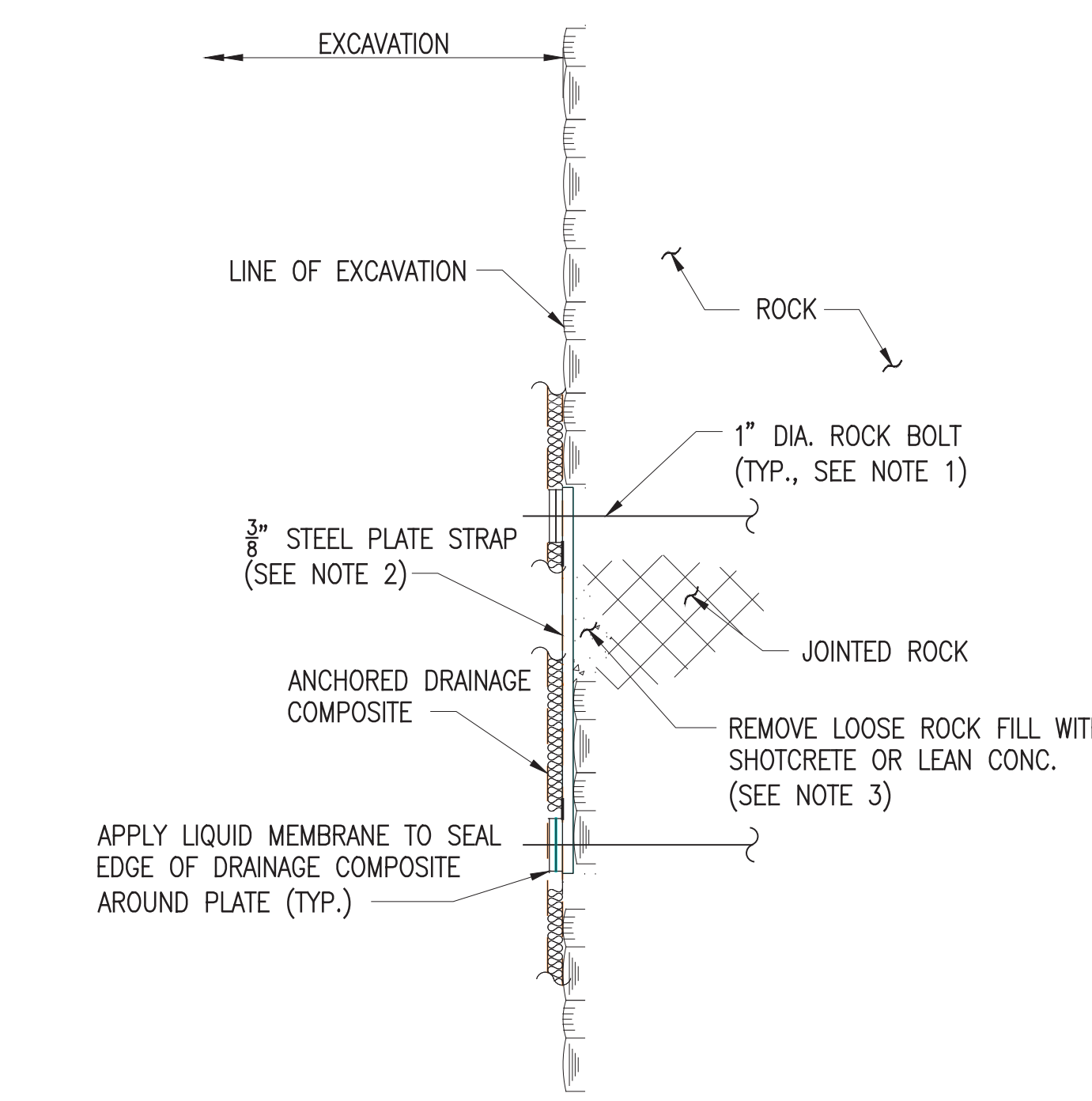
TYPICAL TENSIONED ROCK BOLT DETAIL
NO SCALE



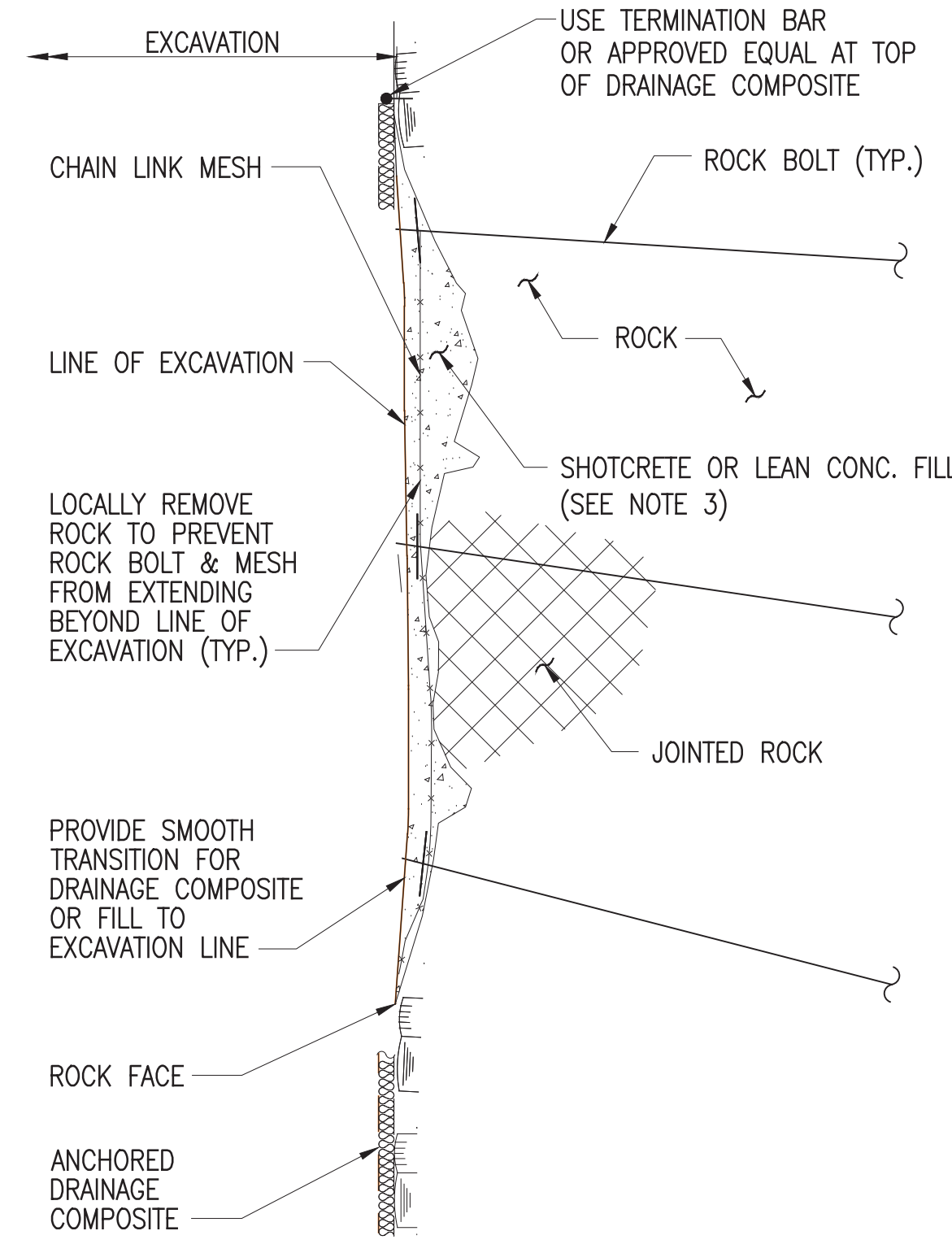
ROCK FACE SUPPORT IN AREA WITH MEMBRANE WATERPROOFING
NO SCALE



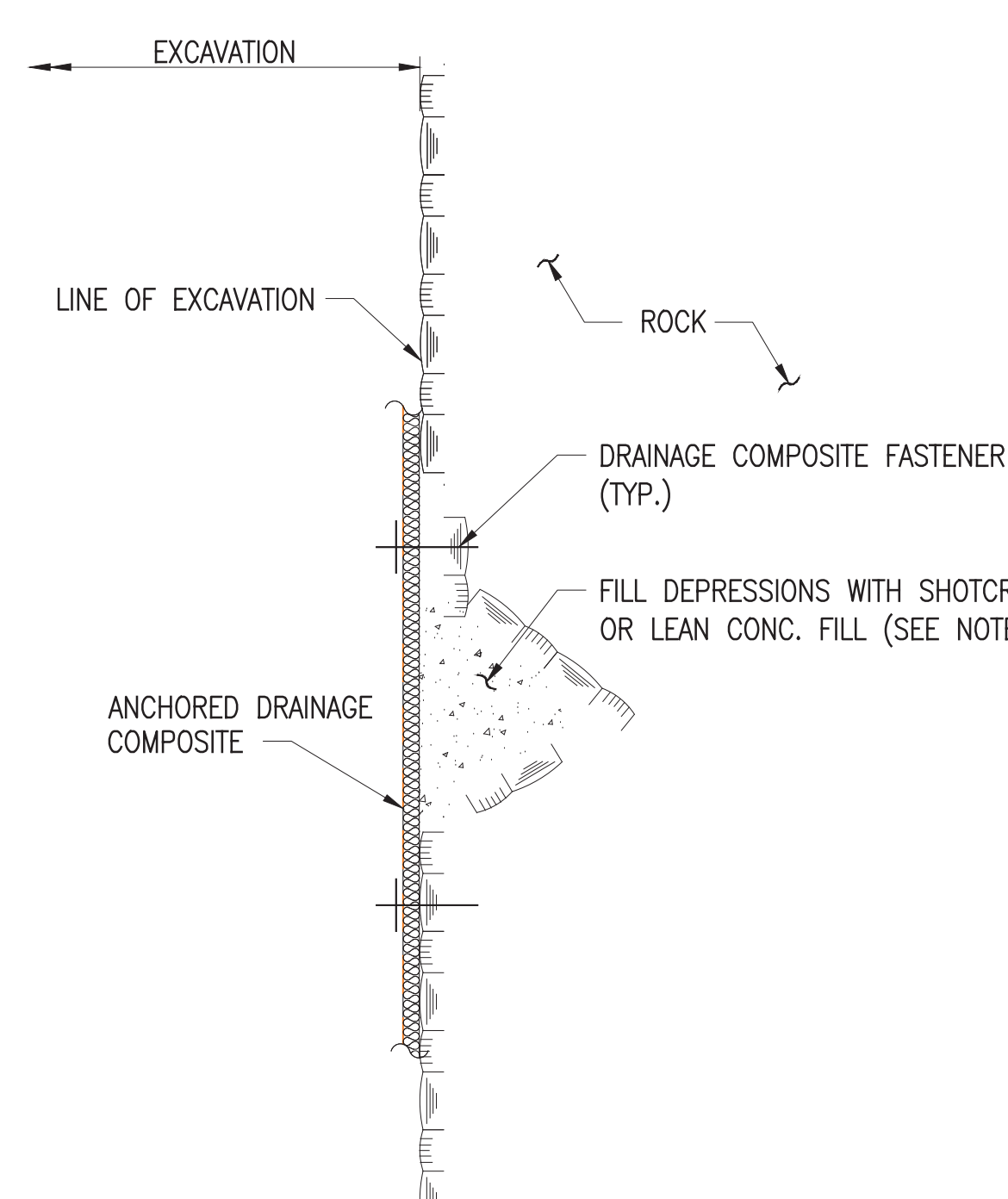
TYPICAL UNTENSIONED ROCK DOWEL DETAIL
NO SCALE



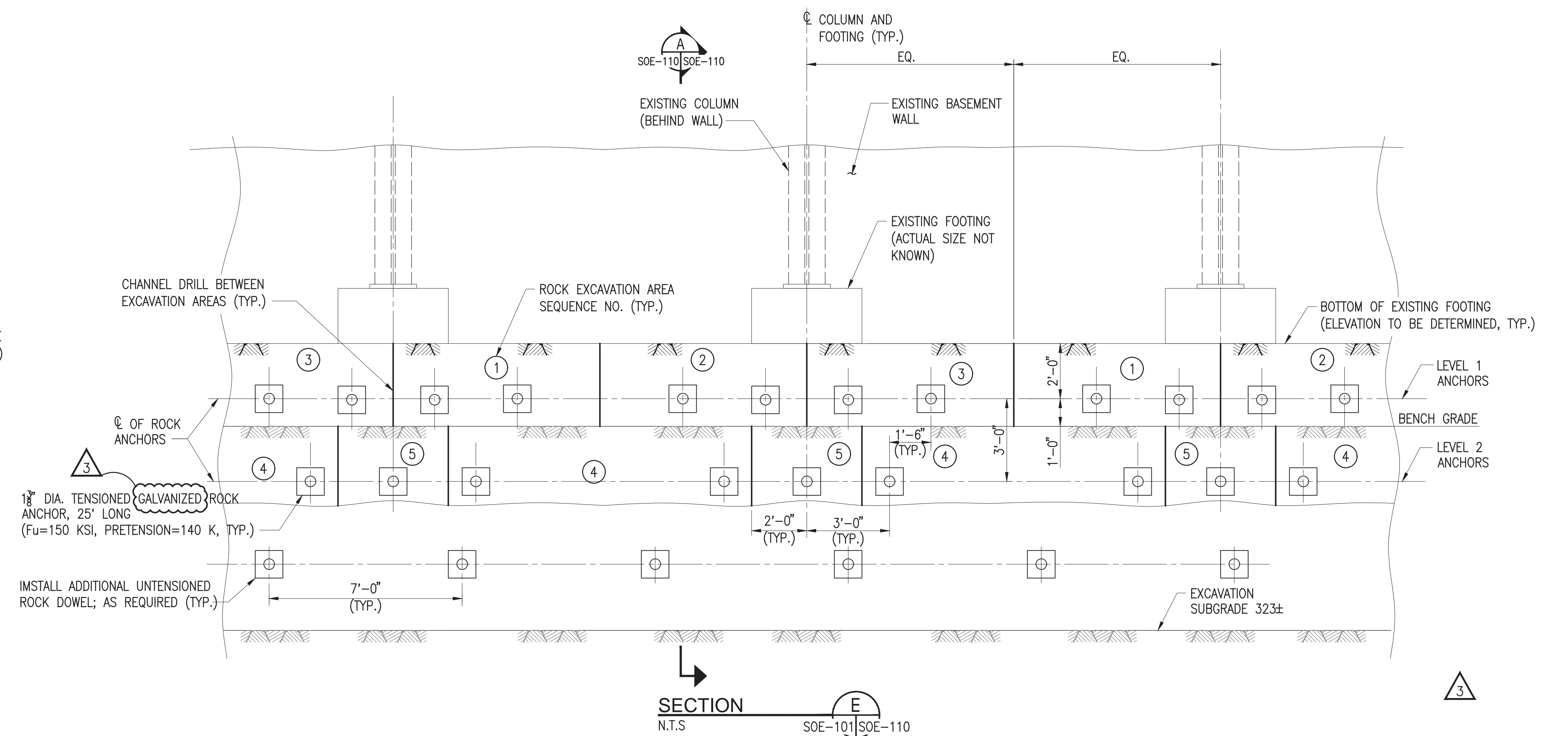
ROCK FACE SUPPORT AT HIGHLY JOINTED AREAS BELOW EXISTING FOUNDATIONS
NO SCALE



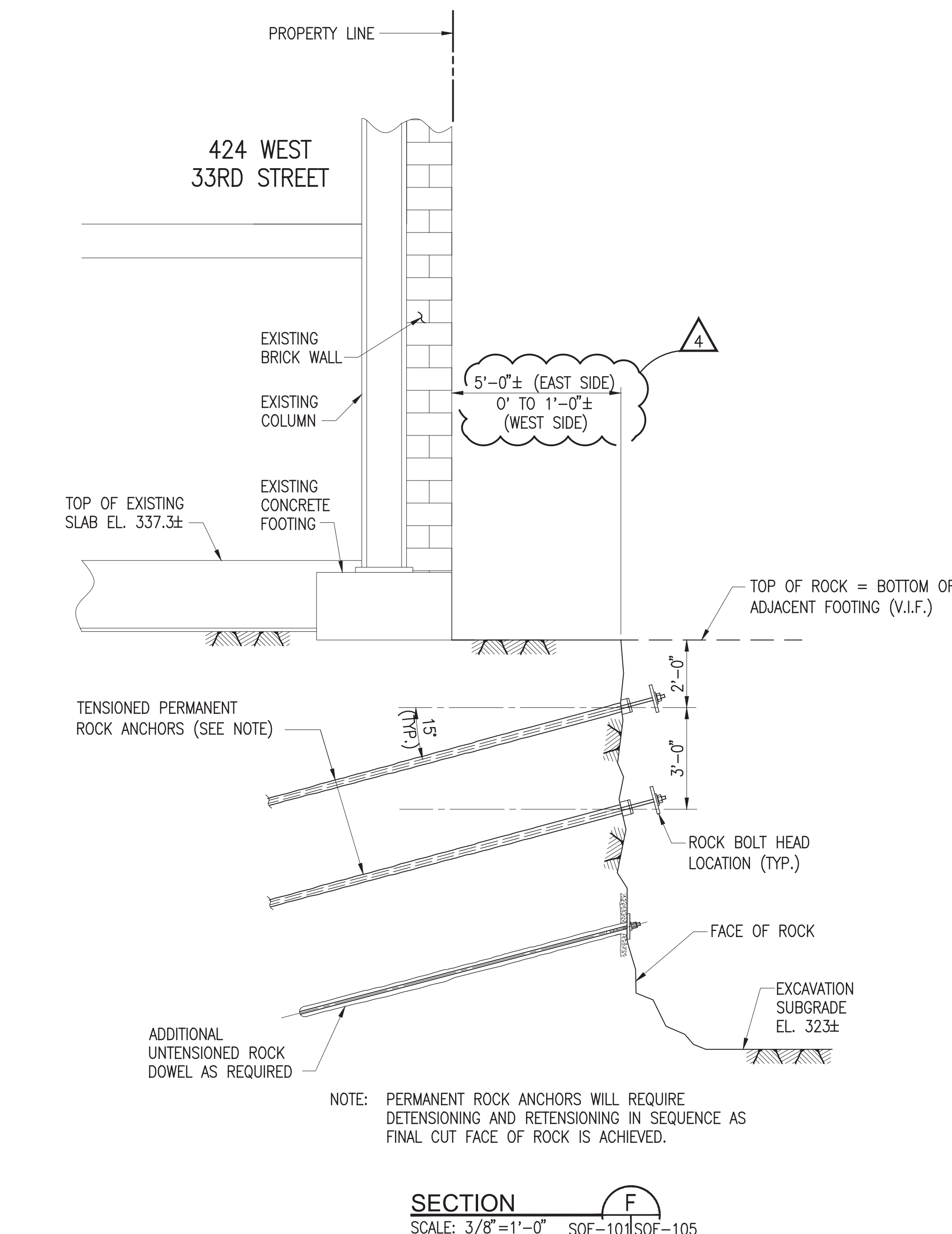
ROCK FACE SUPPORT WITH CHAIN LINK MESH
NO SCALE



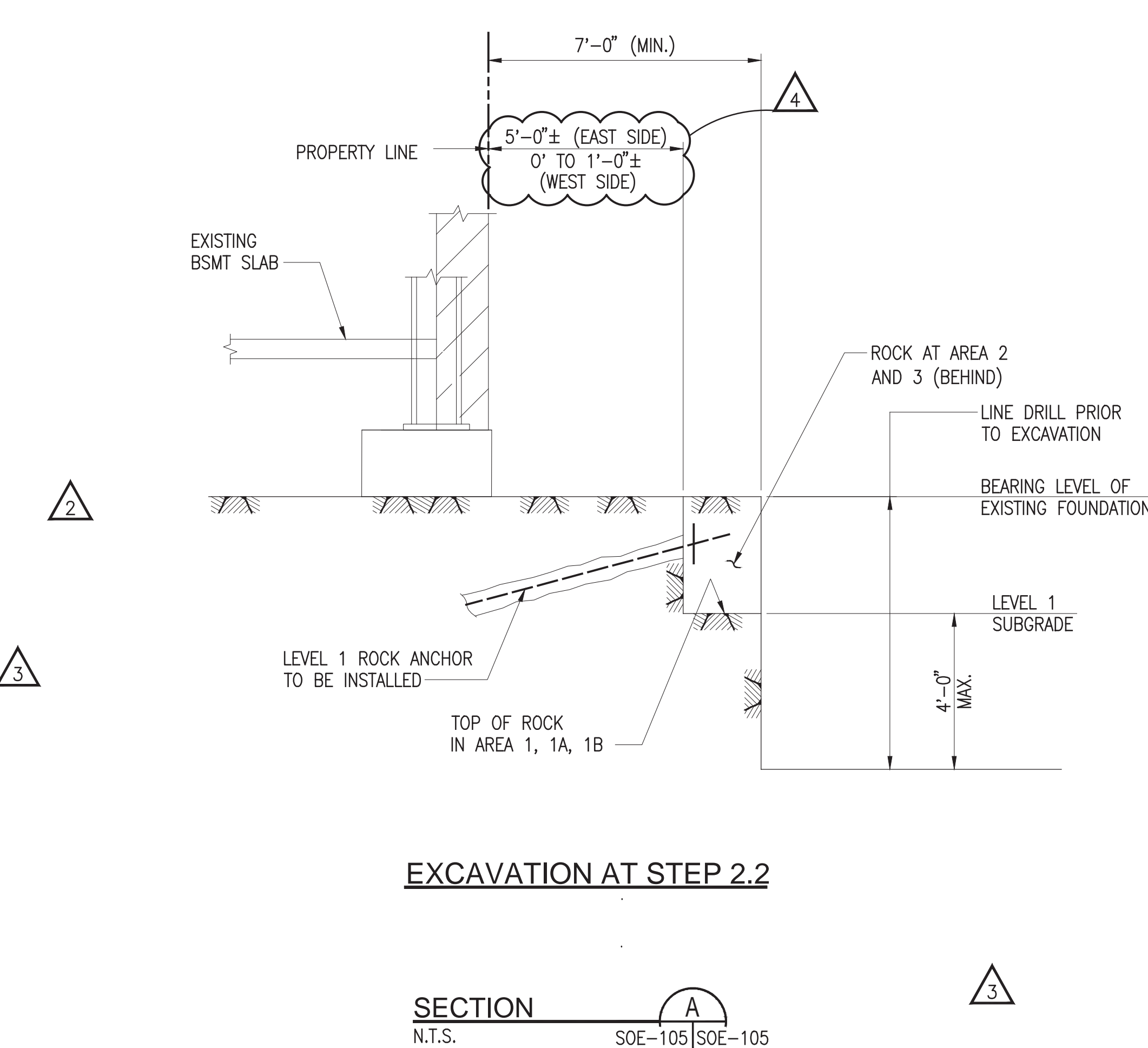
ROCK SURFACE PREPARATION
NO SCALE



TYPICAL SEQUENCE OF ROCK EXCAVATION AT BUILDING COLUMN



SECTION F
SCALE: 3/8"=1'-0" SOE-101/50E-105

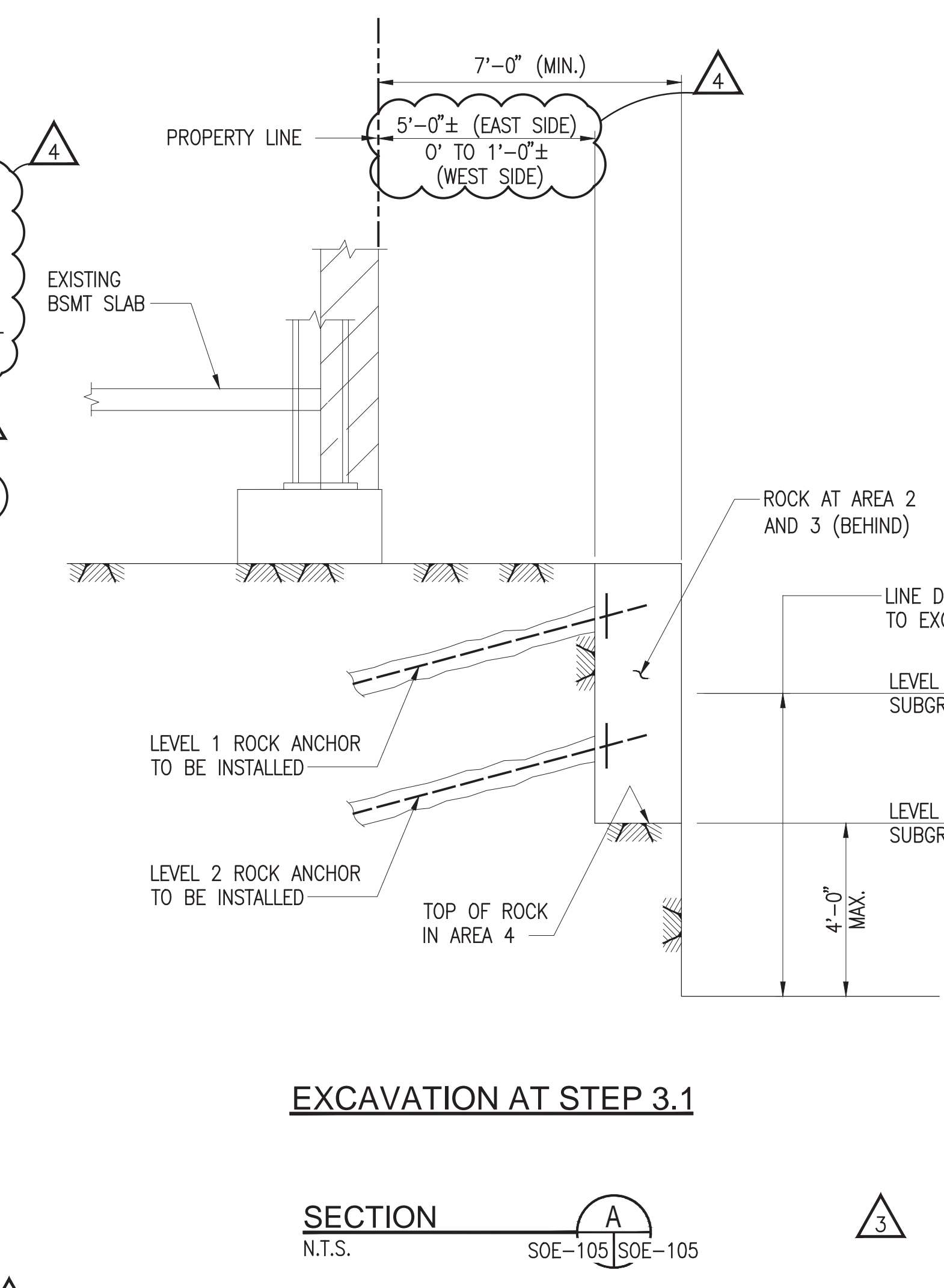


EXCAVATION AT STEP 2.2

SECTION N.T.S. SOE-105/50E-105

EXCAVATION SEQUENCE AT BUILDING COLUMN:

1. EXCAVATE TO BEARING LEVEL OF EXISTING COLUMN FOUNDATIONS.
2. LEVEL 1 PERMANENT ANCHOR INSTALLATION BELOW FOOTINGS
 - 2.1 BEYOND 5'-0"± FROM THE EAST (1'-0"± FROM THE WEST) PROPERTY LINE, EXCAVATE ROCK TO A MAXIMUM OF FOUR (4) FEET BELOW LEVEL 1 SUBGRADE (SEE SECTION A AT STEP 2.2 ON THE LEFT SIDE OF THIS DRAWING).
 - 2.2 WITHIN 5'-0"± OF THE EAST (1'-0"± OF THE WEST) PROPERTY LINE, EXCAVATE ROCK TO LEVEL 1 SUBGRADE IN AREAS MARKED 1, (SEE SECTION A AT STEP 2.2 ON THE LEFT SIDE OF THIS DRAWING).
 - 2.3 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
 - 2.4 WITHIN 5'-0"± OF THE EAST (1'-0"± OF THE WEST) PROPERTY LINE, EXCAVATE ROCK TO LEVEL 1 SUBGRADE IN AREAS MARKED 2.
 - 2.5 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
 - 2.6 WITHIN 5'-0"± OF THE EAST (1'-0"± OF THE WEST) PROPERTY LINE, EXCAVATE ROCK TO LEVEL 1 SUBGRADE IN AREAS MARKED 3.
 - 2.7 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
3. LEVEL 2 PERMANENT ANCHOR INSTALLATION
 - 3.1 INSTALL ANCHORS AT LEVEL 2 USING THE LEVEL 1 CRITERIA STARTING WITH THE LOWEST NUMBERED AREAS (SEE SECTION A EXCAVATION AT STEP 3.1, ON THE RIGHT SIDE OF THIS DRAWING).
4. INSTALLATION AT REMAINING PERMANENT ANCHOR LEVELS (INSTALL ANCHORS ON ROCK FACE AS ANCHOR LOCATIONS ARE EXPOSED)
 - 4.1 EXCAVATE TO A MAXIMUM OF FOUR (4) FEET BELOW THE ANCHOR ELEVATION.
 - 4.2 INSTALL PERMANENT ROCK ANCHORS AND TENSION AS REQUIRED.
 - 4.3 REPEAT STEPS 2.1 AND 4.2 UNTIL ALL PERMANENT ROCK ANCHORS HAVE BEEN INSTALLED AND TENSIONED.
5. INSTALL ADDITIONAL UNTENSIONED ROCK DOWELS AS REQUIRED BELOW LEVEL 2 SUBGRADE AS EXCAVATION PROGRESSES TO FINAL SUBGRADE.



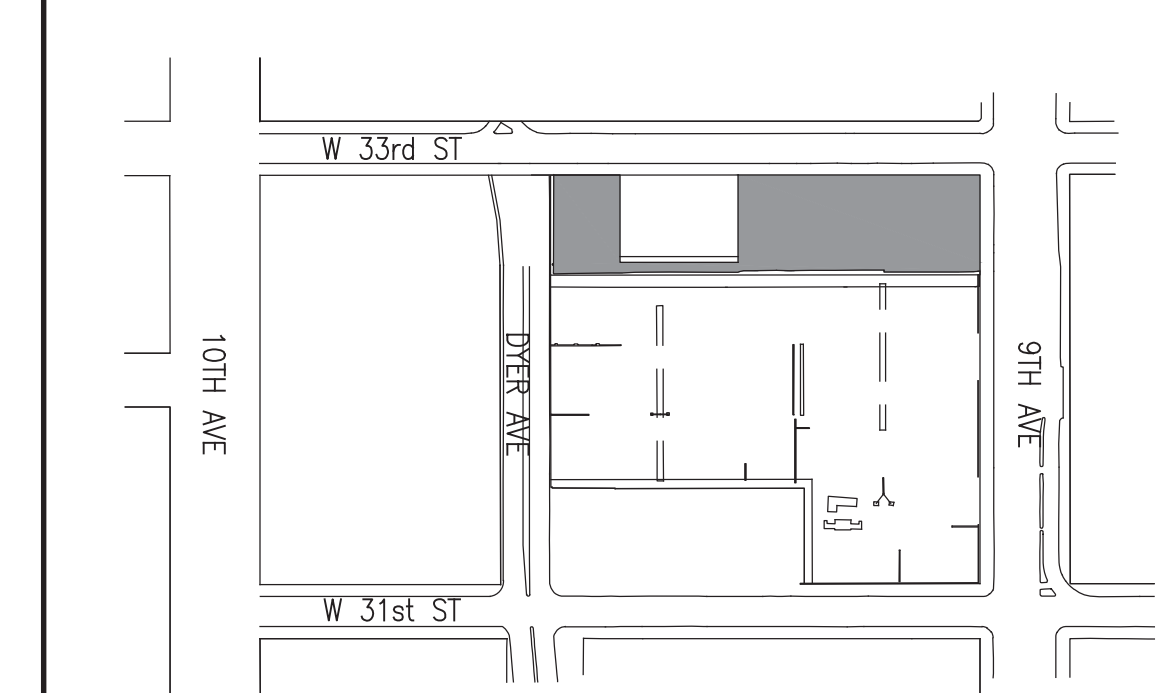
EXCAVATION AT STEP 3.1

SECTION N.T.S. SOE-105/50E-105

NOTES:

1. STEEL PLATE STRAPS SHALL ALSO BE INSTALLED BETWEEN ANCHORS IF CONDITIONS REQUIRE IT.
2. LOCALLY REMOVE ROCK BEHIND PLATE STRAP, AS REQUIRED, TO PREVENT PLATE STRAP AND ROCK BOLT PLATE FROM EXTENDING BEYOND LINE OF EXCAVATION. THE END OF THE ROCK BOLT SHALL NOT PROJECT MORE THAN 2 INCHES BEYOND THE LINE OF EXCAVATION, EXCEPT WHERE WATERPROOFING IS APPLIED. (SEE DETAIL ON SOE-105)
3. INSTALL 1" DIA PVC PIPE SLEEVES OR DRILL 1" DIA DRILL HOLES IN SHOTCRETE AND CONCRETE USED TO FILL DEPRESSIONS IN ROCK TO PROVIDE A FLOW PATH FROM THE ROCK SURFACE TO THE DRAINAGE COMPOSITE. DRAIN HOLES SHALL BE ALIGNED WITH ROCK JOINTS AND SPACED NO MORE THAN 2 FEET CENTER TO CENTER. INSTALL WEAP HOLES WHERE PATCHED AREA EXCEEDS 20 SQUARE FEET OR IF SEEPAGE IS VISIBLE.

REV.	DATE	BY	DESCRIPTION
4	03-10-16	F.V.	REVISED SECTIONS
3	05-01-15	F.V.	REVISED SECTIONS
2	04-10-15	F.V.	ADDED SECTION
1	06-18-14	S.R.L.	ADDITIONAL ROCK EXCAVATION



KEY PLAN

9TH AVENUE DEVELOPMENT
NEW YORK NEW YORK

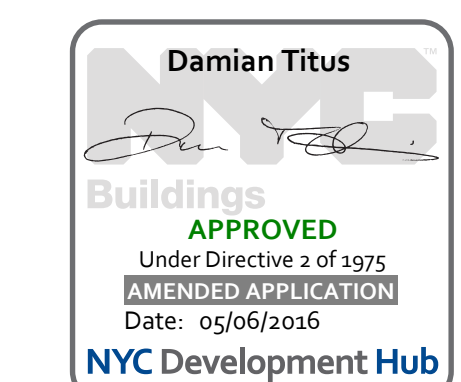
BROOKFIELD PROPERTIES
NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE: AS NOTED
MADE BY: K.J.
CHECKED BY: S.Y.

DATE: 08-06-2012
DATE: 08-06-2012

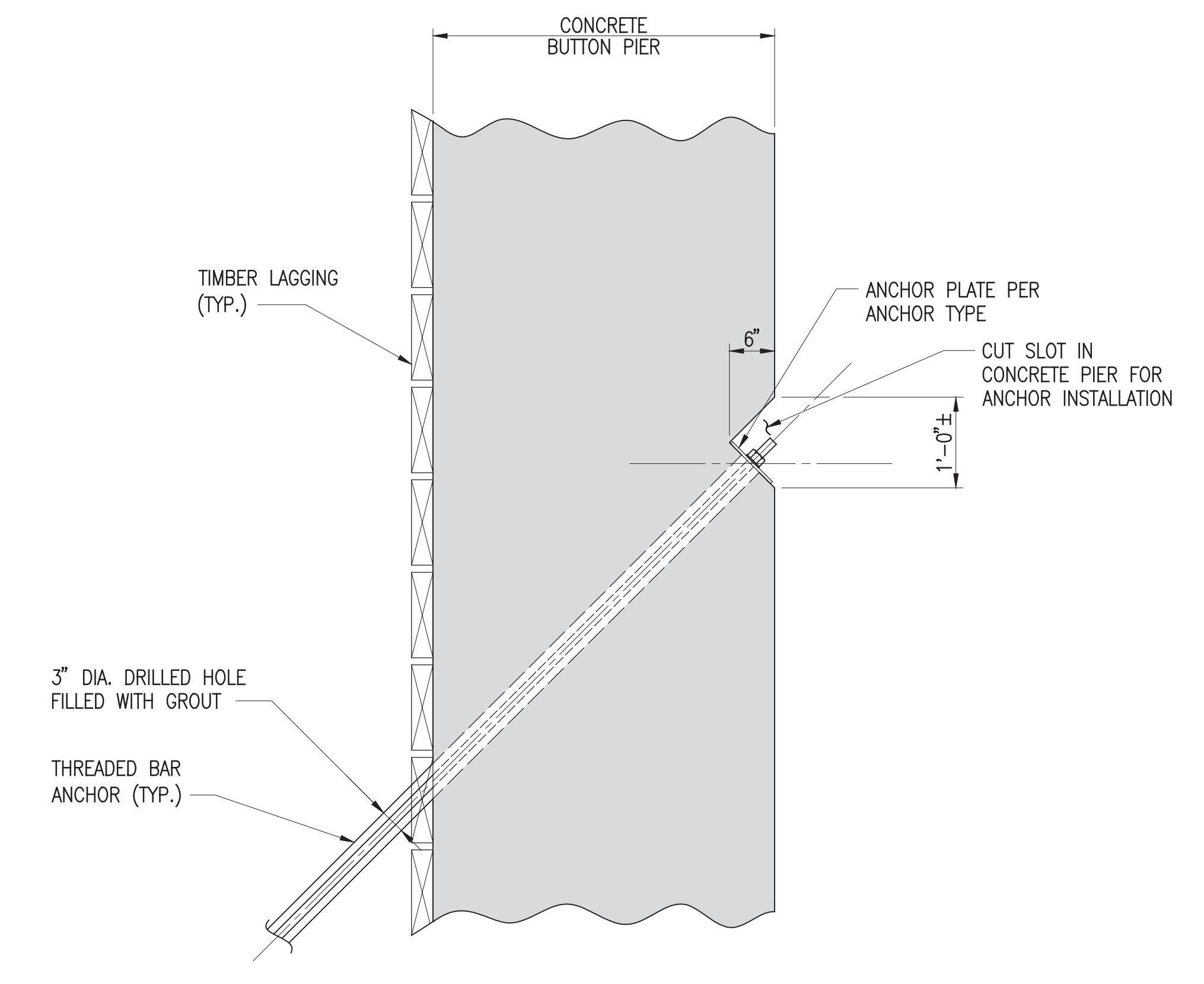
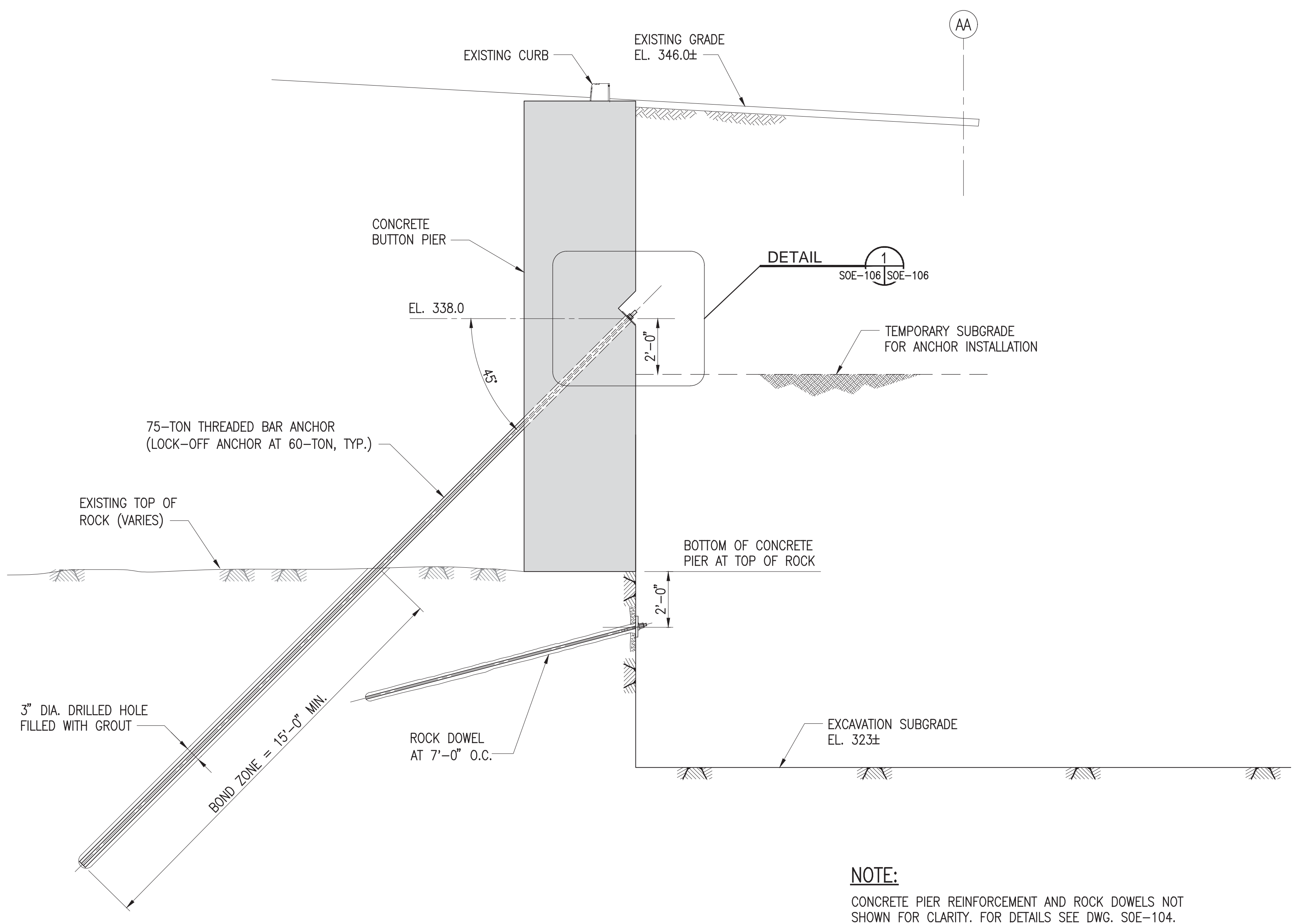
FILE NUMBER: 11797
DRAWING NUMBER: SOE-105.03
SHEET OF



APPROVED Under Directive 2 of 1995 AUTHORIZED REPRESENTATIVE Date: 08/06/2012

THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS. IT IS FURNISHED SUBJECT TO RETURN ON DEMAND AND ON THE CONDITION THAT THE INFORMATION AND TECHNICAL EMPLOYED HEREIN SHALL NOT BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS. THE DRAWING SHALL NOT BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS. THE DRAWING SHALL NOT BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MUESER RUTLEDGE CONSULTING ENGINEERS.

WEST 33rd STREET



NOTE:
CONCRETE PIER REINFORCEMENT AND ROCK DOWELS NOT SHOWN FOR CLARITY. FOR DETAILS SEE DWG. SOE-104.

SECTION
SCALE: 3/8"=1'-0"
SOE-101|SOE-106

DETAIL
SCALE: 3/4"=1'-0"
SOE-106|SOE-106

REV.	DATE	BY	DESCRIPTION

KEY PLAN

9TH AVENUE DEVELOPMENT
NEW YORK NEW YORK

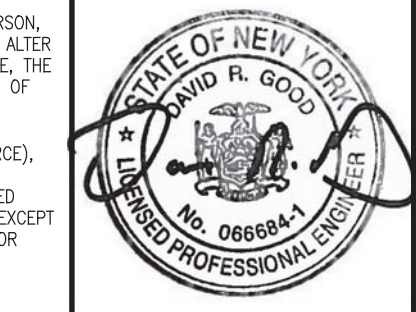
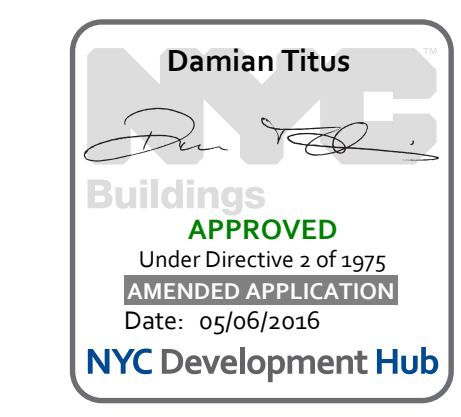
BROOKFIELD PROPERTIES
NEW YORK NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS
14 PENN PLAZA - 225 W. 34TH STREET, NY, NY 10122

SCALE	MADE BY: T.C.	DATE: 05-01-2015	FILE NUMBER
AS NOTED	CHK'D BY: F.V.	DATE: 05-01-2015	11797

SUPPORT OF EXCAVATION - SECTION AND DETAIL 4

DRAWING NUMBER: **SOE-106.00**
SHEET OF



THIS DRAWING IS THE PROPERTY OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. IT IS FURNISHED SUBJECT TO RETURN ON DEMAND AND ON THE CONDITION THAT THE INFORMATION AND TECHNICAL SERVICES THEREON SHALL NOT BE REPRODUCED OR USED AS PROVIDED OR AUTHORIZED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. ANY REPRODUCTION OR USE WITHOUT THE WRITTEN CONSENT OF MUESER RUTLEDGE CONSULTING ENGINEERS, INC. IS STRICTLY PROHIBITED AND WILL BE CONSIDERED A VIOLATION OF THE PROFESSIONAL ENGINEERING ETHICS AND THE NEW YORK STATE EDUCATION LAW.



MANHATTAN WEST: NORTH TOWER

ISSUED FOR BUILDING PERMIT
APRIL 1ST, 2015



MANHATTAN WEST:
NORTH TOWER
375 Ninth Avenue, New York, NY 10001

Client
Brookfield

Brookfield Plaza
250 Vesey Street, 15th Floor, New York, NY 10021

Architecture/Structural Engineering

SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Civil Engineering
Philip Habb & Associates
102 Madison Avenue #11, New York, NY 10016

MEP Engineering
Jaros Baum & Bolles
80 Pine Street, New York, NY 10005

Vertical Transportation
Edgett Williams Consulting Group, Inc.
102 East Blinnedale Ave, Suite 1, Mill Valley, California 94041

Sustainable Design
Viridian Energy & Environmental
50 Washington Street, Newark, CT 06854

Geotechnical Engineering
Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 W. 34th Street, New York, NY 10122

Landscape Consultant
Field Operations
475 10th Avenue, New York, NY 10018

Security Consultant
Ducibella, Ventor & Santore
250 State Street #F1, North Haven, CT 06473

Blast Consultant
Weidinger Associates, Inc.
40 Wall Street, New York, NY 10005

Acoustical Consultant
Cerami & Associates
404 Fifth Avenue #8, New York, NY 10016

Vibration Consultant
Wilson, Uhrig & Associates, Inc.
65 Broadway, Suite 401, New York, NY 10006

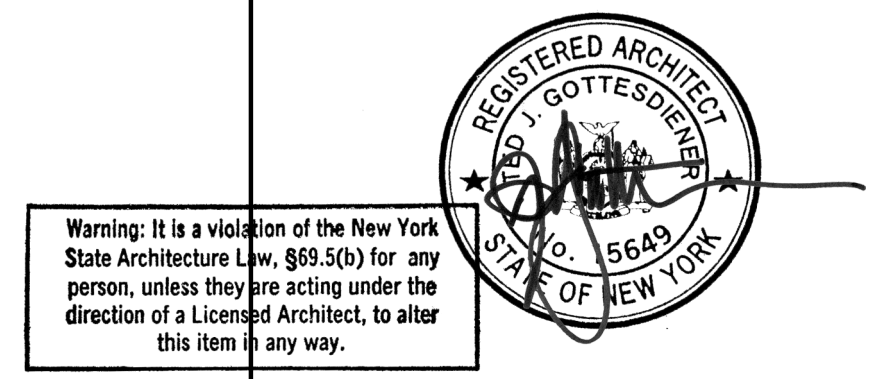
Code Consultant
Code Consultants Professional Engineers PC
215 West 40th Street, 15th Floor, New York, NY 10018

Facade Maintenance Consultant
Entek Engineering LLC
166 Ames Street, Hackensack, NJ 07601

Wind Tunnel Consultant
Rowan Williams Davies & Irwin Inc.
650 Woodlawn Road West, Guelph Ontario, Canada N1K 1B9

Key Plan:

Seal & Signature:



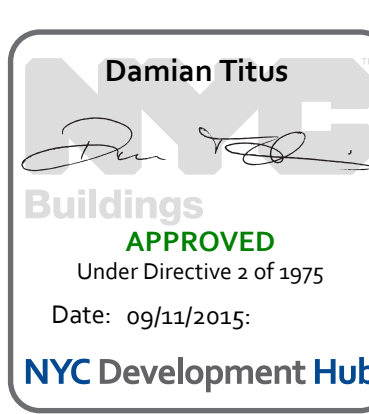
Warning: It is a violation of the New York State Architecture Law, §20-150(3) for any person, unless they are acting under the direction of a Licensed Architect, to alter this form in any way.

9	1 APR 2015	ISSUED FOR BUILDING PERMIT
8	30 JAN 2015	ISSUED FOR BUILDING PERMIT
7	12 SEPT 2014	ISSUED FOR FOUNDATION PERMIT
6	20 JUN 2014	ISSUED FOR FOUNDATION PERMIT
5	20 JUN 2014	ISSUED FOR FOUNDATION PERMIT
4	20 DEC 2013	ISSUED FOR FOUNDATION PERMIT
3	15 NOV 2013	ISSUED FOR 50% DESIGN DEVELOPMENT
2	12 JUL 2013	ISSUED FOR 50% DESIGN DEVELOPMENT
1	16 MAR 2012	ISSUED FOR RECONCILIATION

No. Date Description

Sheet Name:

COVER SHEET

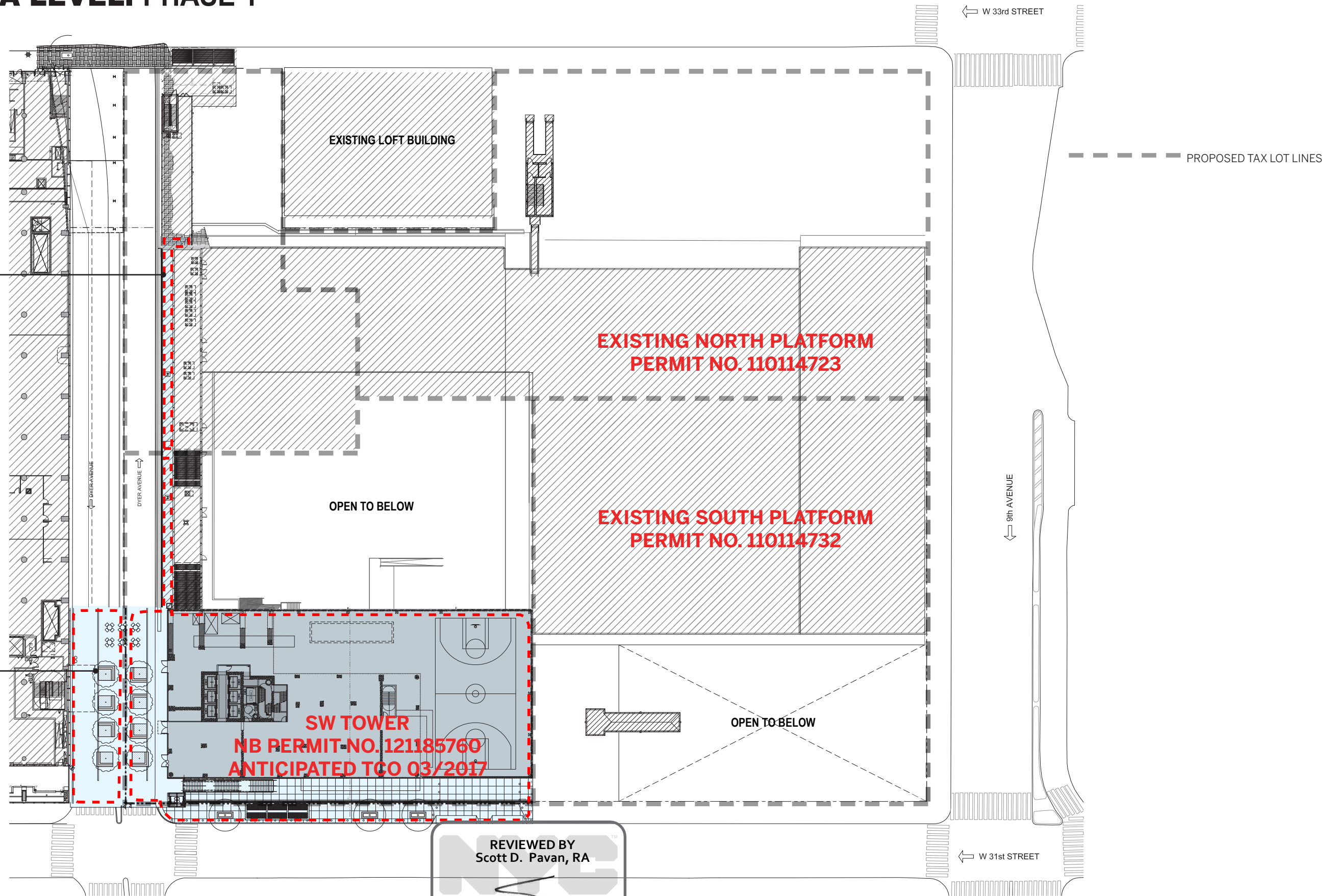


Project No.: 201120	B-SCAN Sheet No.: G-001.00
Date: 1 APR 2015	Sheet No.: G-001
Scale: NTS	Page No.: 1 OF 30
File No.: G-001	

PLAZA LEVEL: PHASE 1

**DYER AVENUE PHASE 1
ALT2 TO
PERMIT NO. 122450533
ANTICIPATED TCO 12/2019**

**DYER AVENUE PHASE 1
ALT2 TO
PERMIT NO. 122445407
IN CONJUNCTION WITH
ALT1 TO 121186368
ANTICIPATED TCO 03/2017**



REVIEWED BY
Scott D. Pavan, RA



APPROVED

Page 7 of 9
Date: 10/28/2015

GENERAL NOTES

- ALL WORK SHALL COMPLY WITH THE NEW YORK CITY BUILDING CODE, LATEST AMENDMENTS, AND ALL OTHER APPLICABLE CODES.
- A LICENCED PROFESSIONAL ENGINEER IN THE STATE OF NEW YORK ACCEPTABLE TO THE ENGINEER-OF-RECORD SHALL SUPERVISE THE TESTING AND INSPECTION OF THE FOLLOWING CONSTRUCTION METHODS AND MATERIALS IN ACCORDANCE WITH THE NEW YORK CITY BUILDING CODE: SUBGRADE, ENGINEERED FILL, STABILITY DURING CONSTRUCTION, REINFORCED CONCRETE, REINFORCED MASONRY, WELDING, HIGH-STRENGTH BOLTING, AND FIREPROOFING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PUBLIC AND WORKER SAFETY DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL COMPLY WITH THE NEW YORK CITY BUILDING CODE AS WELL AS ALL OTHER GOVERNING CODES.
- THE DESIGN DETAILS AND NOTES CONTAINED HEREIN ARE IN COMPLIANCE WITH LOCAL LAW 17/95 (THE EARTHQUAKE CODE).

CODES & STANDARDS

GENERAL DESIGN

- BUILDING CODE OF THE CITY OF NEW YORK, THE DEPARTMENT OF BUILDINGS, LOCAL LAW 33/2007, AS AMENDED.

STRUCTURAL STEEL DESIGN

- SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN, AMERICAN INSTITUTE OF STEEL CONSTRUCTION, LATEST EDITION.
- LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AMERICAN INSTITUTE OF STEEL CONSTRUCTION, LATEST EDITION.

STEEL DECK DESIGN

- DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, ROOF DECKS AND CELLULAR METAL FLOOR DECK WITH ELECTRICAL DISTRIBUTION, STEEL DECK INSTITUTE.

REINFORCED CONCRETE DESIGN

- BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE - ACI 318, AMERICAN CONCRETE INSTITUTE, LATEST EDITION.

LATERAL LOADS

- BUILDING CODE OF THE CITY OF NEW YORK, THE DEPARTMENT OF BUILDINGS, LOCAL LAW 33/2007
- THE NEW YORK CITY SEISMIC CODE: LOCAL LAW 33/2007.

PROGRESSIVE COLLAPSE

- BUILDING CODE OF THE CITY OF NEW YORK, THE DEPARTMENT OF BUILDINGS, LOCAL LAW 33/2007.

LINES

- TRUSS ABOVE
- CENTER LINE
- HIDDEN, OUTLINE
- NOTE
- DIMENSION

REFERENCE MARKS

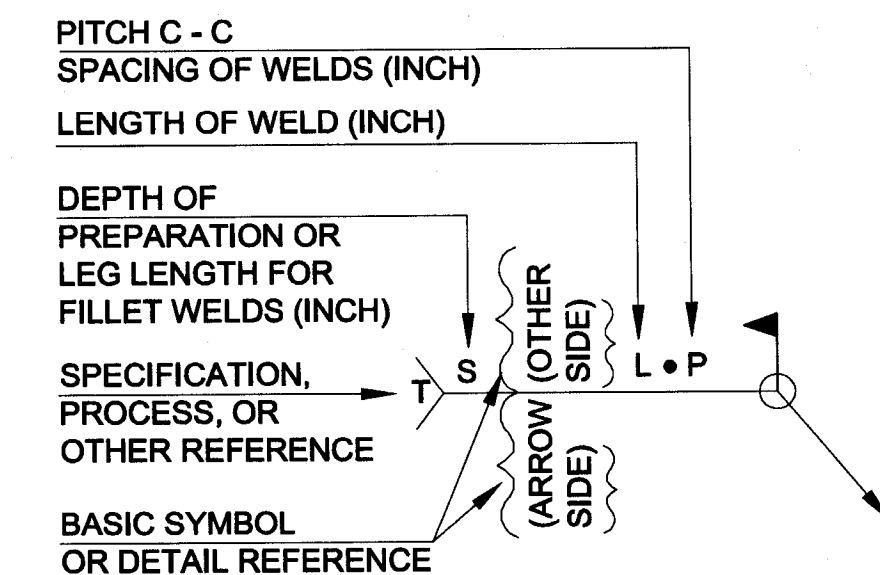
- GRID LINE DESIGNATION
- SECTION DESIGNATION
- SHEET NUMBER
- SECTION DESIGNATION ON SAME SHEET
- DETAIL DESIGNATION
- SHEET NUMBER
- DETAIL DESIGNATION ON SAME SHEET

SLAB MARKS

- MS1 COMPOSITE METAL DECK SLAB
- RS1 REINFORCED METAL DECK SLAB
- S1 ONE-WAY REINFORCED CONCRETE SLAB

WELDED JOINT SYMBOLS

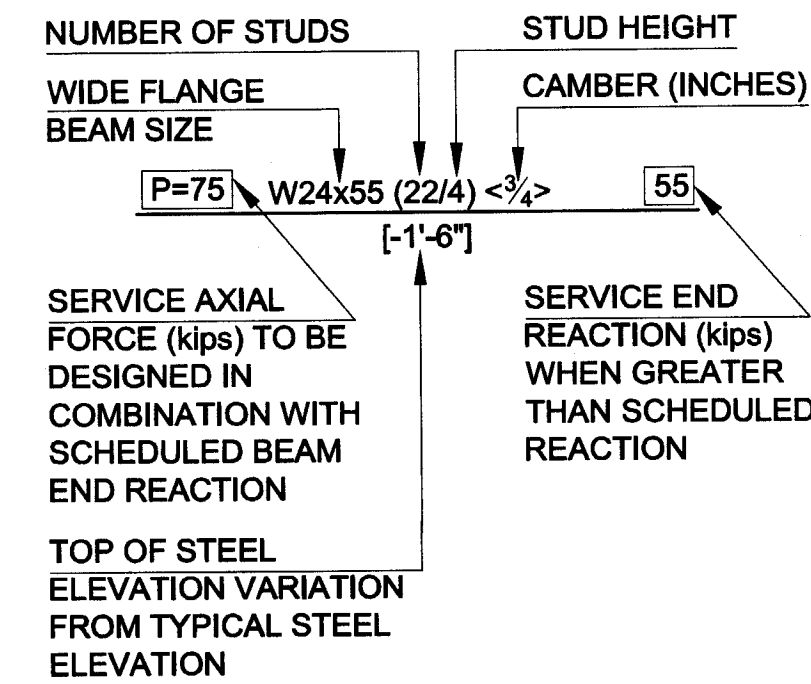
BASIC SYMBOLS					
BACK	FILLET	PLUG OR SLOT	GROOVE OR BUTT SQUARE	V	BEVEL
SUPPLEMENTARY SYMBOLS					
BACKING	WELD ALL AROUND	FIELD WELD	CONTOUR FLUSH	CONTOUR CONVEX	



COLUMN MARKS

- STEEL WIDE FLANGE
- STEEL PIPE
- COLUMN TRANSFER (AT LEVEL SHOWN)
- STUB COLUMN (TO FRAMING ON LEVEL SHOWN)
- STEEL HANGER

COMPOSITE BEAM DIAGRAM



BEAM MARKS

- MOMENT CONNECTION
- FIELD SPLICE
- RECTANGULAR BEAM PENETRATION
- CIRCULAR BEAM PENETRATION
- INDICATES REINFORCED OPENING
- (X) INDICATES X-STRONG PIPE REINFORCING

MISCELLANEOUS SYMBOLS

- REINFORCING BAR MECHANICAL COUPLER
- METAL DECK
- WELDED WIRE FABRIC
- CHANGE IN ELEVATION
- EPOXY ANCHORED DOWEL
- EXPANSION BOLT
- EMBEDDED PLATE

PAINT SYSTEM IDENTIFICATION

- IESS INTERIOR EXPOSED STRUCTURAL STEEL WITH INTUMESCENT FIREPROOFING
- IESS* INTERIOR EXPOSED STRUCTURAL STEEL WITHOUT INTUMESCENT FIREPROOFING
- EESS EXTERIOR EXPOSED STRUCTURAL STEEL
- EBCS EPOXY BARRIER COATING SYSTEM

Sheet #	SHEET TITLE	SCALE
BDS-001.L50	GENERAL NOTES, ABBREVIATIONS & DRAWING LIST	NTS
PLANS		
BDS-100.L50	TRACK LEVEL PLAN	1/32" = 1'-0"
BDS-101.L50	B1 LEVEL PLAN	1/32" = 1'-0"
BDS-102.L50	B2 LEVEL PLAN	1/32" = 1'-0"
BDS-103.L50	GROUND FLOOR PLAN	1/32" = 1'-0"
SECTIONS AND PARTIAL PLANS		
BDS-201.L50	OVERALL RAFT SECTIONS	1/16" = 1'-0"
BDS-202.L50	OVERALL RAFT SECTIONS	1/16" = 1'-0"
BDS-312.L50	SLAB-ON-GRADE SECTIONS AND DETAILS	AS NOTED
BDS-450.L50	TYPICAL STRUCTURAL STEEL SECTIONS & DETAILS	AS NOTED
BDS-451.L50	TYPICAL STRUCTURAL STEEL SECTIONS & DETAILS	AS NOTED
BDS-501.L50	TYPICAL PRECAST SLAB SCHEDULES, SECTIONS & DETAILS	AS NOTED
BDS-505.L50	TYPICAL METAL DECK SCHEDULES, SECTIONS & DETAILS	AS NOTED
BDS-506.L50	TYPICAL METAL DECK SECTIONS & DETAILS	AS NOTED

FILENAME: W:\S\1\3\1\RAFT DOB PERMIT\BDS-001.L50.DWG

No	Revisions	Date	By	Client:
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

Client: **31ST STREET CORP.**

Project: **Brookfield Properties**
9th Avenue Development
 New York, NY

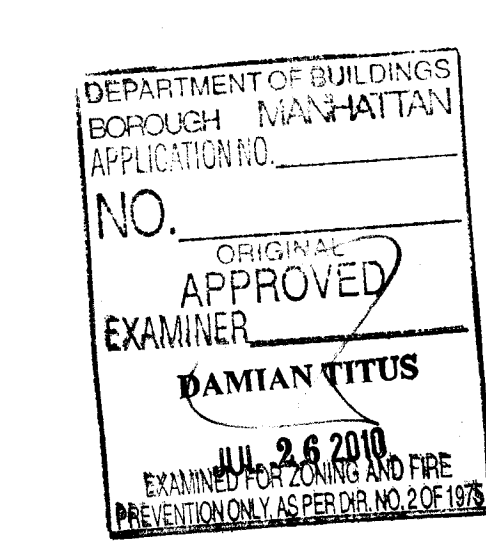
Approved	Date	Key Plan:

Architect/Structural Engineer:
SOM
 SKIDMORE, OWINGS & MERRILL LLP

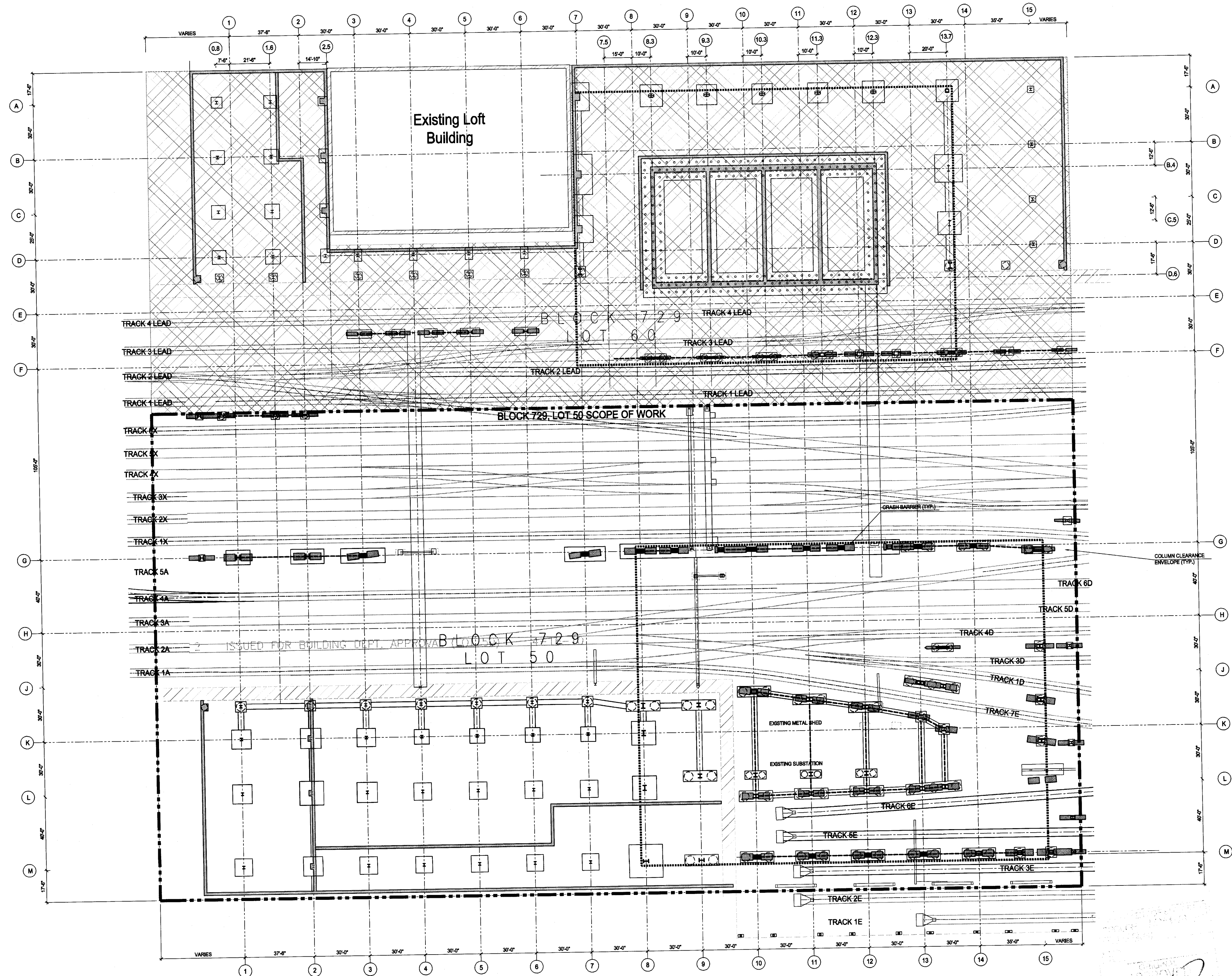
GENERAL NOTES, ABBREVIATIONS & DRAWING LIST

Drawn: SOM Checked: ## Date: 03/10/08

File No.:
 Proj. No.: 207183
 Sheet No.: 1 OF 13
 BDS-001.L50

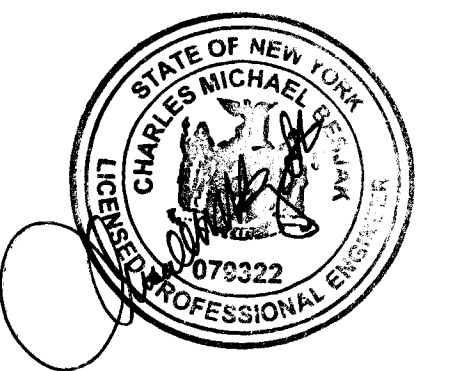


FOR BUILDING DEPARTMENT APPROVAL



1 TRACK LEVEL PLAN
SCALE: 1/32" = 1'-0"

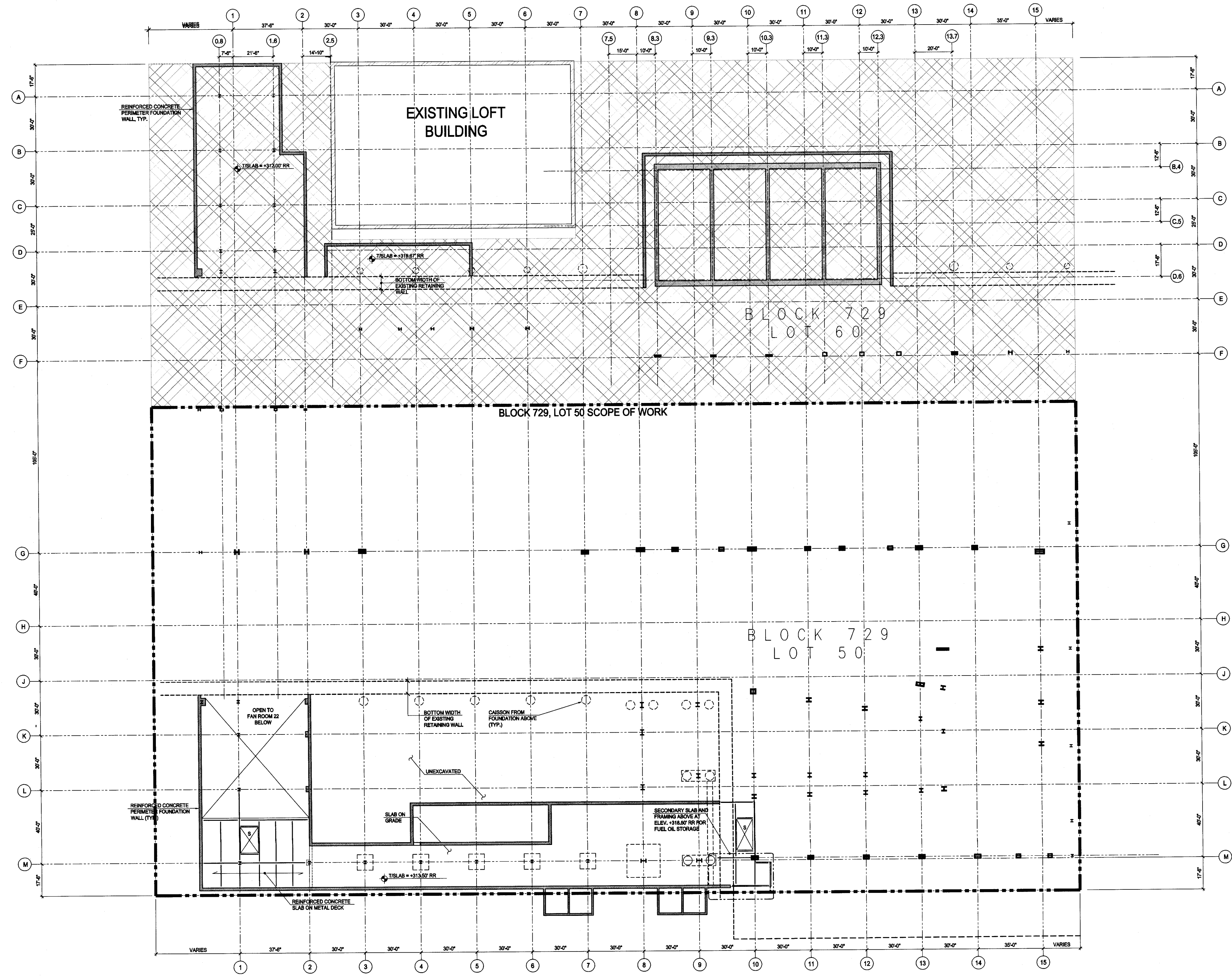
FOR BUILDING DEPARTMENT APPROVAL



DAMIAN TITUS
JUL 26 2010

FILENAME: W:\S\1\31ST STREET\RAFT\DOB PERMIT\BDS-100_L50.DWG

No	Revisions	Date	By	Client:	Project:	Approved	Date	Key Plan:	Architect/Structural Engineer:	File No.:
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.	Brookfield Properties 9th Avenue Development New York, NY				SOM SKIDMORE, OWINGS & MERRILL LLP © 2007 COPYRIGHT SKIDMORE, OWINGS & MERRILL, LLP	D.O.B. SUBMISSION - TRACK LEVEL PLAN (LOT 50)
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10								
										Drawn: SOM Checked: ## Date: 03/10/08



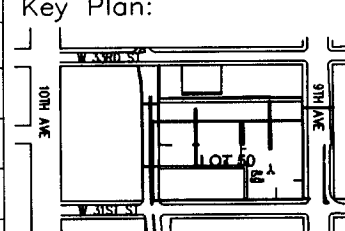
1 LEVEL B1 PLAN
1/32" = 1'-0"

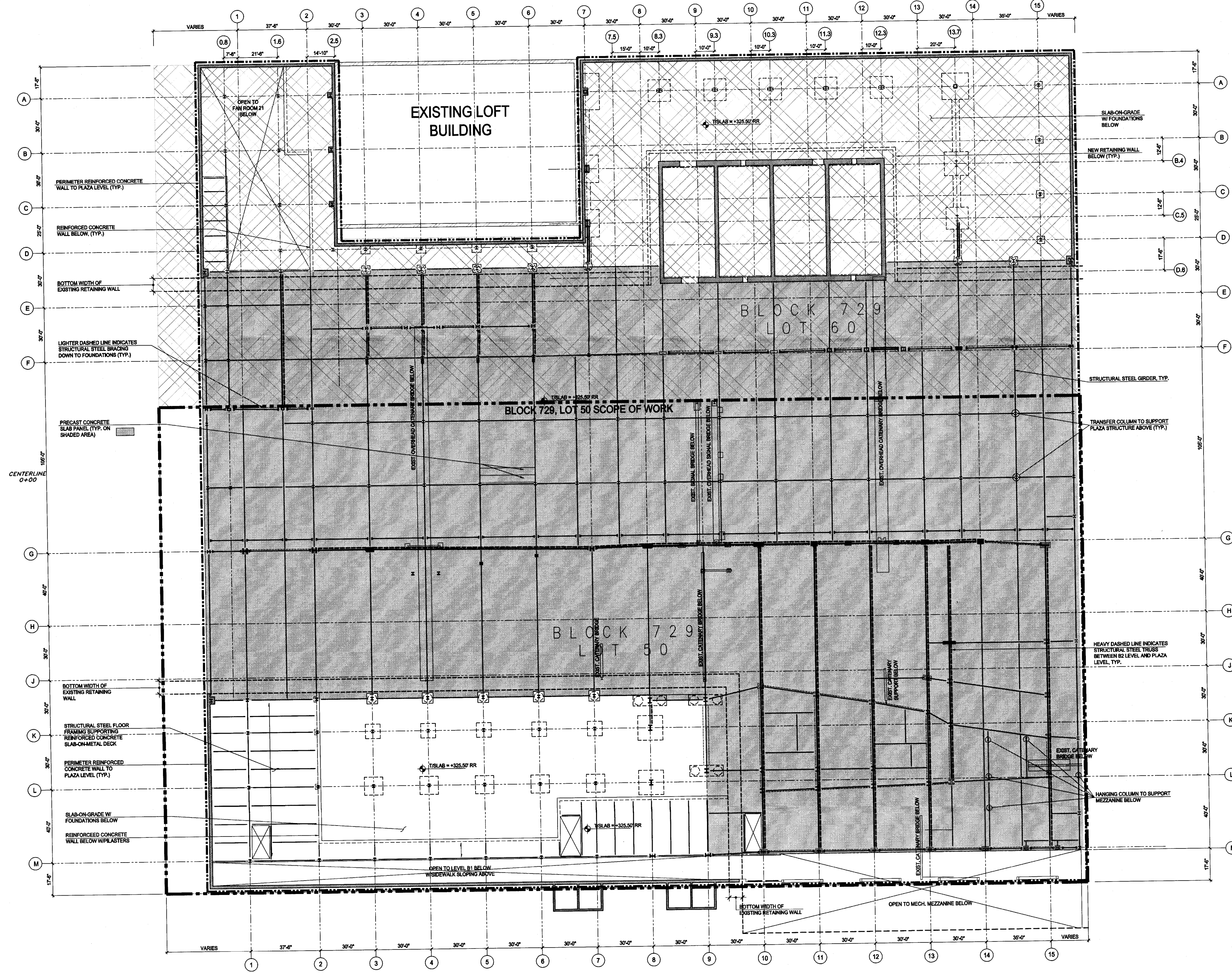
FILENAME: W:\S\1\SHEET\RAFT\DOB PERMIT\BDS-101.L50.DWG

NO. 10114732
APPROVED
EXAMINER
DAMIAN FITTUS
JUL 26 2010
EXAMINED FOR ZONING AND USE
PREVENTION ONLY AS PER PAR. 24-207 OF LDC



FOR BUILDING DEPARTMENT APPROVAL

<table border="1"> <thead> <tr> <th>No</th> <th>Revisions</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)</td> <td>03/10/08</td> <td></td> </tr> <tr> <td>2</td> <td>ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)</td> <td>04/16/10</td> <td></td> </tr> </tbody> </table>		No	Revisions	Date	By	1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		Client: 31ST STREET CORP.	Project: Brookfield Properties 9th Avenue Development New York, NY	Approved: _____ Date: _____	Key Plan: 	Architect/Structural Engineer: SOM SKIDMORE, OWINGS & MERRILL LLP <small>© 2007 COPYRIGHT SKIDMORE, OWINGS & MERRILL LLP</small>	D.O.B. SUBMISSION - B1 LEVEL PLAN (LOT 50)	File No.: _____ Proj. No.: 207183 Sheet No.: 3 OF 13 BDS-101.L50
No	Revisions	Date	By																	
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08																		
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10																		
		Drawn: SOM Checked: ## Date: 03/10/08																		



1 LEVEL B2 RAFT FRAMING PLAN
SCALE: 1/32" = 1'-0"

FOR BUILDING DEPARTMENT APPROVAL

DEPARTMENT OF BUILDINGS
BOROUGH OF MANHATTAN
APPLICATION NO. NO.
ORIGINAL APPROVED
EXAMINER'S SIGNATURE
JUL 3 6 2010
EXAMINED FOR ZONING AND FIRE PREVENTION ONLY AS PER D.R. NO. 2 OF 1975



FILENAME: W:\SHEET\RAFT\DOB PERMIT\BDS-102.L50.DWG

No	Revisions	Date	By	Client:
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

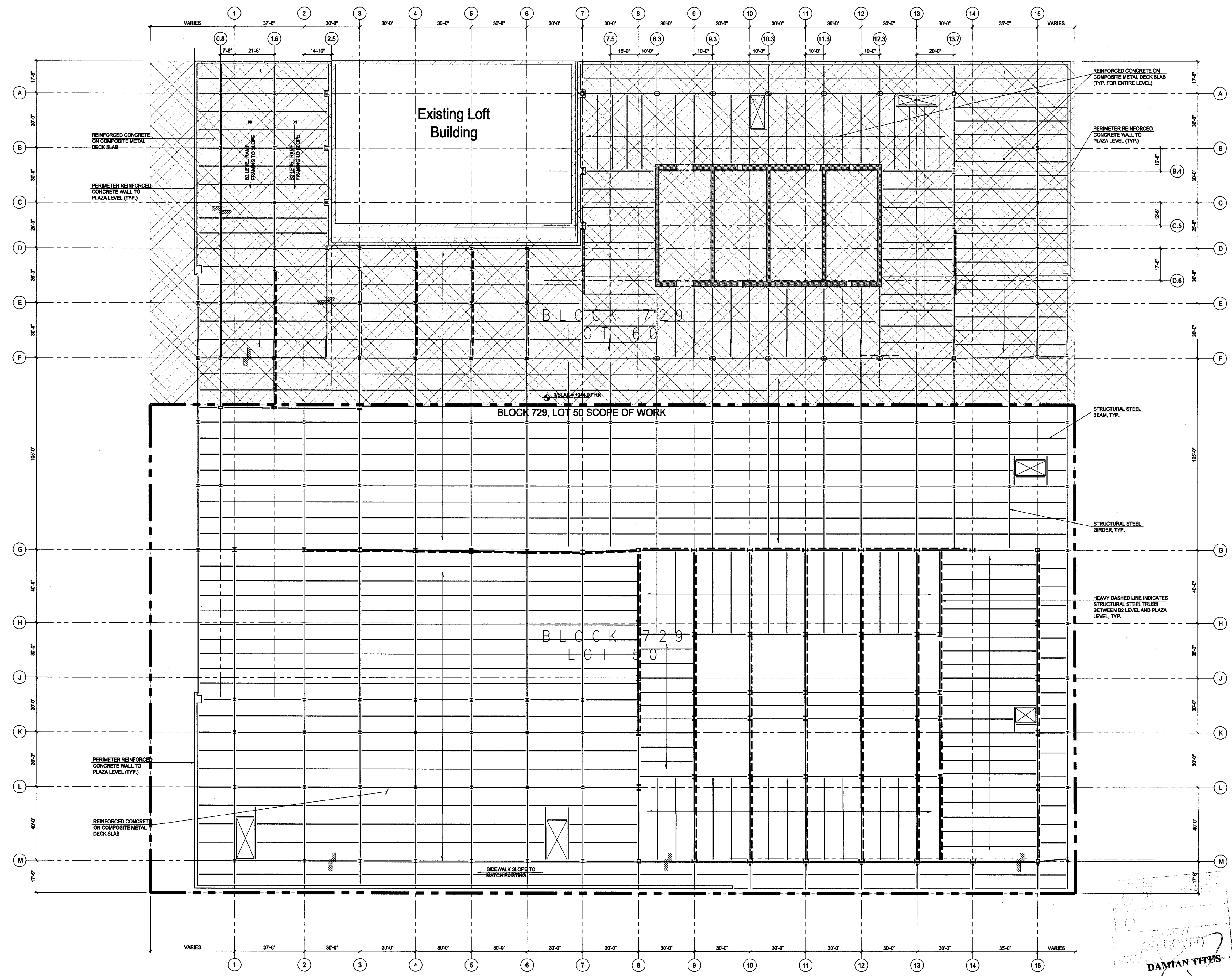
Project: **Brookfield Properties**
9th Avenue Development
New York, NY

Approved: _____ Date: _____
Key Plan:

Architect/Structural Engineer:
SOM
SKIDMORE, OWINGS & MERRILL LLP
© 2007 COPYRIGHT SKIDMORE, OWINGS & MERRILL LLP

D.O.B. SUBMISSION
- B2 LEVEL PLAN (LOT 50)
Drawn: SOM Checked: ## Date: 03/10/08

File No.:	207183
Proj. No.:	4 OF 13
Sheet No.:	BDS-102.L50



1 PLAZA LEVEL FRAMING PLAN
SCALE: 1/32" = 1'-0"

FOR BUILDING DEPARTMENT APPROVAL

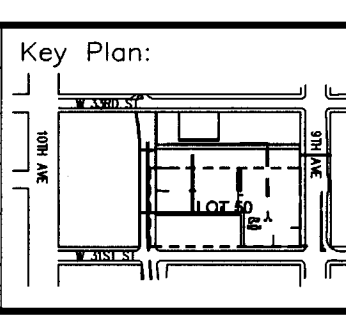
FILENAME: W:\S\1\SHEET\RAFT\DOB PERMIT\BDS-103_L50.DWG

No	Revisions	Date	By
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08	
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10	

Client: **31ST STREET CORP.**

Project: **Brookfield Properties**
9th Avenue Development
New York, NY

Approved: _____
Date: _____



Architect/Structural Engineer:
SOM
SKIDMORE, OWINGS & MERRILL LLP

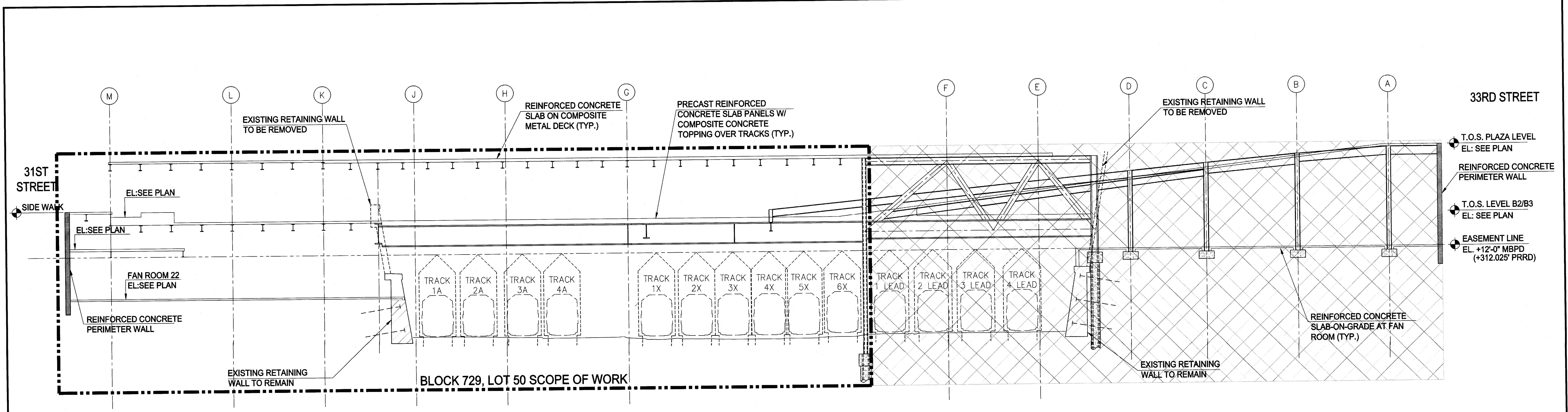
D.O.B. SUBMISSION
- GROUND FLOOR PLAN (LOT 50)

File No.: _____
Proj. No.: 207183
Sheet No.: 5 OF 13
BDS-103.L50

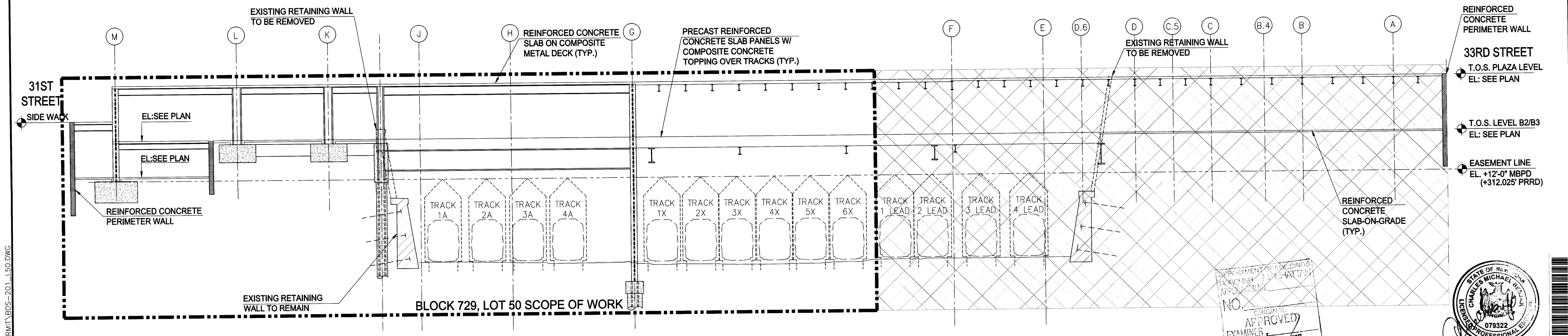
DAMIAN TITUS
JUL 9 6 2010



Drawn: SOM Checked: ## Date: 03/10/08



1 SECTION ALONG GRID 1.6
1/16" = 1'-0"



2 SECTION ALONG GRID 8
1/16" = 1'-0"

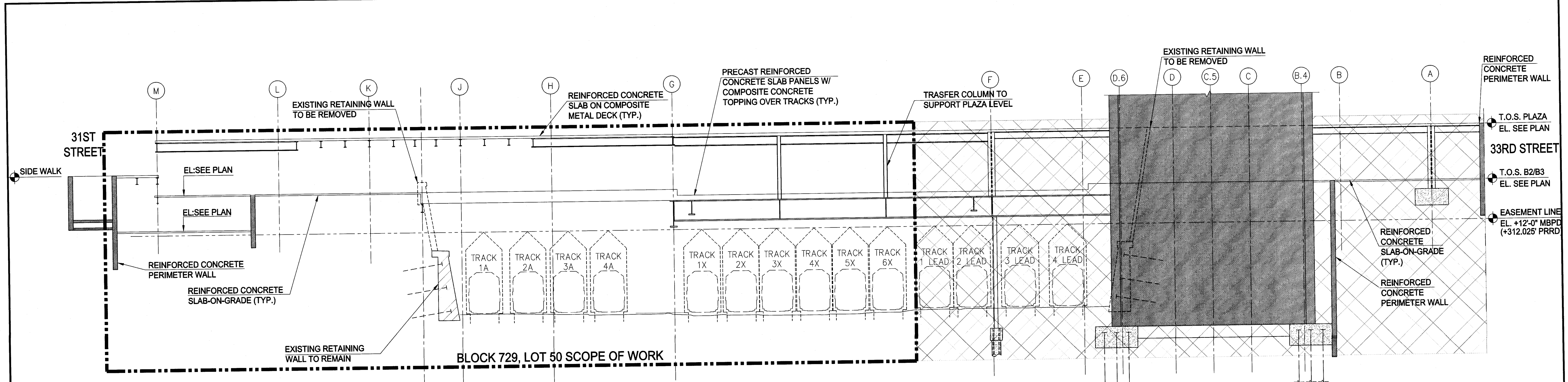
DEPARTMENT OF BUILDINGS
EXAMINER
DAMIAN TITUS
JUL 26 2010
EXAMINED FOR ZONING AND FIRE
REVISIONS AND PERMITS



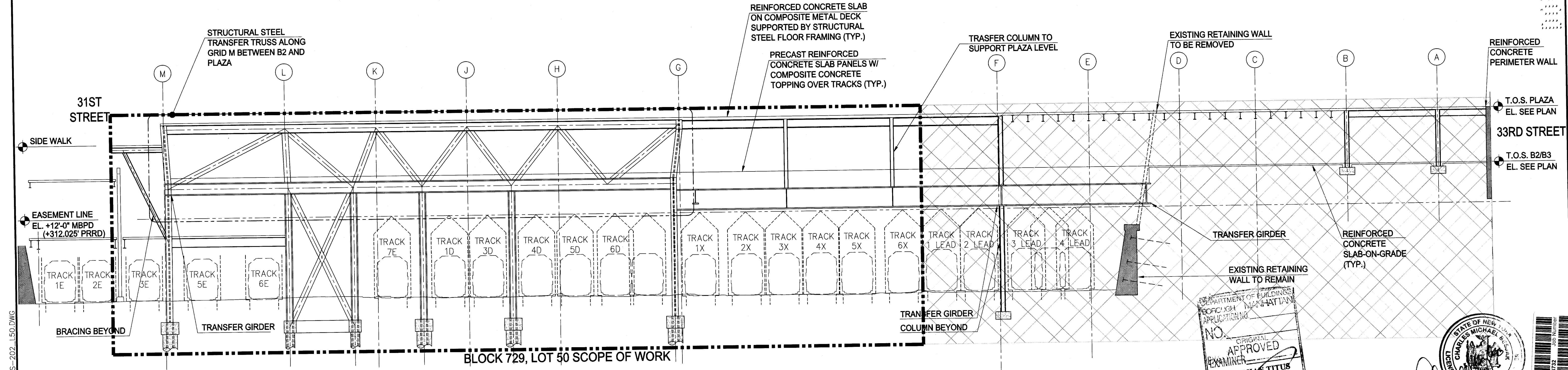
FOR BUILDING DEPARTMENT APPROVAL

Revisions No. Description Date By 1 ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50) 03/10/08 2 ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50) 04/16/10		Client: 31ST STREET CORP.	Project: Brookfield Properties 9th Avenue Development New York, NY	Approved: _____ Date: _____	Key Plan: 	Architect/Structural Engineer: SOM SKIDMORE, OWINGS & MERRILL LLP	D.O.B. SUBMISSION - OVERALL RAFT SECTIONS (LOT 50)	File No.: _____ Proj. No.: 207183 Sheet No.: 6 OF 13 BDS-201.L50
Drawn: SOM Checked: ## Date: 03/10/08								

FILENAME: W:\S\SHEET\RAFT\DOB PERMIT\BDS-201.L50.DWG



1 SECTION ALONG GRID 8.3
1/16" = 1'-0"



2 SECTION ALONG GRID 15
1/16" = 1'-0"

NO. ORIGINAL APPROVED EXAMINER DAMIAN TITUS 079322 JUL 30 2018 EXAMINED FOR ZONING AND FIRE DEPARTMENT HAS PERFORMED 2 OF 105



FOR BUILDING DEPARTMENT APPROVAL

FILENAME: W:\S\1\1\1\RAFT DOB PERMIT\BDS-202.L50.DWG

No	Revisions	Date	By	Client
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

31ST STREET CORP.

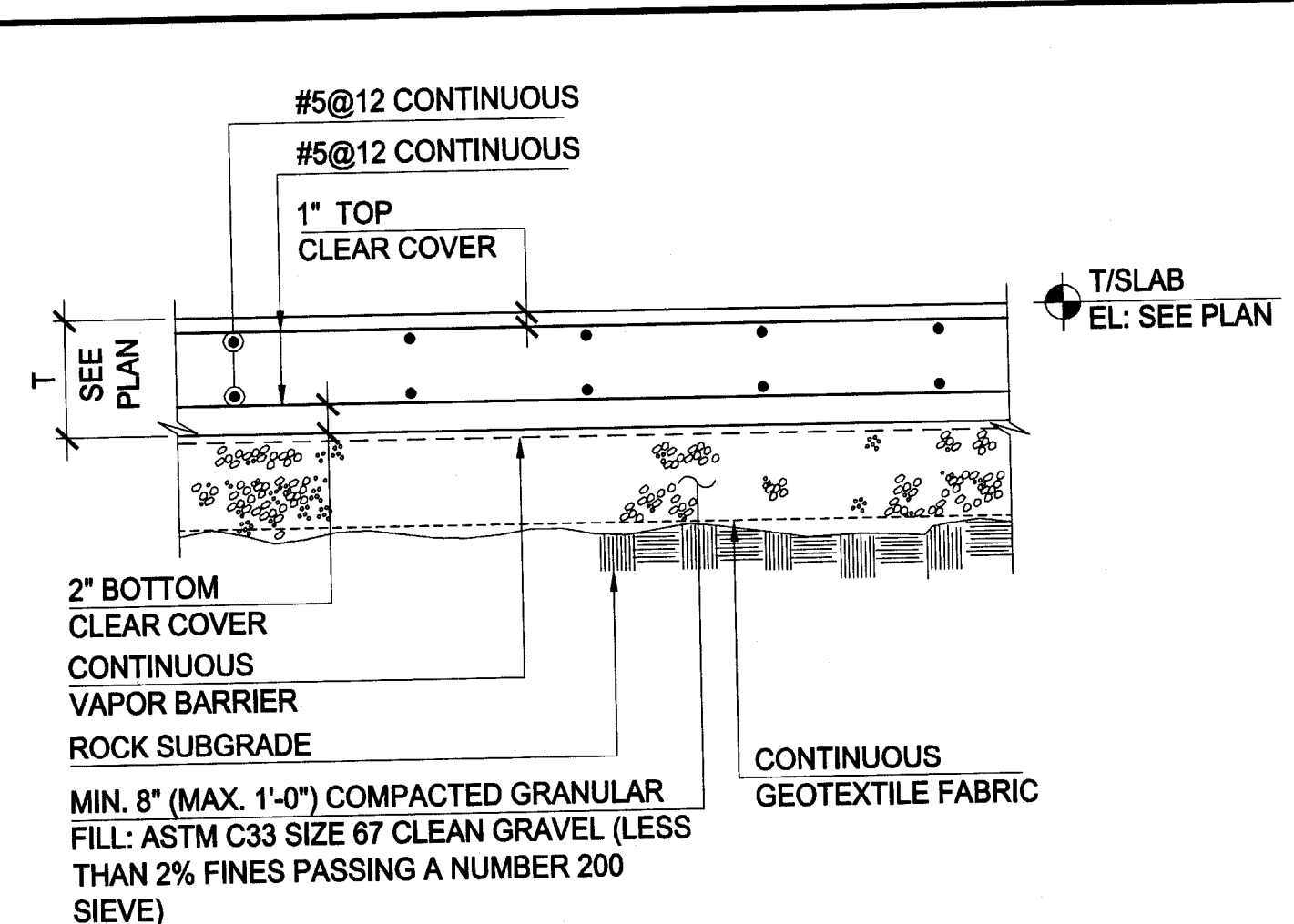
Project: **Brookfield Properties**
9th Avenue Development
 New York, NY

Approved: _____ Date: _____
 Key Plan:

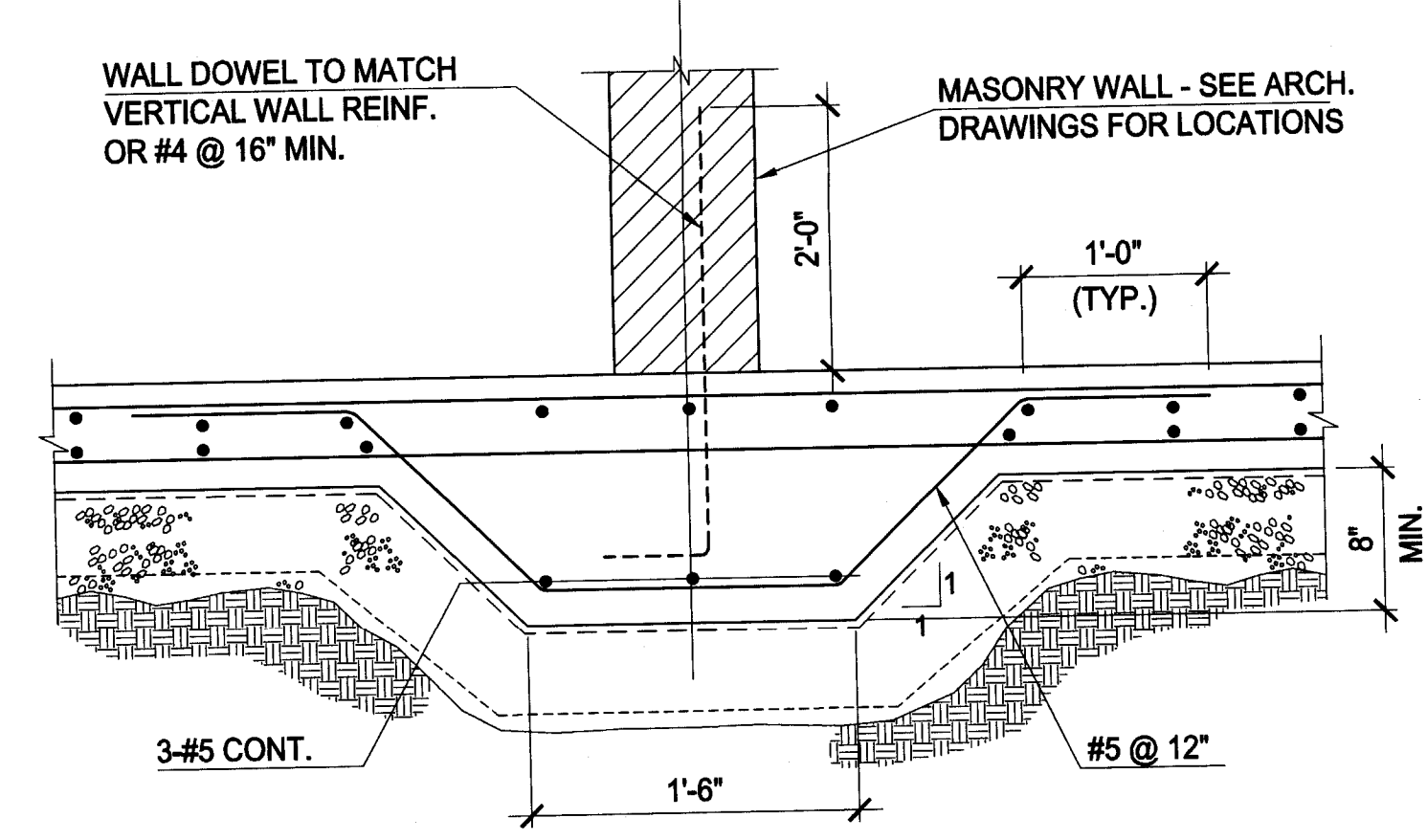
Architect/Structural Engineer:
SOM
 SKIDMORE, OWINGS & MERRILL LLP

D.O.B. SUBMISSION
 - OVERALL RAFT SECTIONS (LOT 50)
 Drawn: SOM Checked: ## Date: 03/10/08

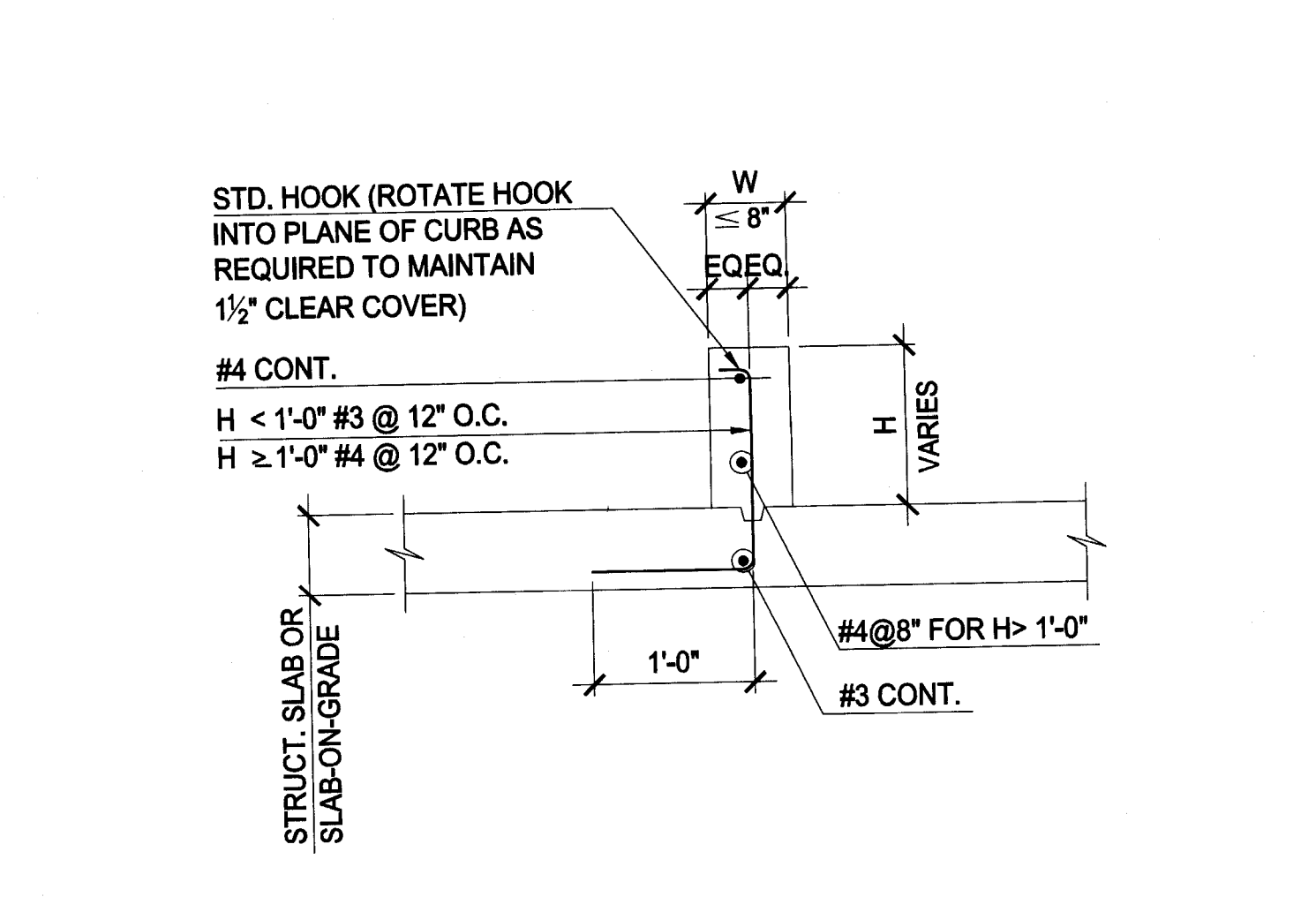
File No.:
 Proj. No.: 207183
 Sheet No.: 7 OF 13
 BDS-202.L50



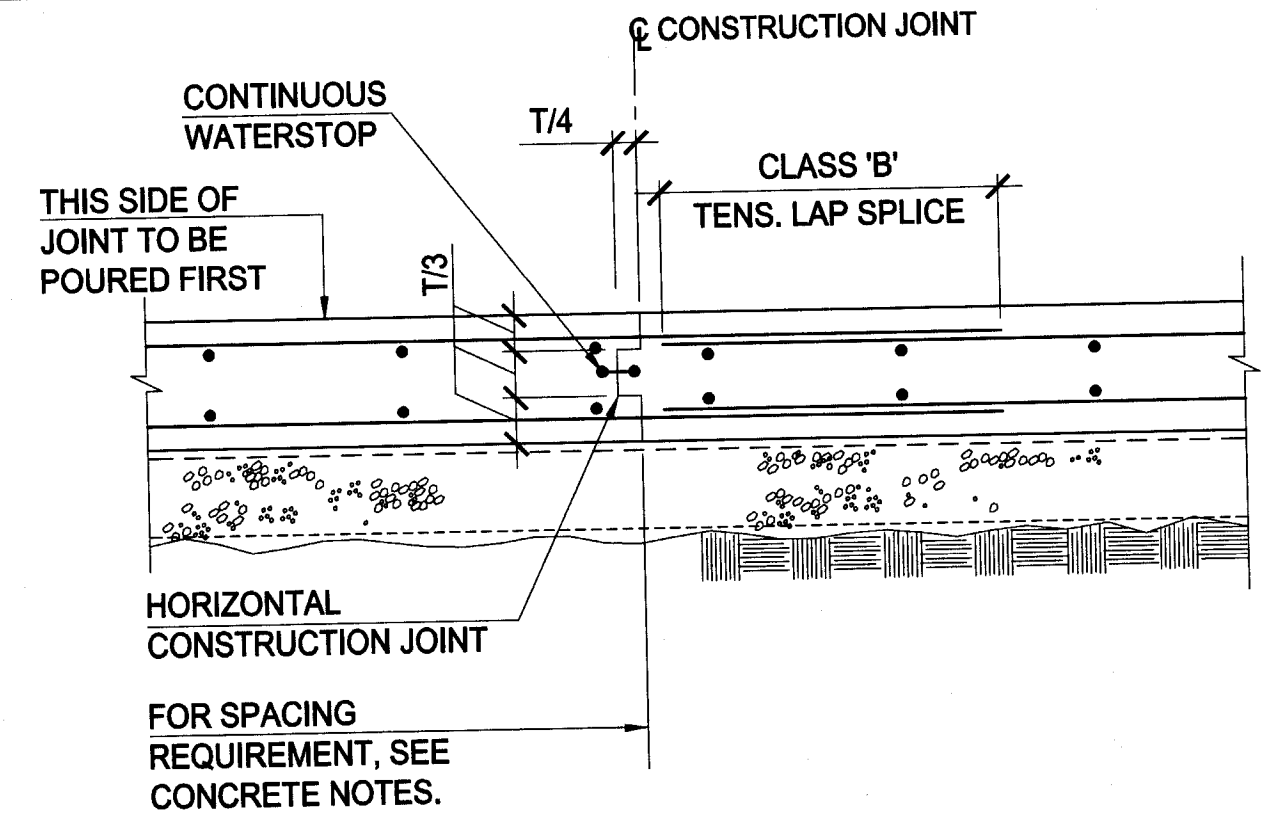
1 TYPICAL SLAB-ON-GRADE DETAIL
NOT TO SCALE



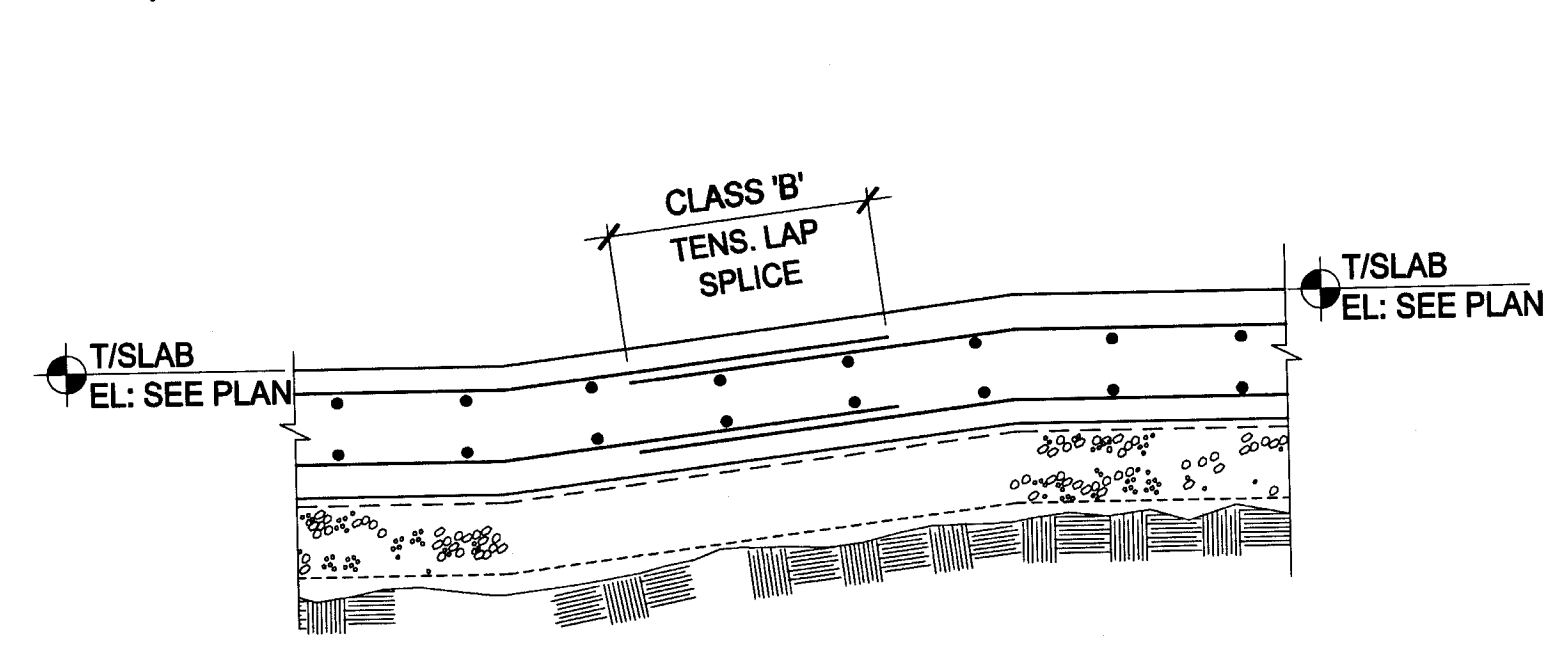
5 TYPICAL SLAB-ON-GRADE AT MASONRY WALL
NOT TO SCALE



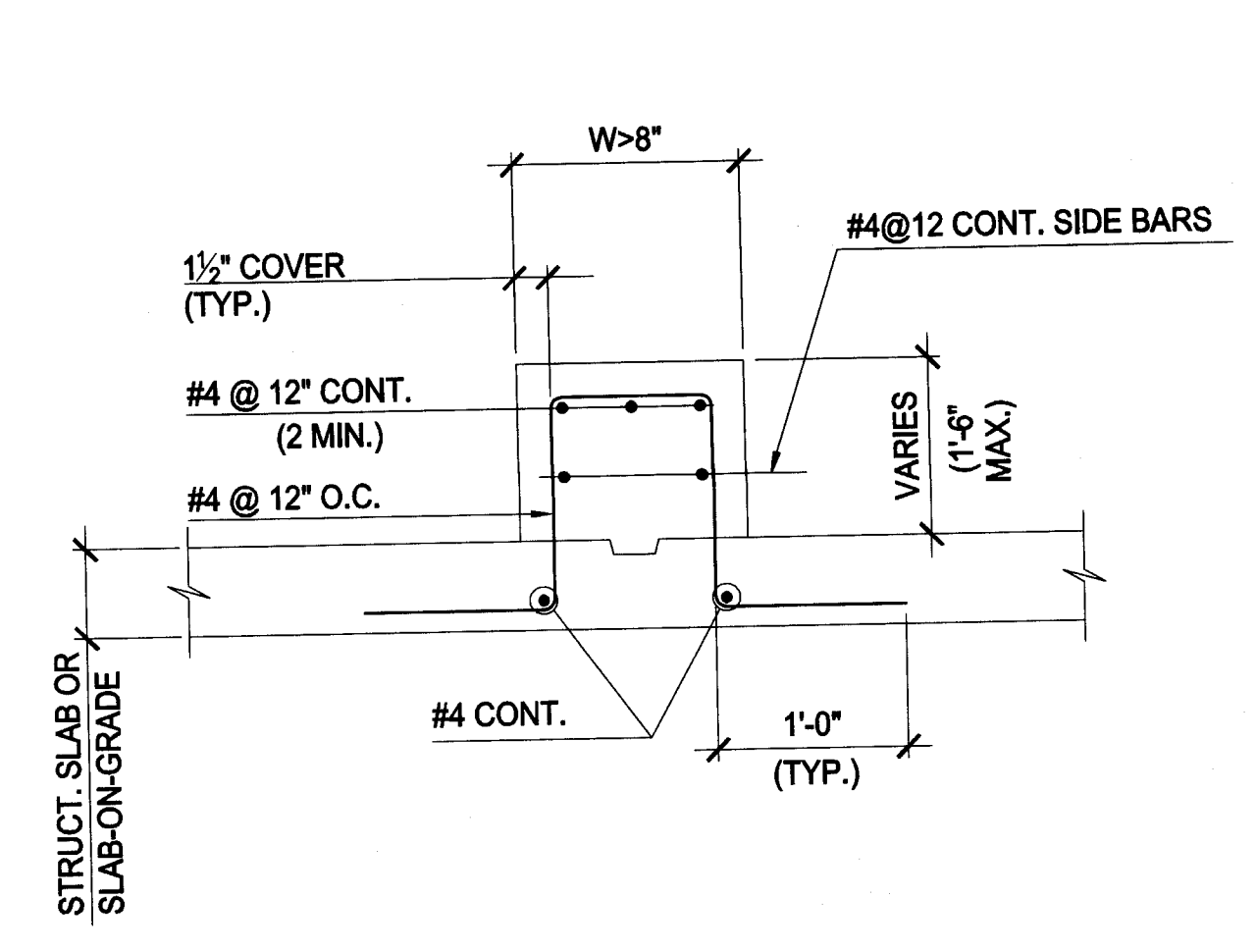
9 TYPICAL CURB DETAILS
NOT TO SCALE



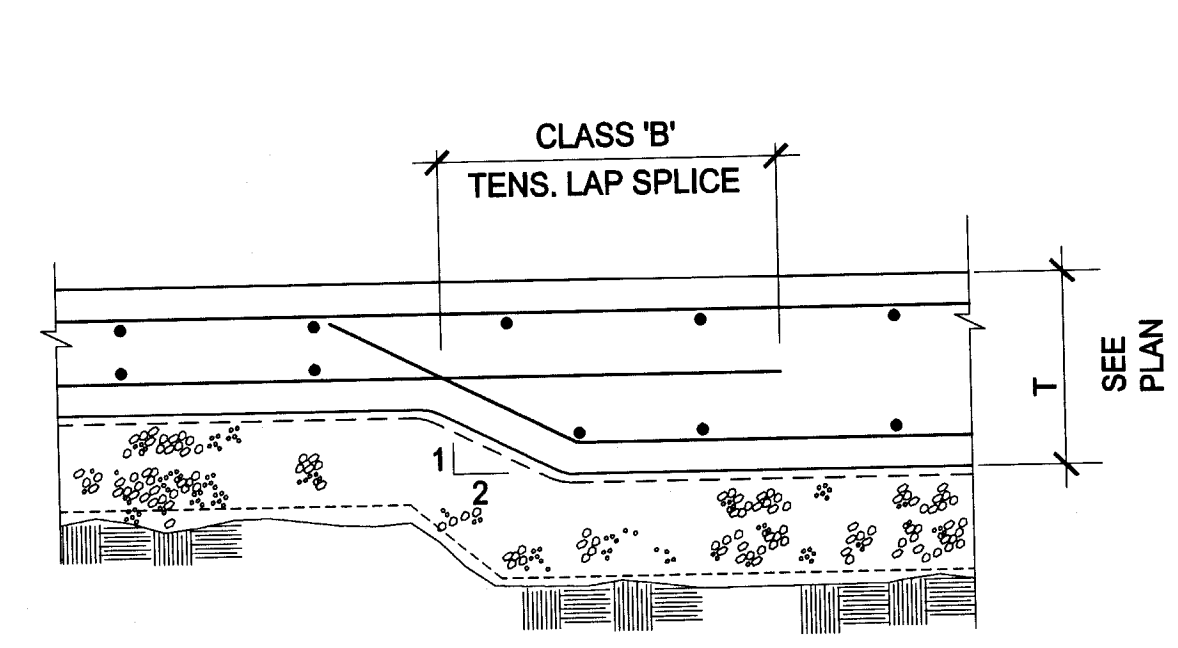
2 TYPICAL SLAB-ON-GRADE CONSTRUCTION JOINT
NOT TO SCALE



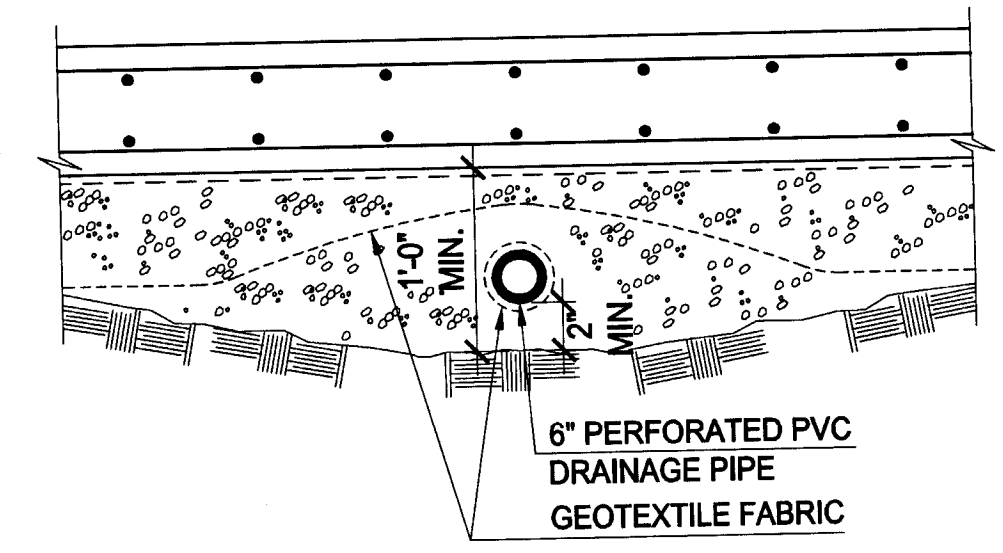
6 TYPICAL SLAB-ON-GRADE RAMP DETAIL
NOT TO SCALE



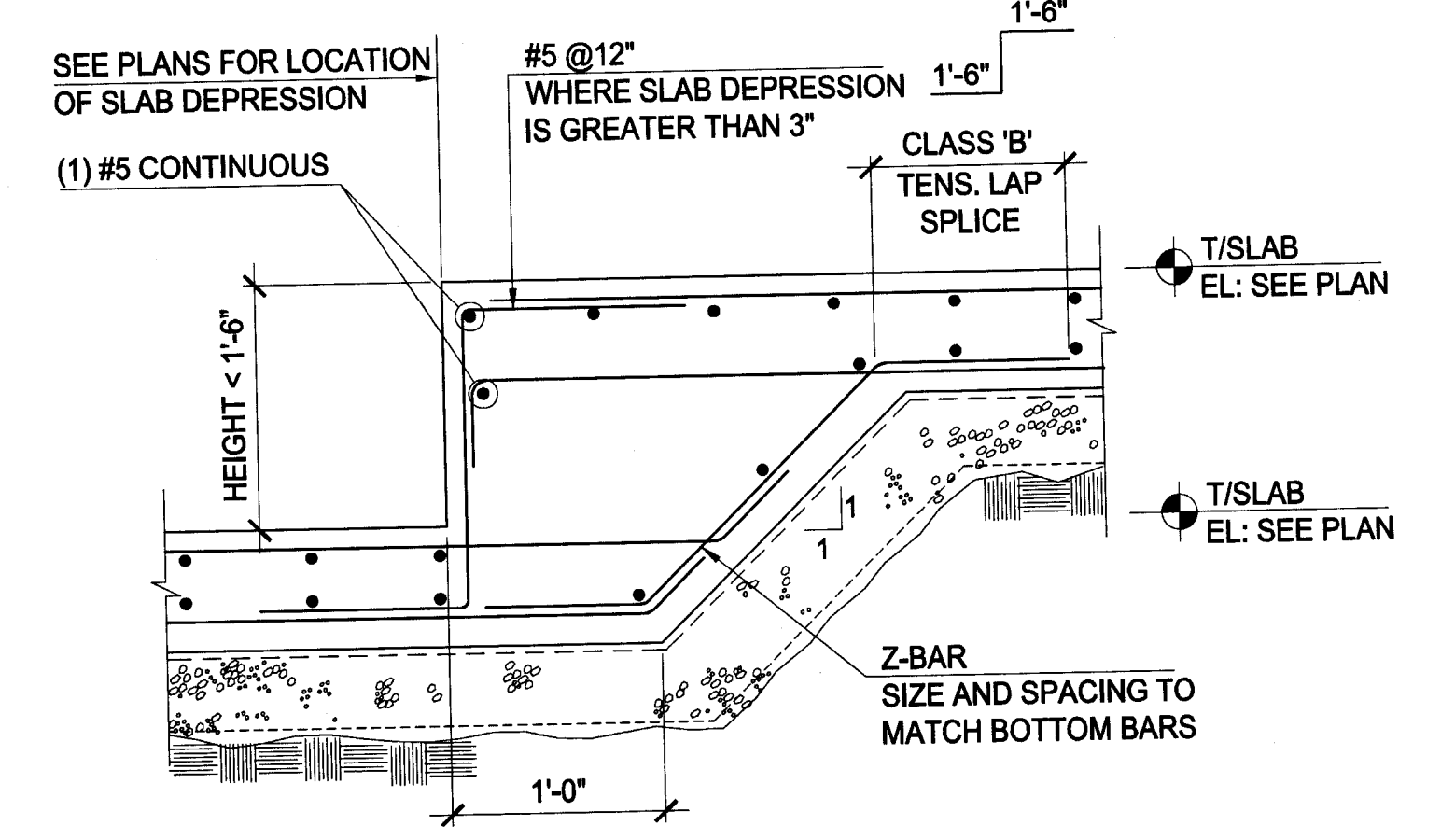
10A SECTION
10 TYPICAL ADDITIONAL SLAB REINFORCEMENT AT COLUMN
NOT TO SCALE



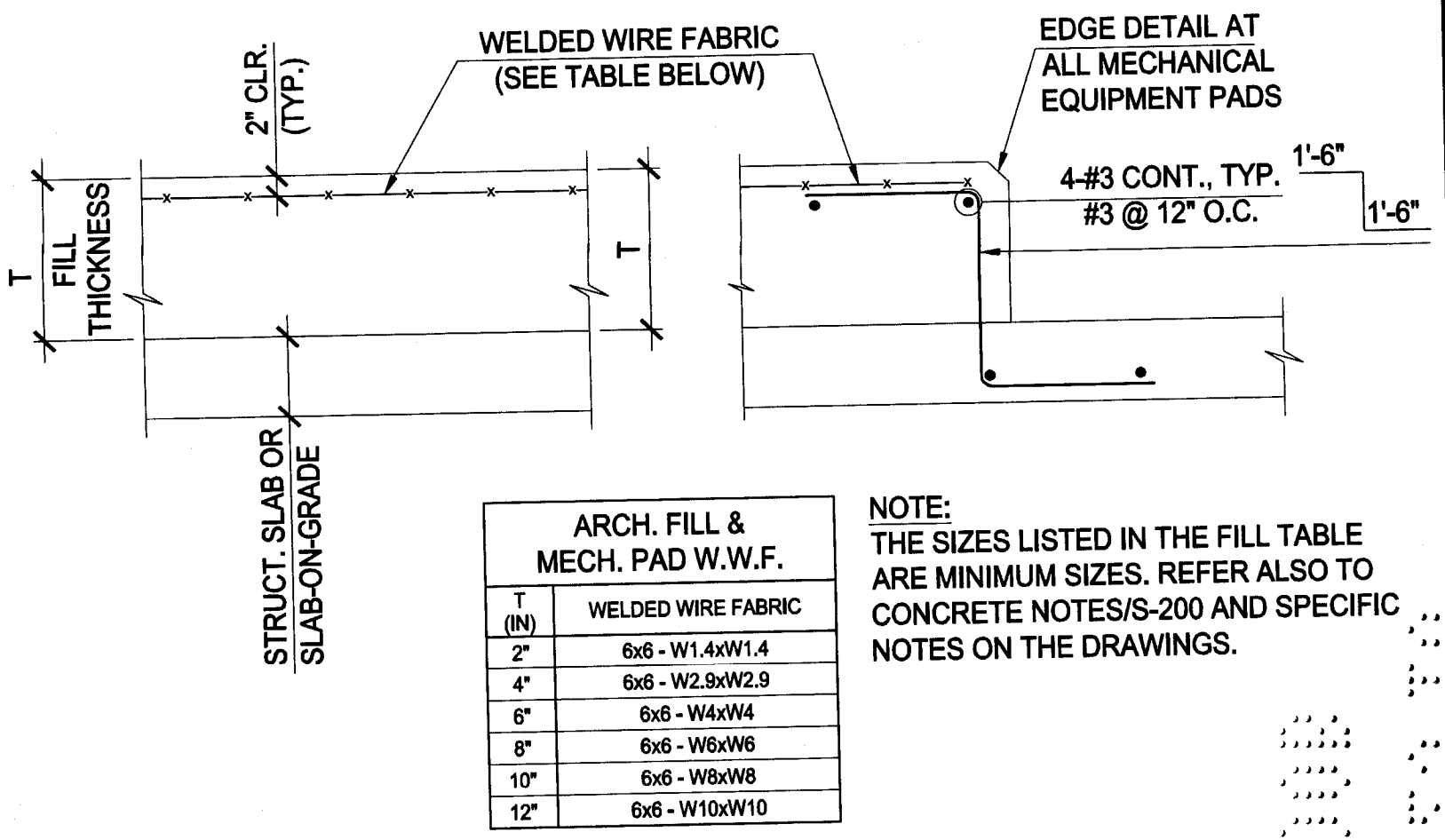
3 TYPICAL SLAB-ON-GRADE CHANGE IN THICKNESS
NOT TO SCALE



7 TYPICAL SLAB-ON-GRADE UNDERDRAIN DETAIL
NOT TO SCALE



4 TYPICAL SLAB-ON-GRADE DEPRESSION (HEIGHT < 1'-6\")
NOT TO SCALE



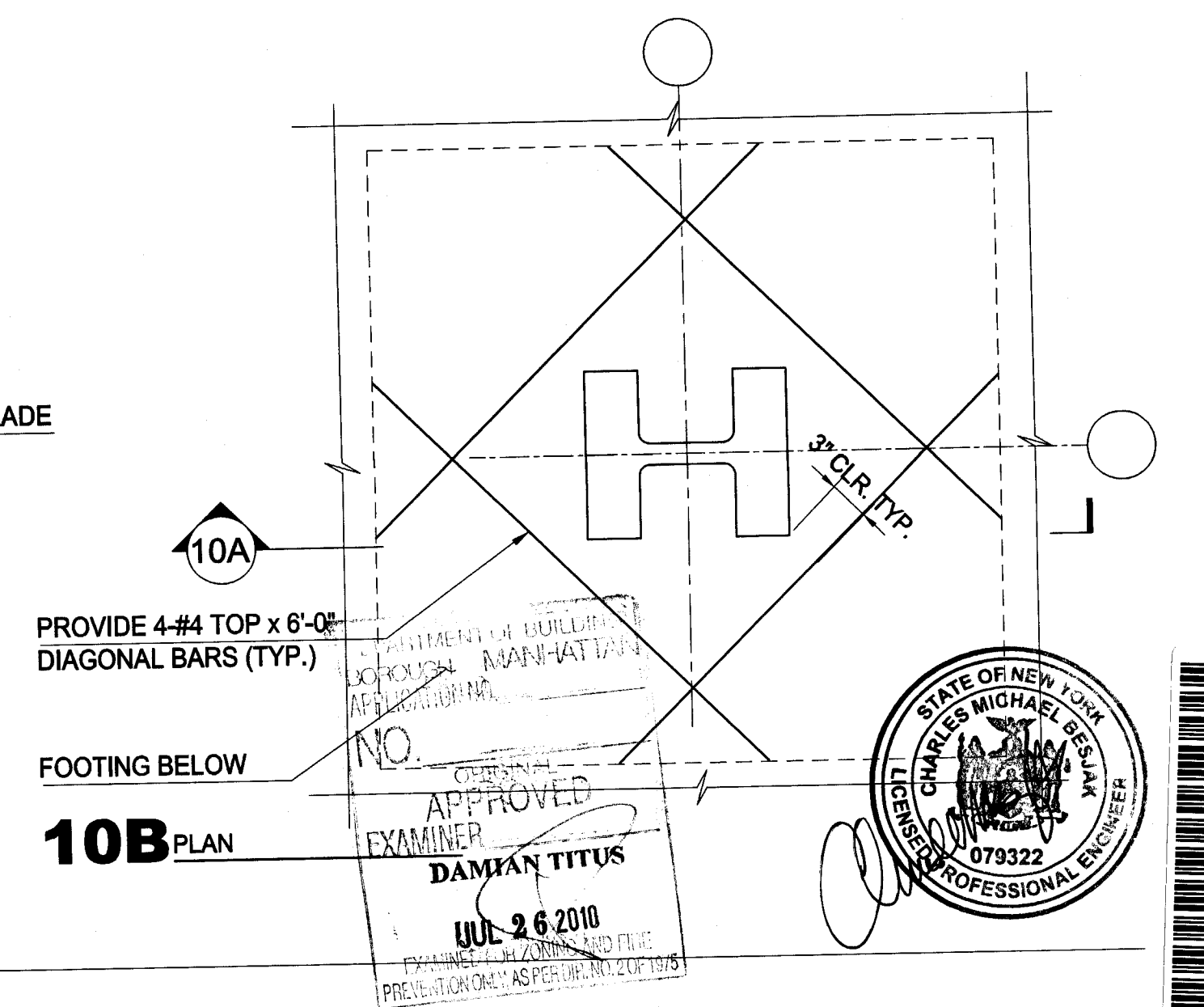
8 TYPICAL CONCRETE PAD/ ARCH. FILL DETAIL
NOT TO SCALE

T (IN)	WELDED WIRE FABRIC
2"	6x6 - W1.4xW1.4
4"	6x6 - W2.8xW2.8
6"	6x6 - W4xW4
8"	6x6 - W6xW6
10"	6x6 - W8xW8
12"	6x6 - W10xW10

NOTE: THE SIZES LISTED IN THE FILL TABLE ARE MINIMUM SIZES. REFER ALSO TO CONCRETE NOTES/S-200 AND SPECIFIC NOTES ON THE DRAWINGS.

NOTE: 1. SEE ARCH., MECH., ELEC., AND PLUMBING DRAWINGS FOR PAD SIZES AND LOCATIONS.

8 TYPICAL CONCRETE PAD/ ARCH. FILL DETAIL
NOT TO SCALE



FOR BUILDING DEPARTMENT APPROVAL

No	Revisions	Date	By	Client:
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

Client: **31ST STREET CORP.**

Project: **Brookfield Properties**
9th Avenue Development
New York, NY

Approved: _____
Date: _____

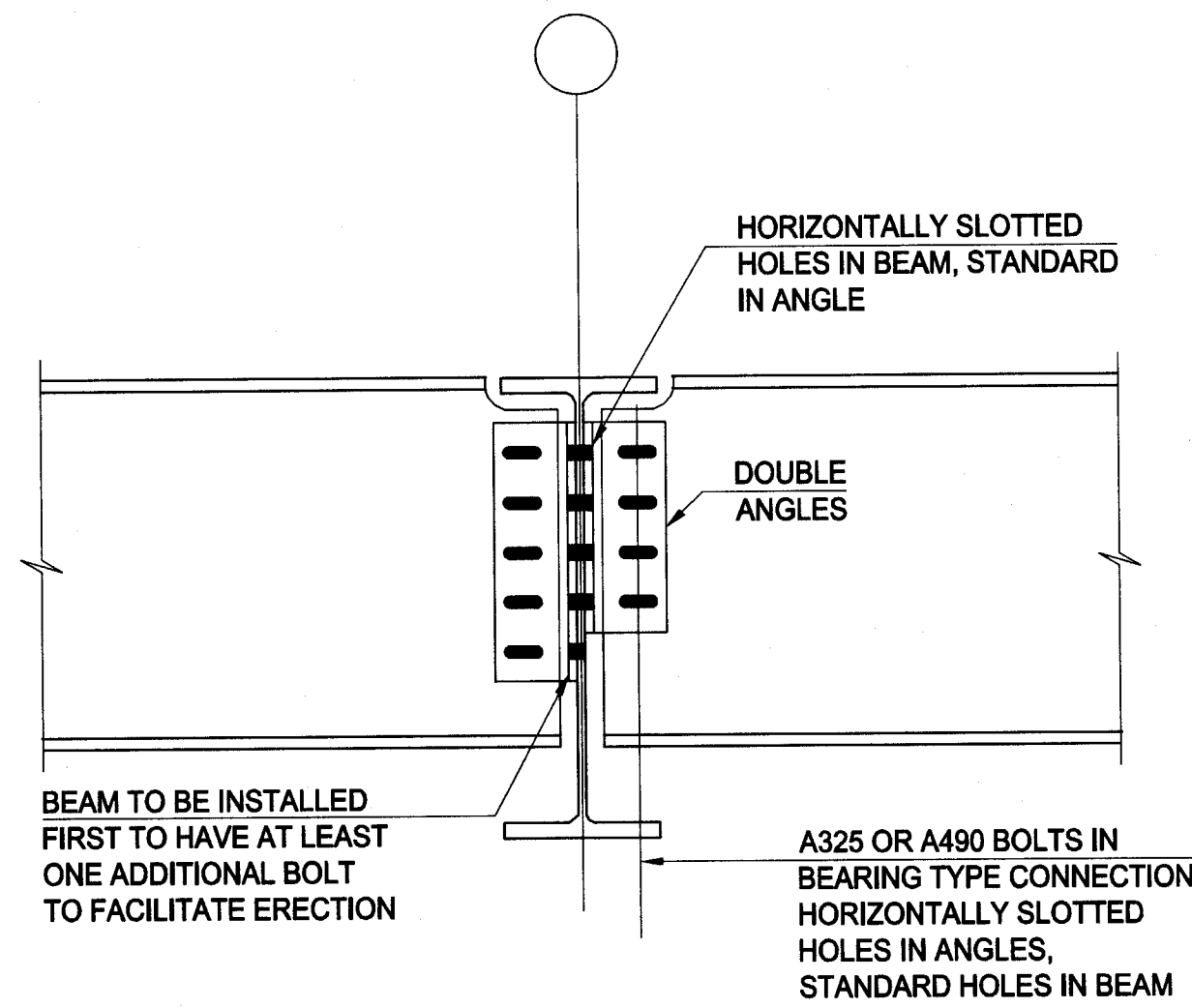
Key Plan:

Architect/Structural Engineer:
SOM
SKIDMORE, OWINGS & MERRILL LLP

Drawn: SOM Checked: ## Date: 03/10/08

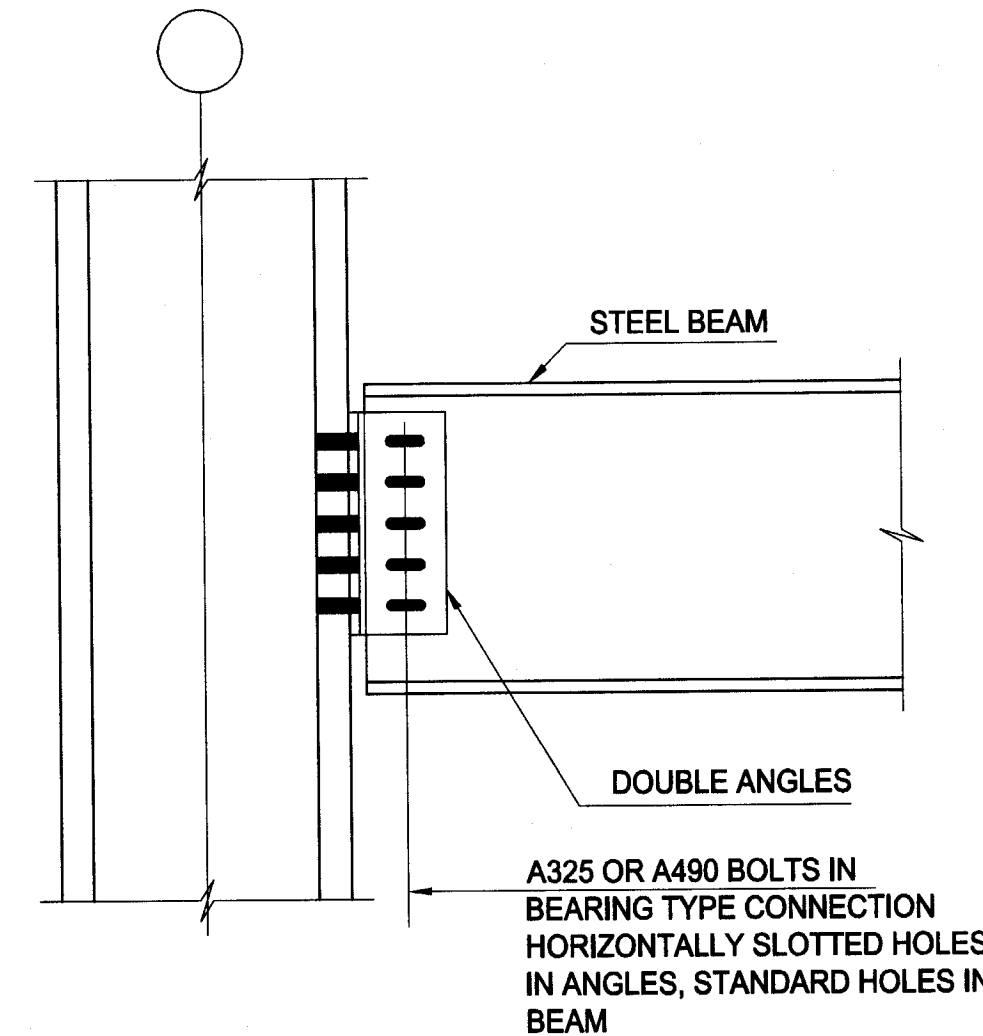
File No.: _____
Proj. No.: 207183
Sheet No.: 8 OF 13
BDS-312.L50

FILENAME: W:\S\SHEET\RAFT\DOB PERMIT\BDS-312.L50.DWG



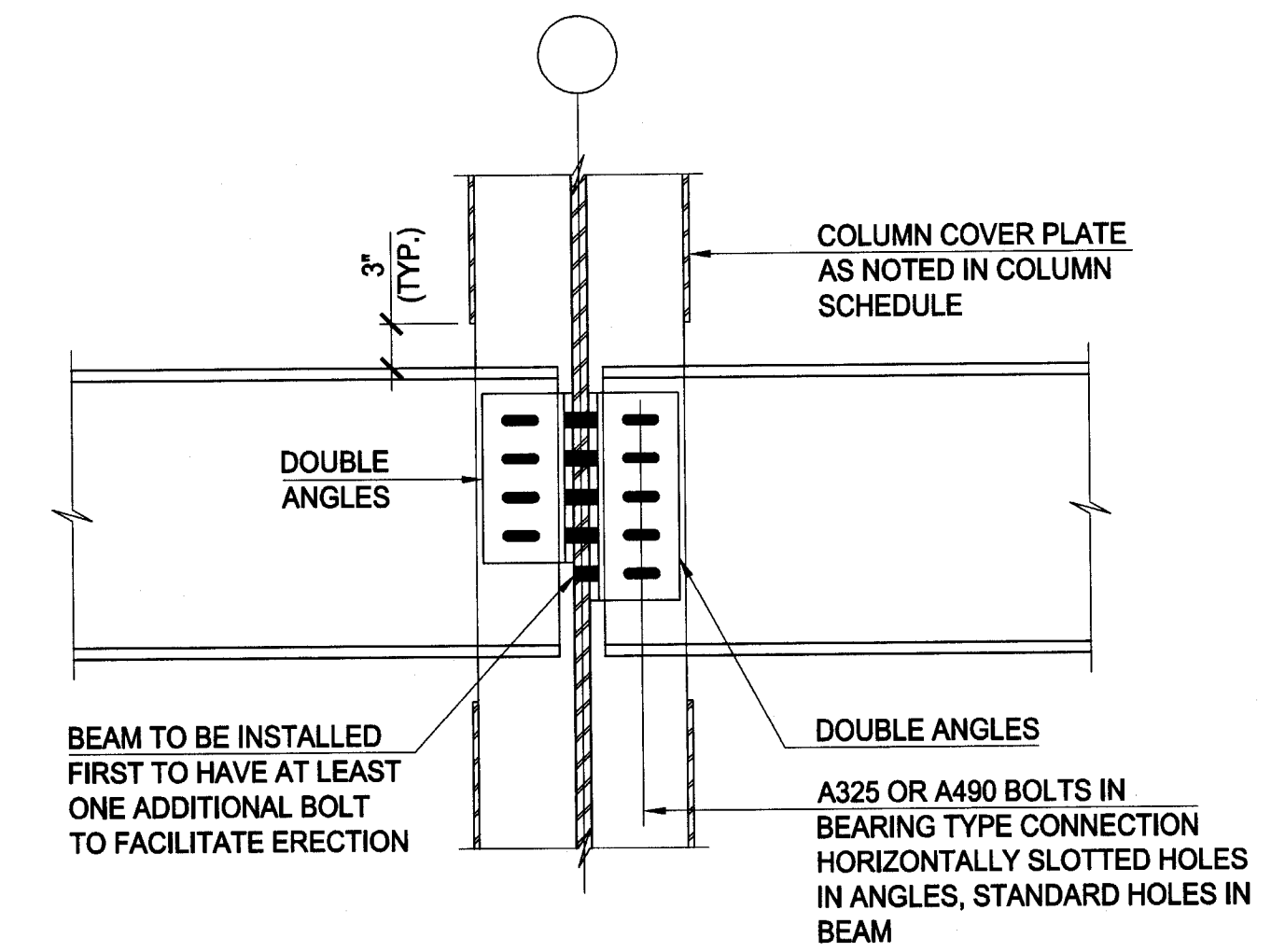
NOTE: CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE AISC-ASD RECOMMENDED PRACTICE FOR A DOUBLE ANGLE CONNECTION

1 TYPICAL BEAM-TO-BEAM SHEAR CONNECTION
NOT TO SCALE



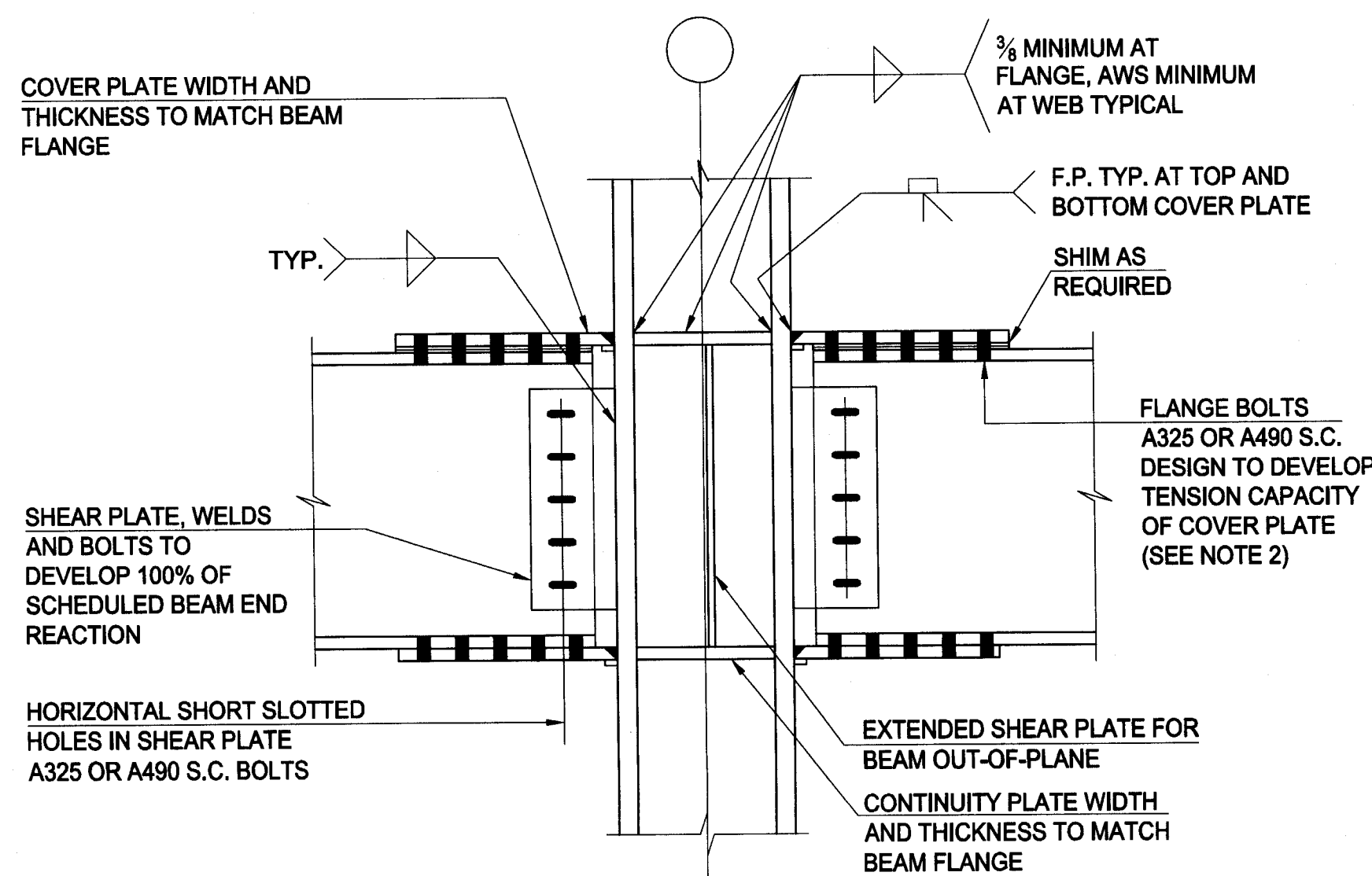
NOTE: CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE AISC-ASD RECOMMENDED PRACTICE FOR A DOUBLE ANGLE CONNECTION

2 TYPICAL BEAM-TO-COLUMN FLANGE SHEAR CONNECTION
NOT TO SCALE



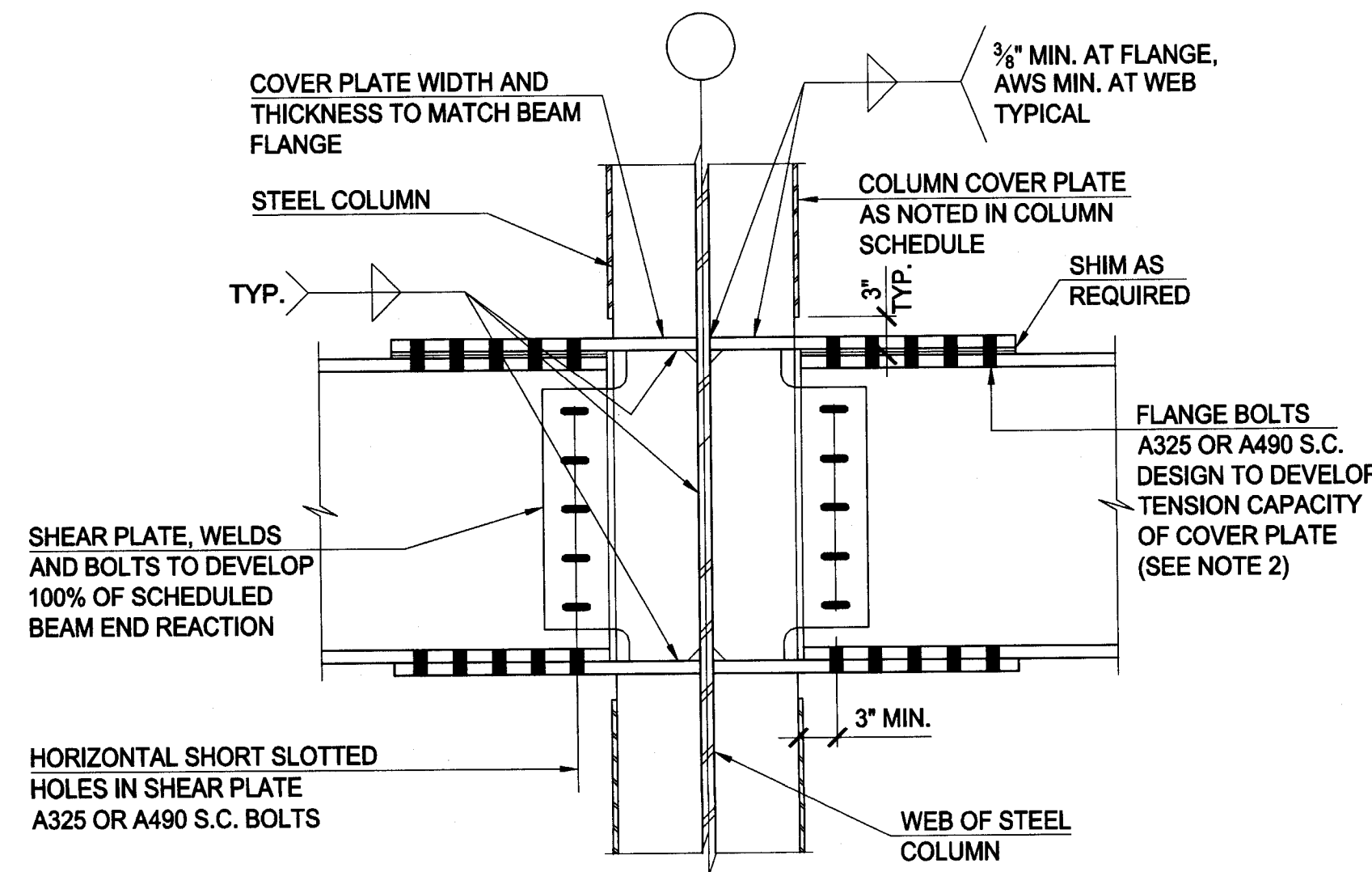
NOTES: 1. CONNECTION TO DEVELOP THE BEAM REACTION IN ACCORDANCE WITH THE AISC-ASD RECOMMENDED PRACTICE FOR A DOUBLE ANGLE CONNECTION
2. SEE X FOR OPTIONAL CONNECTION DETAIL

3 TYPICAL BEAM-TO-COLUMN WEB SHEAR CONNECTION
NOT TO SCALE



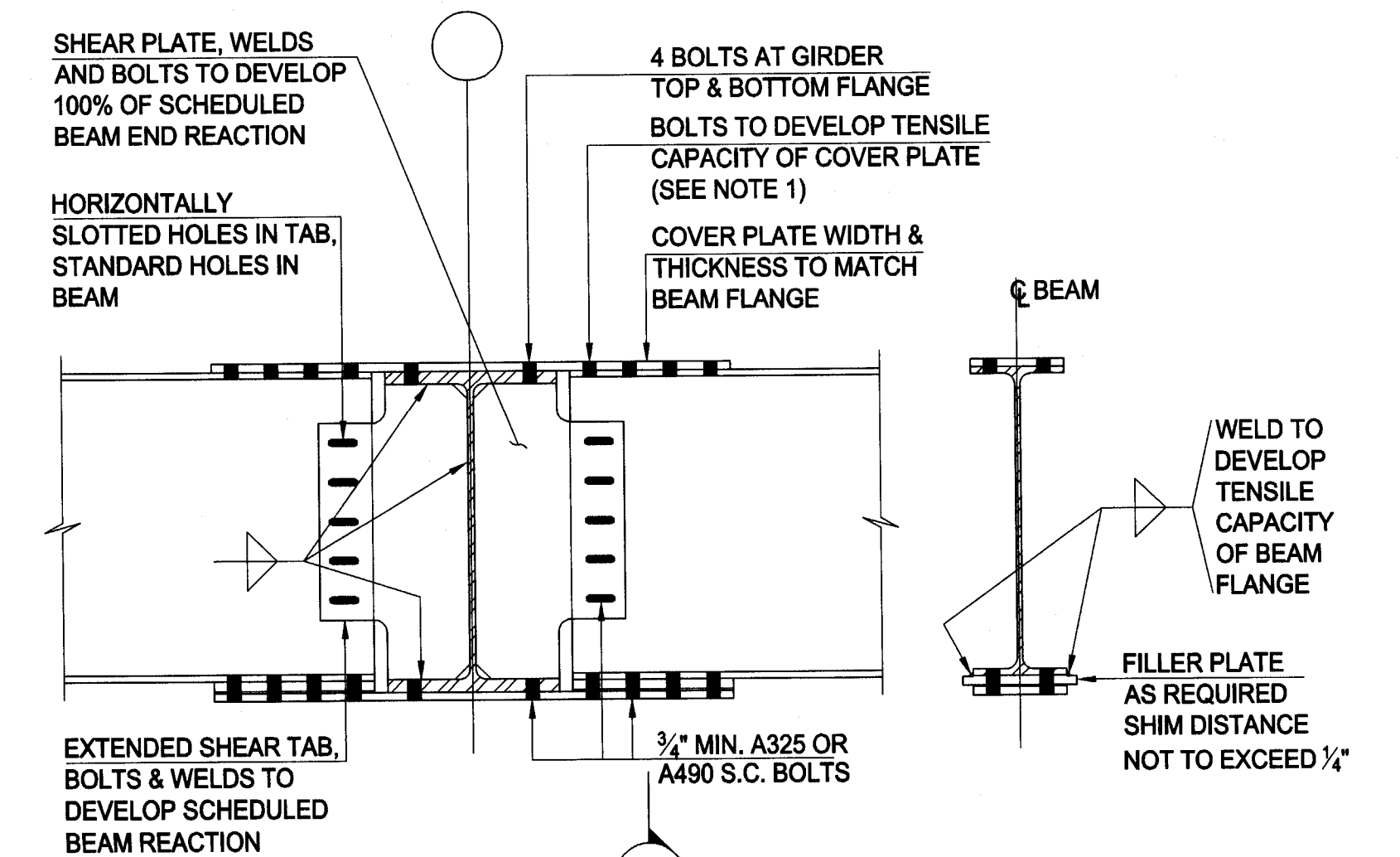
NOTES: 1. DETAIL DOES NOT APPLY TO MOMENT OR BRACED FRAME BEAMS.
2. TENSION CAPACITY OF PLATE = PLATE GROSS AREA x Fy x 0.66 (ASD)

4 TYPICAL BEAM-TO-COLUMN FLANGE MOMENT CONNECTION
NOT TO SCALE



NOTES: 1. DETAIL DOES NOT APPLY TO MOMENT OR BRACED FRAME BEAMS.
2. TENSION CAPACITY OF PLATE = PLATE GROSS AREA x Fy x 0.66 (ASD)

5 TYPICAL BEAM-TO-COLUMN WEB MOMENT CONNECTION
NOT TO SCALE



NOTES: 1. TENSION CAPACITY OF PLATE = PLATE GROSS AREA x Fy x 0.66 (ASD)

6 TYPICAL BEAM-TO-GIRDER MOMENT CONNECTION
NOT TO SCALE

DEPARTMENT OF BUILDINGS
ORIGINAL APPROVED EXAMINER
JUL 2 2010
EXAMINED FOR ZONING AND FIRE PREVENTION ONLY AS PER OUR NO. 2 OF 1875

DATE OF NEW YORK
CHARLES MICHAEL
LICENSED PROFESSIONAL ENGINEER
079322

FOR BUILDING DEPARTMENT APPROVAL

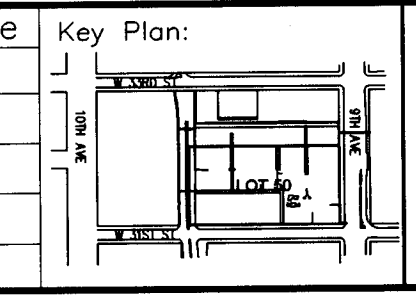
FILENAME: W:\SHEET\RAFT\DOB PERMIT\BDS-450.L50.DWG

No	Revisions	Date	By	Client
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

Client: **31ST STREET CORP.**

Project: **Brookfield Properties**
9th Avenue Development
New York, NY

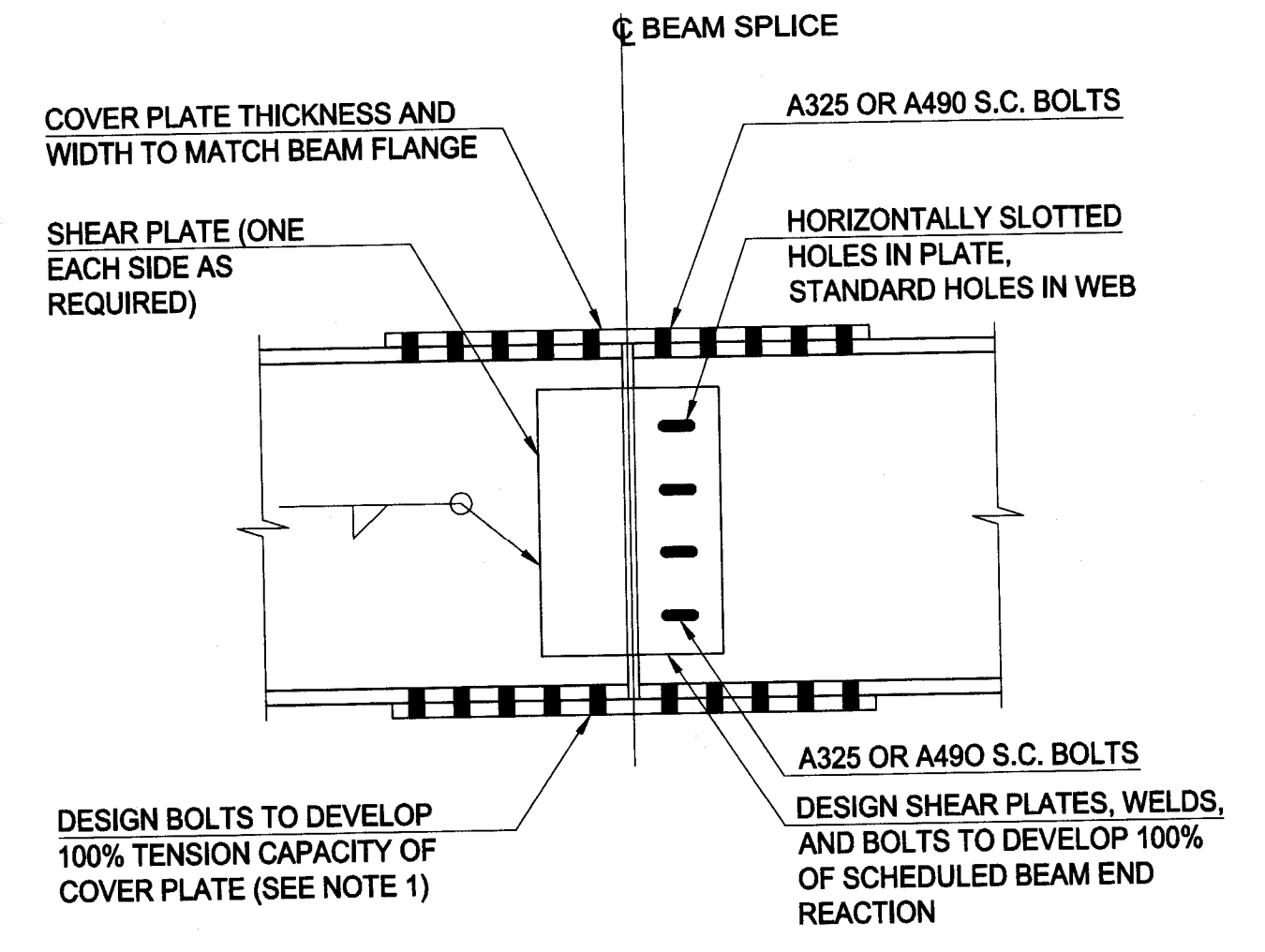
Approved: _____ Date: _____



Architect/Structural Engineer:
SOM
SKIDMORE, OWINGS & MERRILL LLP

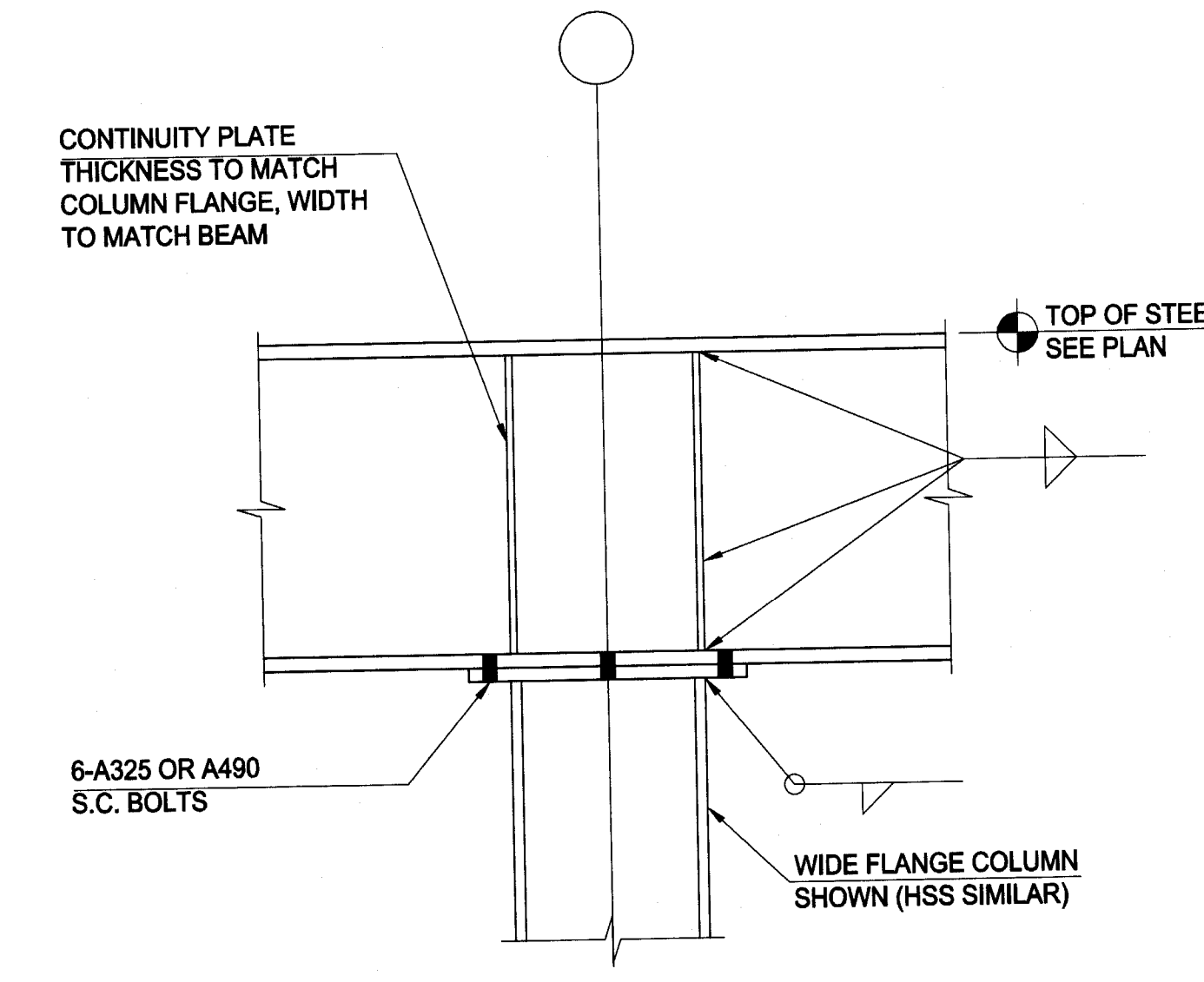
TYPICAL STRUCTURAL STEEL SECTIONS & DETAILS
Drawn: SOM Checked: ## Date: 03/10/08

File No.: 207183
Proj. No.: 9 OF 13
BDS-450.L50

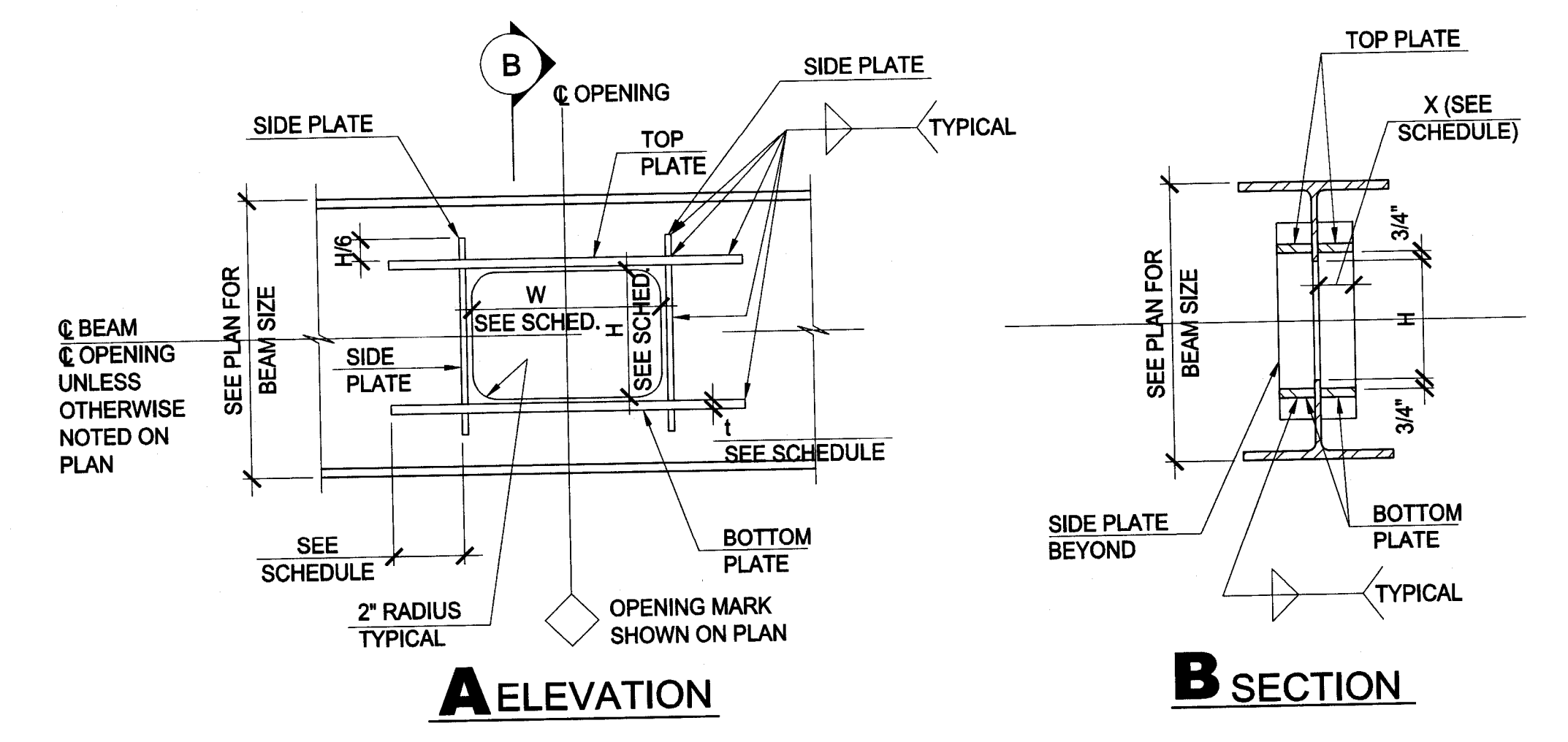


NOTES: 1. TENSION CAPACITY OF PLATE = PLATE GROSS AREA x Fy x 0.66

1 TYPICAL BEAM-TO-BEAM MOMENT SPLICE
NOT TO SCALE

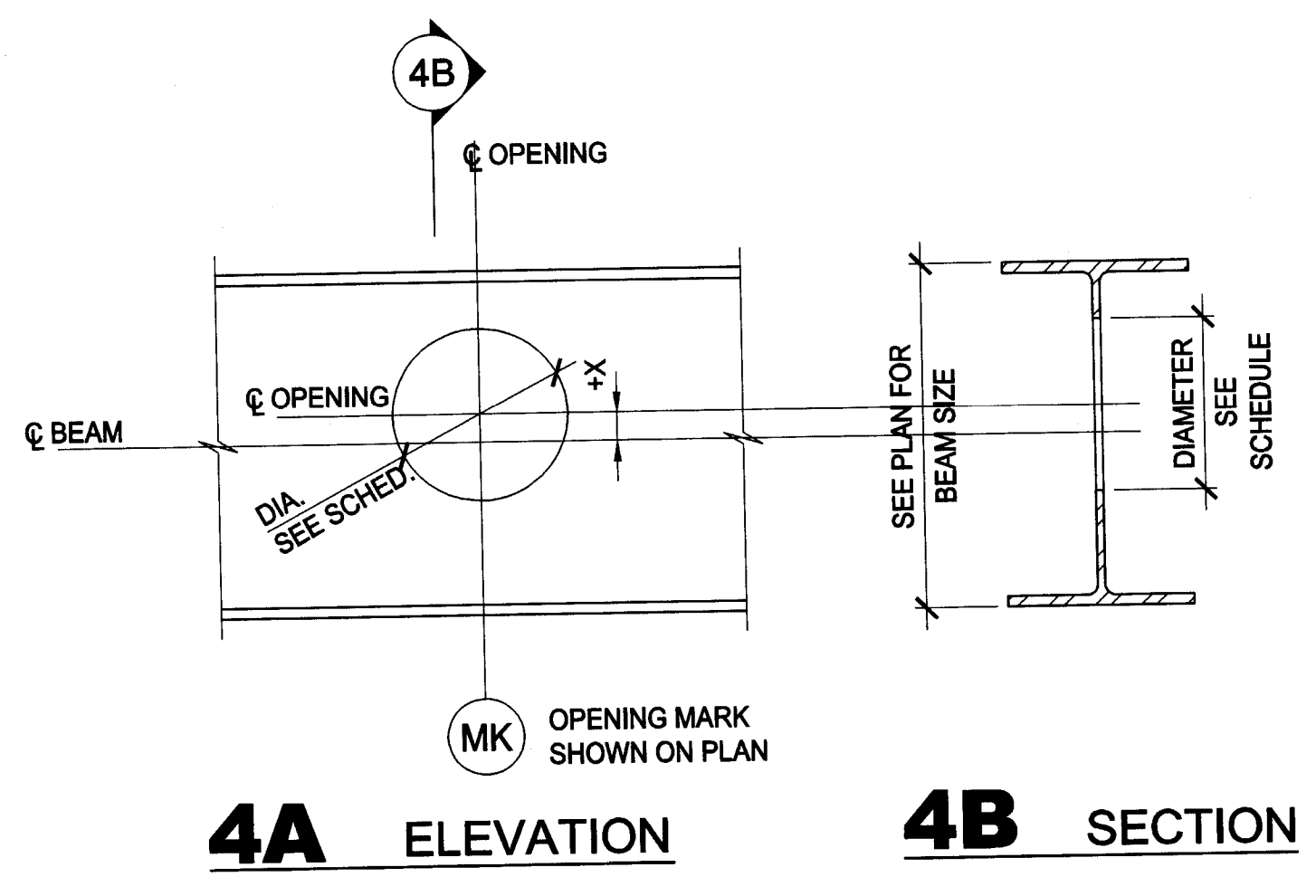


2 BEAM OVER TOP OF COLUMN
NOT TO SCALE

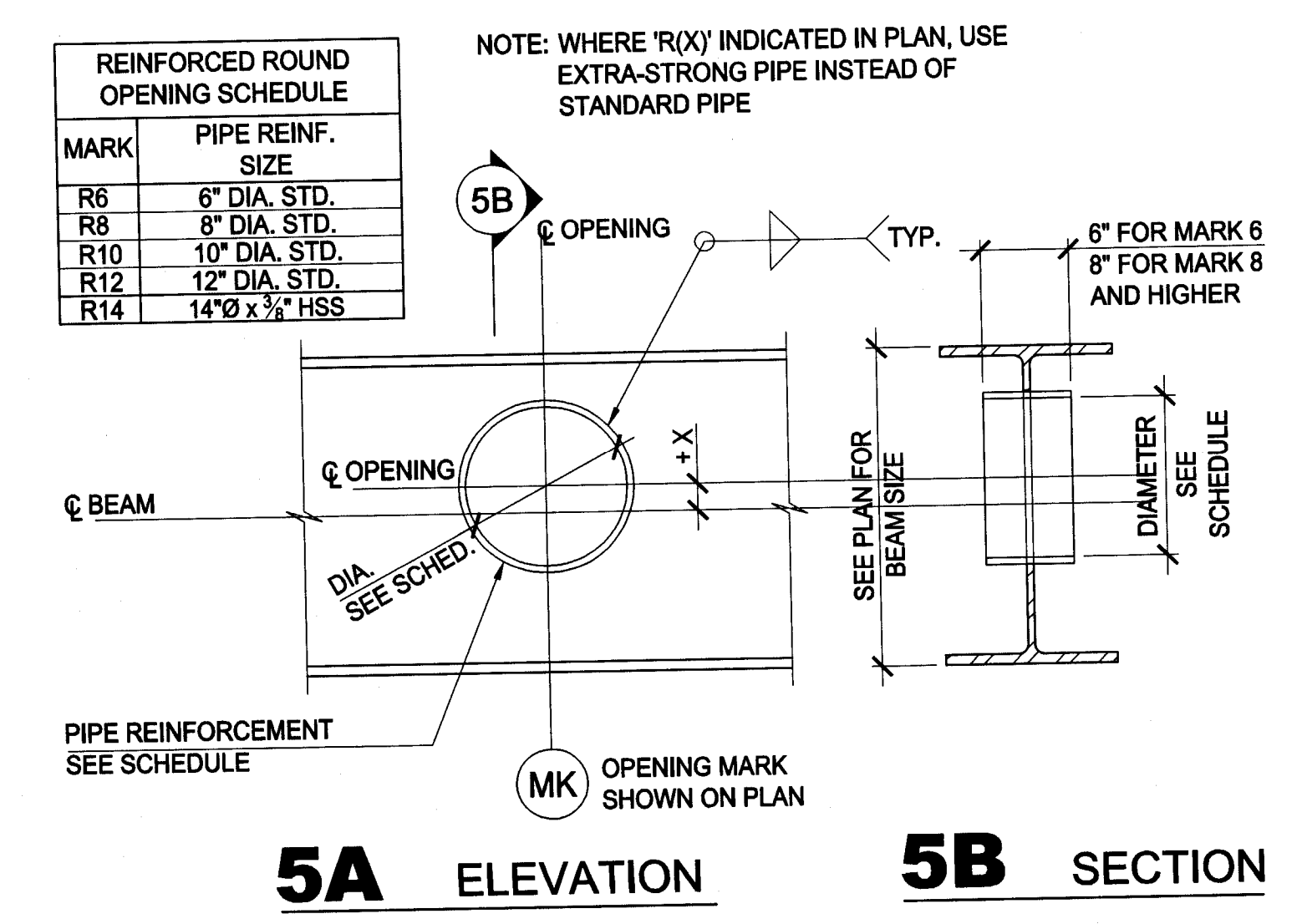


NOTE: 1. BEAM OPENING REINFORCEMENT SHALL MATCH BEAM MATERIAL STRENGTH UNLESS NOTED OTHERWISE.
2. FILLET WELD TO BE AWS MINIMUM BUT NOT LESS THAN 1/4\"/>

3 TYPICAL RECTANGULAR STEEL BEAM OPENING DETAIL - REINFORCED
NOT TO SCALE



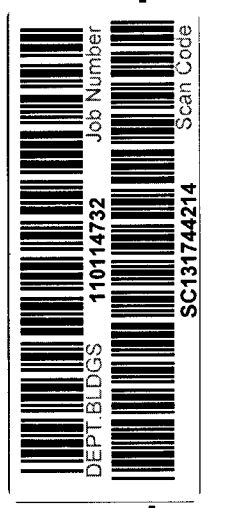
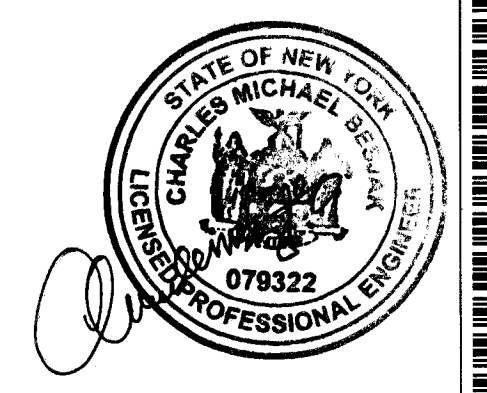
4 TYPICAL ROUND STEEL BEAM OPENING DETAIL - UNREINFORCED
NOT TO SCALE



NOTES: 1. BEAM OPENING REINFORCEMENT SHALL MATCH BEAM MATERIAL STRENGTH UNLESS NOTED OTHERWISE.
2. FILLET WELD TO BE AWS MINIMUM BUT NOT LESS THAN 1/4\"/>

5 TYPICAL ROUND STEEL BEAM OPENING DETAIL - REINFORCED
NOT TO SCALE

DAMIAN TITUS
JUL 28 2008



FOR BUILDING DEPARTMENT APPROVAL

FILENAME: W:\SHEET\RAFT\DOB PERMIT\BDS-451.L50.DWG

No	Revisions	Date	By	Client
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

31ST STREET CORP.

Project: **Brookfield Properties**
9th Avenue Development
New York, NY

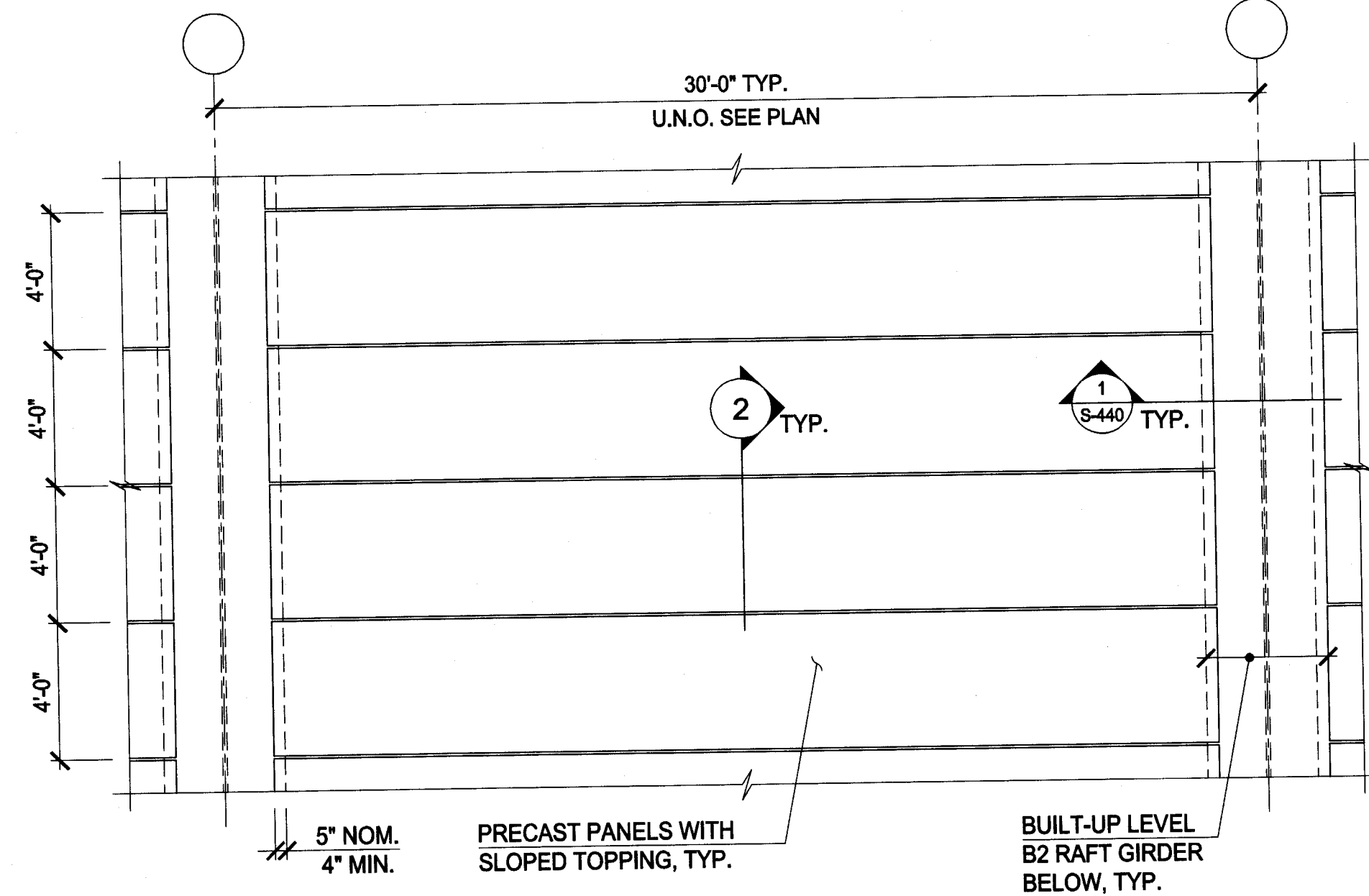
Approved	Date	Key Plan:

Architect/Structural Engineer:
SOM
SKIDMORE, OWINGS & MERRILL LLP

TYPICAL STRUCTURAL STEEL SECTIONS & DETAILS

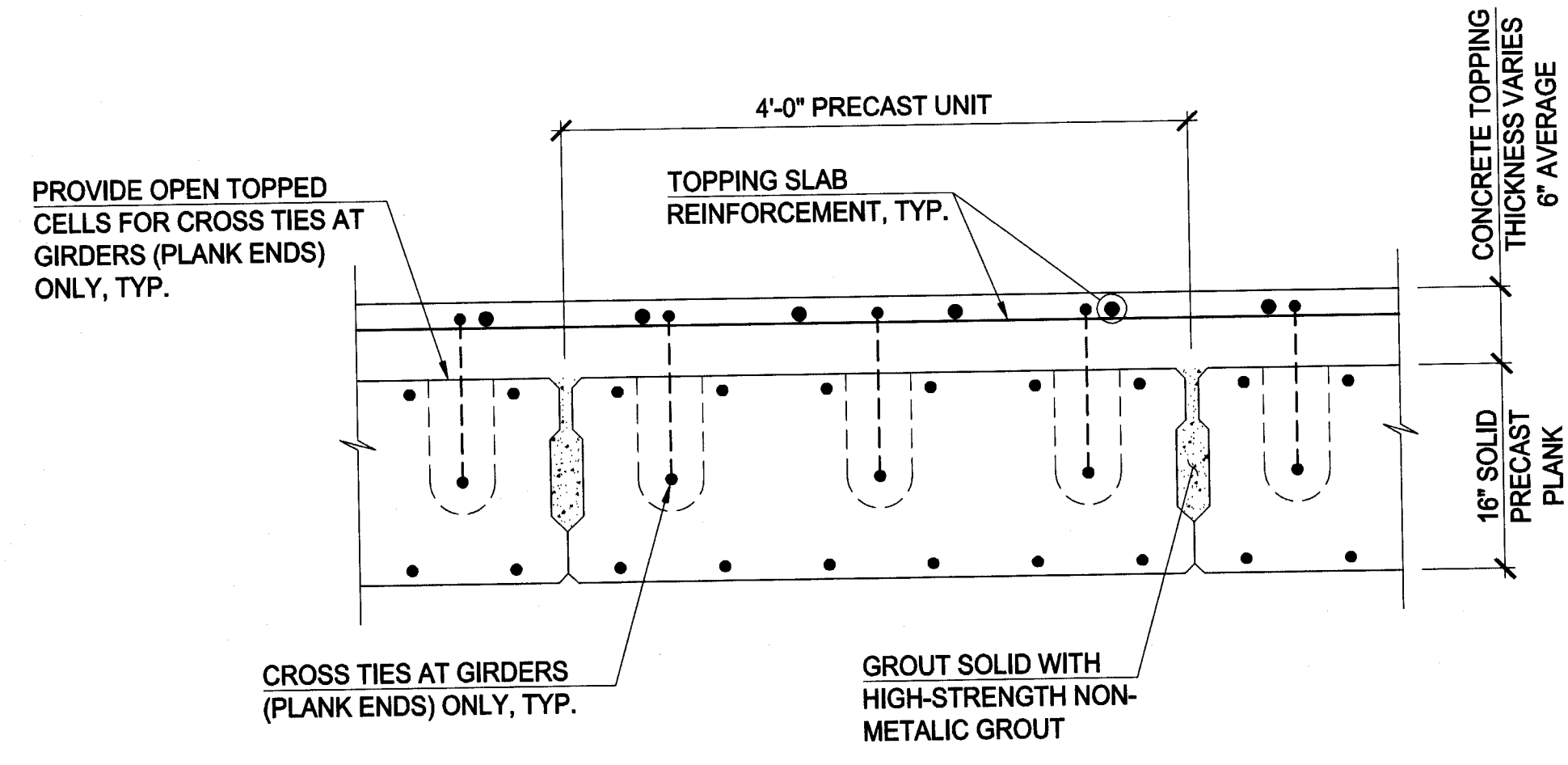
File No.:	
Proj. No.:	207183
Sheet No.:	10 OF 13
BDS-451.L50	

Drawn: SOM Checked: ## Date: 03/10/08



- NOTES: 1. PRECAST PLANKS TO BE DESIGNED FOR LIVE LOAD OF 600 PSF IN ADDITION TO AN AVERAGE OF 6" NWT CONCRETE FILL.
 2. MAXIMUM MIDSPAN DEFLECTION DUE TO LIVE LOAD SHALL NOT BE GREATER THAN L/240 OR 1 1/2".
 3. PRECAST PLANK + TOPPING SLAB MUST ACHIEVE A MINIMUM 4 HR. FIRE RATING.
 4. FILL OVER PRECAST PLANKS NOT SHOW FOR CLARITY.

1 TYPICAL STRUCTURAL BAY PRECAST PLANK LAYOUT AT LEVEL B2
 1/4" = 1'-0"



2 TYPICAL PRECAST PLANK + TOPPING SLAB CONSTRUCTION
 1" = 1'-0"

FILENAME: W:\S\1\SHEET\RAFT\DOB PERMIT\BDS-501.L50.DWG

No	Revisions	Date	By	Client:
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

Client: **31ST STREET CORP.**

Project: **Brookfield Properties**
9th Avenue Development
 New York, NY

Approved	Date	Key Plan:

Architect/Structural Engineer:
SOM
 SKIDMORE, OWINGS & MERRILL LLP

FOR BUILDING DEPARTMENT APPROVAL

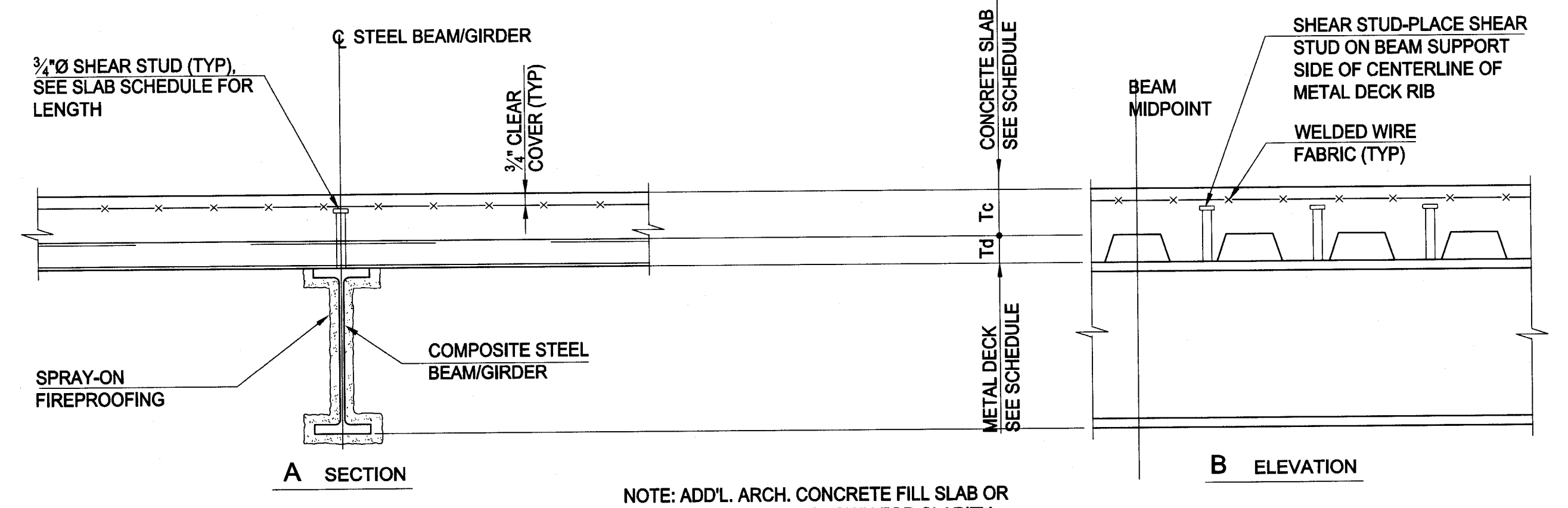
TYPICAL PRECAST SLAB SCHEDULES, SECTIONS & DETAILS

Drawn: SOM Checked: ## Date: 03/10/08

File No.:	
Proj. No.:	207183
Sheet No.:	11 OF 13
BDS-501.L50	

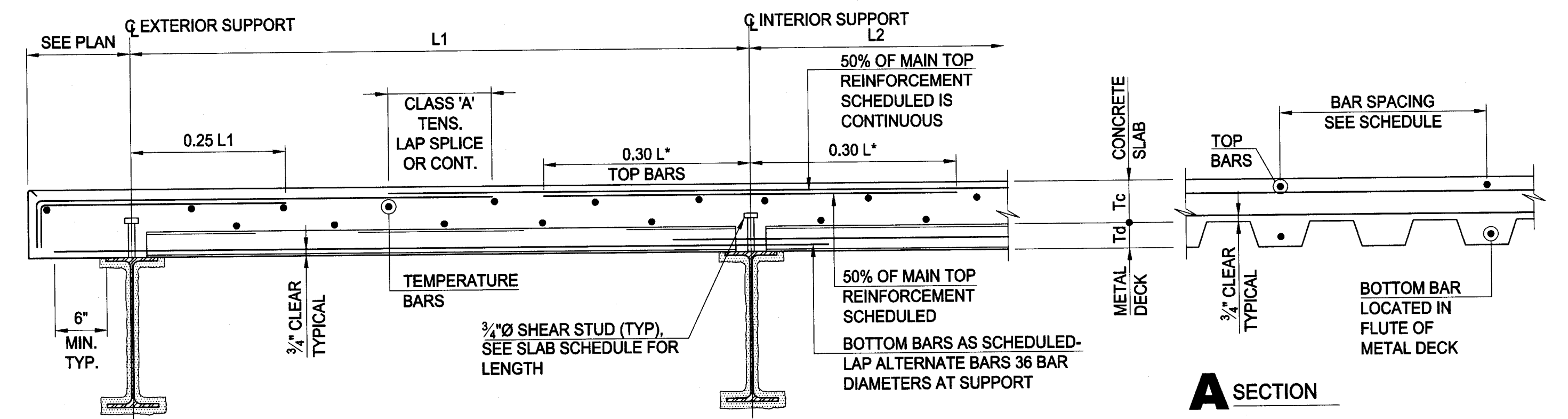
ORIGINAL APPROVED
 EXHIBIT DAMIAN TITUS
 JUL 26 2010





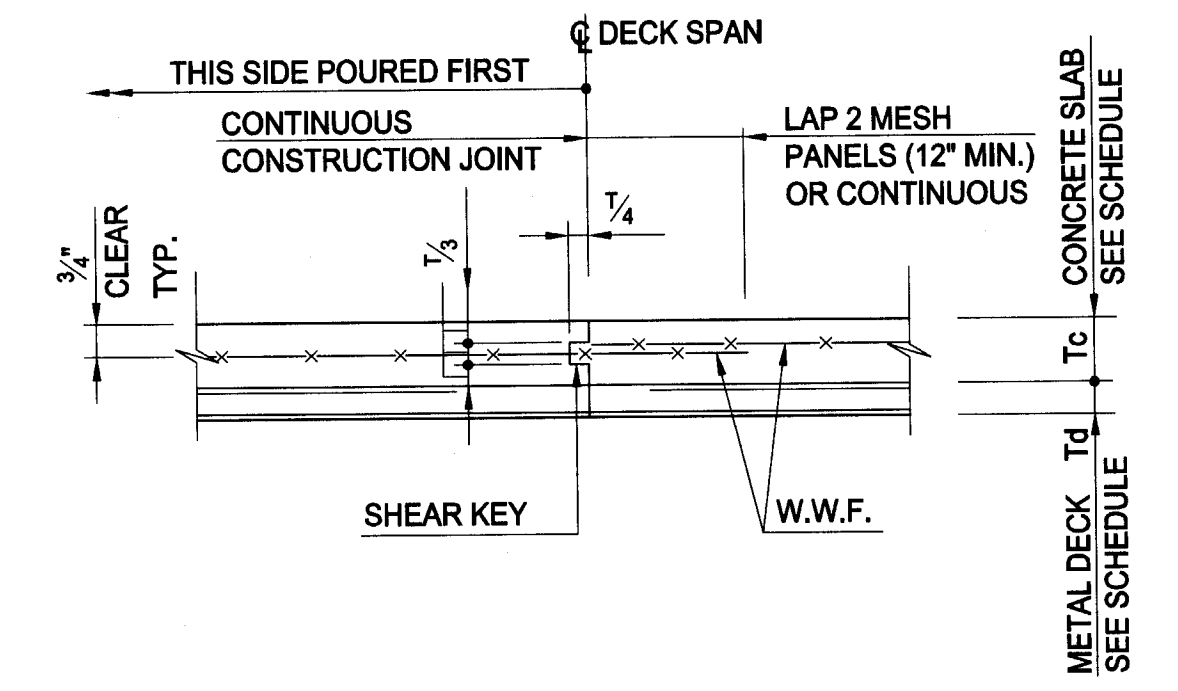
NOTE: ADD'L. ARCH. CONCRETE FILL SLAB OR FINISHES NOT SHOWN FOR CLARITY

1 TYPICAL COMPOSITE METAL DECK SLAB
NOT TO SCALE



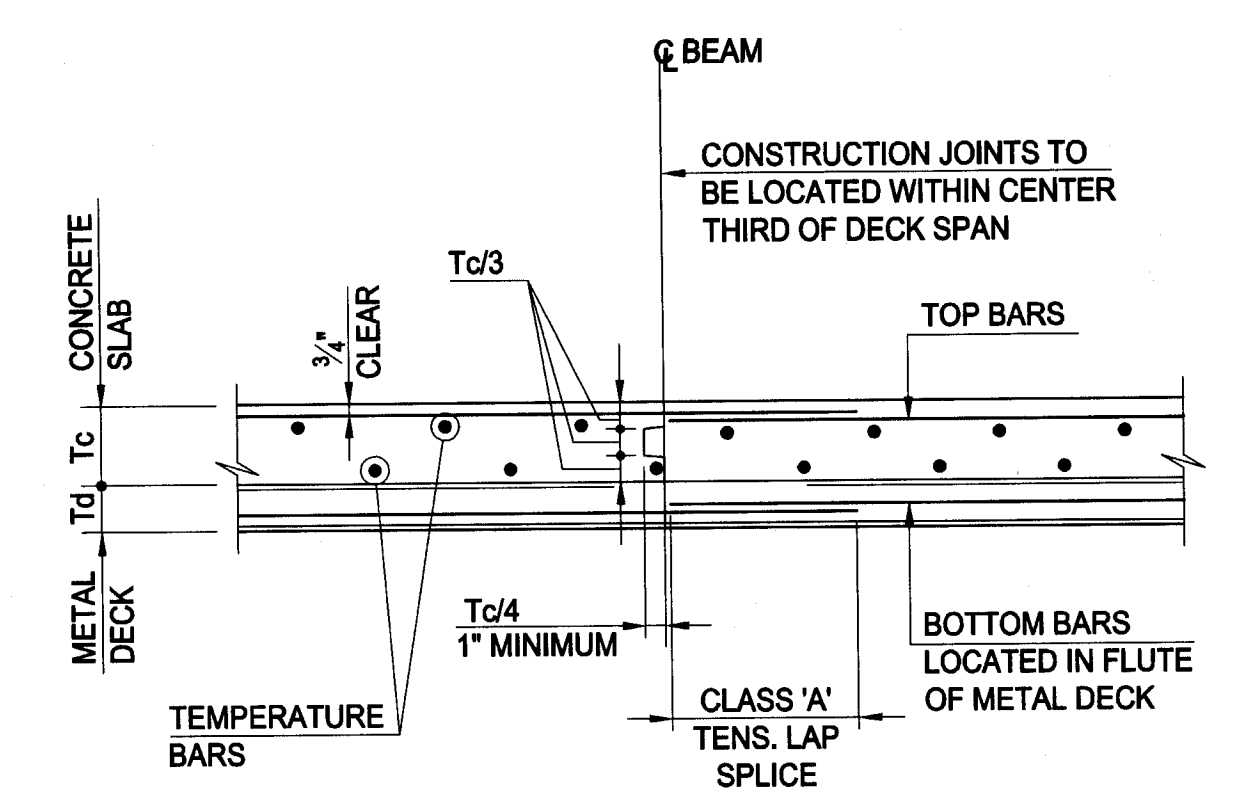
NOTES: 1. L¹ IS GREATER OF L1 OR L2.
2. METAL DECK SHALL BE DESIGNED AS FORM DECK.
3. SLAB REINFORCING AND SPACING IS BASED ON DECK PROFILE WITH 12" RIB SPACING. ACTUAL SPACING AND QUANTITY SHALL BE CONTINGENT ON SPECIFIC DECK PROFILE PROVIDED BY DECK MANUFACTURER.

2 TYPICAL REINFORCED CONCRETE METAL DECK SLAB
NOT TO SCALE

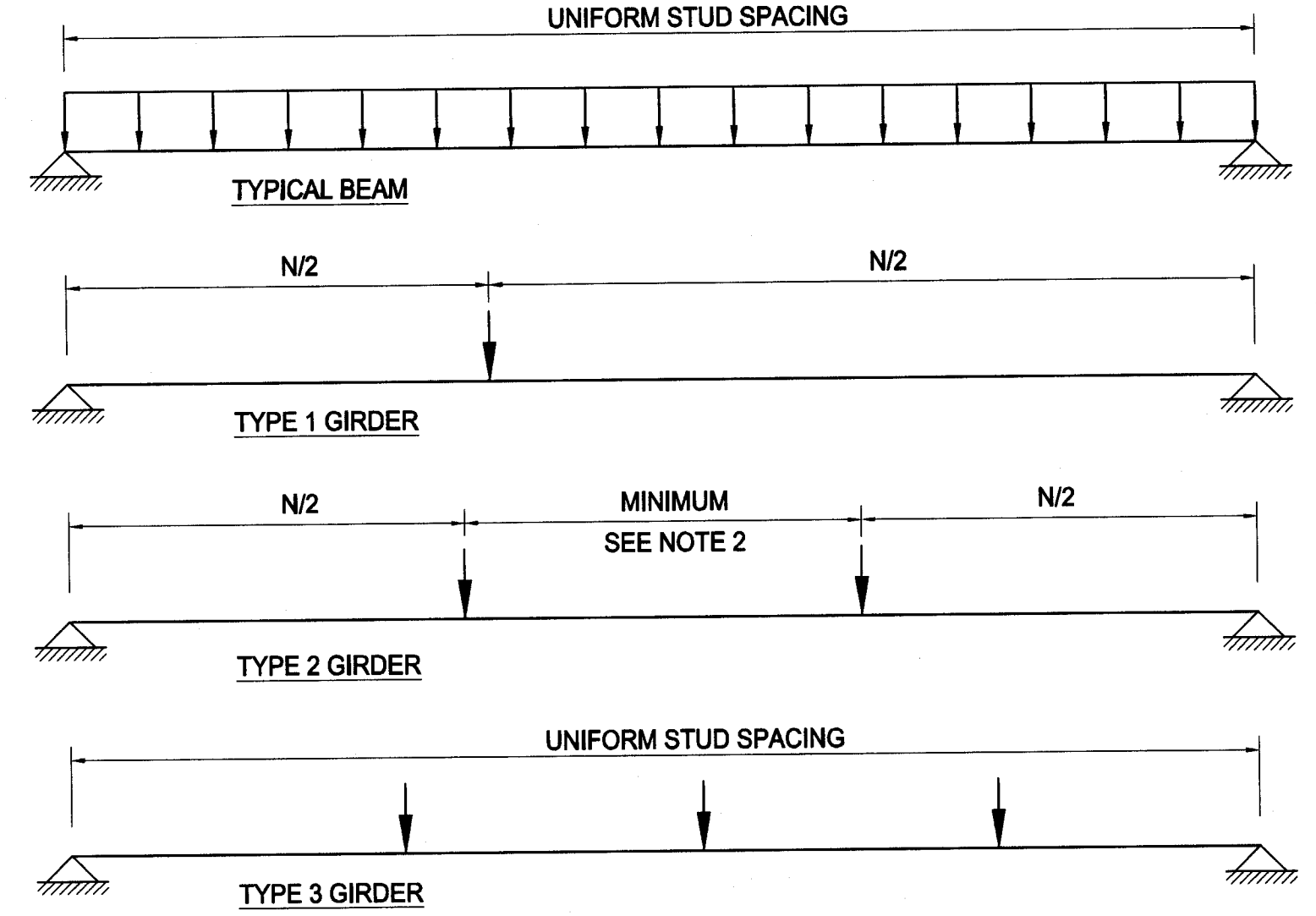


NOTE: ORIENT JOINT PARALLEL TO DECK SPAN IF POSSIBLE. IF JOINT PERPENDICULAR TO DECK SPAN, LOCATE IN MIDDLE THIRD OF SPAN

3 TYPICAL COMPOSITE METAL DECK SLAB CONSTRUCTION JOINT
NOT TO SCALE



4 TYPICAL REINFORCED METAL DECK SLAB CONSTRUCTION JOINT
NOT TO SCALE



NOTES: 1. ALL DIAGRAMS REPRESENT IDEALIZED CONDITIONS. ACTUAL FRAMING CONFIGURATIONS MAY REQUIRE ADDITIONAL INTERPRETATION.
2. MAXIMUM SPACING OF STUDS SHALL BE 24" ON CENTER.
3. 'N' INDICATES NUMBER OF STUDS SHOWN ON PLANS

5 SHEAR STUD PLACEMENT DIAGRAM
NOT TO SCALE

COMPOSITE METAL DECK SCHEDULE										REBAR fy = 60 ksi	DECK fy = 40 ksi
MARK	Td (IN)	Tc (IN)	IMPOSED LOAD CAPACITIES (PSF)		ONE LAYER TEMP. REINF.	CONCRETE		STUD HEIGHT (IN)	REMARKS		
			LL	SDL		WGT. (PCF)	fc (PSI)				

NOTES: 1. SEE DETAIL 4 FOR TYPICAL COMPOSITE METAL DECK SLAB DETAIL.
2. SEE ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS

REINFORCED CONCRETE METAL DECK SCHEDULE										REBAR fy = 60 ksi	DECK fy = 40 ksi
MARK	Td (IN)	Tc (IN)	IMPOSED LOAD CAPACITIES (PSF)		MAIN REINFORCEMENT		TEMP. REINF.	CONCRETE		STUD HEIGHT (IN)	REMARKS
			LL	SDL	BOT.	TOP		WGT. (PCF)	fc (PSI)		

NOTES: 1. SEE DETAIL 6 FOR TYPICAL REINFORCED METAL DECK SLAB DETAIL.
2. SEE ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS

No	Revisions	Date	By	Client:
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08		31ST STREET CORP.
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10		

Project: **Brookfield Properties**
9th Avenue Development
 New York, NY

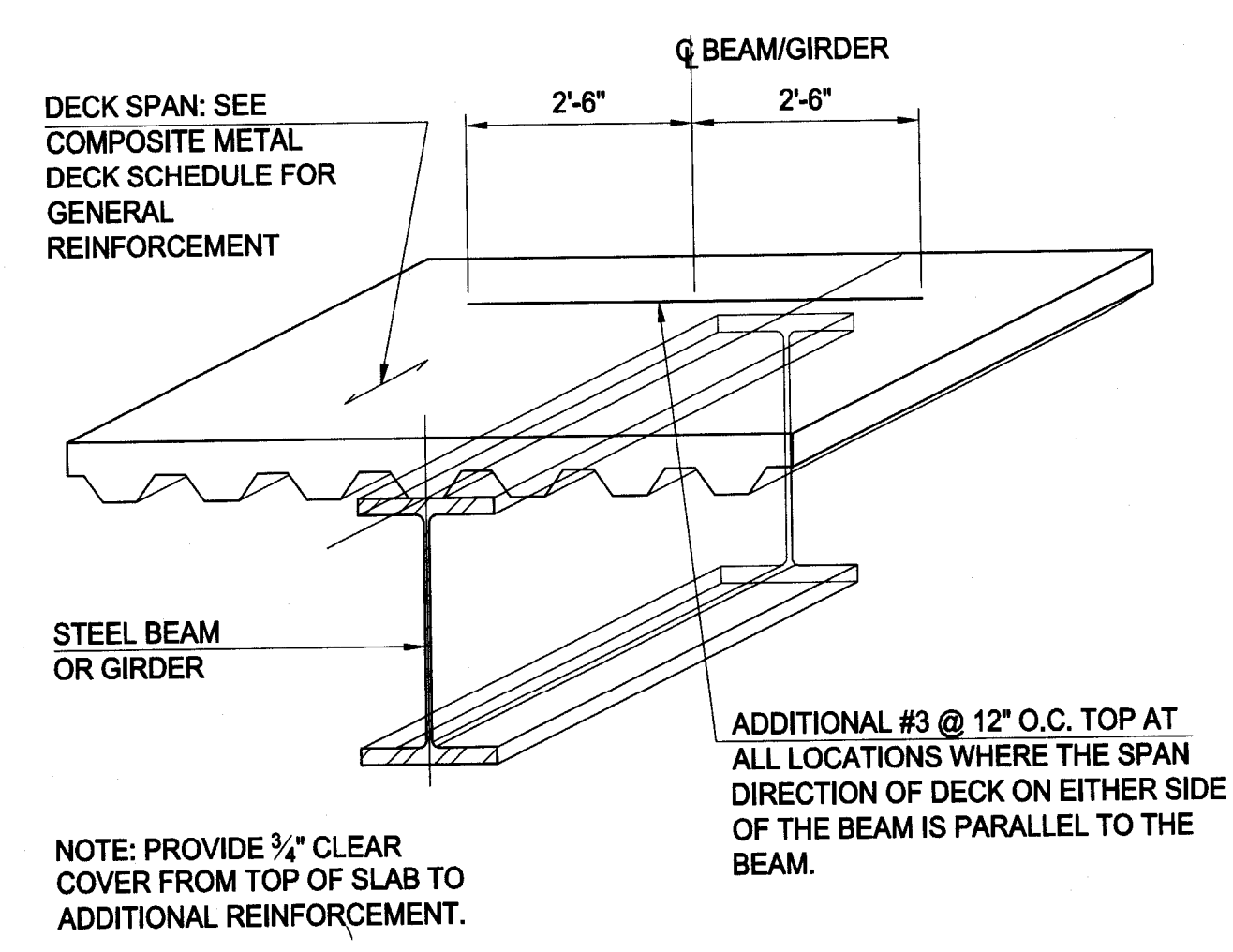
Approved: _____ Date: _____ Key Plan: _____
 Architect/Structural Engineer: **SOM**
 SKIDMORE, OWINGS & MERRILL LLP

TYPICAL METAL DECK SCHEDULES, SECTIONS & DETAILS
 Drawn: SOM Checked: ## Date: 03/10/08

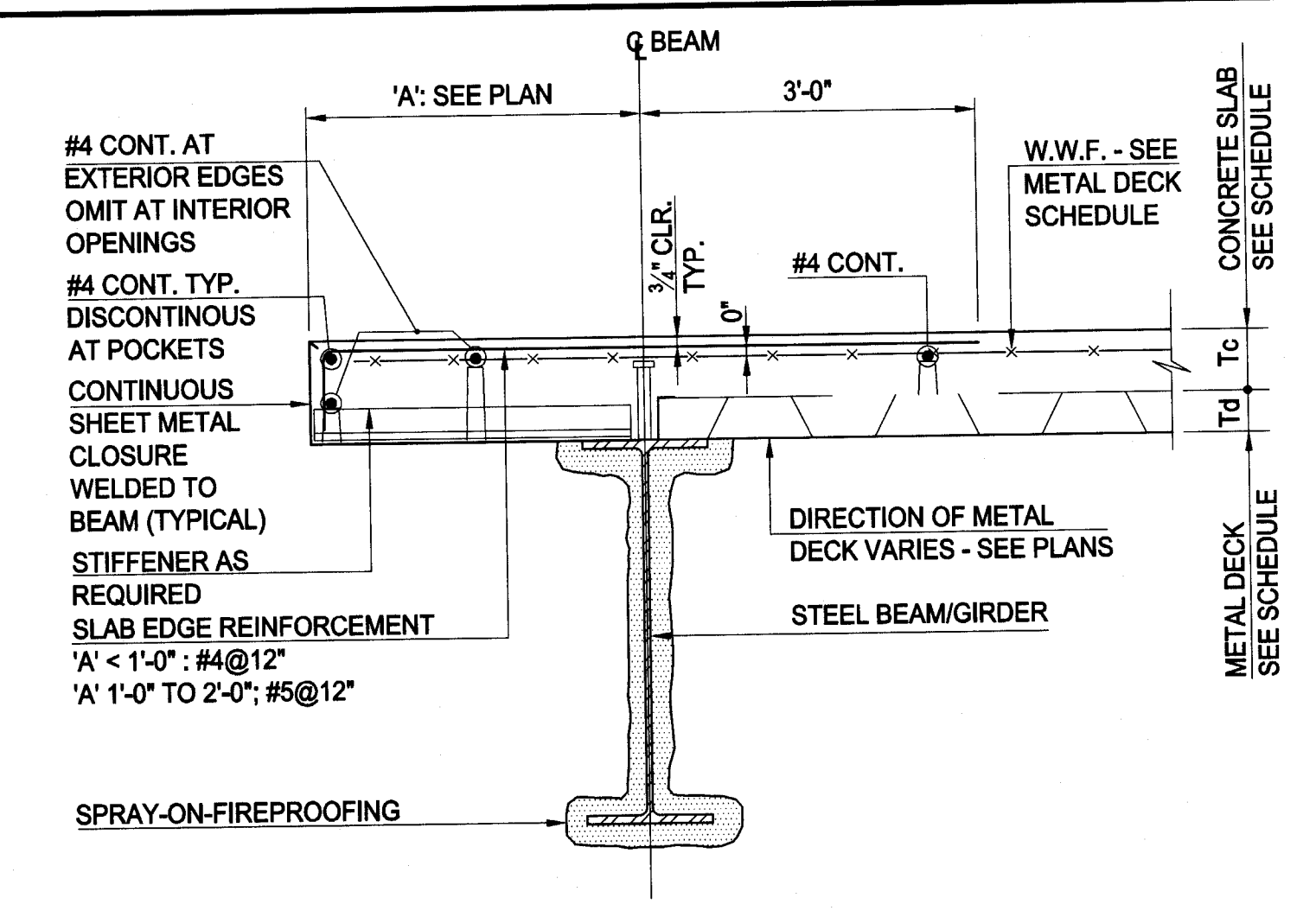
File No.:	207183
Proj. No.:	12 OF 13
Sheet No.:	BDS-505.L50

DEPARTMENT OF BUILDINGS
 BOROUGH OF MANHATTAN
 ORIGINAL APPROVAL STAMP
 EXAMINER: CHARLES MICHAEL BELLA
 LICENSE NUMBER: 079322
 JUL 26 2010
 FOR BUILDING DEPARTMENT APPROVAL

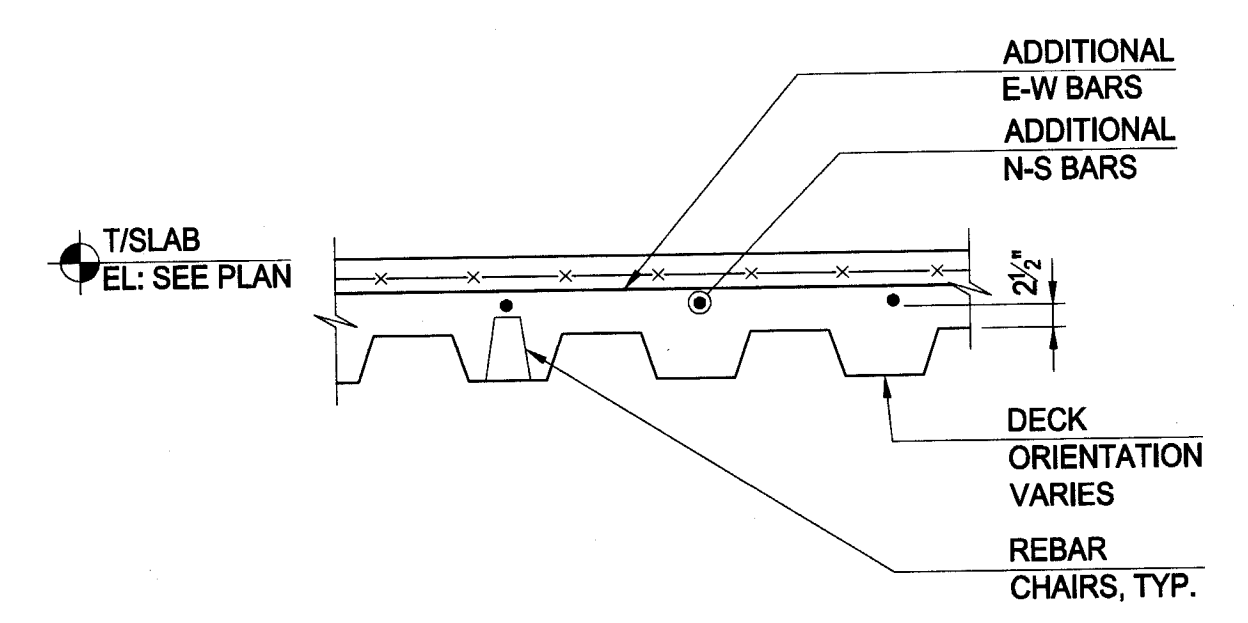
FILENAME: W:\SHEET\RAFT\DOB PERMIT\BDS-505.L50.DWG



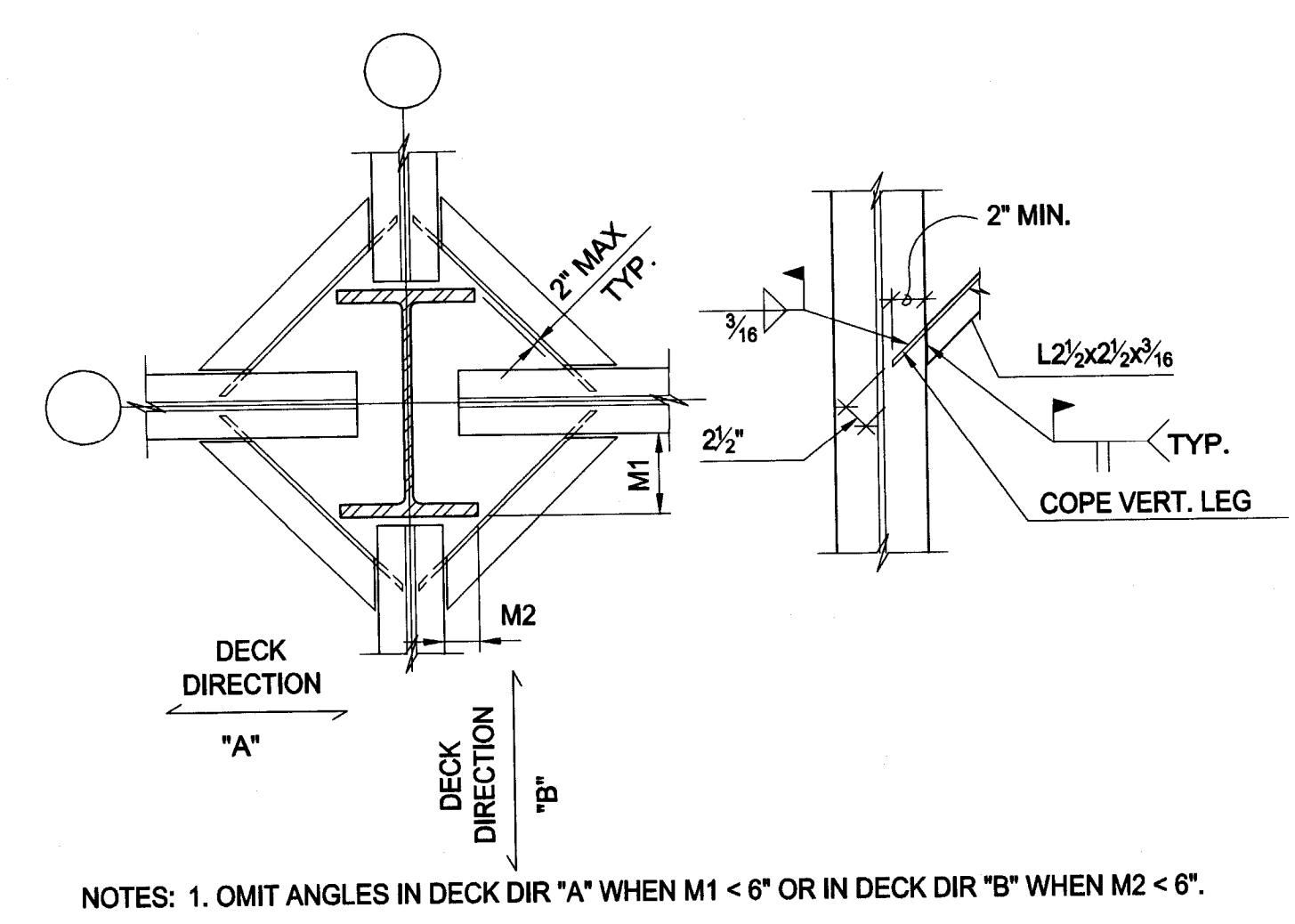
1 TYPICAL ADDITIONAL METAL DECK SLAB REINFORCEMENT AT BEAM
NOT TO SCALE



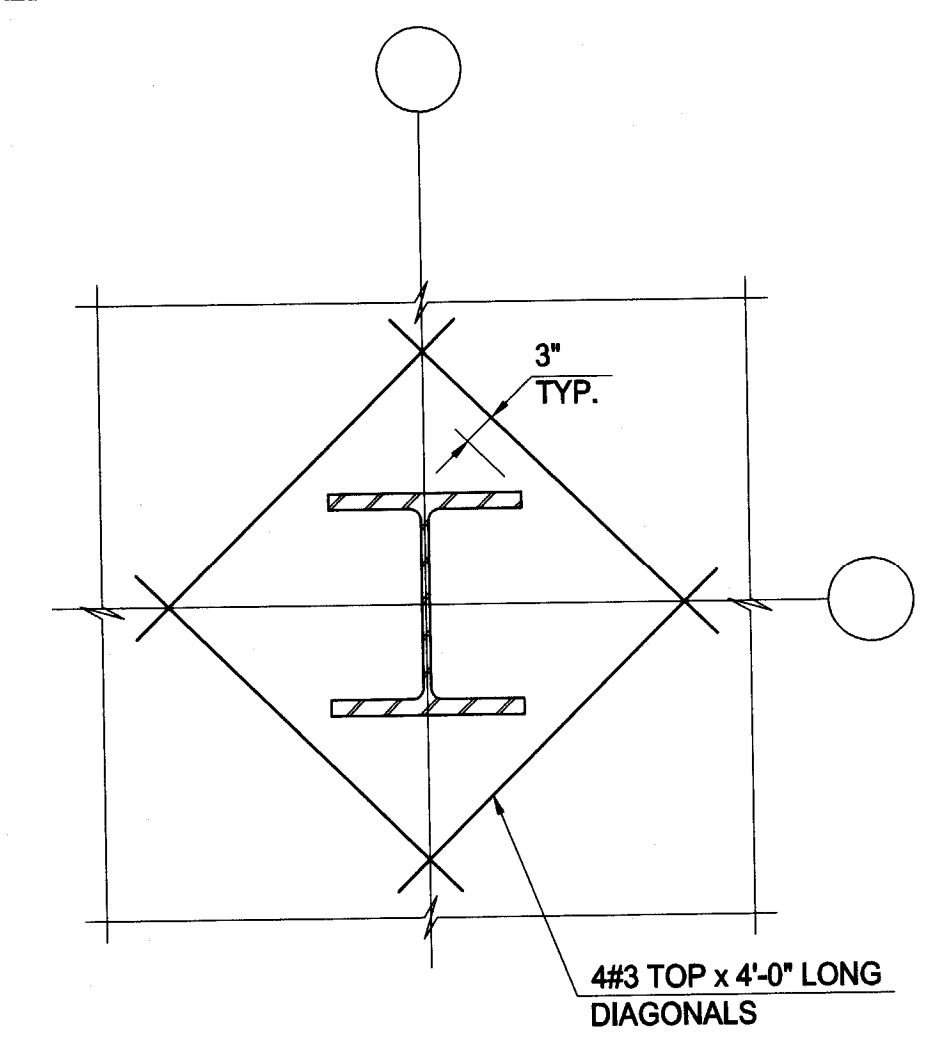
2 TYPICAL METAL DECK SLAB EDGE DETAIL
NOT TO SCALE



NOTES: 1. SEE DETAILS 4 & 7 FOR ADDITIONAL INFORMATION
3 TYPICAL ADDITIONAL REBAR DETAIL AT COMPOSITE METAL DECK
NOT TO SCALE



NOTES: 1. OMIT ANGLES IN DECK DIR "A" WHEN M1 < 6" OR IN DECK DIR "B" WHEN M2 < 6".
4 TYPICAL METAL DECK SUPPORT AT INTERIOR COLUMN
NOT TO SCALE



5 TYPICAL ADDITIONAL METAL DECK SLAB REINFORCEMENT AT INTERIOR COLUMN
NOT TO SCALE

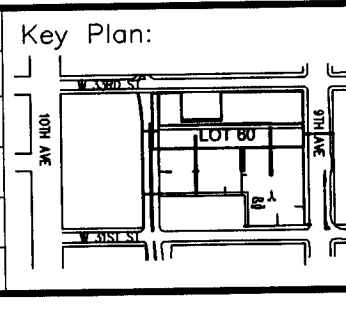
FILENAME: W:\S\1\SHEET\RAFT\DOB PERMIT\BDS-506.L50.DWG

No	Revisions	Date	By
1	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	03/10/08	
2	ISSUED FOR BUILDING DEPT. APPROVAL (LOT 50)	04/16/10	

Client: **33RD STREET CORP.**

Project: **Brookfield Properties**
9th Avenue Development
New York, NY

Approved: _____ Date: _____



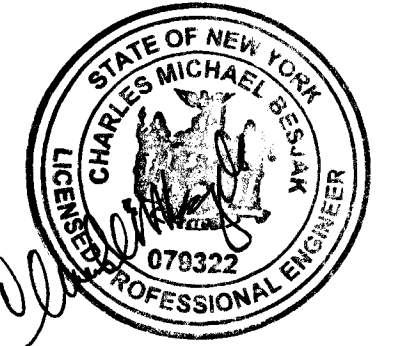
Architect/Structural Engineer:
SOM
SKIDMORE, OWINGS & MERRILL LLP

FOR BUILDING DEPARTMENT APPROVAL
TYPICAL METAL DECK SECTIONS & DETAILS
Drawn: SOM Checked: ## Date: 03/10/08

File No.: _____
Proj. No.: 207183
Sheet No.: 13 OF 13
BDS-506.L50



DEPARTMENT OF BUILDINGS
BOROUGH MANHATTAN
APPLICATION NO. _____
NO. _____
ORIGINAL APPROVED EXAMINER
DAMIAN TITUS
JUL 24 2010
EXAMINED FOR ZONING AND FIRE
PRELIMINARY AS PER D.R. NO. 2 OF 1975



Project:
**9th Avenue
Development**
New York, NY

LIST OF STRUCTURAL DRAWINGS

DRAWING No.	DRAWING TITLE
FO-001.00 FO-002.00	COVER SHEET/DRAWING LIST GENERAL NOTES AND DESIGN NOTES
FO-041.00 FO-042.00 FO-043.00	TEMPORARY PROTECTION PLATFORM TEMPORARY PROTECTION PLATFORM - SECTIONS AND DETAILS TEMPORARY PROTECTION PLATFORM - SECTIONS AND DETAILS

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SHoP Architects & Merrill LLP
18 WALL STREET NEW YORK NY 10005

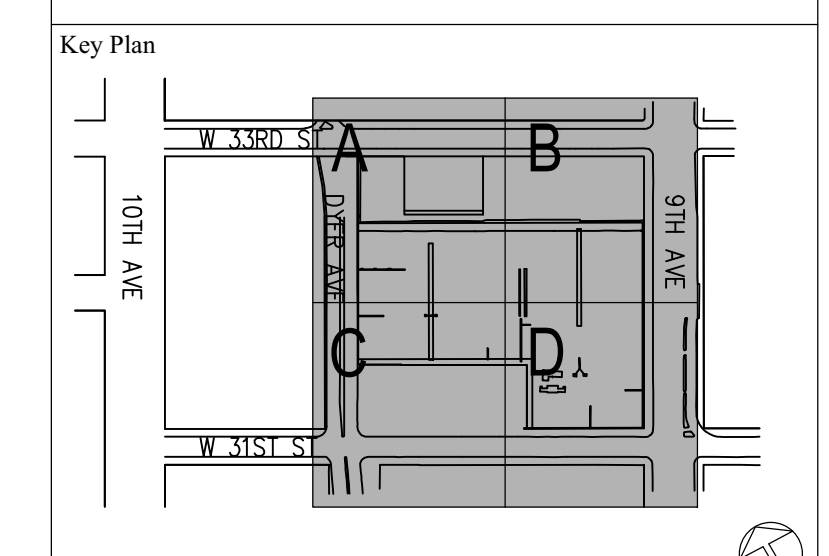
Structural:
ENTUITIVE
Entuitive Corporation
1 Trump Street, Suite 2002
Toronto, ON M5E 1R4
Canada
entuitive.com
T: 416.477.5832

MANHATTAN WEST PLATFORM

BLOCK 729, LOT 50, NEW YORK, NY

ISSUED FOR BUILDING DEPARTMENT APPROVAL

MAY 21, 2012



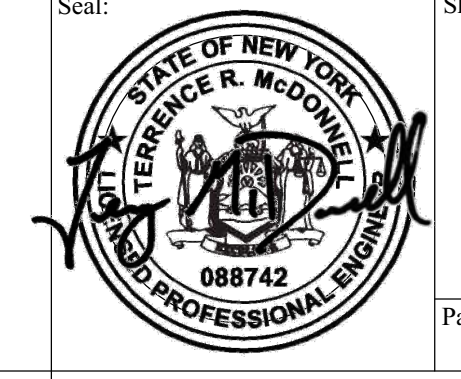
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TRG

Sheet Name:
**D.O.B. SUBMISSION
COVER SHEET/
DRAWING LIST
(LOT 50)**

Drawn By: TRG	Checked By: BC/DS
Scale: N.T.S.	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:

FO-001.00
Page Count:

FOR BUILDING DEPARTMENT APPROVAL



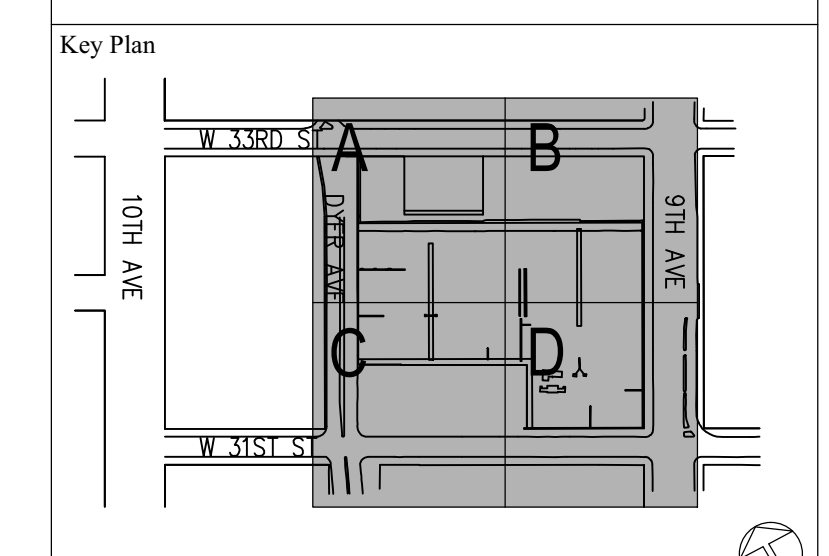
TEMPORARY PROTECTION PLATFORM (TPP)

- NOTES:
1. THE TEMPORARY PROTECTION PLATFORM SHOWN IS DIAGRAMMATIC ONLY. THE CONTRACTOR IS TO DESIGN THE SYSTEM, BASED ON THE PERFORMANCE CRITERIA SHOWN ON THE DRAWINGS AND IN THE PERFORMANCE SPECIFICATION.
 2. CONTRACTOR SHALL USE A LICENSED PROFESSIONAL ENGINEER TO DESIGN & DETAIL THE TPP. DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE CONSULTANT BEARING THE SEAL AND SIGNATURE OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.
 3. DESIGN SYSTEM TO MEET ALL NYCBC REQUIREMENTS.
 4. DESIGN SYSTEM TO MEET ALL MTA RELATED CRITERIA AND CLEARANCES.
 5. DESIGN SYSTEM TO SUPPORT 1.5 TIMES THE SELF WEIGHT OF ONE GIRDER PLUS APPLICABLE CONSTRUCTION LIVE LOAD ON THE TPP.
 6. DESIGN THE TPP SYSTEM FOR A DEFLECTION LIMIT THAT IS SUITABLE FOR AND CONSISTENT WITH THE REQUIREMENTS OF THE POST TENSIONED SEGMENTAL GIRDER CONSTRUCTION.

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Temple Street, Suite 2002
Toronto, ON M5E 1Y6
Canada
entuitive.com
T. 416.477.5802



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TRG

Sheet Name:
**D.O.B. SUBMISSION
TEMPORARY PROTECTION
PLATFORM
(LOT 50)**

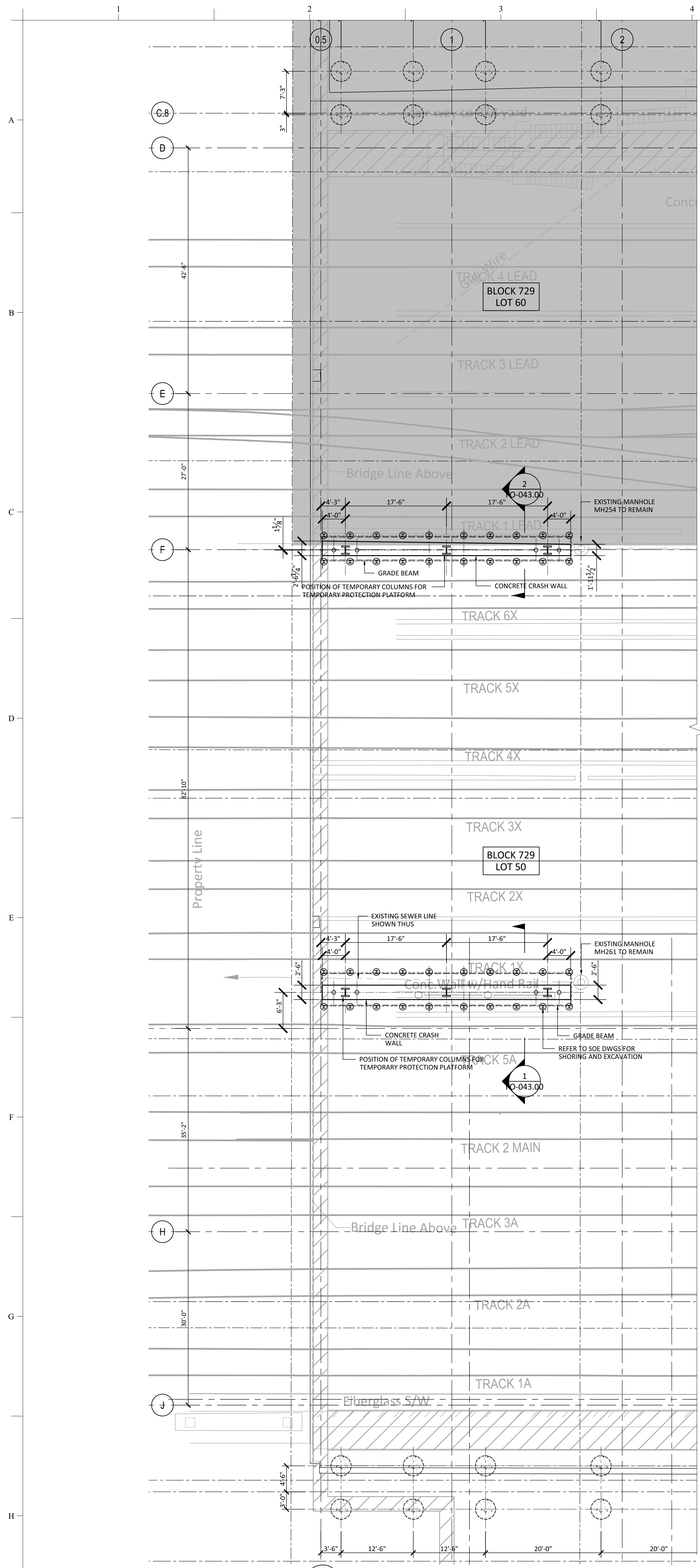
Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Sheet No.:

Checked By: BC/DS
Date: MARCH 2011
File No.:

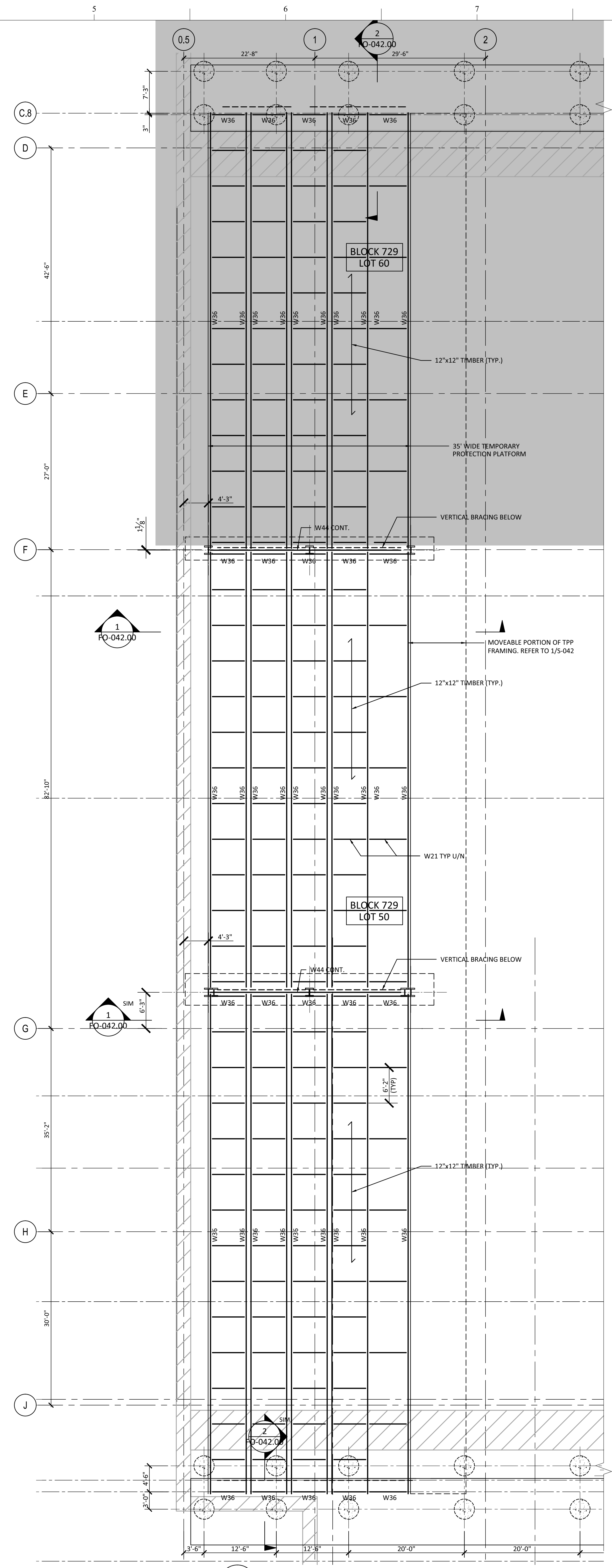
FOR BUILDING DEPARTMENT APPROVAL

FO-041.00

Page Count:



1
FO-041.00
TEMPORARY PROTECTION PLATFORM FOUNDATION PLAN
1/8" = 1'-0"



2
FO-041.00
TEMPORARY PROTECTION PLATFORM FRAMING PLAN
1/8" = 1'-0"

FOR BUILDING DEPARTMENT APPROVAL

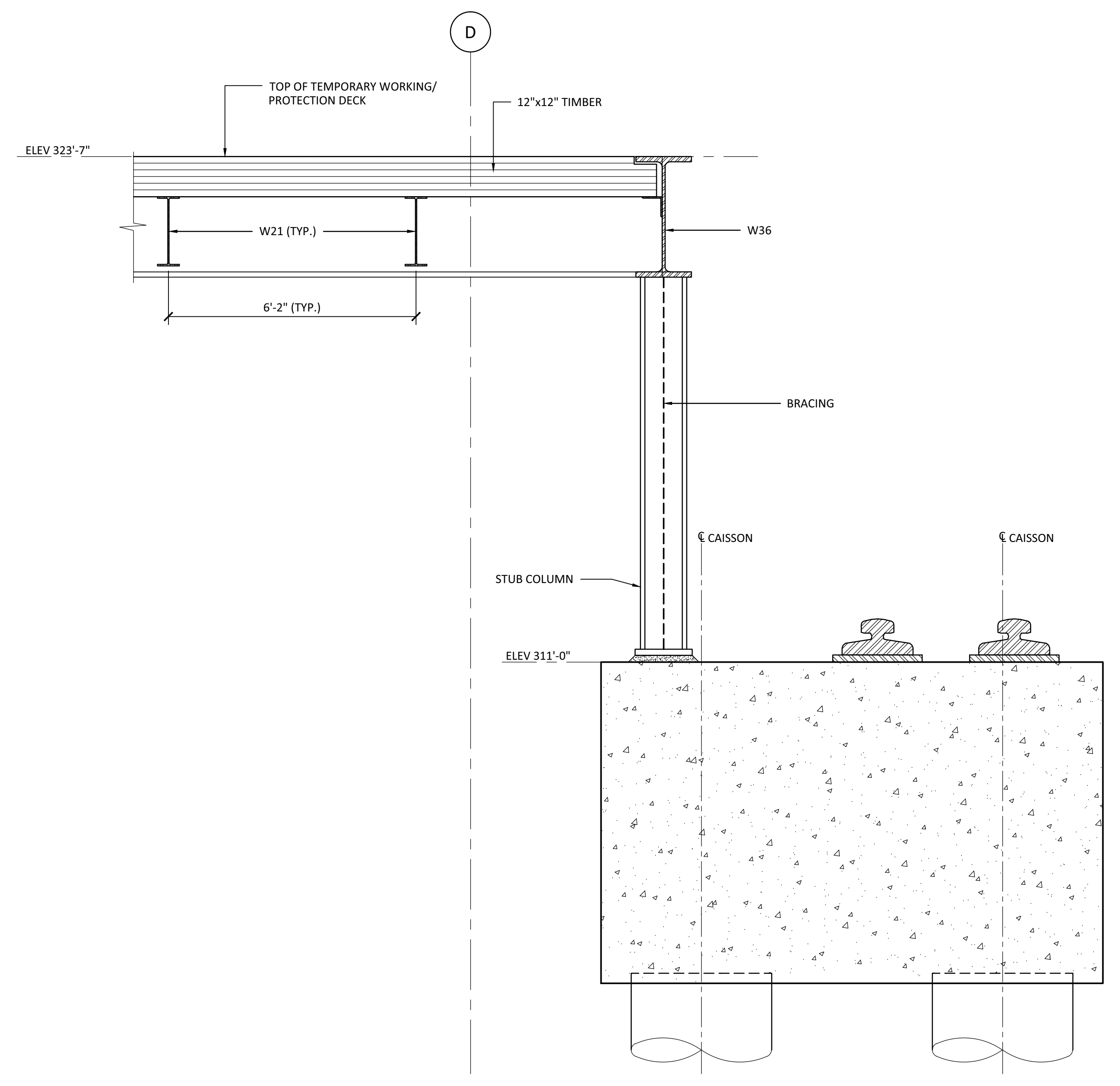
9th Avenue Development

New York, NY

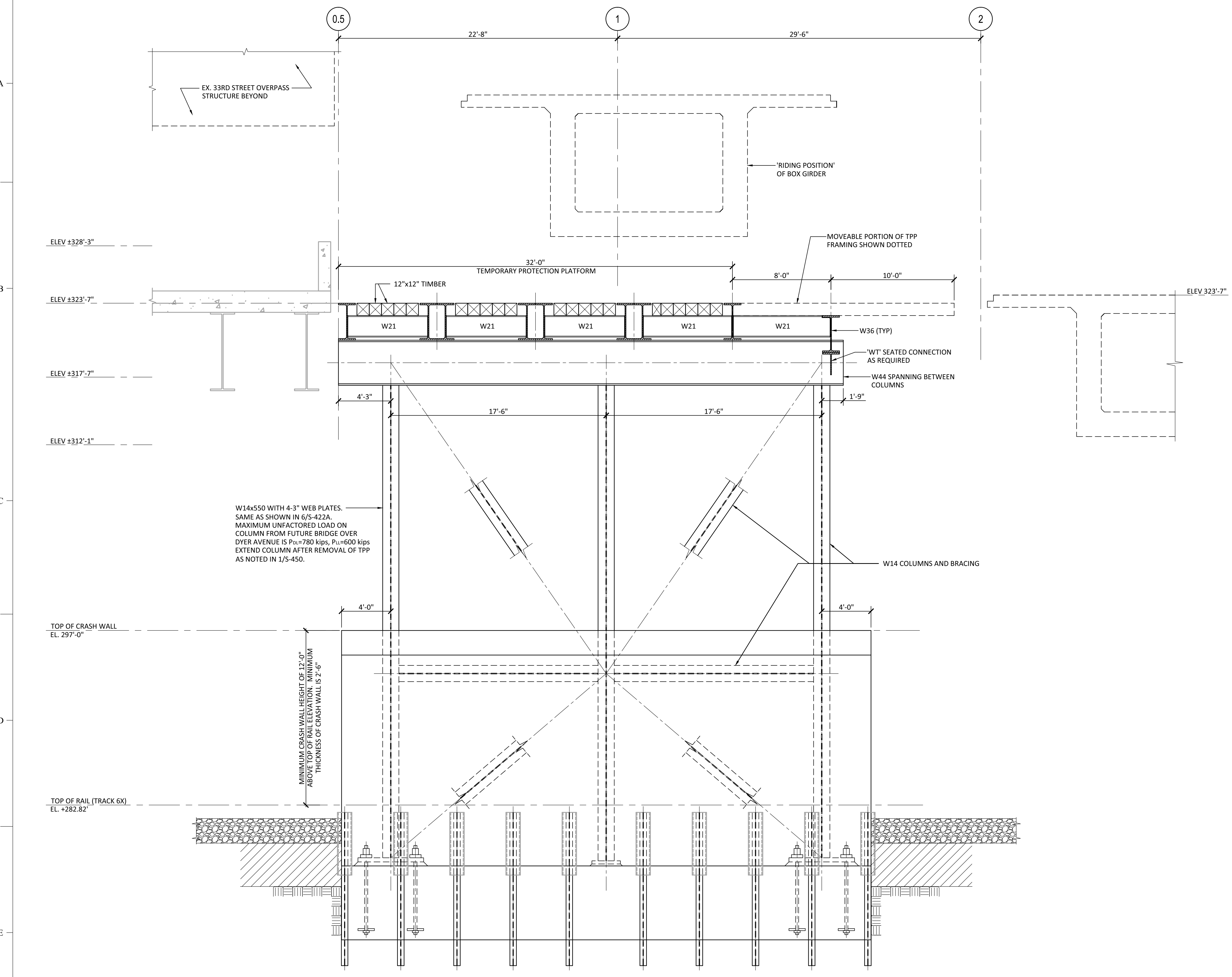
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUATIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com
T: 416.477.5832



2
FO-042.00
1/2"=1'-0"



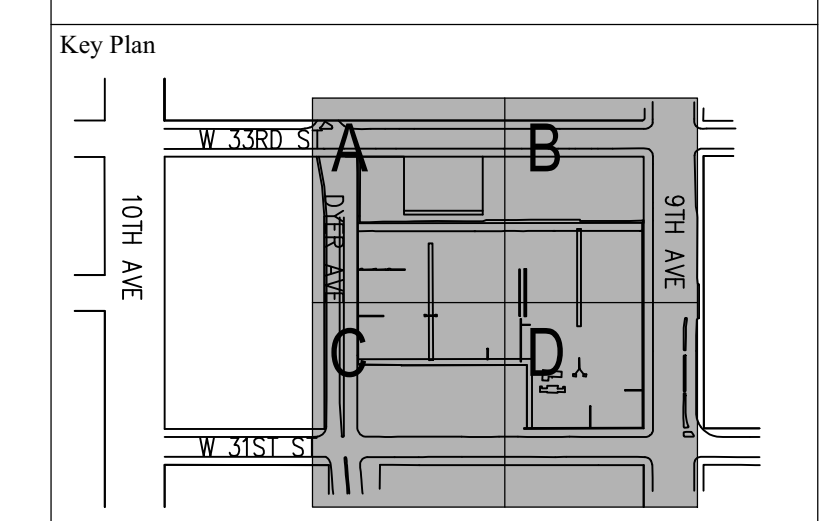
W14-550 WITH 4-3\"/>

TOP OF CRASH WALL
EL. 297'-0"

TOP OF RAIL (TRACK 6X)
EL. 282.82'

- NOTE:
- TEMPORARY COLUMNS/BRACING TO BE PROTECTED FROM TRAIN IMPACT, BY CONCRETE ENCASUREMENT OF TEMPORARY STRUCTURE.
 - TEMPORARY PROTECTION PLATFORM TO BE DESIGNED TO SUPPORT 1.5 TIMES WEIGHT OF ONE SEGMENT (56T) OR 100T ANYWHERE ON WORKING DECK SURFACE.

1
FO-042.00
1/4"=1'-0"



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2013	TN

Sheet Name:
**D.O.B. SUBMISSION
TEMPORARY PROTECTION
PLATFORM
SECTIONS AND DETAILS
(LOT 50)**

Drawn By: TRG
Scale: AS SHOWN
Project No.: T011-0003

Checked By: BC/DS
Date: MARCH 2011
File No.:



FO-042.00

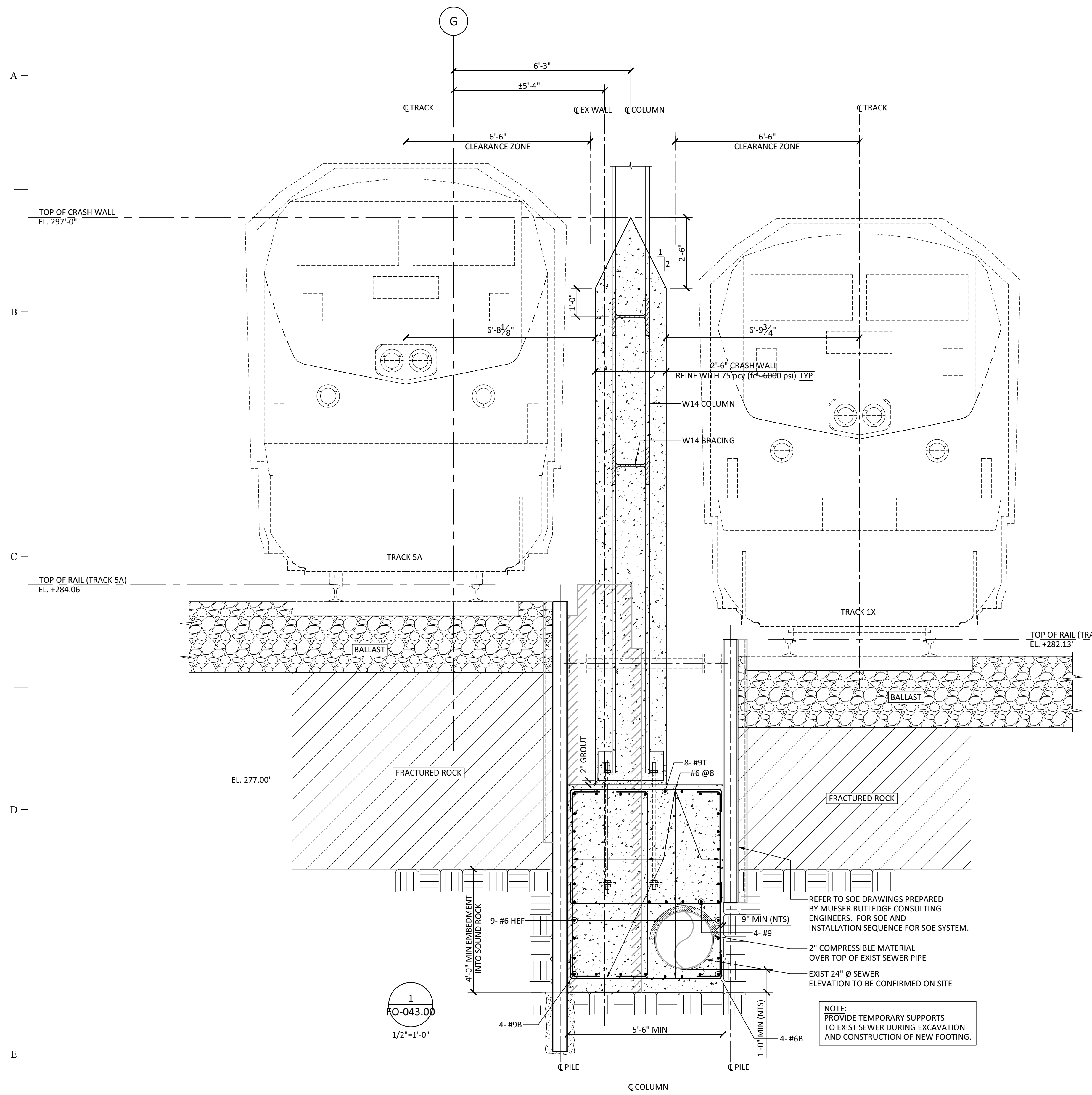
FOR BUILDING DEPARTMENT APPROVAL

9th Avenue Development
New York, NY

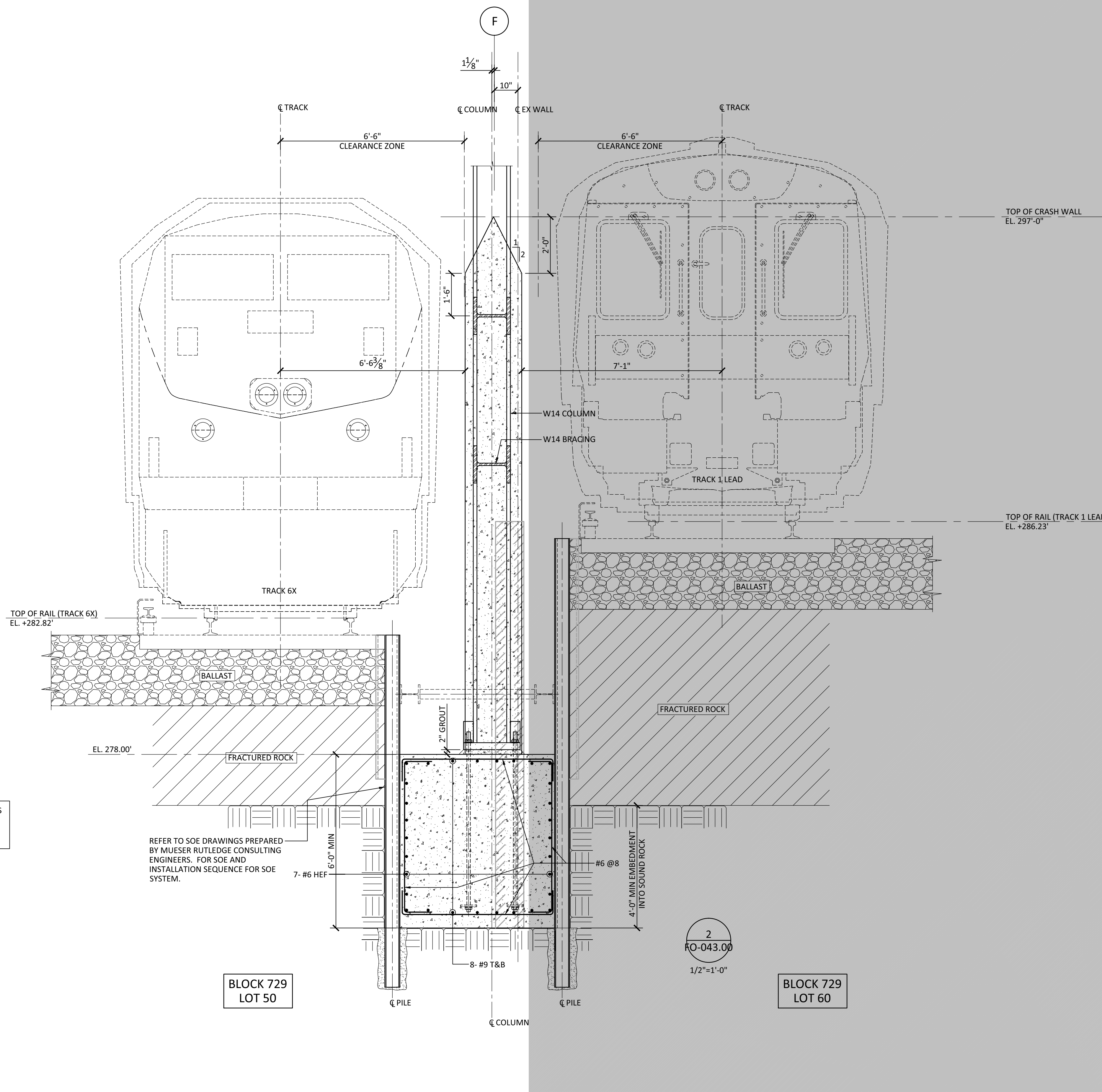
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOMERSET, DENNIS & MERRILL LLP
14 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
179th Street, Suite 2002
Forest Hills, NY 11375
Tel: 416.477.5832
entuitive.com



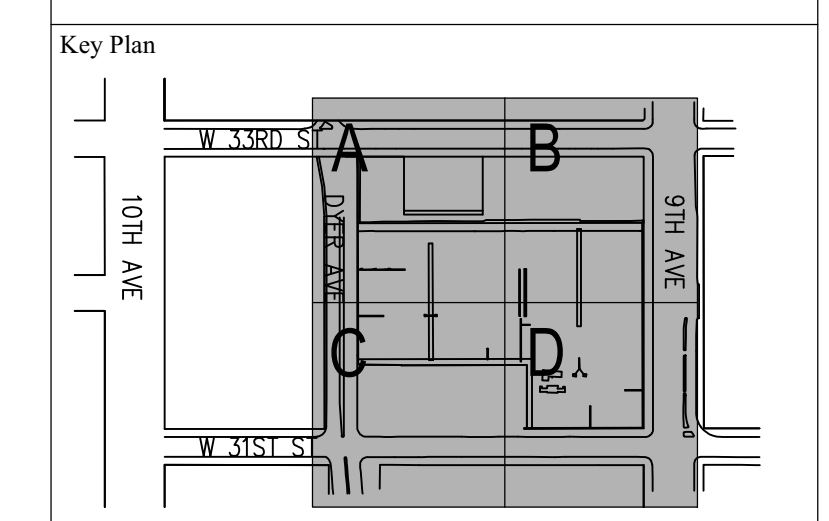
BACKFILL TRENCH EXCAVATIONS
IN ACCORDANCE WITH
RECOMMENDATIONS IN
GEO TECHNICAL REPORT



REFER TO SOE DRAWINGS PREPARED
BY MUESER RUTLEDGE CONSULTING
ENGINEERS, FOR SOE AND
INSTALLATION SEQUENCE FOR SOE
SYSTEM.

REFER TO SOE DRAWINGS PREPARED
BY MUESER RUTLEDGE CONSULTING
ENGINEERS, FOR SOE AND
INSTALLATION SEQUENCE FOR SOE
SYSTEM.

NOTE:
PROVIDE TEMPORARY SUPPORTS
TO EXIST SEWER DURING EXCAVATION
AND CONSTRUCTION OF NEW FOOTING.



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
TEMPORARY PROTECTION
PLATFORM
SECTIONS AND DETAILS
(LOT 50)**

Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Seal: [Professional Seal]

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:
FO-043.00

FOR BUILDING DEPARTMENT APPROVAL

Project:
**9th Avenue
 Development**
 New York, NY

LIST OF STRUCTURAL DRAWINGS

DRAWING No.	DRAWING TITLE
S-001.00	COVER SHEET/DRAWING LIST
S-002.00	GENERAL NOTES AND DESIGN NOTES
S-003.00	TYPICAL DETAILS
S-102.00	TRACK LEVEL PLAN
S-102E.00	PLAN DETAILS FOR FOOTINGS AT E-YARD
S-104.00	LEVEL B1 PLAN
S-105.00	LEVEL B PLAN
S-106.00	GROUND LEVEL FRAMING PLAN
S-106A.00	GROUND LEVEL PARTIAL FRAMING PLAN A
S-106B.00	GROUND LEVEL PARTIAL FRAMING PLAN B
S-106C.00	GROUND LEVEL PARTIAL FRAMING PLAN C
S-301.00	CAISSON/ROCK ANCHOR SCHEDULE
S-302.00	CAISSON/ROCK ANCHOR SCHEDULE
S-400.00	FOUNDATION SECTIONS
S-400A.00	FOUNDATION SECTIONS
S-401.00	FOUNDATION SECTIONS
S-402.00	FOUNDATION SECTIONS
S-407.00	FOUNDATION SECTIONS
S-416.00	CONCRETE CAPPING BEAM (NORTH)
S-416A.00	CONCRETE CAPPING BEAM (NORTH)
S-417.00	CONCRETE CAPPING BEAM (SOUTH)
S-417A.00	CONCRETE CAPPING BEAM (SOUTH)
S-420.00	TYPICAL PLENUM SECTIONS AND DETAILS
S-421.00	TYPICAL PLENUM SECTIONS AND DETAILS
S-422.00	STEEL CAPPING BEAM PLAN
S-422A.00	STEEL CAPPING BEAM SECTIONS
S-440.00	PRECAST COLUMN PROTECTION DETAILS
S-450.00	LEVEL B SECTIONS
S-501.00	ELEVATIONS

Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SKIDMORE, OWINGS & MERRILL LLP
 18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 1 Bridge Street, Suite 2002
 Toronto, ON M5E 1B4
 Canada
 T. 416.477.5832
 entuitive.com

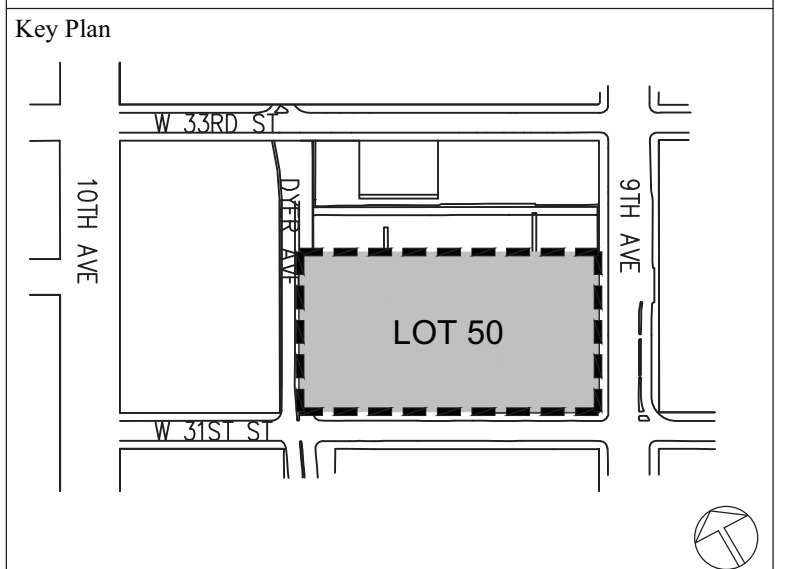
MANHATTAN WEST PLATFORM

BLOCK 729, LOT 50, NEW YORK, NY

ISSUED FOR BUILDING DEPARTMENT APPROVAL

MAY 31, 2012

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.D.A. APPROVAL	MAY 31, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
 COVER SHEET/
 DRAWING LIST
 (LOT 50)**

Drawn By: TRG
 Scale: N.T.S.
 Project No.: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:

Professional Seal: S-001.00
 Page Count:

GENERAL NOTES

A. GENERAL

- 1. THE STRUCTURE IS TO BE BUILT IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2008 NEW YORK CITY BUILDING CODE, AND ANY APPLICABLE REQUIREMENTS OR BY LAWS OF THE AUTHORITY HAVING JURISDICTION.

B. SEQUENCE OF CONSTRUCTION

- 1. UNLESS NOTED OTHERWISE, THE FINAL CONSTRUCTION SEQUENCING OR PHASING REQUIREMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DETERMINED AS AN INTEGRAL PART OF THEIR OVERALL CONSTRUCTION MEANS AND METHODS.

C. FUTURE PROVISIONS OR EXTENSIONS

- 1. THE STRUCTURE HAS BEEN DESIGNED FOR THE FUTURE PROVISIONS NOTED ON DRAWINGS.

D. MATERIALS

- 1. CONCRETE: CONFORM TO THE REQUIREMENTS OF ACI 318, AND THE REQUIREMENTS IDENTIFIED IN TABLE 1.
- 2. REINFORCEMENT: CONFORM TO ASTM A615 SERIES, fy = 60 KSI FOR ALL REINFORCEMENT.

E. FOUNDATIONS

- 1. A COPY OF THE GEOTECHNICAL INVESTIGATION REPORT BY MUJESER RUTLEDGE DATED JUNE 10, 2008 AND THEIR SUBSEQUENT LETTER ADDENDUM DATED JANUARY 13, 2012 IS AVAILABLE FROM THE CONSULTANT. THIS INFORMATION IS AVAILABLE SOLELY AS A GUIDE. NO RESPONSIBILITY IS ACCEPTED BY THE OWNER OR THE CONSULTANT FOR ITS CORRECTNESS, NOR SHALL ITS ACCURACY AFFECT THE PROVISION OF THIS CONTRACT.
- 2. FOUND ALL FOOTINGS ON SOUND ROCK CAPABLE OF SAFELY SUSTAINING AN ALLOWABLE BEARING PRESSURE OF 40 TSF. IF THESE CONDITIONS DO NOT PREVAIL AT THE FOUNDING ELEVATIONS SHOWN, ADVISE THE CONSULTANT BEFORE PROCEEDING WITH THE WORK.

F. CONCRETE AND REINFORCEMENT

- 1. ALL DOWELS SHALL HAVE MINIMUM EMBEDMENT EQUIVALENT TO THE STRAIGHT TENSION EMBEDMENT LENGTH OR 2'-0", WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE.
- 2. PROVIDE DOWELS TO WALLS AND COLUMNS SIMILAR IN NUMBER, SIZE, AND SPACING TO THE VERTICAL STEEL IN THE WALL OR COLUMN ABOVE UNLESS NOTED OTHERWISE.
- 3. REINFORCEMENT IDENTIFIED AS 'CONTINUOUS' SHALL TERMINATE WITH STANDARD END HOOKS AND SHALL BE LAPPED WITH CLASS 'B' TENSION LAP SPLICES.

G. STRUCTURAL STEEL

- 1. CENTER BEARING PLATES UNDER BEAMS UNLESS NOTED OTHERWISE.
- 2. BEARING PLATE DIMENSION GIVEN FIRST INDICATES SIDE PARALLEL TO BEAM WEB.
- 3. FORCES INDICATED ARE FACTORED UNLESS NOTED OTHERWISE.
- 4. WHERE MOMENT CONNECTIONS ARE CALLED FOR BUT VALUES ARE NOT INDICATED, DESIGN CONNECTIONS FOR FULL MOMENT CAPACITY OF THE SMALLER MEMBER JOINED.

J. METAL DECK

- 1. THE FLOOR STRUCTURE DESIGN IS BASED ON THE FOLLOWING COMPOSITE METAL DECK PROFILES.
3" DECK - HB 30V BY VICWEST STEEL INC.
- 2. THE ROOF STRUCTURE DESIGN IS BASED ON THE FOLLOWING METAL DECK PROFILES:
3" DECK - RD 306 BY VICWEST STEEL INC.

TABLE 1: CONCRETE. Table with 4 columns: STRUCTURAL ELEMENTS, EXPOSURE CLASS, MIN COMPRESSIVE STRENGTH Fc (PSI), COMMENTS. Rows include CAISSONS, FOOTINGS, CAPPING BEAMS - SAWTOOTH, CAPPING BEAMS - INFILL PORTION, CRASH WALLS, PRECAST - POST TENSIONED BOX GIRDERS, BONDED TOPPING FOR POST TENSIONED BOX GIRDERS, FOUNDATION WALLS / RETAINING WALLS, SUSPENDED SLABS, RAMPS & BEAMS, SLAB ON GRADE, PRECAST PLENUM STRUCTURE, SLAB ON METAL DECK.

- NOTES:
a. MAXIMUM AGGREGATE SIZE IS 3/4".
b. MINIMUM COMPRESSIVE STRENGTHS ARE AT 28 DAYS UNLESS NOTED OTHERWISE.
c. IT HAS BEEN ASSUMED THAT NONE OF THE CONCRETE STRUCTURES WILL BE DIRECTLY EXPOSED TO DE-ICING CHEMICALS OR CHLORIDES.
d. ALL CONCRETE IS TO BE NORMAL WEIGHT CONCRETE.

DESIGN NOTES

A. GENERAL

- 1. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2008 NEW YORK CITY BUILDING CODE.
- 2. ALL REINFORCED CONCRETE ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
- 3. ALL STRUCTURAL STEEL ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AISC LRFD LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.

B. LATERAL LOAD RESISTING SYSTEM

- 1. THE LATERAL EARTHQUAKE LOADS APPLIED TO THE STRUCTURE ARE RESISTED BY FRAME ACTION BETWEEN CAISSONS AND CAPPING BEAM AND STRUCTURAL STEEL BRACING.
- 2. THE STRUCTURE HAS BEEN DESIGNED TO RESIST LATERAL EARTHQUAKE LOADS IN ACCORDANCE WITH THE 2008 NEW YORK CITY BUILDING CODE.
- 3. THE DESIGN PARAMETERS FOR EARTHQUAKE ARE AS NOTED BELOW:
A. EARTHQUAKE LOADS
4. SITE CLASS: B
Ss = 0.365
Si = 0.073
Fa = 1.0
Fv = 1.0
Sds = 0.243

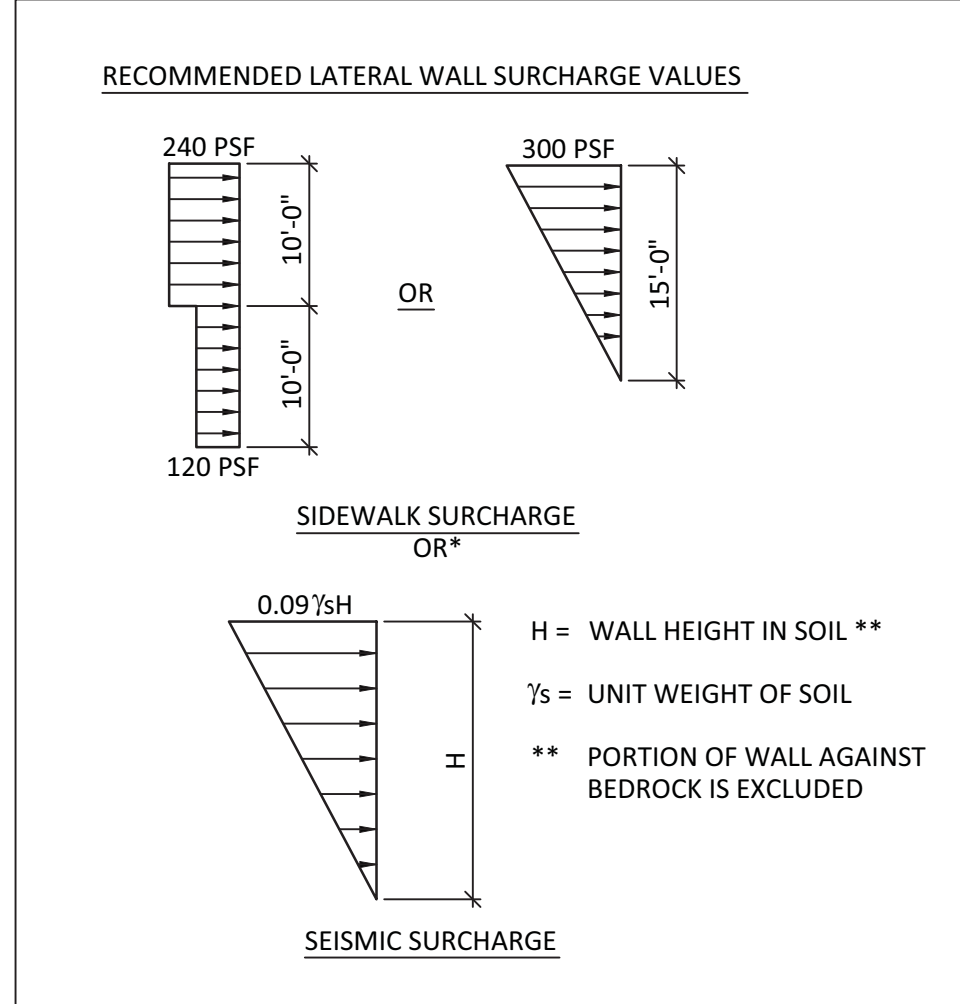
C. STRUCTURAL MOVEMENTS

- 4. TYPICAL HORIZONTAL ELEMENTS HAVE BEEN DESIGNED SO THAT THE THEORETICAL DEFLECTIONS WILL NOT EXCEED THE FOLLOWING VALUES:
DEFLECTION LIMITS FOR LAUNCHER:
VERTICAL DEFLECTION: /800
HORIZONTAL DEFLECTION: /1600

D. LATERAL LOADS ON FOUNDATION WALLS

- 1. THE WALLS HAVE BEEN DESIGNED ASSUMING FREE DRAINING BACKFILL WHICH DOES NOT PERMIT THE BUILD-UP OF HYDROSTATIC PRESSURE.
OR
THE WALLS HAVE BEEN DESIGNED ASSUMING THE BUILD-UP OF HYDROSTATIC PRESSURE.
- 2. WALL HAVE BEEN DESIGNED FOR A HORIZONTAL PRESSURE (P IN KPa [PSF]) AT ANY DEPTH (h IN m [FT]) GIVEN BY THE EXPRESSION:
P = Ps + Pe
Pa = K (Gh + q) AND
Pe = [TAKE FROM GEOTECHNICAL REPORT IF APPLICABLE]

WHERE THE SOIL PRESSURE COEFFICIENT, K = 0.47
UNIT WEIGHT OF SOIL, g = 120 PCF
SURCHARGE, q = 300 PSF
LATERAL PRESSURE OF A STABLE ROCK FACE IS 20 PSF PER FOOT OF DEPTH.
3. APPLY TO THE EARTH AND BEDROCK PRESSURE DISTRIBUTION, THE SIDEWALK OR SEISMIC SURCHARGE WHICHEVER IS GREATER.



E. PERFORMANCE SPECIFICATION DESIGN ITEMS

- 1. CONTRACTOR SHALL USE A LICENSED PROFESSIONAL ENGINEER TO DESIGN AND DETAIL ALL PERFORMANCE SPECIFICATION ITEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- PRECAST GIRDERS
- TEMPORARY PROTECTION PLATFORM
- TEMPORARY TRACK PROTECTION HOARDING
- TRACK LEVEL EXIT STAIR IN E-YARD.
- GIRDER BEARINGS
- 2. DESIGN CALCULATIONS FOR THESE ITEMS SHALL BE SUBMITTED TO THE CONSULTANT, BEARING THE SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.

TENDER RELATED NOTES

A.1 QUANTITY FOR SUPERSTRUCTURE

- 1. THE STRUCTURAL TENDER IS TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

A.2 STRUCTURAL STEEL

- 1. COLUMN BASES AND MILLING OF SAME.
- 2. ALL COLUMNS, INCLUDING MILLING OF COLUMN ENDS AND ALL SPLICE PLATES, BOLTS AND THE LIKE.
- 3. MOMENT CONNECTIONS.
- 4. FIREPROOFING OF ALL STEEL UNLESS NOTED OTHERWISE.
- 5. ACKNOWLEDGEMENT THAT THE CONTRACTOR WILL BE WORKING IN THE WORK AREA WITH OTHER TRADE CONTRACTORS AND THAT THERE WILL BE LIMITED ACCESS TO THE SITE. ALLOW FOR ANY LOSS OF EFFICIENCY AS A RESULT THEREOF. THE CONTRACTOR IS REQUIRED TO COORDINATE THE STRUCTURAL WORK WITH OTHER TRADES WORKING ON SITE.
- 6. ATTACHMENTS FOR SAFETY CABLES, LINES AND ACCESSORIES.

A.3 PROTECTION OF STRUCTURAL STEEL

- 1. PROVIDE CORROSION PROTECTIVE PAINT FOR ALL STRUCTURAL STEEL.
- 2. TOUCH UP PAINT AFTER INSTALLATION OF MECHANICAL AND ELECTRICAL SERVICES IS COMPLETED.
- 3. AS AN ALTERNATE TO THE CORROSION PROTECTIVE PAINT, PROVIDE ASTM A588 MATERIAL FOR ALL EXPOSED STEEL FRAMING IN THE E-YARD.

A.4 FIREPROOFING OF STRUCTURAL STEEL

- 1. FIREPROOF ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE. USE INTUMESCENT PAINT ON ALL PERMANENT EXPOSED STEEL.
- 2. TOUCH UP FIREPROOFING AFTER INSTALLATION OF MECHANICAL AND ELECTRICAL SERVICES IS COMPLETED.

B.1 ALLOWANCES FOR TENDER

- 1. IN ADDITION TO THE INFORMATION CONTAINED IN THE TENDER DRAWINGS, MAKE THE NECESSARY ALLOWANCES AND PROVISIONS FOR THE FOLLOWING ITEMS:
- 2. THE TRADE CONTRACTOR IS REQUIRED TO PREPARE DETAILED SHOP DRAWINGS AND CALCULATIONS FOR ALL ASPECTS OF THE WORK, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
A. REINFORCEMENT DETAILING AND PLACING DRAWINGS.
B. BAR BENDING SCHEDULES
C. STRUCTURAL STEEL ERECTION AND DETAILED FABRICATION DRAWINGS.
D. CALCULATIONS AS REQUIRED BY CITY OF NEW YORK AND CONSULTANTS.
- 3. ALL SURVEYING THAT IS REQUIRED TO ENSURE THAT THE STRUCTURAL STEEL IS WITHIN THE TOLERANCES SET OUT IN THE TENDER DOCUMENTS.

C.1 OTHER ALLOWANCES

- 1. IN ADDITION TO THE LIST OF PERMANENT BUILDING REQUIREMENTS NOTED ABOVE, INCLUDE FOR ALL TEMPORARY CONSTRUCTION RELATED REQUIREMENTS AS A MINIMUM ALLOW FOR THE FOLLOWING:
A. ALL CAST-IN-ACCESSORIES, ANCHORS, HARDWARE, CONNECTIONS, FLOOR OPENINGS AND THE LIKE TO ACCOMMODATE CRANES, CONCRETE PUMP SUPPORTS, TEMPORARY STAIRS OR LADDERS, TEMPORARY BARRIERS OR GUARDS AND PROVISIONS AND ATTACHMENTS FOR ALL NECESSARY LIFE SAFETY EQUIPMENT.
B. ALLOW FOR THE REMOVAL OF ALL TEMPORARY CONNECTIONS AND MEMBERS THAT PROTRUDE INTO THE FINISHED BUILDING.
C. TEMPORARY GYING AND BRACING OF STRUCTURE UNTIL CONCRETE SLABS HAVE BEEN POURED AND HAVE MATURED TO THEIR DESIGN STRENGTH.
- 2. THE COST OF ALL TEMPORARY CONSTRUCTION RELATED WORKS SHALL BE INCLUDED BY THE CONTRACTOR.
- 3. MISC. SUSPENDED CATWALKS, AND SUSPENDED EXIT CORRIDORS AT STAIR TRANSFERS.
- 4. MISC. HANDRAIL SUPPORTS.

9th Avenue Development
New York, NY



FOR BUILDING DEPARTMENT APPROVAL

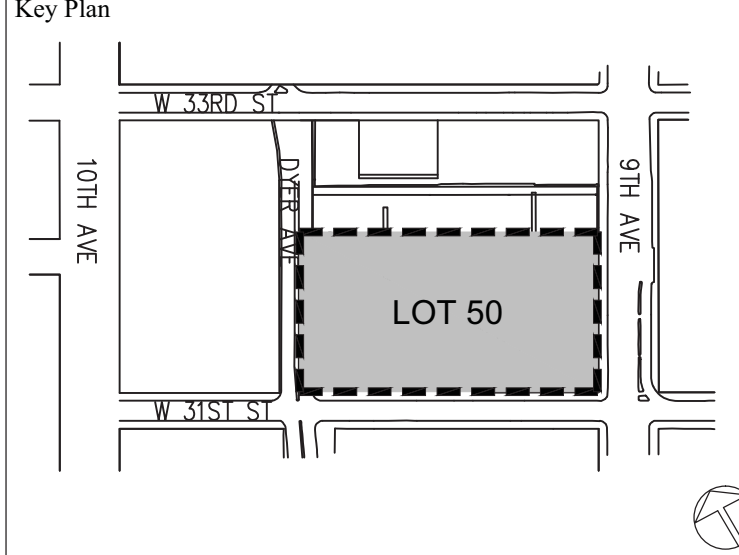
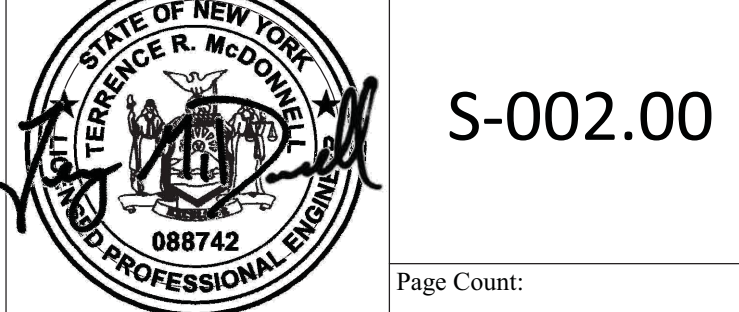


Table with 4 columns: No., Revisions, Date, By. Row 1: 1 ISSUED FOR D.O.B. APPROVAL MAY 21, 2012 TR

D.O.B. SUBMISSION GENERAL NOTES AND DESIGN NOTES (LOT 50)

Table with 2 columns: Drawn By: TRG, Checked By: BC/DS. Scale: N.T.S., Date: MARCH 2011. Project No.: T011-0003, File No.:



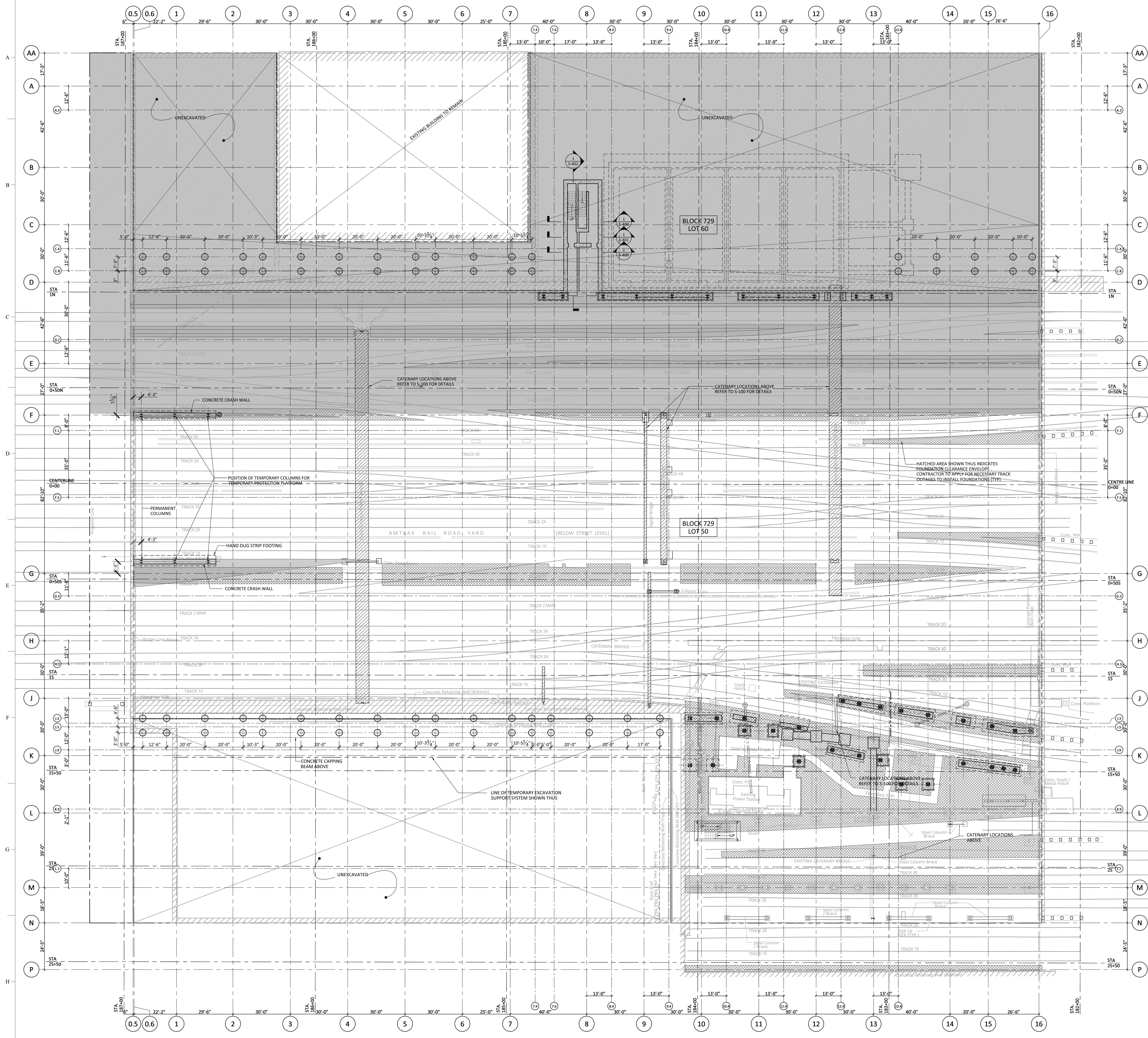
S-002.00 Page Count:

9th Avenue Development
New York, NY

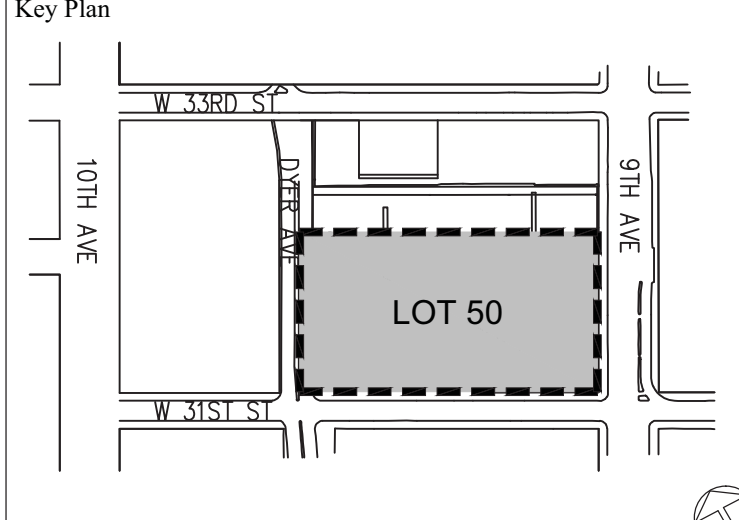
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, L.P.
14 WALL STREET, NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1700 Broadway, Suite 2000
New York, NY 10019
Tel: 212.477.5800
entuitive.com



FOR BUILDING DEPARTMENT APPROVAL

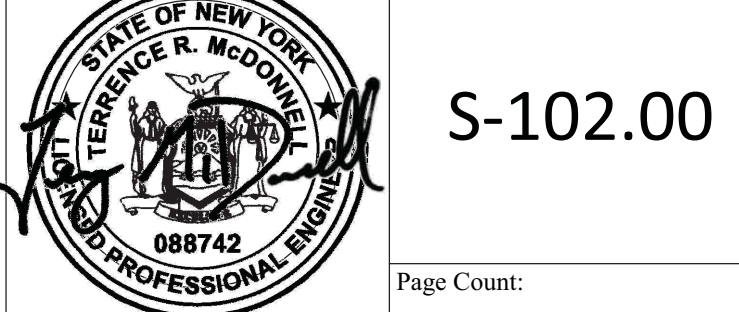


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

D.O.B. SUBMISSION TRACK LEVEL PLAN (LOT 50)

Drawn By: TRG
Scale: 1/16"=1'-0"
Project No: T011-0003
Sheet No: S-102.00

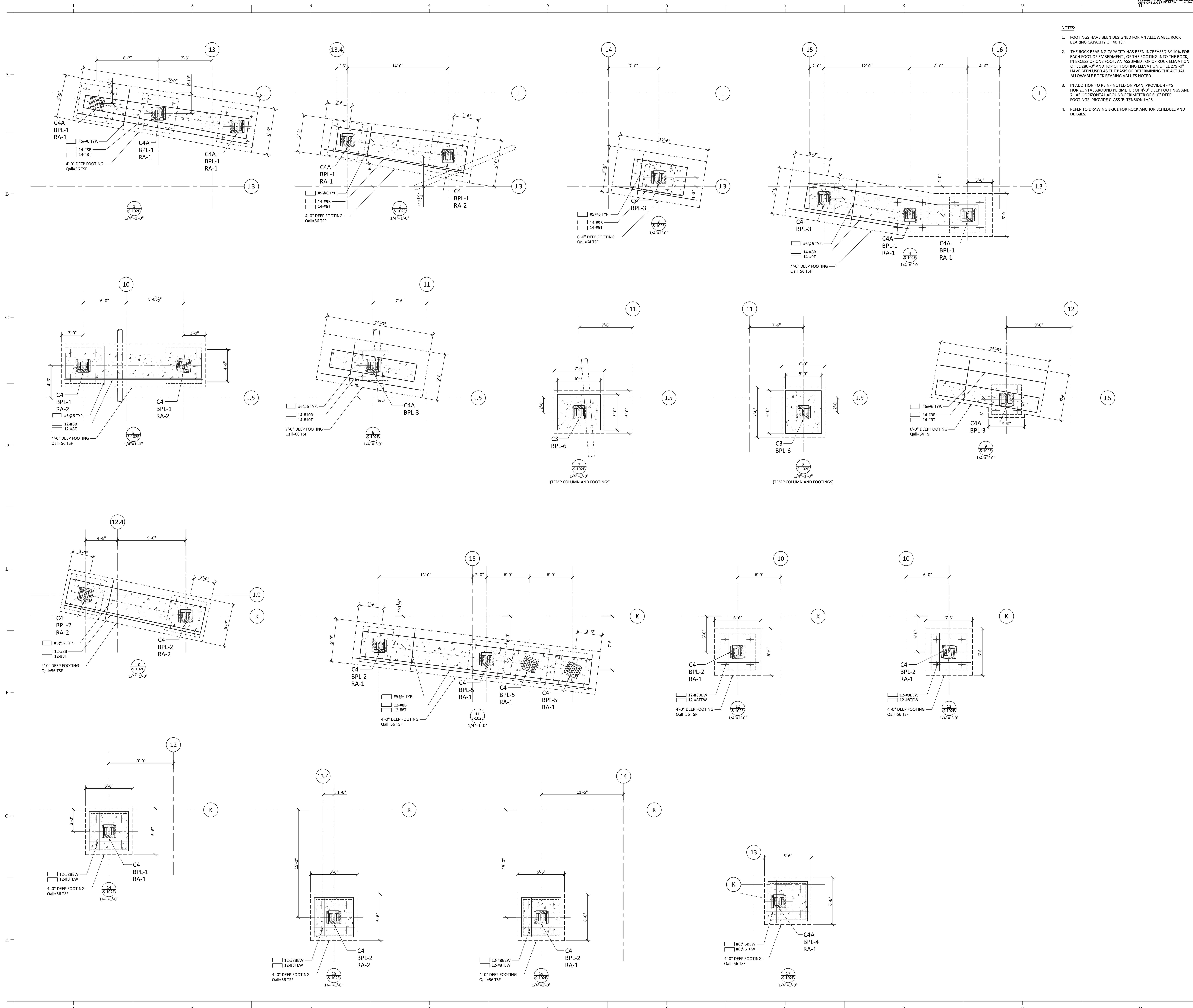
Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:
Page Count:



9th Avenue Development

New York, NY

- NOTES:**
- FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE ROCK BEARING CAPACITY OF 40 TSF.
 - THE ROCK BEARING CAPACITY HAS BEEN INCREASED BY 10% FOR EACH FOOT OF EMBEDMENT, OF THE FOOTING INTO THE ROCK, IN EXCESS OF ONE FOOT. AN ASSUMED TOP OF ROCK ELEVATION OF EL. 280'-0" AND TOP OF FOOTING ELEVATION OF EL. 275'-0" HAVE BEEN USED AS THE BASIS OF DETERMINING THE ACTUAL ALLOWABLE ROCK BEARING VALUES NOTED.
 - IN ADDITION TO REINFORCING NOTED ON PLAN, PROVIDE 4 - #5 HORIZONTAL AROUND PERIMETER OF 4'-0" DEEP FOOTINGS AND 7 - #5 HORIZONTAL AROUND PERIMETER OF 6'-0" DEEP FOOTINGS. PROVIDE CLASS 'B' TENSION LAPS.
 - REFER TO DRAWING S-301 FOR ROCK ANCHOR SCHEDULE AND DETAILS.

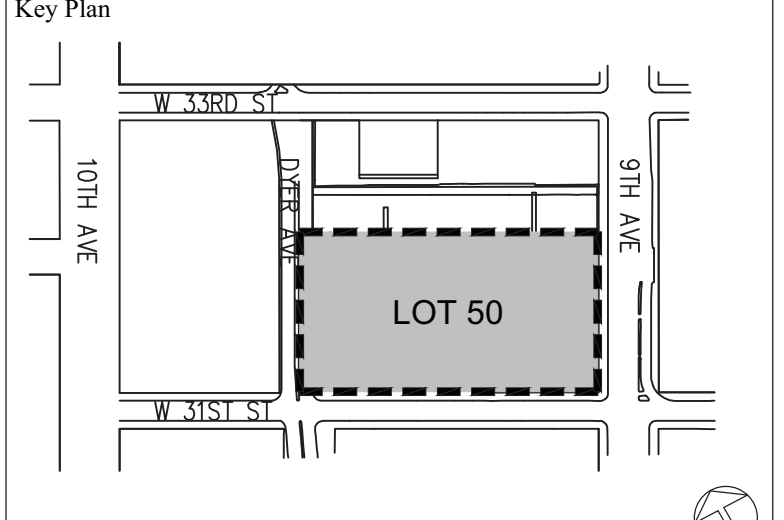


Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1700 West, Suite 2002
Toronto, ON M5E 1H4
Canada
entuitive.com

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
D.O.B. SUBMISSION PLAN DETAILS FOR FOOTINGS AT E-YARD (LOT 50)

Drawn By: TRG
Scale: 1/4"=1'-0"
Project No.: T011-0003
Sheet No.: S-102E.00

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-102E.00
Page Count:

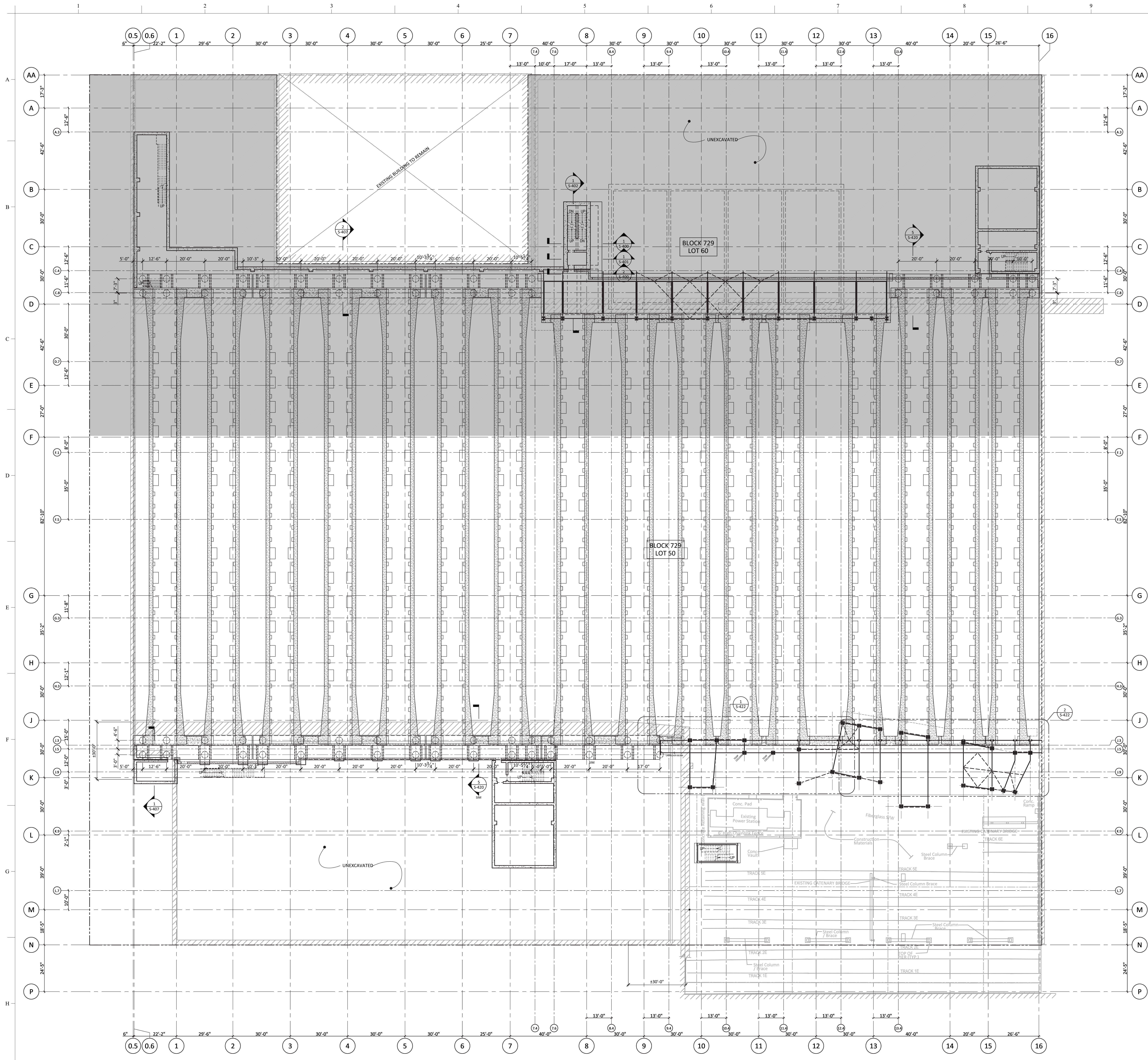


9th Avenue
Development
New York, NY

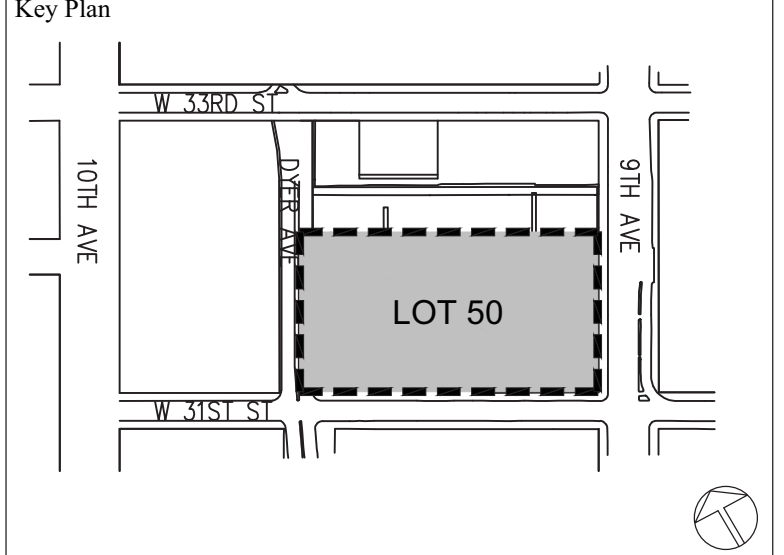
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, L.P.
14 WALL STREET, NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
170 West Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com



FOR BUILDING DEPARTMENT APPROVAL

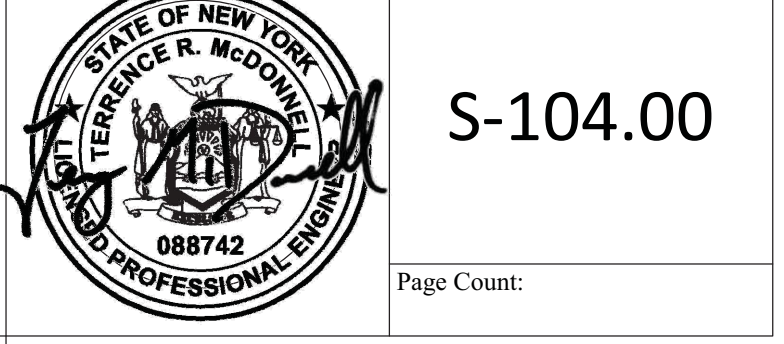


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
LEVEL B1 PLAN
(LOT 50)**

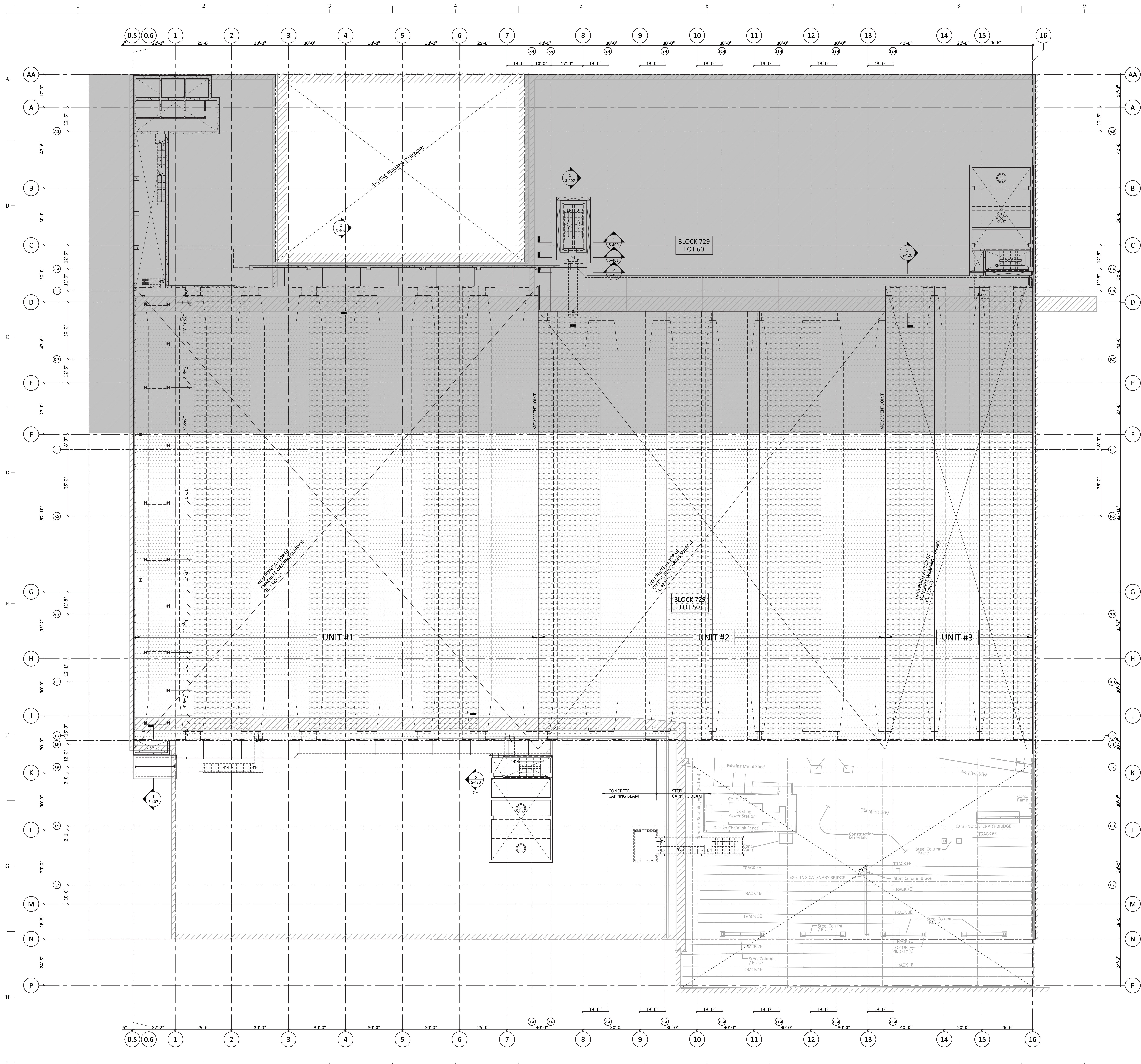
Drawn By: TRG
Scale: 1/16"=1'-0"
Project No: T011-0003
Sheet No:

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:



9th Avenue Development
 New York, NY

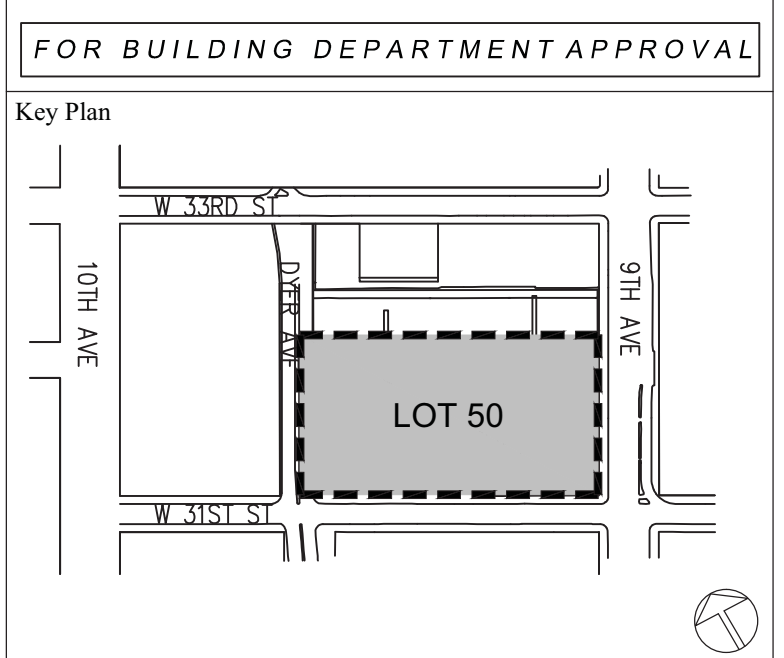
- NOTES:**
1. PROVIDE WATER PROOFING, PROTECTION BOARD AND A REINFORCED CONCRETE WEARING SURFACE OVER ANY AREAS SUBJECT TO CONSTRUCTION TRAFFIC OR AREAS USED FOR STAGING OR STORAGE OF MATERIALS. PROVIDE SAWCUTS IN CONCRETE TOPPING @ 15' C/C MAX EACH WAY. THICKNESS OF CONCRETE TOPPING TO VARY FROM 3" AT LOCAL AREA DRAINS TO 6" AT HIGH POINTS.
 2. REFER TO DRAWING S-020 FOR LOADING & DESIGN REQUIREMENTS.
 3. REFER TO DRAWING S-060, S-061 & S-062 FOR STAGING PLANS.



Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SHoP Architects & Partners LLP
 14 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 1700 Avenue of the Americas, Suite 2002
 New York, NY 10014
 entuitive.com



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TRG

Sheet Name:
**D.O.B. SUBMISSION
 LEVEL B PLAN
 (LOT 50)**

Drawn By:
 TRG

Checked By:
 BC/DS

Scale:
 1/16"=1'-0"

Date:
 MARCH 2011

Project No.:
 T011-0003

File No.:

Sheet No.:

S-105.00

Page Count:

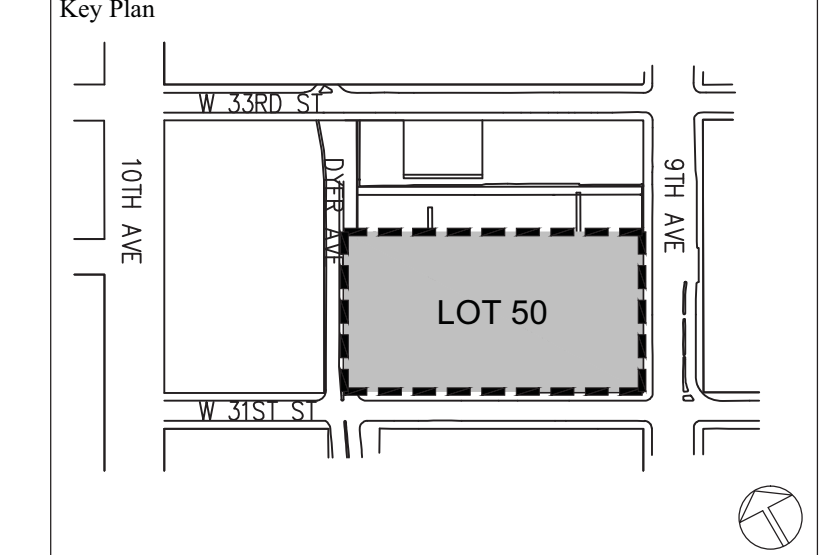
**9th Avenue
Development**
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
14 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1790 Street, Suite 2002
Toronto, ON M5E 1Y4
Canada
entuitive.com
T: 416.477.5832

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TRG

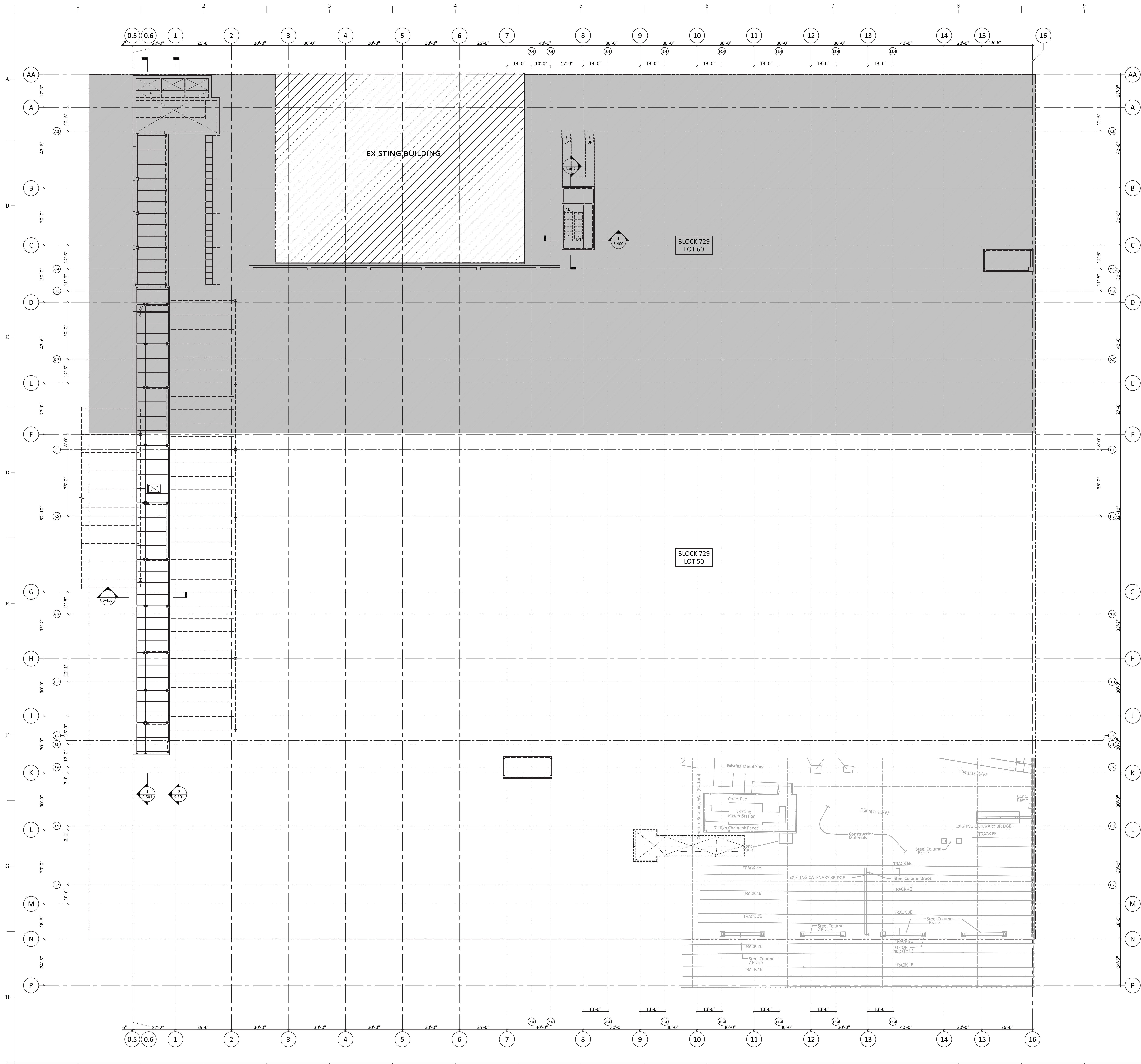
Sheet Name:
**D.O.B. SUBMISSION
GROUND LEVEL FRAMING
PLAN
(LOT 50)**

Drawn By: TRG
Scale: 1/16"=1'-0"
Project No.: T011-0003
Sheet No.:

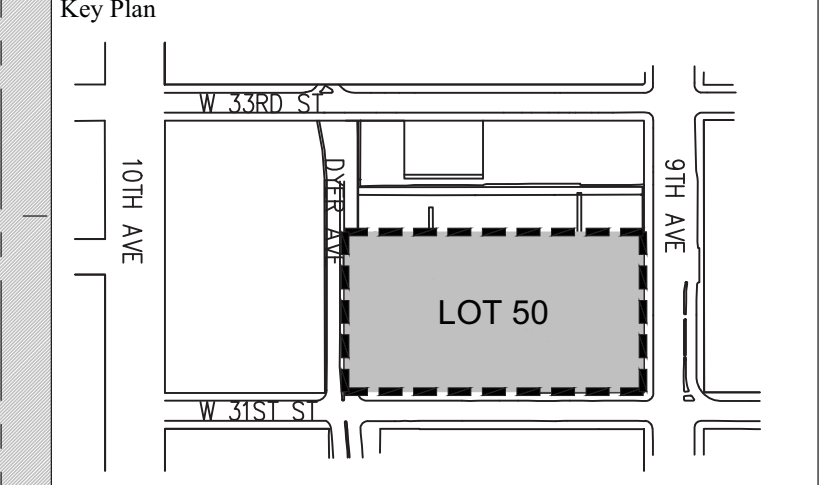
Checked By: BC/DS
Date: MARCH 2011
File No.:

S-106.00

Page Count:



FOR BUILDING DEPARTMENT APPROVAL



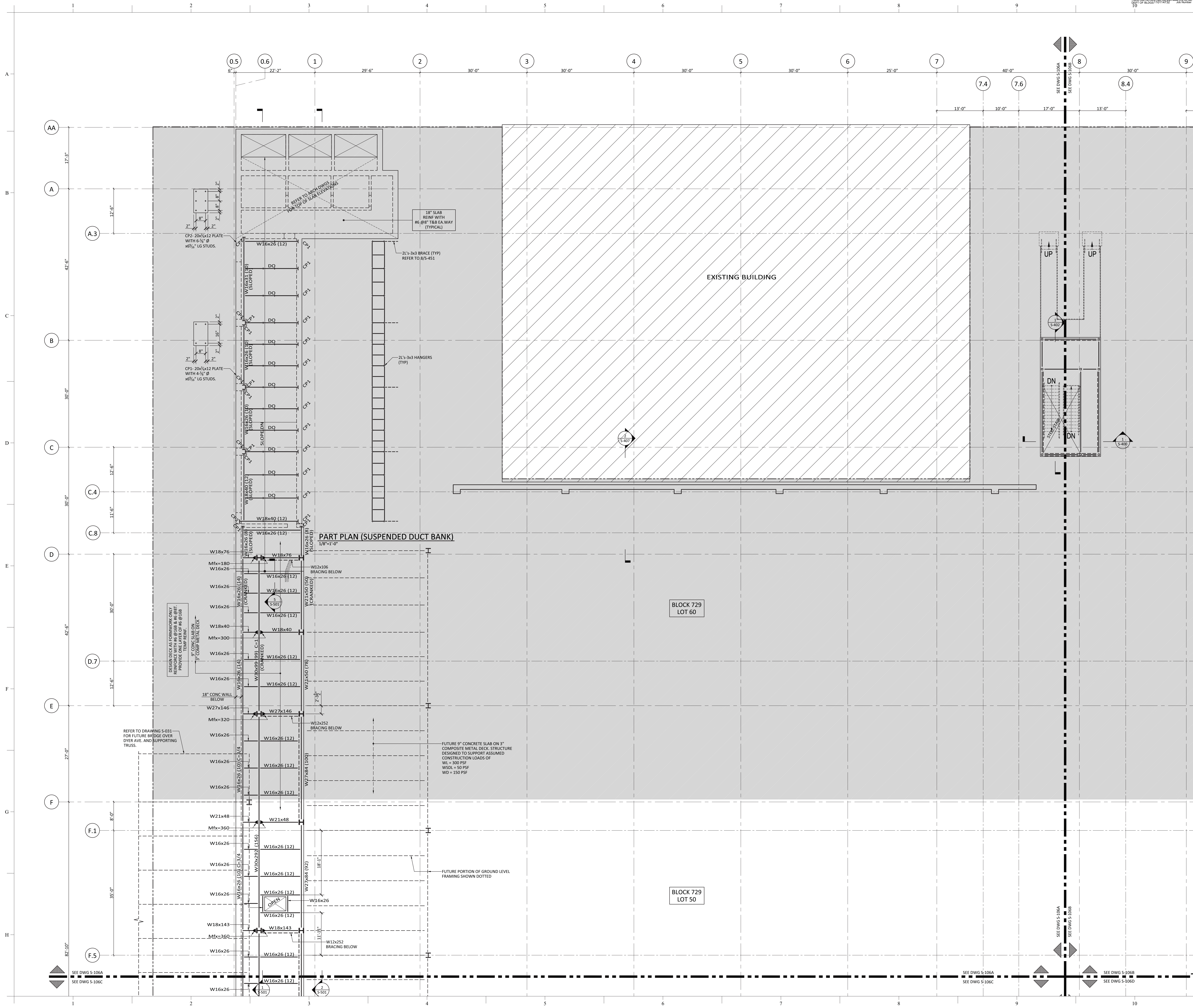
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
GROUND LEVEL PARTIAL
FRAMING PLAN A
(LOT 50)**

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Sheet No.:

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-106A.00

Page Count:



SEE DWG S-106A
SEE DWG S-106C

SEE DWG S-106A
SEE DWG S-106C

SEE DWG S-106B
SEE DWG S-106D

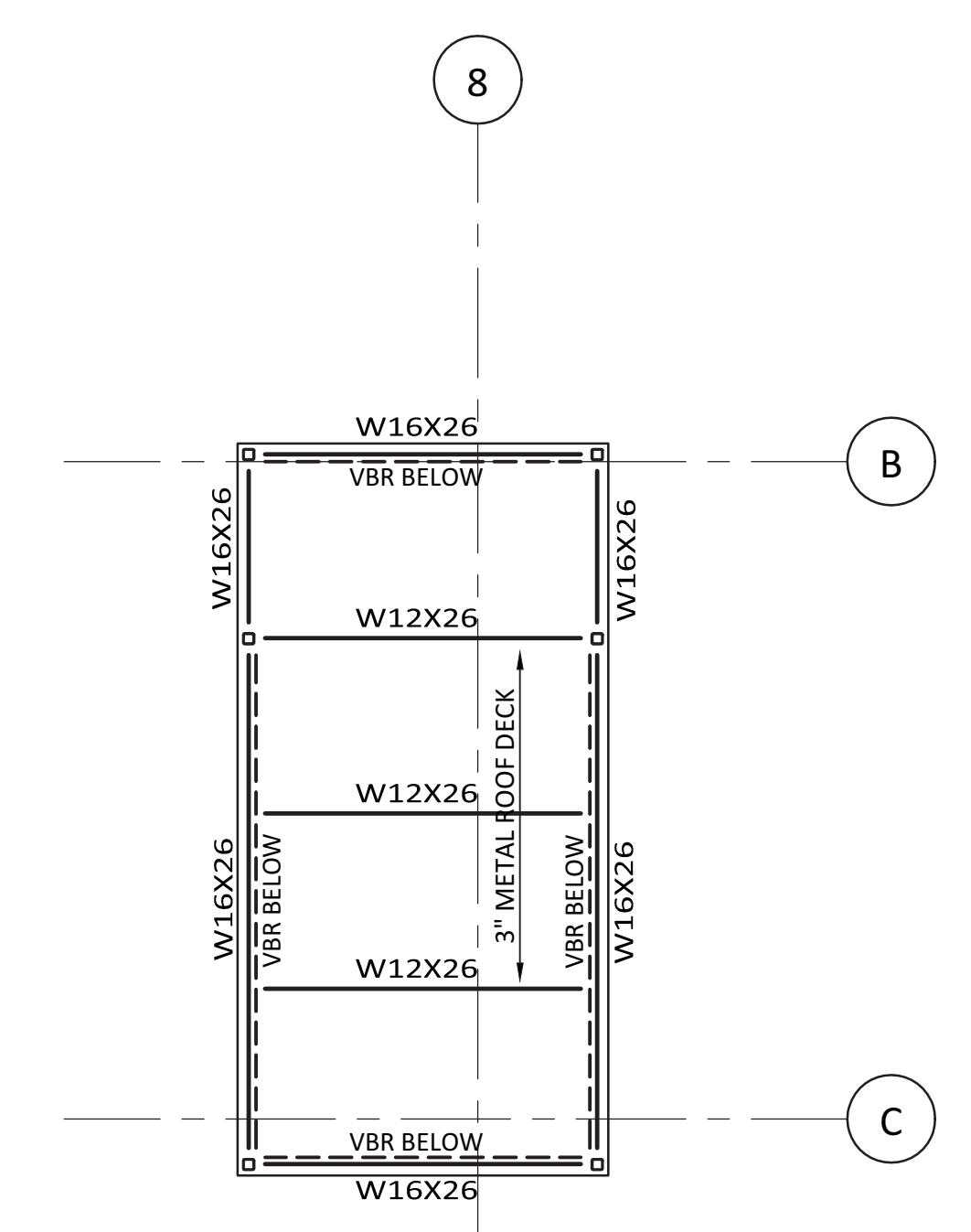
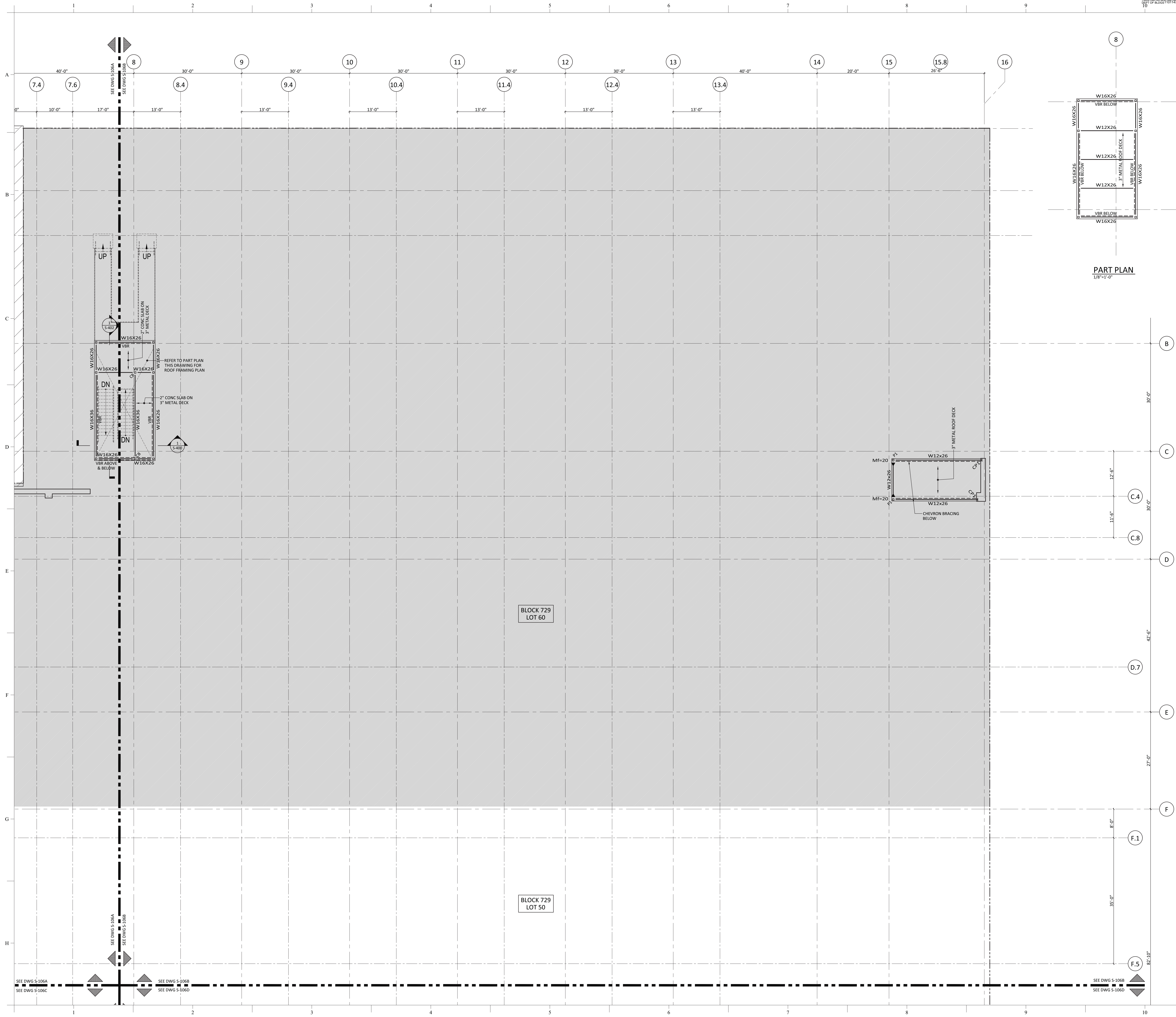


9th Avenue
Development
New York, NY

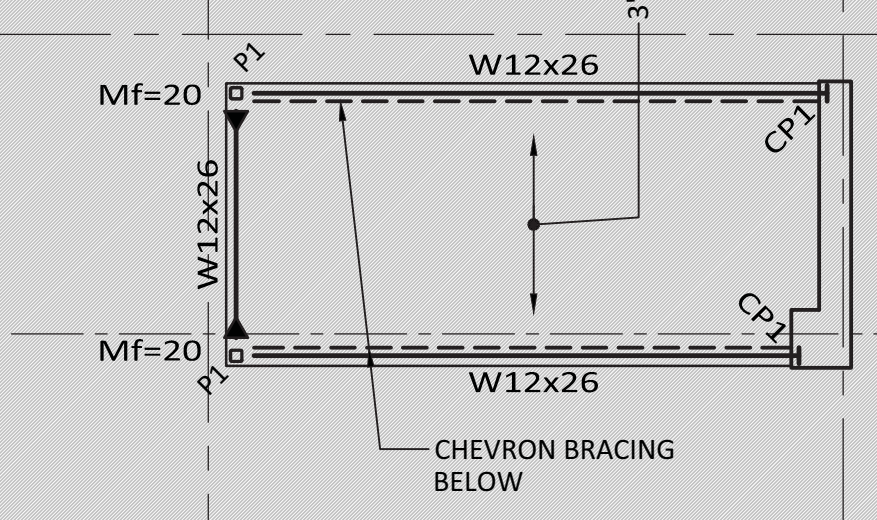
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, L.P.
18 WALL STREET NEW YORK, NY 10005

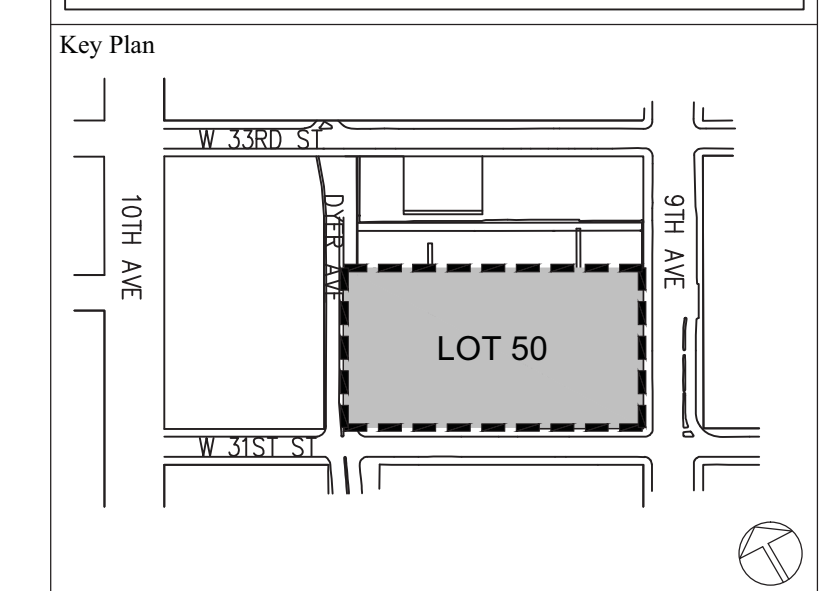
Structural:
ENTUITIVE
Entuitive Corporation
170 West Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com
T 416.477.5832



PART PLAN
1/8"=1'-0"



FOR BUILDING DEPARTMENT APPROVAL

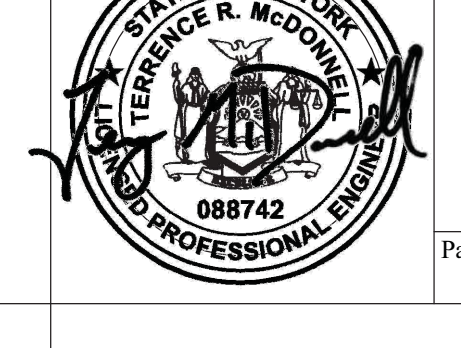


No.	Revisions	Date	By
1	ISSUED FOR D.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
GROUND LEVEL PARTIAL
FRAMING PLAN B
(LOT 50)**

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Sheet No.: S-106B.00

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-106B.00
Page Count:



9th Avenue Development

New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

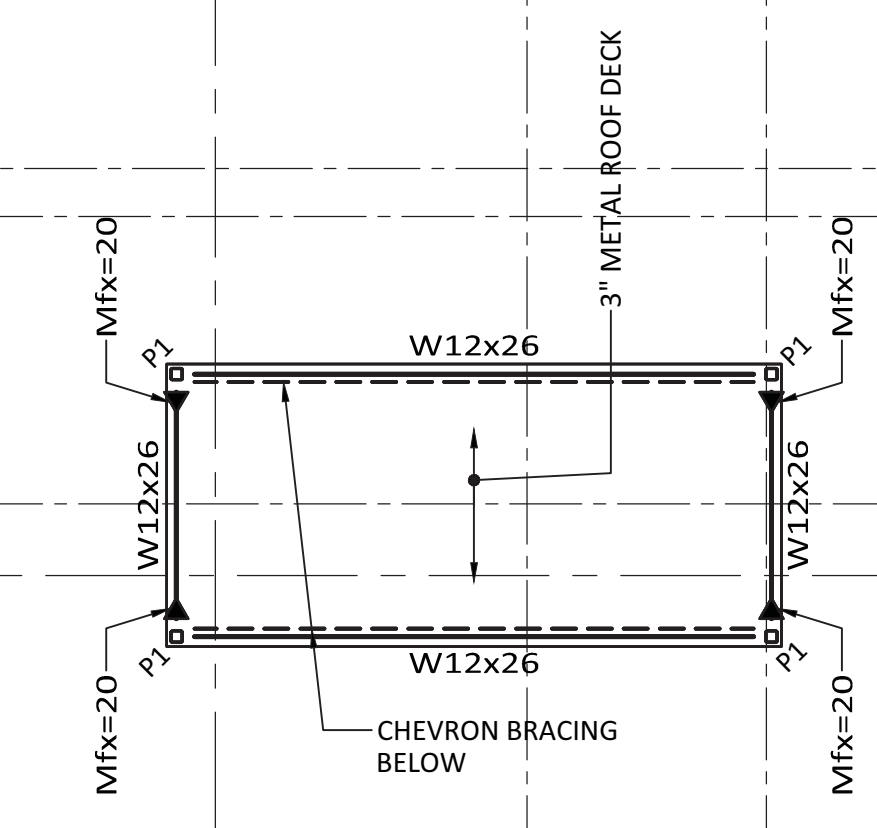
Architect:
SOM
SOMERSET, DENNIS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
175 West Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com
T 416.477.5832

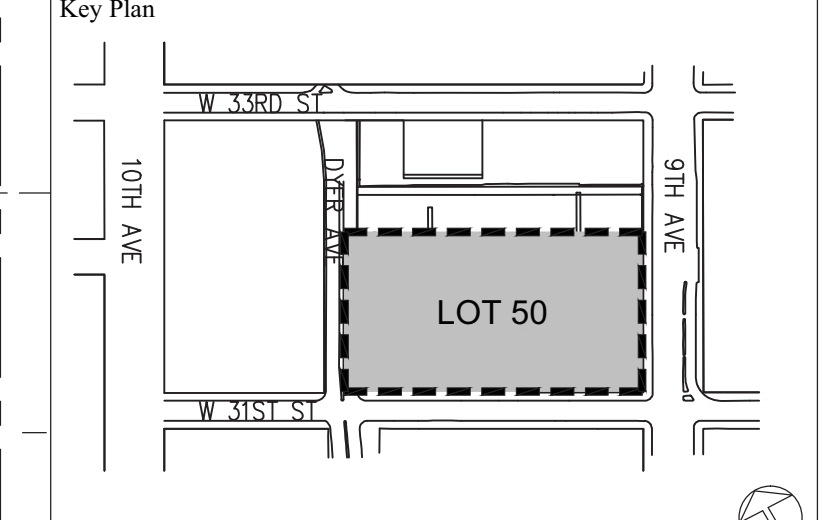
BLOCK 729
LOT 50

FUTURE 9" CONCRETE SLAB ON 3" COMPOSITE METAL DECK. STRUCTURE DESIGNED TO SUPPORT ASSUMED CONSTRUCTION LOADS OF:
WL = 300 PSF
WSDL = 50 PSF
WD = 150 PSF

FUTURE PORTION OF GROUND LEVEL FRAMING SHOWN DOTTED



FOR BUILDING DEPARTMENT APPROVAL

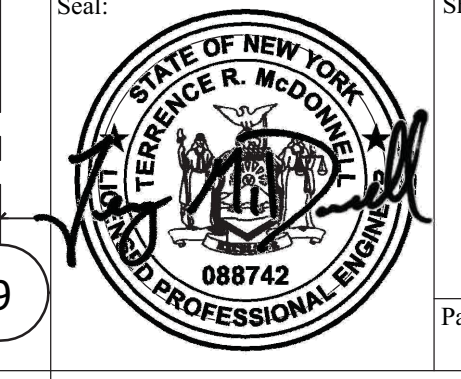


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	EN

Sheet Name:
**D.O.B. SUBMISSION
GROUND LEVEL PARTIAL
FRAMING PLAN C
(LOT 50)**

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Date: MARCH 2011
File No.:
Sheet No.:

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-106C.00
Page Count:



ROCK ANCHOR SCHEDULE							
ROCK ANCHOR TYPE	WORKING LOAD (KIPS)	ANCHOR		FREE LENGTH (ft)	BOND LENGTH (ft)	EMBEDMENT LENGTH (ft)	REMARKS
		No	SIZE				
RA'1	2700	4	3"Ø	15'	45'	60'	
RA'2	1500	4	3"Ø	10'	25'	35'	
RA'3	1000	2	3"Ø	10'	35'	45'	

- NOTES:**
- ROCK ANCHORS ARE TO BE SAS STRESSTEEL GRADE 150 ANCHORS OR EQUIVALENT.
 - ROCK ANCHORS TO HAVE DOUBLE CORROSION PROTECTION SYSTEM TYPICAL.
 - MIN SPACING OF ROCK ANCHORS IS 3'-0" c/c, INCLUDING ALLOWABLE CONSTRUCTION TOLERANCES OF 3" PER ANCHOR. ANCHORS ARE TO BE LAID OUT AND DRILLED AT 3'-6" c/c. AFTER ANCHORS ARE DRILLED, FIELD MEASURE LOCATION OF ROCK ANCHORS AND DRILL BASE PLATES TO SUIT AS BUILT ROCK ANCHOR LOCATIONS.

- INSTALLATION PROCEDURE**
- DETERMINE ANCHOR LOCATION AS INDICATED ON DRAWINGS.
 - DRILL 8"Ø HOLE TO SPECIFIED DEPTH.
 - CLEAN DRILL HOLE OF ALL DEBRIS.
 - INSERT A GROUT PIPE TO THE BOTTOM OF THE ANCHOR HOLE, PUMP FULL OF CEMENT GROUT AND DISPLACE ANY STANDING WATER.
 - REMOVE GROUT PIPE AND INSTALL THE PRE-ASSEMBLED ANCHOR INTO GROUTED HOLE.
 - AFTER GROUT REACHES SPECIFIED STRENGTH, TEST ANCHORS USING A CALIBRATED CENTER HOLE JACK.
 - AFTER SUCCESSFUL TESTING, LOCK OFF ANCHOR AT SPECIFIED LOAD, USING EXTERNAL WRENCH AND RELEASE PRESSURE FROM JACK.
 - INSTALL FOOTING REINFORCEMENT.
 - INSTALL TEMPLATE FOR ROCK ANCHORS AND SECURE IN PLACE TO AVOID SHIFTING OF ANCHORS DURING CONCRETING.
 - POUR CONCRETE FOOTINGS.
 - MEASURE AS BUILT LOCATION OF ROCK ANCHORS. DRILL BASE PLATE TO SUIT AS BUILT LOCATION OF ROCK ANCHORS.
 - ERECT STEEL COLUMNS AND INSTALL ROCK ANCHOR PLATE WASHERS AND HEX NUTS.
 - INSTALL FOOTING CAP REINFORCEMENT AND CONCRETE FOOTING CAP.

- GENERAL NOTES**
- ROCK ANCHORS SHALL BE IN CONFORMANCE WITH PTI (POST TENSIONING INSTITUTE) LATEST RECOMMENDATIONS ON ROCK & SOIL ANCHORS.
 - ALL ANCHORS SHALL BE 3" DIAMETER SAS STRESSTEEL THREADED BARS OR EQUIVALENT, GRADE 150 KSI, MEETING OR EXCEEDING PROPERTIES OF ASTM A-722.
 - PROVIDE DOUBLE CORROSION PROTECTION SYSTEM ON ALL ROCK ANCHORS.
 - ANCHOR NUTS & COUPLERS SHALL BE CAPABLE OF DEVELOPING 100% OF THE ULTIMATE STRENGTH OF THREADBAR.
 - CARE MUST BE TAKEN NOT TO DAMAGE THE THREADED BARS DURING FABRICATION OR INSTALLATION.
 - DO NOT WELD IN THE VICINITY OF THE HIGH STRENGTH BARS.
 - DO NOT USE ANCHORS AS A GROUND FOR WELDING.
 - THE FIRST THREE ANCHORS INSTALLED AND A MINIMUM OF 10% OF THE REMAINING ANCHORS SHALL BE PERFORMANCE TESTED, ALL OTHER ANCHORS SHALL BE PROOF TESTED AS NOTED BELOW.
 - PERFORMANCE TEST SHALL BE CONDUCTED BY LOADING AND UNLOADING THE ANCHOR AS NOTED BELOW:

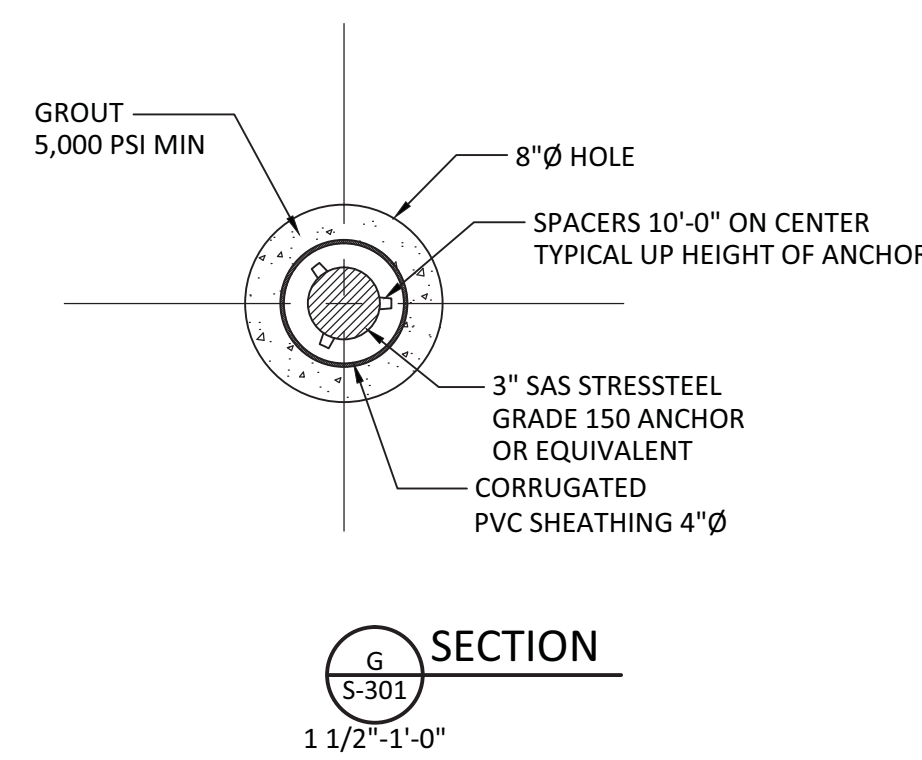
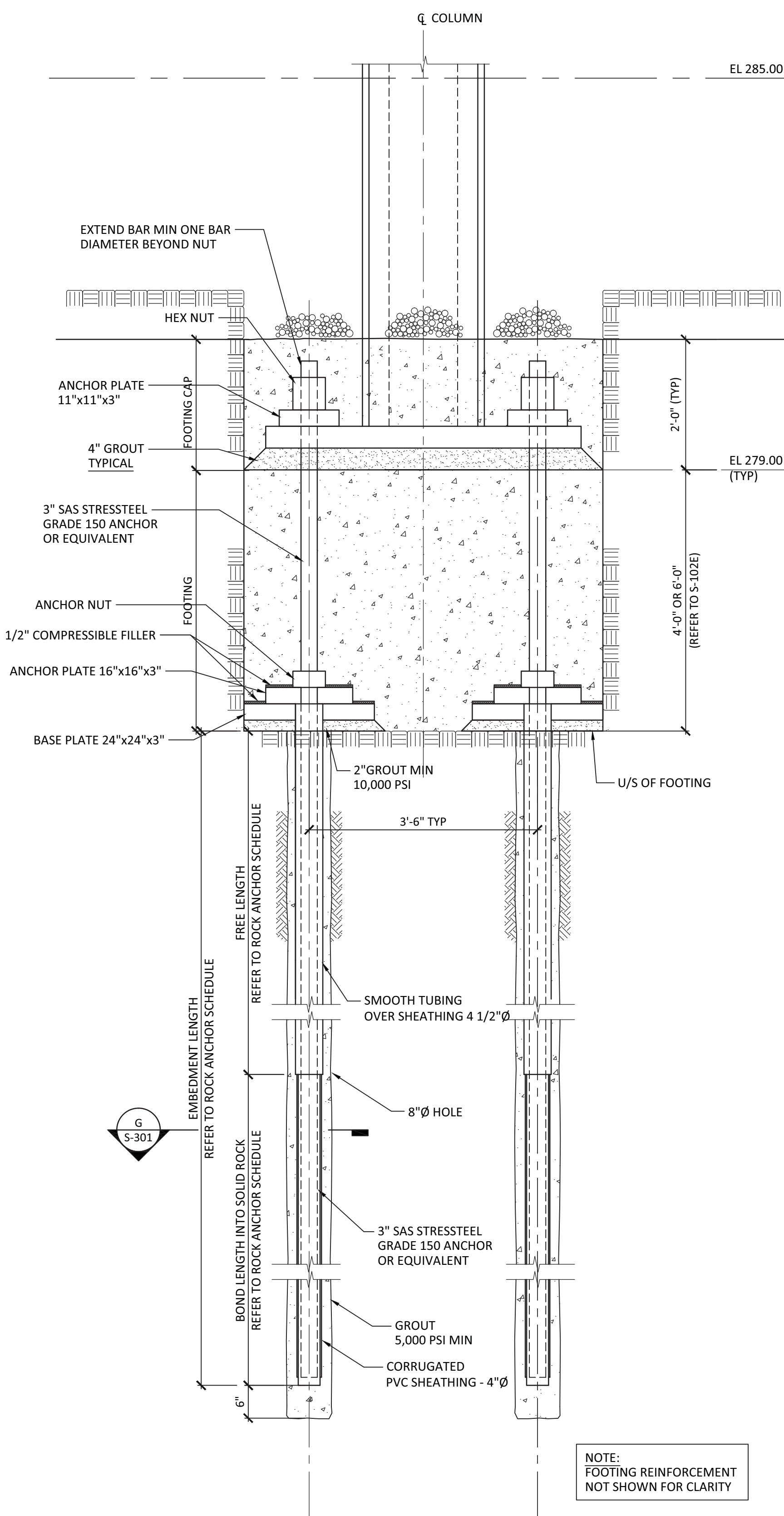
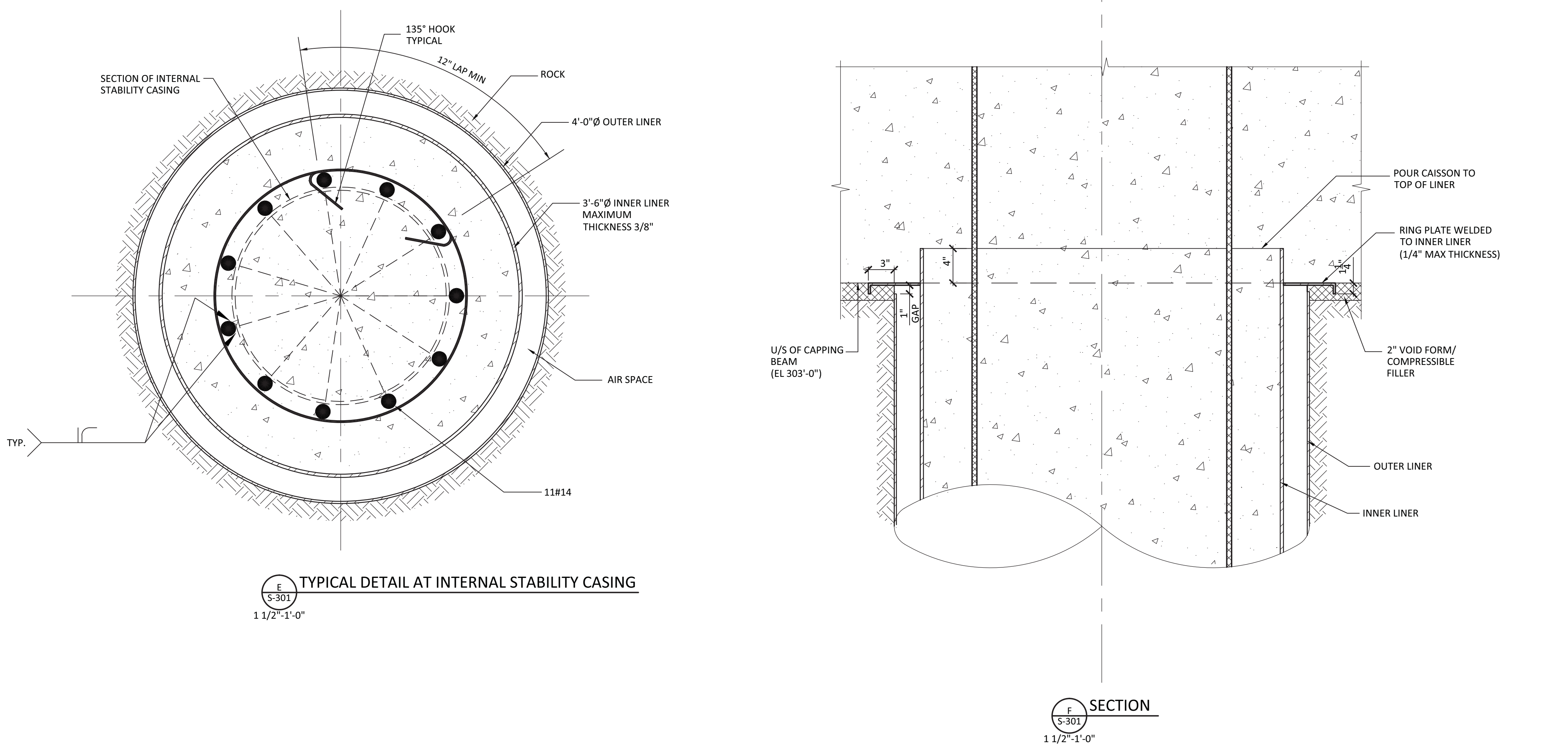
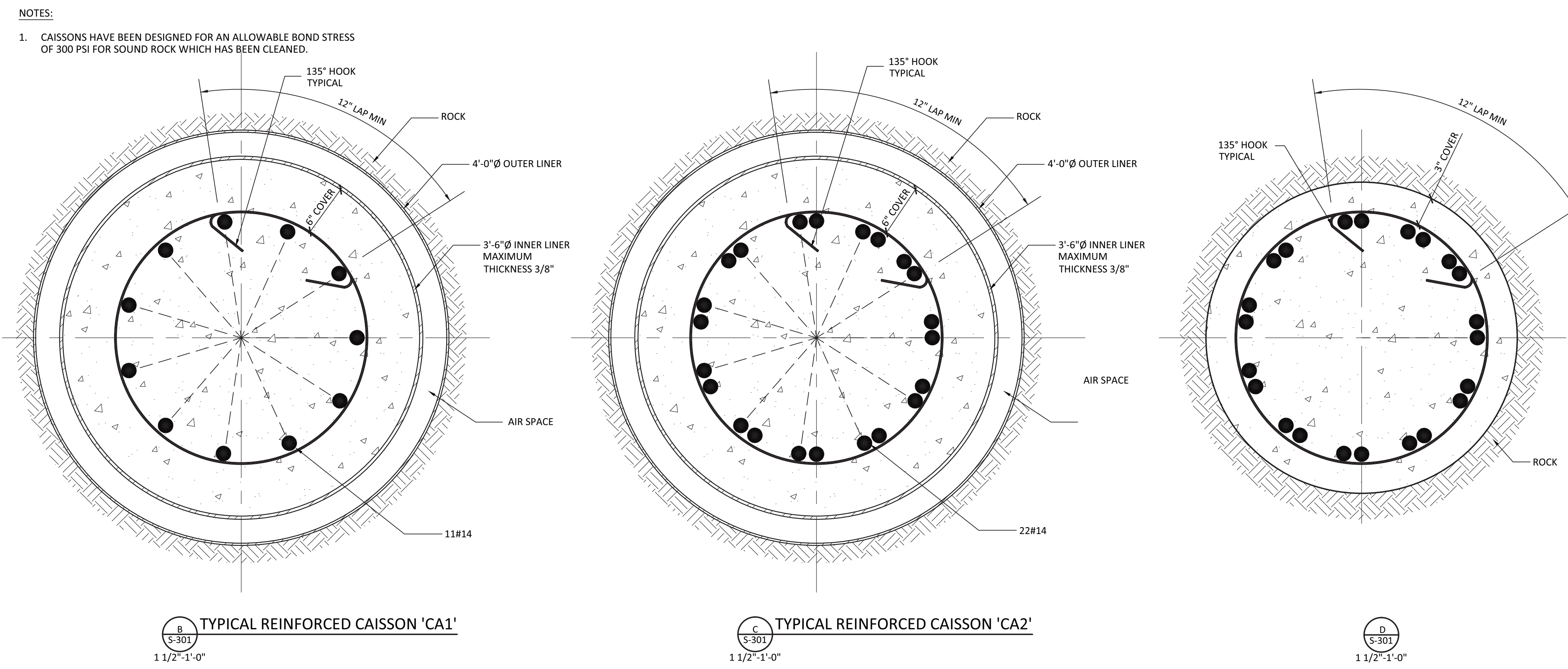
25P	P VARIES, REFER TO ROCK ANCHOR SCHEDULE
25P, 50P	
25P, 50P, 75P	
25P, 50P, 75P, 1.00P	
25P, 50P, 75P, 1.00P, 1.20P	
25P, 50P, 75P, 1.00P, 1.20P, 1.33P	

 HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS AT 0.1, 2.2, 4.5, 6 AND 10 MINUTES. THE ANCHOR IS ACCEPTABLE IF ANCHOR MOVEMENT BETWEEN THE 1 MIN AND 10 MIN DOES NOT EXCEED 0.040". RELEASE TO TRANSFER LOAD AND LOCK OFF ANCHOR NUT.
 - PROOF TESTS SHALL BE CONDUCTED BY INCREMENTALLY LOADING THE ANCHOR AS NOTED BELOW:

25P, 50P, 75P, 1.00P, 1.20P, 1.33P

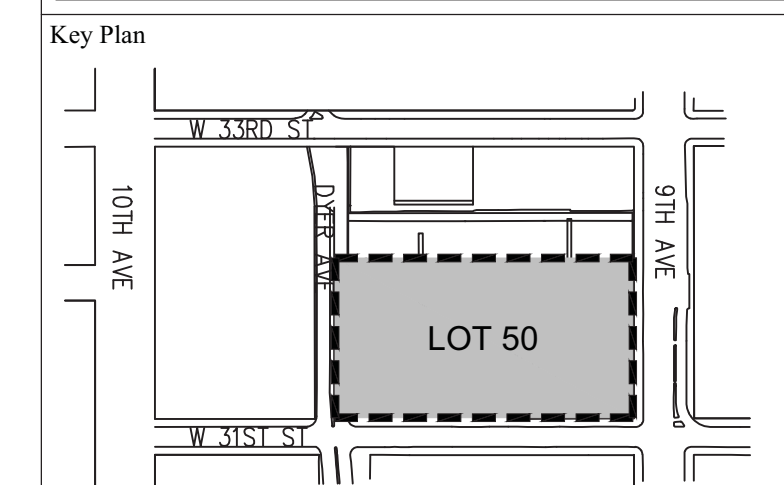
 HOLD 1.33P FOR CREEP TEST AS ABOVE.

CAISSON SCHEDULE															
CAISSON MARK	SERVICE LOAD CAPACITY DOWN (+ve) (Kips)	SERVICE LOAD CAPACITY UP (-ve) (Kips)	SERVICE MOMENT (Kips.FT)	ROCK SOCKET DIAMETER	ROCK SOCKET LENGTH	FRICTIONLESS LENGTH	SHAFT DIAMETER	TOP OF CAISSON ELEVATION	CAISSON LENGTH	LONGITUDINAL REINF BARS		CIRCULAR TIES		CONCRETE GRADE (PSI)	REMARKS
										No	SIZE	SIZE	SPACING (IN)		
CA'1	3925	-	1900	3'-0"	12'-0"	23'-4"	3'-6"	303'-4"	35'-4"	11 (FULL HEIGHT) 11 (ADDED IN ROCK SOCKET)	#14	#5	12	9500	'INNER' CAISSON
CA'2	1650	-255	1900	3'-0"	12'-0"	23'-4"	3'-6"	303'-4"	35'-4"	22 (FULL HEIGHT)	#14	#5	12	9500	'OUTER' CAISSON
CA'3	1650	-730	1900	3'-0"	15'-0"	23'-4"	3'-6"	303'-4"	38'-4"	-	-	#5	12	9500	'OUTER' CAISSON



TYPICAL ROCK ANCHOR DETAIL

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
CAISSON/ROCK ANCHOR
SCHEDULE
(LOT 50)**

Drawn By: TRG
Scale: N.T.S.
Project No.: T011-0003
Checked By: BC/DS
Date: MARCH 2011
File No.:

Sheet No.:
S-301.00
Page Count:



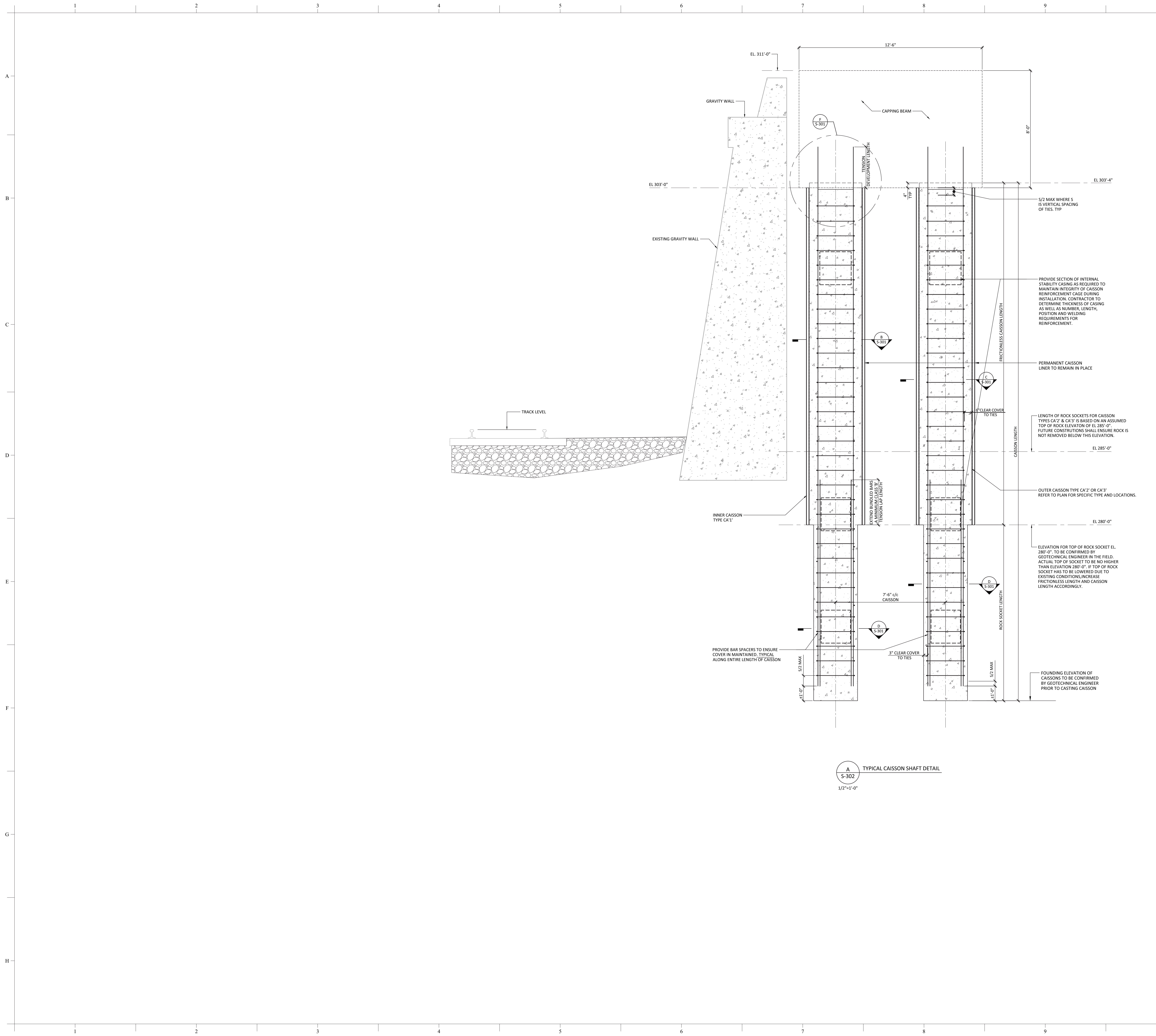
9th Avenue Development

New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOMERSET, DENNIS & MENELL LLP
18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com



A S-302 TYPICAL CAISSON SHAFT DETAIL
1/2"=1'-0"

PROVIDE SECTION OF INTERNAL STABILITY CASING AS REQUIRED TO MAINTAIN INTEGRITY OF CAISSON REINFORCEMENT CAGE DURING INSTALLATION. CONTRACTOR TO DETERMINE THICKNESS OF CASING AS WELL AS NUMBER, LENGTH, POSITION AND WELDING REQUIREMENTS FOR REINFORCEMENT.

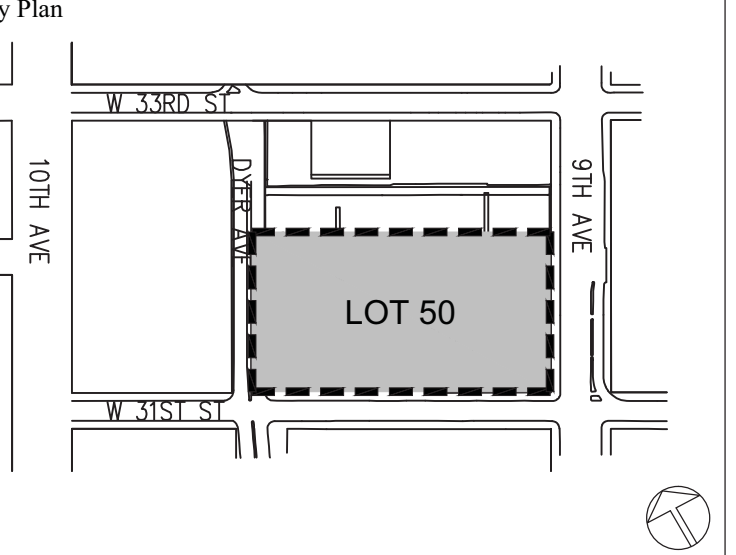
PERMANENT CAISSON LINER TO REMAIN IN PLACE

LENGTH OF ROCK SOCKETS FOR CAISSON TYPES CA'2' & CA'3' IS BASED ON AN ASSUMED TOP OF ROCK ELEVATION OF EL 285'-0". FUTURE CONSTRUCTION SHALL ENSURE ROCK IS NOT REMOVED BELOW THIS ELEVATION.

ELEVATION FOR TOP OF ROCK SOCKET EL 280'-0", TO BE CONFIRMED BY GEOTECHNICAL ENGINEER IN THE FIELD. ACTUAL TOP OF SOCKET TO BE NO HIGHER THAN ELEVATION 280'-0". IF TOP OF ROCK SOCKET HAS TO BE LOWERED DUE TO EXISTING CONDITIONS, INCREASE FRICTIONLESS LENGTH AND CAISSON LENGTH ACCORDINGLY.

FOUNDING ELEVATION OF CAISSONS TO BE CONFIRMED BY GEOTECHNICAL ENGINEER PRIOR TO CASTING CAISSON

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	DN

D.O.B. SUBMISSION CAISSON DETAILS (LOT 50)

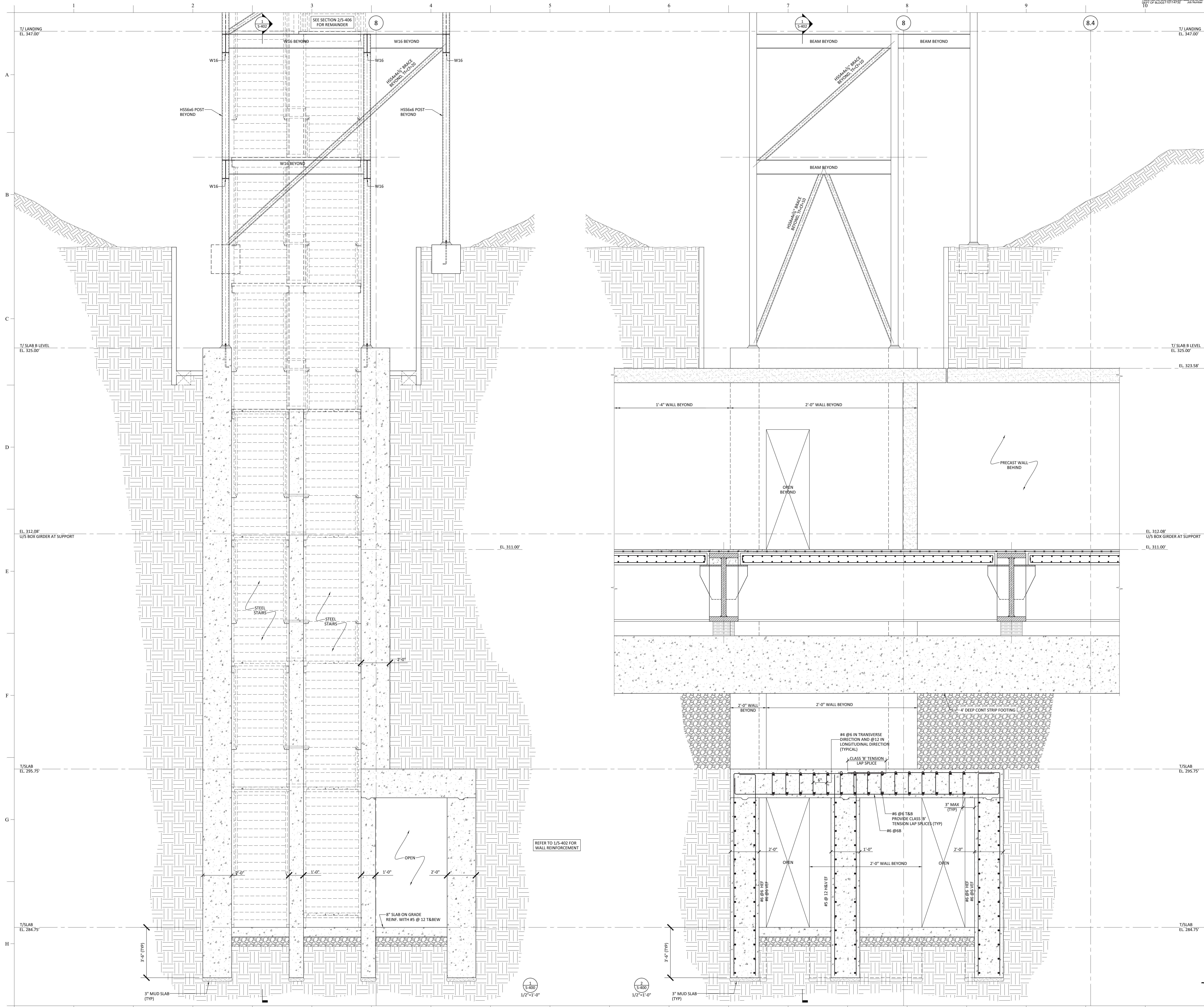
Drawn By: TRG
Scale: 1/2"=1'-0"
Project No.: T011-0003

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:

Professional Engineer Seal for the State of New York, No. 088742, dated 08/12/11.

Page Count:

S-302.00



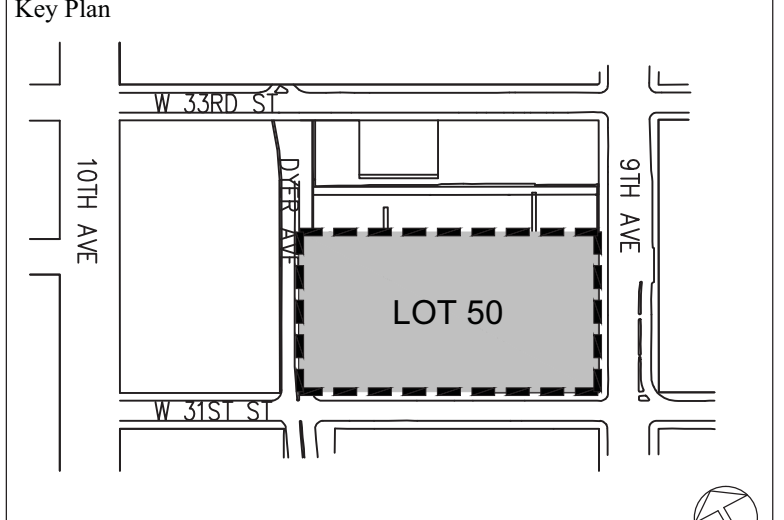
Project:
9th Avenue Development
 New York, NY

Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SKIDMORE, OWINGS & MERRILL LLP
 19 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 170 West Street, Suite 2002
 Toronto, ON M5E 1Y4
 Canada
 entuitive.com
 T: 416-477-5802

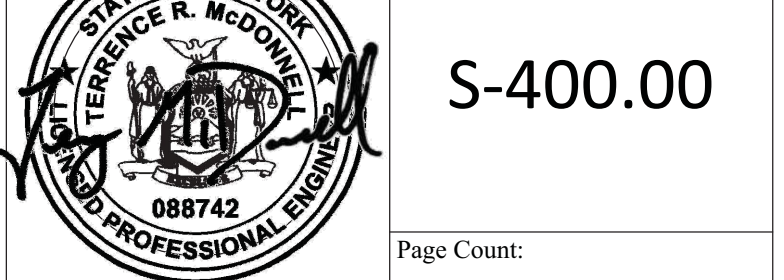
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TR

Sheet Name:
D.O.B. SUBMISSION FOUNDATION SECTIONS (LOT 50)

Drawn By: TRG
 Scale: AS SHOWN
 Project No: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No:
 Sheet No:



S-400.00
 Page Count:

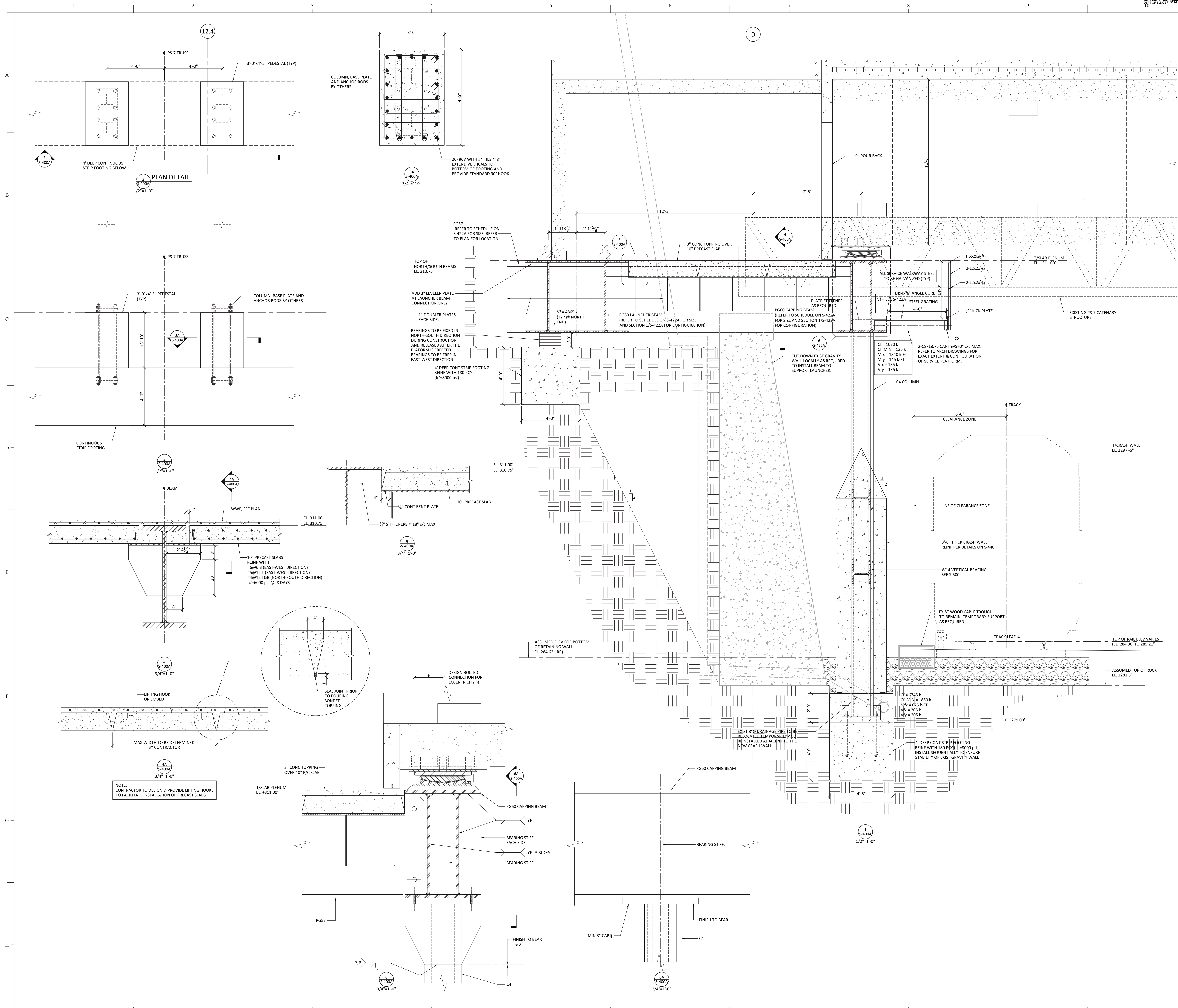
9th Avenue Development

New York, NY

Client:
Brookfield
 3 World Financial Center, New York, NY 10281

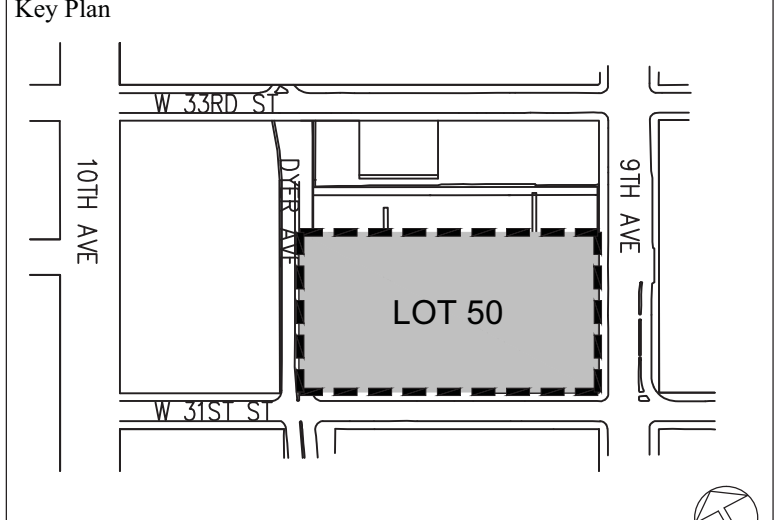
Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
 14 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
 1 Trump Street, Suite 2002
 Toronto, ON M5E 1H4
 Canada
 entuitive.com
 T. 416.477.5832



NOTE:
 CONTRACTOR TO DESIGN & PROVIDE LIFTING HOOKS
 TO FACILITATE INSTALLATION OF PRECAST SLABS

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:

D.O.B. SUBMISSION FOUNDATION SECTIONS (LOT 50)

Drawn By:
TRG
 Scale: AS SHOWN
 Project No.: T011-0003
 Seal: [Professional Engineer Seal]

Checked By:
BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:

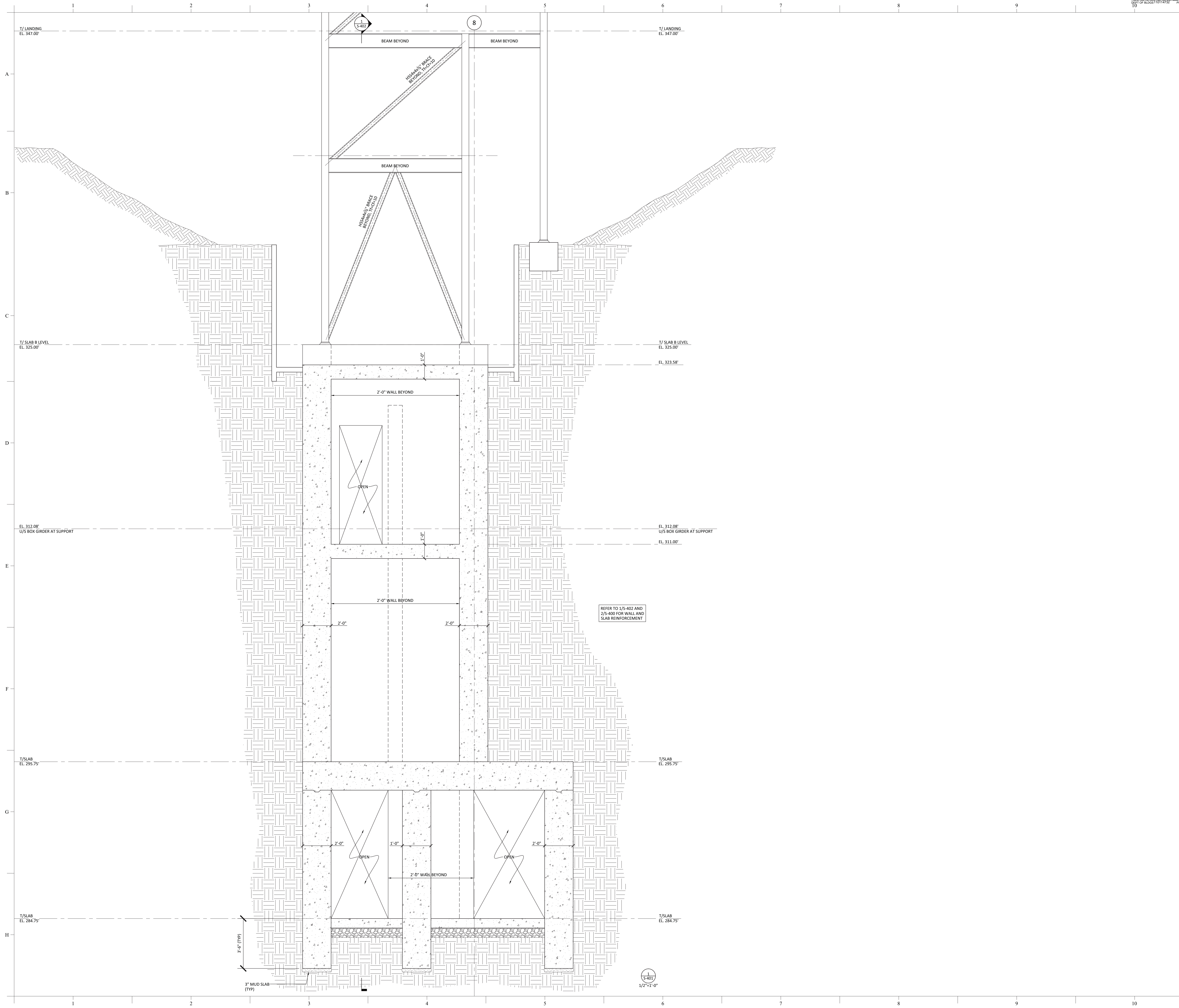
S-400A.00
 Page Count:

Project:
9th Avenue Development
 New York, NY

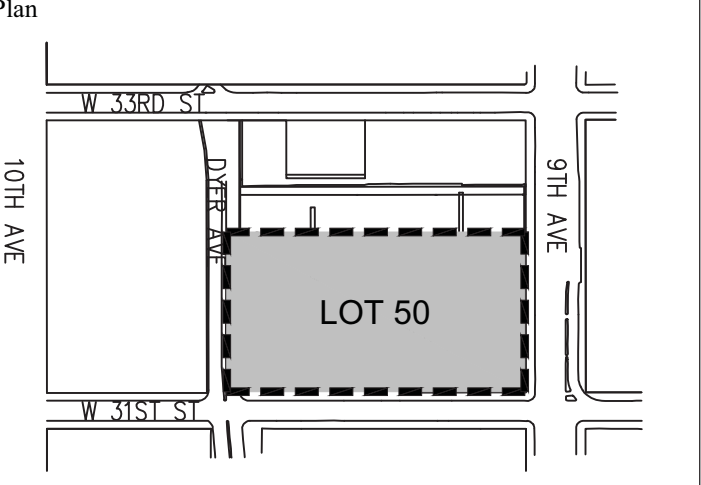
Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SHoP Architects & Partners LLP
 18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 850 West 25th Street, Suite 2002
 Toronto, ON M5E 1Y4 Canada
 entuitive.com T: 416.477.5802



FOR BUILDING DEPARTMENT APPROVAL

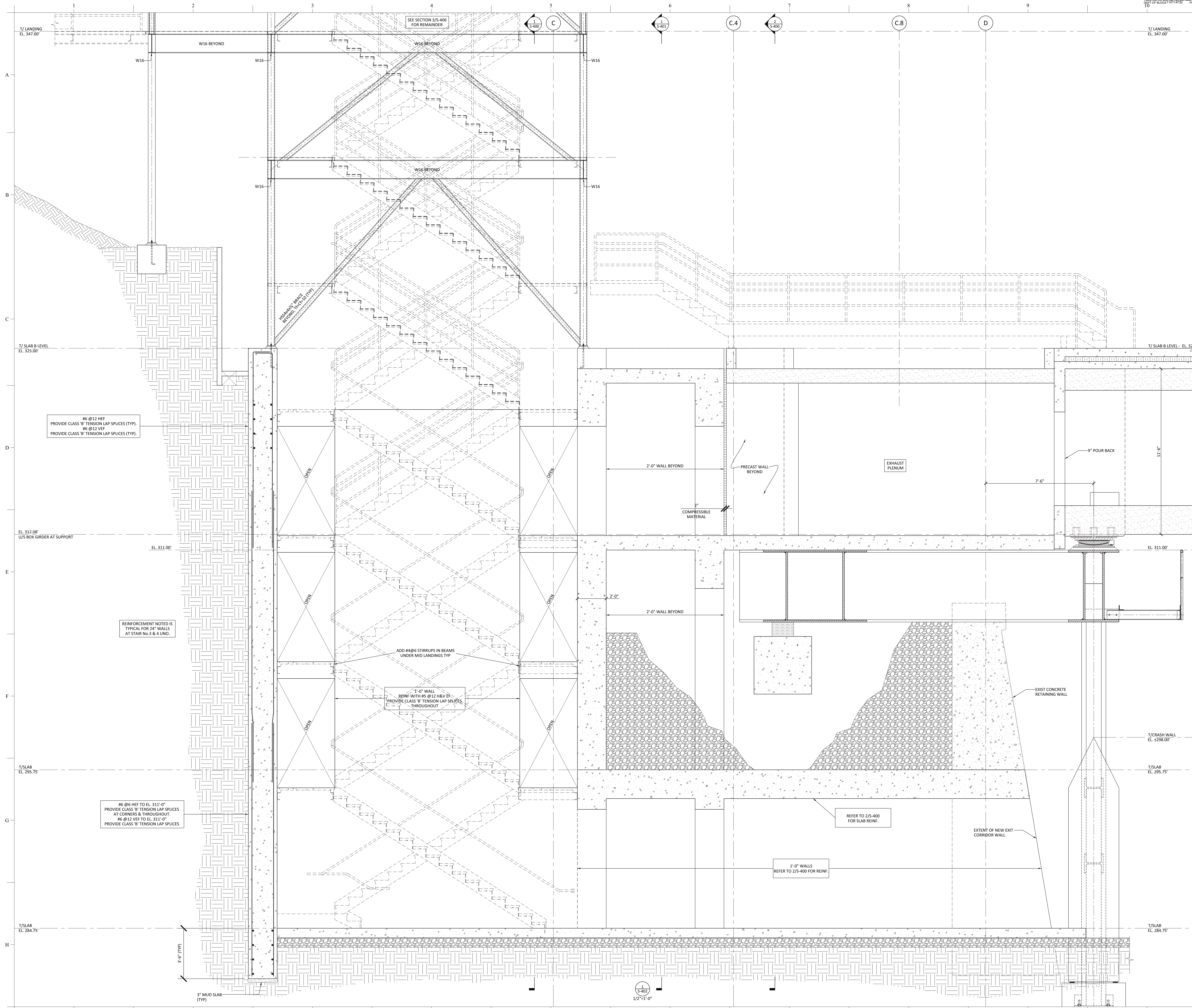


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
**D.O.B. SUBMISSION
 FOUNDATION SECTIONS
 (LOT 50)**

Drawn By: TRG
 Scale: AS SHOWN
 Project No.: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:

S-401.00
 Page Count:

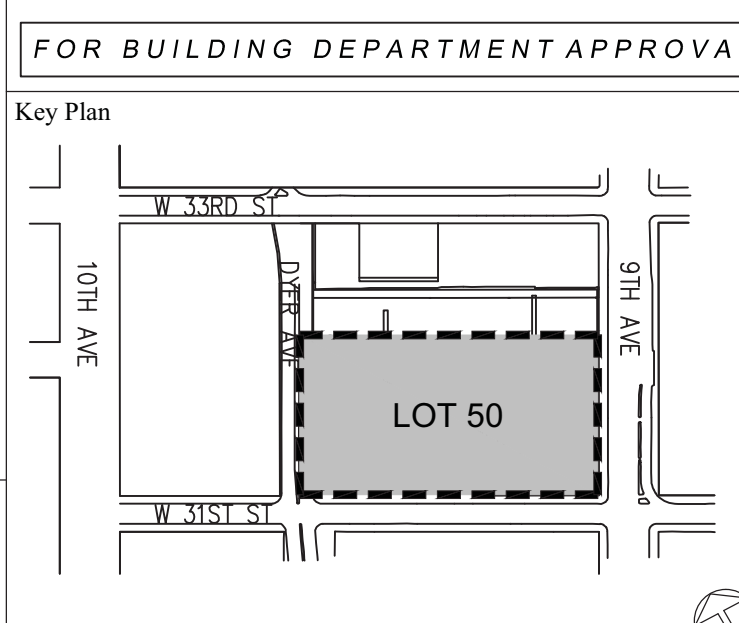


Project:
9th Avenue Development
 New York, NY

Client:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 SKIDMORE, OWINGS & MERRILL LLP
 110 WALL STREET - NEW YORK, NY 10038

Structural:
ENTUITIVE
 Entuitive Corporation
 1 Bridge Street, Suite 2002
 Toronto, ON M5E 1Y4
 Canada
 entuitive.com
 T: 416.477.5832



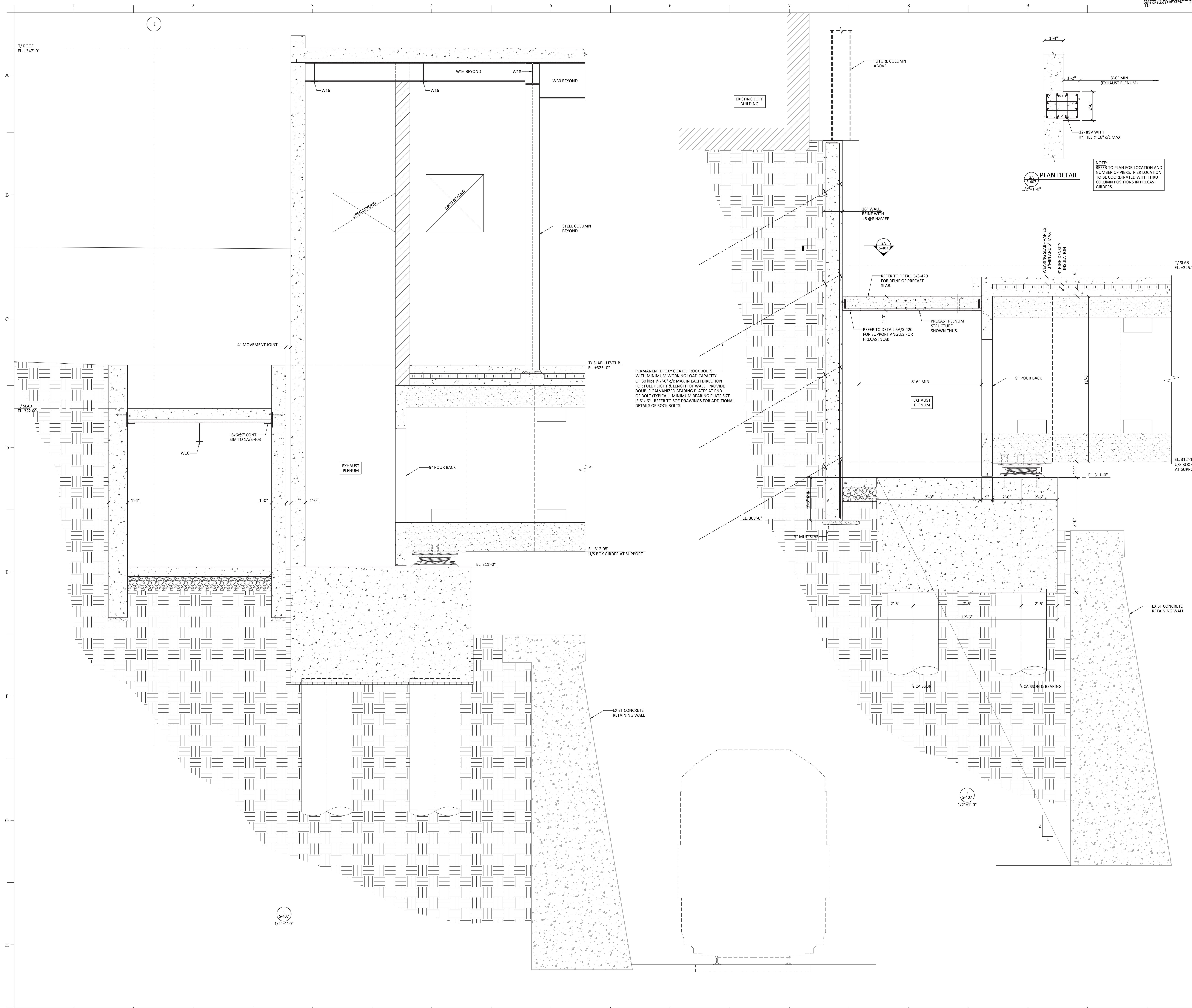
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TRG

Sheet Name:
D.O.B. SUBMISSION FOUNDATION SECTIONS (LOT 50)

Drawn By: TRG
 Scale: AS SHOWN
 Project No: T011-0003
 Seal: [Professional Engineer Seal]

Checked By: BC/DS
 Date: MARCH 2011
 File No.:
 Sheet No.:
S-402.00

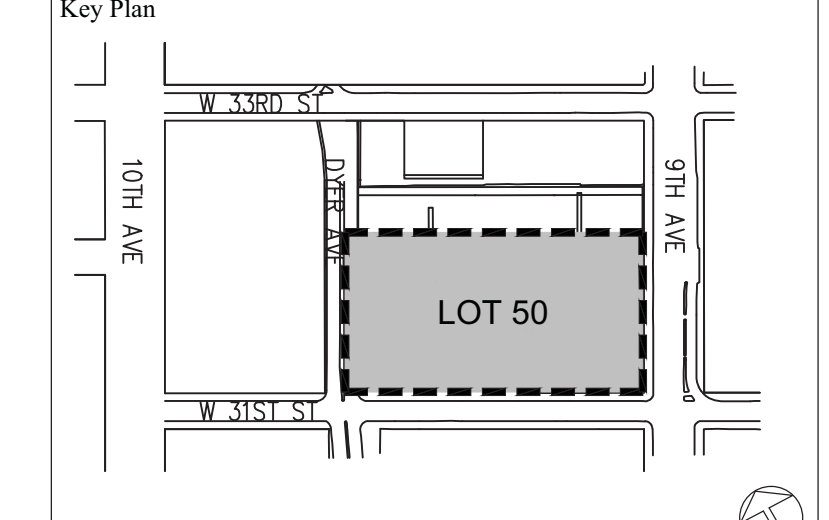
Page Count:



**9th Avenue
Development**
New York, NY



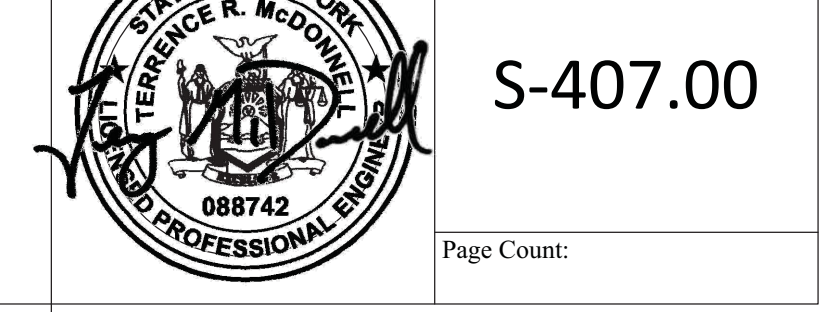
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.D.A. APPROVAL	MAY 31, 2012	TR

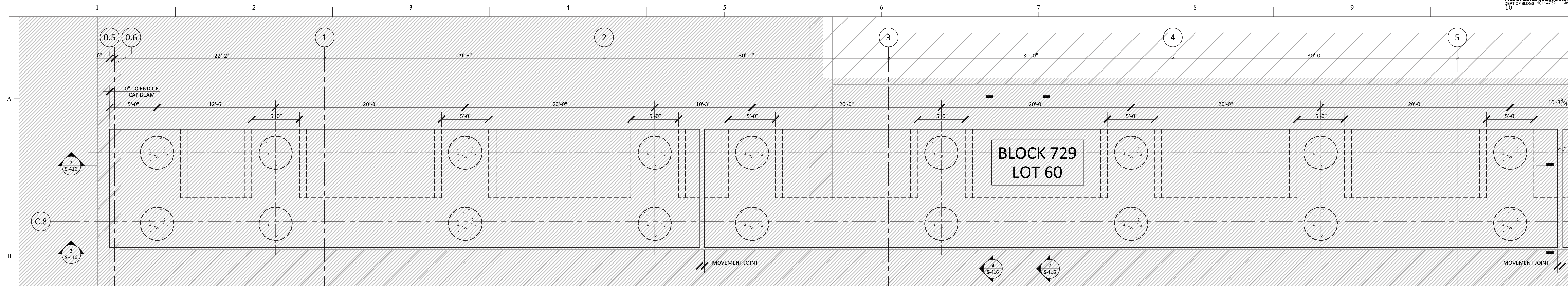
**D.O.B. SUBMISSION
FOUNDATION SECTIONS
(LOT 50)**

Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No: T011-0003	File No.:
Scale: AS SHOWN	Sheet No.:

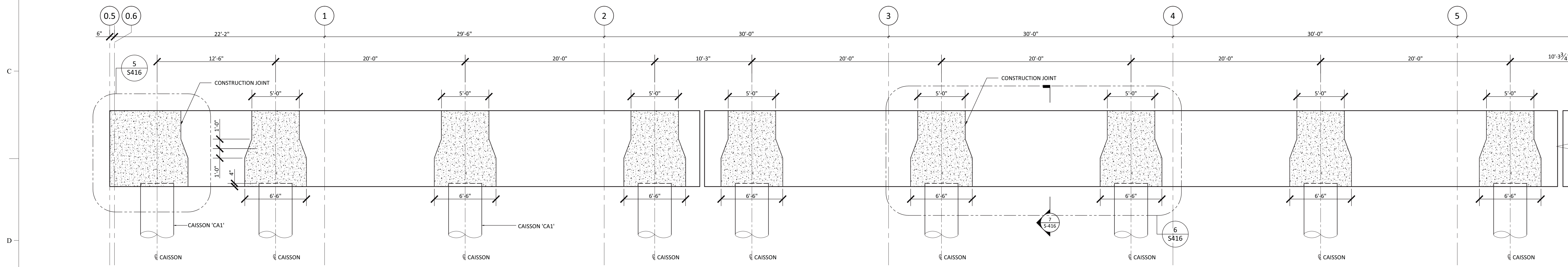


S-407.00

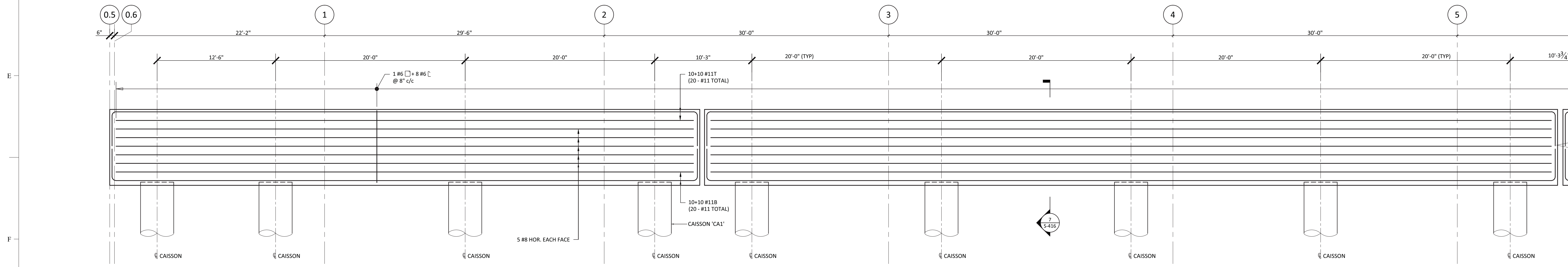
Page Count:



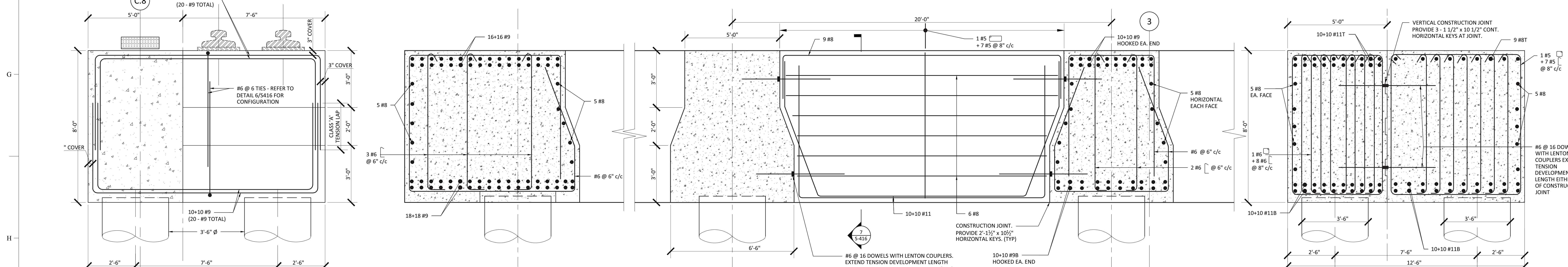
1 NORTH CAPPING BEAM PARTIAL PLAN
 S-416
 1/4" = 1'-0"



2 NORTH CAPPING BEAM PARTIAL SECTION
 S-416
 1/4" = 1'-0"



3 NORTH CAPPING BEAM PARTIAL ELEVATION
 S-416
 1/4" = 1'-0"



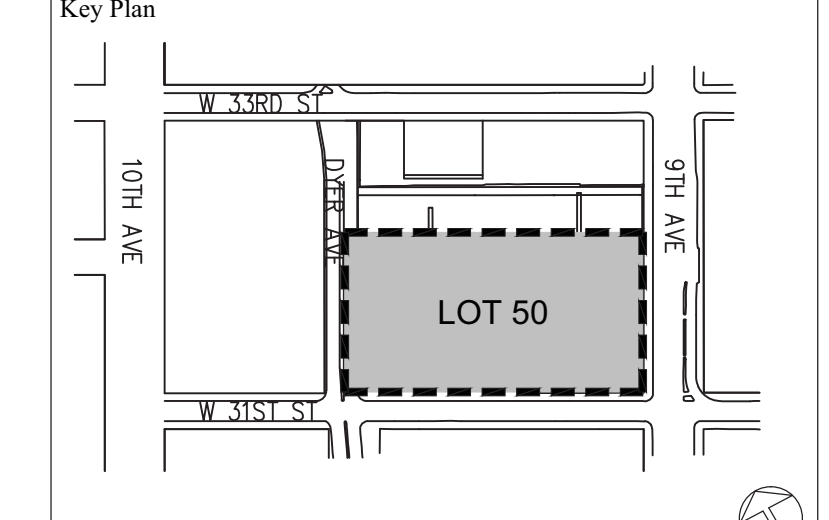
4 NORTH CAPPING BEAM PARTIAL SECTION
 S-416
 1/4" = 1'-0"

5 SECTION
 S-416
 1/2" = 1'-0"

6 SECTION
 S-416
 1/2" = 1'-0"

7 SECTION
 S-416
 1/2" = 1'-0"

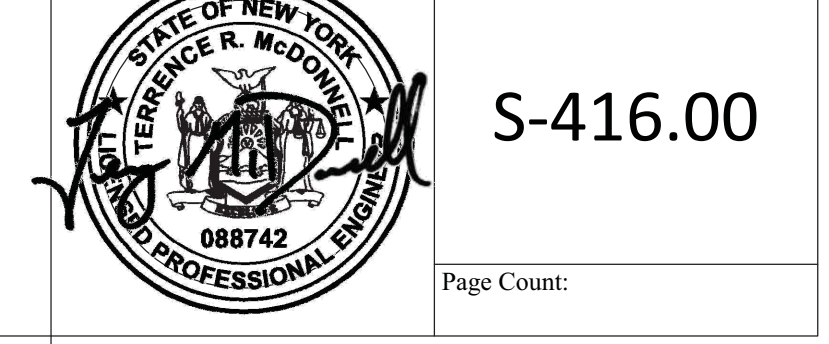
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

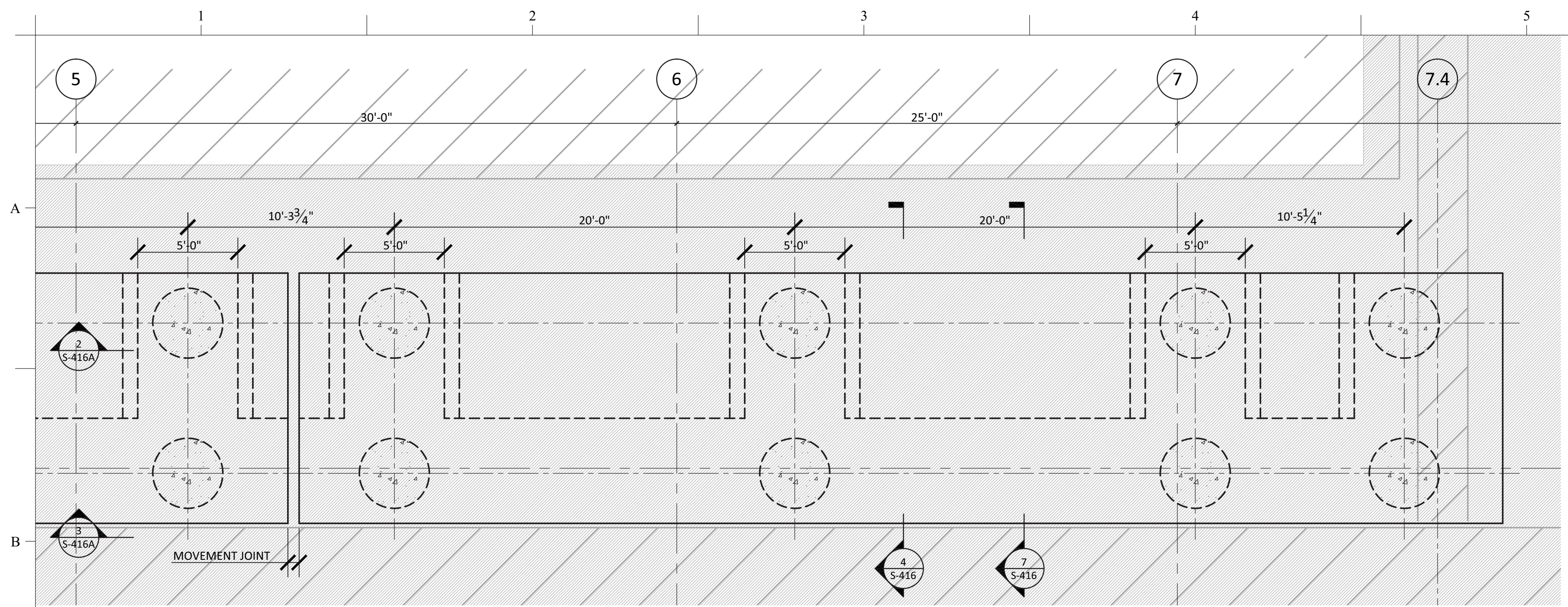
Sheet Name:
**D.O.B. SUBMISSION
 CONCRETE CAPPING BEAM
 (NORTH)
 (LOT 50)**

Drawn By: TRG
 Scale: AS SHOWN
 Project No: T011-0003
 Checked By: BC/DS
 Date: MARCH 2011
 File No:
 Sheet No:

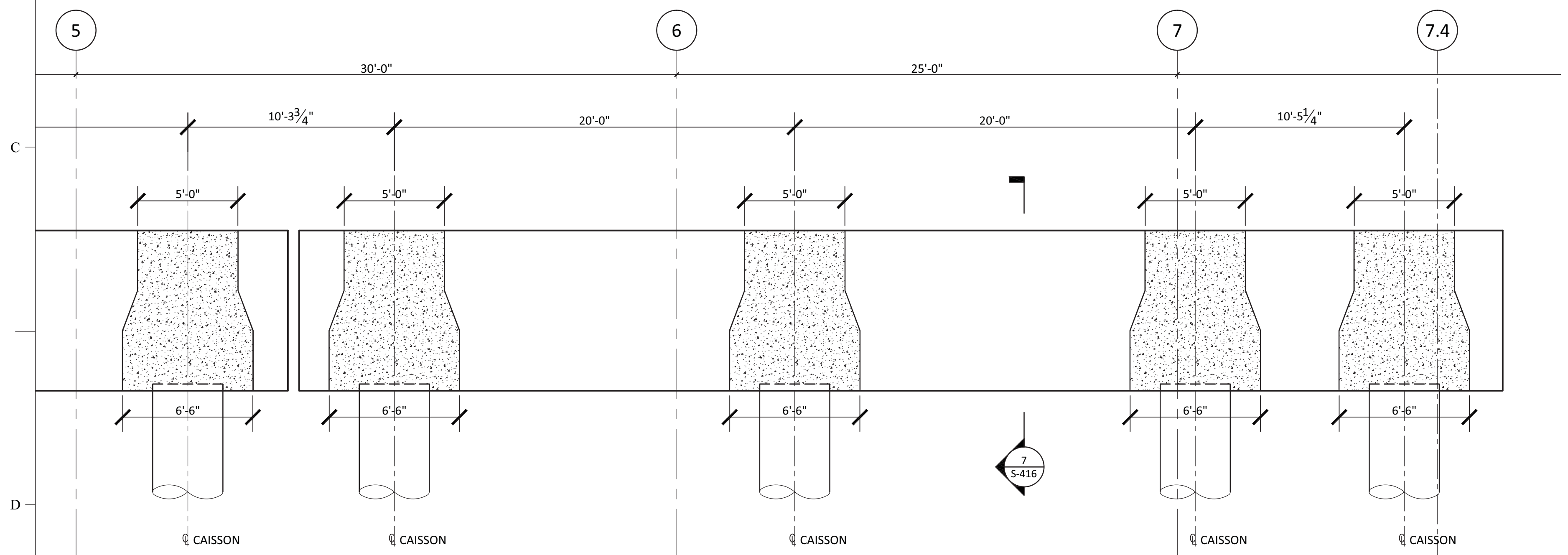


S-416.00

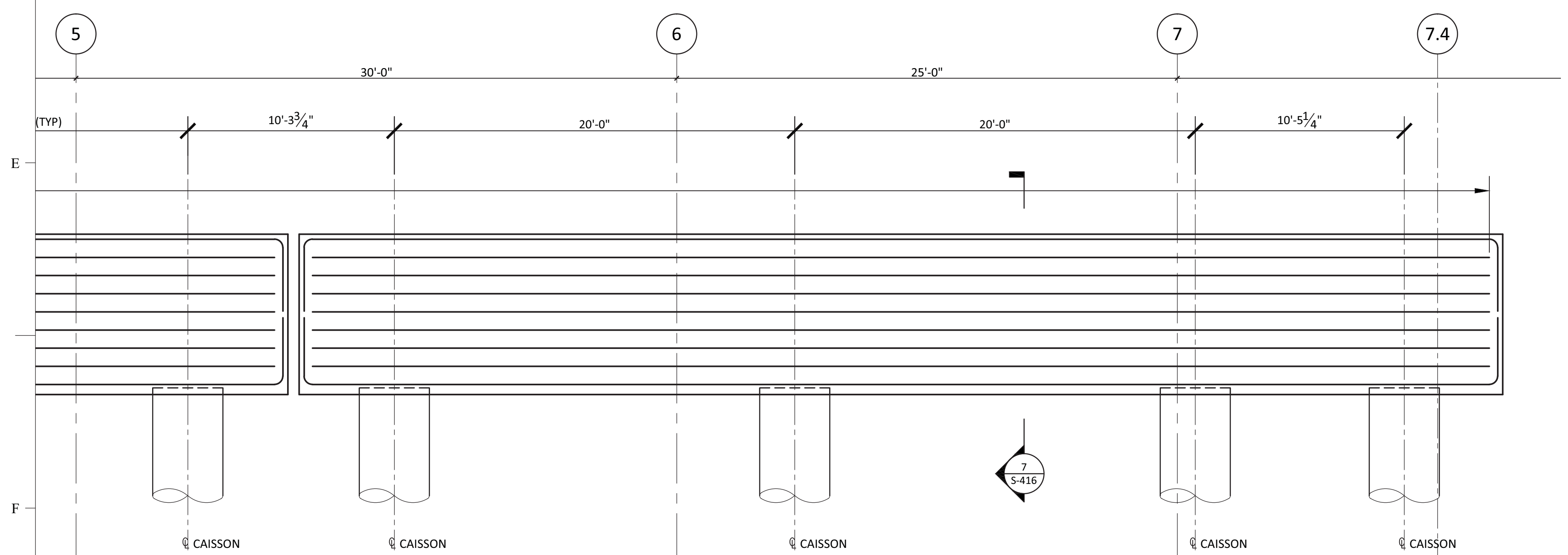
Page Count:



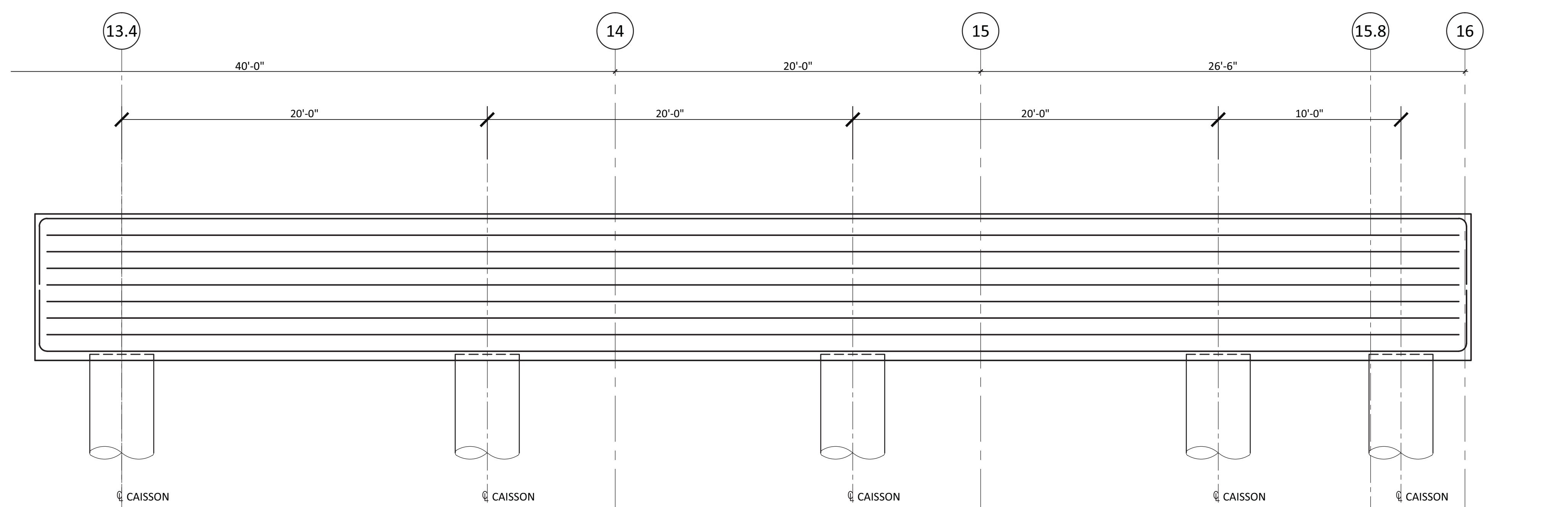
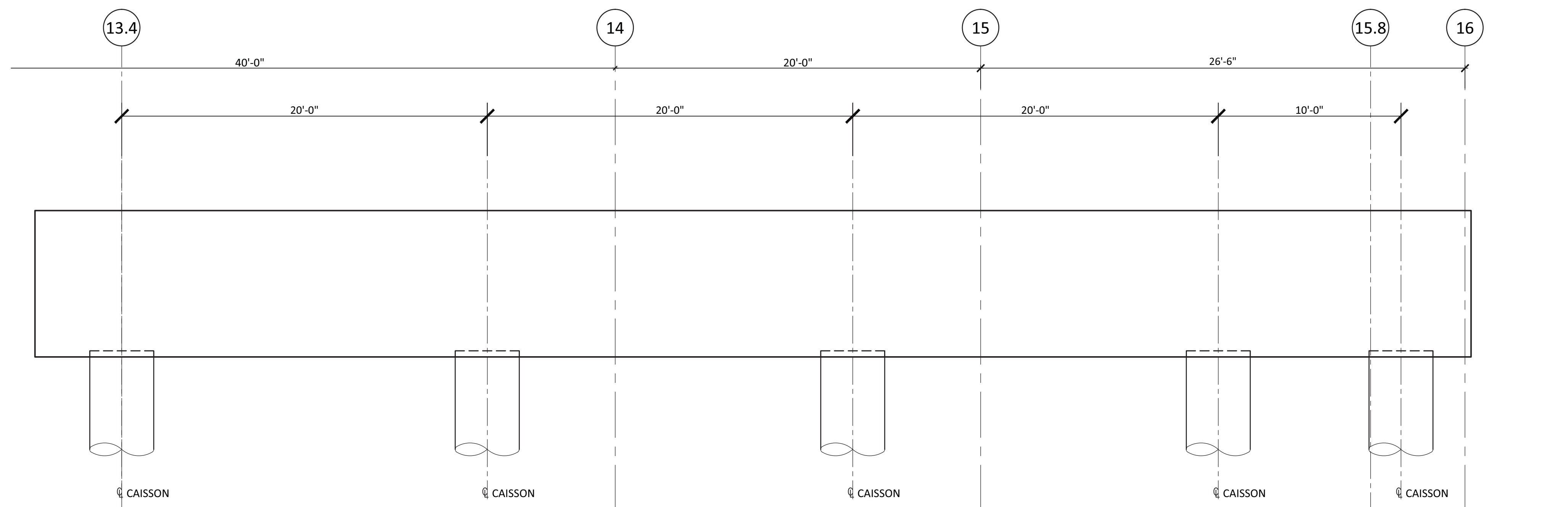
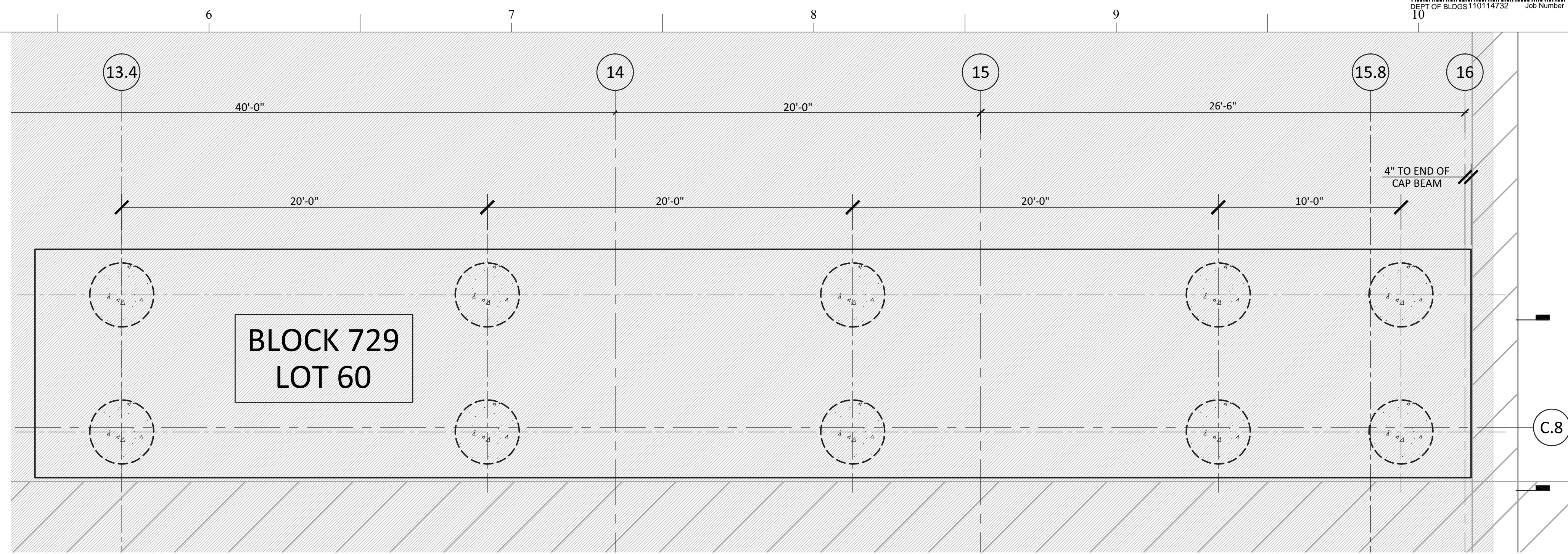
1 NORTH CAPPING BEAM PARTIAL PLAN
S-416A
1/4" = 1'-0"



2 NORTH CAPPING BEAM PARTIAL SECTION
S-416A
1/4" = 1'-0"



3 NORTH CAPPING BEAM PARTIAL ELEVATION
S-416A
1/4" = 1'-0"



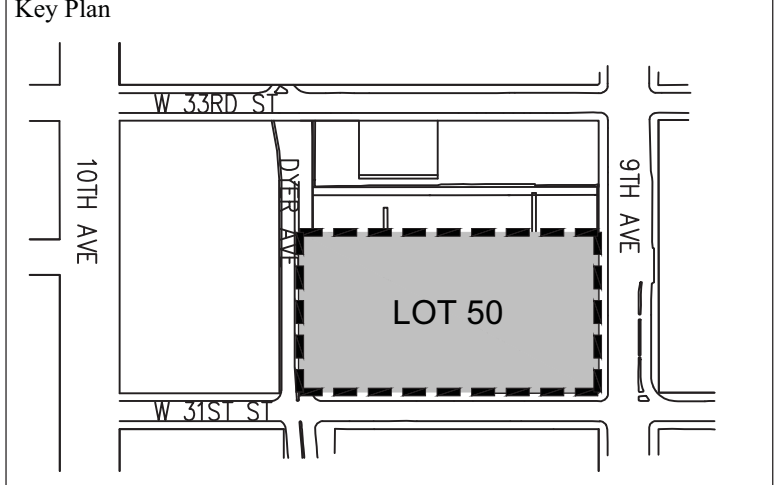
Project:
9th Avenue Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
Skidmore, OWINGS & MERRILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Bridge Street, Suite 2002
Toronto, ON M5E 1B4
Canada
entuitive.com
T: 416.477.5832

FOR BUILDING DEPARTMENT APPROVAL

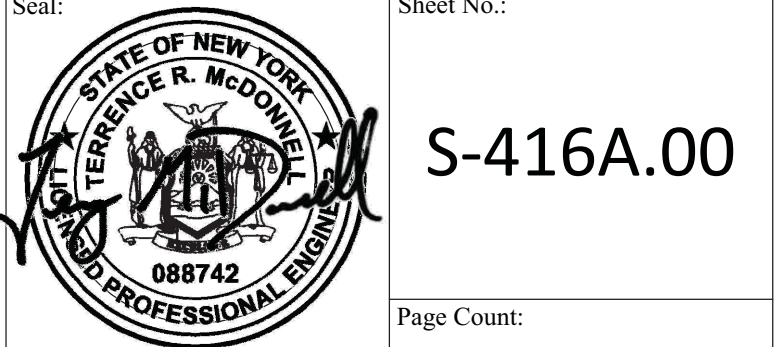


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	EN

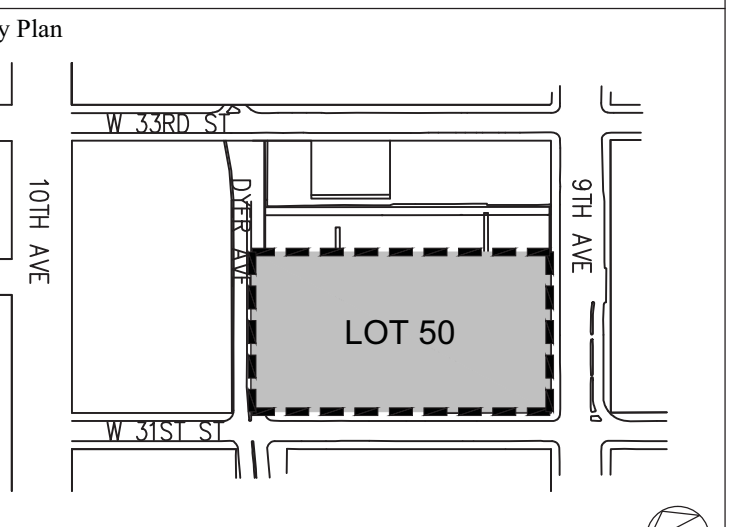
Sheet Name:
**D.O.B. SUBMISSION
CONCRETE CAPPING BEAM
(NORTH)
(LOT 50)**

Drawn By:
TRG
Scale:
AS SHOWN
Project No.:
T011-0003

Checked By:
BC/DS
Date:
MARCH 2011
File No.:
Sheet No.:
S-416A.00



FOR BUILDING DEPARTMENT APPROVAL

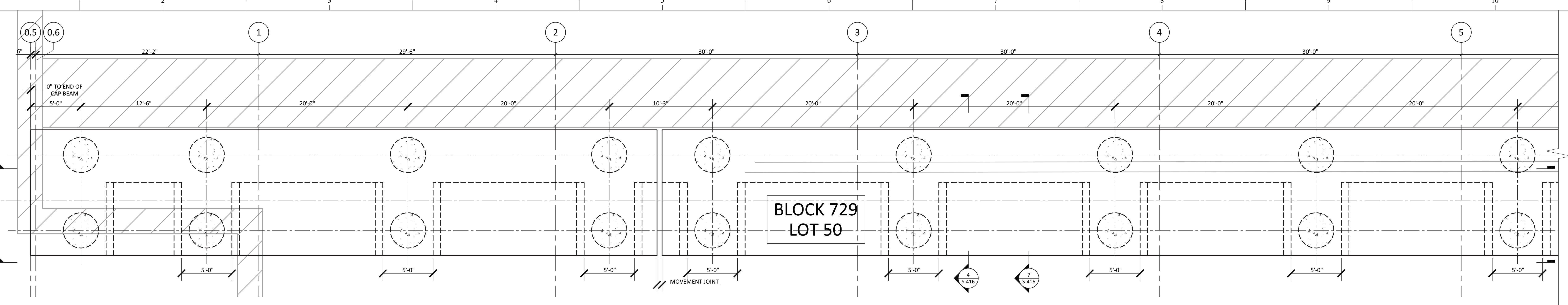


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TRG

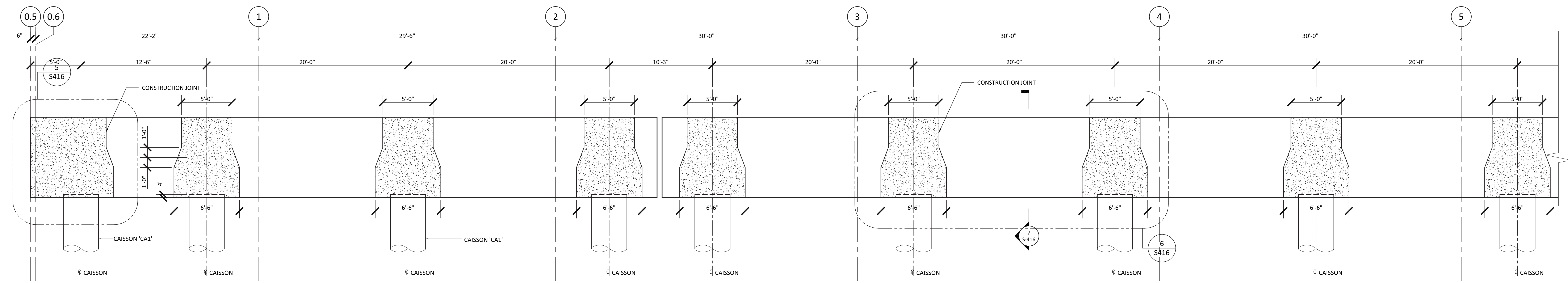
Sheet Name:
**D.O.B. SUBMISSION
CONCRETE CAPPING BEAM
(SOUTH)
(LOT 50)**

Drawn By: TRG
Checked By: BC/DS
Scale: AS SHOWN
Date: MARCH 2011
Project No: T011-0003
File No:
Sheet No:

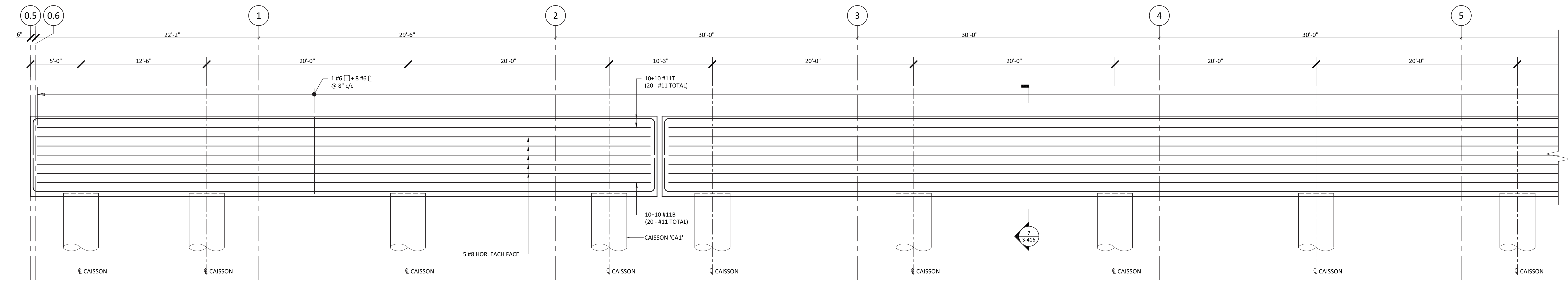
Page Count:



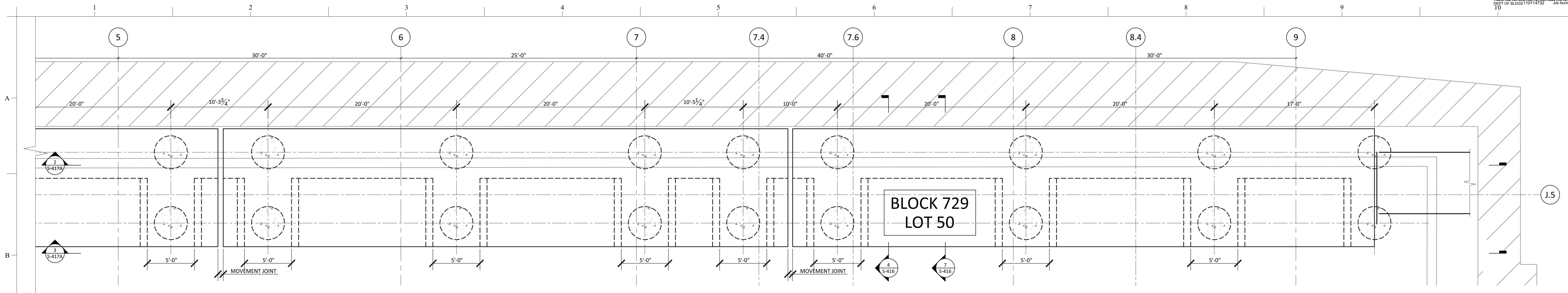
1 SOUTH CAPPING BEAM PARTIAL PLAN
1/4" = 1'-0"



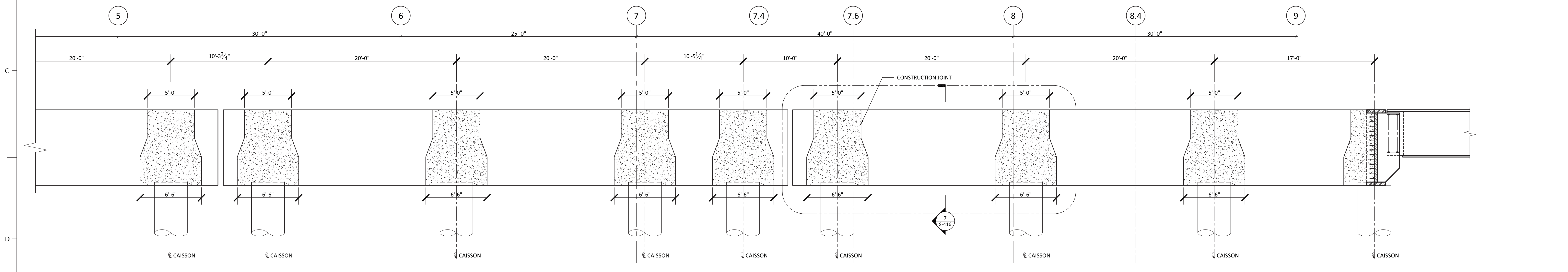
2 SOUTH CAPPING BEAM PARTIAL SECTION
1/4" = 1'-0"



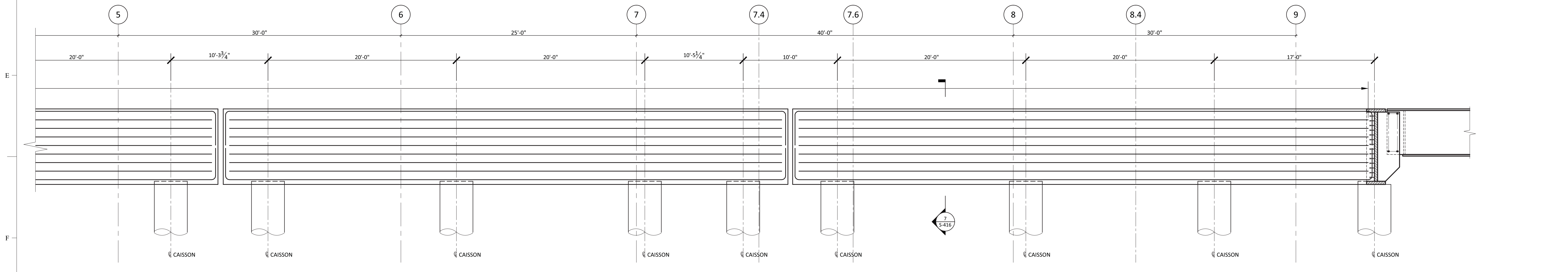
3 SOUTH CAPPING BEAM PARTIAL ELEVATION
1/4" = 1'-0"



1 SOUTH CAPPING BEAM PARTIAL PLAN
S-417A
1/4" = 1'-0"



2 SOUTH CAPPING BEAM PARTIAL SECTION
S-417A
1/4" = 1'-0"



3 SOUTH CAPPING BEAM PARTIAL ELEVATION
S-417A
1/4" = 1'-0"

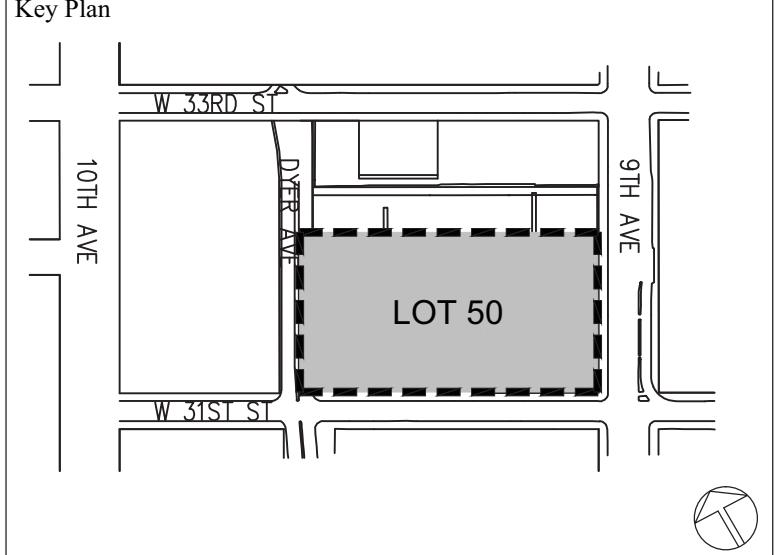
Project:
**9th Avenue
Development**
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SOM Architecture & Interiors, LLC
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
175 West Street, Suite 2002
New York, NY 10038
Tel: 416.477.5832
Canada: entuitive.com

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	EN

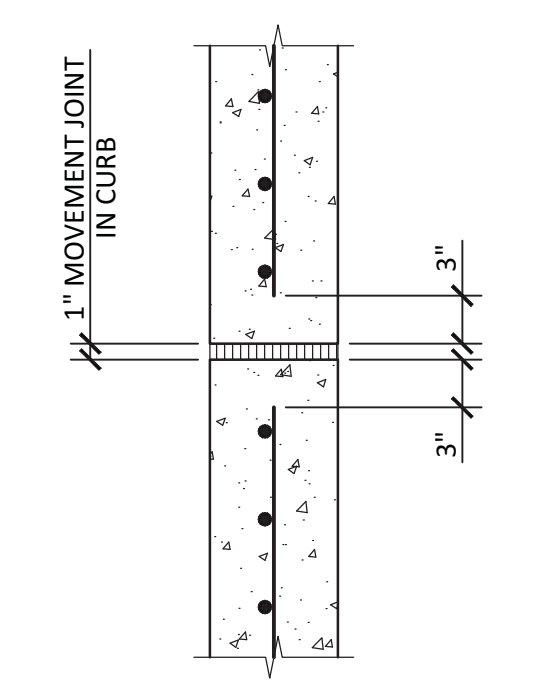
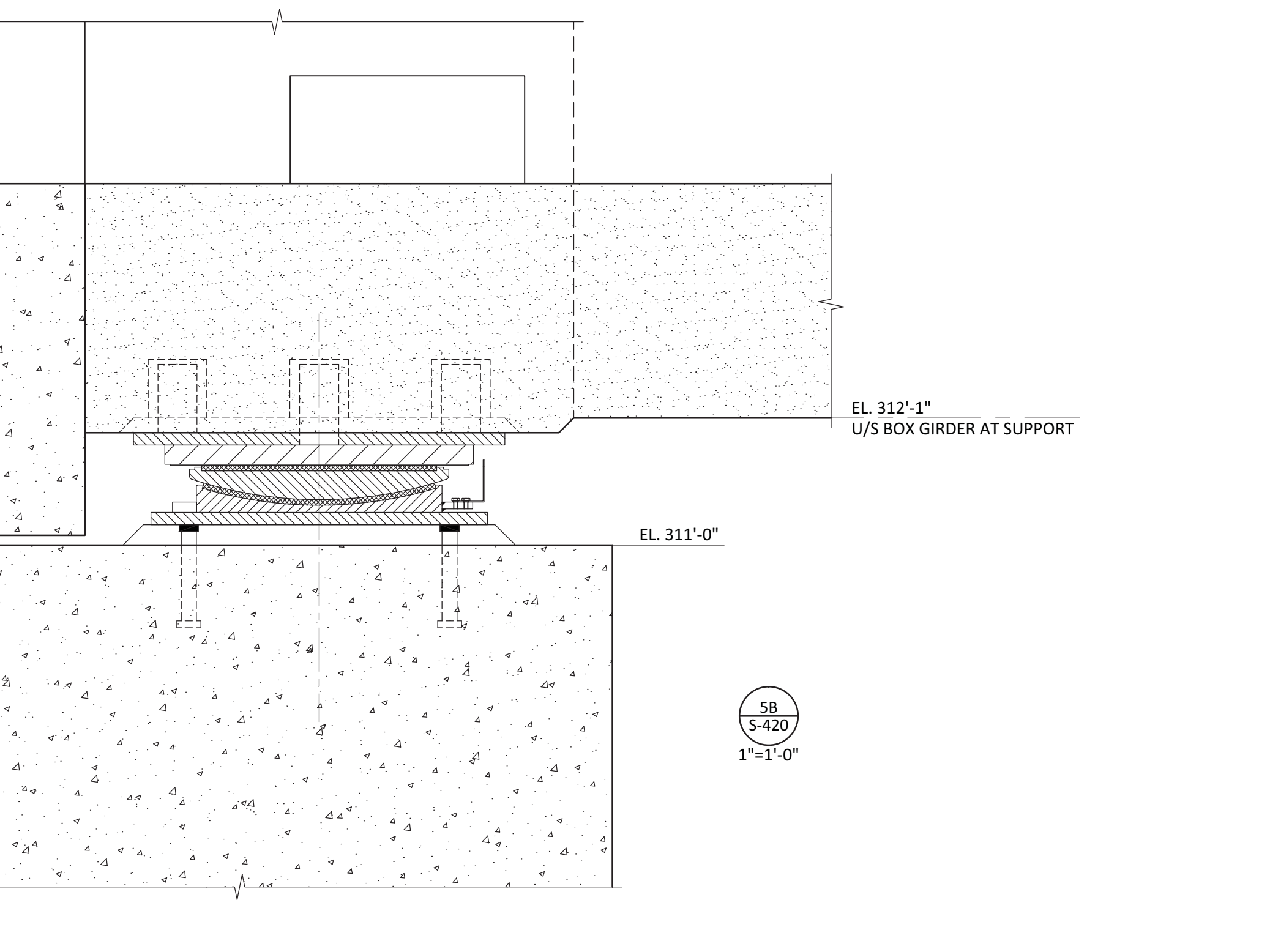
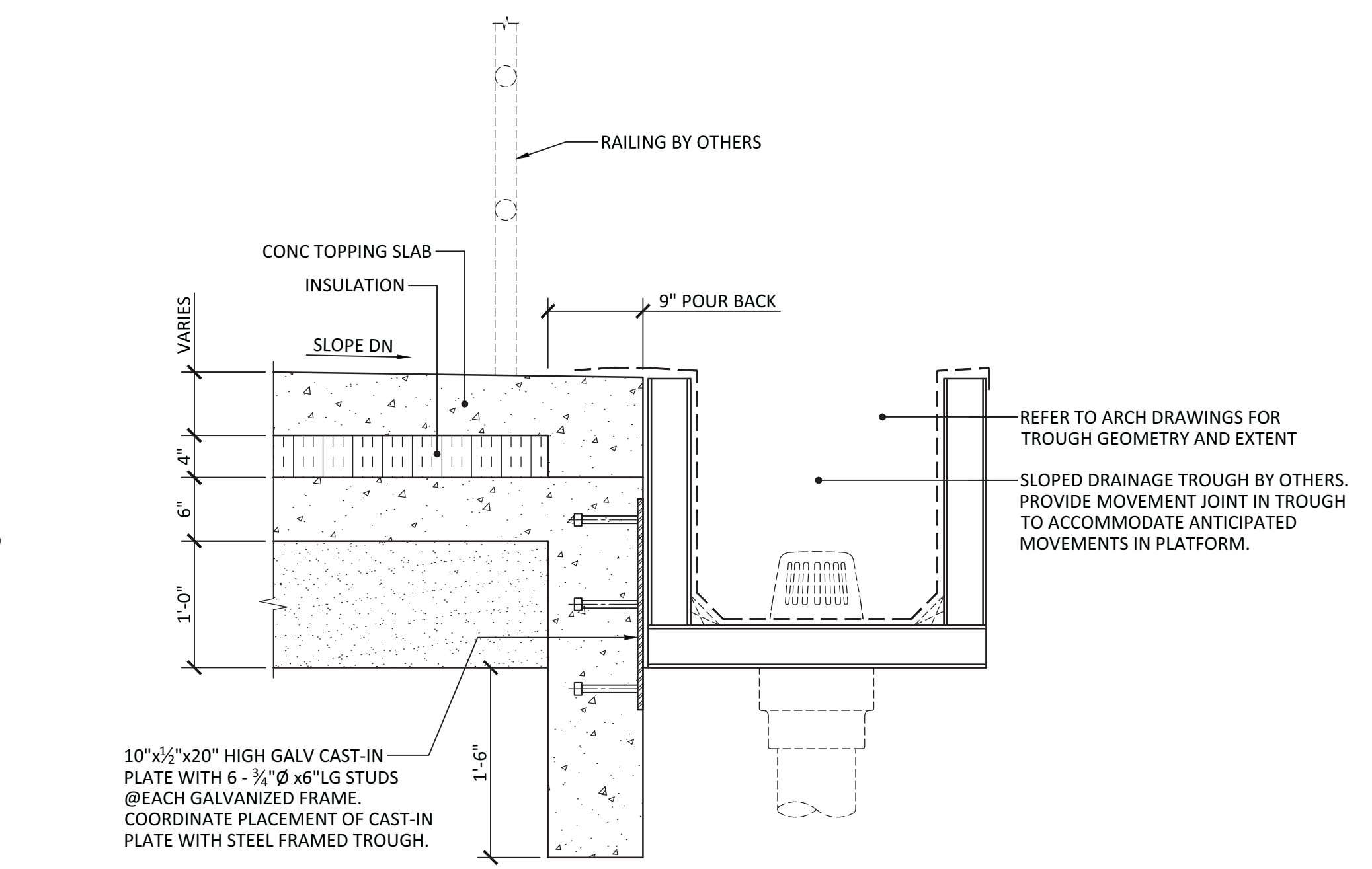
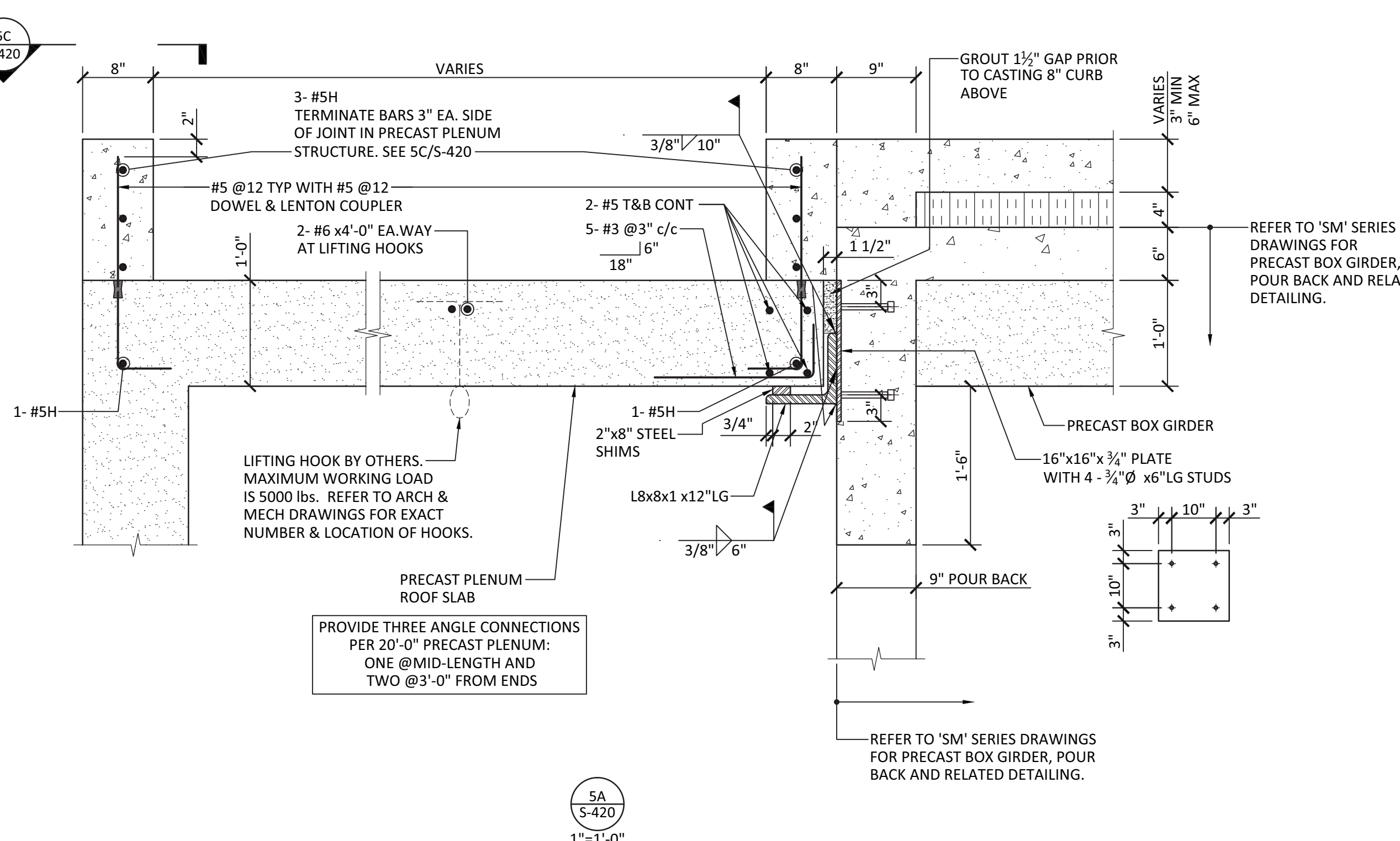
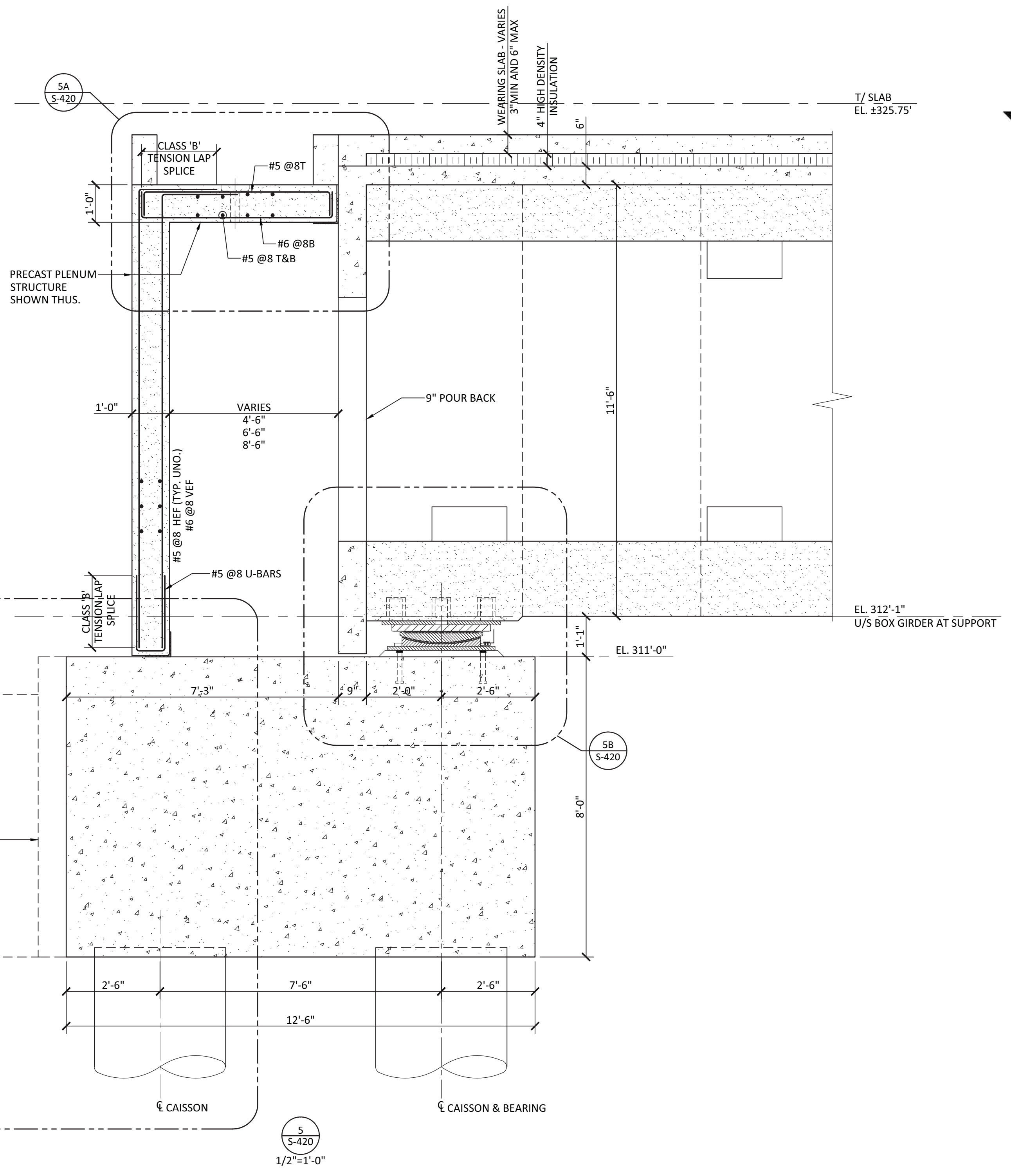
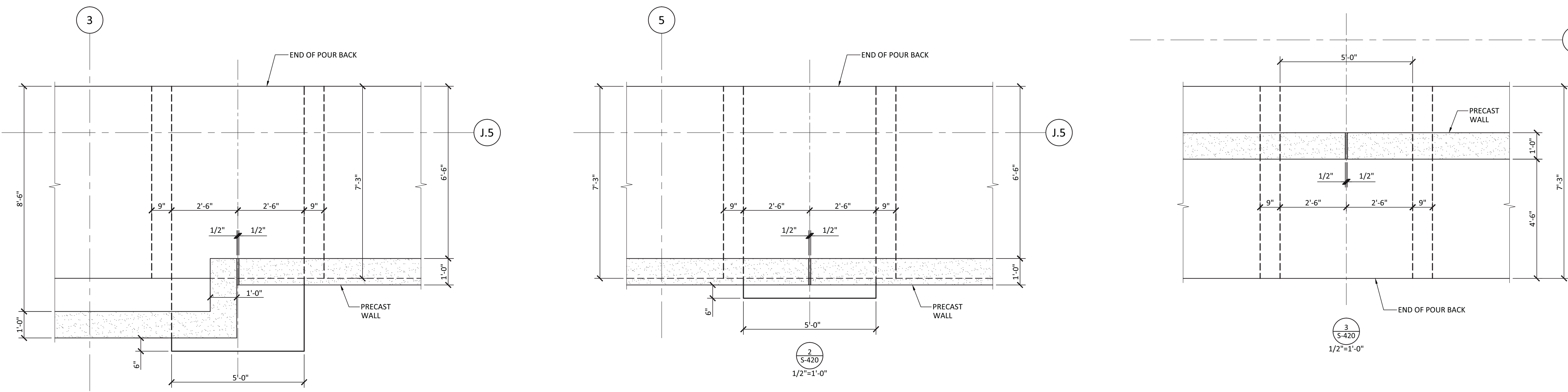
Sheet Name:
**D.O.B. SUBMISSION
CONCRETE CAPPING BEAM
(SOUTH)
(LOT 50)**

Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Scale:

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:

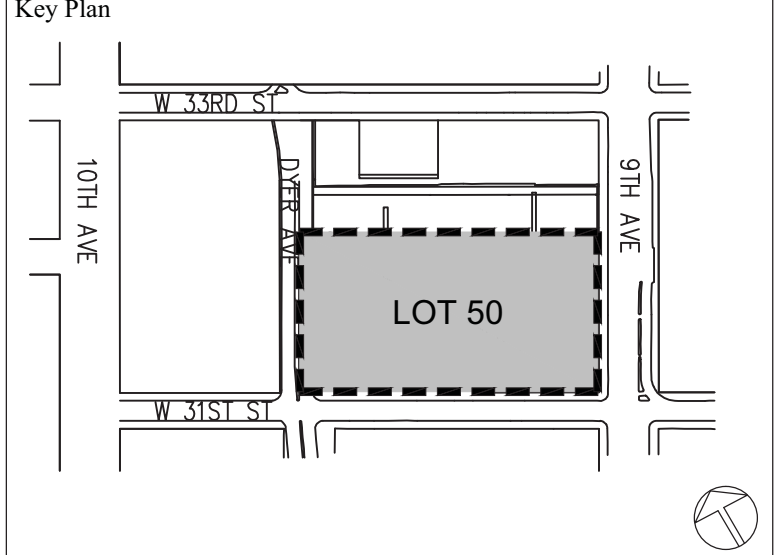
Professional Engineer Seal for State of New York, No. 088742, D. O. B. SUBMISSION

S-417A.00
Page Count:



PLAN DETAIL

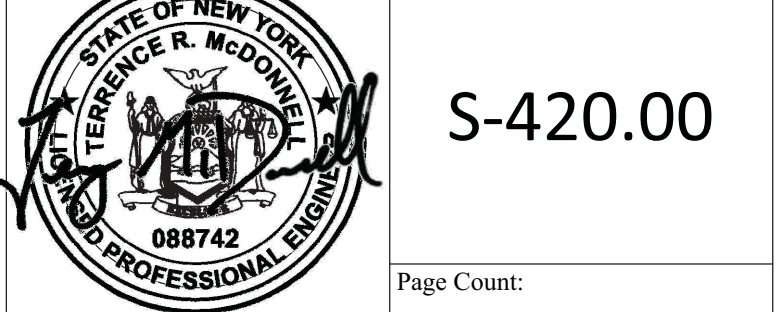
FOR BUILDING DEPARTMENT APPROVAL

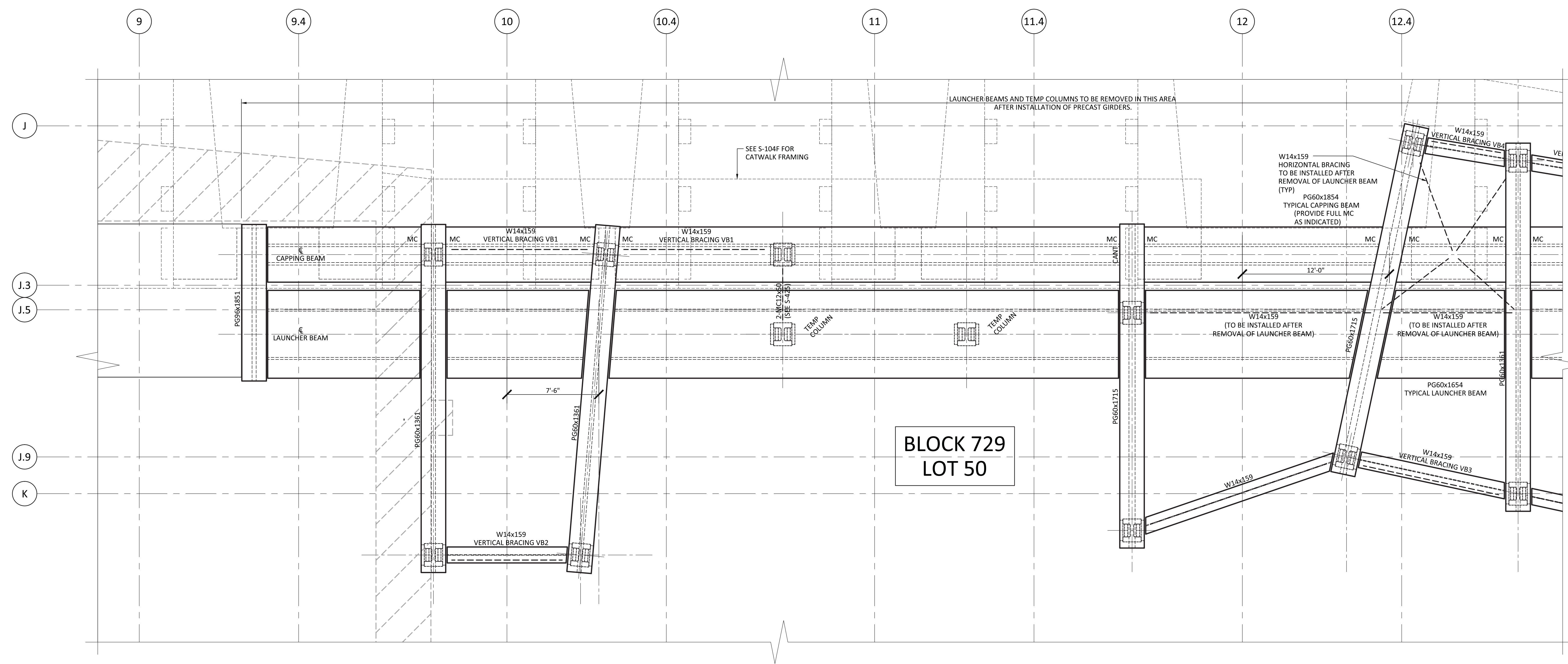


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	TW

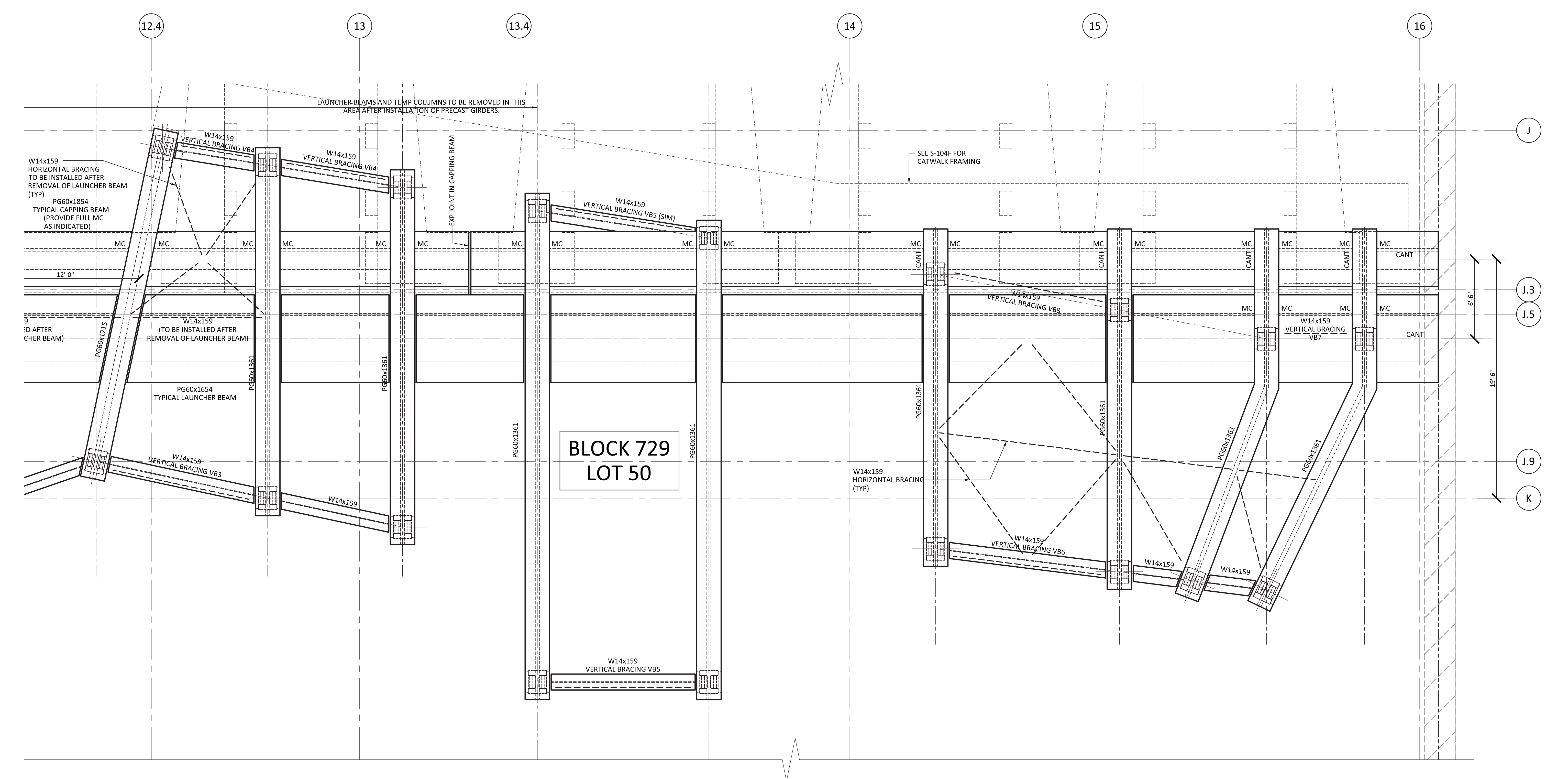
Sheet Name:
**D.O.B. SUBMISSION
 TYPICAL PLENUM
 SECTIONS AND DETAILS
 (LOT 50)**

Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale: S-420	Sheet No.:



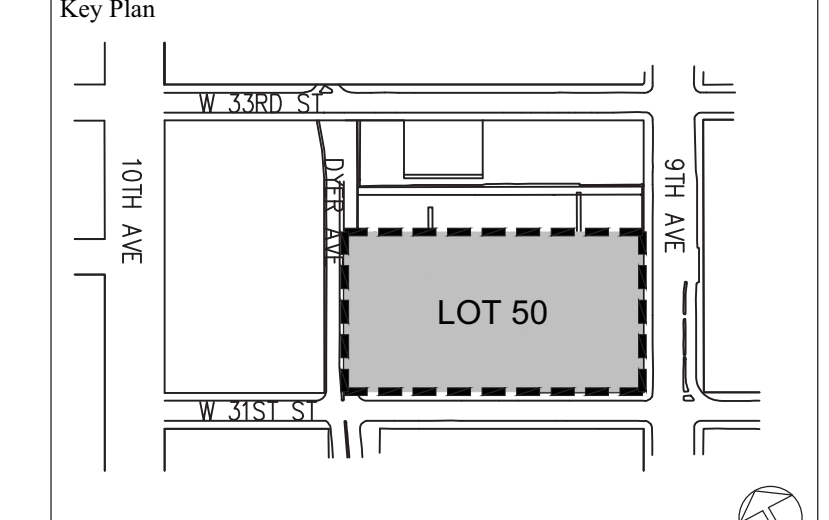


1 PARTIAL STEEL CAPPING BEAM PLAN AT "E-YARD" 1/4"=1'-0"



2 PARTIAL STEEL CAPPING BEAM PLAN AT "E-YARD" 1/4"=1'-0"

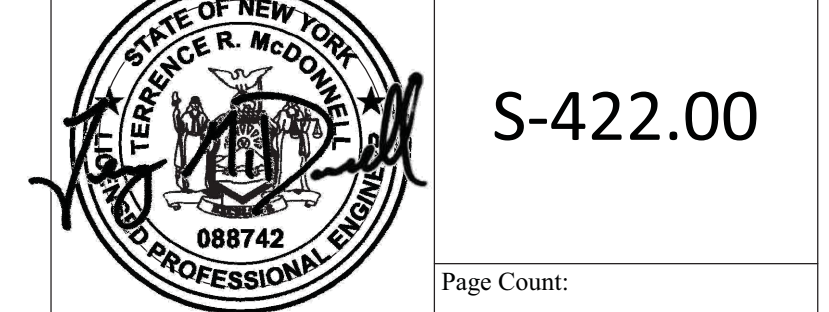
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TR

Sheet Name:
D.O.B. SUBMISSION STEEL CAPPING BEAM PLAN (LOT 50)

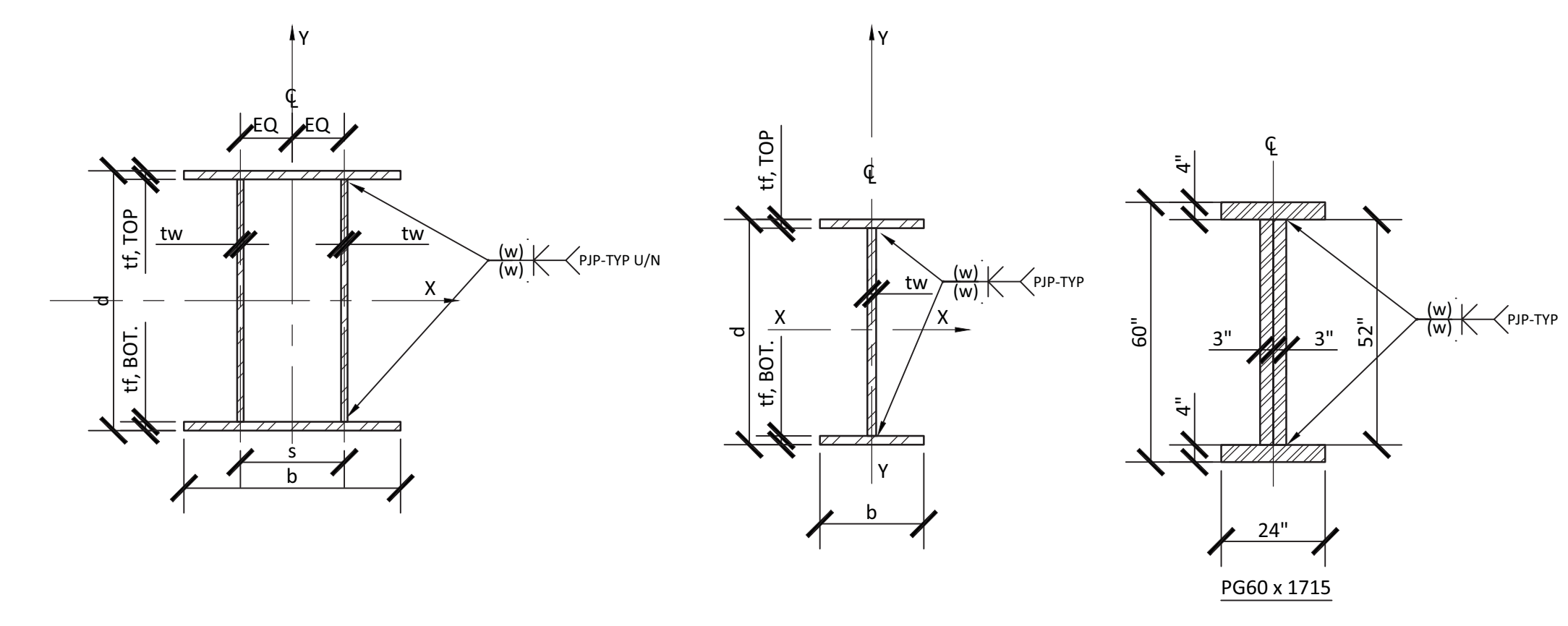
Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:



Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
Skidmore, OWINGS & MERRILL LLP
18 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1700 West, Suite 2002
Torrance, CA 90501 USA
Canada: entuitive.com



WELDED PLATE GIRDERS SCHEDULE

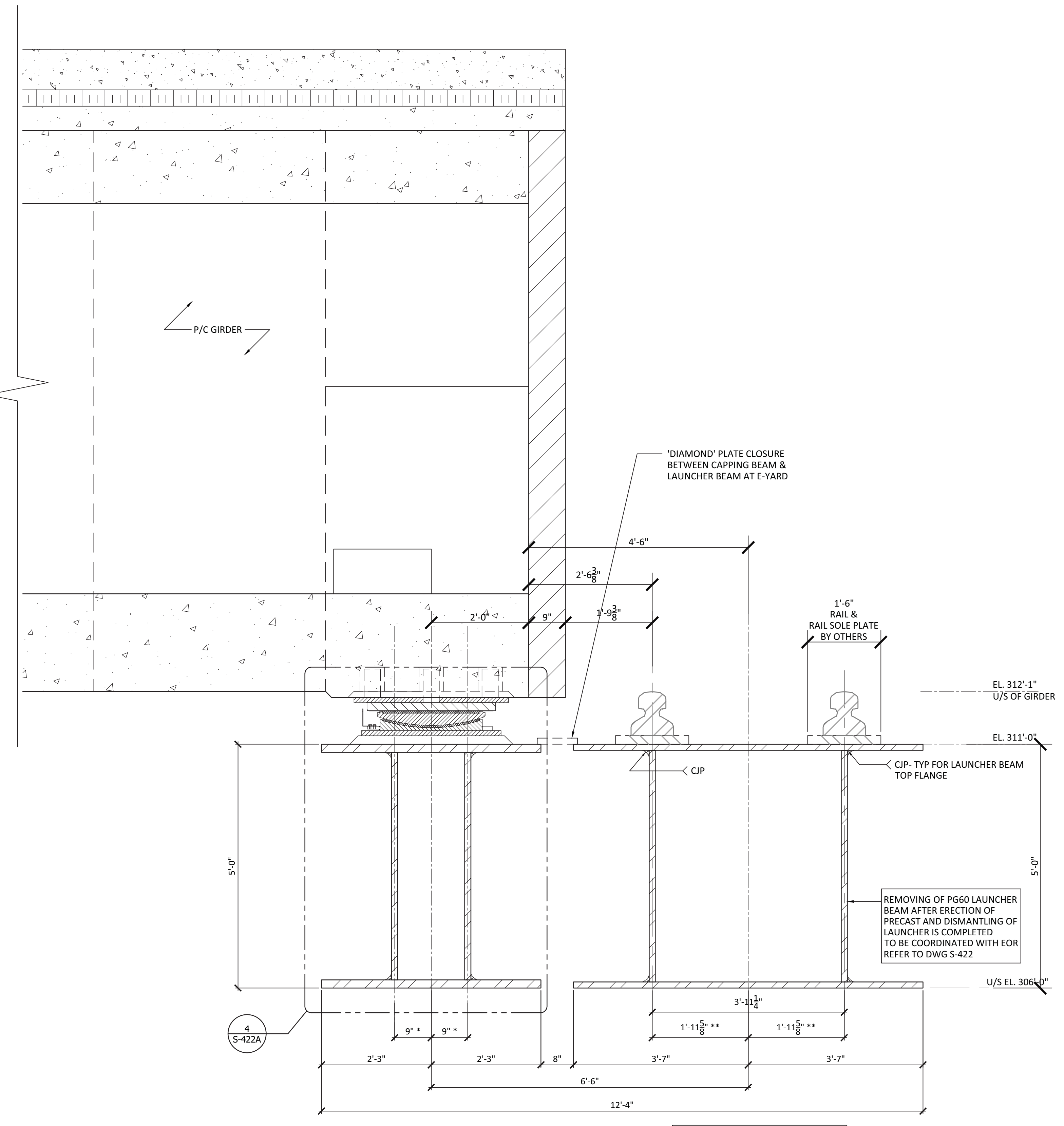
DESIGNATION	d (in)	tw (in)	b (in)	tf, TOP (in)	tf, BOT. (in)	s (in)	Vy, f (k)	Vx, f (k)	Mx, f (k-FT)	Pf (k)	NOTES
PG60 x 1650	60	2 1/2	42	2 1/2	2 1/2	16					CAPPING BEAM
PG60 x 1854	60	2 1/2	54	2 1/2	2 1/2	18					CAPPING BEAM
PG60 x 1654	60	2	86	1 1/2	1 1/2	47 1/2					LAUNCHER BEAM
PG60 x 1715	60	6	24	4	4	N/A					PORTAL FRAME BEAM
PG60 x 1361	60	4	24	4	4	N/A					PORTAL FRAME BEAM
PG96 x 1851	96	4	24	4	4	N/A					
PG57 x 837	57	2	24	3	3	N/A					

- NOTES:
- PLATES FOR PGs TO BE A572 STEEL GR. 50
 - ALTERNATIVELY, PLATES FOR PGs CAN BE A588 STEEL GR. 50 TO ELIMINATE THE CORROSION PROTECTION OF THE BEAMS.
 - SHOULD A588 STEEL IS USED THIS WILL REQUIRE CORROSION MATCHING ELECTRODES FOR ALL WELDS OF THE PLATE GIRDERS.
 - Vy, f & Vx, f ARE FACTORED END REACTIONS - TYP. U/N ON PLAN.
 - Mx, f IS FACTORED END MOMENT - TYP. U/N ON PLAN.
 - Pf IS A FACTORED AXIAL LOAD - TYP. U/N ON PLAN.
 - PIP WELD SIZE (w) TO BE DETERMINED BY STRUCTURAL STEEL CONTRACTOR.

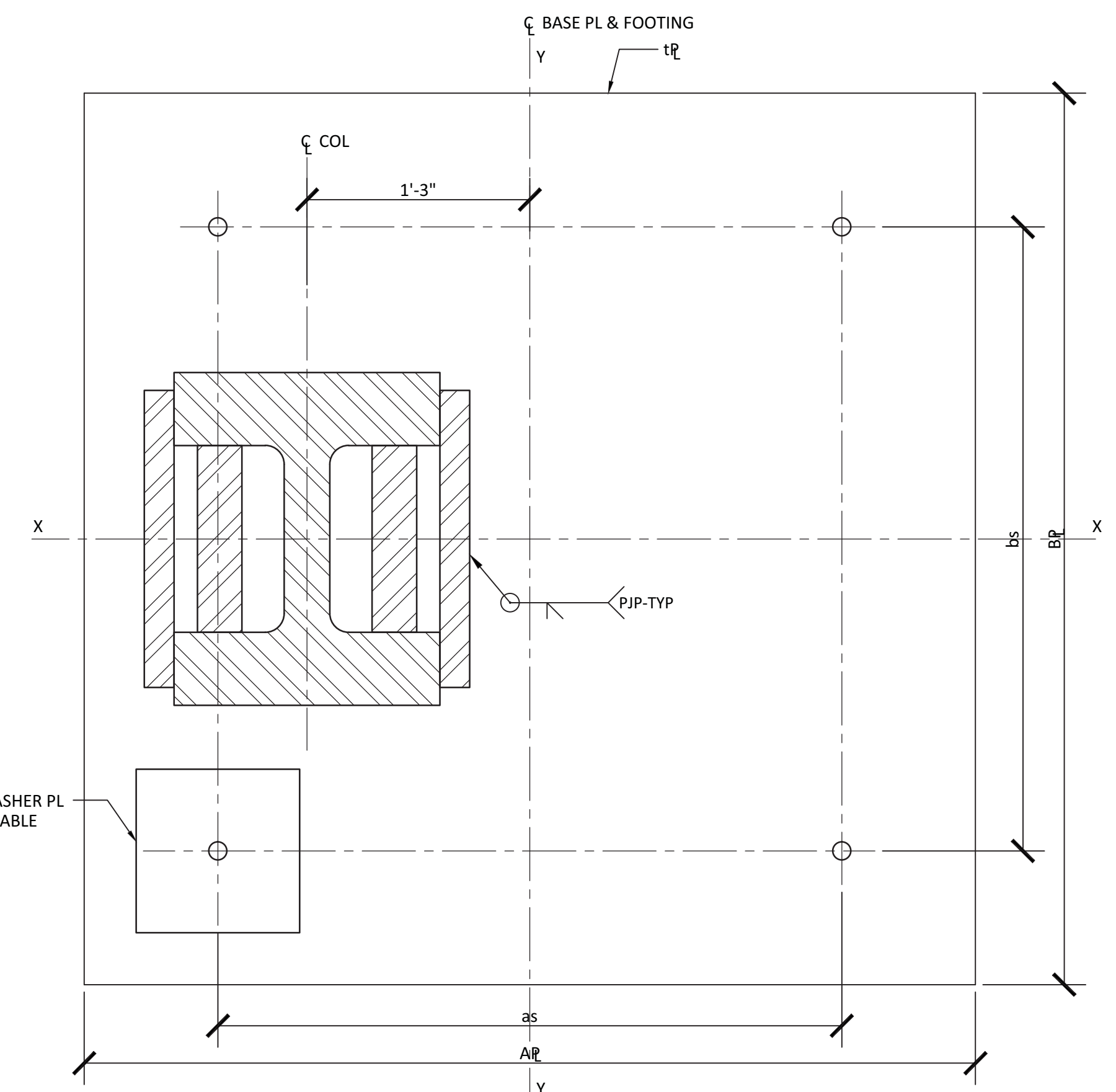
BASE PLATE SCHEDULE

BPL	AR	as	BR	bs	te	STEEL GRADE	WASHER PLATE	HOLES Ø in	ANCHOR RODS OR ROCK ANCHORS	NOTES
BPL-1	5'-0"	3'-6"	5'-0"	3'-6"	6"	42	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-2	5'-0"	3'-6"	5'-0"	3'-6"	4"	50	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-3	4'-2"	3'-0"	4'-2"	3'-0"	6"	42	-	-	ANCHOR ROD AR-1	SEE NOTES BELOW FOR 'RA' SPACING.
BPL-4	5'-0"	3'-6"	5'-0"	3'-6"	8"	36	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-5	5'-0"	3'-0"	5'-0"	3'-0"	6"	42	YES	3 1/2"		SEE NOTES BELOW FOR 'RA' SPACING.
BPL-6	4'-2"	3'-0"	4'-2"	3'-0"	4"	50	-	-	ANCHOR ROD AR-1	

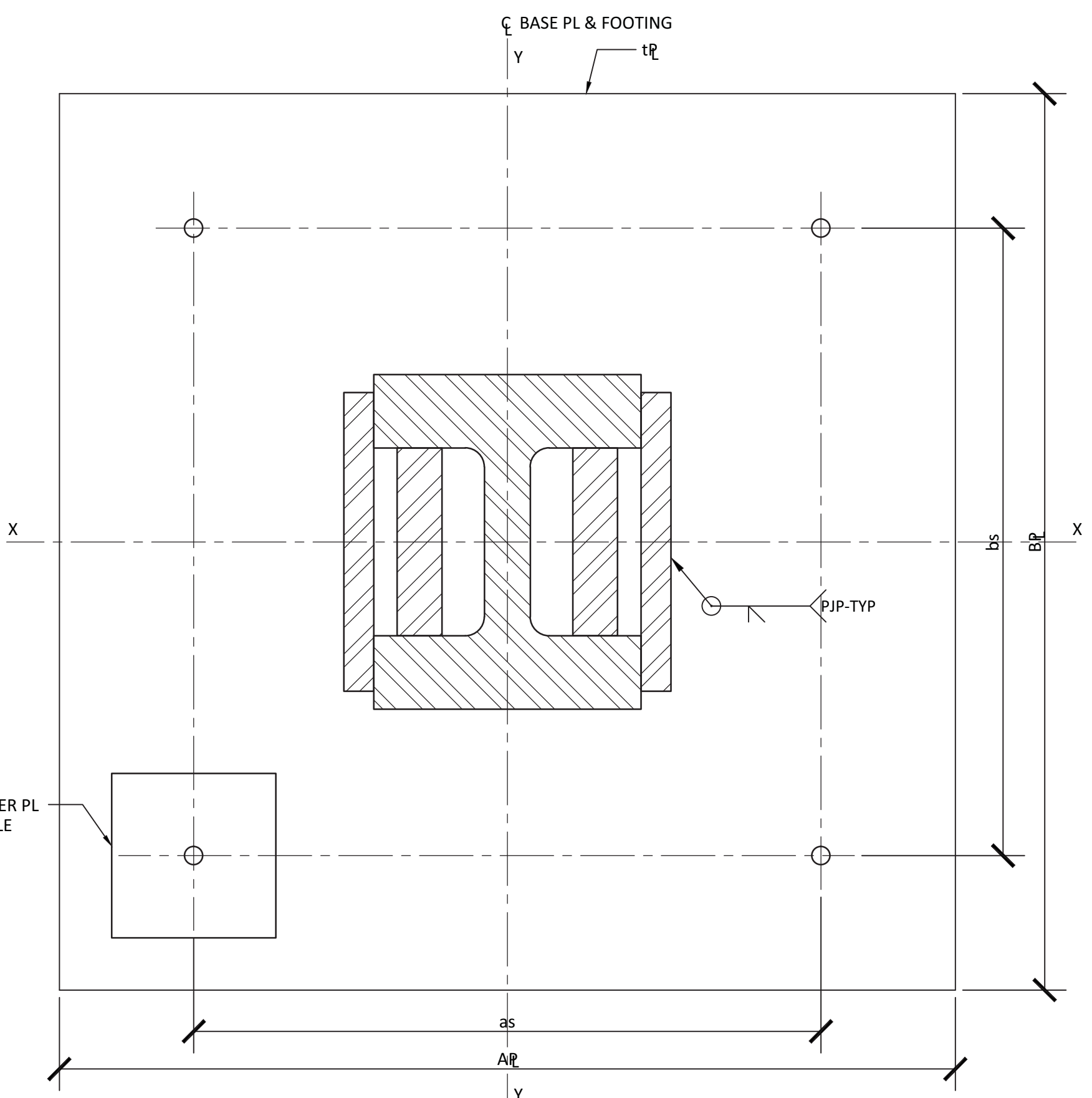
- NOTES:
- FOR FOOTING PLAN DETAILS SEE DWG S-102E.
 - FOR ROCK ANCHOR SCHEDULE AND DETAILS SEE DWG S-301.
 - ALLOW BASE PLATES DIMENSIONS TO INCORPORATE +/- 3" TOLERANCE FOR ROCK ANCHOR LOCATIONS.
 - DRILL HOLES IN BASE PLATE BASED ON SITE MEASUREMENT OF ROCK ANCHOR LOCATIONS.
 - MINIMUM SPACING as & bs, FOR ROCK ANCHORS TO BE 3'-0".
 - MAXIMUM SPACING as & bs, FOR ROCK ANCHORS TO BE 4'-0".
 - PROVIDE GROUT HOLES AS REQUIRED.



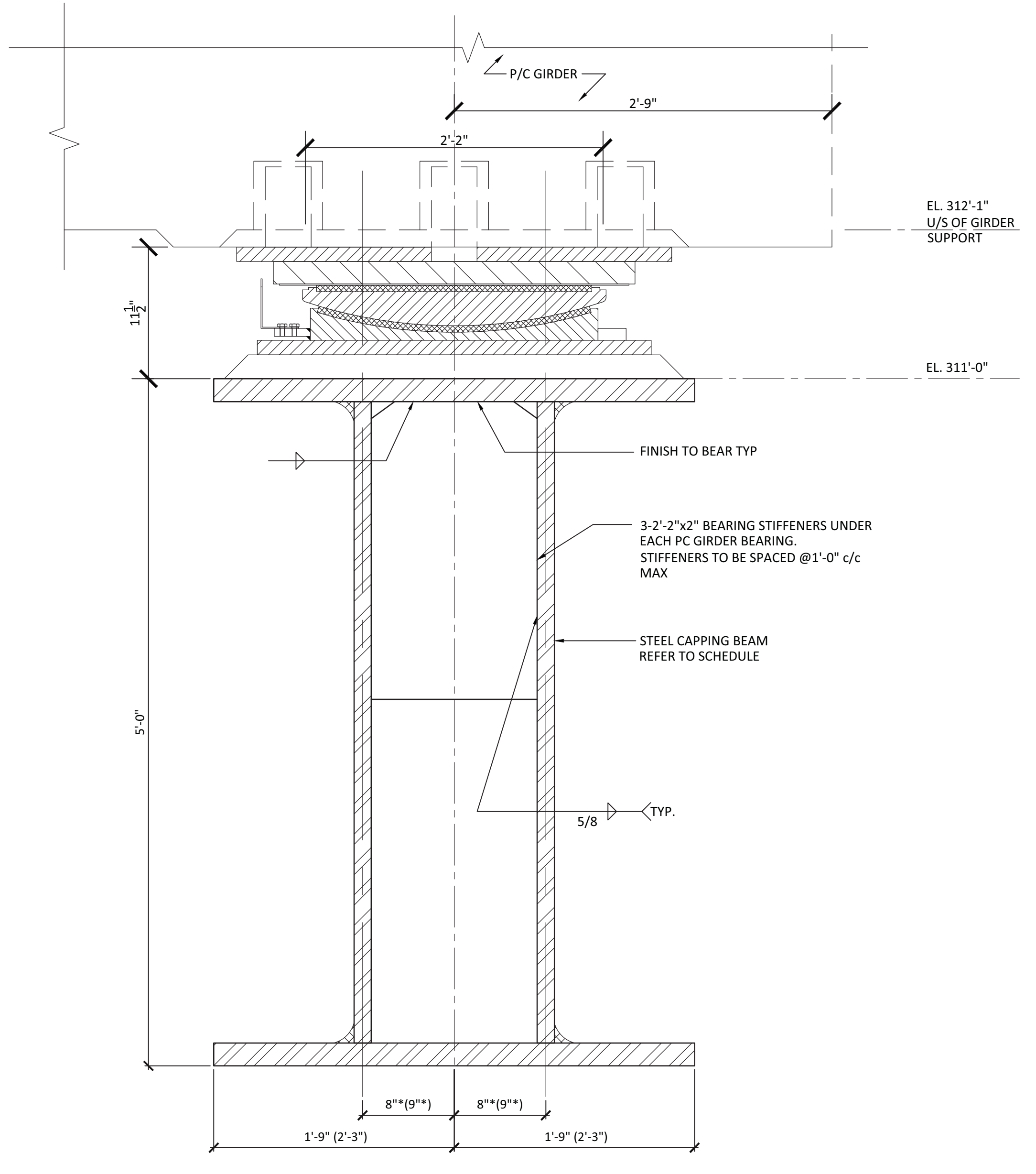
1 TYPICAL STEEL CAPPING BEAM DETAIL AT E-YARD
S-422A
3/4"=1'-0"



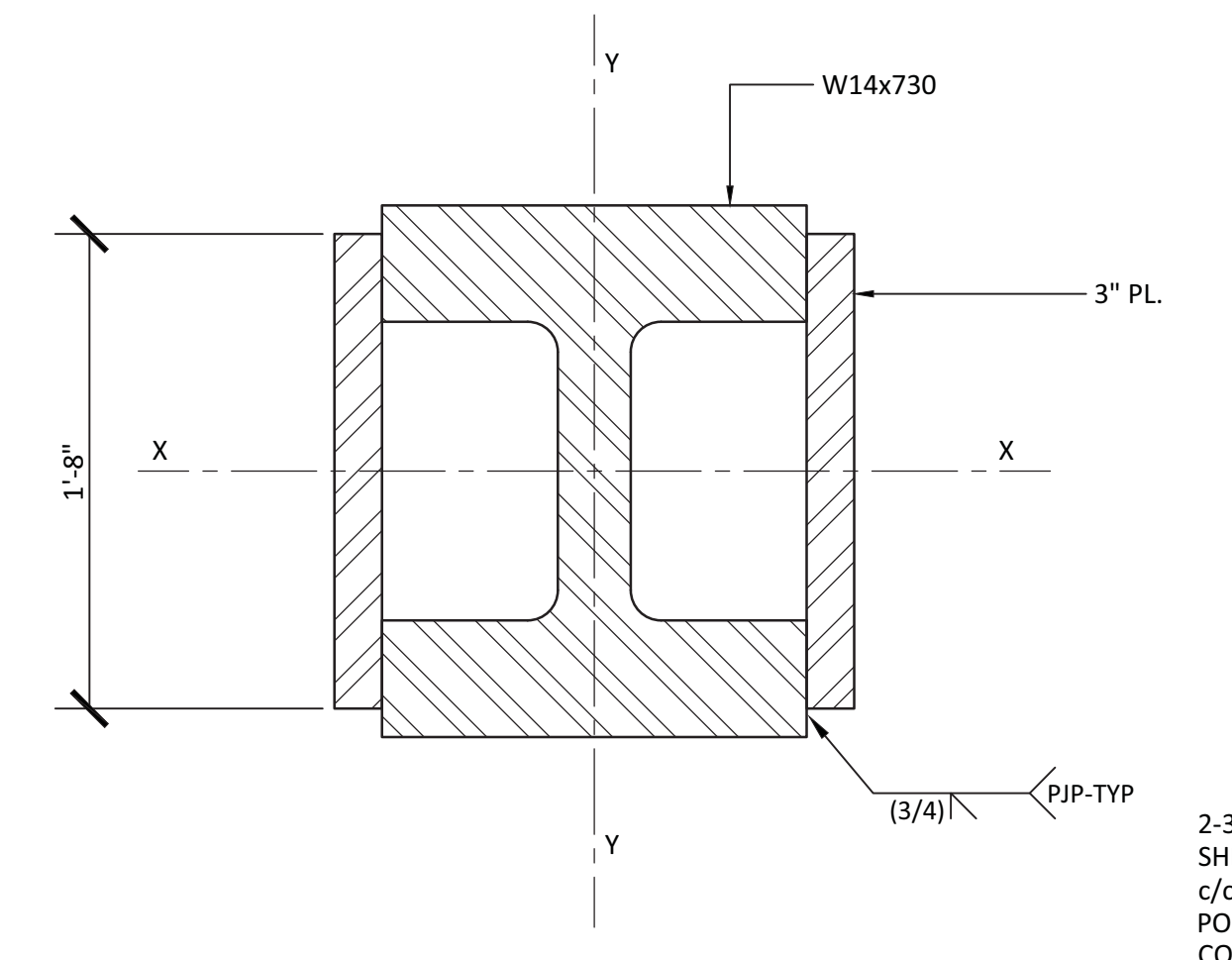
2 BASE PLATE BPL-4 DETAIL
S-422A
1-1/2"=1'-0"



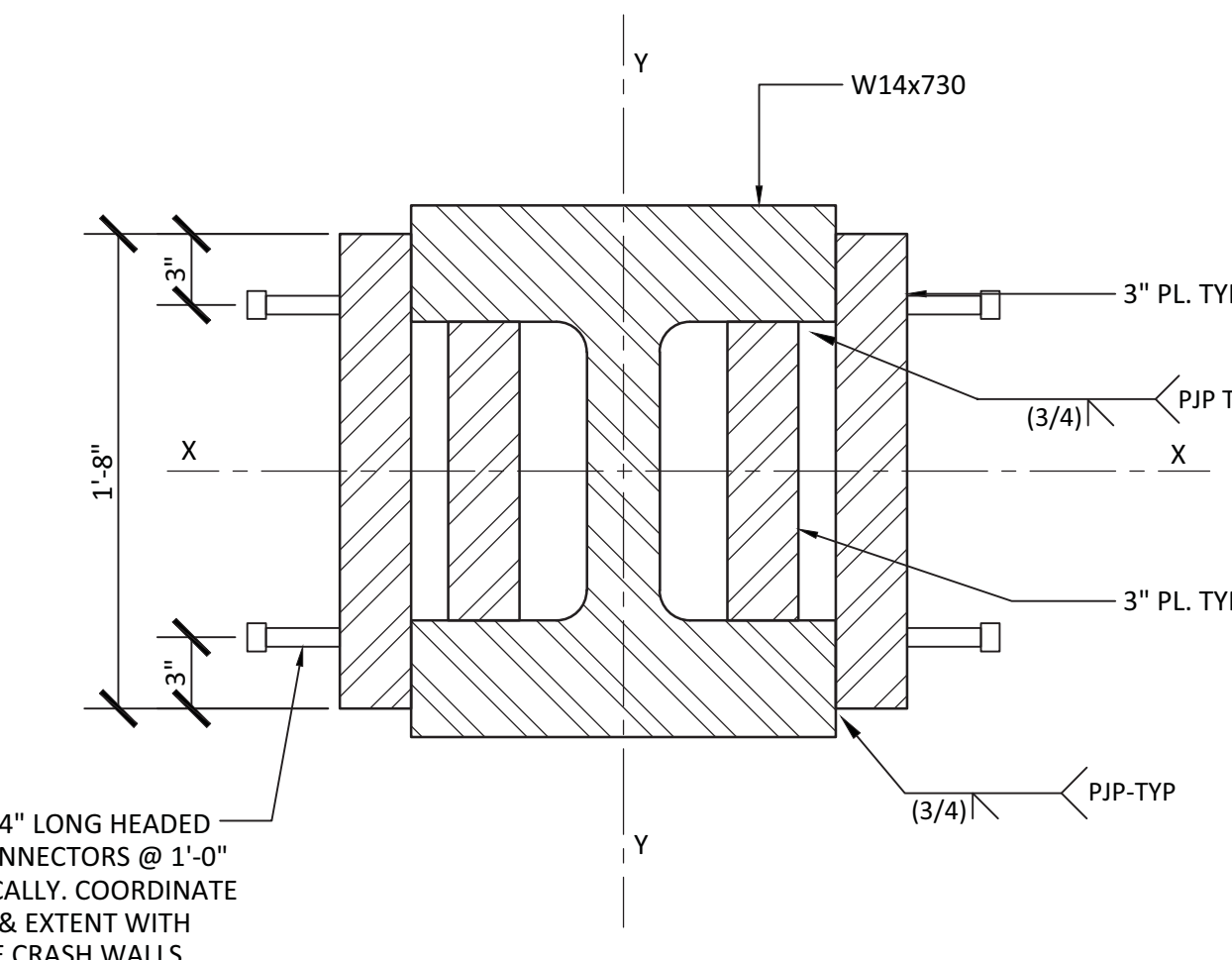
3 BASE PLATE DETAIL
S-422A
1-1/2"=1'-0"



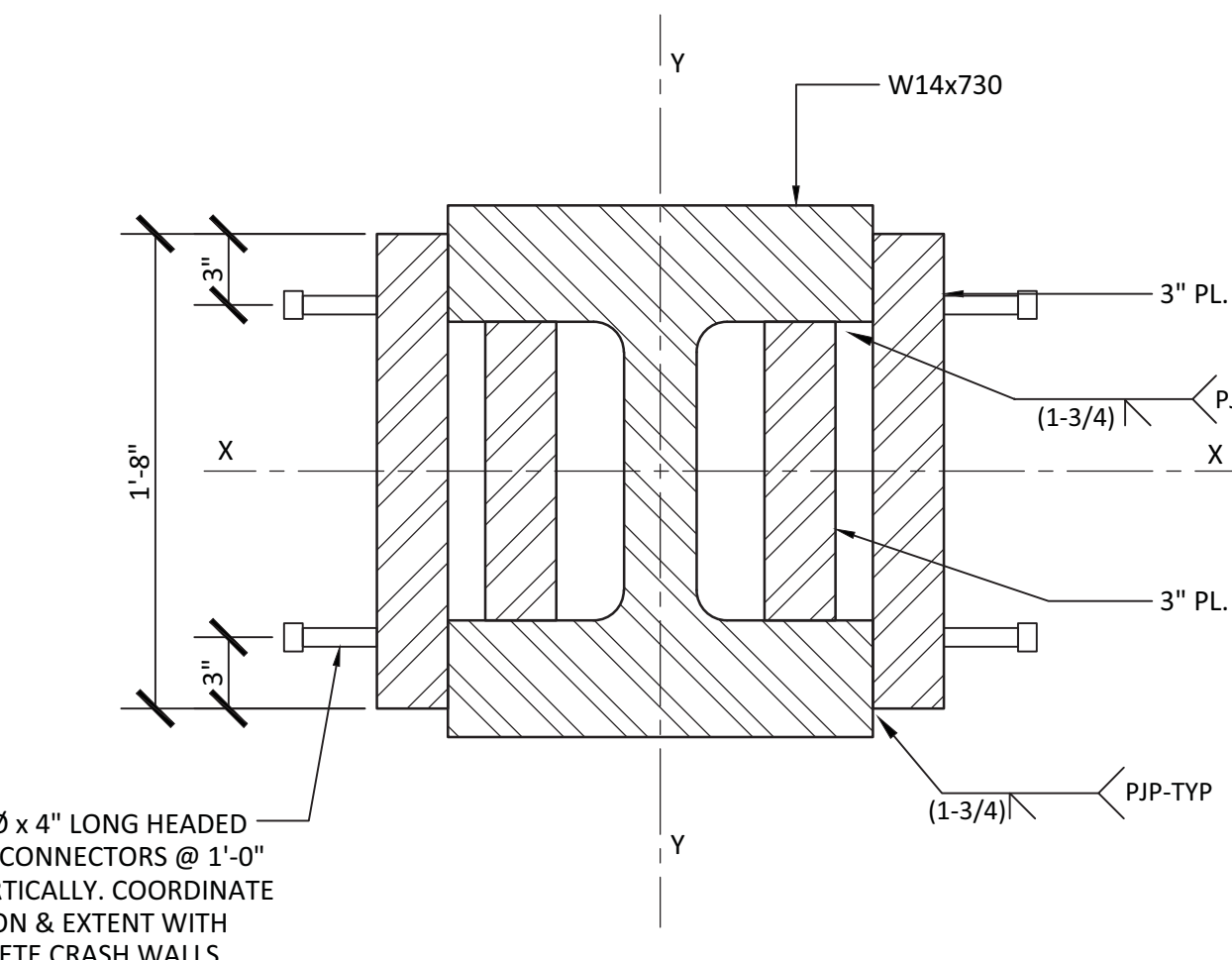
4 C3 COLUMNS TEMP COLUMN
S-422A
1-1/2"=1'-0"



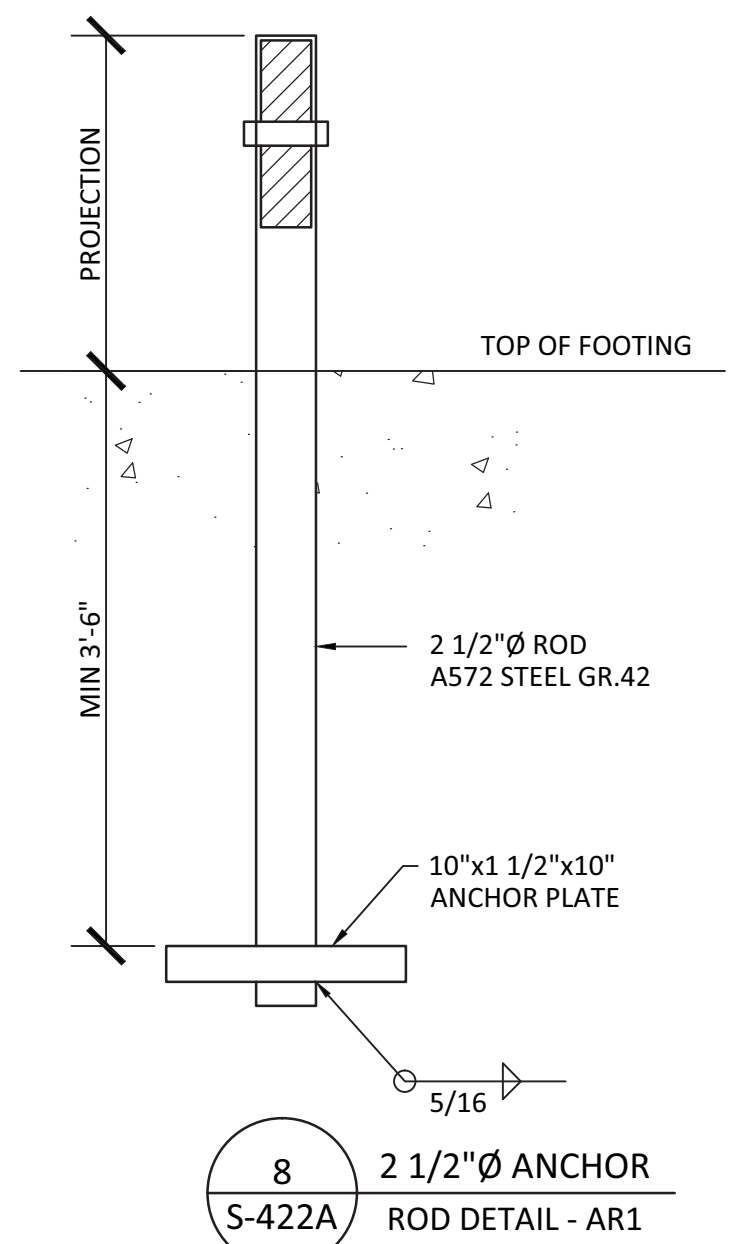
5 C4 COLUMNS
S-422A
1-1/2"=1'-0"



6 C4 COLUMNS
S-422A
1-1/2"=1'-0"



7 C4A COLUMNS
S-422A
1-1/2"=1'-0"



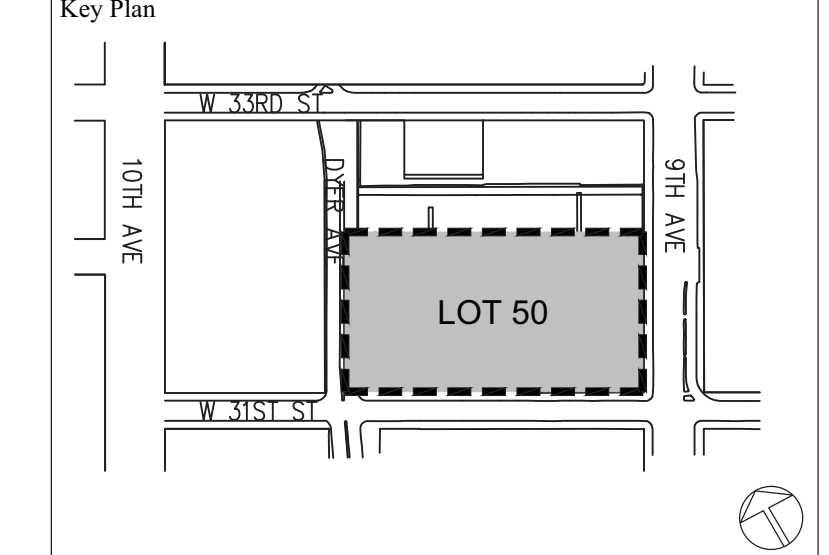
8 2 1/2" Ø ANCHOR ROD DETAIL - AR1
S-422A
1-1/2"=1'-0"

COLUMN SCHEDULE

COL. NO.	COLUMN SECTION
C3	W14 x 730 + 2 PL. 3x20
C4&C4A	W14 x 730 + 2 PL. 3x20 + 2 PL. 3x12 1/2

- NOTES:
- ALL REINFORCING PLATES TO BE A572 STEEL GR. 50
 - COLUMN FACTORED ENVELOPE FORCES FOR CONNECTION DESIGN ARE INDICATED ON THE STEEL FRAME ELEVATIONS.
 - FORCES FROM DIFFERENT LOAD COMBINATIONS ARE AVAILABLE IF REQ'D.
 - BUP COLUMN WELDS TO BE CHECKED IN BEAM/COLUMN CONNECTION ZONES FOR TRANSFERRING THE SPECIFIED AXIAL LOADS & BENDING MOMENTS.

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	EW

Sheet Name:
D.O.B. SUBMISSION STEEL CAPPING BEAM SECTIONS AND DETAILS (LOT 50)

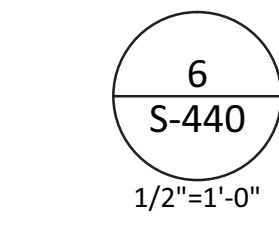
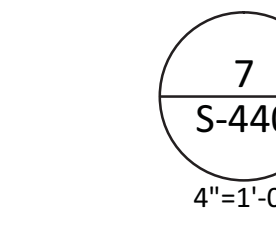
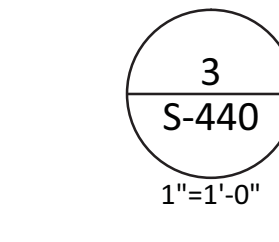
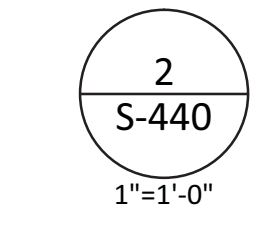
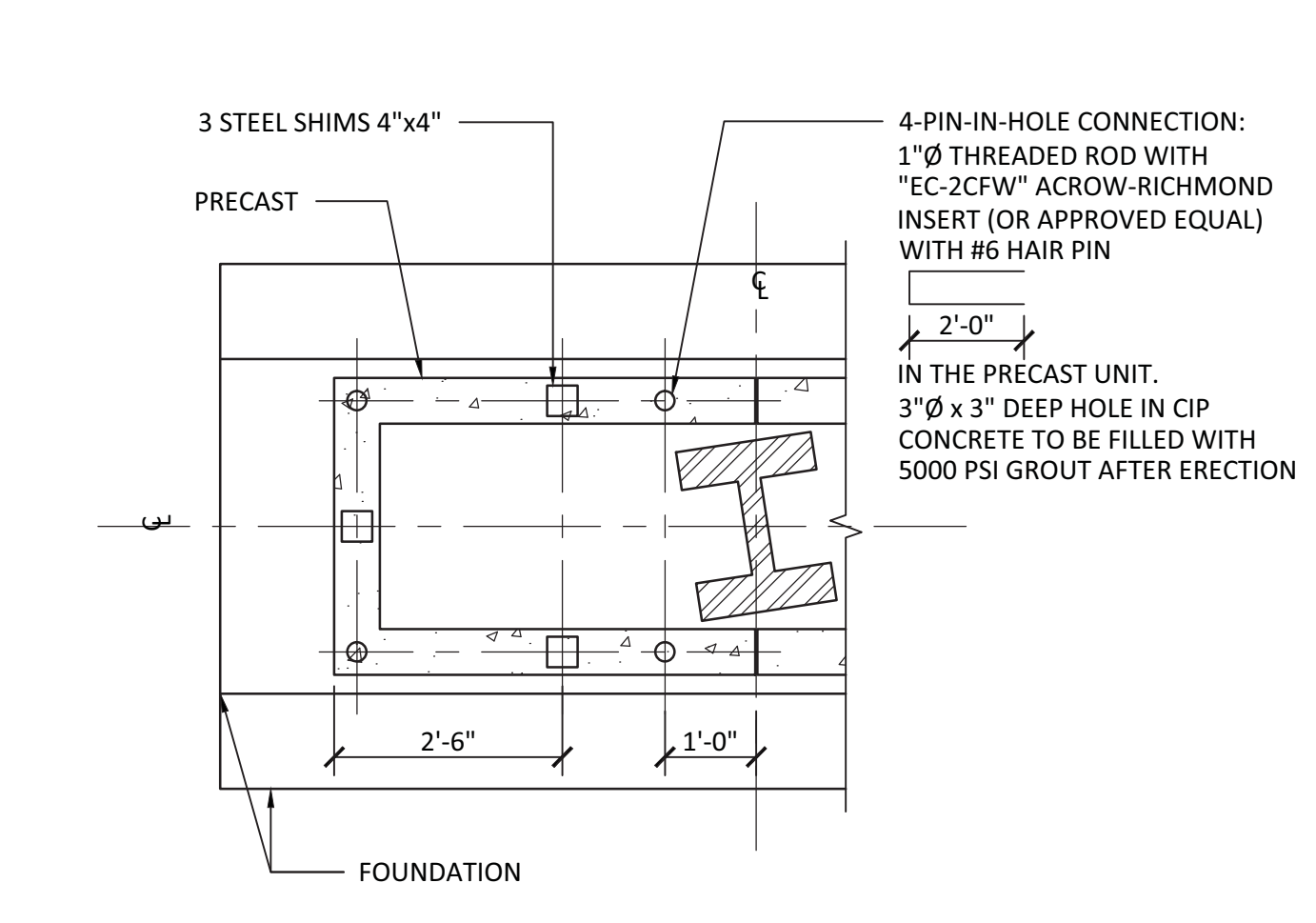
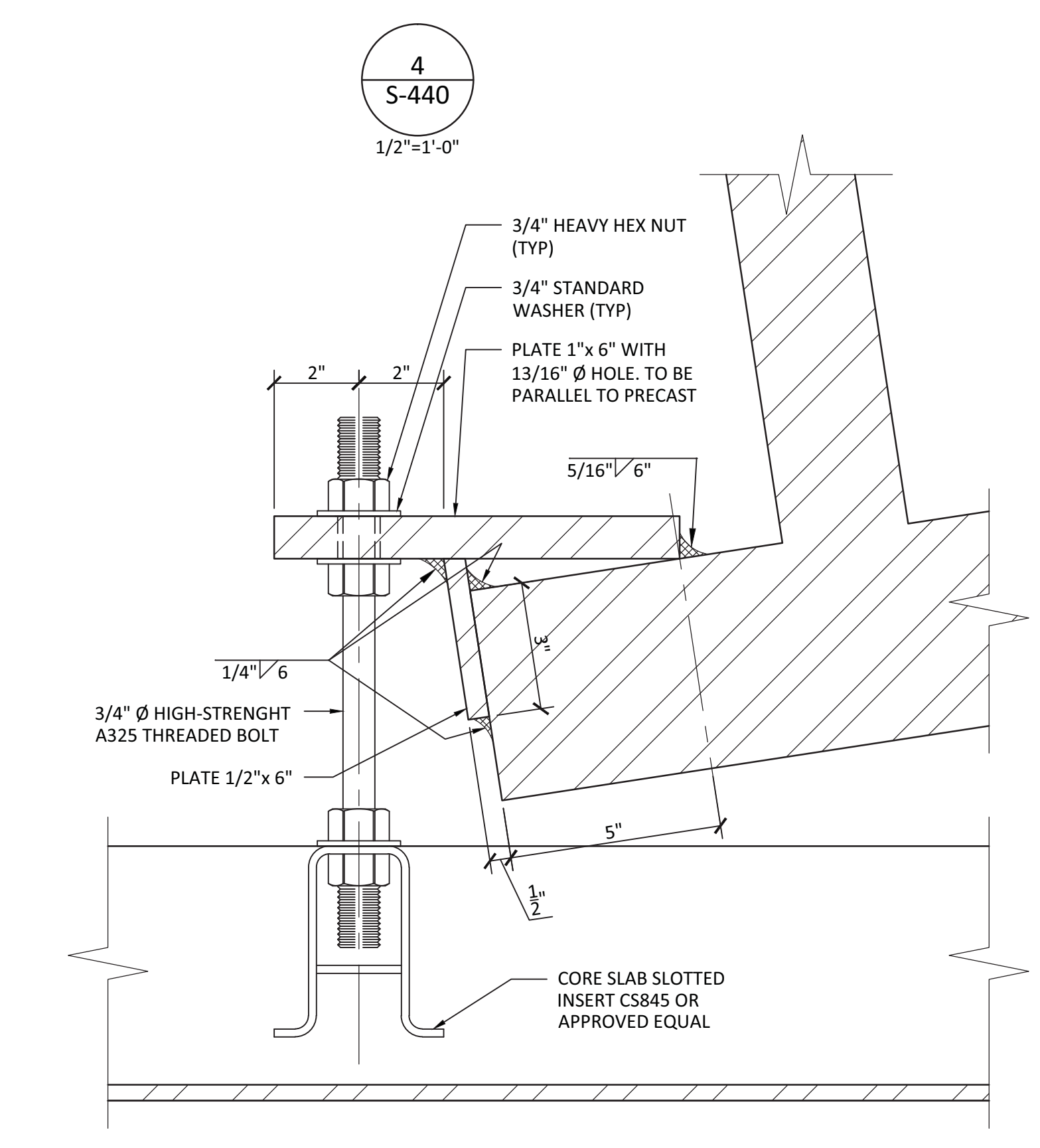
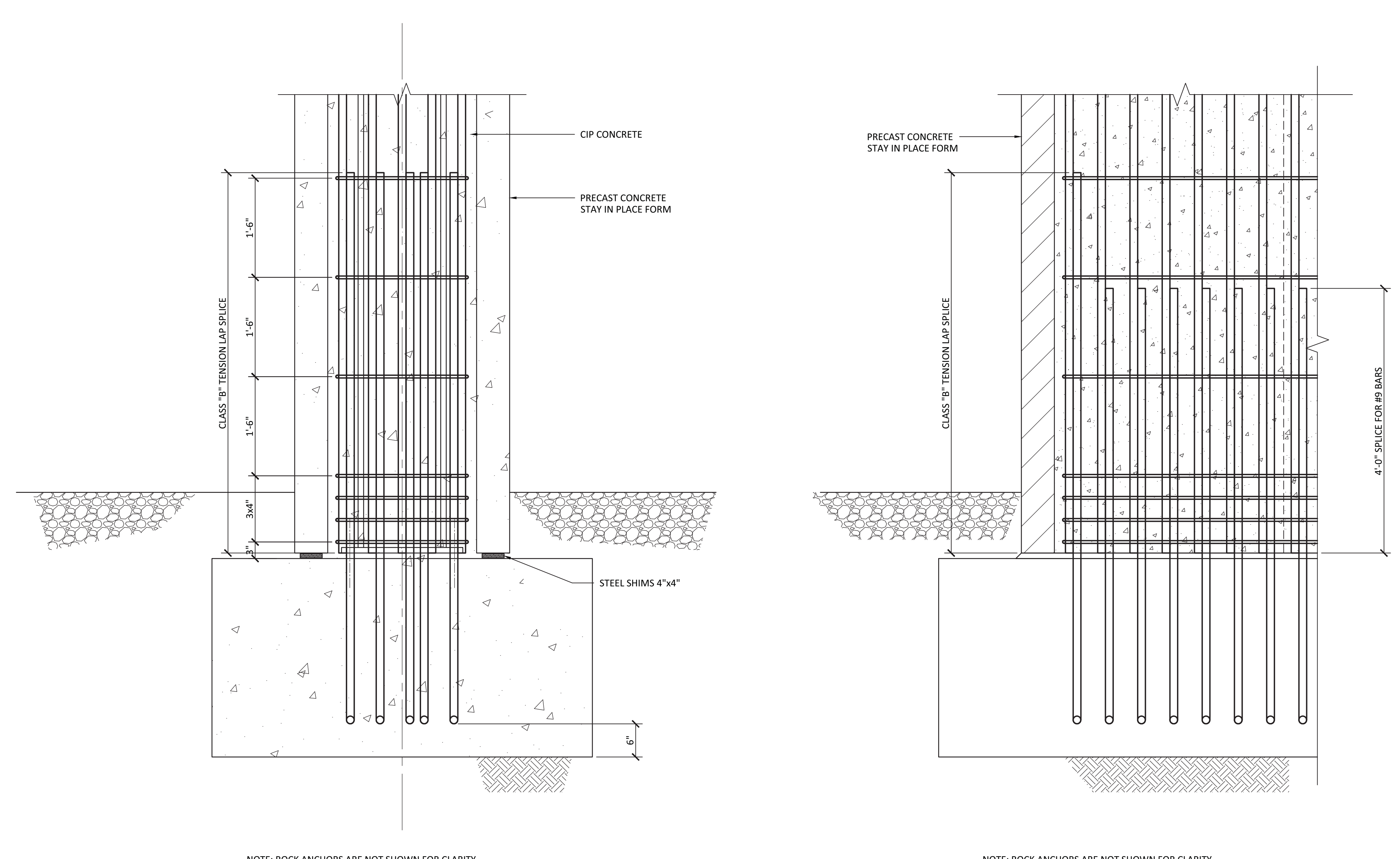
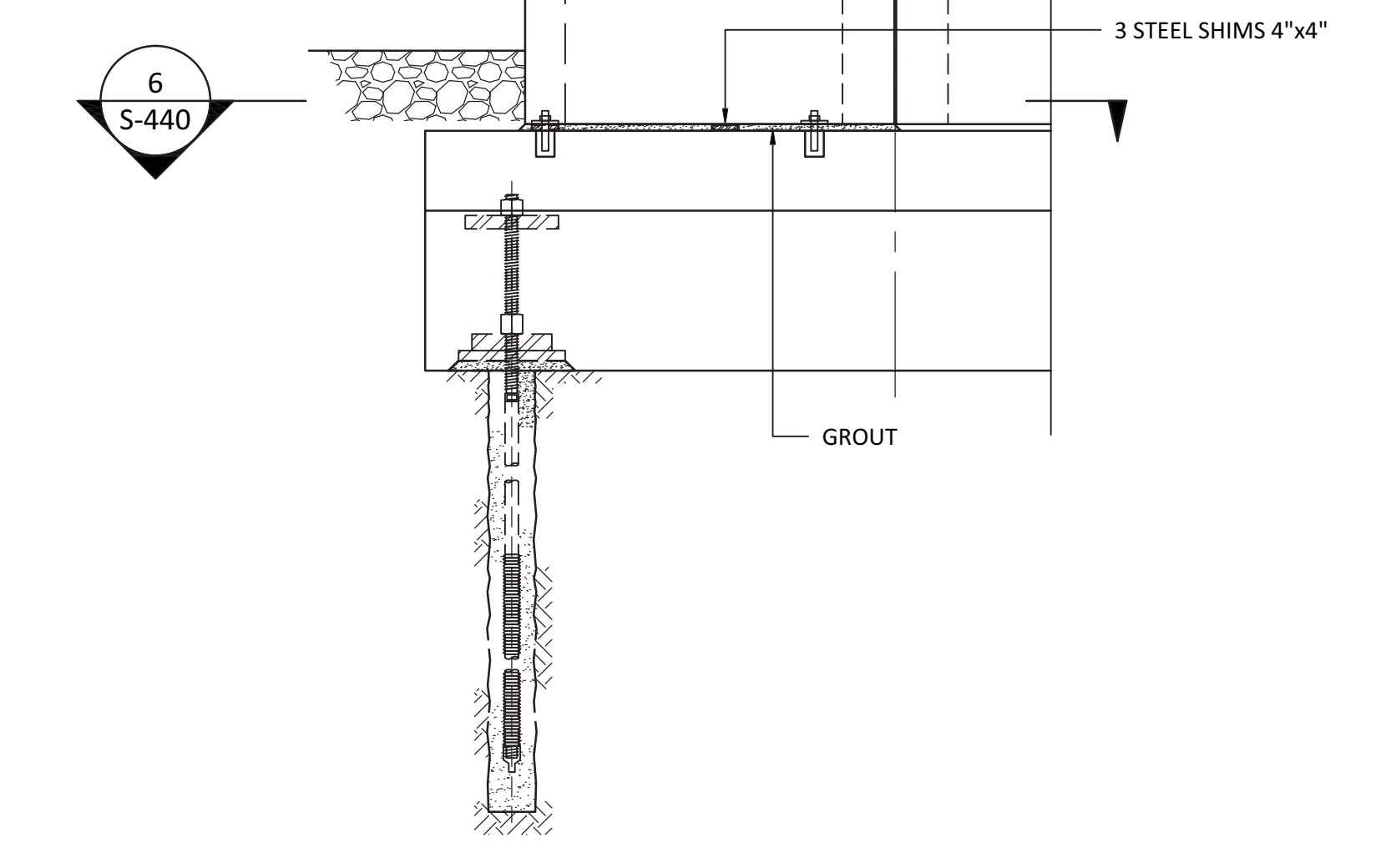
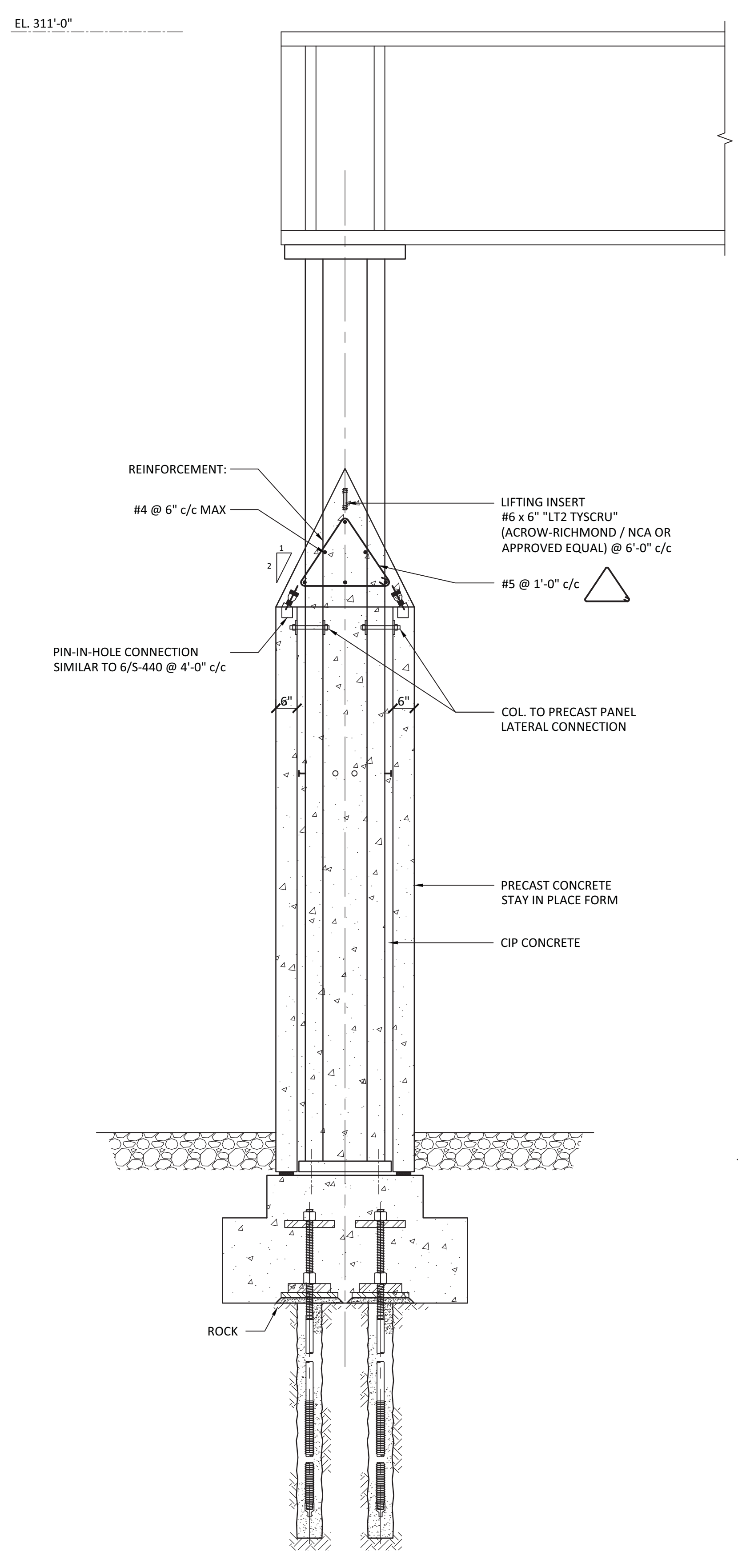
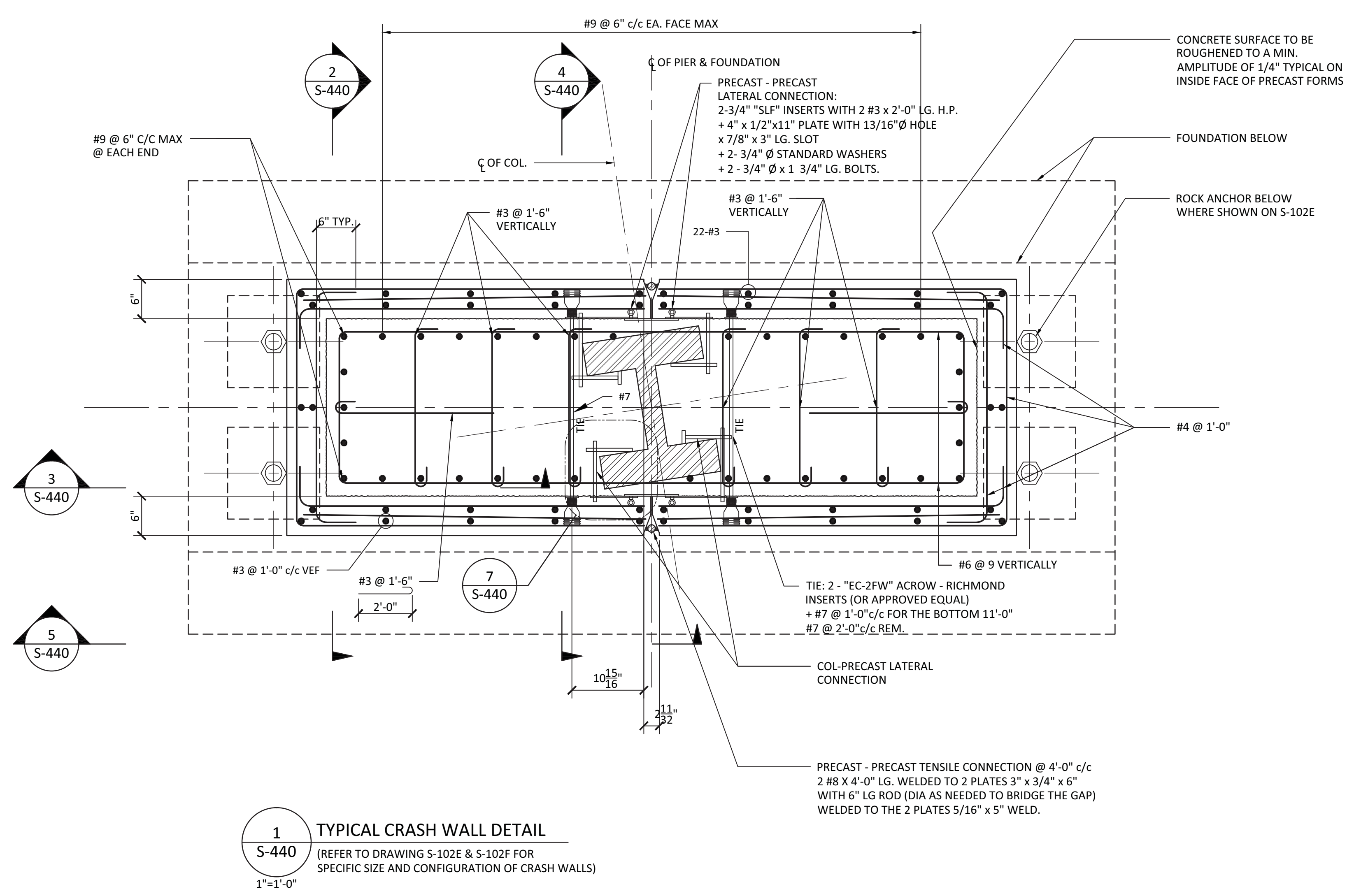
Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Scale: 1/8"=1'-0"

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:

S-422A.00

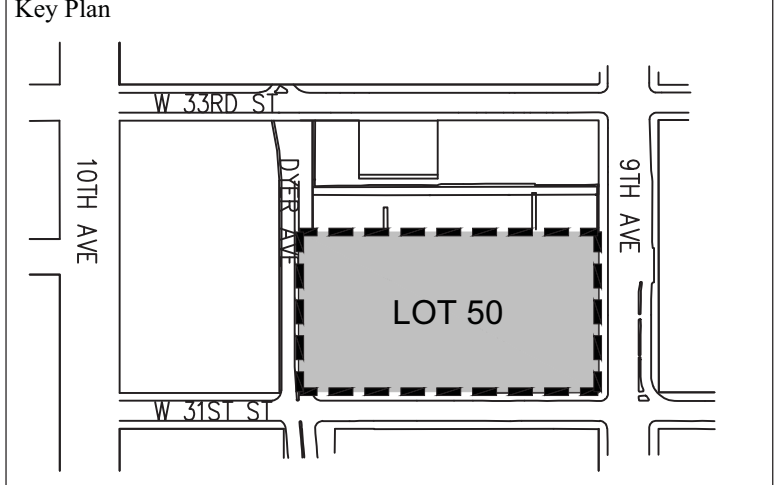
Page Count:





- NOTES:
1. DETAILS SHOWN ARE INDICATIVE ONLY. CONTRACTOR TO DESIGN AND DETAIL PRECAST CONNECTIONS, INSERTS AND THE LIKE TO SUIT THEIR SPECIFIC MEANS AND METHODS.
 2. IN ADDITION TO MEETING THE DIMENSIONAL REQUIREMENTS FOR CRASH WALLS AS SPECIFIED IN AMTRAK'S ENGINEERING PRACTICES, DESIGN AND CONSTRUCTION CRITERIA FOR OVERHEAD BRIDGES DATED MARCH 26, 2002, THE WALLS HAVE BEEN DESIGNED TO RESIST AN ULTIMATE OUT OF PLANE FORCE OF 30 kIP APPLIED 5'-0" ABOVE THE TOP OF RAIL ELEVATION.
 3. LIMIT CONCRETE PLACEMENT RATE (cubic/hr) SUCH THAT PRECAST STAY IN PLACE FORMS AND THEIR CONNECTIONS ARE NOT OVERLOADED DURING CONSTRUCTION.
 4. REFER TO STEEL CAPPING BEAM SECTIONS AND STEEL BRACING ELEVATIONS FOR TOP OF CRASH WALL PROFILES.

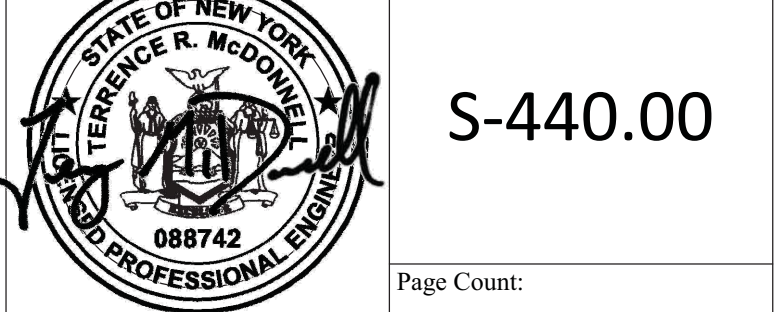
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 31, 2012	EN

Sheet Name:
**D.O.B. SUBMISSION
PRECAST COLUMN
PROTECTION DETAILS
(LOT 50)**

Drawn By: DT	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:



S-440.00

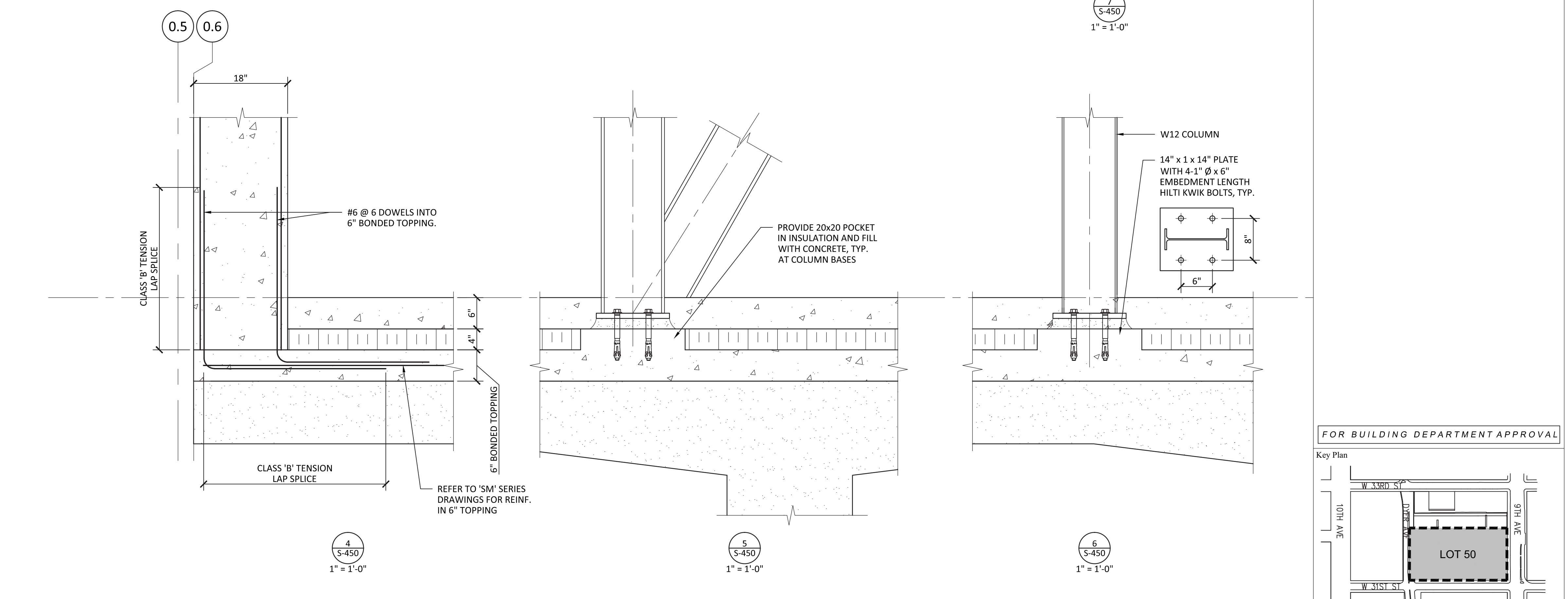
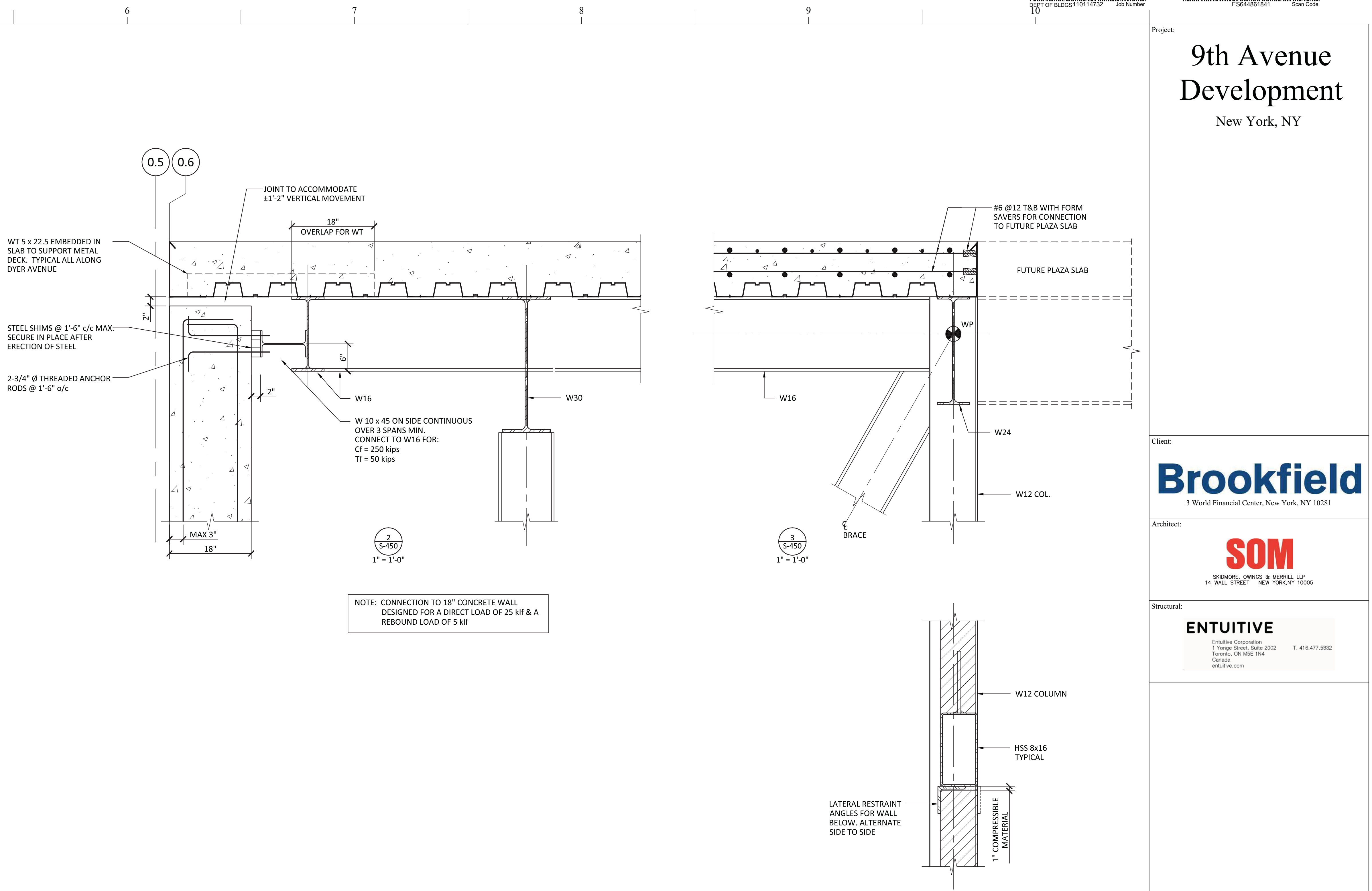
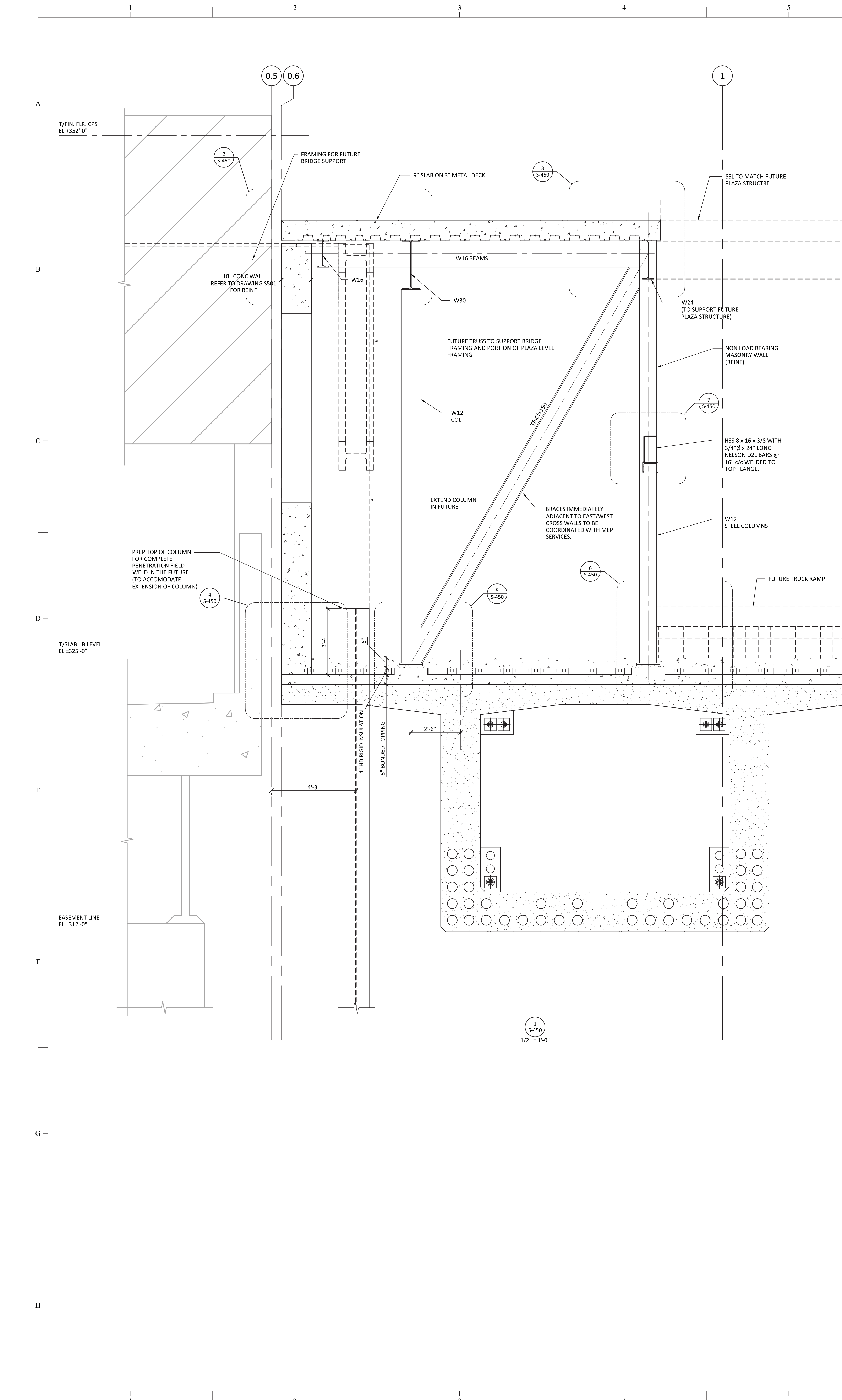
Page Count:

9th Avenue Development
New York, NY

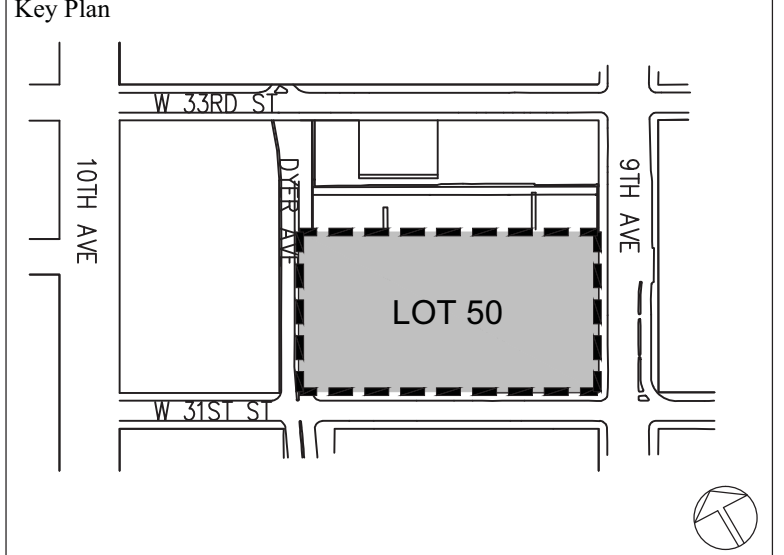
Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SHoP Architects, P.C. & MERILL LLP
18 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
1 Thruway Street, Suite 2002
Troy, NY 12182
Canada
entuitive.com
T. 416.477.3832



FOR BUILDING DEPARTMENT APPROVAL

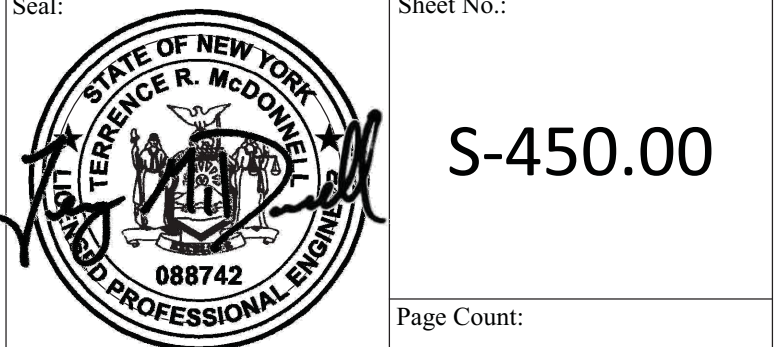


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TH

Sheet Name:

D.O.B. SUBMISSION LEVEL B SECTIONS (LOT 50)

Drawn By: TRG	Checked By: BC/DS
Scale: AS SHOWN	Date: MARCH 2011
Project No.: T011-0003	File No.:
Scale:	Sheet No.:



S-450.00

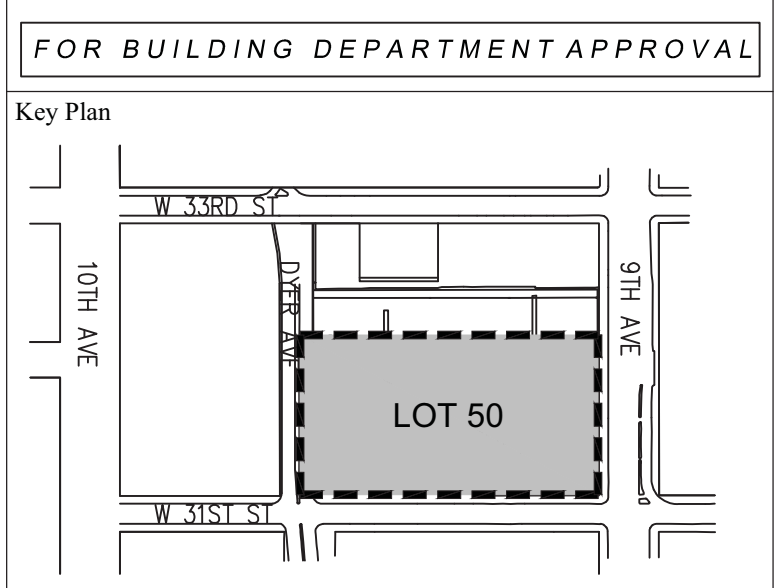
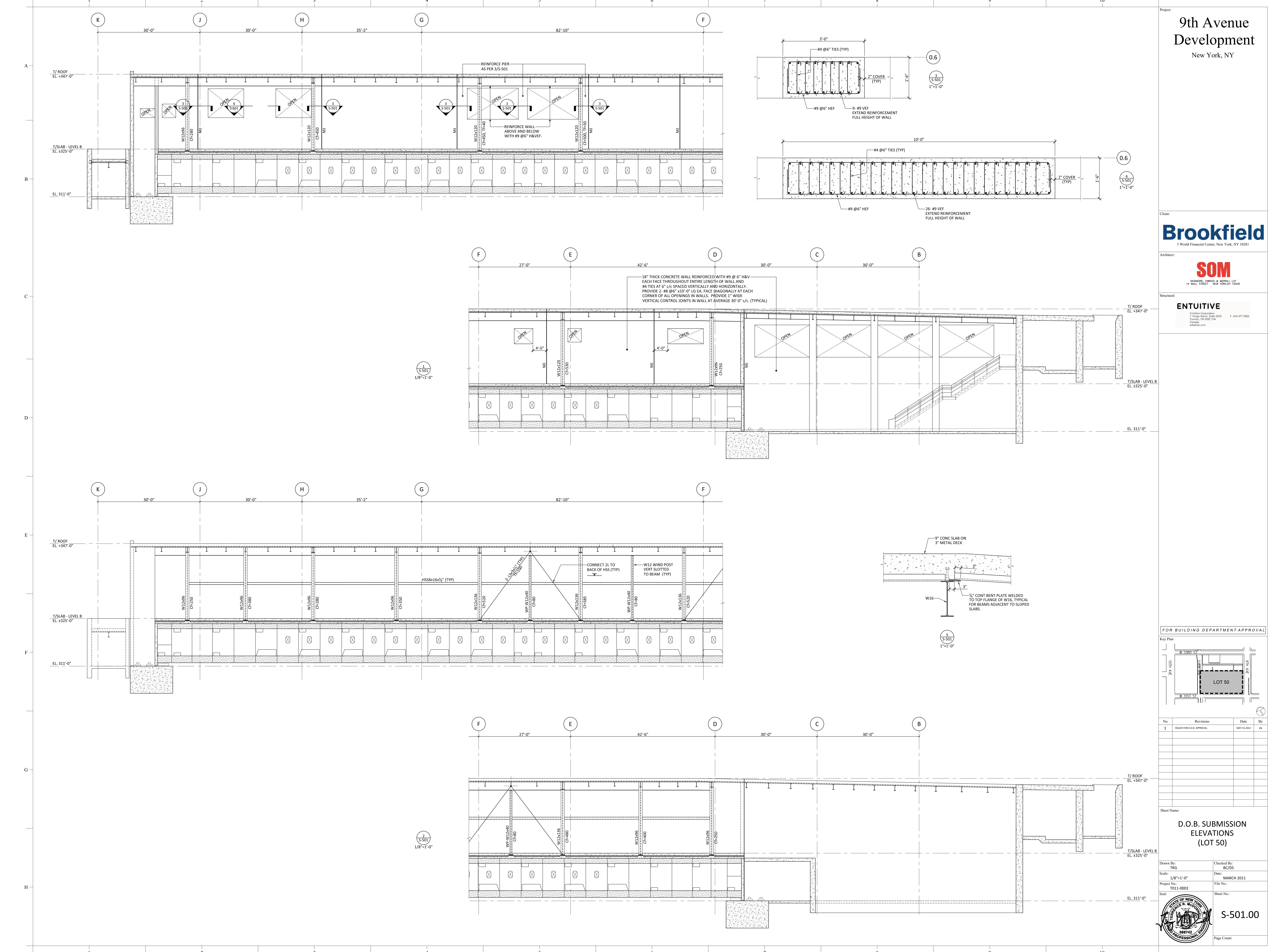
Page Count:

9th Avenue Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
375 Broadway, Suite 5000
New York, NY 10013

Structural:
ENTUITIVE
Entuitive Corporation
100 West Street, Suite 2002
New York, NY 10038
entuitive.com

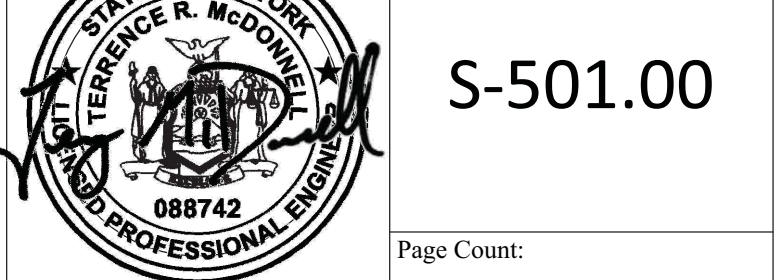


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	MAY 21, 2012	TRG

D.O.B. SUBMISSION ELEVATIONS (LOT 50)

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:





MSE STRUCTURE SHOP DRAWINGS
Prepared For
BROOKFIELD PROPERTIES



TENSAR® TEMPORARY WALL

MANHATTAN WEST PLATFORM TEMPORARY WALL

NEW YORK, NEW YORK

SHEET	INDEX	DESCRIPTION
1.		Title Sheet
2.		Construction Requirements
3.		Plan View
4.		Typical Cross-Section
5.		Typical Details

STEPHEN ANDREW LUPTAK
P.E. NO. 090625

Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Nov 9, 2012 - 3:45 PM
NYC Development Hub

N1250801.DWG		TENSAR® TEMPORARY WALL		CLIENT POSILICO-CIVIL, INC. 131-36A 20TH AVENUE COLLEGE POINT, NY 11356 (718) 353-9616	PROJECT NAME MANHATTAN WEST PLATFORM TEMPORARY WALL	DRAWING TITLE TITLE SHEET																																						
THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF THOSE SPECIFIC TENSAR PRODUCTS INCORPORATED THEREIN WHICH ARE PROPRIETARY TO TENSAR. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR INTERNATIONAL CORPORATION.		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10/8/12</td> <td>ISSUED FOR REVIEW</td> <td>RJ</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	0	10/8/12	ISSUED FOR REVIEW	RJ				ENGINEER OF RECORD: Tensar International Corporation 2500 Northwind Parkway Suite 500 Alpharetta, Georgia 30009 770-344-2090 STEPHEN ANDREW LUPTAK P.E. NO. 090625	PROJECT LOCATION NEW YORK, NEW YORK STATE OR FEDERAL AID PROJECT No.	<table border="1"> <thead> <tr> <th>DRAWN BY</th> <th>NAME</th> <th>DATE</th> <th>PROJECT NUMBER</th> </tr> </thead> <tbody> <tr> <td>RJ</td> <td>RJ</td> <td>10/8/12</td> <td>N12508</td> </tr> <tr> <th>DESIGNED BY</th> <th>NAME</th> <th>DATE</th> <th>SCALE</th> </tr> <tr> <td>RJ</td> <td>RJ</td> <td>10/8/12</td> <td>AS SHOWN</td> </tr> <tr> <th>CHECKED BY</th> <th>NAME</th> <th>DATE</th> <th>SHEET NUMBER</th> </tr> <tr> <td>SW</td> <td>SW</td> <td>10/8/12</td> <td>1 of 6</td> </tr> </tbody> </table>	DRAWN BY	NAME	DATE	PROJECT NUMBER	RJ	RJ	10/8/12	N12508	DESIGNED BY	NAME	DATE	SCALE	RJ	RJ	10/8/12	AS SHOWN	CHECKED BY	NAME	DATE	SHEET NUMBER	SW	SW	10/8/12	1 of 6
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION																																						
0	10/8/12	ISSUED FOR REVIEW	RJ																																									
DRAWN BY	NAME	DATE	PROJECT NUMBER																																									
RJ	RJ	10/8/12	N12508																																									
DESIGNED BY	NAME	DATE	SCALE																																									
RJ	RJ	10/8/12	AS SHOWN																																									
CHECKED BY	NAME	DATE	SHEET NUMBER																																									
SW	SW	10/8/12	1 of 6																																									
© 2011, TENSAR INTERNATIONAL CORPORATION																																												

CONSTRUCTION REQUIREMENTS FOR TENSAR TEMPORARY RETAINING WALL SYSTEM

- 1.0 PROJECT INTRODUCTION
1.1 THE TEMPORARY RETAINING WALL SYSTEM FOR THE MANHATTAN WEST PLATFORM TEMPORARY WALL PROJECT IS A MECHANICALLY STABILIZED EARTH (MSE) STRUCTURE.
2.0 MATERIALS
2.1 BACKFILL
2.1.1 BACKFILL (REINFORCED AND RETAINED ZONES) SHALL BE FREE OF EXCESS MOISTURE, ROOTS, MUCK, SOD, SNOW, FROZEN LUMPS, ORGANIC MATTER OR OTHER DELETERIOUS MATERIALS.
2.1.2 REINFORCED BACKFILL SHALL BE ON-SITE OR IMPORT SOILS THAT MEET THE STRENGTH REQUIREMENTS DEFINED IN SECTION 4.0 AND THE GRADATION LIMITS FOR 'BASE MATERIAL #1' REFERENCED IN THE DESIGN REPORT.
2.2 SOIL REINFORCEMENT
2.3 FACING MATERIAL
2.3.1 WELDED WIRE FORMS (WWF) SHALL BE SUPPLIED BY THE TENSAR INTERNATIONAL CORPORATION, MORROW, GEORGIA, USA.
3.0 DESIGN RESPONSIBILITY
3.1 TIC RESPONSIBILITY
3.1.1 INTERNAL STABILITY
3.1.2 EXTERNAL STABILITY
3.2 RESPONSIBILITY OF OTHERS
3.2.1 TIC REPORT'S PHYSICAL AND STRENGTH REQUIREMENTS OF THE BACKFILL.
3.2.2 BEARING RESISTANCE
3.2.3 HYDROSTATIC CONDITIONS
3.2.4 SETTLEMENT
3.2.5 GLOBAL STABILITY

- 4.0 DESIGN PARAMETERS
4.1 DESIGN OF THE TEMPORARY RETAINING WALL IS BASED ON SECTION 11 OF 'AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION, 2010'
4.2 THE FOLLOWING PARAMETERS CONTROL THE DESIGN:
4.3 SOIL PARAMETERS
4.4 GEOGRID
4.5 DESIGN LIFE
4.6 LOADINGS
4.6.1 UNIFORM LOAD
4.7 APPLIED BEARING PRESSURE
4.8 HYDROSTATIC PARAMETERS
5.0 CONSTRUCTION
5.1 A COMPLETE SET OF APPROVED SHOP DRAWINGS AND CONTRACT SPECIFICATIONS SHALL BE ON SITE AT ALL TIMES DURING CONSTRUCTION OF THE TEMPORARY RETAINING WALL SYSTEM.
5.2 FOUNDATION PREPARATION
5.3 MSE FACING
5.3.1 THE CLIENT IS RESPONSIBLE TO SURVEY AND LAYOUT THE TEMPORARY RETAINING WALL FACING AS SHOWN ON THE OWNER'S CONTRACT DRAWINGS.
5.3.2 INSTALL WWF FACING UNITS ON LEVEL GRADE.
5.4 GEOGRID PLACEMENT
5.4.1 GEOGRIDS SHALL BE INSTALLED AT THE LENGTHS, ELEVATIONS, AND LOCATIONS SHOWN ON THE DRAWINGS HEREIN.
5.4.2 GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTH.

Table with 4 columns: SOIL ZONE, MOIST UNIT WEIGHT (PCF), EFFECTIVE FRICTION (DEGREES), EFFECTIVE COHESION (PSF). Rows include REINFORCED ZONE, RETAINED ZONE, and FOUNDATION ZONE.

- 5.4.3 UNIAxIAL GEOGRIDS SHALL BE ROLLED OUT PERPENDICULAR TO THE FACING UNITS. THE TRANSVERSE BAR OF THE GEOGRID (ACROSS THE ROLL WIDTH) SHALL BE IN CONTACT WITH THE VERTICAL FACE OF THE GEOTEXTILE.
5.4.4 TWO LAYERS OF GEOTEXTILE SHALL BE INSTALLED IN EACH FACING UNIT COURSE AS SHOWN HEREIN.
5.4.5 TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY ON THE GEOGRID REINFORCEMENT.
5.4.6 A MINIMUM OF 3 INCHES OF REINFORCED BACKFILL SHALL BE PLACED BETWEEN OVERLAPPING LAYERS OF GEOGRID REINFORCEMENT.
5.5 BACKFILL PLACEMENT
5.5.1 PRIOR TO PLACING BACKFILL, POSITION THE FACE BACKING AND INSTALL THE WIRE STRUTS AS SHOWN IN THE DRAWINGS.
5.5.2 BACKFILL SHALL BE PLACED FROM THE BACK OF THE MSE STRUCTURE FACING TOWARDS THE ENDS OF THE GEOGRID TO PROMOTE PROPER TENSIONING.
5.5.3 BACKFILL SHALL BE PLACED AT A MOISTURE CONTENT NO GREATER THAN TWO PERCENT WET AND NO LESS THAN ONE PERCENT DRY OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF 95% OF MAXIMUM STANDARD PROCTOR DRY DENSITY AS DETERMINED IN ACCORDANCE WITH AASHTO T-99 OR AS SPECIFIED BY PROJECT SPECIFICATIONS.
5.5.4 AT THE END OF EACH WORKDAY, BACKFILL SURFACE SHALL BE GRADED AWAY FROM THE WALL FACE A MINIMUM OF TWO PERCENT SLOPE.
6.0 SPECIAL PROVISIONS
6.1 THE DESIGN PRESENTED HEREIN IS ONLY VALID FOR THE TEMPORARY RETAINING WALL SYSTEM FOR THE MANHATTAN WEST PLATFORM TEMPORARY WALL PROJECT.
6.2 THE CLIENT IS RESPONSIBLE FOR PROVIDING QUALITY ASSURANCE AND QUALITY CONTROL PROGRAMS THAT ENSURE CONSTRUCTION OF THE MSE STRUCTURE IS PERFORMED IN ACCORDANCE WITH THE TIC NOTES AND DRAWINGS, AND THE OWNER'S CONTRACT PLANS AND SPECIFICATIONS.
6.3 THE CLIENT SHALL IMMEDIATELY REPORT ANY CHANGES TO TIC (770-344-2090) PRIOR TO PROCEEDING WITH CONSTRUCTION.
6.4 TIC IS NOT RESPONSIBLE FOR HAVING PERSONNEL ON-SITE UNLESS SPECIFICALLY PROVIDED FOR IN A WRITTEN CONTRACT SIGNED BY TIC.
7.0 REFERENCE DOCUMENTS
7.1 THE DESIGN CALCULATIONS AND CONSTRUCTION DRAWINGS PREPARED BY TIC ARE BASED UPON THE DOCUMENTS LISTED IN APPENDIX A OF THE DESIGN REPORT DATED OCTOBER 8, 2012.

Professional Engineer seal for Stephen Andrew Luptak, State of New York, No. 090625. Includes date stamp 'Oct 8 2012'.

N1250802.DWG

THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF THOSE SPECIFIC TENSAR PRODUCTS INCORPORATED THEREIN WHICH ARE PROPRIETARY TO TENSAR. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN.

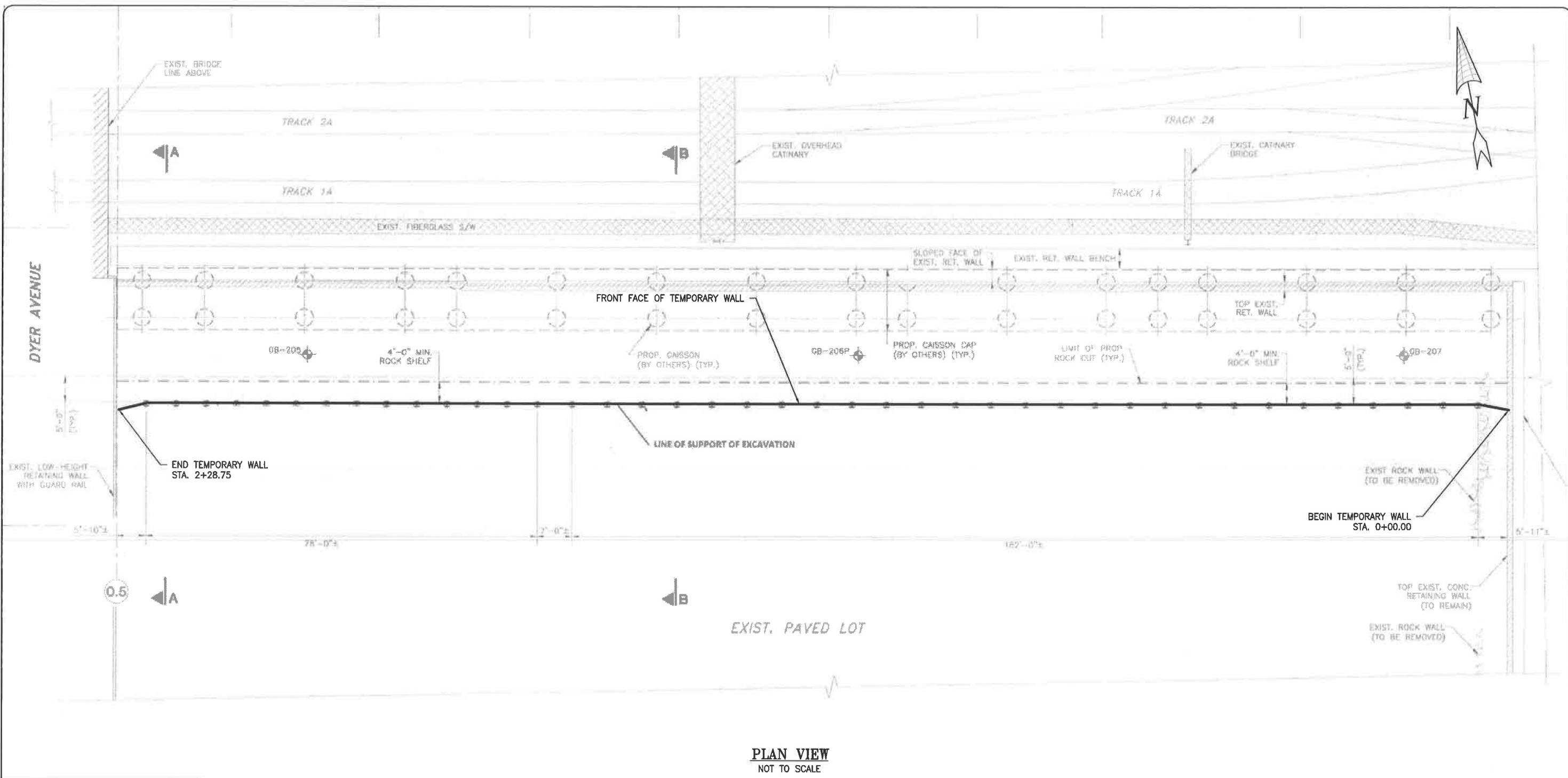
TENSAR TEMPORARY WALL logo and title block containing project information and revision table.

CLIENT INFORMATION: POSILICO-CIVIL, INC. 131-36A 20TH AVENUE, COLLEGE POINT, NY 11356. ENGINEER OF RECORD: Tensar International Corporation.

PROJECT NAME: MANHATTAN WEST PLATFORM TEMPORARY WALL. PROJECT LOCATION: NEW YORK, NEW YORK.

DRAWING TITLE: CONSTRUCTION REQUIREMENTS. Project Number N12508, Scale AS SHOWN. Drawing sheets 2 of 6.

Damian Titus Buildings APPROVED Under Directive 2 of 1975 AMENDED APPLICATION Date/Time: Nov 9, 2012 - 3:45 PM NYC Development Hub



PLAN VIEW
NOT TO SCALE

Stephen Andrew Luptak

Oct 8 2012

STEPHEN ANDREW LUPTAK
P.E. NO. 090625

N1250803.DWG

THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF THOSE SPECIFIC TENSAR PRODUCTS INCORPORATED THEREIN WHICH ARE PROPRIETARY TO TENSAR. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR INTERNATIONAL CORPORATION.

© 2012, TENSAR INTERNATIONAL CORPORATION

		TENSAR® TEMPORARY WALL	
REVISIONS			
NO.	DATE	DESCRIPTION	BY
0	10/8/12	ISSUED FOR REVIEW	RJ

CLIENT
POSILICO-CIVIL, INC.
131-38A 20TH AVENUE
COLLEGE POINT, NY 11356
(718) 353-9616

ENGINEER OF RECORD:
Tensar
Tensar International Corporation
2500 Northwind Parkway | Suite 500
Alpharetta, Georgia 30009 | 770-344-2090

STEPHEN ANDREW LUPTAK P.E. NO. 090625

PROJECT NAME
**MANHATTAN WEST PLATFORM
TEMPORARY WALL**

PROJECT LOCATION
NEW YORK, NEW YORK

STATE OR FEDERAL AID PROJECT No.

DRAWING TITLE		PLAN VIEW	
DRAWN BY	RJ	DATE	10/8/12
DESIGNED BY	RJ	DATE	10/8/12
CHECKED BY	SW	DATE	10/8/12
PROJECT NUMBER		N12508	
SCALE		AS SHOWN	
SHEET NUMBER		3 of 6	

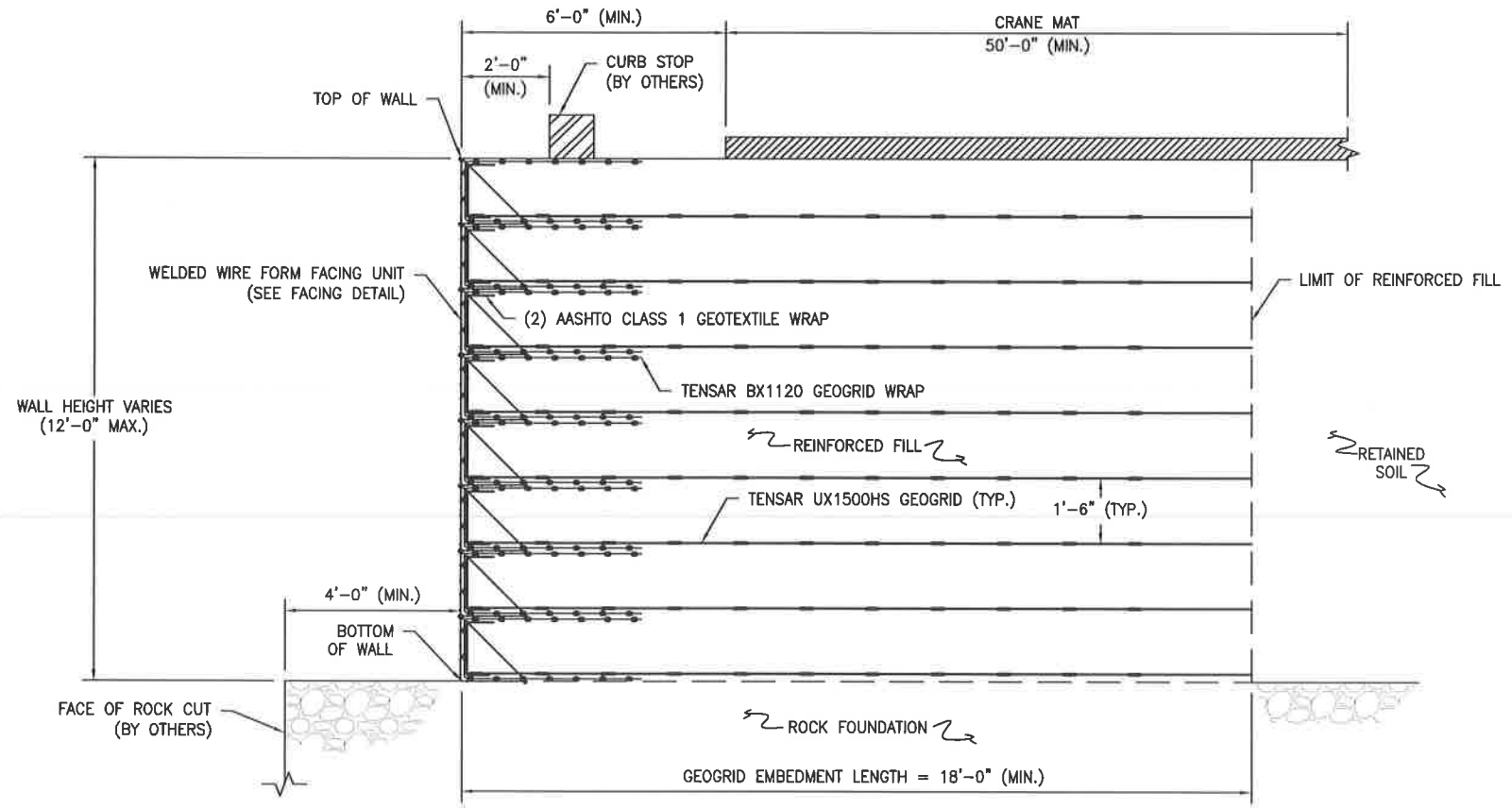
- NOTES:
1. PLAN VIEW SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.
 2. PLAN VIEW OBTAINED FROM POSILICO-CIVIL, INC.

Damian Titus

Buildings

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
DATE: 10/9/2012 BY: [Signature]

NYC Development Hub
POSILICO-CIVIL, INC.



TYPICAL CROSS-SECTION

NOTES:

1. TWO GEOTEXTILE WRAP SHALL BE INSTALLED PER FACING UNIT.

Damian Titus
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Nov 9, 2012 - 3:45 PM
NYC Development

SCALE: 2 1 0 2 4

Stephen A. Luptak

Oct 8 2012

STEPHEN ANDREW LUPTAK
P.E. NO. 090625

N1250804.DWG

THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF THOSE SPECIFIC TENSAR PRODUCTS INCORPORATED THEREIN WHICH ARE PROPRIETARY TO TENSAR. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR INTERNATIONAL CORPORATION.

REVISIONS					
NO.	DATE	DESCRIPTION	BY	NO.	DATE
0	10/8/12	ISSUED FOR REVIEW	RJ		

TENSAR TEMPORARY WALL

CLIENT: **POSILICO-CIVIL, INC.**
131-38A 20TH AVENUE
COLLEGE POINT, NY 11356
(718) 353-9616

ENGINEER OF RECORD:
Tensar
Tensar International Corporation
2500 Northwind Parkway | Suite 500
Alpharetta, Georgia 30009 | 770-344-2090

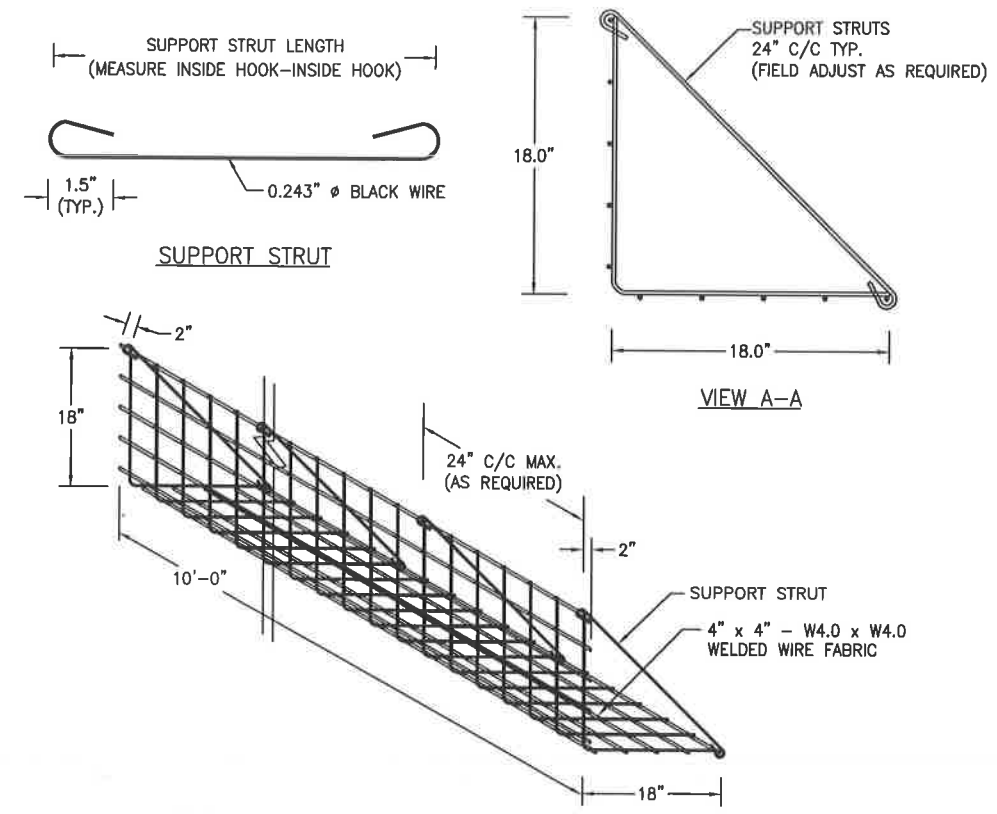
STEPHEN ANDREW LUPTAK P.E. NO. 090625

PROJECT NAME: **MANHATTAN WEST PLATFORM TEMPORARY WALL**

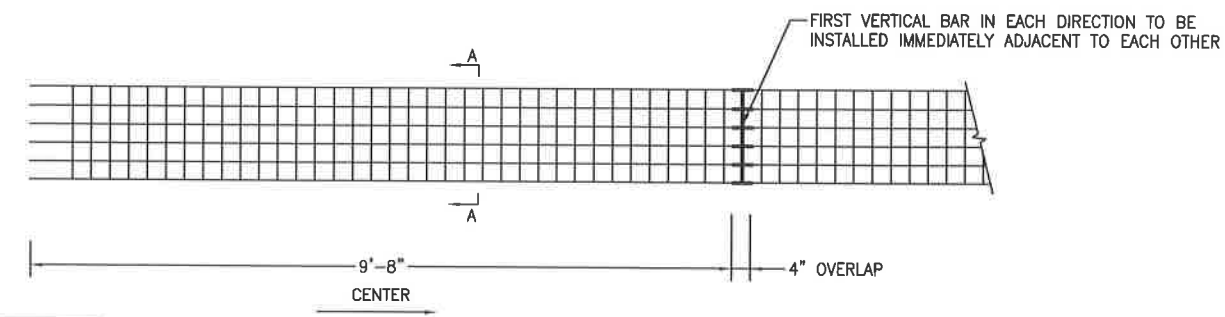
PROJECT LOCATION: **NEW YORK, NEW YORK**

STATE OR FEDERAL AID PROJECT No.

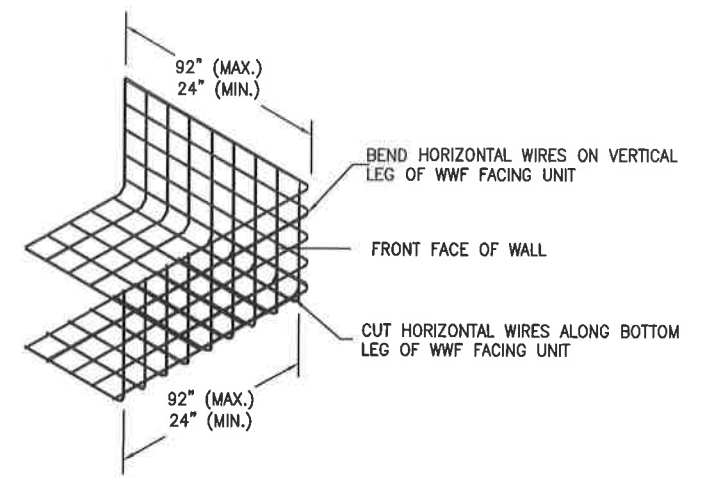
DRAWING TITLE			
TYPICAL CROSS-SECTION			
NAME	DATE	PROJECT NUMBER	SCALE
DRAWN BY: RJ	10/8/12	N12508	AS SHOWN
DESIGNED BY: RJ	10/8/12	SHEET NUMBER	4 OF 6
CHECKED BY: SW	10/8/12		



- NOTES:**
1. FACING TO CONSIST OF PREFABRICATED WWF 4" x 4" - W4.0 x W4.0 FORMS.
 2. ALL FORMS AND STRUTS WILL BE FABRICATED WITH BLACK WIRE.
 3. OVERALL LENGTH OF WIRE FORMS IS 10'-0". EFFECTIVE CONSTRUCTED WIDTH IS 9'-8" WITH 4" OVER LAPPING AT ENDS.

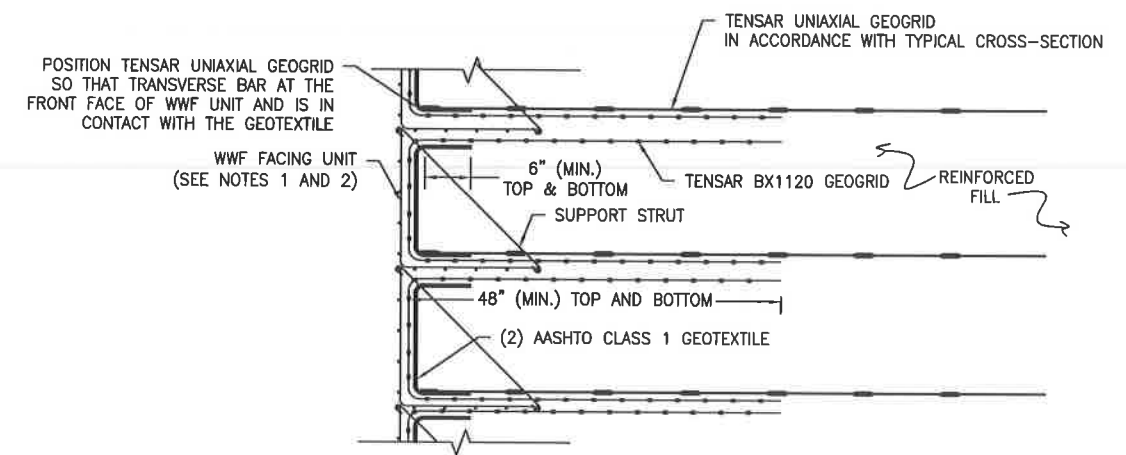


WELDED WIRE FORM FACING UNIT
NOT TO SCALE



NOTE: MAINTAIN 24" (MIN.) OF WIRE FORM ON EACH SIDE OF BEND.

WELDED WIRE FORM OUTSIDE CORNER DETAIL
NOT TO SCALE



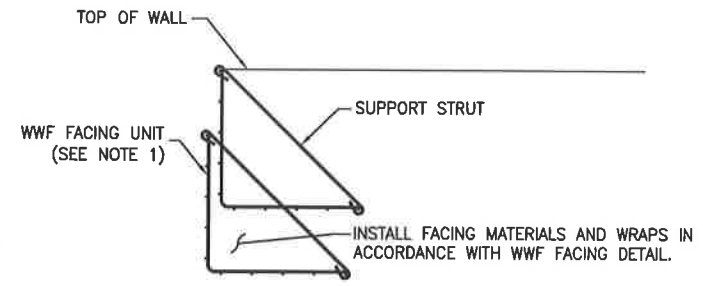
- NOTES:**
1. SEE WELDED WIRE FORM (WWF) FACING UNIT DETAIL FOR FACING MATERIAL AND DIMENSIONS.
 2. ALL FACING UNITS SHALL BE FABRICATED FROM BLACK STEEL.
 3. TWO LAYERS OF GEOTEXTILE SHALL BE INSTALLED IN EACH FACING UNIT COURSE.

WELDED WIRE FORM FACING DETAIL
NOT TO SCALE

Professional Engineer Seal for Stephen Andrew Luptak, State of New York, License No. 090625. Date: Oct 8 2012.

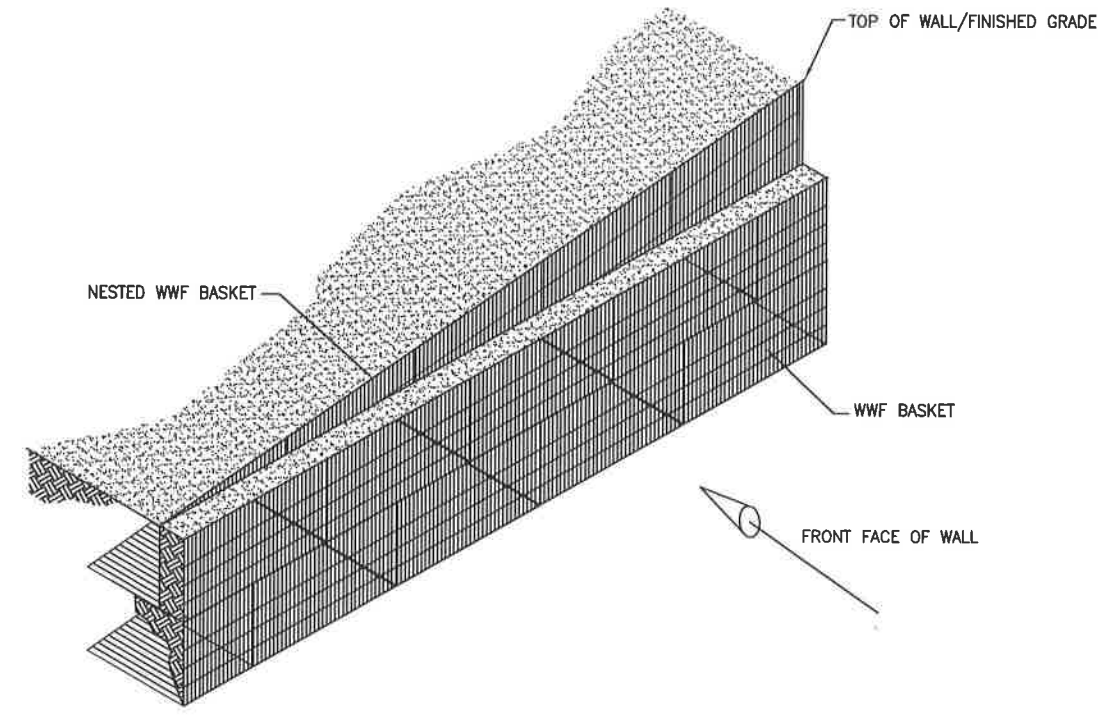
Signature of Damian Titus, Buildings, Approved Under Directive 2 of 1975, Amended Application, Date/Time: Nov 9, 2012 - 3:45 PM, NYC Development Hub.

N1250805.DWG		TENSAR® TEMPORARY WALL		CLIENT	POSILICO-CIVIL, INC. 131-38A 20TH AVENUE COLLEGE POINT, NY 11356 (718) 353-9616	PROJECT NAME	MANHATTAN WEST PLATFORM TEMPORARY WALL		DRAWING TITLE	TYPICAL DETAILS																					
THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF THOSE SPECIFIC TENSAR PRODUCTS INCORPORATED THEREIN WHICH ARE PROPRIETARY TO TENSAR. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR INTERNATIONAL CORPORATION.		<table border="1"> <thead> <tr> <th colspan="6">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>NO.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10/8/12</td> <td>ISSUED FOR REVIEW</td> <td>RJ</td> <td></td> <td></td> </tr> </tbody> </table>		REVISIONS						NO.	DATE	DESCRIPTION	BY	NO.	DATE	0	10/8/12	ISSUED FOR REVIEW	RJ			ENGINEER OF RECORD:	Tensar International Corporation 2500 Northwind Parkway Suite 500 Alpharetta, Georgia 30009 770-344-2090	PROJECT LOCATION	NEW YORK, NEW YORK		DRAWN BY	RJ	10/8/12	PROJECT NUMBER	N12508
REVISIONS																															
NO.	DATE	DESCRIPTION	BY	NO.	DATE																										
0	10/8/12	ISSUED FOR REVIEW	RJ																												
© 2012, TENSAR INTERNATIONAL CORPORATION				STEPHEN ANDREW LUPTAK P.E. NO. 090625		STATE OR FEDERAL AID PROJECT No.			DESIGNED BY	RJ	10/8/12	SCALE	AS SHOWN																		
									CHECKED BY	SW	10/8/12	SHEET NUMBER	5 of 6																		

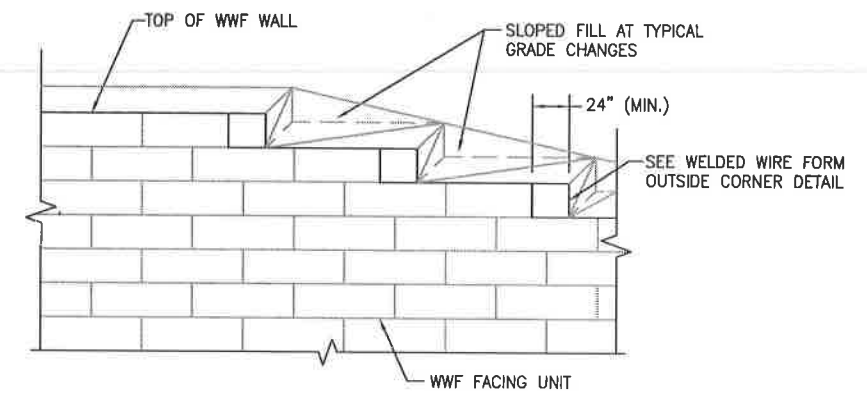


- NOTES:**
1. SEE WELDED WIRE FORM (WWF) FACING DETAIL FOR FACING MATERIALS AND DIMENSIONS.
 2. SET TOPMOST WWF FACING UNIT INSIDE WWF FACING UNIT BELOW TO FOLLOW GRADE.
 3. HORIZONTAL WIRES OF TOPMOST WWF FACING UNIT MAY BE CUT TO ALLOW INSTALLATION OVER STRUTS OF WWF FACING UNIT BELOW.

NESTED BASKET DETAIL
NOT TO SCALE



ISOMETRIC VIEW - NESTED BASKET AT TOP OF SLOPE DETAIL
NOT TO SCALE



- NOTES:**
1. SEE WELDED WIRE FORM (WWF) FACING DETAIL AND WWF OUTSIDE CORNER DETAIL FOR FACING MATERIALS AND DIMENSIONS.
 2. INSTALL ADJACENT WWF FACING UNITS TO PROVIDE 4" OVERLAP OF HORIZONTAL WIRES.

ALTERNATE TOP OF WWF WALL FINISHING DETAIL
NOT TO SCALE

Stephen Andrew Luptak

Oct 8 2012

STEPHEN ANDREW LUPTAK
P.E. NO. 090625

Damian Titus

Buildings

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Nov 9, 2012 - 3:45 PM
NYC Development Hub

N1250805.DWG				CLIENT POSILICO-CIVIL, INC. 131-36A 20TH AVENUE COLLEGE POINT, NY 11356 (718) 353-9616	PROJECT NAME MANHATTAN WEST PLATFORM TEMPORARY WALL	DRAWING TITLE TYPICAL DETAILS																							
THIS DESIGN IS BASED UPON SPECIFIC PROPERTIES OF THOSE SPECIFIC TENSAR PRODUCTS INCORPORATED THEREIN WHICH ARE PROPRIETARY TO TENSAR. ANY SUBSTITUTION OF THE SPECIFIED PRODUCTS WILL INVALIDATE THIS DESIGN. THIS DRAWING IS BEING FURNISHED FOR USE ON THIS SPECIFIC PROJECT ONLY. ANY PARTY ACCEPTING THIS DOCUMENT DOES SO IN CONFIDENCE AND AGREES THAT IT SHALL NOT BE DUPLICATED WHOLE OR IN PART, NOR DISCLOSED TO OTHERS, WITHOUT THE CONSENT OF TENSAR INTERNATIONAL CORPORATION.		REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> <th>NO.</th> <th>DATE</th> <th>DESCRIPTION</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10/8/12</td> <td>ISSUED FOR REVIEW</td> <td>RJ</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY	0	10/8/12	ISSUED FOR REVIEW	RJ					ENGINEER OF RECORD: Tensar International Corporation 2500 Northwind Parkway Suite 500 Alpharetta, Georgia 30009 770-344-2090 STEPHEN ANDREW LUPTAK P.E. NO. 090625	PROJECT LOCATION NEW YORK, NEW YORK STATE OR FEDERAL AID PROJECT No.	<table border="1"> <thead> <tr> <th>NAME</th> <th>DATE</th> <th>PROJECT NUMBER</th> </tr> </thead> <tbody> <tr> <td>RJ</td> <td>10/8/12</td> <td>N12508</td> </tr> </tbody> </table>		NAME	DATE	PROJECT NUMBER	RJ	10/8/12	N12508
NO.	DATE	DESCRIPTION	BY	NO.	DATE	DESCRIPTION	BY																						
0	10/8/12	ISSUED FOR REVIEW	RJ																										
NAME	DATE	PROJECT NUMBER																											
RJ	10/8/12	N12508																											
© 2012, TENSAR INTERNATIONAL CORPORATION						<table border="1"> <thead> <tr> <th>SCALE</th> <th>SHEET NUMBER</th> </tr> </thead> <tbody> <tr> <td>AS SHOWN</td> <td>6 of 6</td> </tr> </tbody> </table>		SCALE	SHEET NUMBER	AS SHOWN	6 of 6																		
SCALE	SHEET NUMBER																												
AS SHOWN	6 of 6																												

9TH AVENUE DEVELOPMENT

BLOCK 729, LOT 50

NEW YORK, NY

ISSUED FOR BUILDING DEPARTMENT APPROVAL

MAY 31, 2012

DRAWING LIST

ARCHITECTURAL

G-000.00 COVER SHEET AND NOTES
 G-001.00 FEMA - FLOOD INSURANCE RATE MAP
 A-001.00 PLOT DIAGRAM - BLOCK 729, LOT 50 (371 9TH AVENUE)
 A-100.00 TRACK LEVEL PLAN (LOT 50)
 A-101.00 B1 LEVEL PLAN (LOT 50)
 A-102.00 B LEVEL PLAN (LOT 50)
 A-103.00 GROUND FLOOR PLAN (LOT 50)
 A-351.00 STAIR DETAILS (LOT 50)
 A-700.00 PARTITION TYPES (LOT 50)

STRUCTURAL

S-001.00 COVER SHEET/ DRAWING LIST
 S-002.00 GENERAL NOTES AND DESIGN NOTES
 S-003.00 TYPICAL DETAILS
 S-102.00 TRACK LEVEL PLAN
 S-102E.00 PLAN DETAILS FOR FOOTINGS AT E-YARD
 S-104.00 LEVEL B1 PLAN
 S-105.00 LEVEL B PLAN
 S-106.00 GROUND LEVEL FRAMING PLAN
 S-106A.00 GROUND LEVEL PARTIAL FRAMING PLAN A
 S-106B.00 GROUND LEVEL PARTIAL FRAMING PLAN B
 S-106C.00 GROUND LEVEL PARTIAL FRAMING PLAN C

S-301.00
 S-302.00
 S-400.00
 S-400A.00
 S-401.00
 S-402.00
 S-407.00
 S-416.00
 S-417A.00
 S-417A.00
 S-420.00
 S-421.00
 S-422.00
 S-422A.00
 S-440.00
 S-450.00
 S-501.00

CAISSON/ ROCK ANCHOR SCHEDULE
 CAISSON/ ROCK ANCHOR SCHEDULE
 FOUNDATION SECTIONS
 FOUNDATION SECTIONS
 FOUNDATION SECTIONS
 FOUNDATION SECTIONS
 FOUNDATION SECTIONS
 CONCRETE CAPPING BEAM (NORTH)
 CONCRETE CAPPING BEAM (NORTH)
 CONCRETE CAPPING BEAM (SOUTH)
 CONCRETE CAPPING BEAM (SOUTH)
 TYPICAL PLENUM SECTIONS AND DETAILS
 TYPICAL PLENUM SECTIONS AND DETAILS
 STEEL CAPPING BEAM PLAN
 STEEL CAPPING BEAM SECTIONS
 PRECAST COLUMN PROTECTION DETAILS
 LEVEL B SECTIONS
 ELEVATIONS

Project:
9th Avenue Development
 New York, NY

BUILDING DEPARTMENT NOTES (NYC)

A) GENERAL COMPLIANCE

1. PRELIMINARY INSPECTION AND REQUIRED PROGRESS INSPECTIONS OF WORK SHALL BE IN ACCORDANCE WITH CHAPTER 1 OF TITLE 28 OF THE GENERAL ADMINISTRATIVE PROVISIONS.

2. FINAL INSPECTION SHALL BE PERFORMED BY THE DEPARTMENT IN THE PRESENCE OF THE PERMIT HOLDER, GENERAL ADMINISTRATION PROVISIONS, ARTICLE 116, 28-116.2.1. THE CONTRACTOR IS THE PERMIT HOLDER AND SHALL BE PRESENT AT FINAL INSPECTION.

3. THE PERMIT APPLICATION SHALL SET FORTH AN INSPECTION PROGRAM FOR THE JOB. THE PERMIT HOLDER SHALL NOTIFY THE RELEVANT SPECIAL INSPECTORS IN WRITING AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK REQUIRING SPECIAL INSPECTION PER GENERAL ADMINISTRATION PROVISIONS, ARTICLE 115, 28-115.2.3.

4. BUILDING SHALL CONFORM TO THE APPROVED CONSTRUCTION DOCUMENTS AND THE PROVISIONS OF THIS CODE AND OTHER APPLICABLE LAWS AND RULES. GENERAL ADMINISTRATION PROVISIONS, ARTICLE 118, 28-118.2.

5. THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 110, SITE SAFETY PLAN UNDER GENERAL ADMINISTRATION PROVISIONS AND CHAPTER 33.

6. THE BUILDING IS LOCATED WITHIN THE ESTABLISHMENT OF FIRE DISTRICT NO. 1, ALL OF THE BOROUGH OF MANHATTAN PER APPENDIX D, FIRE DISTRICTS.

7. THE BUILDING IS CLASSIFIED AS CONSTRUCTION CLASS TYPE-IB, NON-COMBUSTIBLE CONSTRUCTION PER SECTION 602.2.

8. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE NEW YORK CITY BUILDING CODE.

9. MINIMUM HEADROOM FOR MEANS OF EGRESS STAIR 7 FT MINIMUM PER BC SECTION 1009.2.

10. MINIMUM HEADROOM FOR MEANS OF EGRESS RAMP 7 FT MINIMUM PER BC SECTION 1010.5.2.

11. PROJECT SHALL COMPLY WITH LOCAL LAW 5987, LOCAL LAW 2919, LOCAL LAW 17195 AND ANS1 A117.1-2003. [EDIT AS REQUIRED. 5987 & A117.1 PERTAIN TO HANDICAPPED ACCESSIBILITY REQUIREMENTS. LOCAL LAW 2919 PERTAIN TO PLUMBING FIXTURES. LOCAL LAW 17195 PERTAINS TO SEISMIC DESIGN.]

12. TO THE BEST OF OUR PROFESSIONAL KNOWLEDGE, BELIEF, AND JUDGEMENT, THESE PLANS CONFORM TO THE NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE.

13. FIVE DAYS PRIOR NOTICE SHALL BE GIVEN TO ADJOINING LOT OWNERS VIA THE CONTRACTOR WHEN AFFECTED BY WORK.

14. A LICENSED PROFESSIONAL SURVEYOR SHALL INSPECT THE SITE AND VERIFY THE ELEVATION OF THE LOWEST FLOOR AS PART OF ELEVATION PROGRESS INSPECTION. PRIOR TO SIGN OF WORK, A LICENSED PROFESSIONAL SURVEYOR SHALL SUBMIT TO THE COMMISSIONER A CERTIFICATION OF THE ELEVATION OF THE LOWEST FLOOR, INCLUDING THE BASEMENT (FOR FLOOD ZONE PURPOSES) PER APPENDIX G105.3.

15. PERMIT FOR WORK BEYOND THE BUILDING LINE SIDEWALK AND VAULTS WILL BE OBTAINED BEFORE CONSTRUCTION IS STARTED, AS PER DEPARTMENT OF HIGHWAYS.

16. BORING OPERATIONS SHALL BE SUBJECT TO CONTINUOUS SPECIAL INSPECTION TO VERIFY COMPLIANCE WITH SECTION 1902 PER BC SECTION 1704.7.4.

17. THE CONTRACTOR IS TO PROVIDE ALL SHORING, BRACING, BARRICADES, TEMPORARY FENCES, PARTITIONS, AND EXCAVATIONS TO ACCOMPLISH ALL OF THE WORK IN AN APPROVED MANNER PER SECTION 1704.19, SECTION 1908, AND SECTION 3304.4.

18. MATERIALS, ASSEMBLIES, FORMS AND METHODS OF CONSTRUCTION - CODE TEST METHOD: WHENEVER THE BUILDING CODE PRESCRIBES A METHOD OF TESTING, SUCH TEST SHALL BE MADE BY A TESTING SERVICE OR A LABORATORY ACCEPTABLE TO THE COMMISSIONER PER GENERAL ADMINISTRATION PROVISIONS, ARTICLE 28-103.9 AND ARTICLE 28-153.4.1.

19. THE FIRE RESISTANCE RATING OF STRUCTURAL MEMBERS AND ASSEMBLIES SHALL COMPLY WITH THE REQUIREMENTS FOR THE TYPE OF CONSTRUCTION AND SHALL NOT BE LESS THAN THE RATING REQUIRED FOR THE FIRE-RESISTANCE-RATED ASSEMBLIES SUPPORTED PER BC SECTION 1714.1.

20. BUILDING ELEMENTS SUCH AS INTERIOR AND EXTERIOR STEEL COLUMNS, BEAMS, GIRDERS AND FLOOR CONSTRUCTION SHALL BE FIREPROOFED IN ACCORDANCE WITH BC TABLE 801 AND CONSTRUCTION CLASSIFICATIONS BC SECTION 602.2.

21. ALL STAIRWAYS SHALL BE BUILT OF MATERIALS CONSISTENT WITH THE TYPE OF CONSTRUCTION OF THE BUILDING PER BC SECTION 1009.5.

22. COMBUSTIBLE MATERIALS SHALL BE PERMITTED IN BUILDINGS OF TYPE I CONSTRUCTION IN ACCORDANCE WITH SECTION 603.1.1 THROUGH 603.1.3.

23. FIRESTOPPING REQUIRED BY THE NEW YORK CITY BUILDING CODE THROUGH PENETRATIONS SHALL BE FIRESTOPPED IN ACCORDANCE WITH BC SECTION 712.

24. IN NONCOMBUSTIBLE CONSTRUCTION, FIRE BLOCKING SHALL BE INSTALLED TO CUT OFF CONCEALED DRAFT OPENINGS (BOTH VERTICAL AND HORIZONTAL) AND SHALL FORM AN EFFECTIVE BARRIER BETWEEN FLOORS. FIRE BLOCKING SHALL BE INSTALLED IN THE LOCATIONS SPECIFIED IN SECTIONS 717.2.2 THROUGH 717.2.7 PER BC SECTION 717.2.

25. ALL THROUGH-PENETRATION FIRESTOPPING, DRAFTSTOPPING AND FIREBLOCKING SHALL BE SUBJECT TO PERIODIC SPECIAL INSPECTION PRIOR TO CONCEALMENT TO DETERMINE COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS PER BC SECTION 1704.25.

26. FIRESTOPPING OF OPENINGS THROUGH FLOORS OR PARTITIONS SHALL PROVIDE A FIRE RESISTANCE RATING EQUIVALENT TO THAT OF THE FLOOR OR PARTITION ASSEMBLY.

27. ROOFING SHALL COMPLY WITH BC SECTION 1507.

28. ROOFTOP STRUCTURES SHALL COMPLY WITH BC SECTION 1509.

29. THE DESIGN PRESSURE AND SUCTION ACTING OVER THE ENTIRE ROOF SHALL BE PER VALUES GIVEN IN SECTION 1609.6.3.1.

30. FLASHING SHALL BE INSTALLED IN ACCORDANCE WITH BC SECTION 1503.2.

31. STANDPIPES SHALL BE PROVIDED IN ACCORDANCE WITH BC SECTION 802.2, 802.4, 903, 905, AND 901.4.

32. SERVICE EQUIPMENT WILL COMPLY WITH BC SECTIONS 9007.

33. THE ENTIRE BUILDING SHALL BE PROVIDED WITH AN APPROVED SPRINKLER SYSTEM PER BC SECTION 903.

34. AN APPROVED TWO-WAY FIRE DEPARTMENT COMMUNICATION SYSTEM SHALL BE PROVIDED FOR FIRE DEPARTMENT USE IN ACCORDANCE WITH NFPA 72 PER BC SECTION 907.2.12.3.

B) SPECIAL INSPECTIONS

35. AUTOMATIC FIRE DETECTION SHALL BE PROVIDED PER BC SECTION 907.2.12.1.

36. SMOKE DETECTORS SHALL BE INSTALLED PER BC SECTION 907.2.18.1.

37. REQUIRED EXITS, EXIT DISCHARGES, AND PUBLIC CORRIDORS SHALL BE ILLUMINATED AT ALL TIMES PER BC SECTION 1006.1.

38. SIGNAGE SHALL BE INSTALLED PER BC SECTION 1007.6.5, 1007.7.1011.1, 1011.1.1, 1011.2.1, 1019.1.6, 1019.1.7, 1026.3, 1026.4.1, 1028.4.3, AND 1028.10.

39. THE ENTIRE BUILDING SHALL COMPLY FULLY WITH LOCAL LAW 1684, THE FOLLOWING SEPARATE APPLICATIONS WILL BE FILED.

- * FOUNDATION AND EARTHWORK: EXCAVATION AND FILL
- * PLUMBING SYSTEMS
- * SERVICE EQUIPMENT: ELEVATORS, AIR CONDITIONING AND VENTILATING SYSTEMS, ETC.
- * FIRE SUPPRESSION SYSTEM: SPRINKLER, STANDPIPE SYSTEM, EMERGENCY GENERATORS, FIRE ALARM SYSTEM

40. FOUNDATION AND EARTHWORK: EXCAVATION AND FILL

41. FOUNDING AND FOUNDATION. BC SECTION 1093.1

42. LOWEST FLOOR ELEVATION (ATTACH FEMA FORM). BC SECTION 1093.2

43. FRAME INSPECTION. BC SECTION 1093.3

44. FIRE-RESISTANCE RATED CONSTRUCTION. BC SECTION 1093.4

45. FINAL. 28-116.2.4.2, BC SECTION 1094.5, DIRECTIVE 14 OF 1975, AND 1 RONY 101-10

FUEL BURNING AND STORAGE INSTALLATION (PLUMBING DIVISION)

7A. FUEL-OIL STORAGE AND FUEL-OIL PIPING SYSTEMS. BC SECTION 1704.16.

8. MASONRY

8A. MASONRY. BC SECTION 1704.6.

9. SIGNAGE

9A. PHOTO LUMINESCENT EXIT PATH MARKINGS. BC SECTION 1026.11.

C) PROGRESS INSPECTION

1. FOOTING AND FOUNDATION. BC SECTION 1093.1

2. LOWEST FLOOR ELEVATION (ATTACH FEMA FORM). BC SECTION 1093.2

3. FRAME INSPECTION. BC SECTION 1093.3

4. FIRE-RESISTANCE RATED CONSTRUCTION. BC SECTION 1093.4

5. FINAL. 28-116.2.4.2, BC SECTION 1094.5, DIRECTIVE 14 OF 1975, AND 1 RONY 101-10

C) BUILDING DEPARTMENT AND ZONING DATA

* ZONING DISTRICT	C6-4
* F.A.R. PERMITTED	SPECIAL HUDSON YARDS DISTRICT
* F.A.R. PROPOSED	FARLEY CORRIDOR SUBDISTRICT B
* CONSTRUCTION	CENTRAL BLOCKS SUBAREA B2
* OCCUPANCY	12 F.A.R.
* ADDRESS	0
* FIRE RESISTIVE REQUIREMENTS	TYPE IB
* FLOOR CONSTRUCTION	NO OCCUPANCY
* STAIRS, SHAFTS	West 3rd Street, NY, NY
* HORIZONTAL EXITS	CLASS 1B
	3HRS.
	3HRS.
	3HRS.

D) RESPONSIBILITY OF THE OWNER'S AGENT PERFORMING CONTROLLED INSPECTION OF THE STABILITY AND INTEGRITY OF THE EXISTING STRUCTURE DURING CONSTRUCTION OPERATIONS

1. THE NEW YORK STATE REGISTERED ARCHITECT OR PROFESSIONAL ENGINEER RETAINED BY THE OWNER TO PERFORM THE CONTROLLED INSPECTION OF THE STABILITY AND INTEGRITY OF THE EXISTING STRUCTURE SHALL PERFORM THIS INSPECTION SERVICE IN STRICT COMPLIANCE WITH THE PROCEDURES AND REQUIREMENTS DEFINED BY THE NEW YORK CITY DEPARTMENT OF BUILDINGS IN THE DOCUMENT PROMULGATION OF THE RULES RELATING TO THE CONTROLLED INSPECTION OF THE STABILITY AND INTEGRITY OF EXISTING STRUCTURES DURING CONSTRUCTION OPERATIONS, DATED AUGUST 26, 1992.

2. IT SHALL BE THE RESPONSIBILITY OF THE OWNER'S CONTROLLED INSPECTING AGENT TO REVIEW AND ACCEPT DETAIL DRAWINGS AND ASSOCIATED CALCULATIONS REPRESENTING ALL SHORING, BRACING OR OTHER TEMPORARY CONSTRUCTION WHICH MAY BE REQUIRED TO MAINTAIN THE STRUCTURAL STABILITY AND INTEGRITY OF THE EXISTING CONSTRUCTION DURING THE COURSE OF THE WORK REPRESENTED IN THESE DOCUMENTS.

3. ALL DRAWINGS AND CALCULATIONS REVIEWED AND ACCEPTED BY THE OWNER'S CONTROLLED INSPECTING AGENT SHALL BEAR AN ORIGINAL SIGNATURE AND SEAL INDICATING THE SHORING, BRACING AND OTHER TEMPORARY CONSTRUCTION ENGINEERS NEW YORK STATE REGISTRATION. DUPLICATE COPIES OF ALL DRAWINGS AND CALCULATIONS SHALL BE FORWARDED TO THE OWNER PRIOR TO COMMENCING ANY OF THE TEMPORARY WORK REPRESENTED IN THOSE DOCUMENTS. THE OWNER WILL, IN TURN, TRANSMIT THOSE DOCUMENTS TO THE STRUCTURAL ENGINEER OF RECORD FOR HIS REVIEW.

4. THE STRUCTURAL ENGINEER OF RECORD WILL REVIEW THE DOCUMENTS ONLY FOR HOW THE SHORING, BRACING AND OTHER TEMPORARY CONSTRUCTION INTERACTS AND AFFECTS THE EXISTING STRUCTURE. THE STRUCTURAL ENGINEER AT RECORD REVIEW SHALL NOT BE CONSIDERED AS COMPLETE CHECK, NOR RELIEVE THE OWNER'S CONTROLLED INSPECTING AGENT FROM RESPONSIBILITY FOR ERRORS OF ANY SORT NOR FROM THE NECESSITY OF FURNISHING ANY ADDITIONAL DETAILS OR CALCULATIONS WHICH MAY HAVE BEEN OMITTED OR REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.

NOTE: APPLICATION FILE TO ERECT ELEVATED PLATFORM OVER RAIL YARD

NOTE: ALL WORK SHOWN BELOW EASEMENT LINE IS FOR REFERENCE ONLY TO BE APPROVED BY RAILROADS

Architect:

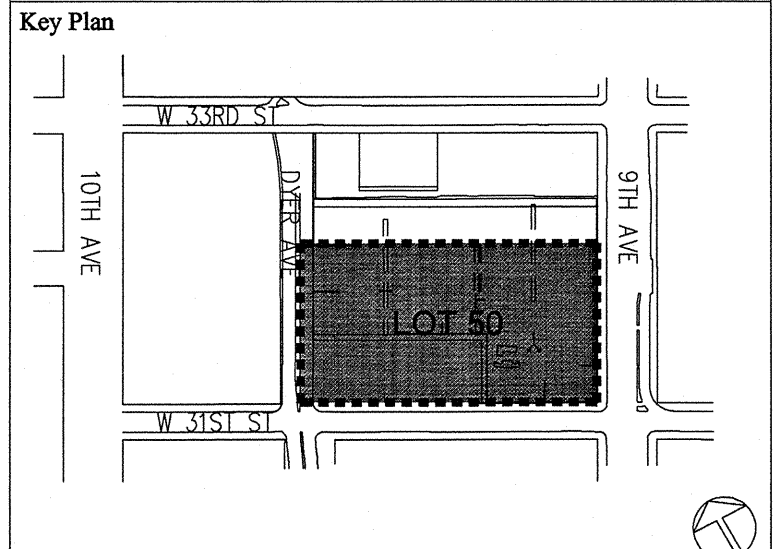


Structural:

ENTUITIVE

Entuitive Corporation
 375 Grand Street, Suite 2002
 Jersey City, NJ 07310
 entuitive.com

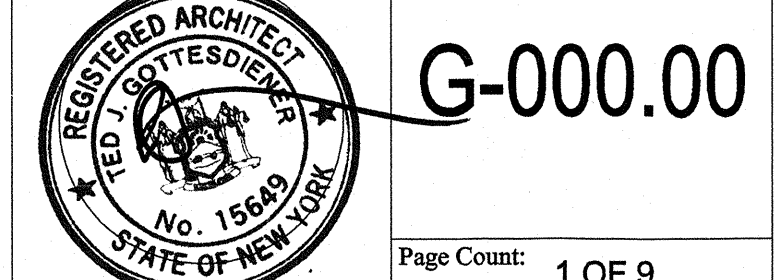
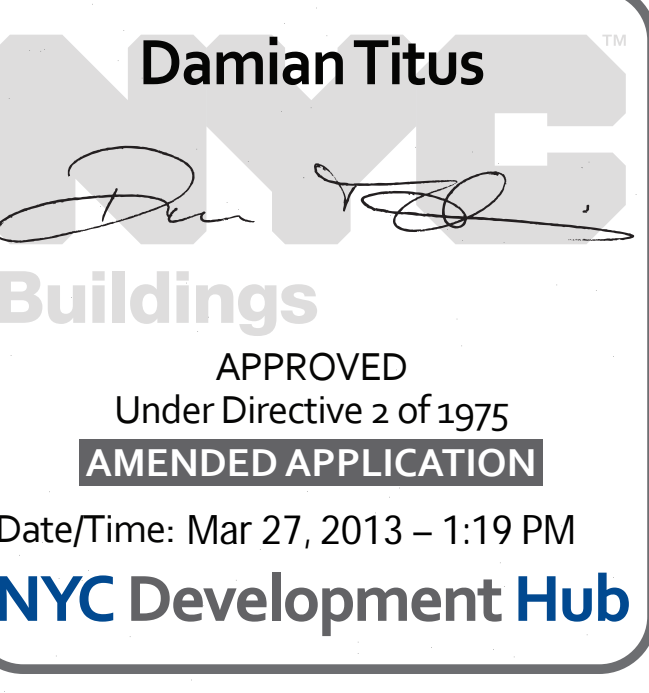
FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
D.O.B. SUBMISSION COVER SHEET AND NOTES (LOT 50)

Drawn By: SOM
 Scale: NTS
 Project No.: 207120
 Date: 05/31/12
 File No.: G-000.00.dwg
 Sheet No.: 1 OF 9



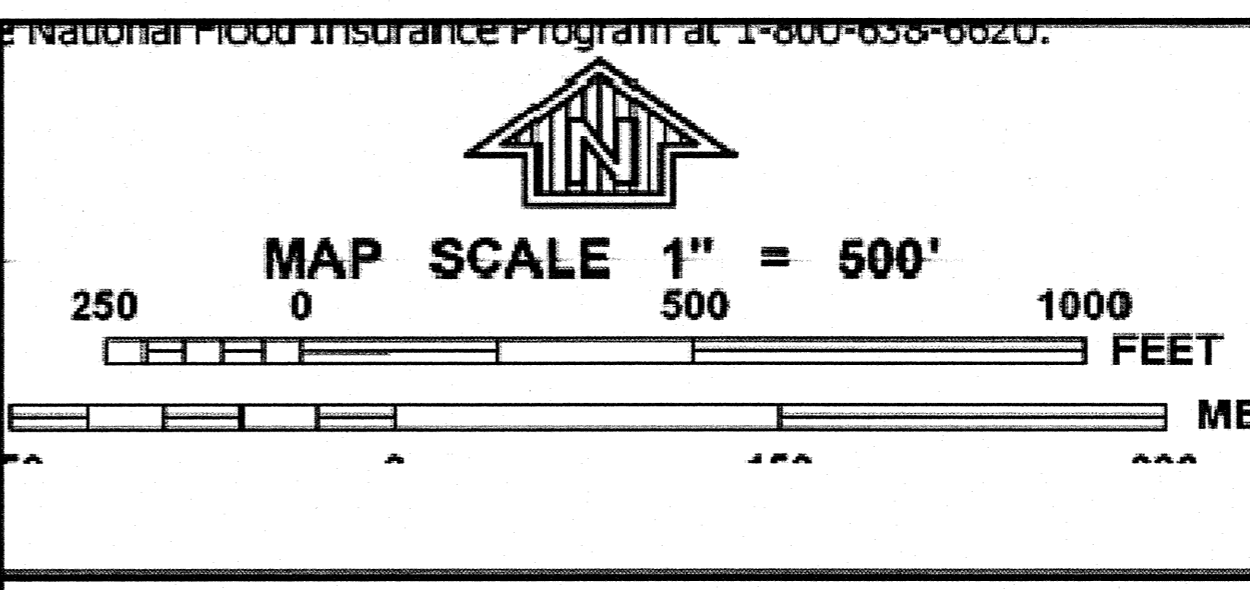
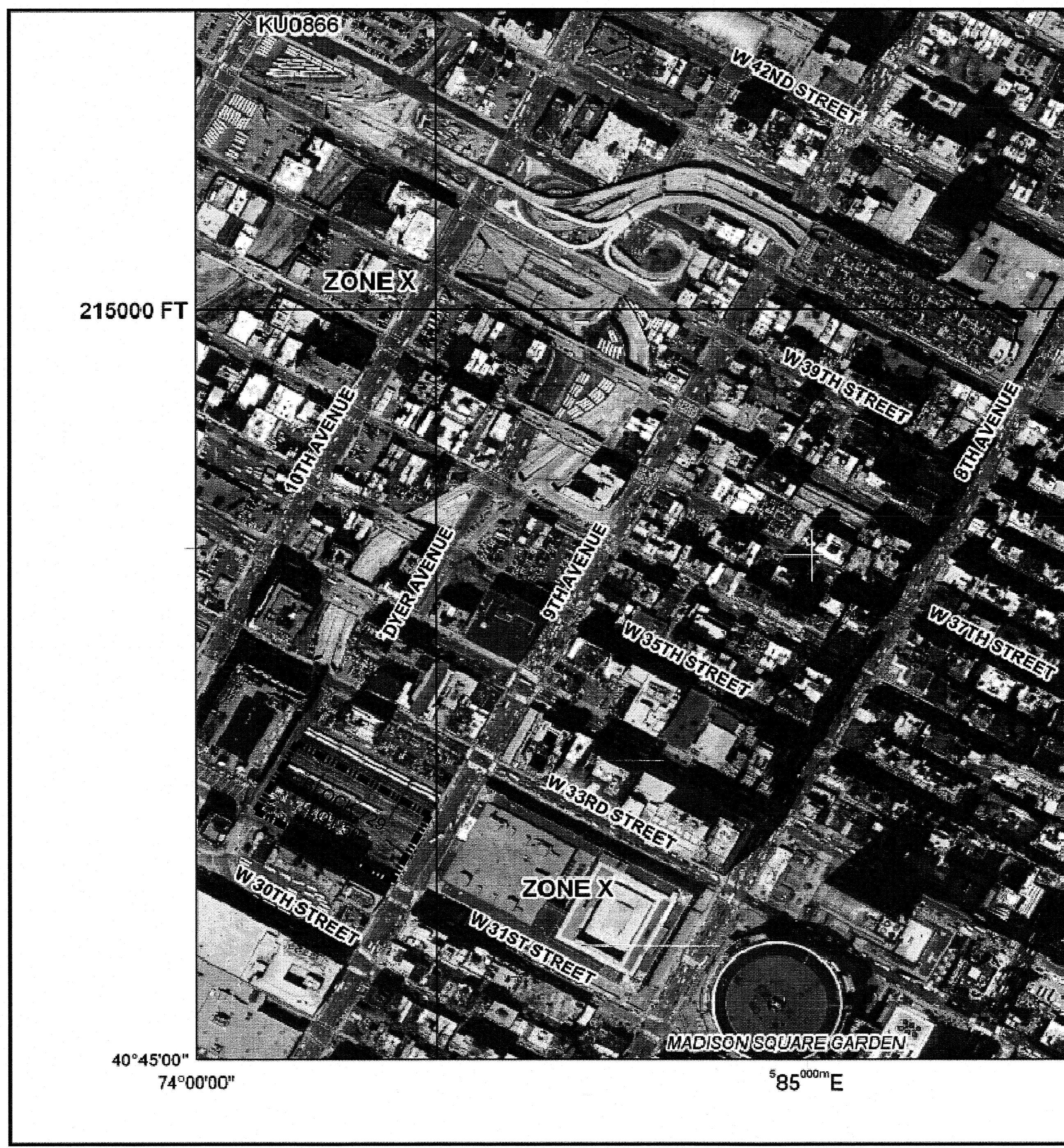
G-000.00

Project:
**9th Avenue
 Development**
 New York, NY

Owner:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
 14 WALL STREET NEW YORK NY 10005

Structural:
ENTUITIVE
 Entuitive Corporation
 17001 24th Avenue, Suite 1002
 Queens, NY 11358 USA
 Phone: 718.477.5533
 Fax: 718.477.5533
 www.entuitive.com



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0088F

FIRM
 FLOOD INSURANCE RATE MAP

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

PANEL 88 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
 COMMUNITY NUMBER PANEL SUFFIX
 NEW YORK CITY OF 360497 0088 F

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

MAP NUMBER
 3604970088F

MAP REVISED
 SEPTEMBER 5, 2007

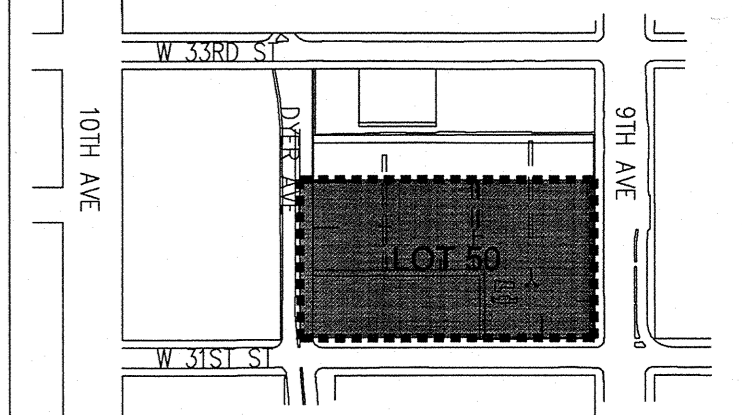
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps, check the FEMA Flood Map Store at www.msc.fema.gov

- LEGEND**
- SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
- The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently dismantled. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE AV** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE**
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS**
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1% annual chance flood.
- OTHER AREAS**
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- OTHERWISE PROTECTED AREAS (OPAs)**
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
 - 0.2% annual chance floodplain boundary
 - Floodway boundary
 - Zone ID boundary
 - CBRS and OPA boundary
 - Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

NOTE: PROPERTY AT BLOCK 729, LOT 50 IS SHOWN LOCATED WITHIN ZONE X WHICH STATES "AREAS DETERMINED TO BE OUTSIDE 0.2% ANNUAL CHANCE FLOODPLAIN"

FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
**D.O.B. SUBMISSION
 FEMA - FLOOD
 INSURANCE RATE MAP
 (LOT 50)**

Drawn By: SOM
 Scale: NTS
 Project No.: 207120

Checked By: SOM
 Date: 05/31/12
 File No.: G-001.00.dwg

Seal:
 REGISTERED ARCHITECT
 No. 15848
 STATE OF NEW YORK

Sheet No.:
G-001.00

Page Count: 2 OF 9

Damian Titus
 Buildings
 APPROVED
 Under Directive 2 of 1975
 AMENDED APPLICATION
 Date/Time: Mar 27, 2013 - 1:19 PM
 NYC Development Hub

WEST 33RD STREET

9th Avenue Development
New York, NY

EXISTING
LOFT BUILDING

BLOCK 729
LOT 60

498.00' (Deed&Surv.)

BLOCK 729, LOT 50
(371 9TH AVENUE)

498.00' (Deed&Surv.)

DYER AVENUE

NINTH AVENUE

WEST 31ST STREET

Owner:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
DESIGNING OWNERS & HERRILL LLP
14 WALL STREET NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
170 West Street, Suite 2102
New York, NY 10014
entuitive.com

FOR BUILDING DEPARTMENT APPROVAL

Key Plan

LEGEND

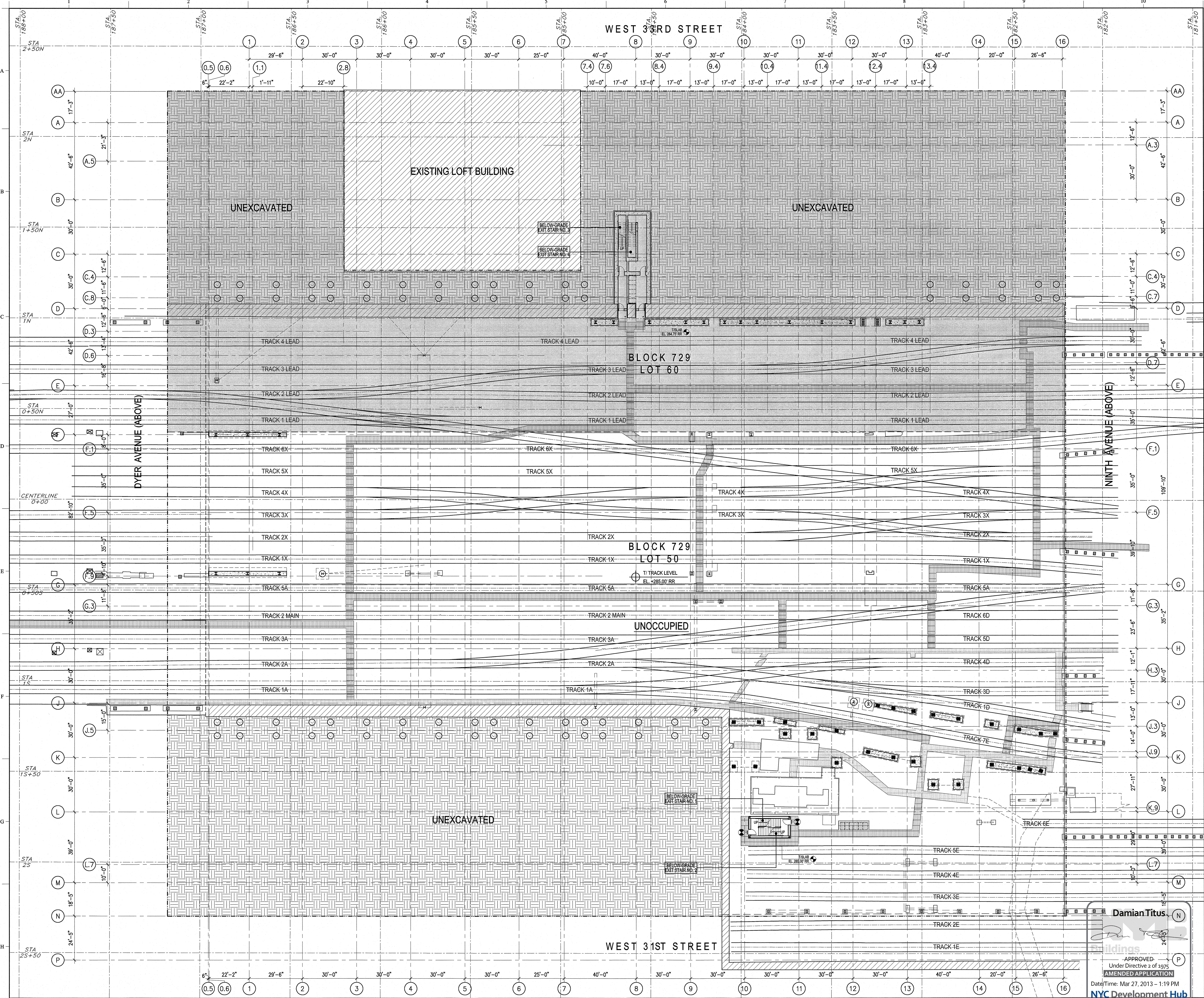
- BLOCK 729, LOT 50
- FILED UNDER SEPARATE D.O.B. APPLICATION (SEE APPLICATION NO. 110114723)
- ▨ RAIL ROAD'S REVIEW (NOT WITHIN APPLICATION)
- ▩ NEW PLYWOOD CONSTRUCTION FENCE NOT TO EXCEED 3'-0" DISTANCE FROM PROPERTY LINE AND 10'-0" MAX. HEIGHT

No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
**D.O.B. SUBMISSION
PLOT DIAGRAM
- BLOCK 729, LOT 50
(371 9TH AVENUE)**

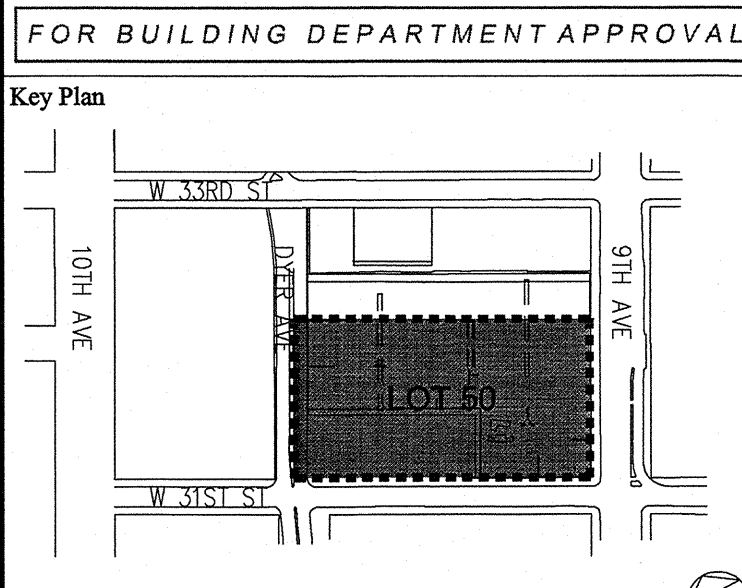
Drawn By: SOM	Checked By: SOM
Scale: 1/4" = 1'-0"	Date: 05/31/12
Project No.: 207120	File No.: A-100.00.dwg
Seal:	Sheet No.:

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Mar 27, 2013 - 1:19 PM
NYC Development Hub



LEGEND

- Block 729, Lot 50
- Filed Under Separate D.O.B. Application (See Application No. 110114723)
- Rail Roads Review (Not Within Application)
- Exit Sign



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
**D.O.B. SUBMISSION
TRACK LEVEL PLAN
(LOT 50)**

Drawn By: SOM
Checked By: SOM
Scale: 1/8" = 1'-0"
Date: 05/31/12
Project No.: 207120
File No.: A-102.00.dwg
Sheet No.:

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Mar 27, 2013 - 1:19 PM

Damian Titus
NYC Development Hub

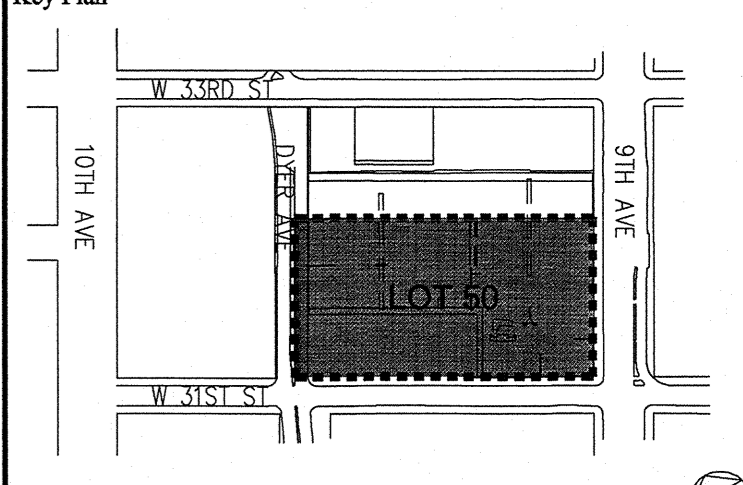
REGISTERED ARCHITECT
STATE OF NEW YORK

A-102.00
Page Count: 4 OF 9

LEGEND

- BLOCK 729, LOT 50
- FILED UNDER SEPARATE D.O.B. APPLICATION (SEE APPLICATION NO. 110114723)
- RAILROADS' REVIEW (NOT WITHIN APPLICATION)

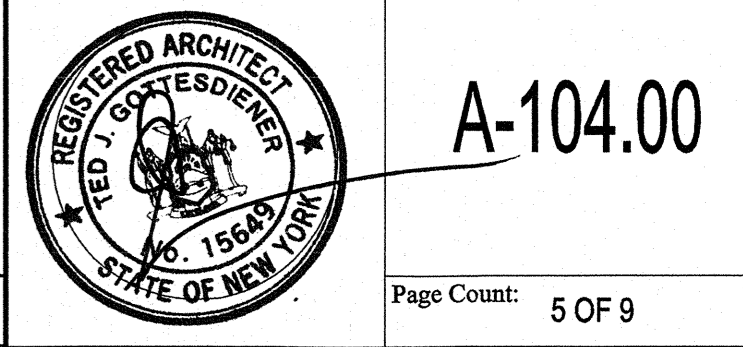
FOR BUILDING DEPARTMENT APPROVAL



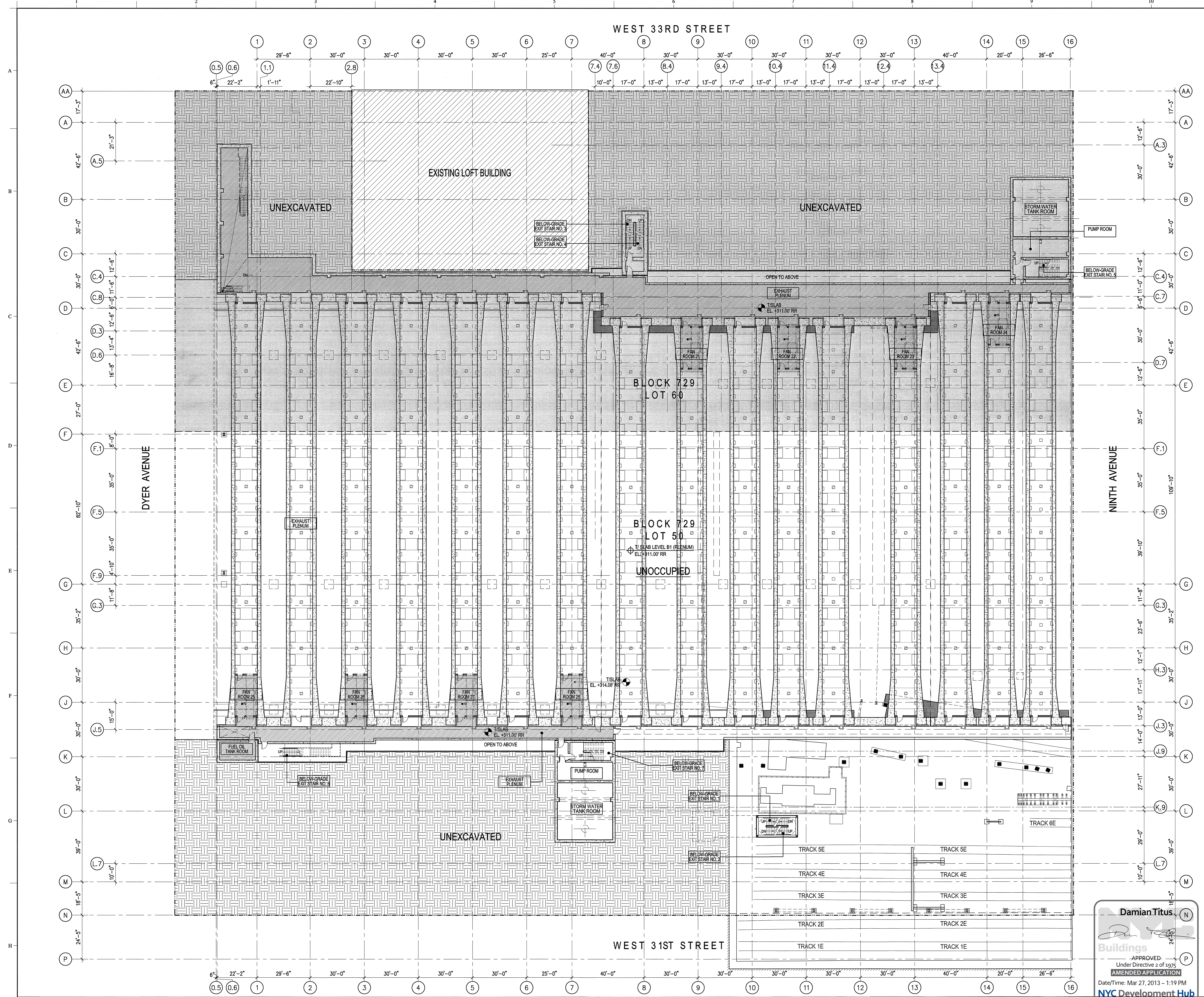
No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
**D.O.B. SUBMISSION
B1 LEVEL PLAN
(LOT 50)**

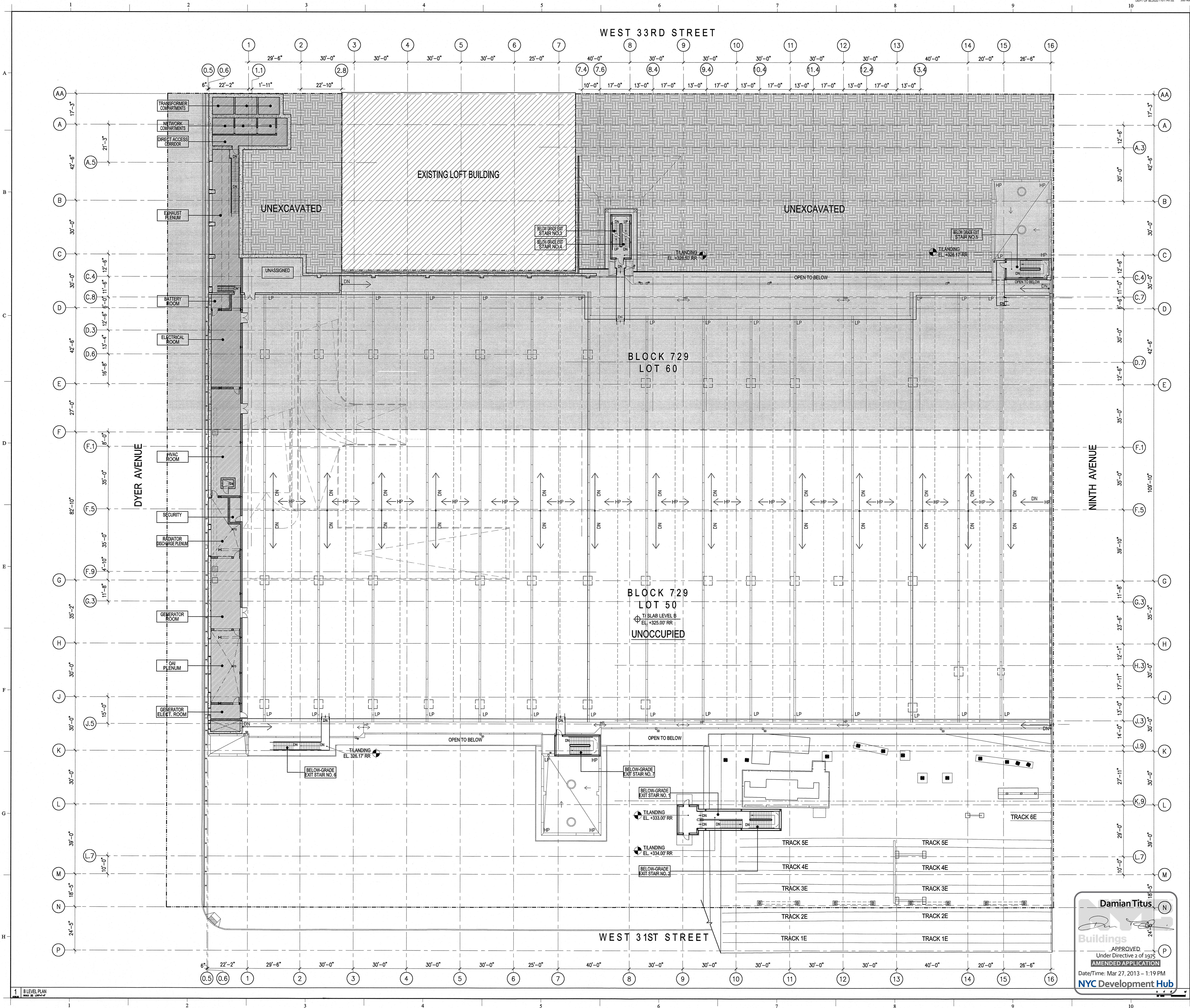
Drawn By: SOM	Checked By: SOM
Scale: 1/8"=1'-0"	Date: 05/31/12
Project No.: 207120	File No.: A-104.00.dwg
Seal:	Sheet No.:



A-104.00



Damian Titus
Buildings
APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Mar 27, 2013 - 1:19 PM
NYC Development Hub



9th Avenue
Development
New York, NY

Owner:
Brookfield
3 World Financial Center, New York, NY 10281

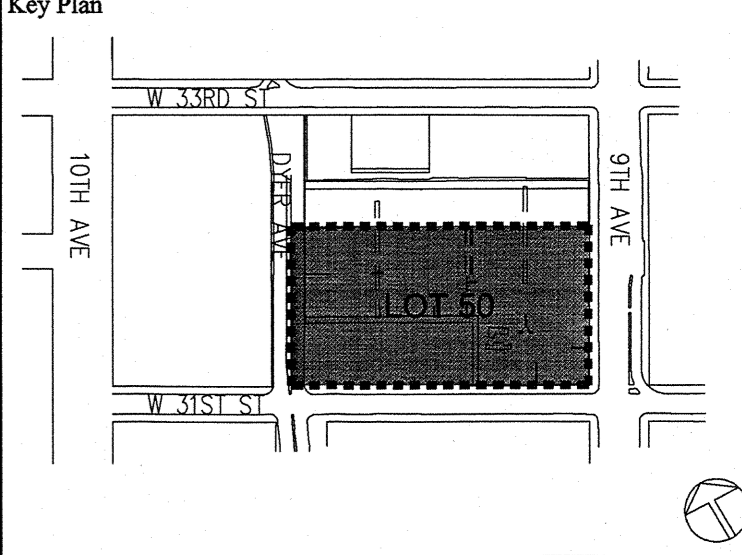
Architect:
SOM
SOM Architecture, Inc. 110 West Street, New York, NY 10038

Structural:
ENTUITIVE
Entuitive Corporation, 110 West Street, New York, NY 10038

LEGEND

- [Hatched Box] BLOCK 729, LOT 50
- [Dotted Box] FILED UNDER SEPARATE D.O.B. APPLICATION (SEE APPLICATION NO. 11014723)
- [Cross-hatched Box] RAILROADS' REVIEW (NOT WITHIN APPLICATION)

FOR BUILDING DEPARTMENT APPROVAL

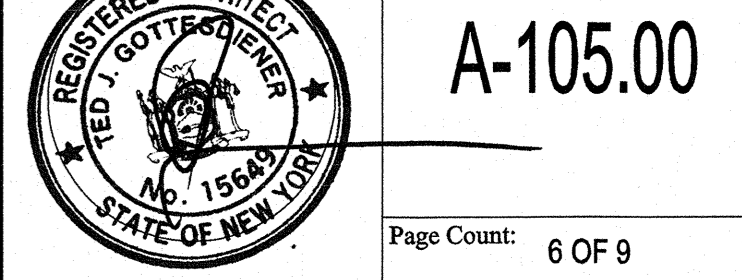


No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
**D.O.B. SUBMISSION
B LEVEL PLAN
(LOT 50)**

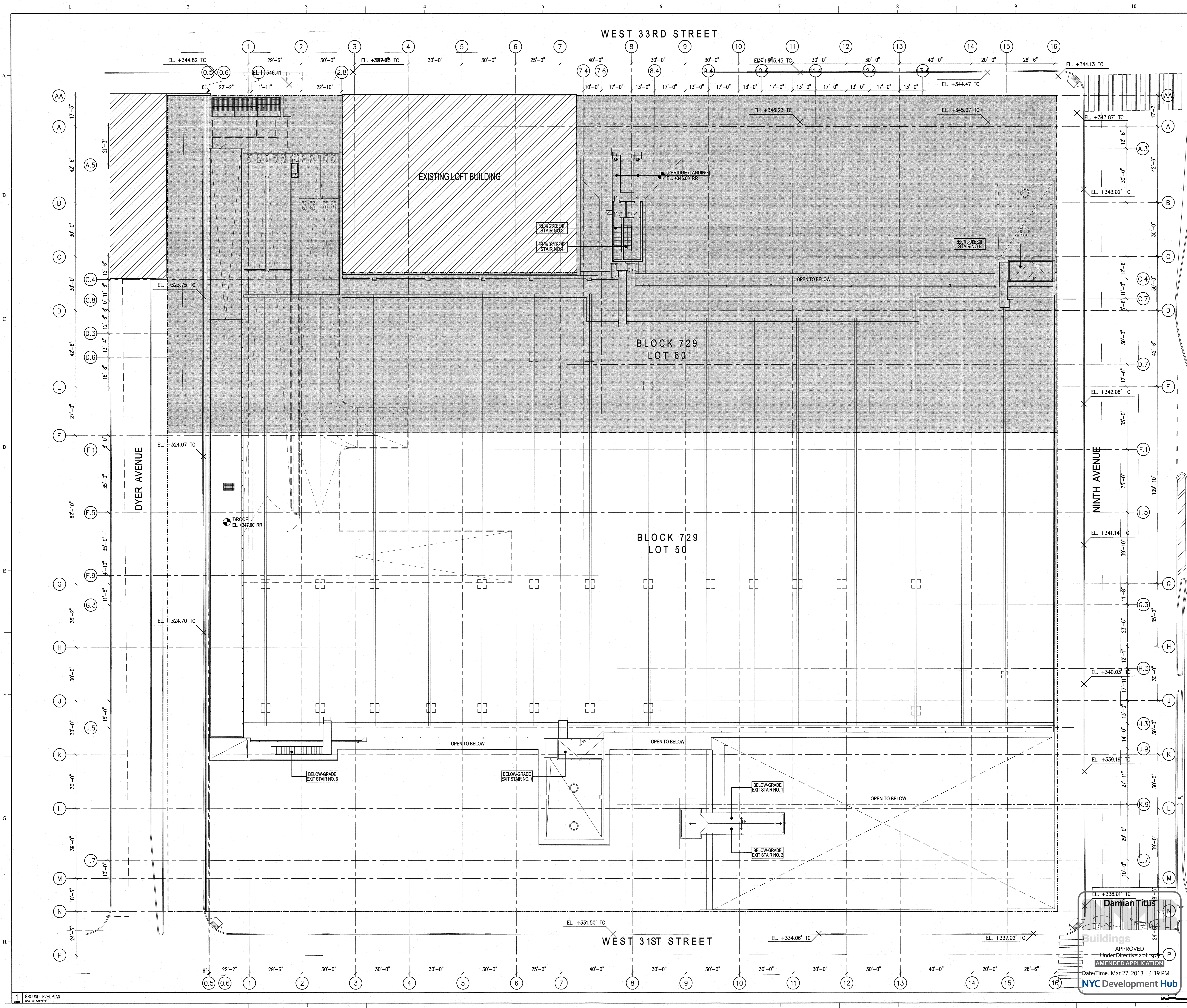
Drawn By: SOM
Scale: 1/8"=1'-0"
Project No.: 207120
Sheet No.:
Checked By: SOM
Date: 05/31/12
File No.: A-105.00.dwg

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Mar 27, 2013 - 1:19 PM
NYC Development Hub



WEST 33RD STREET

9th Avenue Development
New York, NY



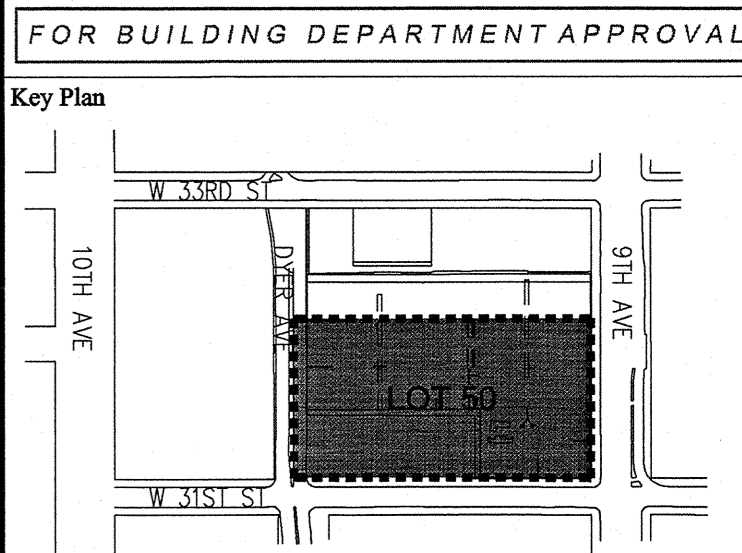
Owner:
Brookfield
3 World Financial Center, New York, NY 10281

Architect:
SOM
SKIDMORE, OWINGS & MERRILL LLP
14 WALL STREET NEW YORK NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
17 South Street, Suite 2002
New York, NY 10038
Canada
entuitive.com T. 416.477.5332

LEGEND

- BLOCK 729, LOT 50
- FILED UNDER SEPARATE D.O.B. APPLICATION (SEE APPLICATION NO. 110114723)
- RAILROADS REVIEW (NOT WITHIN APPLICATION)



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

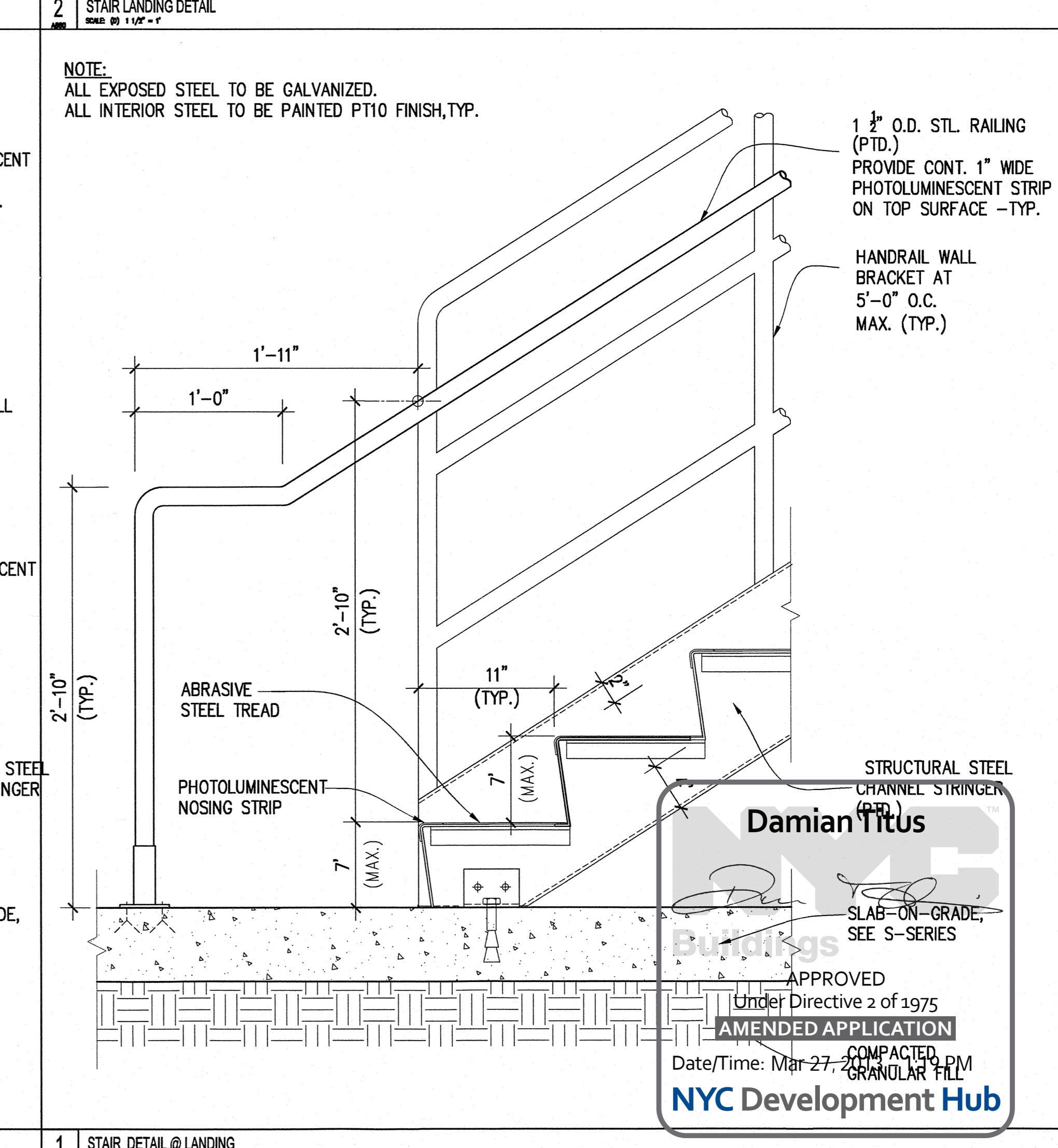
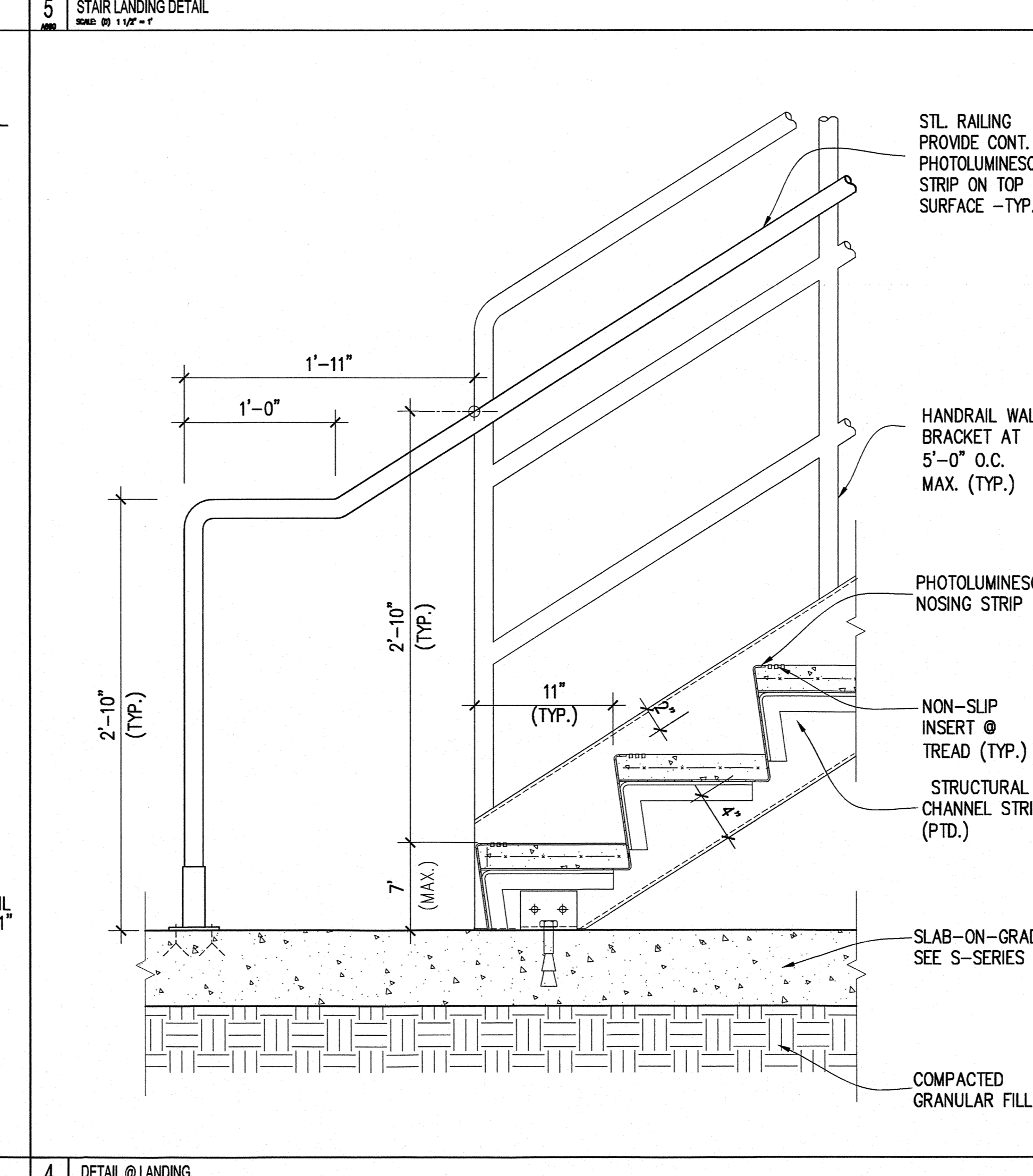
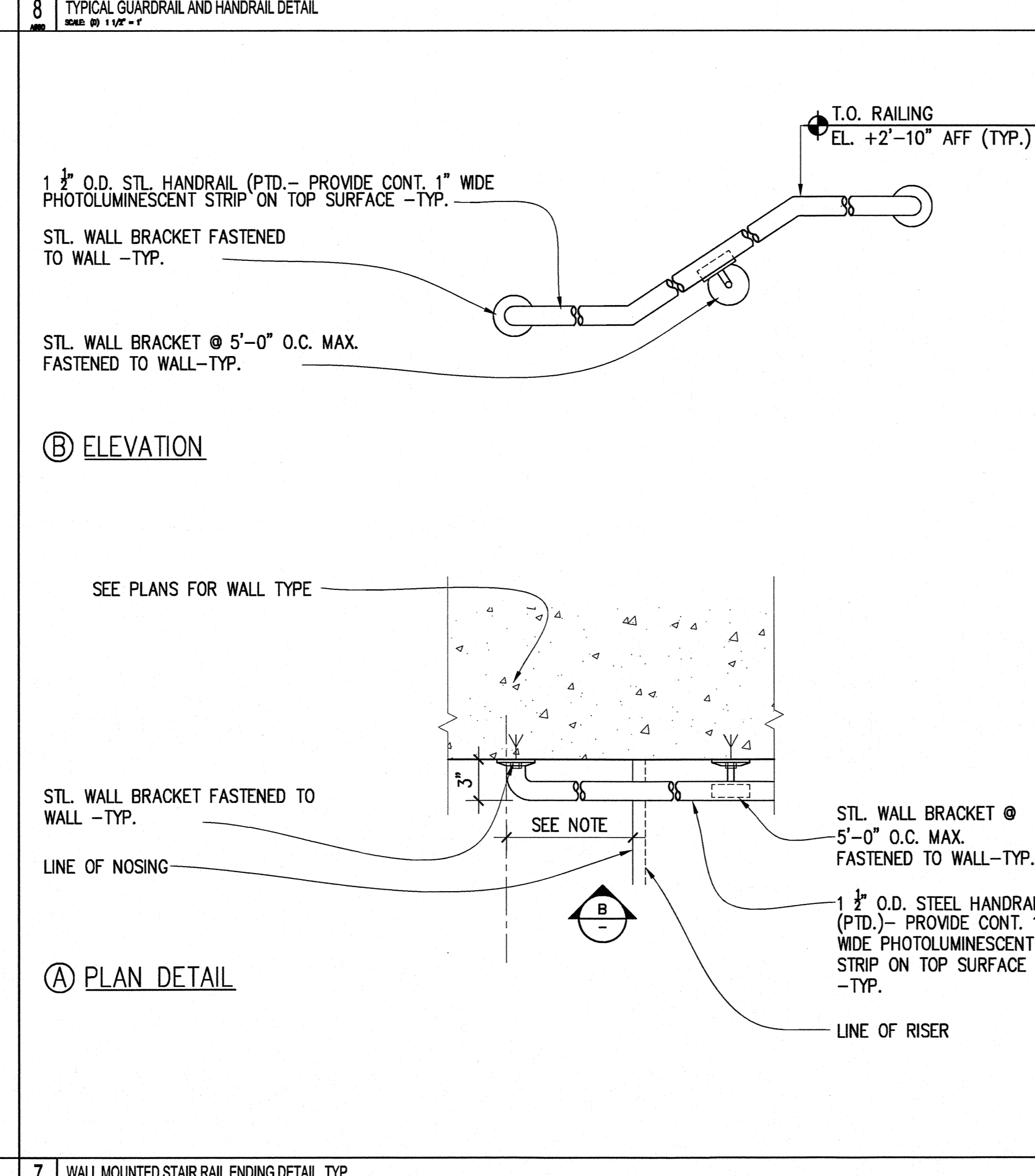
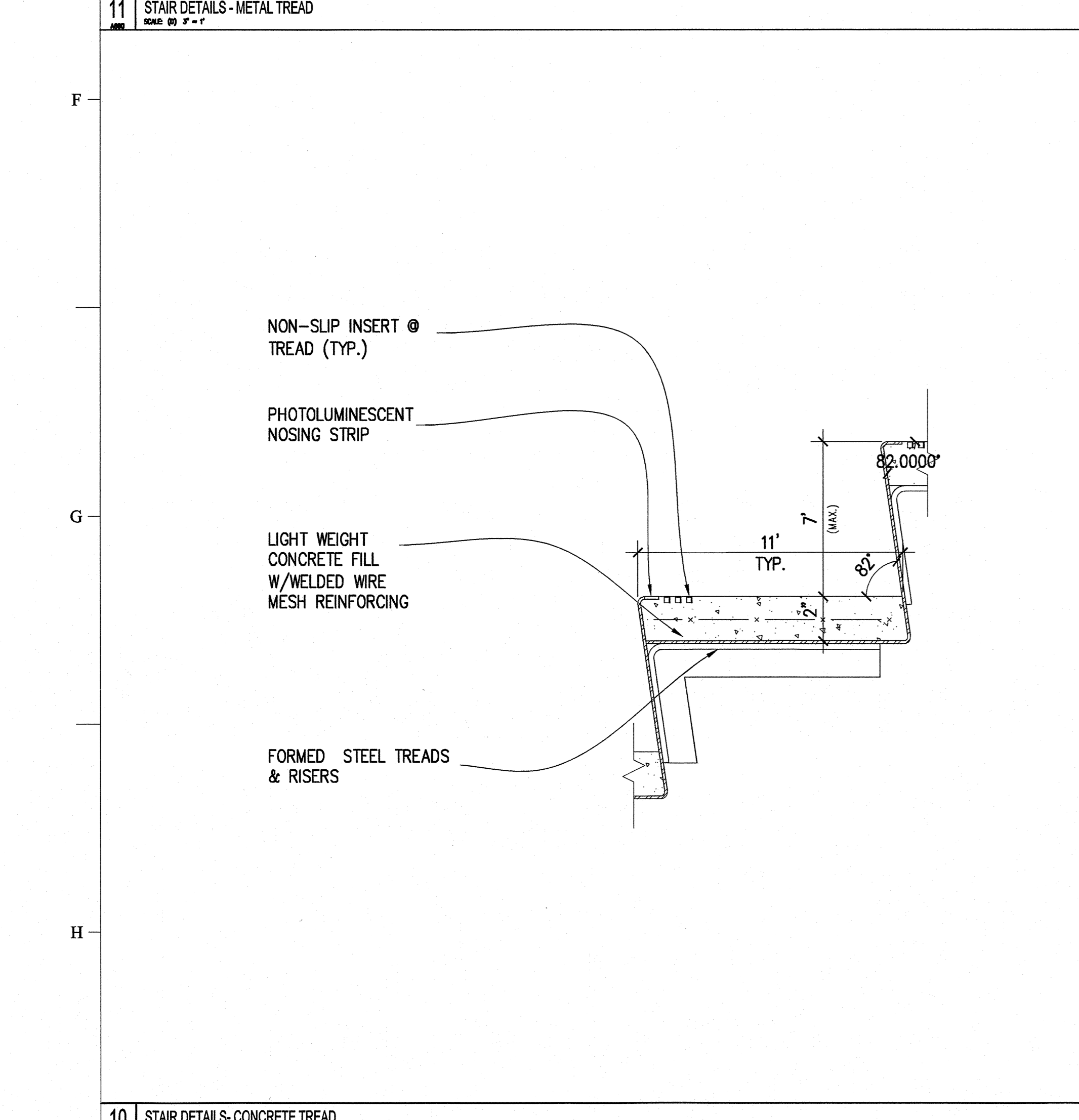
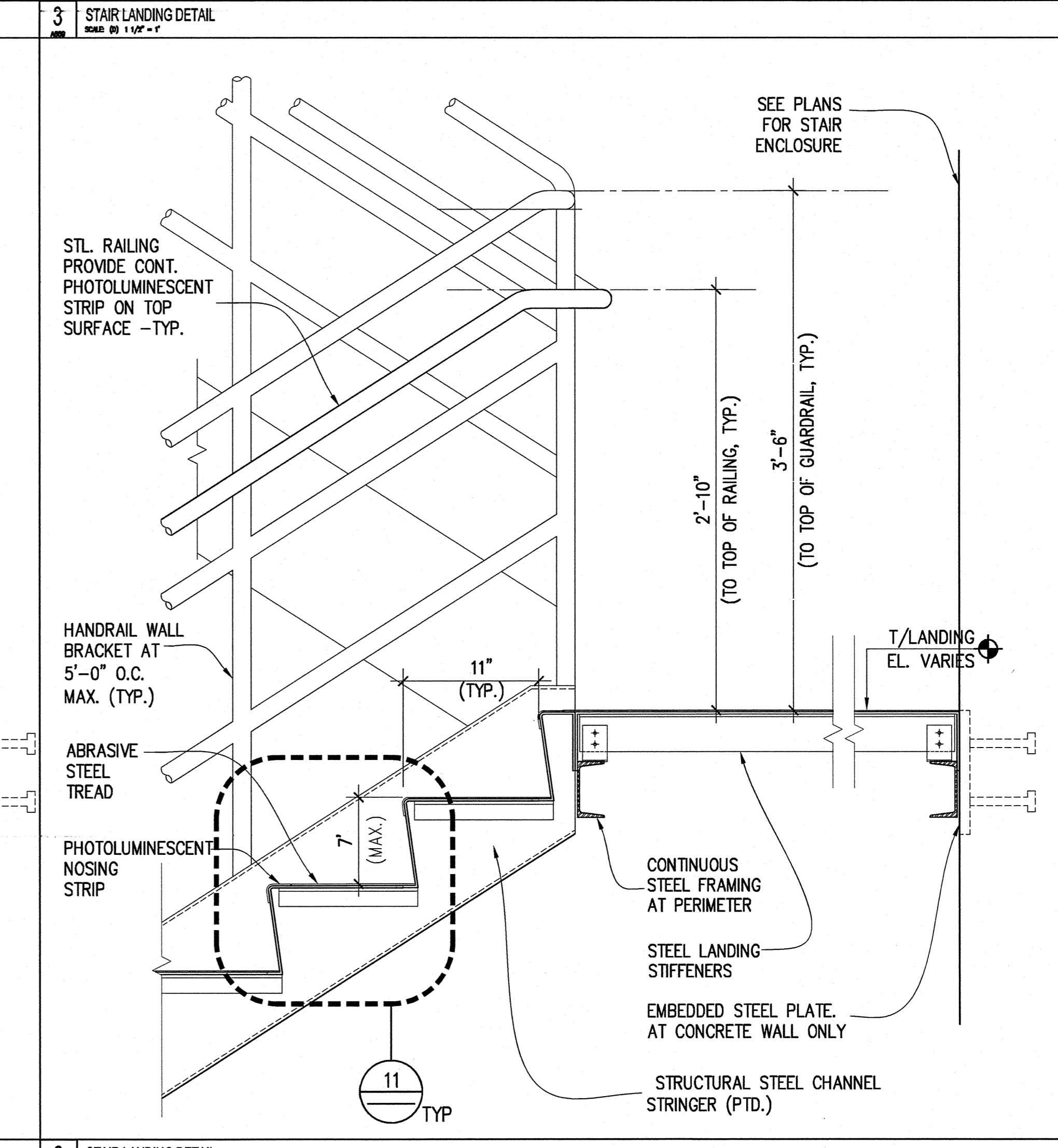
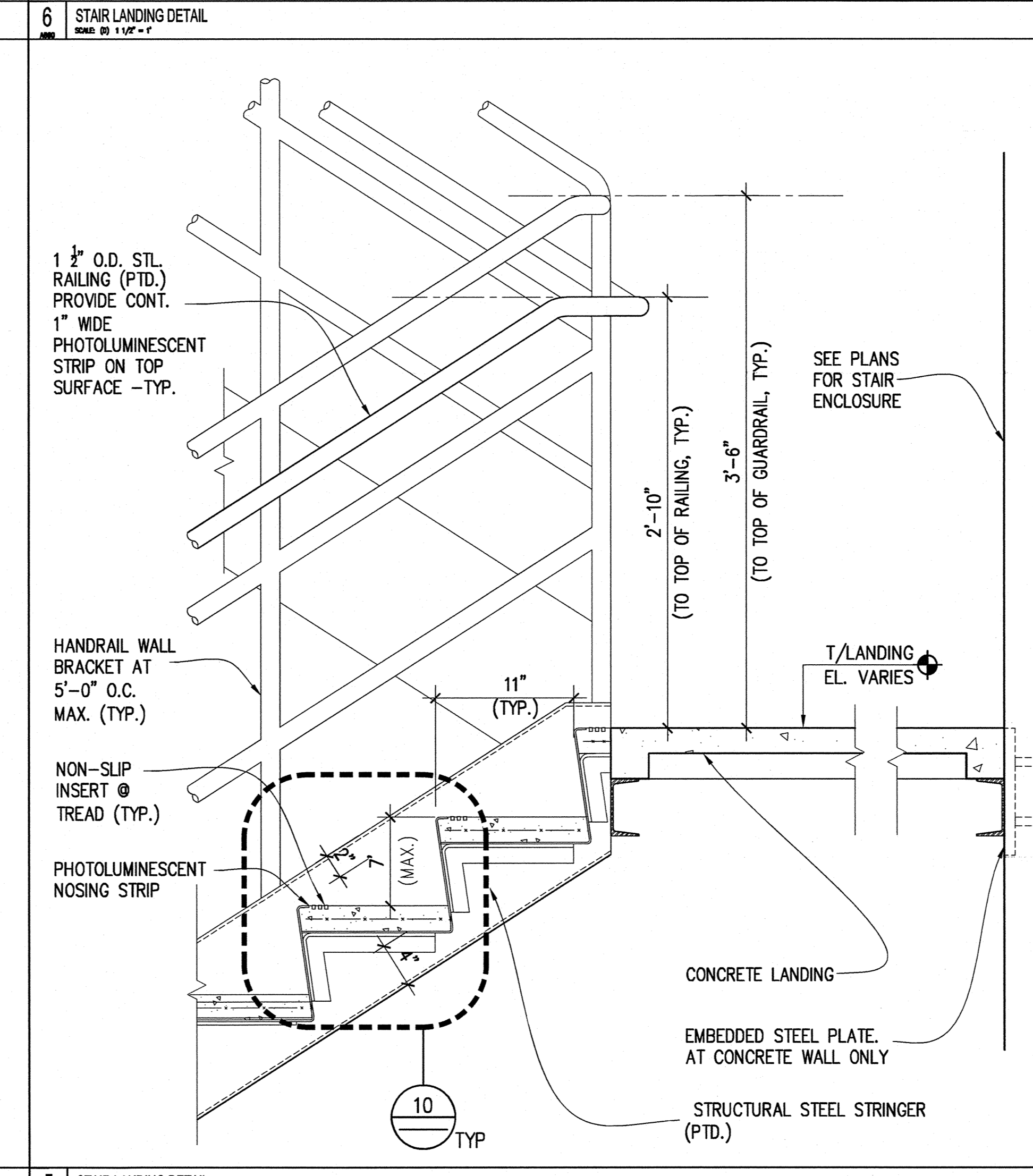
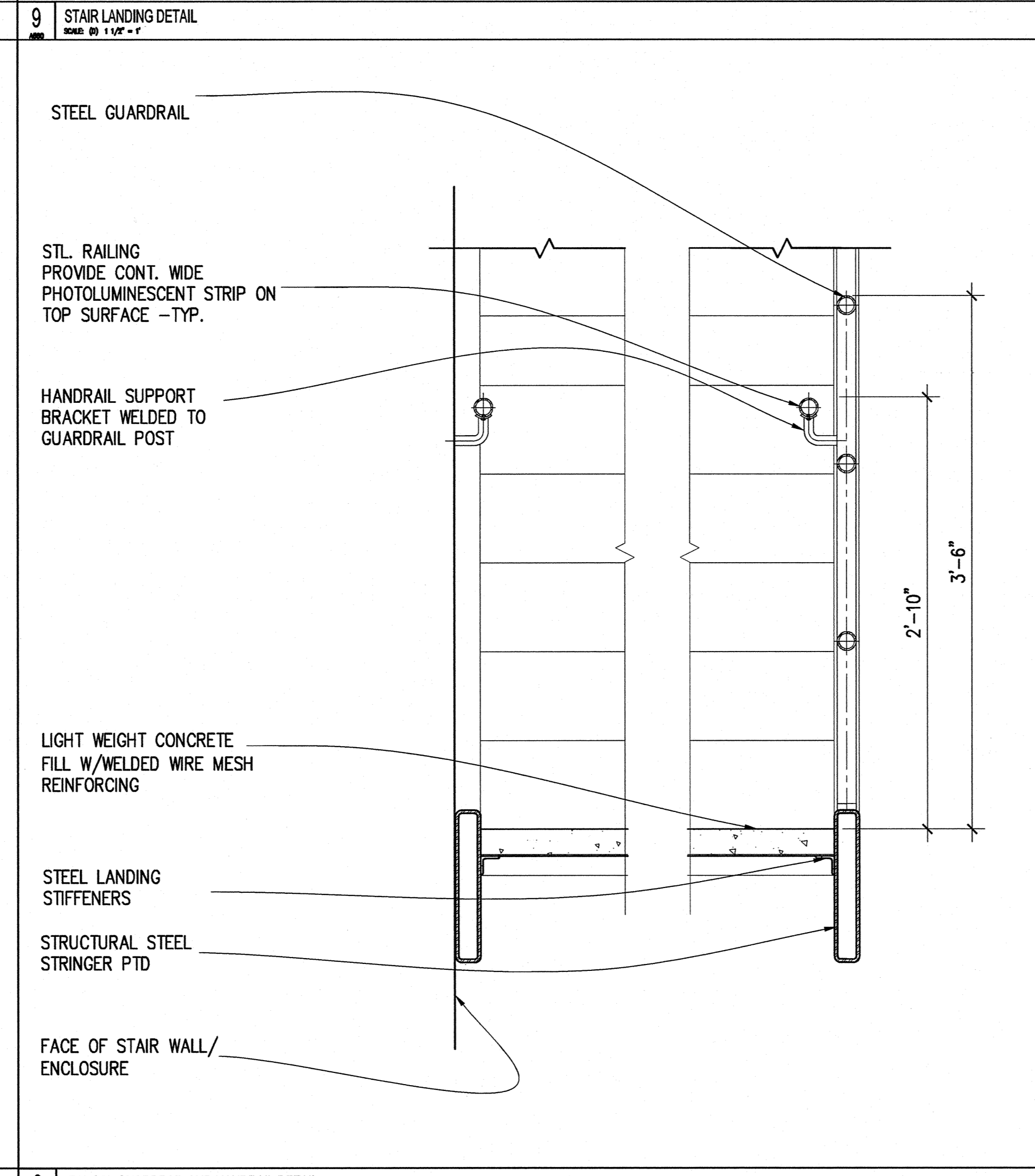
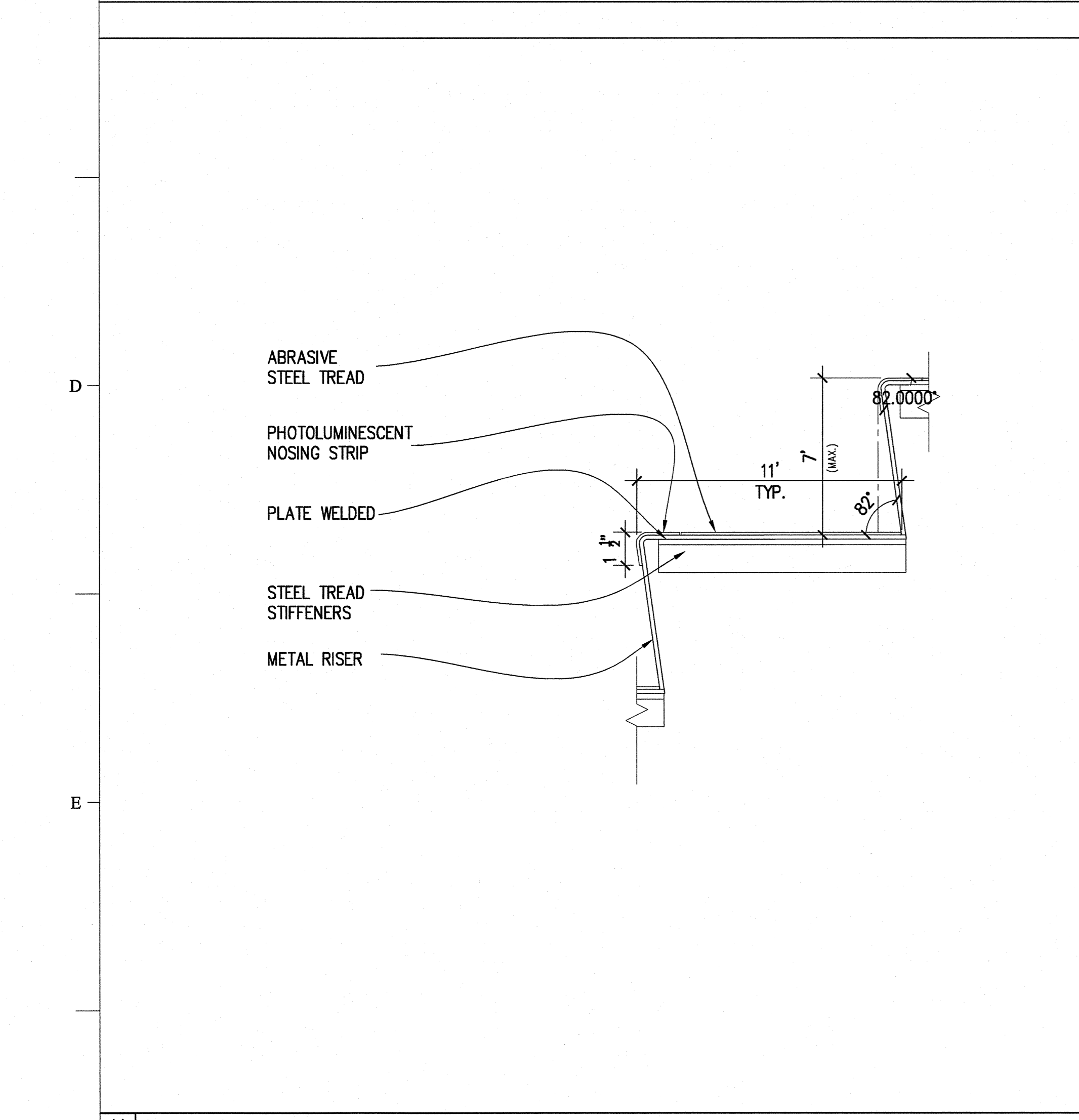
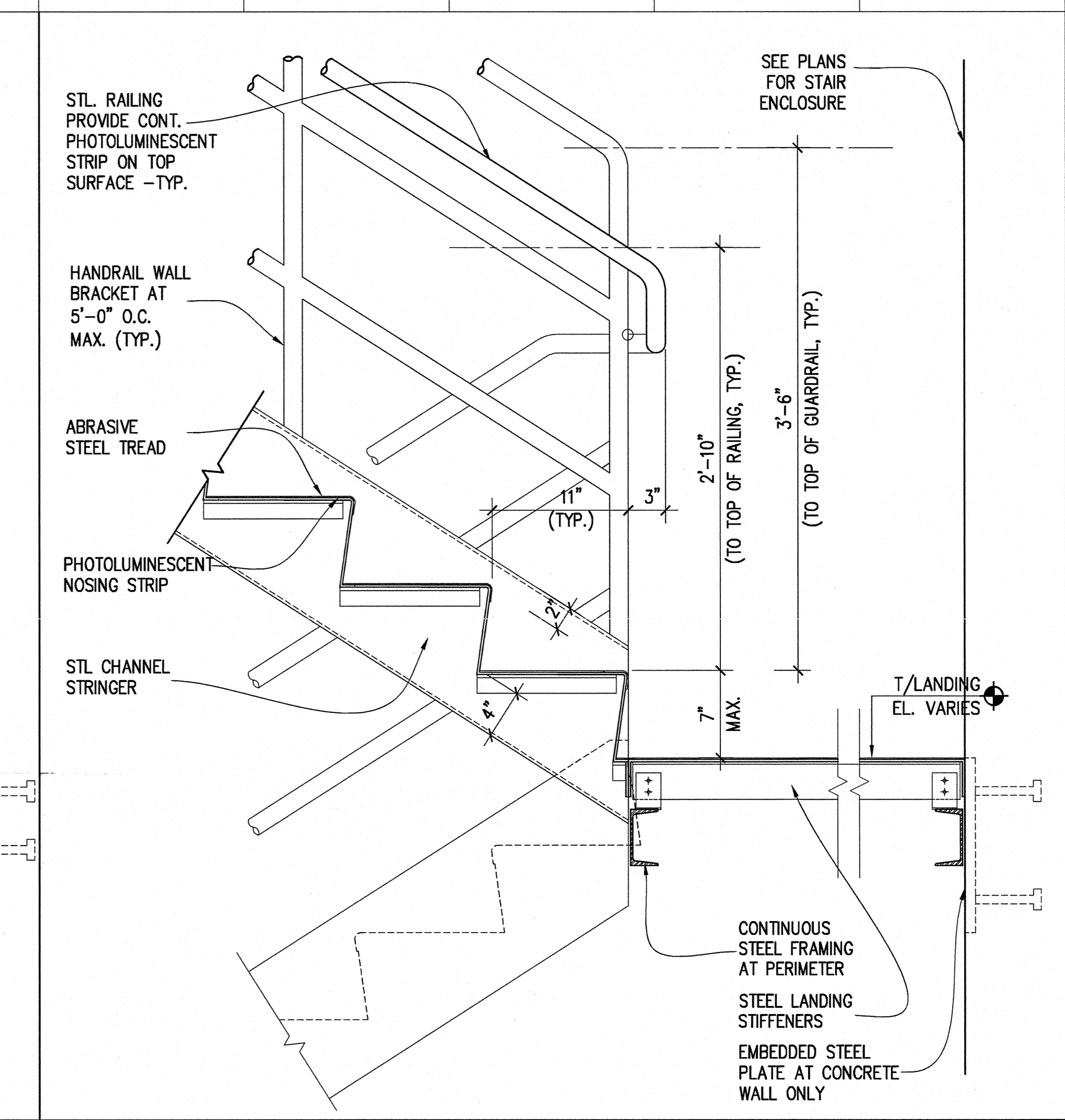
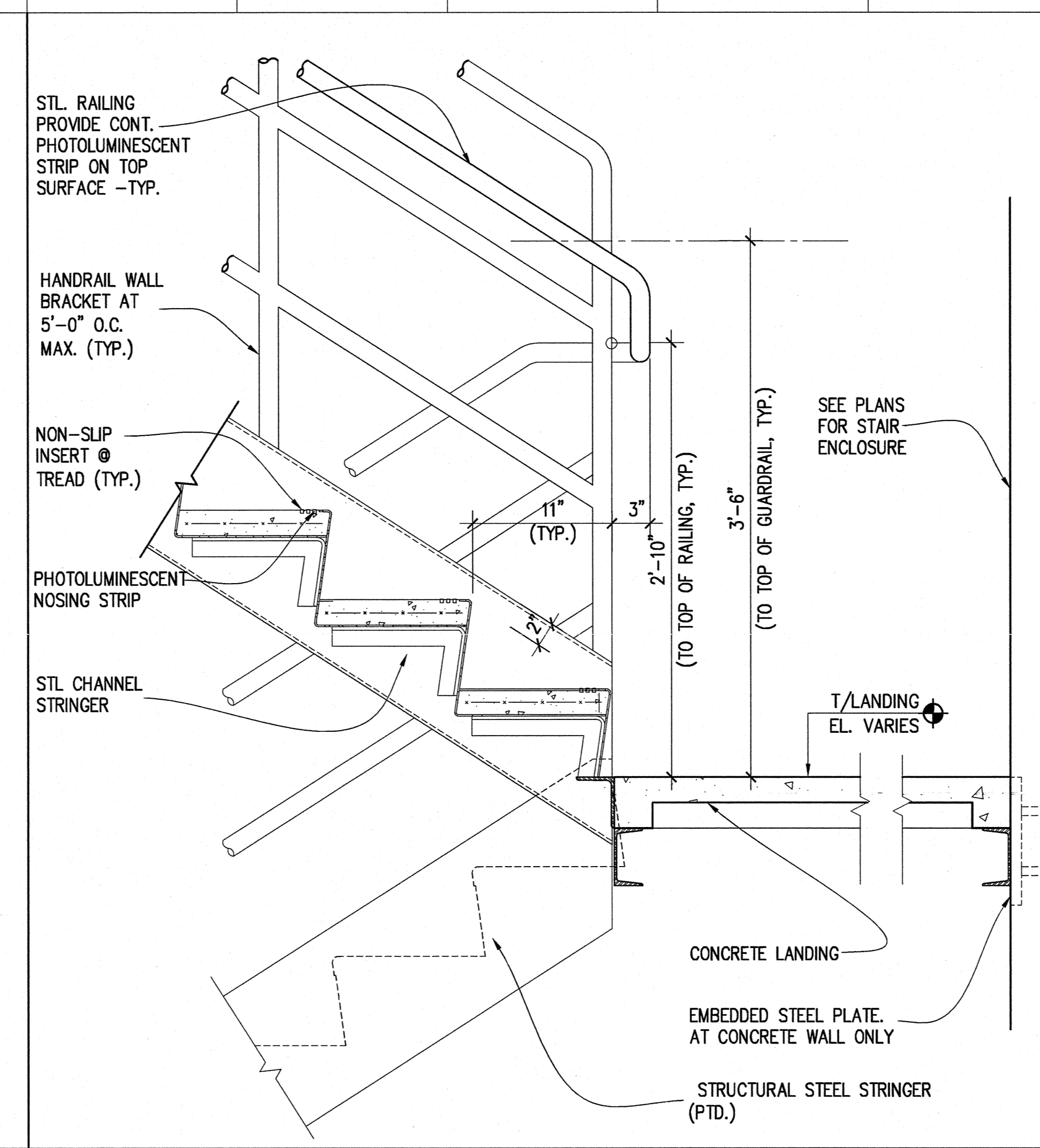
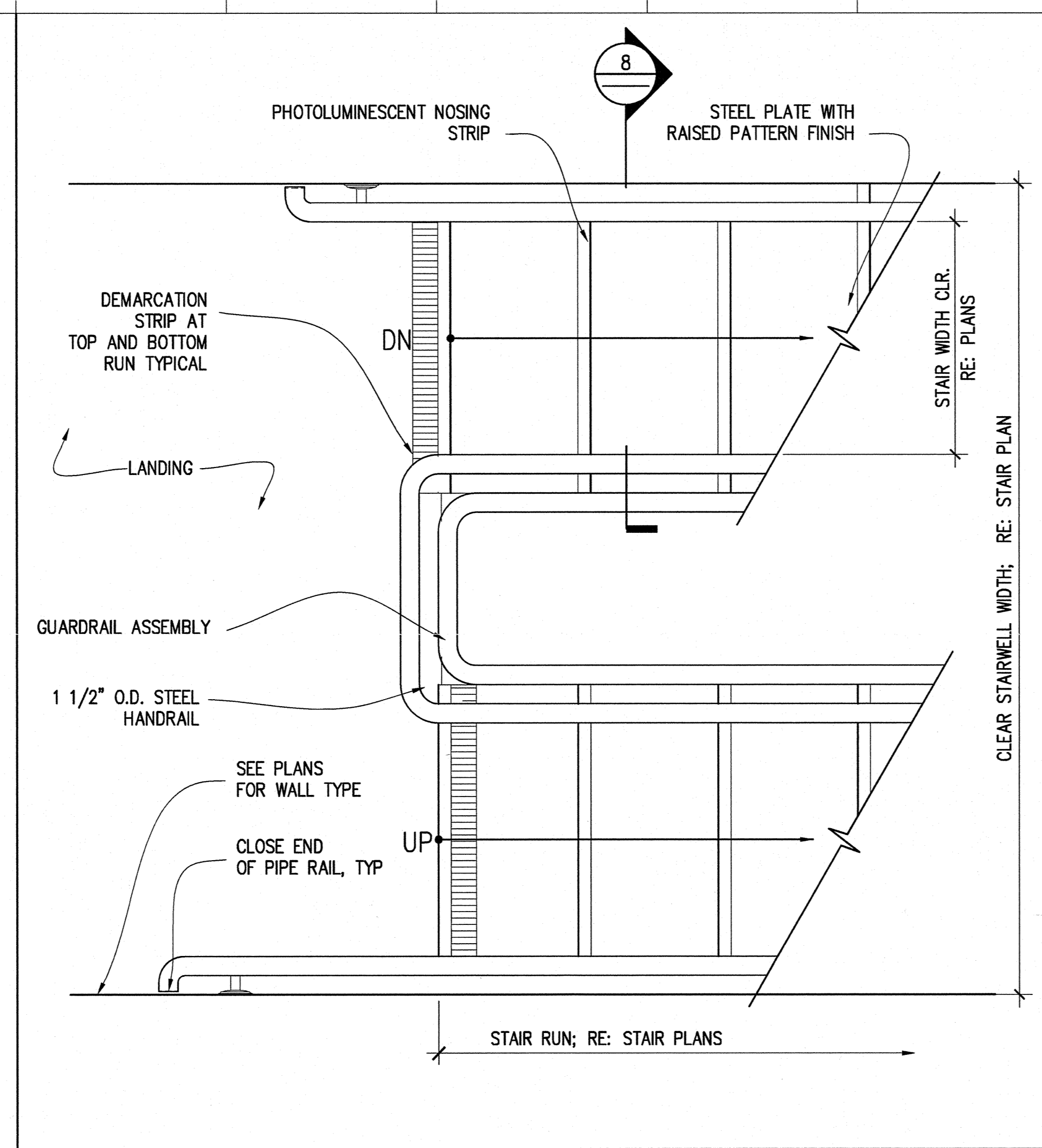
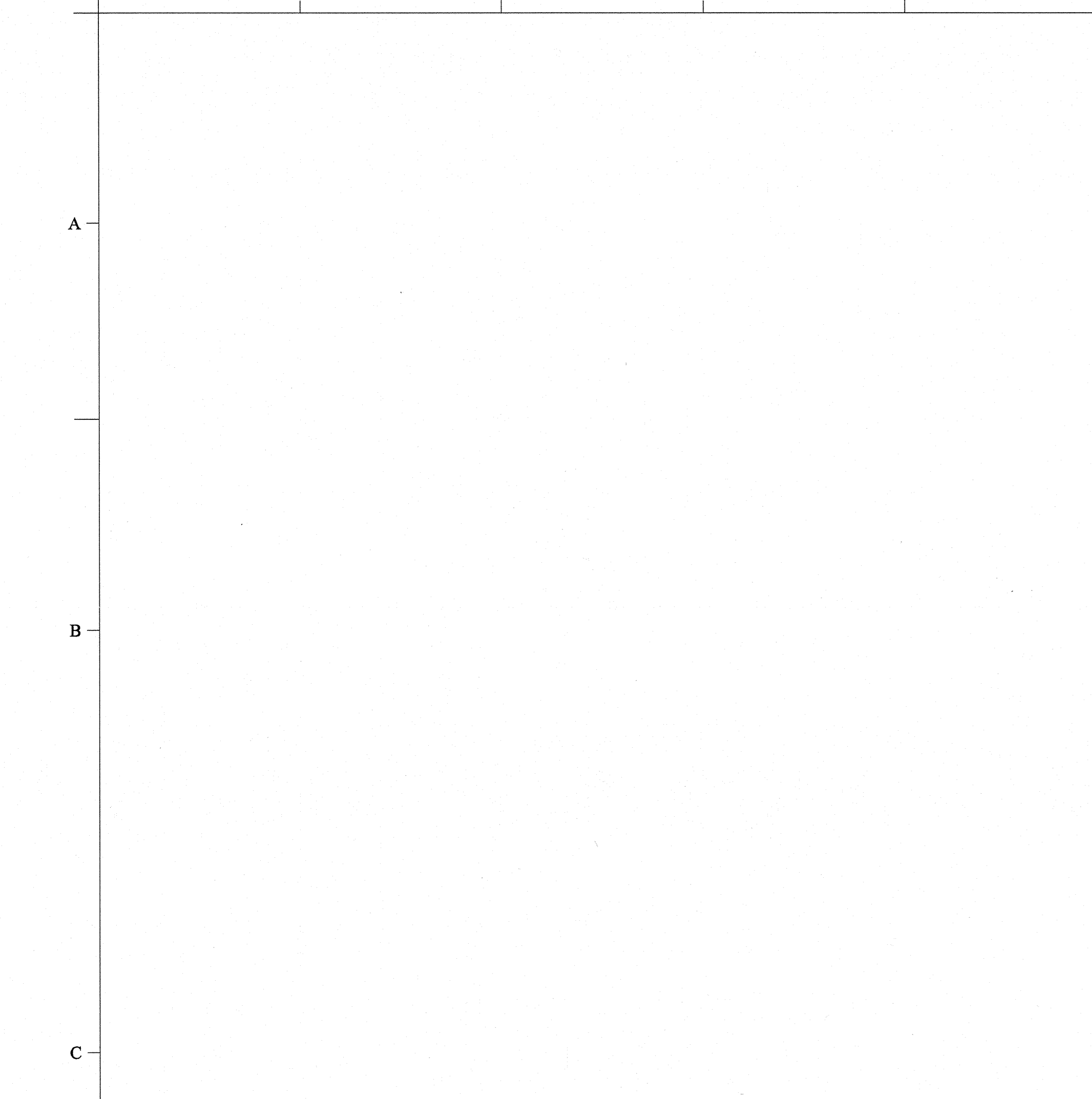
Sheet Name:
**D.O.B. SUBMISSION
GROUND LEVEL PLAN
(LOT 50)**

Drawn By: SOM
Scale: 1/8"=1'-0"
Project No.: 207120
Seal:

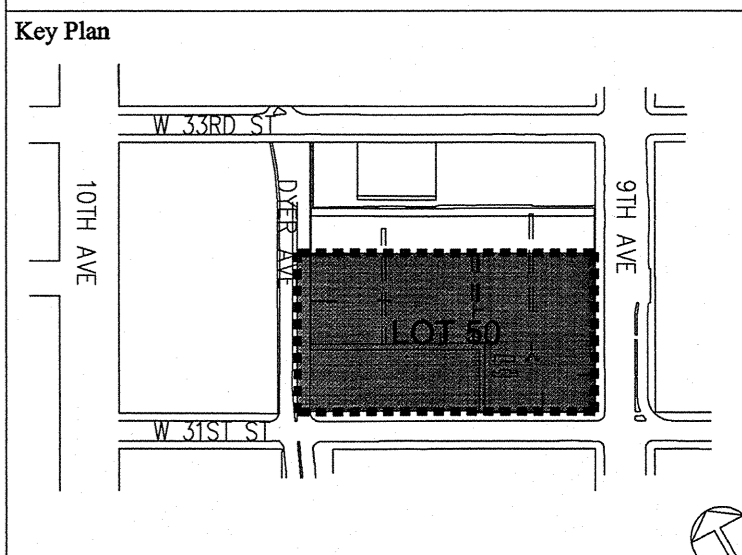
Checked By: SOM
Date: 05/31/12
File No.: A-106.00.dwg
Sheet No.:

APPROVED
Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Mar 27, 2013 - 1:19 PM
NYC Development Hub

A-106.00
Page Count: 7 OF 9



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Stamp: **Damian Titus** ARCHITECT
APPROVED Under Directive 2 of 1975
AMENDED APPLICATION
Date/Time: Mar-27-2012 10:41 AM
NYC Development Hub

Stamp: **STATE OF NEW YORK**

Stamp: **A-660.00**

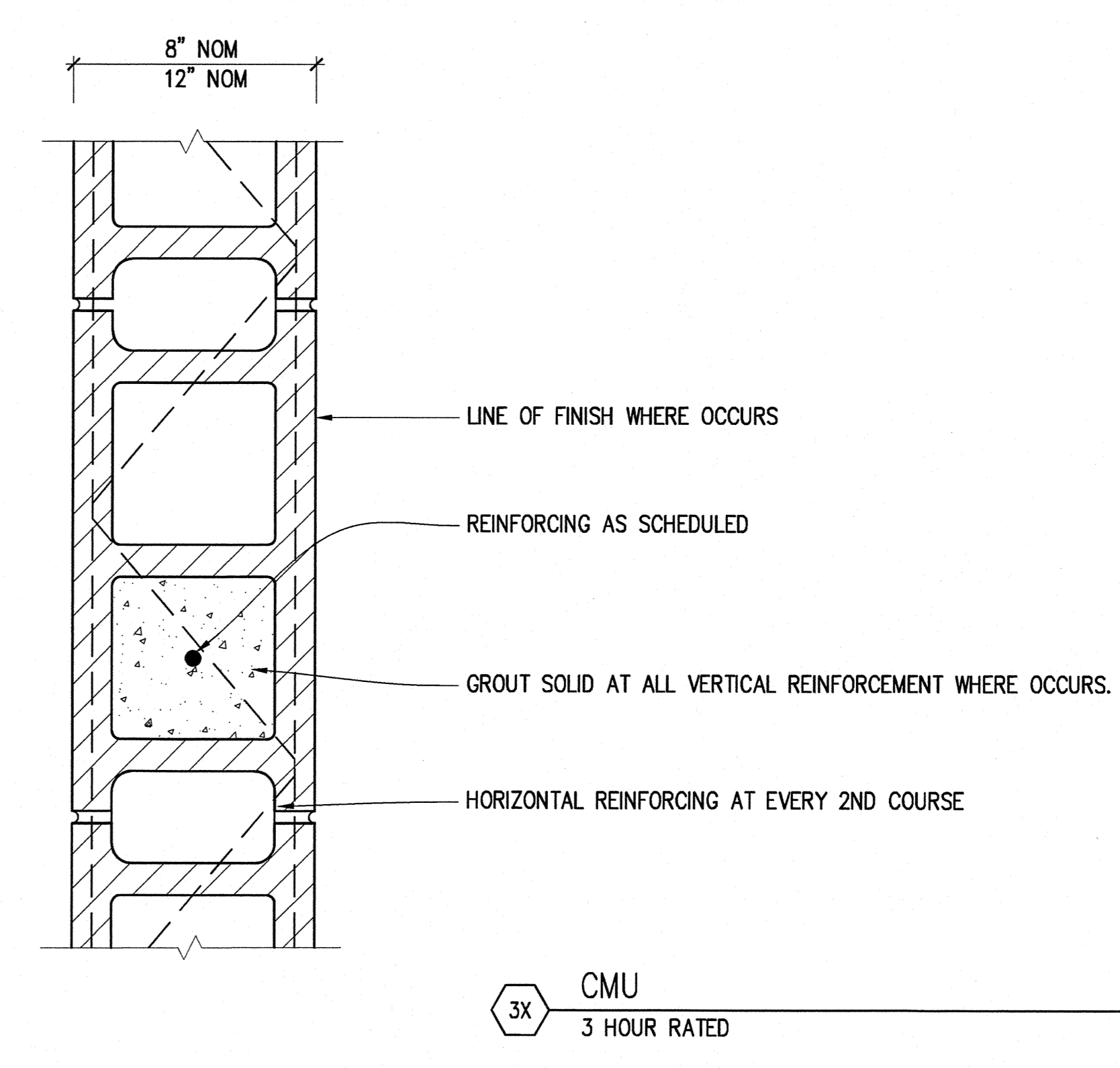
Page Count: 8 OF 9

Project:
**9th Avenue
 Development**
 New York, NY

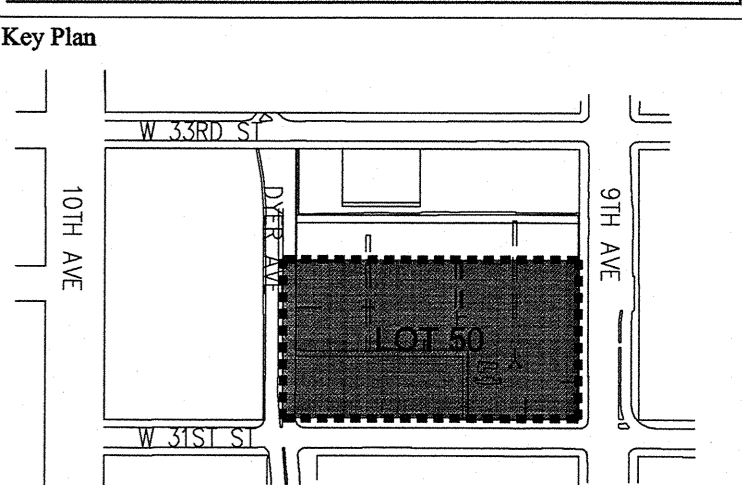
Owner:
Brookfield
 3 World Financial Center, New York, NY 10281

Architect:
SOM
STRUCTURAL, OWNER & GENERAL CONTRACTOR

Structural:
ENTUITIVE
ENTUITIVE CORPORATION
 17000 STREET, SUITE 2002
 TORONTO, ON M2E 1B4
 CANADA
 www.entuitive.com



FOR BUILDING DEPARTMENT APPROVAL



No.	Revisions	Date	By
1	ISSUED FOR D.O.B. APPROVAL	05/31/12	SOM

Sheet Name:
**D.O.B. SUBMISSION
 PARTITION TYPES
 (LOT 50)**

PARTITION TYPE	WALL TYPE	REINFORCING SCHEDULE	RATING	MEA/BSA NUMBER (NYC ONLY)	DESIGN NO.	STC	TEST	LIMIT HEIGHT	
								INTERIOR	EXTERIOR
3A	8" NOMINAL	#4 BAR @32" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	21'-0"	10'-0"	40' sf
	8" NOMINAL	#4 BAR @36" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	24'-0"	13'-0"	
	8" NOMINAL	#5 BAR @36" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	24'-0"	11'-0"	
3B	8" NOMINAL	#6 BAR @16" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	Under Directive 2011-0375	21'-0"	
	8" NOMINAL	#6 BAR @18" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	AMENDED APPLICATION	20'-0"	
3C	12" NOMINAL	#6 BAR @16" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	36'-0"	27'-0"	
	12" NOMINAL	#6 BAR @18" O.C.	3 HR.	BSA 87-47-SM	UL #U907	-	36'-0"	25'-0"	

Drawn By: SOM
 Scale: NTS
 Project No.: 207120
 Seal: [Professional Engineer Seal]
 Checked By: SOM
 Date: 05/31/12
 File No.: A-700.00.dwg
 Sheet No.:
A-700.00
 Page Count: 9 OF 9

1 CMU WALL TYPE 3
 REFER TO SHEET A-653 FOR TYPICAL HEAD & SILL CONDITIONS
 WHERE FIRE RATING PARTITION IS INDICATED PROVIDE RATING PER.
 WHERE "STC" IS INDICATED WITHIN PARTITION SYMBOL PROVIDE.
 LIMIT HEIGHT

9th Avenue Development
New York, NY

Client:
Brookfield
3 World Financial Center, New York, NY 10281

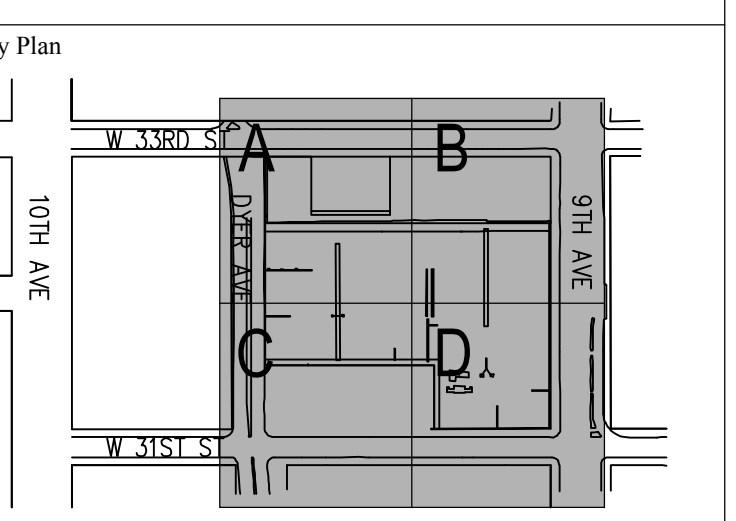
Architect:
SOM
Skidmore, OWINGS & Merrill LLP
14 WALL STREET - NEW YORK, NY 10005

Structural:
ENTUITIVE
Entuitive Corporation
200 University Avenue 7th Floor
Toronto, ON M5G 2C4 Canada
entui@entui.com

Railroad Engineering:
PB Americas, Inc.
One Penn Plaza, New York, NY 10119

Utility:
Jacobs Engineering Group
One Penn Square West, 30 South 15 Street, Philadelphia, PA 19102

Geotechnical Engineer:
Mueser Rutledge Consulting Engineers
14 Penn Plaza, New York, NY 10122

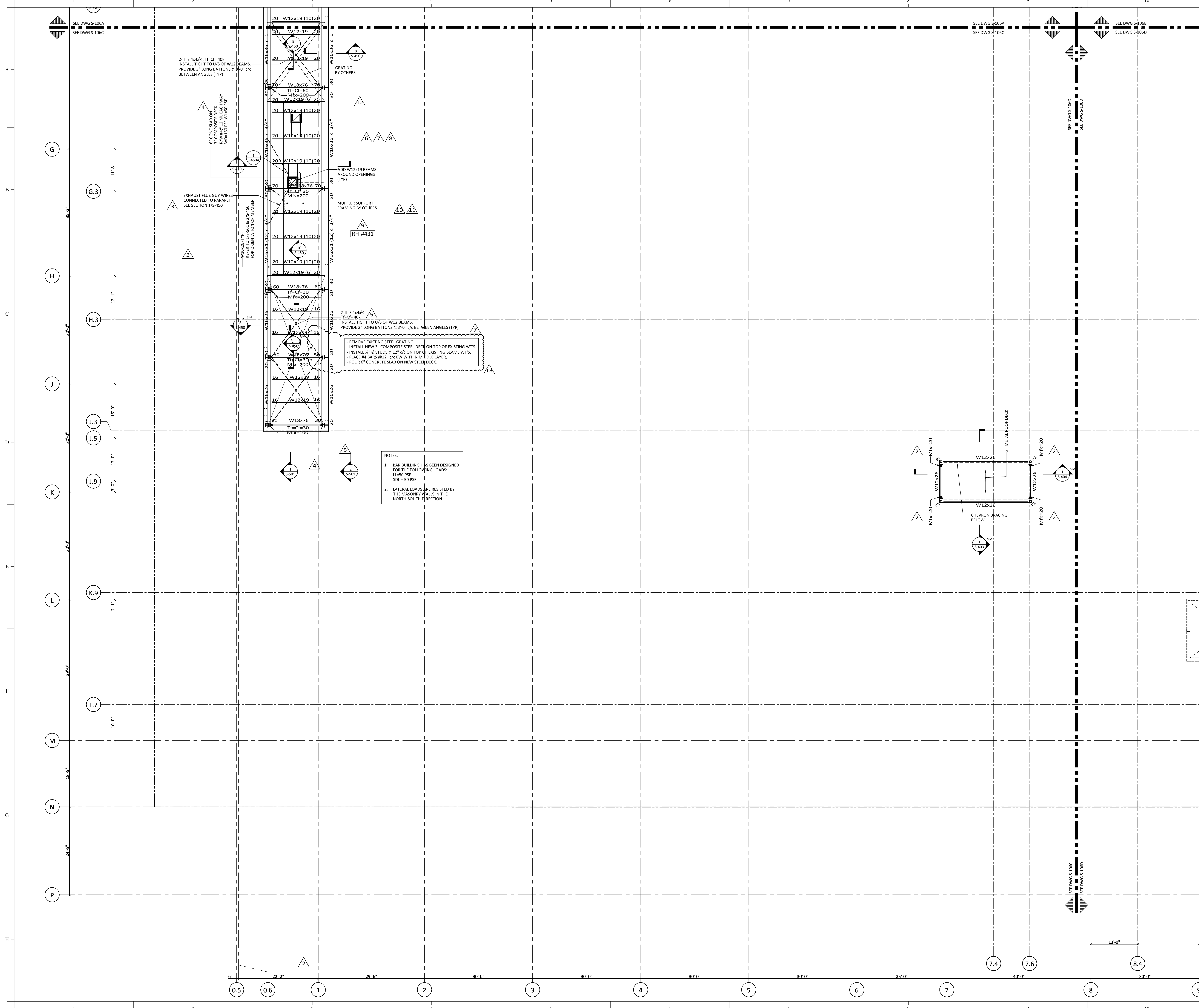


No.	Revisions	Date	By
1	ISSUED FOR D.D.A. APPROVAL	MAR 21, 2011	TRG
2	ISSUED FOR PERMIT FILING	MAR 20, 2011	TRG

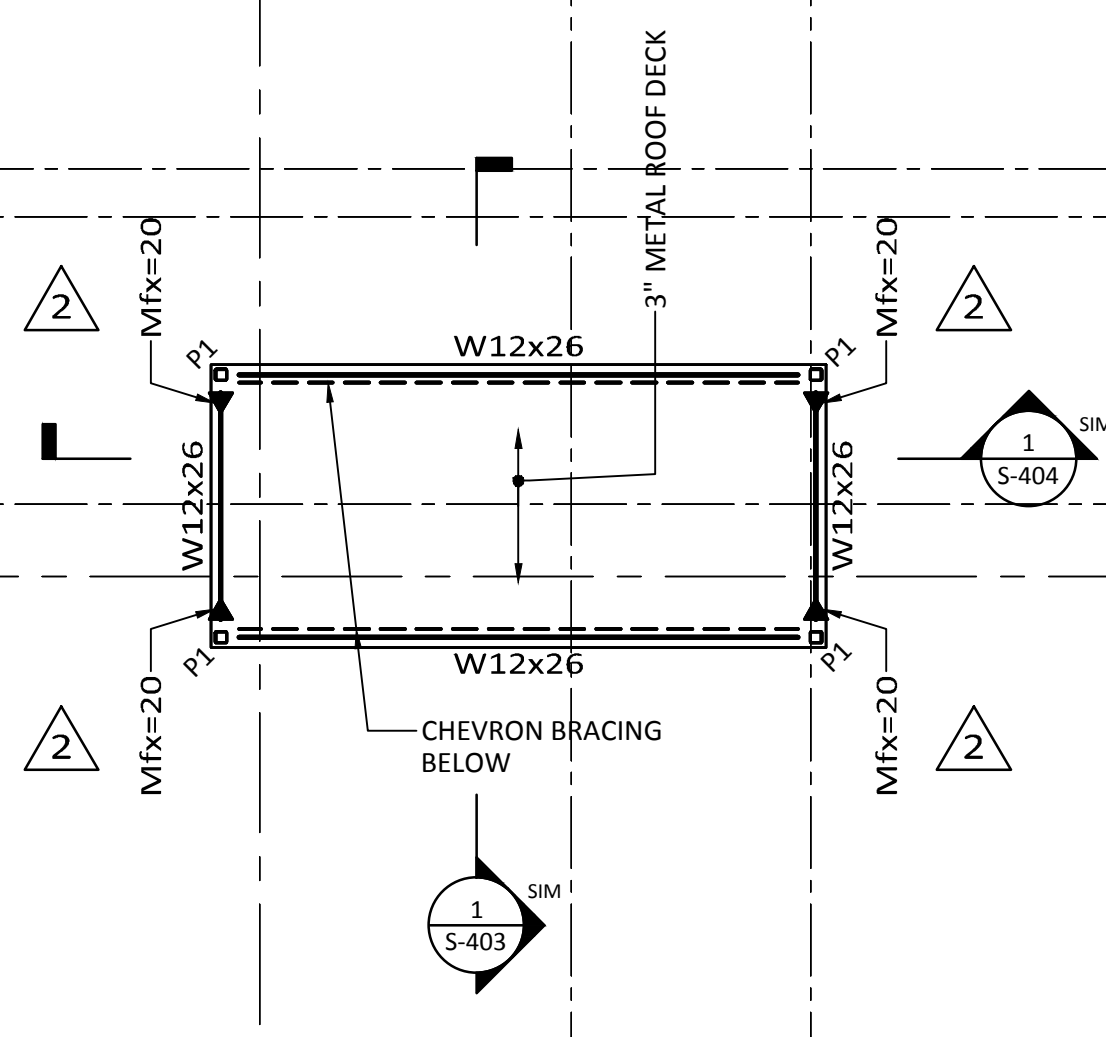
Sheet Name:
GROUND LEVEL PARTIAL FRAMING PLAN C

Drawn By: TRG
Scale: 1/8"=1'-0"
Project No.: T011-0003
Sheet No.: S-106C.01

Checked By: BC/DS
Date: MARCH 2011
File No.:
Sheet No.:
S-106C.01
Page Count: 1 of 2



NOTES:
1. BAR BUILDING HAS BEEN DESIGNED FOR THE FOLLOWING LOADS:
LL=50 PSF
SR=50 PSF
2. LATERAL LOADS ARE RESISTED BY THE MASONRY WALLS IN THE NORTH-SOUTH DIRECTION.



9th Avenue Development

New York, NY

Client: **Brookfield**
3 World Financial Center, New York, NY 10281

Architect: **SOM**
SOMWORKS, DENNIS & MERRILL LLP
10 WALL STREET NEW YORK, NY 10005

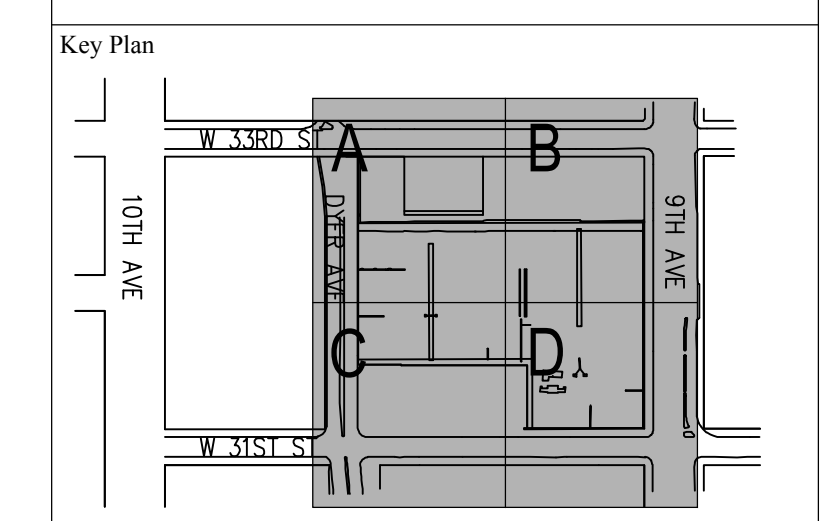
Structural: **ENTUITIVE**
Entuitive Corporation
200 Livingston Avenue 7th Floor
Jersey City, NJ 07310-2624
entuitive.com

Railroad Engineering: **PB Americas, Inc.**
One Penn Plaza, New York, NY 10119

Utility: **Jacobs Engineering Group**
One Penn Square West, 30 South 15 Street, Philadelphia, PA 19102

Geotechnical Engineer: **Mueser Rutledge Consulting Engineers**
14 Penn Plaza, New York, NY 10122

Ting-Hui Wang
APPROVED
Under the direction of a registered Professional Engineer
Date: 03/14/2015
NYC Development Hub



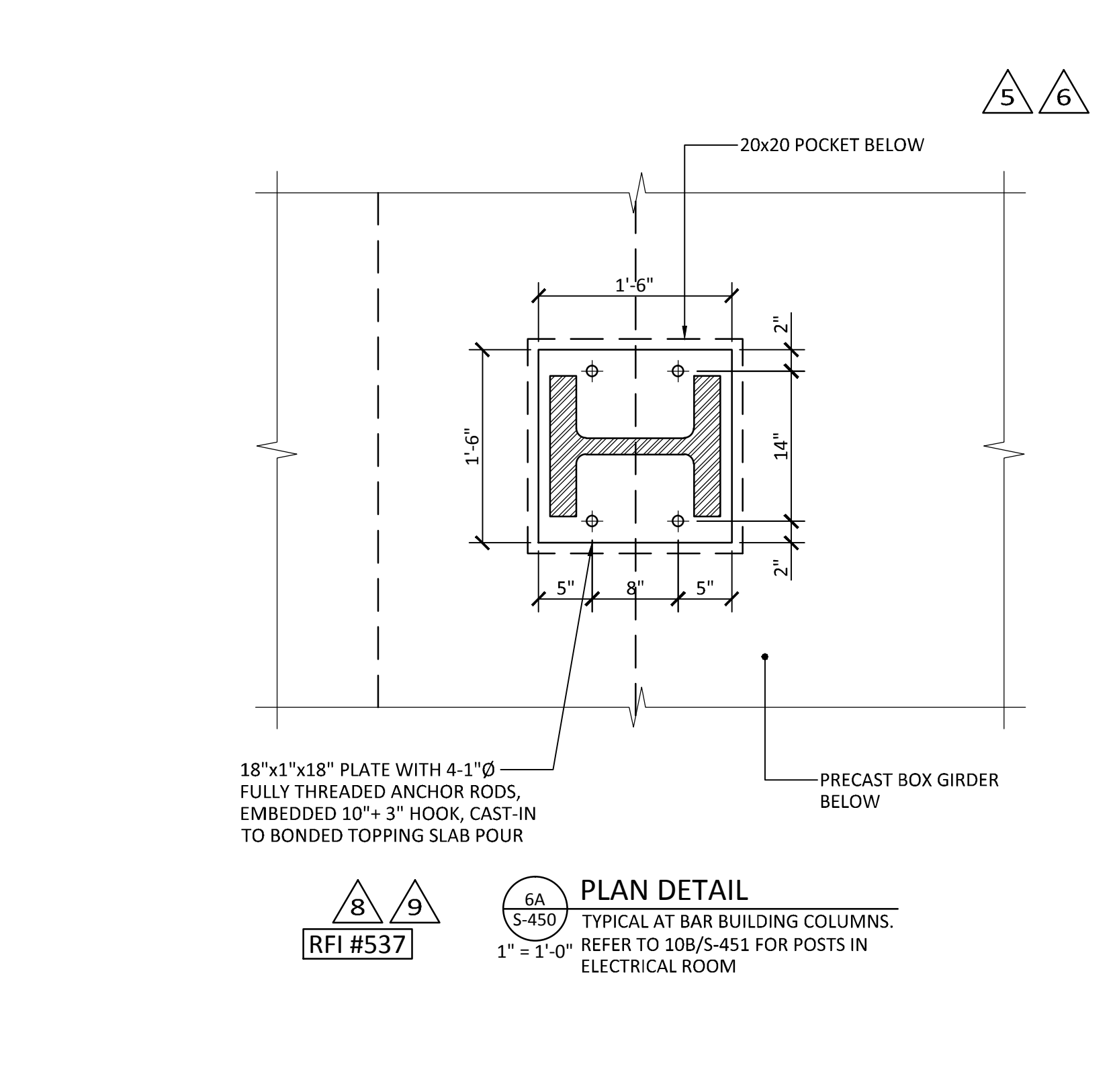
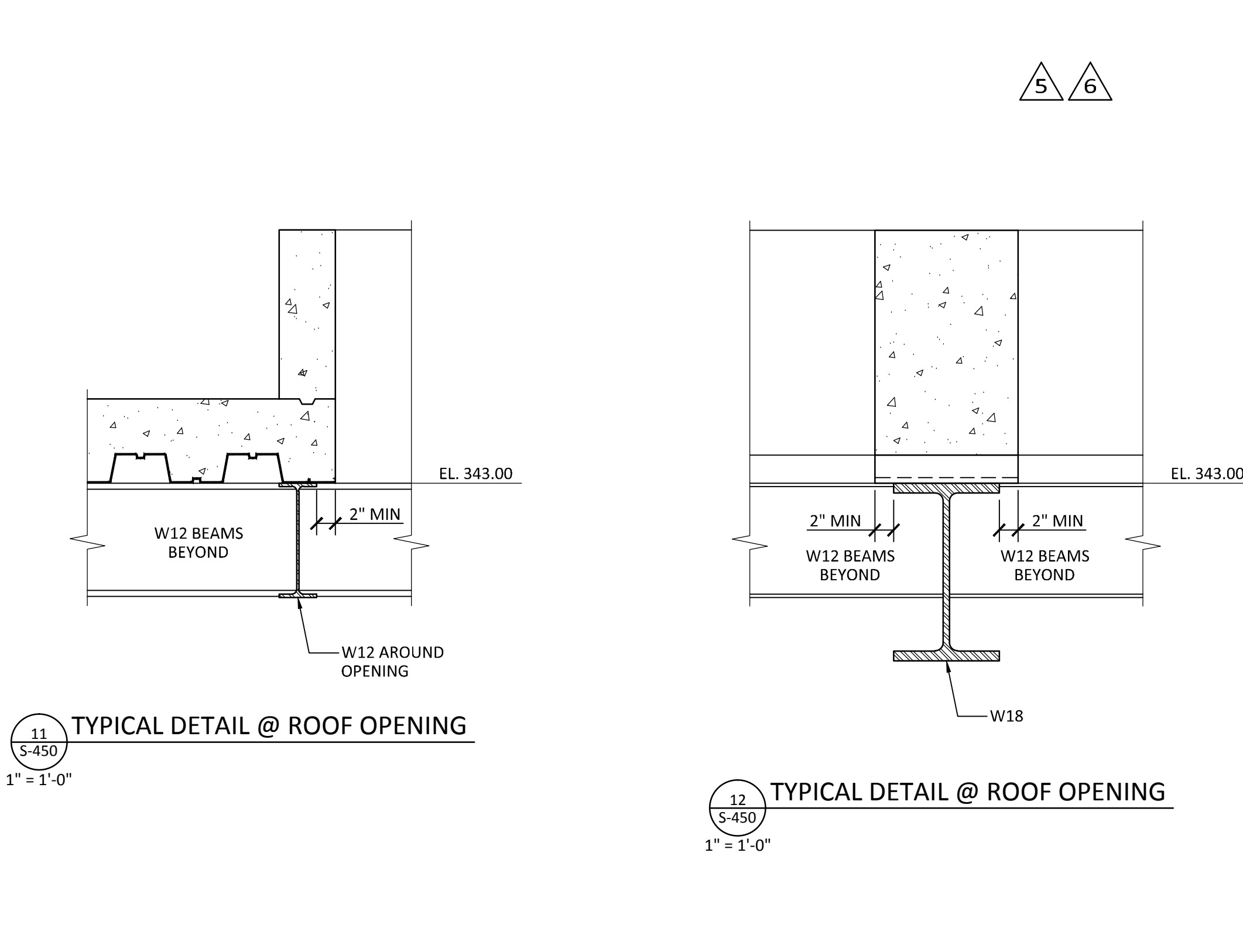
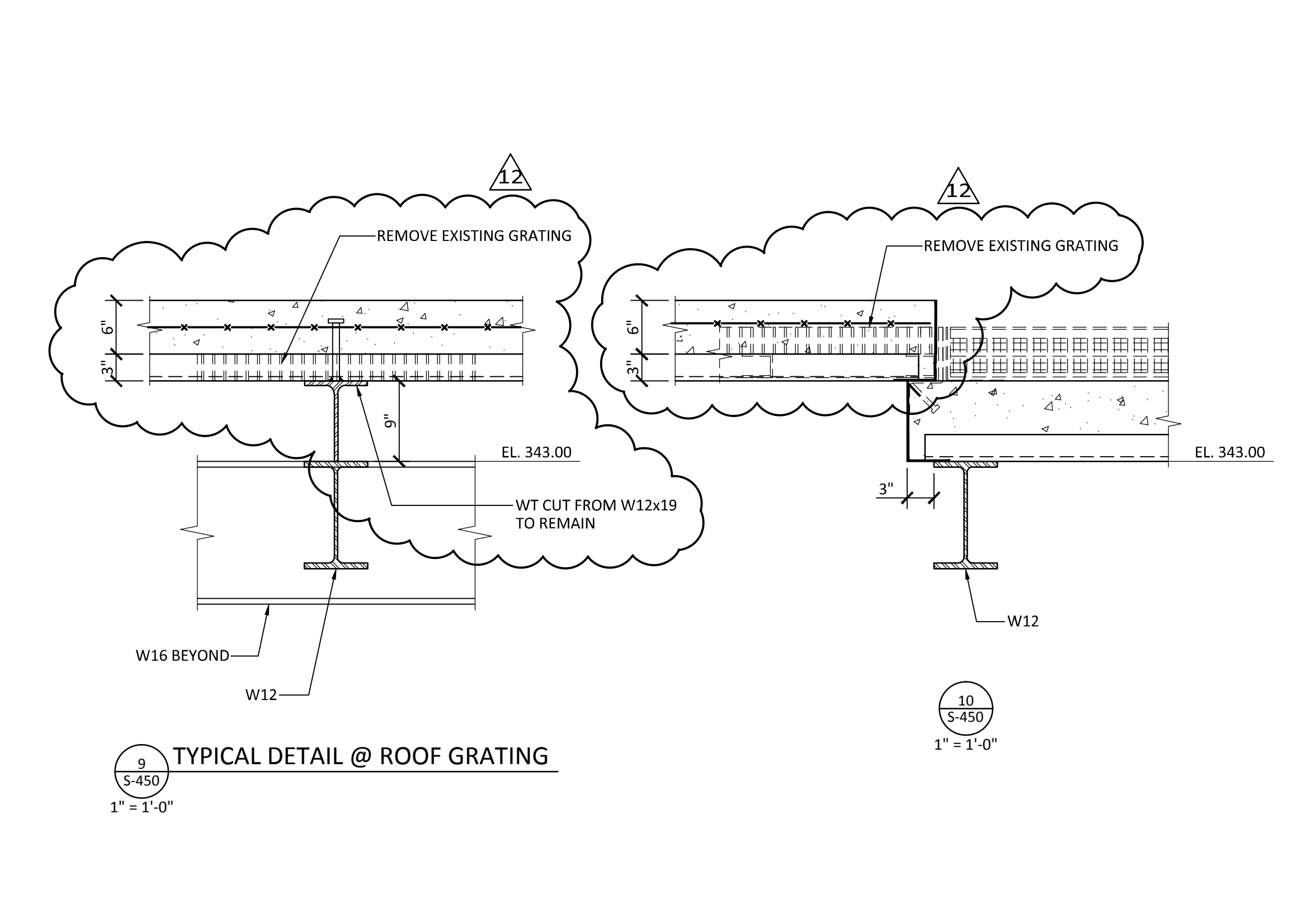
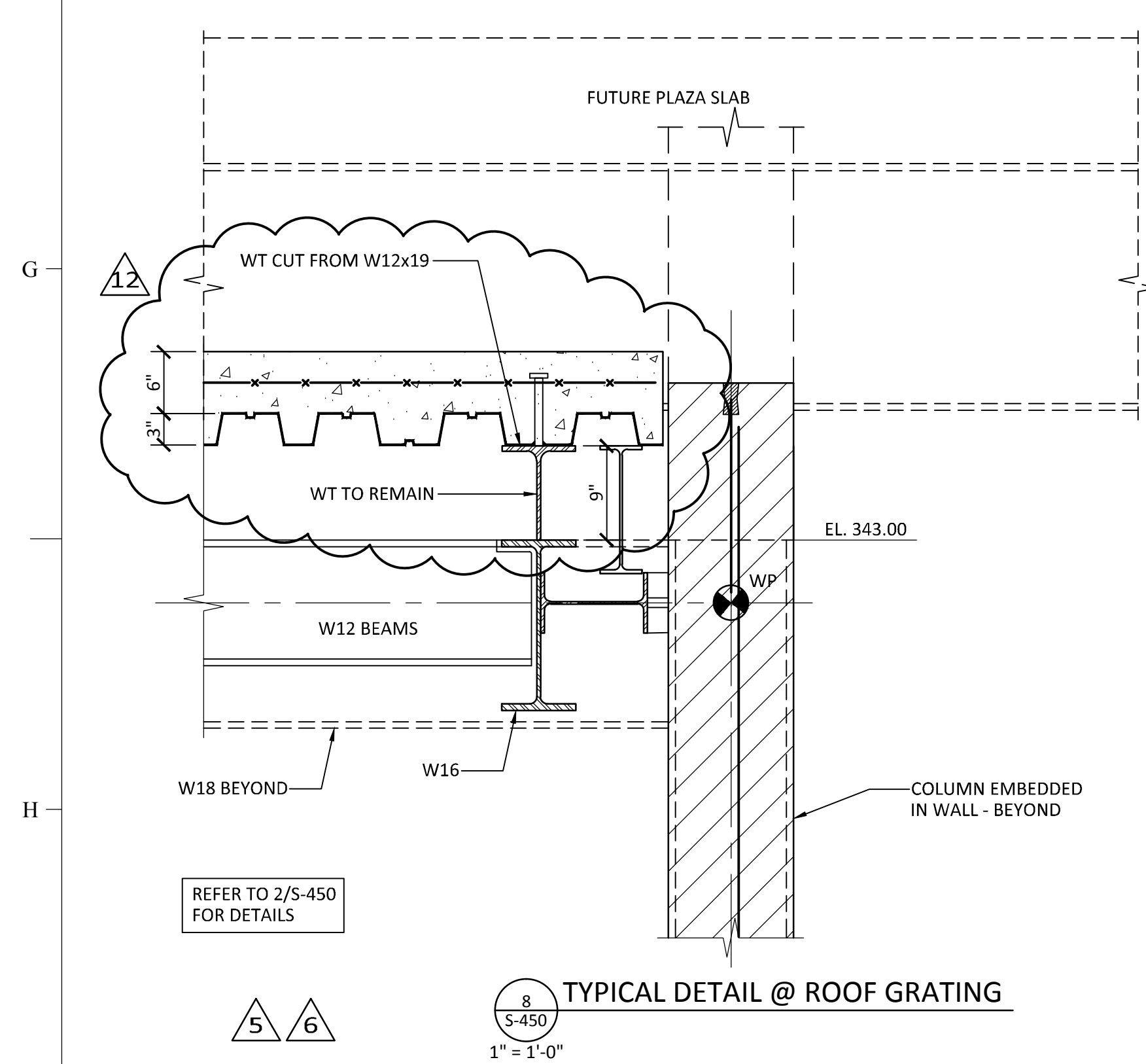
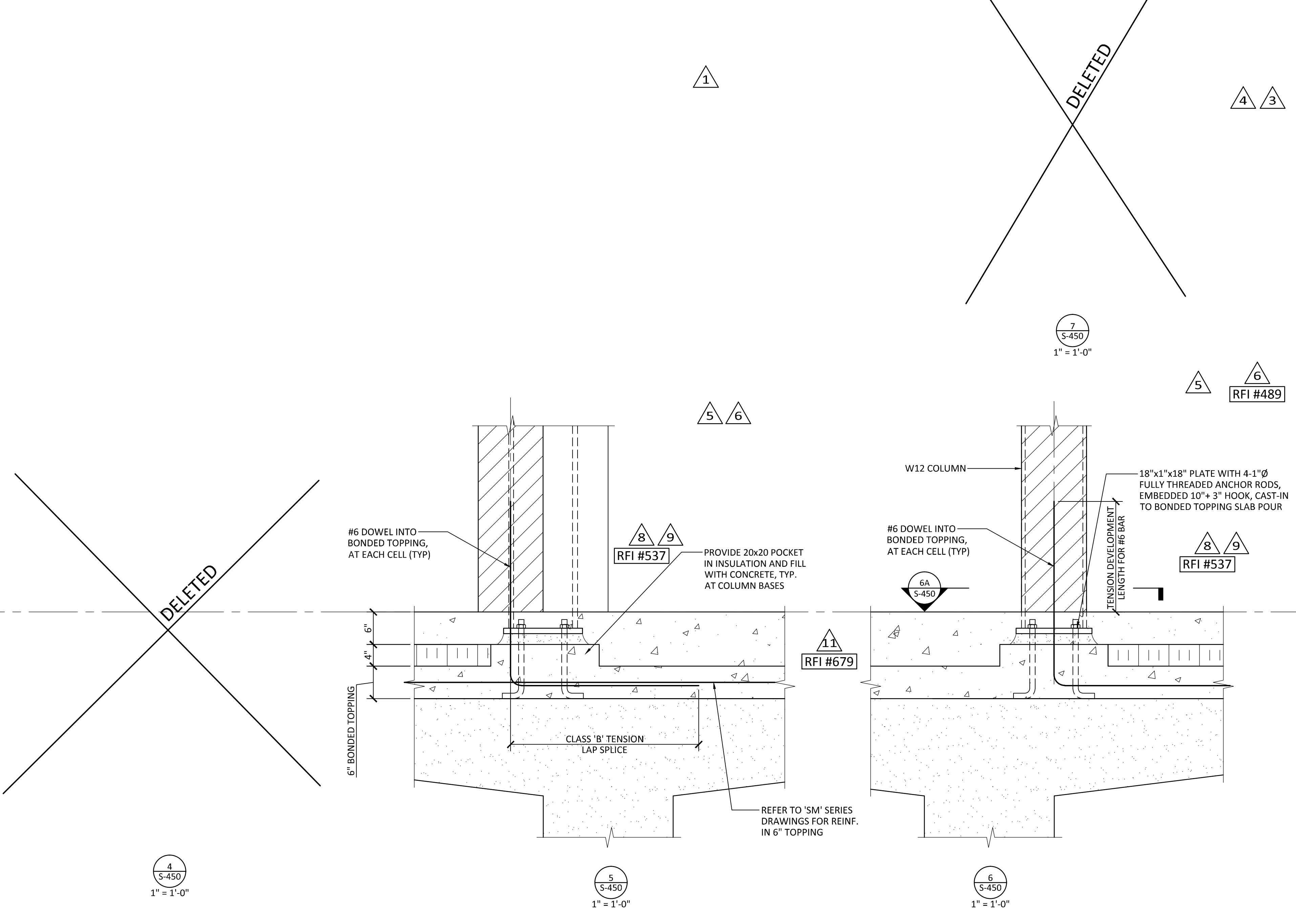
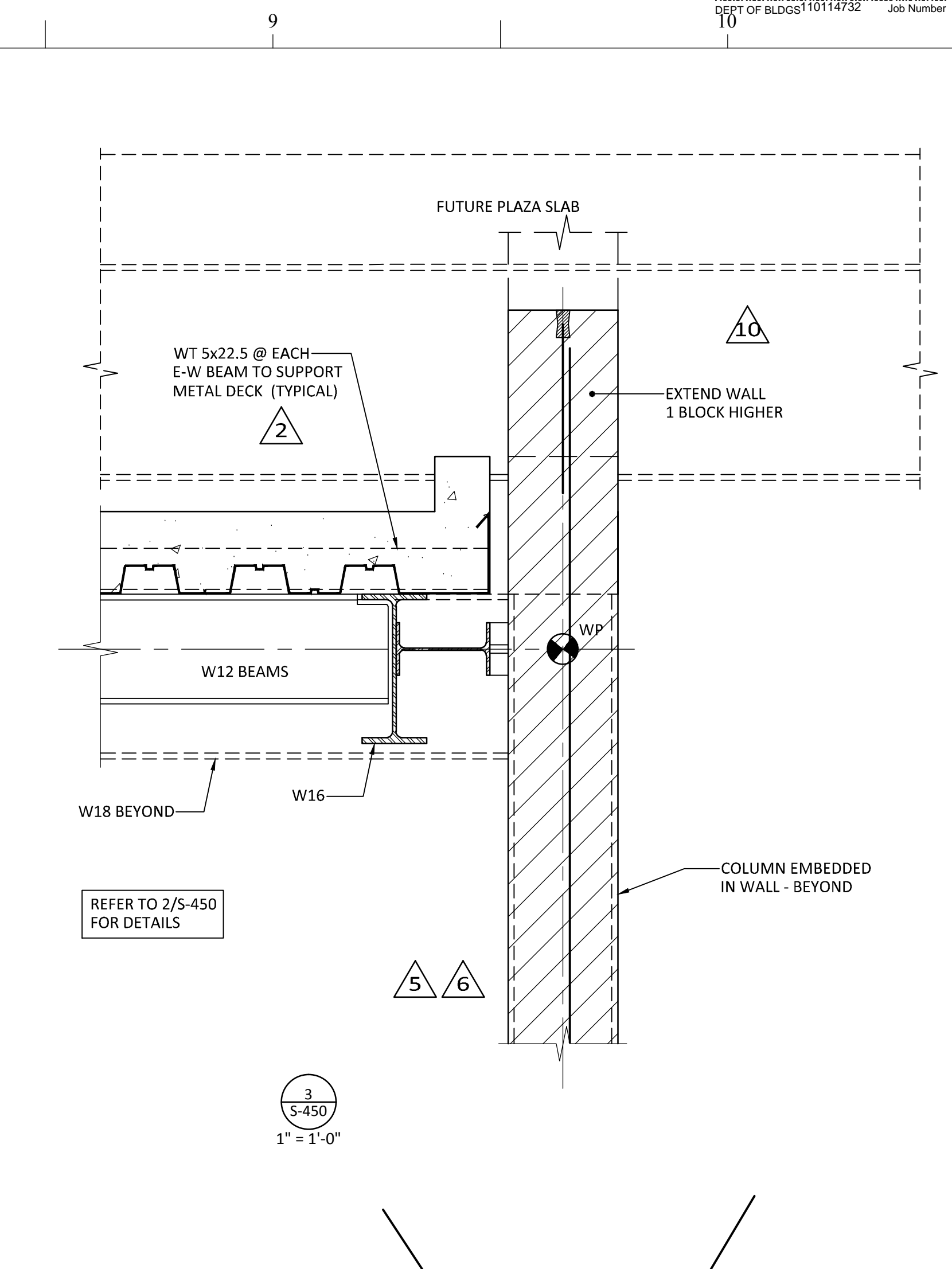
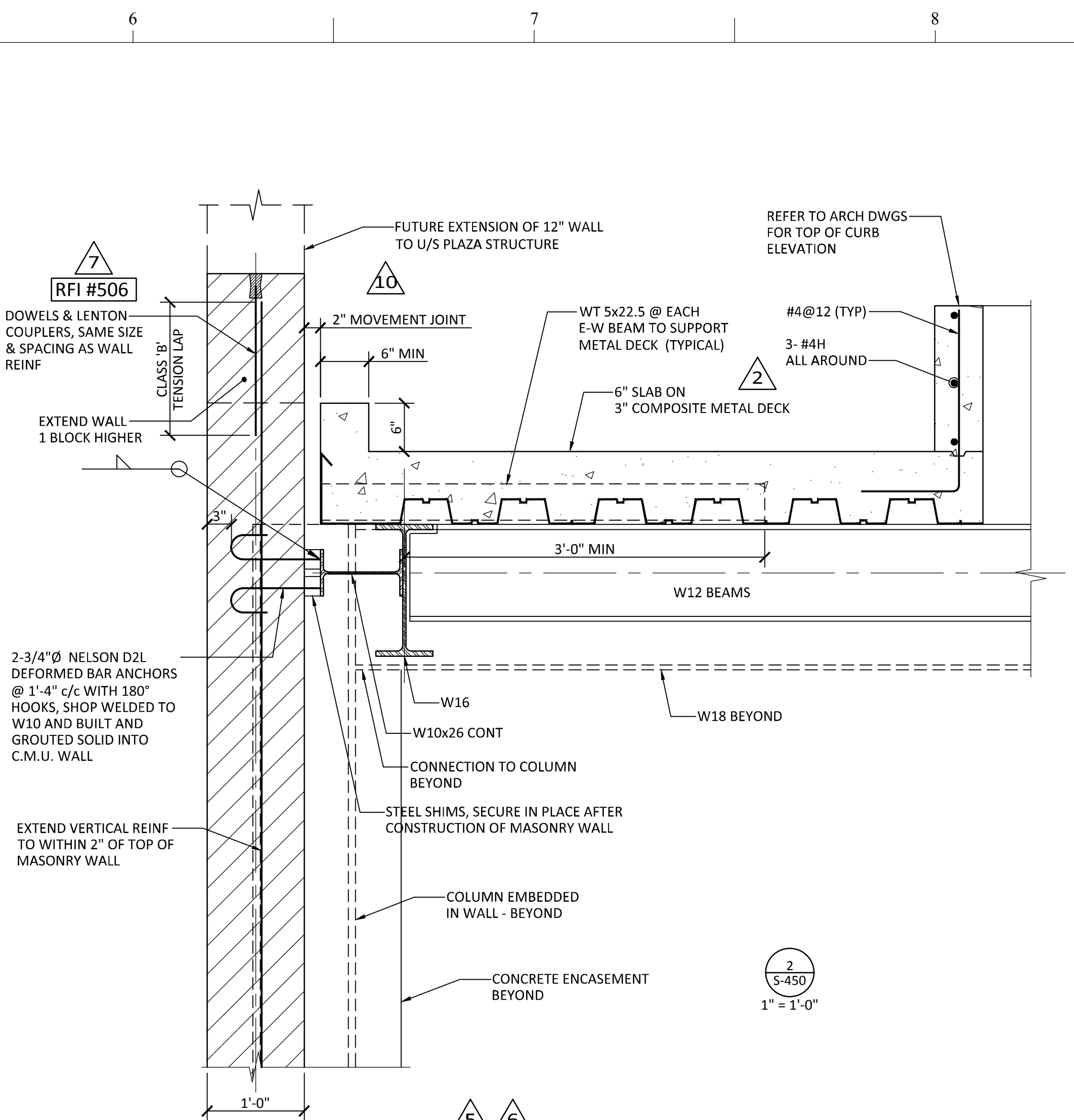
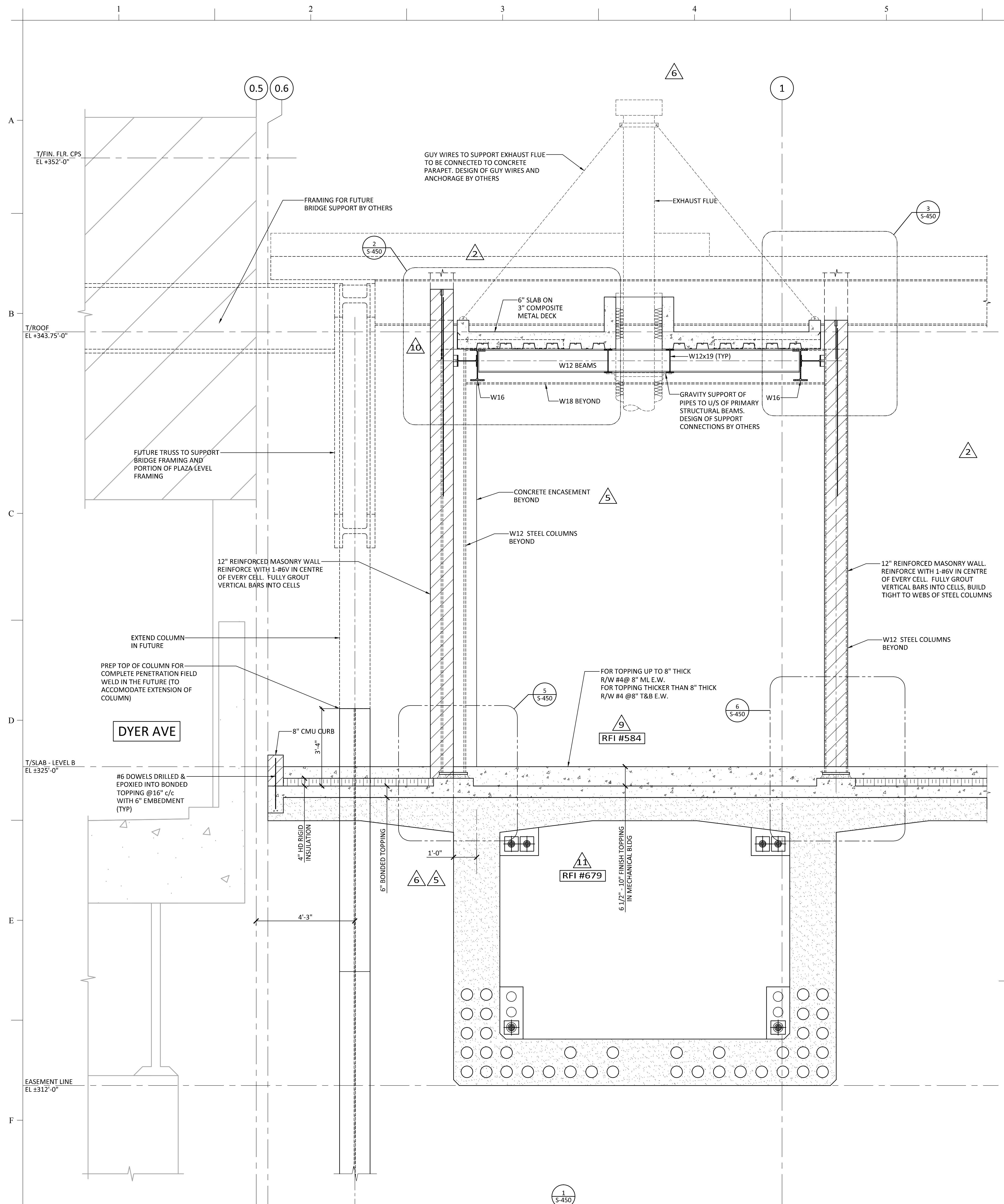
No.	Revisions	Date	By
1	ISSUED FOR D.D. APPROVAL	MAY 13, 2012	rw
2	ISSUED FOR PERMIT FILING	AUG 10, 2015	rw

Sheet Name: **LEVEL B SECTIONS**

Drawn By: TRG
Scale: AS SHOWN
Project No: T011-0003
Scale: AS SHOWN

Checked By: BC/DS
Date: MARCH 2011
File No:
Sheet No:

S-450.01
Page Count: 2 of 2



LIST OF STRUCTURAL DRAWINGS

DRAWING No.	DRAWING TITLE
S-001	COVER SHEET/DRAWING LIST
S-002	GENERAL NOTES AND DESIGN NOTES
S-003	TYPICAL DETAILS
S-020	BASIS OF DESIGN REQUIREMENTS - LOADING
S-021	THRU COLUMN POSITIONS
S-022	BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMNS ABOVE
S-023	BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMNS ABOVE (FUTURE LOADING DOCK PROVISIONS)
S-024	LOADING DOCK POSITIONS
S-025	BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMNS ABOVE UNIT #1 (FUTURE LOADING DOCK PROVISIONS)
S-026	BASIS OF DESIGN REQUIREMENTS - GENERAL PROVISIONS
S-101	TRACK LEVEL PLAN
S-102	TRACK LEVEL PARTIAL PLAN D
S-103	PLAN DETAILS FOR FOOTINGS AT E-YARD
S-104	LEVEL B1 PLAN
S-105	LEVEL B PLAN
S-106	GROUND LEVEL FRAMING PLAN
S-107	GROUND LEVEL PARTIAL FRAMING PLAN A
S-108	GROUND LEVEL PARTIAL FRAMING PLAN B
S-109	GROUND LEVEL PARTIAL FRAMING PLAN C
S-301	CAISSON/ROCK ANCHOR SCHEDULE
S-302	CAISSON DETAILS
S-400	FOUNDATION SECTIONS
S-401	FOUNDATION SECTIONS
S-402	FOUNDATION SECTIONS
S-403	FOUNDATION SECTIONS
S-404	FOUNDATION SECTIONS
S-415	CONCRETE CAPPING BEAM (NORTH)
S-416	CONCRETE CAPPING BEAM (NORTH)
S-417	CONCRETE CAPPING BEAM (SOUTH)
S-418	CONCRETE CAPPING BEAM (SOUTH)
S-420	TYPICAL PLENUM SECTIONS AND DETAILS
S-421	TYPICAL PLENUM SECTIONS AND DETAILS
S-422	STEEL LAUNCHER BEAM REMOVAL PLAN
S-423	STEEL CAPPING BEAM PLAN
S-424	STEEL CAPPING BEAM SECTIONS AND DETAILS
S-425	STEEL BEAM CONSTRUCTION SEQUENCE
S-426	STEEL CAPPING BEAM SECTIONS
S-427	STEEL CAPPING BEAM SECTIONS
S-428	STEEL CAPPING BEAM SECTIONS
S-429	STEEL CAPPING BEAM SECTIONS
S-430	BRACING ELEVATIONS
S-440	PRECAST COLUMN PROTECTION DETAILS
S-450	LEVEL B SECTIONS
S-501	ELEVATIONS

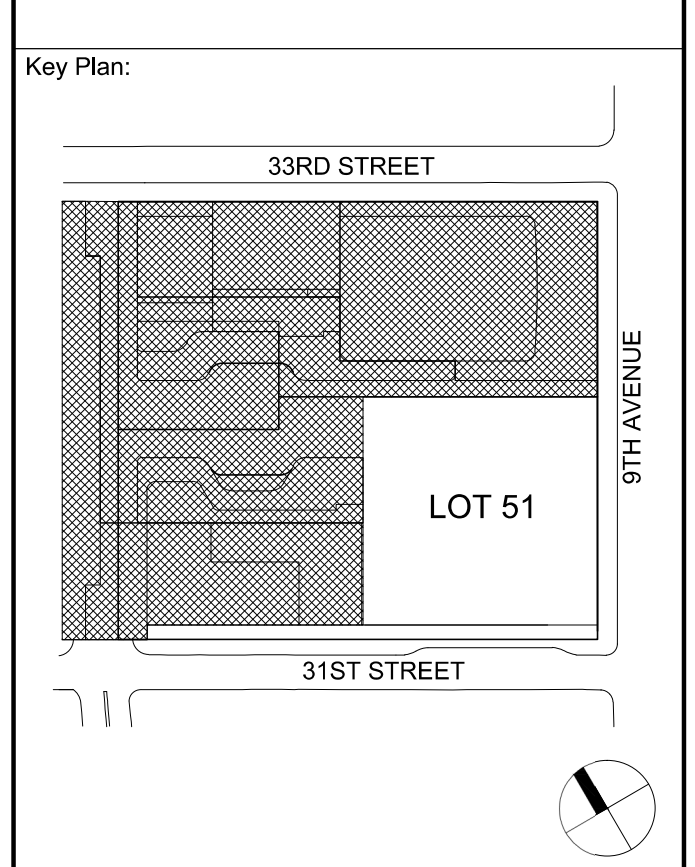
MANHATTAN WEST PLATFORM

BLOCK 729, LOT 51, NEW YORK, NY

ISSUED FOR POST APPROVAL AMENDMENT

APRIL 12, 2017

FOR BUILDING DEPARTMENT APPROVAL

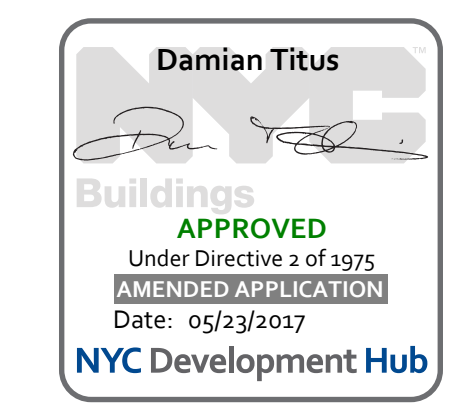


Seal & Signature

 Damian Titus

No.	Date	Description
1	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
2	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
3	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
4	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
5	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
6	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
7	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
8	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
9	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT
10	02/01/17	ISSUED FOR POST APPROVAL AMENDMENT

COVER SHEET/
DRAWING LIST



GENERAL NOTES

A. GENERAL

- 1. THE STRUCTURE IS TO BE BUILT IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2008 NEW YORK CITY BUILDING CODE...
2. WHERE DOCUMENTS ARE REFERENCED IN THE GENERAL AND DESIGN NOTES, THEY SHALL BE THE LATEST EDITIONS OR REVISION...
3. READ STRUCTURAL DRAWINGS AND SPECIFICATIONS IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS...

B. SEQUENCE OF CONSTRUCTION

- 1. UNLESS NOTED OTHERWISE, THE FINAL CONSTRUCTION SEQUENCING OR PHASING REQUIREMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DETERMINED AS AN INTEGRAL PART OF THEIR OVERALL CONSTRUCTION MEANS AND METHODS...

C. FUTURE PROVISIONS OR EXTENSIONS

- 1. THE STRUCTURE HAS BEEN DESIGNED FOR THE FUTURE PROVISIONS NOTED ON DRAWINGS.

D. MATERIALS

- 1. CONCRETE: CONFORM TO THE REQUIREMENTS OF ACI 318, AND THE REQUIREMENTS IDENTIFIED IN TABLE 1.
2. REINFORCEMENT: CONFORM TO ASTM A615 SERIES, fy = 60 KSI FOR ALL REINFORCEMENT.
3. POST-TENSIONING STRANDS: CONFORM TO ASTM A416 / A416M-05...
4. STRUCTURAL STEEL: ALL STRUCTURAL STEEL TO CONFORM TO ASTM A992 GRADE 50...
5. ANCHOR RODS: CONFORM TO ASTM F1554 GRADE 55 WELDABLE STEEL.

E. FOUNDATIONS

- 1. A COPY OF THE GEOTECHNICAL INVESTIGATION REPORT BY MUESER RUTLEDGE DATED JUNE 10, 2008 AND THEIR SUBSEQUENT LETTER ADDENDUM DATED JANUARY 13, 2012 IS AVAILABLE FROM THE CONSULTANT. THIS INFORMATION IS AVAILABLE SOLELY AS A GUIDE...
2. FOUND ALL CAISSONS IN SOUND ROCK CAPABLE OF SUSTAINING A BOND STRESS OF 300 PSI...
3. FOUNDING ELEVATION OF FOOTINGS AND CAISSONS ARE NOTED ON THE DRAWINGS...
4. PROVIDE TEMPORARY FROST PROTECTION, DURING CONSTRUCTION, FOR ALL FOUNDATIONS WHICH ARE NOT FOUNDED A MINIMUM OF 4'-0" BELOW GRADE...

F. CONCRETE AND REINFORCEMENT

- 1. ALL DOWELS SHALL HAVE MINIMUM EMBEDMENT EQUIVALENT TO THE STRAIGHT TENSION EMBEDMENT LENGTH OR 2'-0", WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE.
2. PROVIDE DOWELS TO WALLS AND COLUMNS SIMILAR IN NUMBER, SIZE, AND SPACING TO THE VERTICAL STEEL IN THE WALL OR COLUMN ABOVE UNLESS NOTED OTHERWISE.
3. REINFORCEMENT IDENTIFIED AS 'CONTINUOUS' SHALL TERMINATE WITH STANDARD END HOOKS AND SHALL BE LAPPED WITH CLASS 'B' TENSION LAP SPLICES.

G. STRUCTURAL STEEL

- 1. CENTER BEARING PLATES UNDER BEAMS UNLESS NOTED OTHERWISE.
2. BEARING PLATE DIMENSION GIVEN FIRST INDICATES SIDE PARALLEL TO BEAM WEB.
3. FORCES INDICATED ARE FACTORED UNLESS NOTED OTHERWISE.
4. WHERE MOMENT CONNECTIONS ARE CALLED FOR BUT VALUES ARE NOT INDICATED, DESIGN CONNECTIONS FOR FULL MOMENT CAPACITY OF THE SMALLER MEMBER JOINED.

J. METAL DECK

- 1. THE FLOOR STRUCTURE DESIGN IS BASED ON THE FOLLOWING COMPOSITE METAL DECK PROFILES: 3" DECK - HB 30V BY VICWEST STEEL INC.
2. THE ROOF STRUCTURE DESIGN IS BASED ON THE FOLLOWING METAL DECK PROFILES: 3" DECK - RD 306 BY VICWEST STEEL INC.
3. DIFFERENT TYPES OF METAL DECK, WITH SIMILAR PROPERTIES TO THOSE LISTED ABOVE, MAY BE ACCEPTABLE SUBJECT TO REVIEW BY THE CONSULTANT...

TABLE 1: CONCRETE. Table with 4 columns: STRUCTURAL ELEMENTS, EXPOSURE CLASS, MIN COMPRESSIVE STRENGTH Fc (PSI), COMMENTS. Rows include CAISSONS, FOOTINGS, CAPPING BEAMS, PRECAST-POST TENSIONED BOX GIRDERS, etc.

NOTES:
a. MAXIMUM AGGREGATE SIZE IS 3/4".
b. MINIMUM COMPRESSIVE STRENGTHS ARE AT 28 DAYS UNLESS NOTED OTHERWISE.
c. IT HAS BEEN ASSUMED THAT NONE OF THE CONCRETE STRUCTURES WILL BE DIRECTLY EXPOSED TO DEICING CHEMICALS OR CHLORIDES.

DESIGN NOTES

A. GENERAL

- 1. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE 2008 NEW YORK CITY BUILDING CODE.
2. ALL REINFORCED CONCRETE ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH ACI 318-11 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
3. ALL STRUCTURAL STEEL ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AISC-2001 LRFD LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.

B. LATERAL LOAD RESISTING SYSTEM

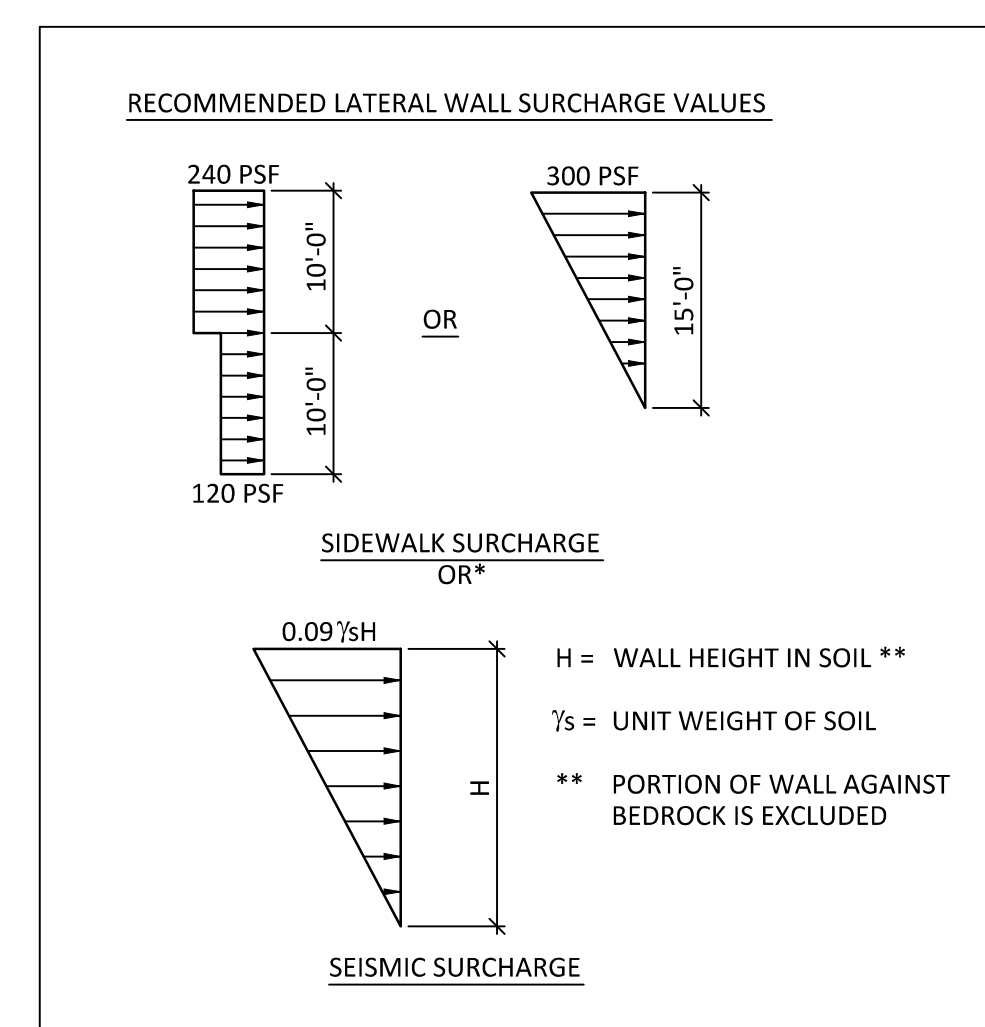
- 1. THE LATERAL EARTHQUAKE LOADS APPLIED TO THE STRUCTURE ARE RESISTED BY FRAME ACTION BETWEEN CAISSONS AND CAPPING BEAMS FOR UNIT #1 AND STEEL MOMENT FRAMES AND BRACING FOR UNITS #2 & #3.
2. THE STRUCTURE HAS BEEN DESIGNED TO RESIST LATERAL EARTHQUAKE LOADS IN ACCORDANCE WITH THE 2008 NEW YORK CITY BUILDING CODE USING THE EQUIVALENT LATERAL FORCE PROCEDURE.
3. THE DESIGN PARAMETERS FOR EARTHQUAKE ARE AS NOTED BELOW: A. EARTHQUAKE LOADS: UNIT #1 BASE SHEAR = 3030K, UNIT #2 BASE SHEAR = 2920K, UNIT #3 BASE SHEAR = 1350K.

C. STRUCTURAL MOVEMENTS

- 1. TYPICAL HORIZONTAL ELEMENTS HAVE BEEN DESIGNED SO THAT THE THEORETICAL DEFLECTIONS WILL NOT EXCEED THE FOLLOWING VALUES: DEFLECTION LIMITS FOR LAUNCHER: VERTICAL DEFLECTION: 1/800, HORIZONTAL DEFLECTION: 1/600

D. LATERAL LOADS ON FOUNDATION WALLS

- 1. THE WALLS HAVE BEEN DESIGNED ASSUMING FREE DRAINING BACKFILL WHICH DOES NOT PERMIT THE BUILD-UP OF HYDROSTATIC PRESSURE. OR THE WALLS HAVE BEEN DESIGNED ASSUMING THE BUILD-UP OF HYDROSTATIC PRESSURE.
2. WALL HAVE BEEN DESIGNED FOR A HORIZONTAL PRESSURE [P IN KPa (PSF)] AT ANY DEPTH [h IN m (FT)] GIVEN BY THE EXPRESSION: P = Ps + Pe, Ps = K (gh + q) AND Pe = [TAKE FROM GEOTECHNICAL REPORT IF APPLICABLE].



E. PERFORMANCE SPECIFICATION DESIGN ITEMS

- 1. CONTRACTOR SHALL USE A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF NEW YORK TO DESIGN AND DETAIL ALL PERFORMANCE SPECIFICATION ITEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: PRECAST GIRDERS, TEMPORARY PROTECTION PLATFORM, TEMPORARY TRACK PROTECTION HOARDING, TRACK LEVEL EXIT STAIR IN E-YARD, GIRDER BEARINGS, ROCK ANCHORS, STRUCTURAL STEEL CONNECTIONS, COLUMN JACKING PROCEDURE.
2. DESIGN CALCULATIONS FOR THESE ITEMS SHALL BE SUBMITTED TO THE CONSULTANT, BEARING THE SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.

TENDER RELATED NOTES

A.1 QUANTITY FOR SUPERSTRUCTURE

- 1. THE STRUCTURAL TENDER IS TO INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

A.2 STRUCTURAL STEEL

- 1. COLUMN BASES AND MILLING OF SAME.
2. ALL COLUMNS, INCLUDING MILLING OF COLUMN ENDS AND ALL SPlice PLATES, BOLTS AND THE LIKE.
3. MOMENT CONNECTIONS.
4. FIREPROOFING OF ALL STEEL, UNLESS NOTED OTHERWISE.
5. ACKNOWLEDGEMENT THAT THE CONTRACTOR WILL BE WORKING IN THE WORK AREA WITH OTHER TRADE CONTRACTORS AND THAT THERE WILL BE LIMITED ACCESS TO THE SITE. ALLOW FOR ANY LOSS OF EFFICIENCY AS A RESULT THEREOF.

A.3 PROTECTION OF STRUCTURAL STEEL

- 1. PROVIDE CORROSION PROTECTIVE PAINT FOR ALL STRUCTURAL STEEL.
2. TOUCH UP PAINT AFTER INSTALLATION OF MECHANICAL AND ELECTRICAL SERVICES IS COMPLETED.
3. AS AN ALTERNATE TO THE CORROSION PROTECTIVE PAINT, PROVIDE ASTM A588 MATERIAL FOR ALL EXPOSED STEEL FRAMING IN THE E-YARD.

A.4 FIREPROOFING OF STRUCTURAL STEEL

- 1. FIREPROOF ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CODE. USE CEMENTITIOUS FIREPROOFING ON ALL PERMANENT EXPOSED STEEL.
2. TOUCH UP FIREPROOFING AFTER INSTALLATION OF MECHANICAL AND ELECTRICAL SERVICES IS COMPLETED.
3. FIREPROOFING FOR STRUCTURAL STEEL IS TO BE BASED ON AN 'UNRESTRAINED' STRUCTURE.

B.1 ALLOWANCES FOR TENDER

- 1. IN ADDITION TO THE INFORMATION CONTAINED IN THE TENDER DRAWINGS, MAKE THE NECESSARY ALLOWANCES AND PROVISIONS FOR THE FOLLOWING ITEMS.
2. THE TRADE CONTRACTOR IS REQUIRED TO PREPARE DETAILED SHOP DRAWINGS AND CALCULATIONS FOR ALL ASPECTS OF THE WORK, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: A. REINFORCEMENT DETAILING AND PLACING DRAWINGS, B. BAR BENDING SCHEDULES, C. STRUCTURAL STEEL ERECTION AND DETAILED FABRICATION DRAWINGS, D. CALCULATIONS AS REQUIRED BY CITY OF NEW YORK AND CONSULTANTS, E. ADDITIONAL INFORMATION AND DRAWINGS AS REQUIRED TO OBTAIN THE NECESSARY APPROVALS, ALLOW FABRICATIONS AND ERECTION OF THE STRUCTURAL FRAME TO BE CARRIED OUT AND ADDITIONAL DRAWINGS AS OF MAY BE REQUIRED BY OTHER TRADES FOR COORDINATION PURPOSES.

C.1 OTHER ALLOWANCES

- 1. IN ADDITION TO THE LIST OF PERMANENT BUILDING REQUIREMENTS NOTED ABOVE, INCLUDE FOR ALL TEMPORARY CONSTRUCTION RELATED REQUIREMENTS, AS A MINIMUM ALLOW FOR THE FOLLOWING: A. ALL CAST-IN ACCESSORIES, ANCHORS, HARDWARE, CONNECTIONS, FLOOR OPENINGS AND THE LIKE TO ACCOMMODATE CRANES, CONCRETE PUMP SUPPORTS, TEMPORARY STAIRS OR LADDERS, TEMPORARY BARRIERS OR GUARDS AND PROVISIONS AND ATTACHMENTS FOR ALL NECESSARY LIFE SAFETY EQUIPMENT. B. ALLOW FOR THE REMOVAL OF ALL TEMPORARY CONNECTIONS AND MEMBERS THAT PROTRUDE INTO THE FINISHED BUILDING. C. TEMPORARY GYING AND BRACING OF STRUCTURE UNTIL CONCRETE SLABS HAVE BEEN POURED AND HAVE MATURED TO THEIR DESIGN STRENGTH. D. THE COST OF ALL TEMPORARY CONSTRUCTION RELATED WORKS SHALL BE INCLUDED BY THE CONTRACTOR. E. MISC. SUSPENDED CATWALKS, AND SUSPENDED EXIT CORRIDORS AT STAIR TRANSFERS, F. MISC. HANDRAIL SUPPORTS.

9th Avenue Development
LOT 51
401 West 31st Street, New York, NY

Client
Brookfield

Brookfield Place
250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering
SOM

Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Structural
Entulive

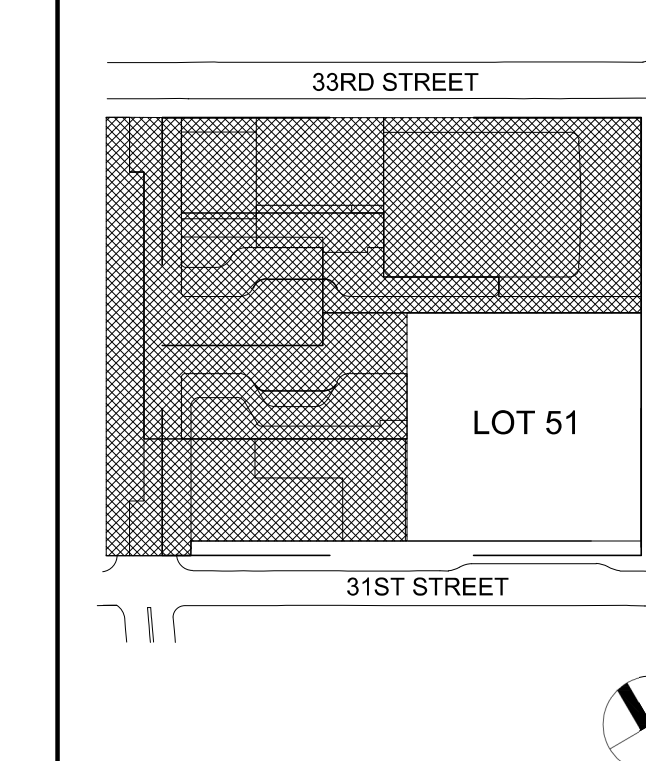
315 West 80th Street, Office #7049
New York, NY 10018

Geotechnical Engineering
Mueser Rutledge Consulting Engineers

14 Penn Plaza, 225 W. 34th Street, New York, NY 10122

FOR BUILDING DEPARTMENT APPROVAL

Key Plan:

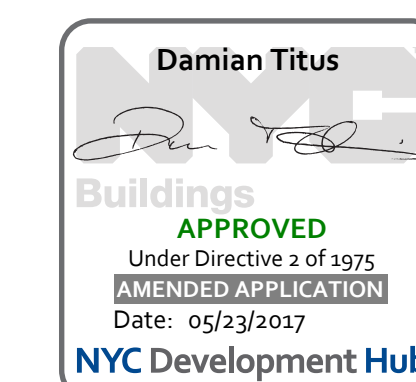


Seal & Signature:



Table with 4 columns: No., Date, Description, Sheet Name.

GENERAL NOTES AND DESIGN NOTES



BASIS OF DESIGN REQUIREMENTS - LOADING

1. DESIGN OF THE DECK INCLUDING THE PRECAST POST-TENSIONED SEGMENTAL BOX GIRDERS, CAPPING BEAM AND SUPPORTING FOUNDATIONS ARE TO MEET ALL NECESSARY CODE REQUIREMENTS AS WELL AS THE OVERALL FUNCTIONAL AND PERFORMANCE REQUIREMENTS AS SPECIFIED ON THE DRAWINGS, SPECIFICATIONS, RFL DOCUMENT AND AS NOTED BELOW.
2. THE STRUCTURE IS TO BE DESIGNED TO SAFELY WITHSTAND ALL LOADING AFFECTS FROM GRAVITY (INCLUDING LIVE LOADS, SUPERIMPOSED DEAD LOADS AND SELF WEIGHT), WIND, SEISMIC, THERMAL AND LOADS FROM FUTURE STRUCTURES, AS THEY ARE DEFINED ON THE DRAWINGS.

TABLE 1: GRAVITY LOADING SUMMARY

	LIVE LOAD (PSF)	SUPERIMPOSED DEAD LOAD (PSF)	SELF-WEIGHT (PSF)	SCHEMATIC
TEMPORARY LOAD #1 DECK PLAZA	300**	50	670 ²	
TEMPORARY LOAD #2 DECK PLAZA	100 300**	50 50	670 ² 150	
FINAL LOAD DECK PLAZA	250* 150**	75 125	670 ² 170	
UNBALANCED LOAD CASE	300	50	670 ²	

*** PLAZA LIVE LOAD ON GIRDER SPAN #1 = 100 PSF ³

** OR AASHTO TRUCK OR LANE LOADS FOR HS20-44. REFER TO TABLE 2. OR RIG SHOWN ON TABLE 3

* EXCEPT WHERE NOTED ON DRAWING S-022.

TABLE 2: AASHTO TRUCK LOADING SUMMARY

	FRONT AXLE (lb)	MIDDLE AXLE (lb)	BACK AXLE (lb)	SCHEMATIC
H20-44	8,000	N/A	32,000	
HS20-44	8,000	32,000	32,000	
LANE LOAD	FOR MOMENT: 18,000 lb FOR SHEAR: 26,000 lb UNIFORM LOAD: 640 plf PER LANE			

TABLE 3: RIG ON PLATFORM

TOTAL WEIGHT: 140,000 LB DISTRIBUTED EVENLY OVER 2 TRACKS:

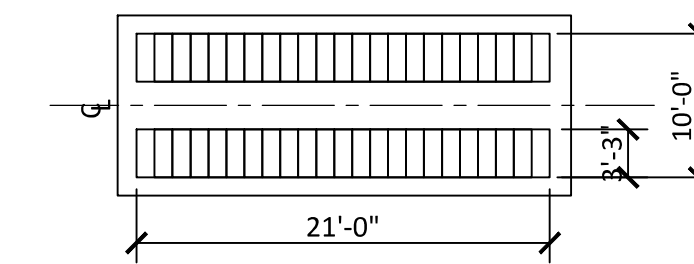
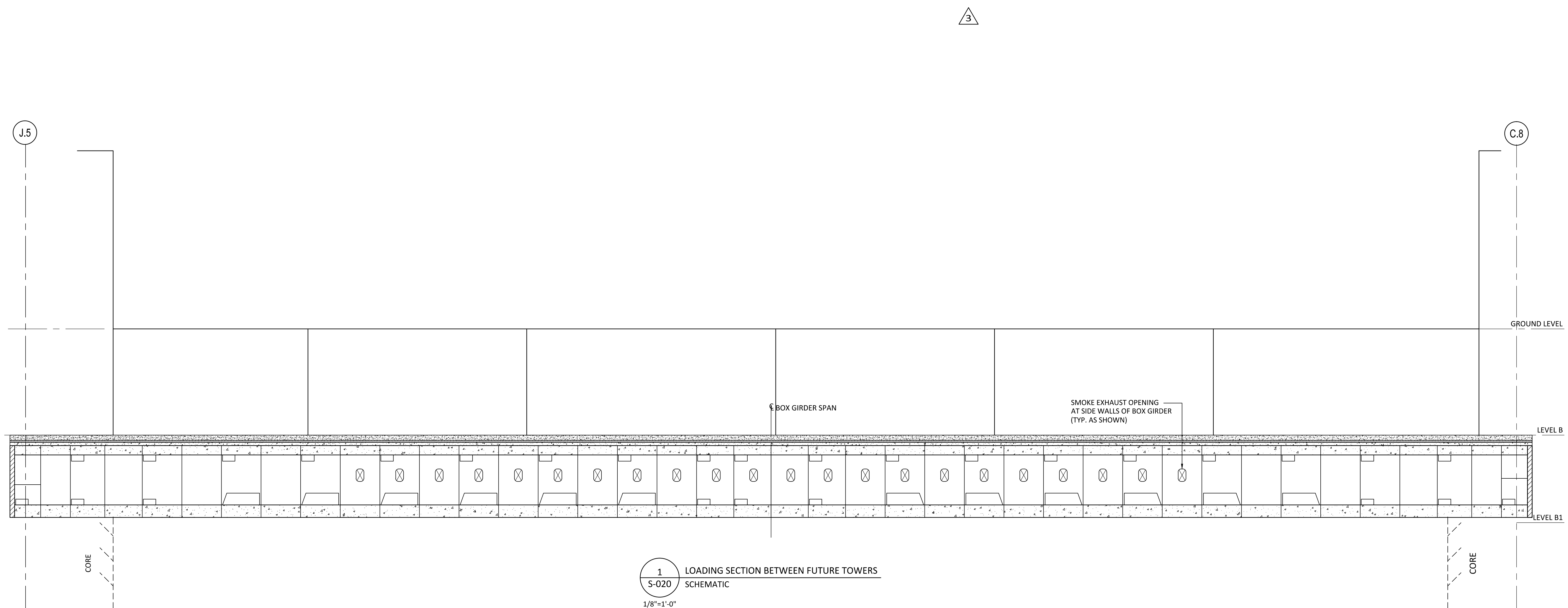
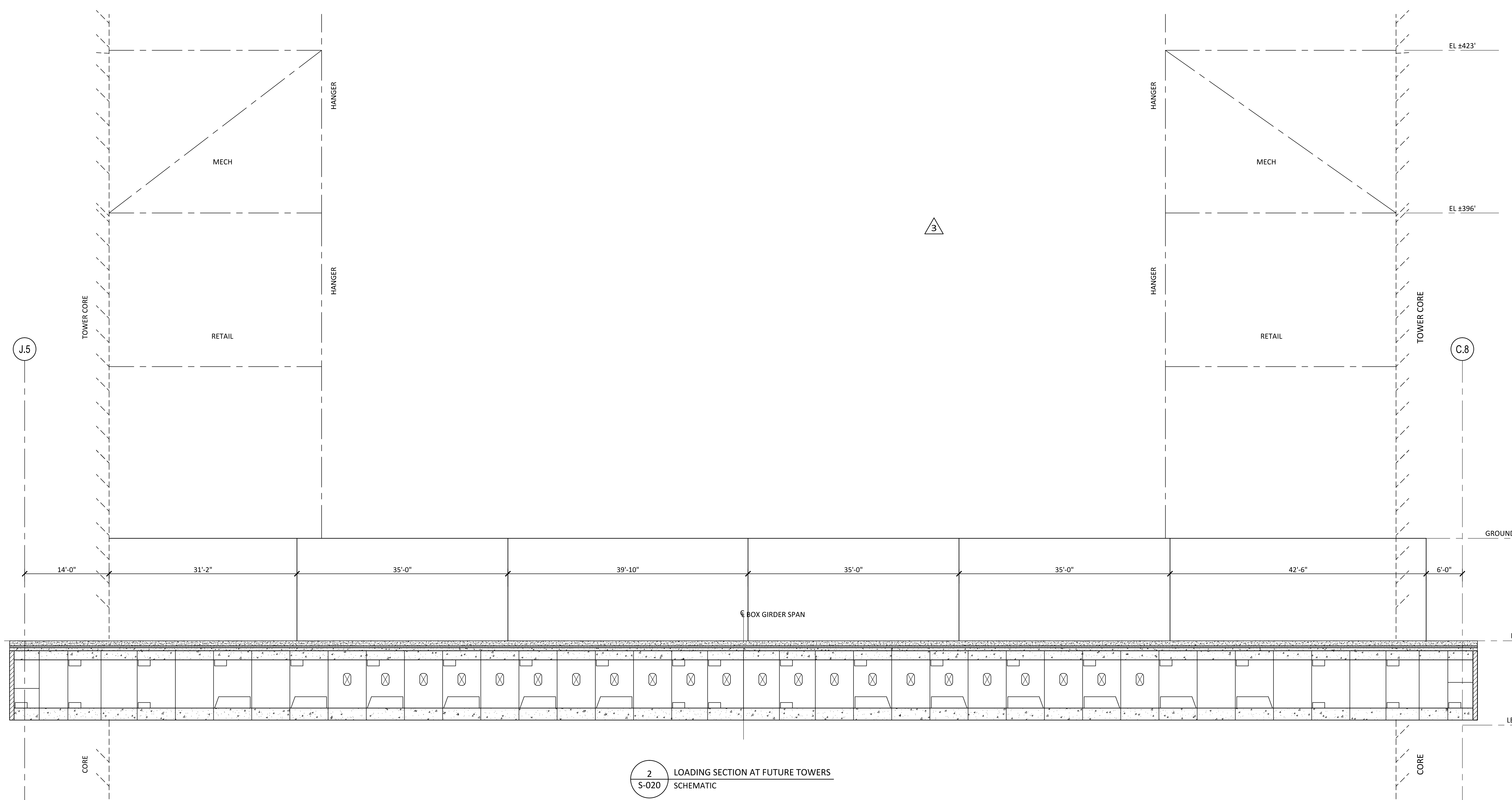


TABLE 4: THERMAL LOAD SUMMARY

THERMAL VARIATION RANGE (°F)	±48°F FROM ASSUMED AMBIENT TEMPERATURE OF 65°F	³
------------------------------	--	--------------

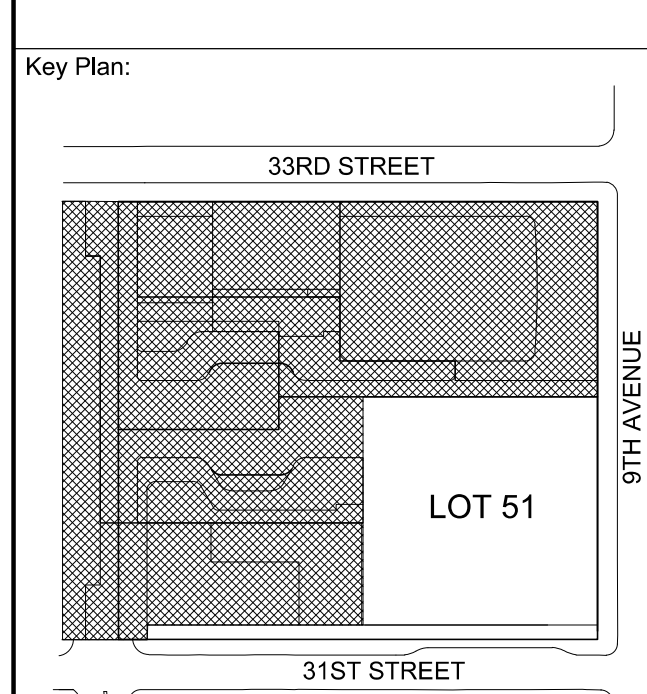


1
S-020
LOADING SECTION BETWEEN FUTURE TOWERS
SCHEMATIC
1/8"=1'-0"



2
S-020
LOADING SECTION AT FUTURE TOWERS
SCHEMATIC
1/8"=1'-0"

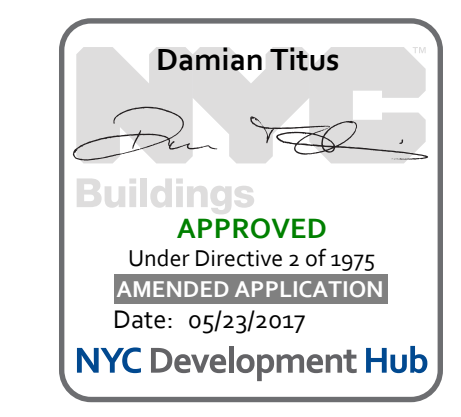
FOR BUILDING DEPARTMENT APPROVAL



Seal & Signature:

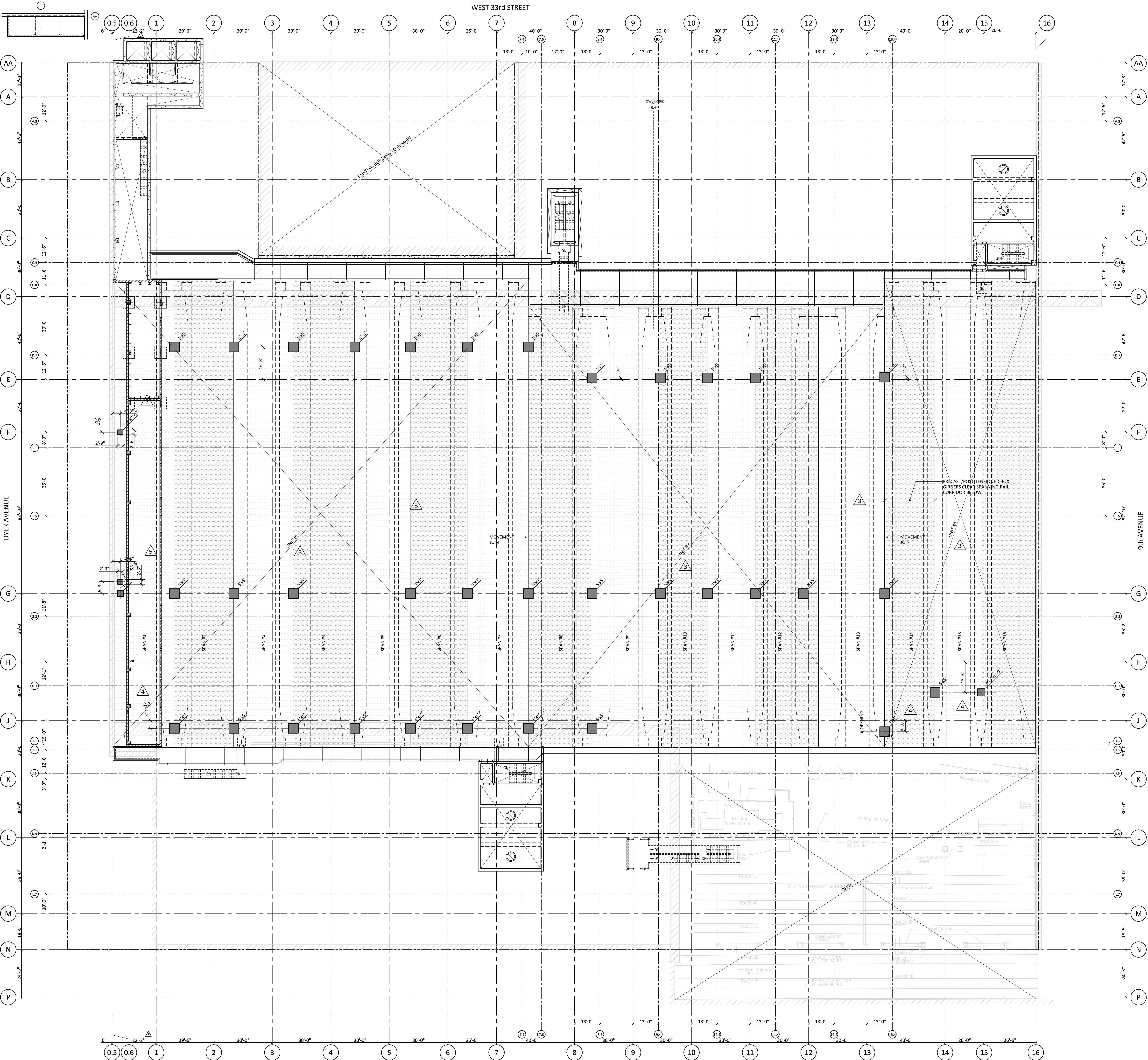
No.	Date	Description

BASIS OF DESIGN REQUIREMENTS - LOADING



WEST 33rd STREET

WEST 31st STREET



NOTES:

- 1. FUTURE THRU COLUMN LOCATIONS SHOWN THUS 5'x5'
- 2. OPENING SIZES NOTED ARE THE CLEAR OPENING AVAILABLE TO ACCOMMODATE FUTURE STRUCTURES.

9th Avenue Development

LOT 51
401 West 31st Street, New York, NY

Client
Brookfield

Brookfield Place
250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering

SOM

Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Structural

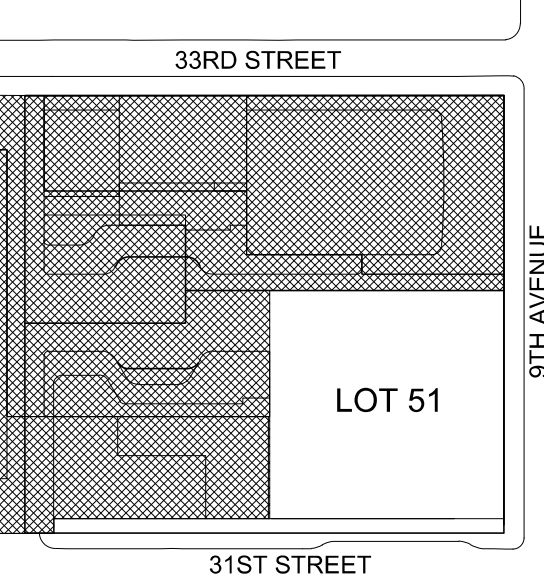
Entulive
315 West 36th Street, Office #7049
New York, NY 10018

Geotechnical Engineering

Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 W. 34th Street, New York, NY 10122

FOR BUILDING DEPARTMENT APPROVAL

Key Plan:

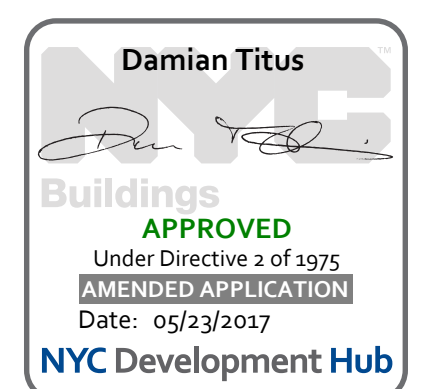


Seal & Signature:



No.	Date	Description

THRU COLUMN POSITIONS

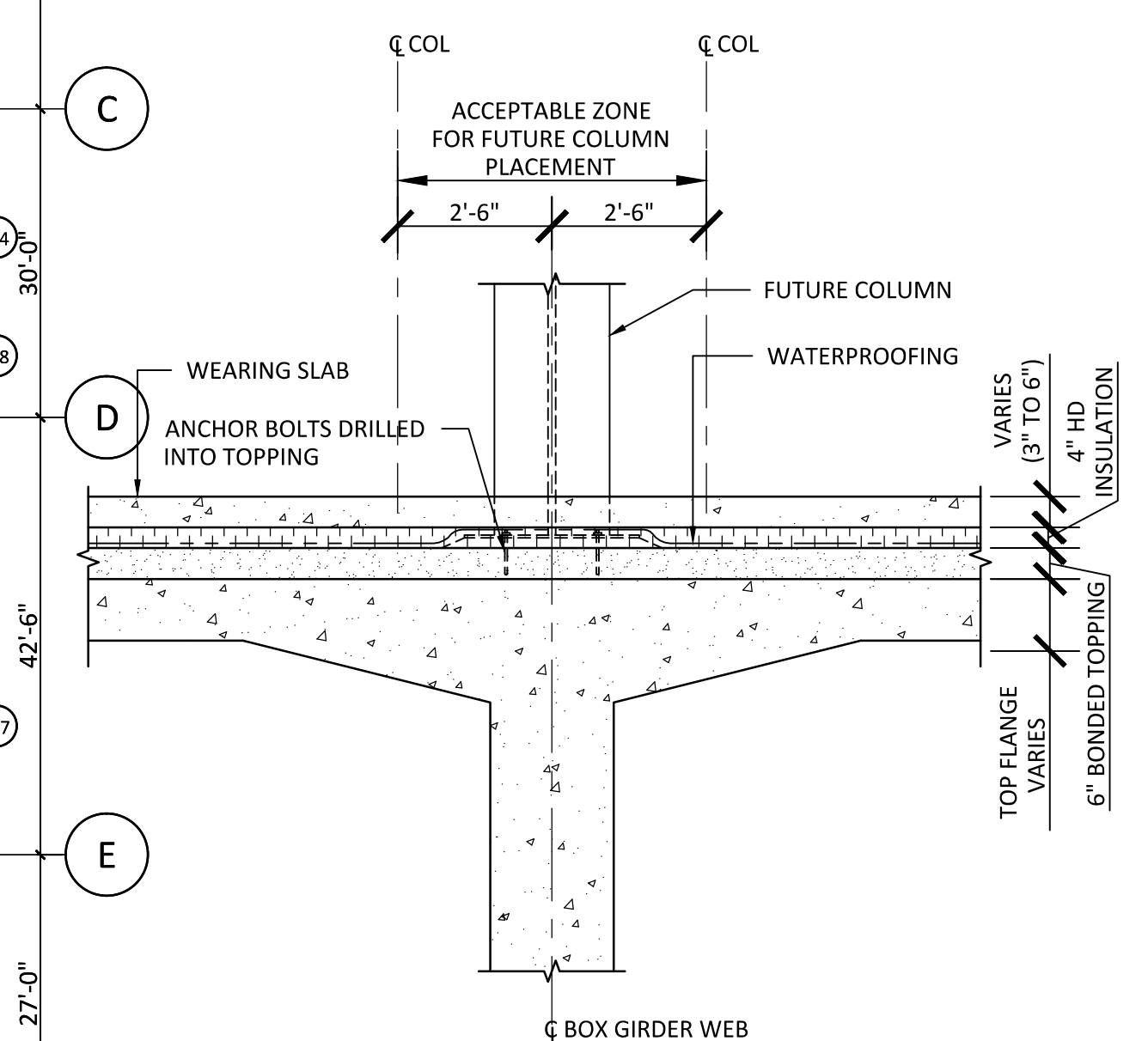


Project No.: T011-0003
 Date: 22 JAN 2016
 Scale: 1/4"=1'-0"
 File No.: SDOB-021

Sheet No.: **S-021.00**
 B-SCAN Sheet No.:
 Page No.:

BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMN ABOVE

- NOTES:
- FUTURE STEEL COLUMNS ABOVE MAY BE OFFSET ±2'-6" IN THE EAST/WEST DIRECTION FROM THE CENTRELINE OF THE SUPPORTING BOX GIRDER WEBS.
 - THE POSITION OF THE FUTURE STEEL COLUMNS IN THE NORTH/SOUTH DIRECTION WILL VARY WITHIN THE SHADED ZONES; HOWEVER THE MAXIMUM SPACING OF THESE COLUMNS IS LIMITED TO 40' TYPICALLY.
 - GIRDERS ARE DESIGNED TO SUPPORT ONE ROW OF STEEL COLUMNS ON EITHER WEB AT ANY ONE TIME. TWO ROWS OF COLUMNS ON ANY PARTICULAR GIRDER ARE NOT PERMITTED. REFER ALSO TO DRAWING S-024 FOR POSITIONS OF FUTURE COLUMNS ABOVE THE PLATFORM.
 - MAXIMUM SPACING OF COLUMNS IN EAST/WEST DIRECTION IS 30'-0".
 - WITH THE EXCEPTION OF SPAN #1, THE MAXIMUM UNFACTORED FUTURE COLUMN LOADS (BASED ON A TRIBUTARY AREA OF 30'-0") ARE AS FOLLOWS:
 DL = 180 KIPS
 LL = 360 KIPS
 - THE DESIGN LOADS FOR SPAN #1 ARE AS NOTED IN THE TABLE 1, BELOW.



1
 5-022
 3/8"=1'-0"

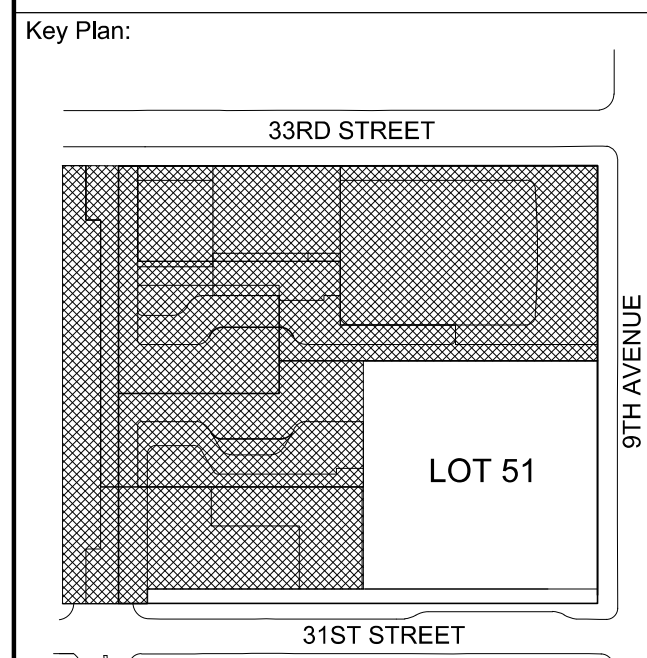
PROPOSED BASE PLATE DETAIL FOR FUTURE COLUMNS

TABLE 1: DESIGN LOADS FOR SPAN #1

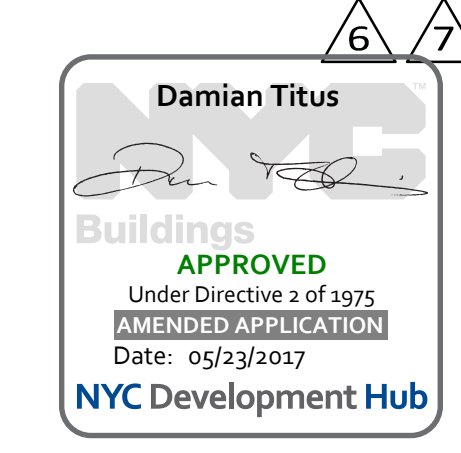
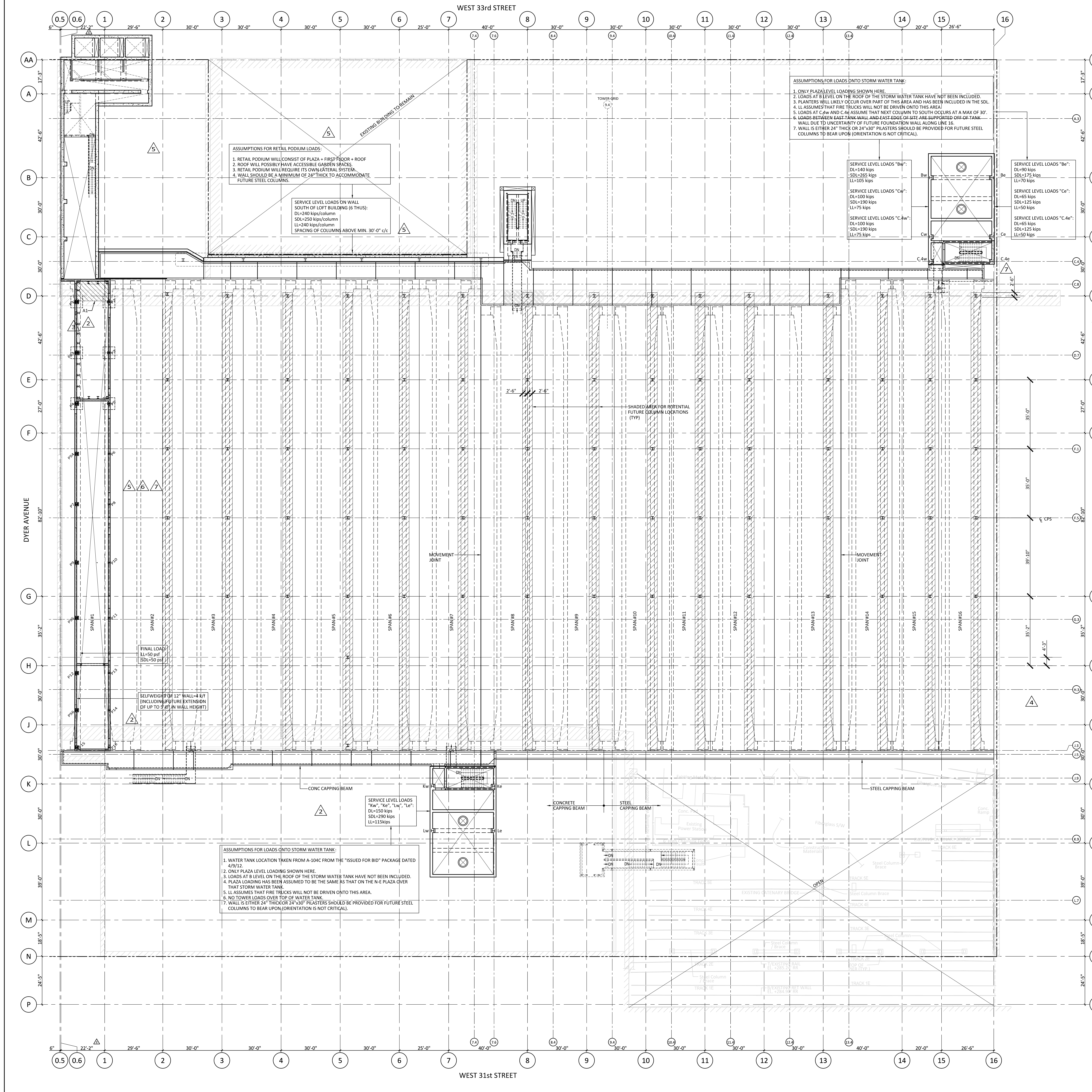
POINT	LOAD							
	DL	LL	Wv	Wh	Ev	Eh	Bv	Bh
P1	35	10	±10	±10	±20	±20	±105	±50
P2	35	10	±10	±10	±20	±20	±105	±50
P3	35	10	±10	±10	±25	±15	±75	±35
P4	40	10	±10	±10	±30	±15	±60	±30
P5	40	10	±10	±10	±30	±15	±60	±30
P6	35	10	±10	±10	±15	±10	±20	±10
P7	40	15	±10	±10	±20	±10	±15	±5
P8	40	15	±10	±10	±20	±10	±15	±5
P9	40	15	±10	±10	±20	±10	±10	±5
P10	40	15	±10	±10	±20	±10	±10	±5
P11	40	15	±10	±10	±20	±10	±5	±5
P12	35	10	±10	±10	±10	±5	±5	±5
P13	35	10	±10	±10	±10	±5	±5	±5
P14	25	10	±10	±10	±10	±5	±5	±5
P15	15	5	±5	±5	±10	±5	±10	±5
P16	15	5	±5	±5	±5	±5	±10	±5
P53	35	10	±10	±10	±25	±15	±75	±35
P54	35	10	±10	±10	±15	±10	±20	±10
P55	40	15	±10	±10	±20	±10	±5	±5
P56	25	10	±10	±10	±10	±5	±5	±5
A1	750	PSF						

- NOTES:
- ALL LOADS ARE UNFACTORED AND EXPRESSED IN KIPS
 - +ve = COMPRESSION
 - ve = TENSION
 - Wv = WIND, VERTICAL
 - Wh = WIND, HORIZONTAL
 - Ev = EARTHQUAKE, VERTICAL
 - Eh = EARTHQUAKE, HORIZONTAL
 - Bv = BLAST, VERTICAL
 - Bh = BLAST, HORIZONTAL

FOR BUILDING DEPARTMENT APPROVAL

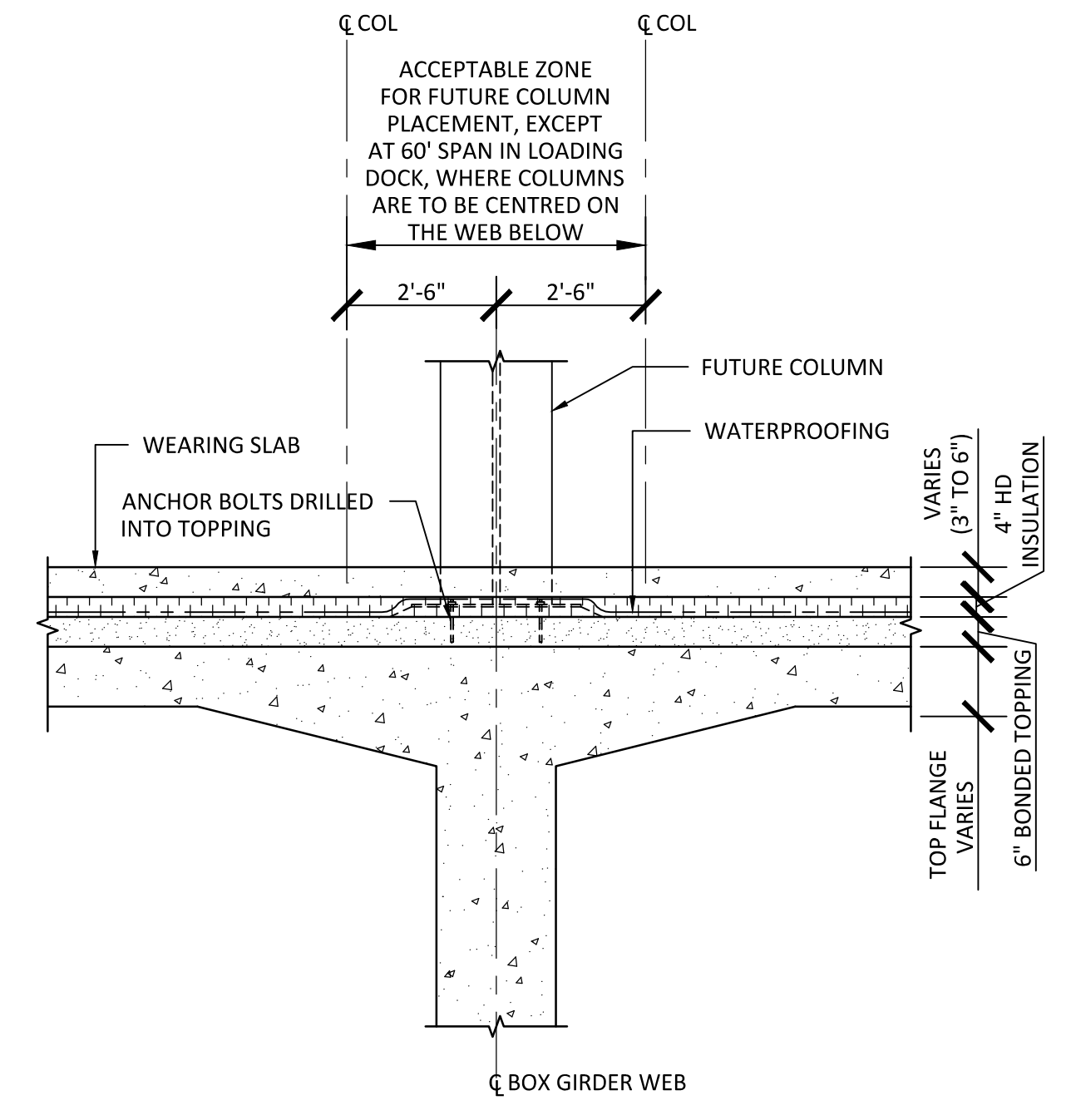


BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMNS ABOVE

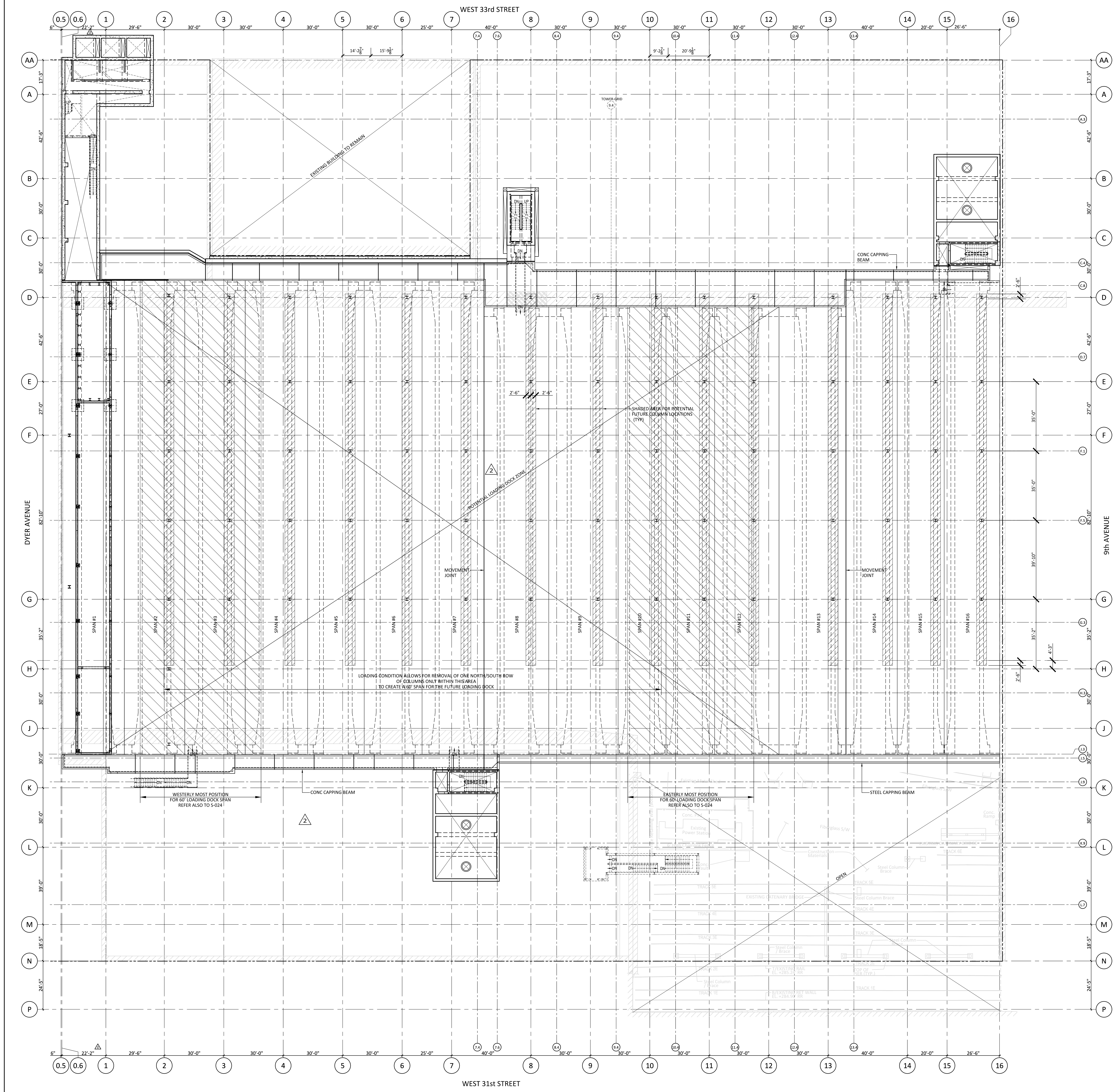


BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMN ABOVE

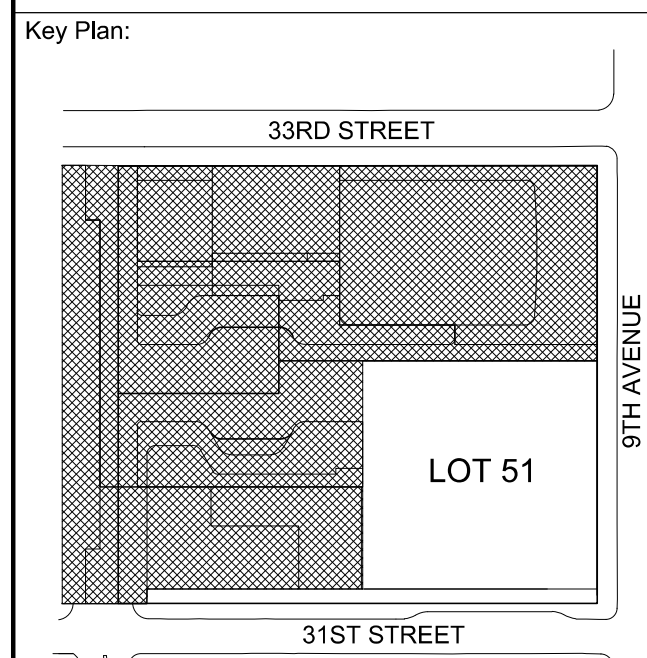
- NOTES:
1. FUTURE STEEL COLUMNS ABOVE MAY BE OFFSET 42'-6" IN THE EAST/WEST DIRECTION FROM THE CENTRELINE OF THE SUPPORTING BOX GIRDER WEBS.
 2. THE POSITION OF THE FUTURE STEEL COLUMNS IN THE NORTH/SOUTH DIRECTION WILL VARY WITHIN THE SHADDED ZONES. HOWEVER THE MAXIMUM SPACING OF THESE COLUMNS IS LIMITED TO 40' TYPICALLY.
 3. GIRDERS ARE DESIGNED TO SUPPORT ONE ROW OF STEEL COLUMNS ON EITHER WEB AT ANY ONE TIME. TWO ROWS OF COLUMNS ON ANY PARTICULAR GIRDER ARE NOT PERMITTED. REFER ALSO TO DRAWING S-024 FOR POSITIONS OF FUTURE COLUMNS ABOVE THE PLATFORM.
 4. MAXIMUM SPACING OF COLUMNS IN EAST/WEST DIRECTION IS 30'-0" WITH THE EXCEPTION OF THE LOADING DOCK AREA WHERE IT HAS BEEN ASSUMED THAT A SINGLE 60' EAST/WEST SPAN WILL BE REQUIRED TO ACCOMMODATE THE FUTURE LOADING DOCK.
 5. MAXIMUM UNFACTORED FUTURE COLUMN LOADS (BASED ON A TRIBUTARY AREA OF 30'x40') ARE AS FOLLOWS:
LL = 270 KIPS
DL = 360 KIPS
 6. IN ADDITION TO THE LOAD CASE DEFINED ABOVE, DESIGN SPANS #4 TO #12 INCLUSIVE FOR A POINT LOAD OF
LL = 270 KIPS
DL = 540 KIPS
- NOTE:
a. THESE LOADS NEED NOT BE CONSIDERED TO ACT SIMULTANEOUSLY WITH THE LOADS PROVIDED IN NOTE 5.
b. FOR THIS LOADING CONDITION, ASSUME THE LOAD IS APPLIED TO THE CENTRELINE OF EITHER BOX GIRDER WEB.



1
S-023
PROPOSED BASE PLATE DETAIL FOR FUTURE COLUMNS
3/8"=1'-0"

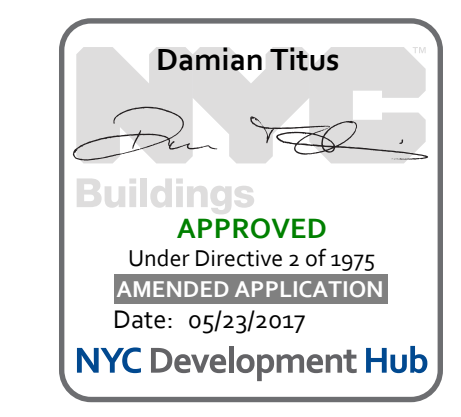


FOR BUILDING DEPARTMENT APPROVAL



BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMNS ABOVE (FUTURE LOADING DOCK PROVISIONS)

Project No.: T011-0003	Sheet No.: S-023.00
Date: 22 JAN 2016	B-SCAN Sheet No.:
Scale: 3/16"=1'-0"	File No.: SDOB-023
File No.:	Page No.:



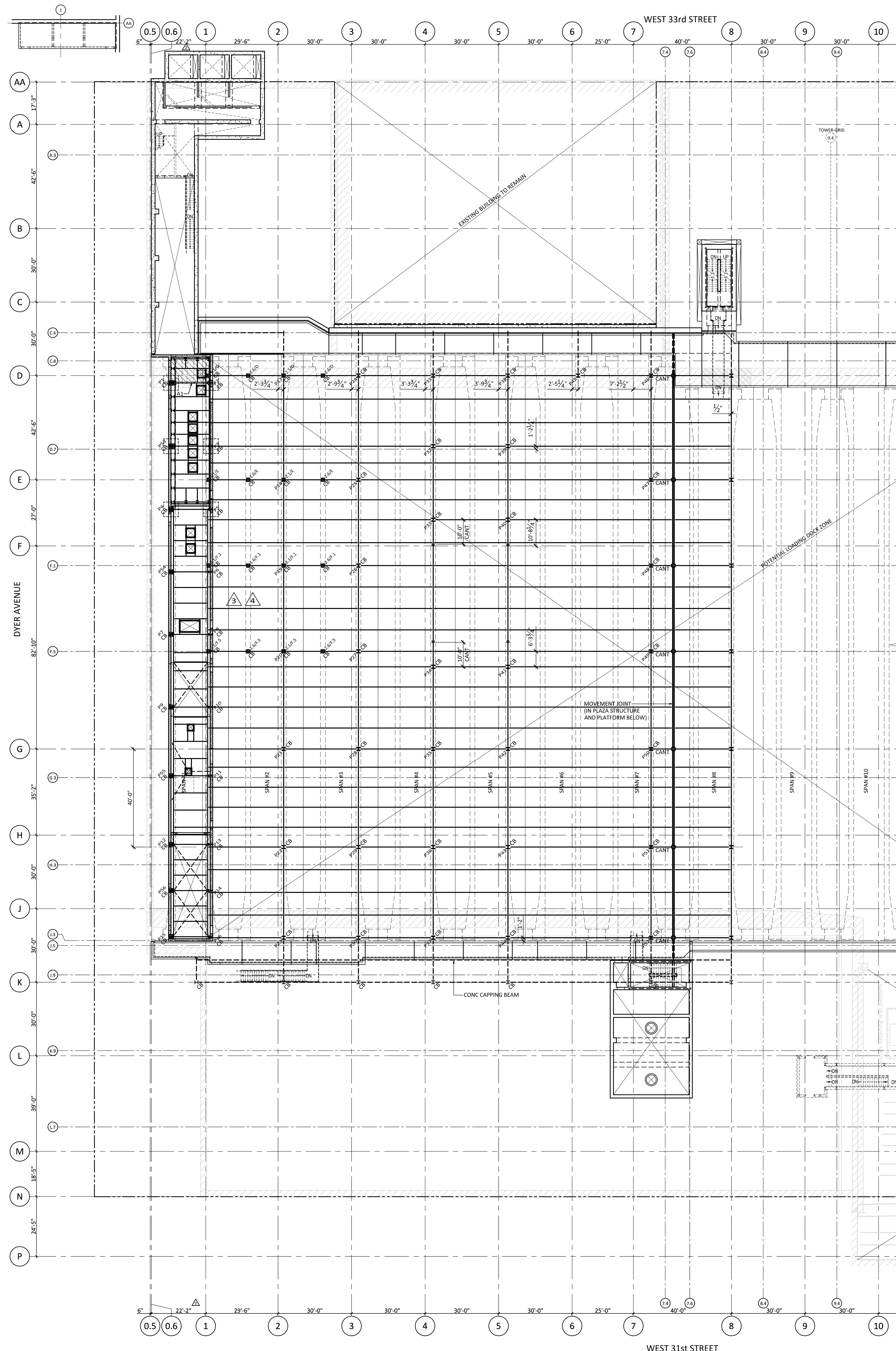


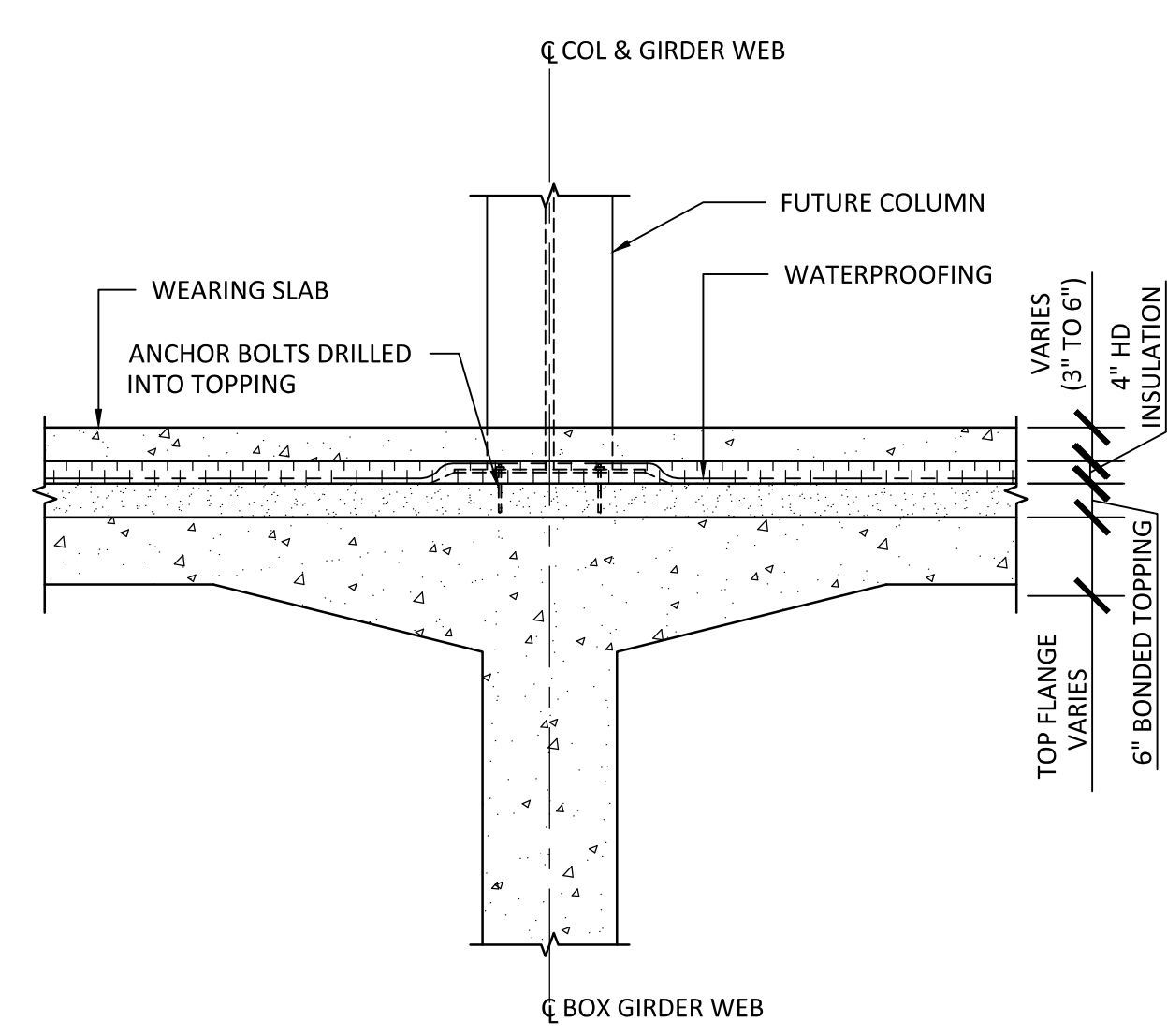
TABLE 1: DESIGN LOADS FOR UNIT #1

POINT	LOAD							
	DL	LL	Wv	Wh	Ev	Eh	Bv	Bh
P1	35	10	±10	±10	±20	±20	±105	±50
P2	35	10	±10	±10	±20	±20	±105	±50
P3	35	10	±10	±10	±25	±15	±75	±35
P4	40	10	±10	±10	±30	±15	±60	±30
P5	40	10	±10	±10	±30	±15	±60	±30
P6	35	10	±10	±10	±15	±10	±20	±10
P7	40	15	±10	±10	±20	±10	±15	±5
P8	40	15	±10	±10	±20	±10	±15	±5
P9	40	15	±10	±10	±20	±10	±10	±5
P10	40	15	±10	±10	±20	±10	±10	±5
P11	40	15	±10	±10	±20	±10	±5	±5
P12	35	10	±10	±10	±10	±5	±5	±5
P13	35	10	±10	±10	±10	±5	±5	±5
P14	25	10	±10	±10	±10	±5	±5	±5
P15	15	5	±5	±5	±10	±5	±10	±5
P16	15	5	±5	±5	±10	±5	±10	±5
A1	750 PSF							
P17								
P18								
P19								
P20								
P21	370	190						
P22	390	205						
P23	295	155						
P24	265	140						
P25	345	180						
P26	310	165						
P27	330	175						
P28	355	185						
P29	355	185						
P30	245	130						
P31	210	110						
P32	195	140						
P33	485	250						
P34	490	255						
P35	275	175						
P36	365	190						
P37	250	130						
P38	265	140						
P39	285	205						
P40	695	365						
P41	695	375						
P42	385	260						
P43	515	275						
P44	355	190						
P45	80	65						
P46	460	235						
P47	620	315						
P48	555	285						
P49	600	300						
P50	640	320						
P51	640	320						
P52	440	225						
P53	35	10	±10	±10	±25	±15	±75	±35
P54	35	10	±10	±10	±15	±10	±20	±10
P55	40	15	±10	±10	±20	±10	±15	±5
P56	25	10	±10	±10	±10	±5	±15	±5

- NOTES:**
1. ALL LOADS ARE UNFACTORED AND EXPRESSED IN KIPS
 2. +ve = COMPRESSION
 3. -ve = TENSION
 4. Wv = WIND, VERTICAL
 5. Wh = WIND, HORIZONTAL
 6. Ev = EARTHQUAKE, VERTICAL
 7. Eh = EARTHQUAKE, HORIZONTAL
 8. Bv = BLAST, VERTICAL
 9. Bh = BLAST, HORIZONTAL

BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMN ABOVE

- NOTES:**
1. DESIGN GIRDERS FOR THE SPECIFIC LOADS NOTED IN TABLE 1.



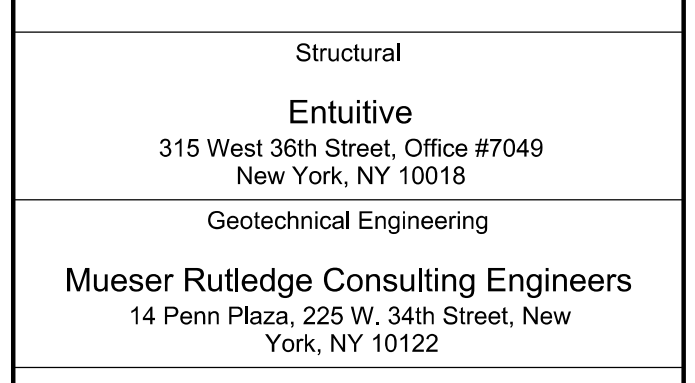
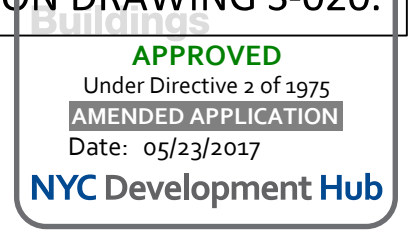
1 S-025 PROPOSED BASE PLATE DETAIL FOR FUTURE COLUMNS
3/8"=1'-0"

TABLE 1 CONT: DESIGN LOADS FROM SOM

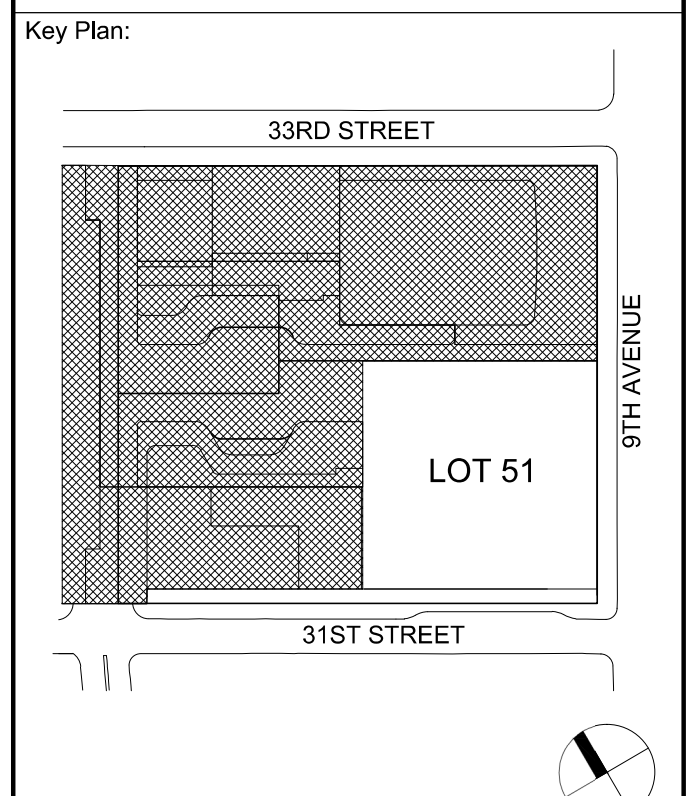
COLUMN GRID LOCATION	LOAD		
	Psw	PsdL	PdL
1.1 / D	120	15	180
1.2 / E	110	15	185
1.1 / F.1	85	15	150
1.1 / F.5	60	15	115
1.6 / D	105	15	85
1.6 / E	210	75	170
1.6 / F.1	200	80	165
1.6 / F.5	200	95	170
2.1 / D	130	15	100
2.1 / E	280	105	210
2.1 / F.1	275	115	215
2.1 / F.5	275	135	220
2.6 / D	115	15	30
2.6 / E	105	15	25
2.6 / F.1	75	15	15
2.6 / F.5	55	15	15

- NOTES:**
1. ALL LOADS ARE UNFACTORED AND EXPRESSED IN KIPS
 2. LOADS RECEIVED FROM SOM DATED JUNE 29, 2012

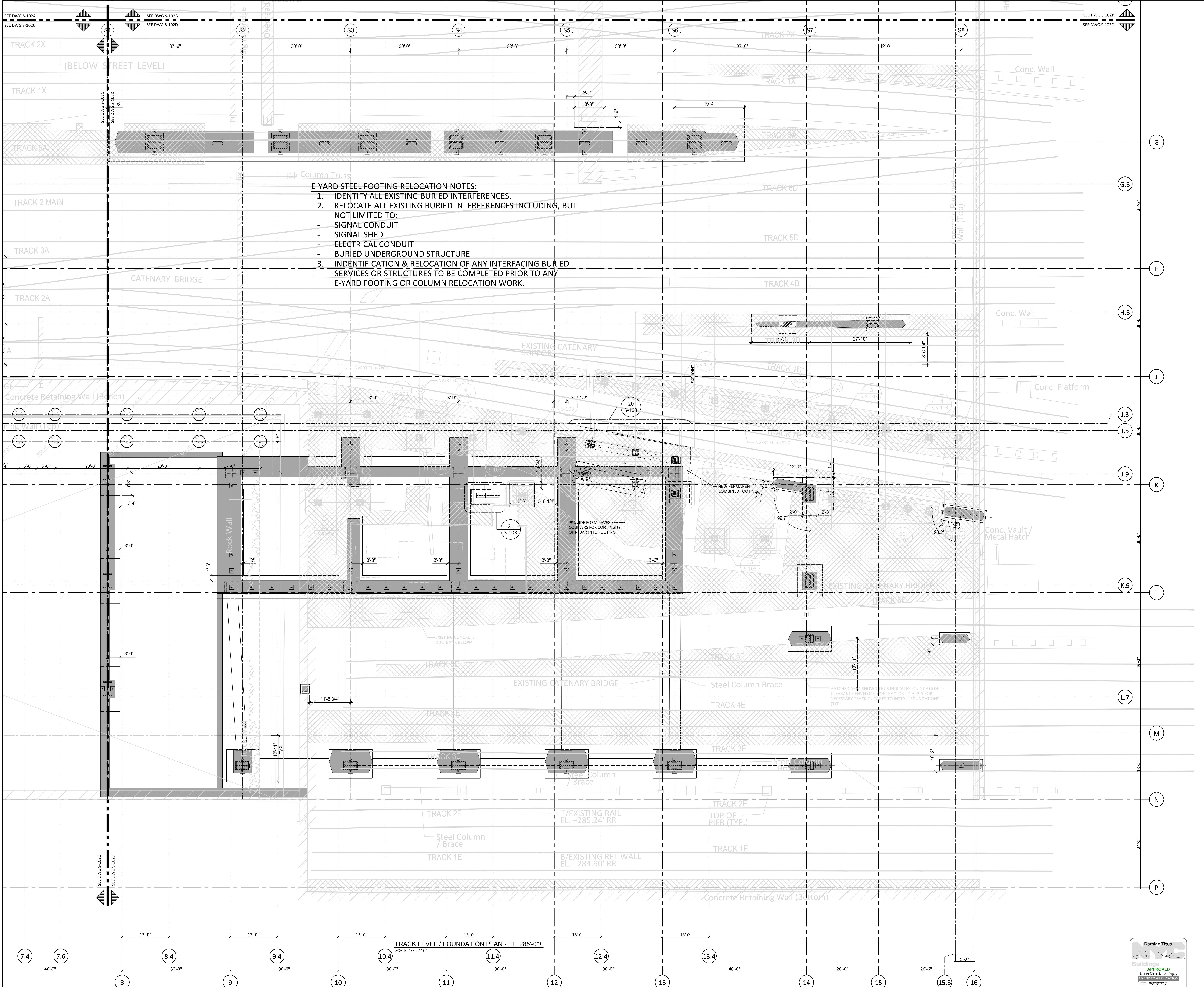
NOTE: REACTIONS PROVIDED IN THIS TABLE ARE BASED ON THE FINAL LOAD CONDITION NOTED IN TABLE 1 ON DRAWING S-020.



FOR BUILDING DEPARTMENT APPROVAL



BASIS OF DESIGN REQUIREMENTS - FUTURE COLUMNS ABOVE UNIT #1 (FUTURE LOADING DOCK PROVISIONS)



- E-YARD STEEL FOOTING RELOCATION NOTES:**
1. IDENTIFY ALL EXISTING BURIED INTERFERENCES.
 2. RELOCATE ALL EXISTING BURIED INTERFERENCES INCLUDING, BUT NOT LIMITED TO:
 - SIGNAL CONDUIT
 - SIGNAL SHED
 - ELECTRICAL CONDUIT
 - BURIED UNDERGROUND STRUCTURE
 3. IDENTIFICATION & RELOCATION OF ANY INTERFACING BURIED SERVICES OR STRUCTURES TO BE COMPLETED PRIOR TO ANY E-YARD FOOTING OR COLUMN RELOCATION WORK.

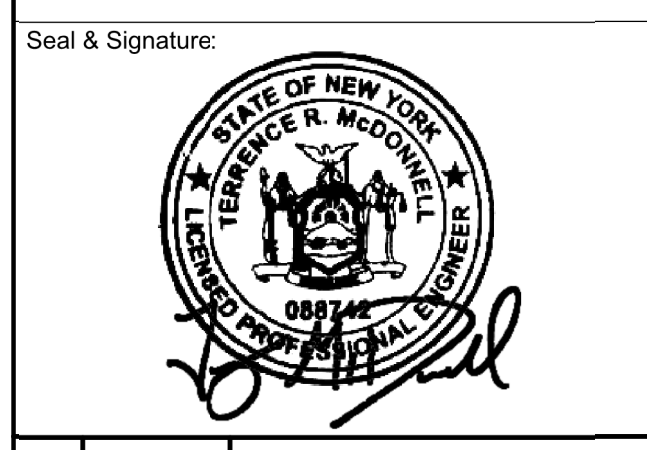
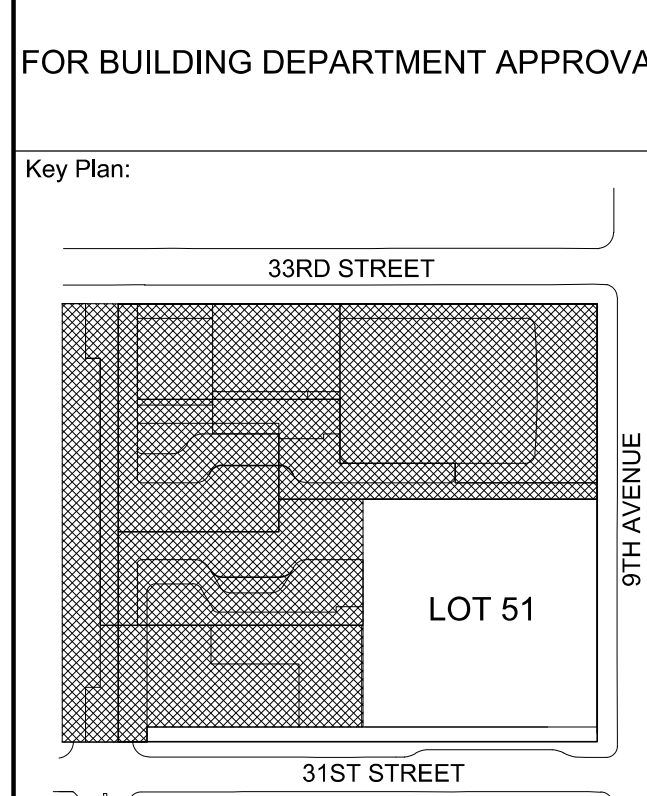
9th Avenue Development
 LOT 51
 401 West 31st Street, New York, NY

Client
Brookfield
 Brookfield Place
 250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

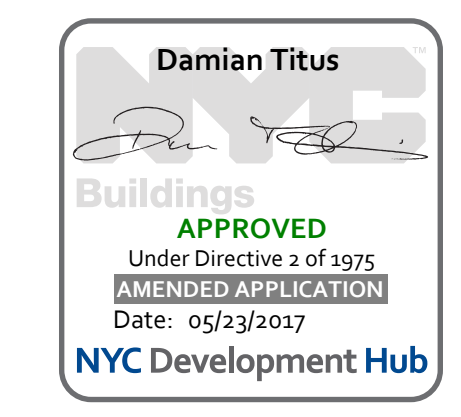
Structural
 Entuitive
 315 West 39th Street, Office #7049
 New York, NY 10018

Geotechnical Engineering
 Mueser Rutledge Consulting Engineers
 14 Penn Plaza, 225 W. 34th Street, New York, NY 10122



TRACK LEVEL PARTIAL PLAN D

Project No.: T011-0003	Sheet No.: S-102.00
Date: 22 JAN 2016	B-CAN Sheet No.:
Scale: 1/8"=1'-0"	File No.: SDOB-102
Page No.:	Page No.:

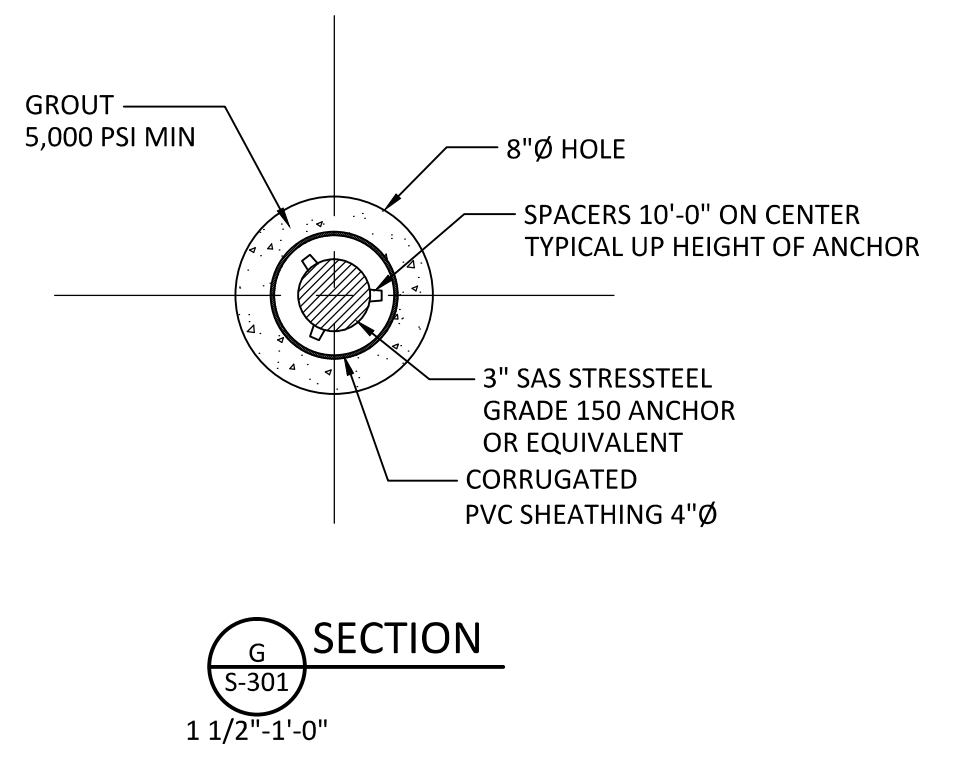
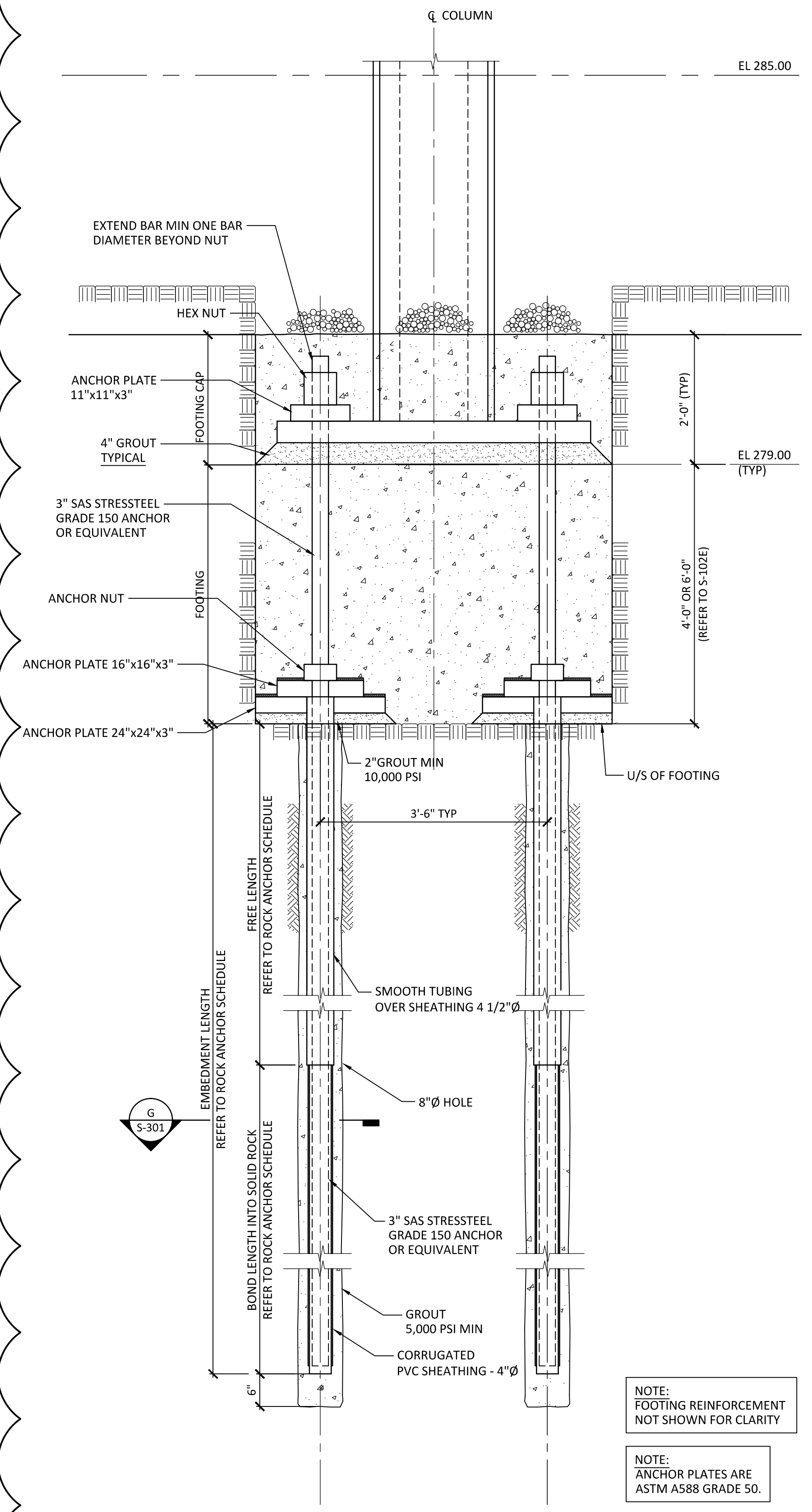


ROCK ANCHOR SCHEDULE							
ROCK ANCHOR TYPE	TENSILE LOAD (KIPS)	ANCHOR		FREE LENGTH (ft)	BOND LENGTH (ft)	EMBEDMENT LENGTH (ft)	REMARKS
		No	SIZE				
RA'1	2450	4	3"Ø	15'	45'	60'	
RA'2	1700	4	3"Ø	10'	25'	35'	
RA'3	1000	2	3"Ø	10'	35'	45'	
RA'4	1900	4	3"Ø	10'	35'	45'	

- NOTES:**
- CONTRACTOR IS RESPONSIBLE FOR FINAL DESIGN AND DETAILING OF ROCK ANCHORS, AS A MINIMUM:
 - ROCK ANCHORS ARE TO BE SAS STRESSTEEL GRADE 150 ANCHORS OR EQUIVALENT.
 - ROCK ANCHORS TO HAVE DOUBLE CORROSION PROTECTION SYSTEM TYPICAL.
 - MIN SPACING OF ROCK ANCHORS IS 3'-0" c/c, INCLUDING ALLOWABLE CONSTRUCTION TOLERANCES OF 3" PER ANCHOR. ANCHORS ARE TO BE LAID OUT AND DRILLED AT 3'-6" c/c. AFTER ANCHORS ARE DRILLED, FIELD MEASURE LOCATION OF ROCK ANCHORS AND DRILL BASE PLATES TO SUIT AS BUILT ROCK ANCHOR LOCATIONS.

- GENERAL NOTES**
- ROCK ANCHORS SHALL BE IN CONFORMANCE WITH PTI (POST TENSIONING INSTITUTE) LATEST RECOMMENDATIONS ON ROCK & SOIL ANCHORS.
 - ALL ANCHORS SHALL BE 3" DIAMETER SAS STRESSTEEL THREADED BARS OR EQUIVALENT, GRADE 150 KSI, MEETING OR EXCEEDING PROPERTIES OF ASTM A-722.
 - PROVIDE DOUBLE CORROSION PROTECTION SYSTEM ON ALL ROCK ANCHORS.
 - ANCHOR NUTS & COUPLERS SHALL BE CAPABLE OF DEVELOPING 100% OF THE ULTIMATE STRENGTH OF THREADED BAR.
 - CARE MUST BE TAKEN NOT TO DAMAGE THE THREADED BARS DURING FABRICATION OR INSTALLATION.
 - DO NOT WELD IN THE VICINITY OF THE HIGH STRENGTH BARS.
 - DO NOT USE ANCHORS AS A GROUND FOR WELDING.
 - THE FIRST THREE ANCHORS INSTALLED AND A MINIMUM OF 10% OF THE REMAINING ANCHORS SHALL BE PERFORMANCE TESTED, ALL OTHER ANCHORS SHALL BE PROOF TESTED AS NOTED BELOW.
 - PERFORMANCE TEST SHALL BE CONDUCTED BY LOADING AND UNLOADING THE ANCHOR AS NOTED BELOW:
.25P, .50P, .75P, 1.00P, 1.20P, 1.33P
P VARIES, REFER TO ROCK ANCHOR SCHEDULE
 - HOLD 1.33P FOR CREEP TEST. RECORD MOVEMENTS AT 0.1, 1, 2, 3, 4, 5, 6 AND 10 MINUTES. THE ANCHOR IS ACCEPTABLE IF ANCHOR MOVEMENT BETWEEN THE 1 MIN AND 10 MIN DOES NOT EXCEED 0.040". RELEASE TO TRANSFER LOAD AND LOCK OFF ANCHOR NUT.
 - PROOF TESTS SHALL BE CONDUCTED BY INCREMENTALLY LOADING THE ANCHOR AS NOTED BELOW:
.25P, .50P, .75P, 1.00P, 1.20P, 1.33P
HOLD 1.33P FOR CREEP TEST AS ABOVE.

- INSTALLATION PROCEDURE**
- DETERMINE ANCHOR LOCATION AS INDICATED ON DRAWINGS.
 - DRILL 8"Ø HOLE TO SPECIFIED DEPTH.
 - CLEAN DRILL HOLE OF ALL DEBRIS.
 - INSERT A GROUT PIPE TO THE BOTTOM OF THE ANCHOR HOLE, PUMP FULL OF CEMENT GROUT AND DISPLACE ANY STANDING WATER.
 - REMOVE GROUT PIPE AND INSTALL THE PRE-ASSEMBLED ANCHOR INTO GROUTED HOLE.
 - AFTER GROUT REACHES SPECIFIED STRENGTH, TEST ANCHORS USING A CALIBRATED CENTER HOLE JACK.
 - AFTER SUCCESSFUL TESTING, LOCK OFF ANCHOR AT SPECIFIED LOAD, USING EXTERNAL WRENCH AND RELEASE PRESSURE FROM JACK.
 - INSTALL FOOTING REINFORCEMENT.
 - INSTALL TEMPLATE FOR ROCK ANCHORS AND SECURE IN PLACE TO AVOID SHIFTING OF ANCHORS DURING CONCRETING.
 - POUR CONCRETE FOOTINGS.
 - MEASURE AS BUILT LOCATION OF ROCK ANCHORS. DRILL BASE PLATE TO SUIT AS BUILT LOCATION OF ROCK ANCHORS.
 - ERECT STEEL COLUMNS AND INSTALL ROCK ANCHOR PLATE WASHERS AND HEX NUTS.
 - INSTALL FOOTING CAP REINFORCEMENT AND CONCRETE FOOTING CAP.

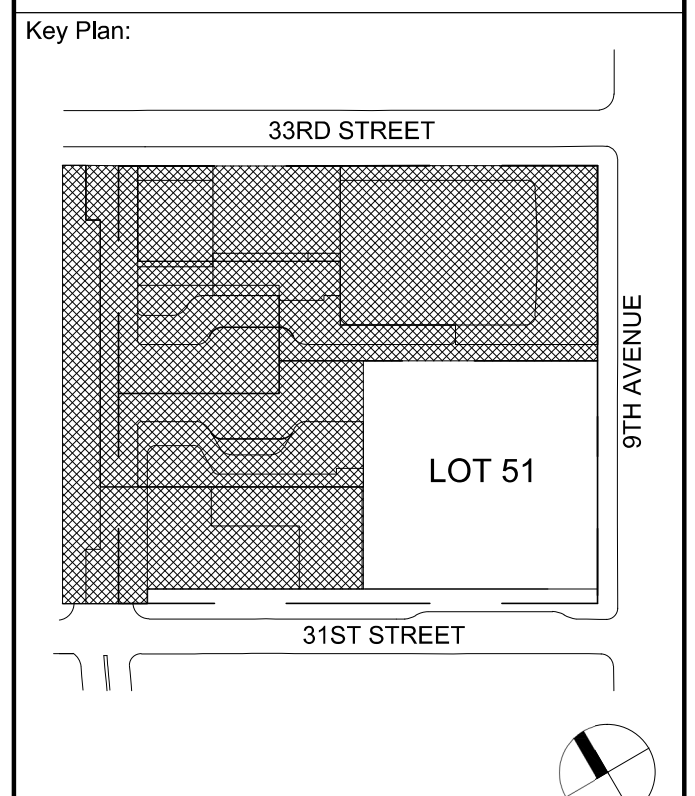


NOTE: FOOTING REINFORCEMENT NOT SHOWN FOR CLARITY

NOTE: ANCHOR PLATES ARE ASTM A588 GRADE 50.

1
3/4" = 1'-0"
TYPICAL ROCK ANCHOR DETAIL

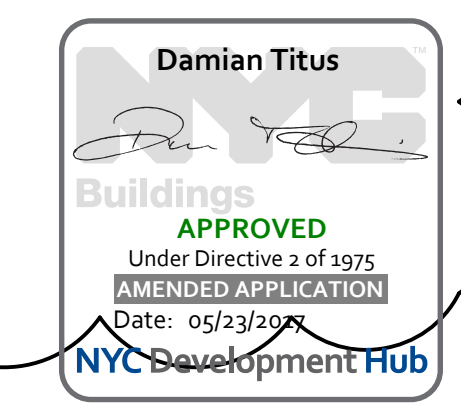
FOR BUILDING DEPARTMENT APPROVAL

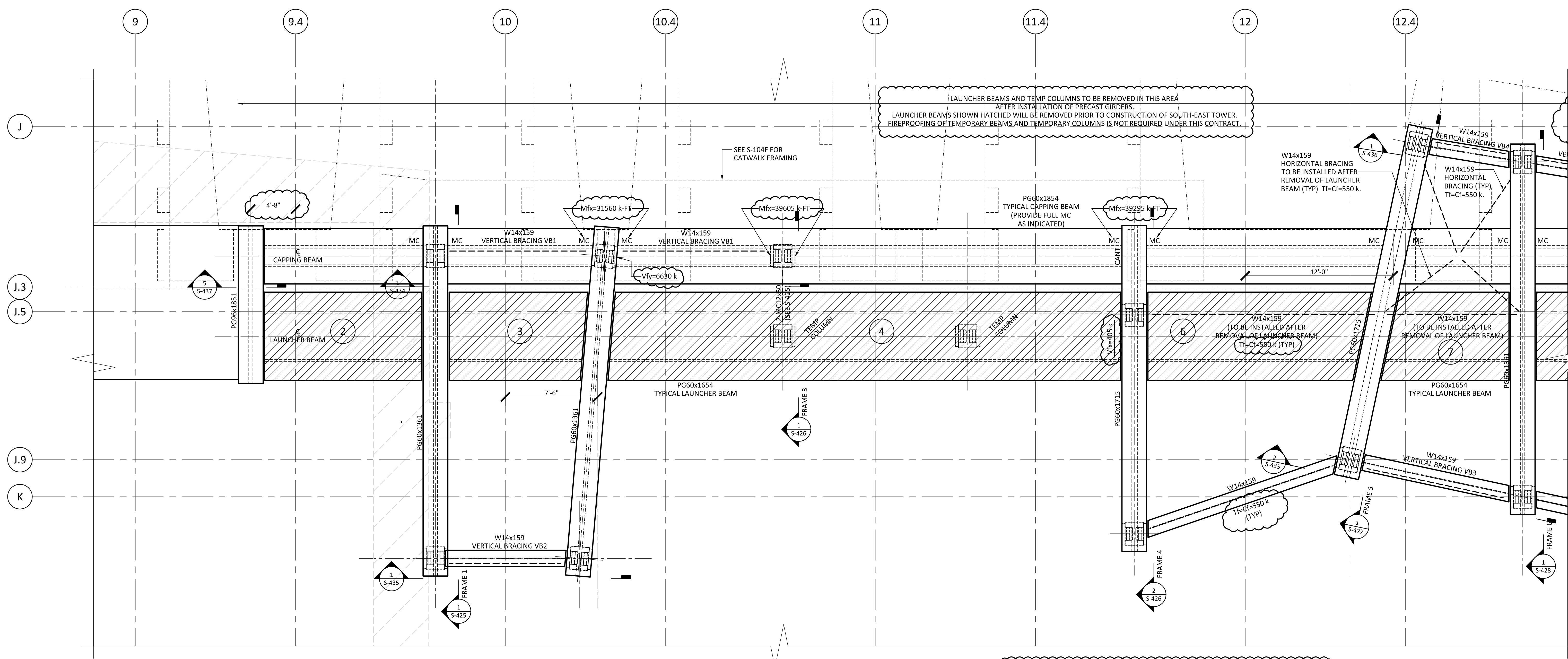


Seal & Signature

No.	Date	Description
1	02/01/2017	ISSUED FOR POST APPROVAL SUBMITTAL
2	02/01/2017	ISSUED FOR POST APPROVAL SUBMITTAL
3	02/01/2017	ISSUED FOR POST APPROVAL SUBMITTAL

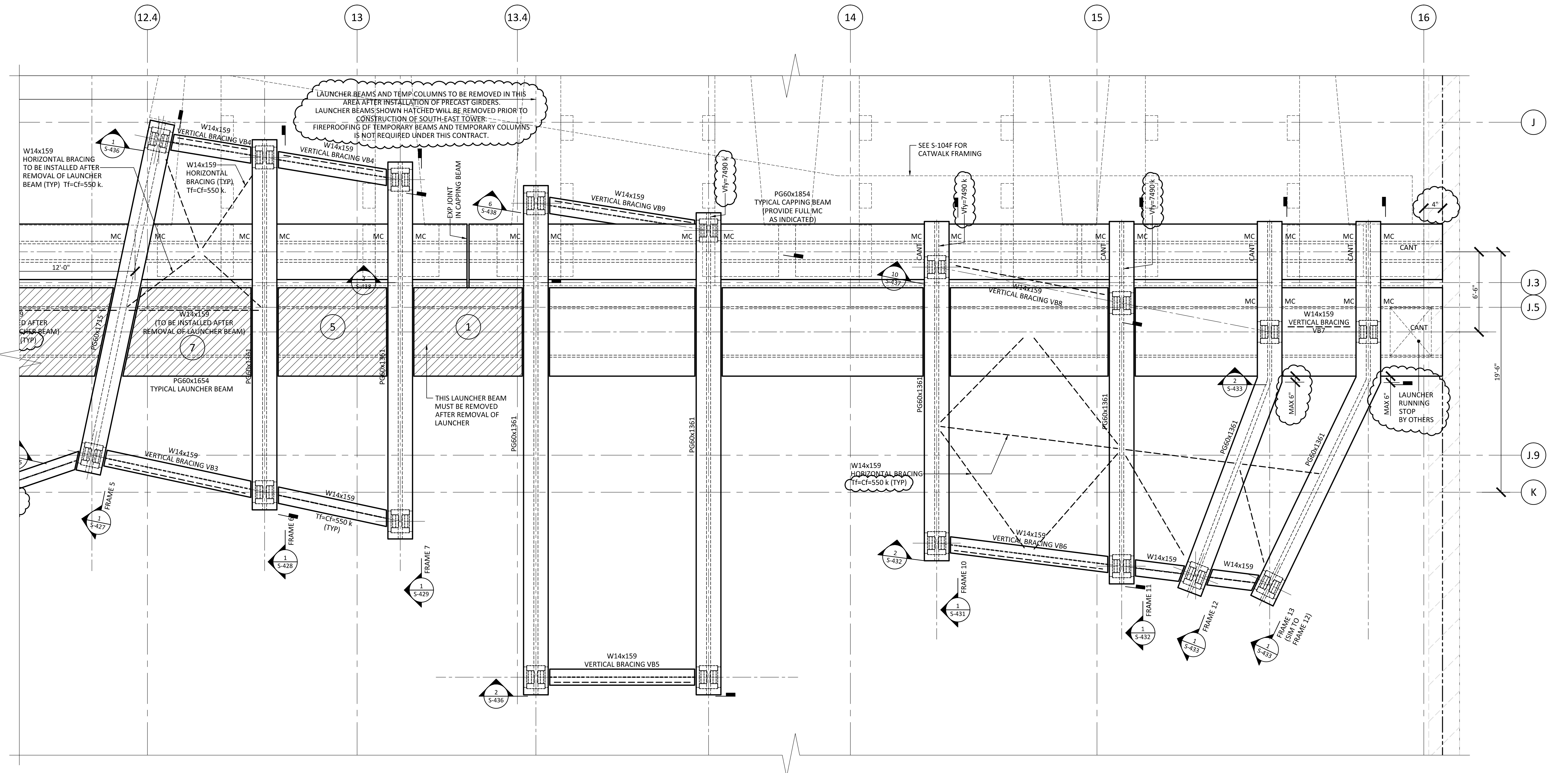
CAISSON/ROCK ANCHOR SCHEDULE





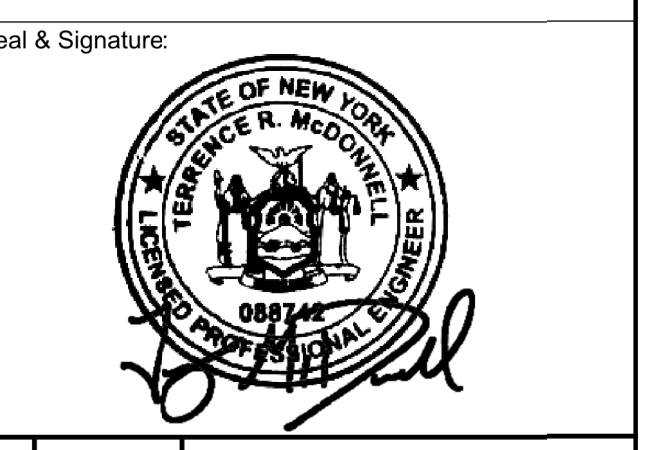
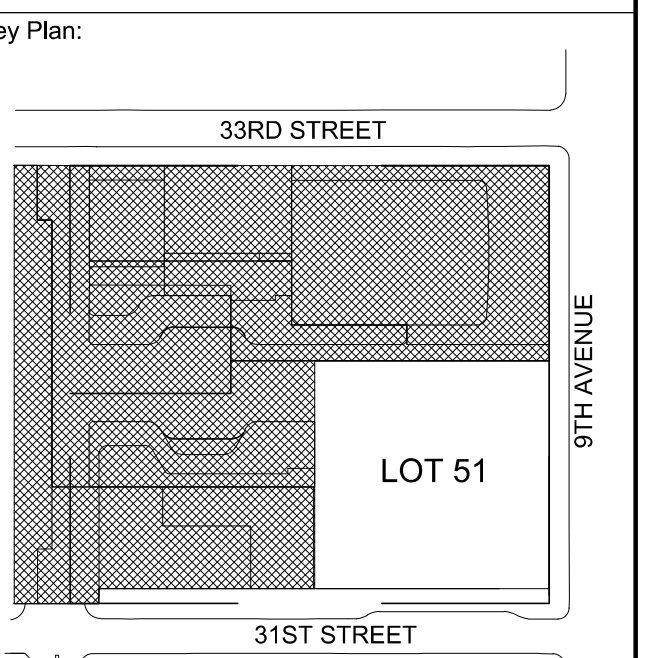
1 PARTIAL STEEL CAPPING BEAM PLAN AT "E-YARD" 1/4"=1'-0"

- E-YARD LAUNCHER BEAM REMOVAL PROCEDURE:
1. TAKE FIELD MEASUREMENTS AND DETAIL AND FABRICATE W14x159 BEAMS TO REPLACE EXISTING LAUNCHER BEAMS AT LOCATIONS 8 & 9.
 2. REMOVE LAUNCHER TRACK BEAMS.
 3. REMOVE PIECE 1.
 4. REMOVE PIECES 2, 3, 4, 5, AND TEMPORARY COLUMNS BELOW 6 IN ANY ORDER PREFERRED BY CONTRACTOR.
 5. REMOVE PIECE 6 AND IMMEDIATELY REPLACE WITH NEW W14x159.
 6. REMOVE PIECE 7 AND IMMEDIATELY REPLACE WITH NEW W14x159.
 7. APPLY CORROSION PROTECTIVE PAINT AND FIREPROOFING TO NEW W14x159 AND ALL CONNECTIONS EXPOSED BY LAUNCHER BEAM REMOVALS.

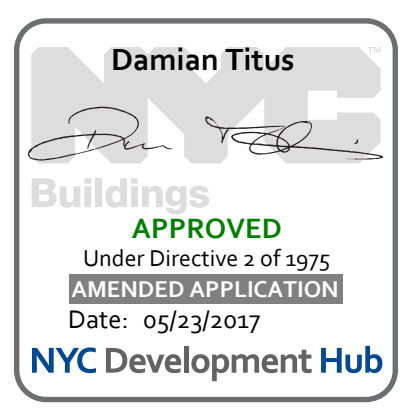


2 PARTIAL STEEL CAPPING BEAM PLAN AT "E-YARD" 1/4"=1'-0"

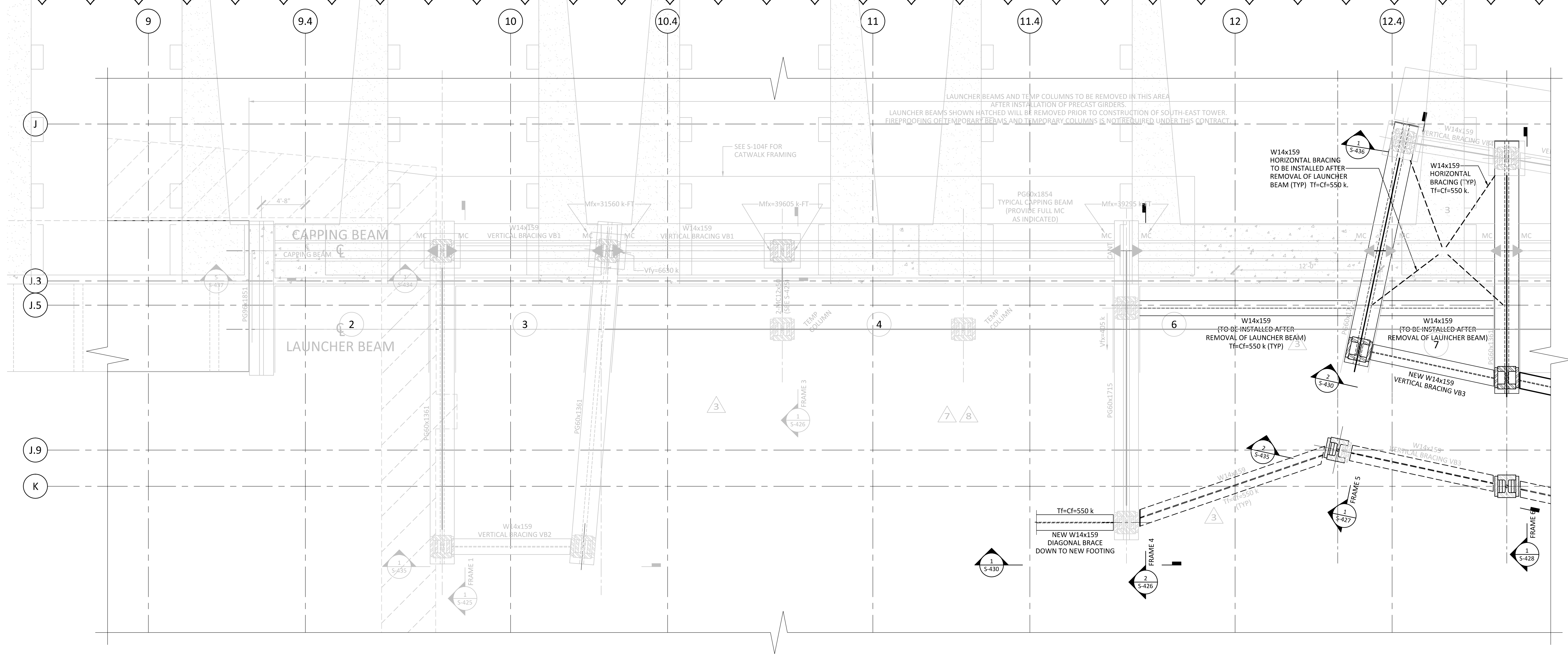
FOR BUILDING DEPARTMENT APPROVAL



STEEL LAUNCHER BEAM REMOVAL PLAN

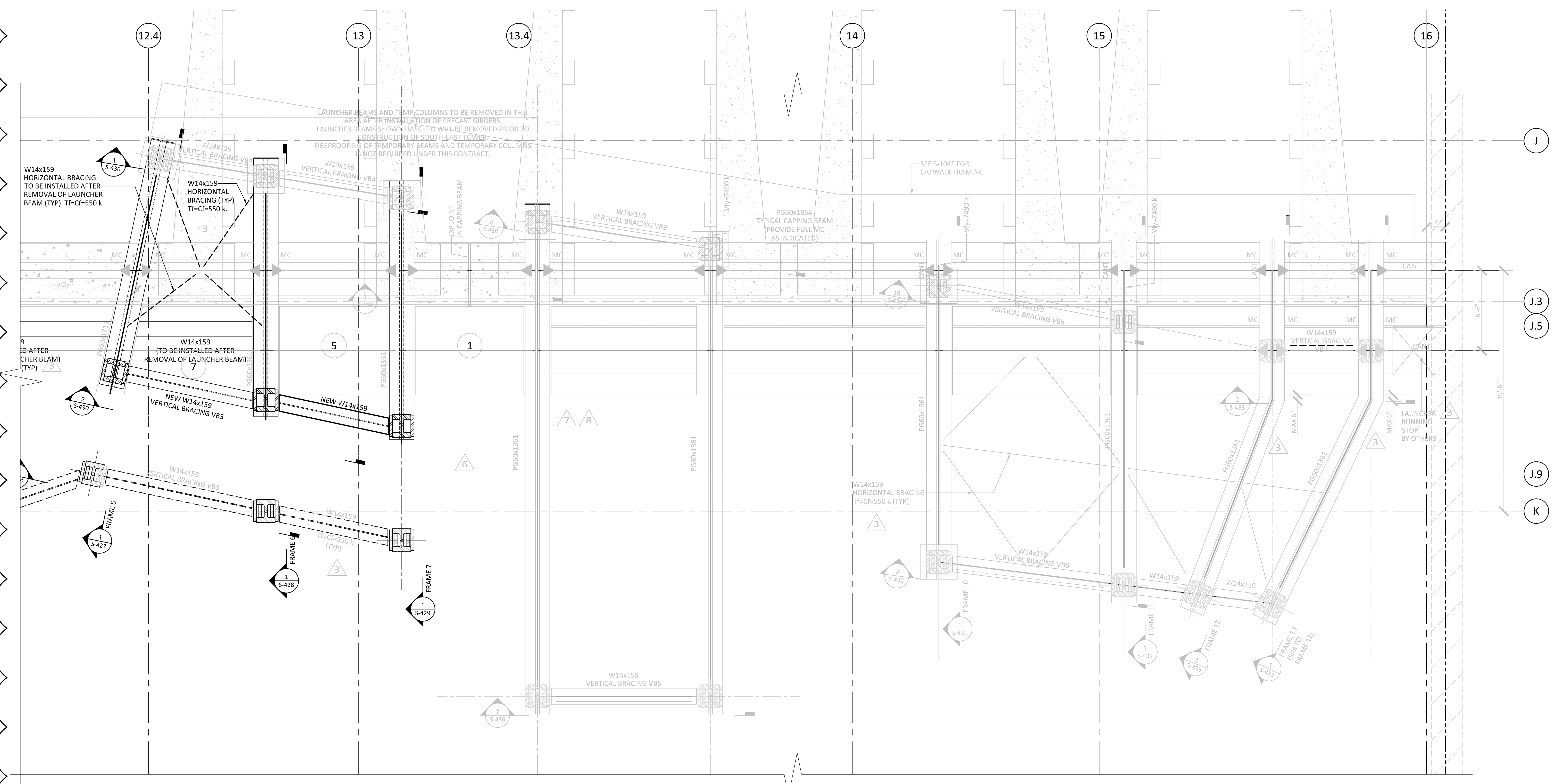


Project No.: T011-0003	Sheet No.: S-422.01
Date: 12 JAN 2016	B-SCAN Sheet No.:
Scale: AS SHOWN	Page No.:
File No.: SDOB-422	

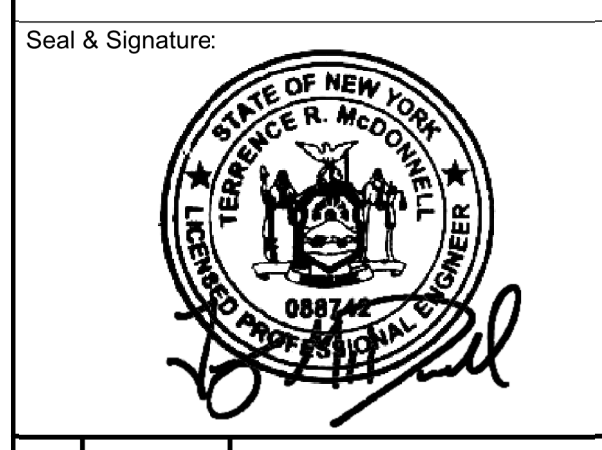
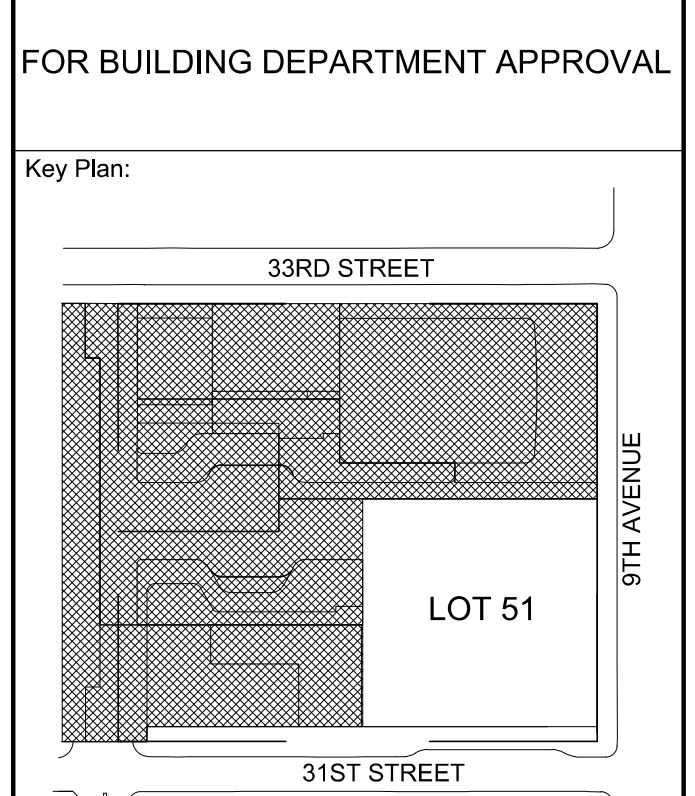


1 PARTIAL STEEL CAPPING BEAM PLAN
 AT "E-YARD"
 1/4"=1'-0"

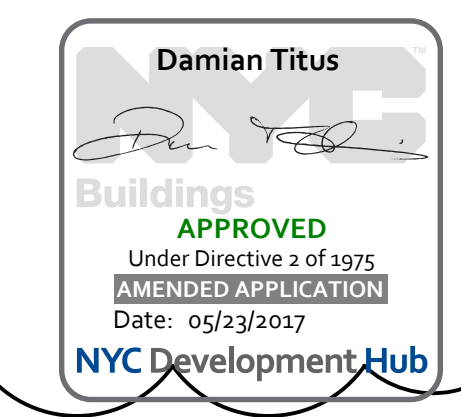
- E-YARD STEEL RELOCATION PROCEDURE**
1. REMOVE EXISTING LAUNCHER BEAMS FOLLOWING PROCEDURE OUTLINED ON DRAWING S-422.
 2. CONSTRUCT NEW FOOTINGS AND ROCK ANCHORS FURTHER NORTH OF EXISTING FOOTING (FRAMES 5, 6, 7 AND NEW BRACE FOOTING).
 3. SURVEY AS BUILT LOCATION OF ROCK ANCHORS AND FABRICATE NEW COLUMN BASE PLATES TO SUIT AS BUILT ANCHOR LOCATIONS.
 4. INSTALL LOWER LIFT OF NEW COLUMN AT FRAME 7 WITH SHOP WELDED BASE PLATE, AND TEMPORARY "JACKING LUGS".
 5. INSTALL UPPER LIFT OF NEW COLUMN IN FRAME 7.
 6. JACK COLUMNS PER PROCEDURES OUTLINED ON DWG. S-424.
 7. REPEAT STEPS 4-6 FOR NEW COLUMNS IN FRAMES 5 & 6.
 8. INSTALL NEW BRACING BETWEEN NEW COLUMNS (FRAMES 5, 6, 7).
 9. INSTALL NEW DIAGONAL BRACE FROM TOP OF COLUMN AT FRAME 4 DOWN TO NEW FOOTING.
 10. REMOVE EXISTING BRACING BETWEEN EXISTING COLUMNS (FRAMES 5, 6, 7).
 11. REMOVE BRACING BETWEEN EXISTING COLUMNS (FRAME 4 & 5).
 12. REMOVE SOUTH PORTION OF EXISTING BEAMS (FRAMES 5, 6, 7).
 13. REMOVE EXISTING SOUTH COLUMNS (FRAMES 5, 6, 7).



2 PARTIAL STEEL CAPPING BEAM PLAN
 AT "E-YARD"
 1/4"=1'-0"



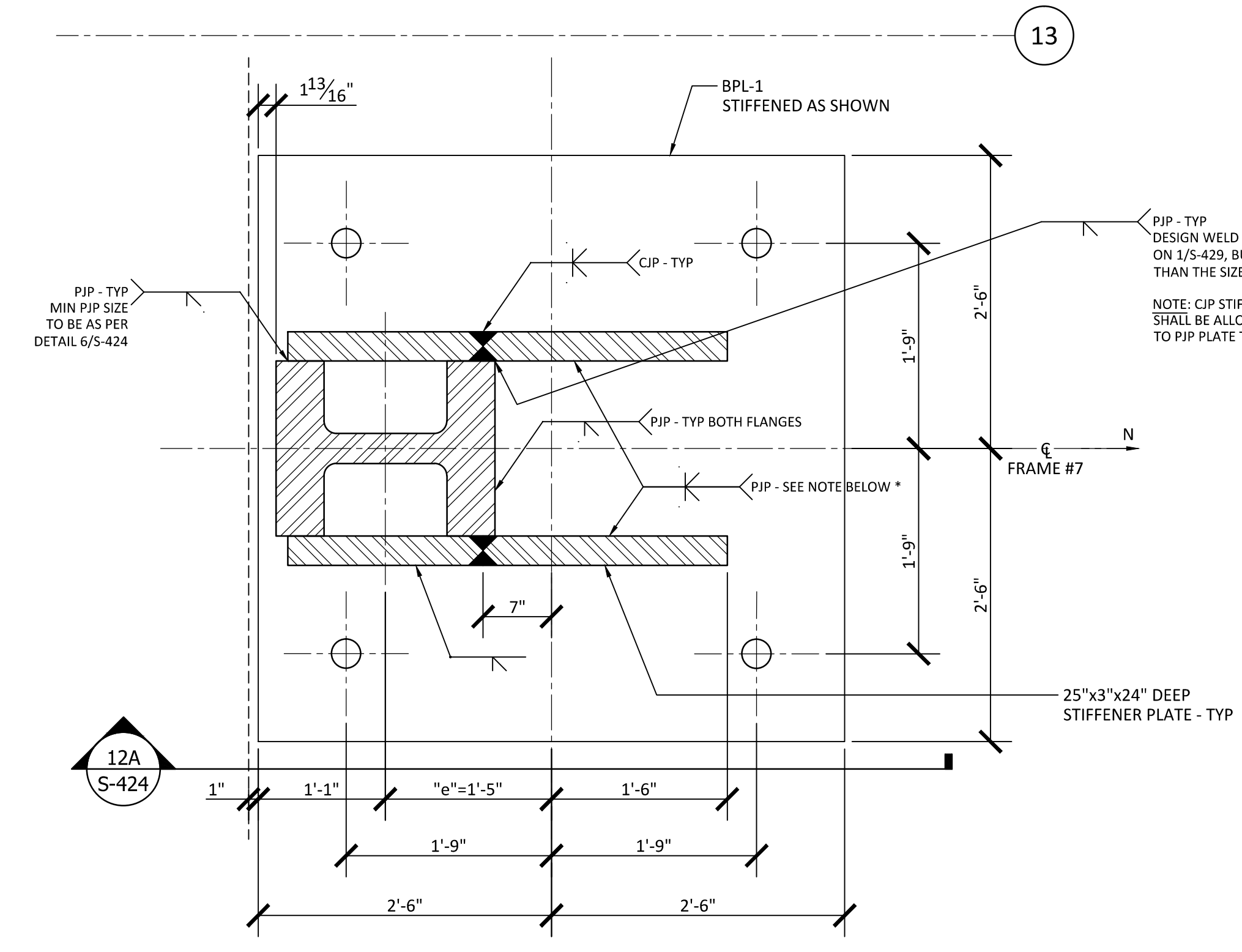
STEEL CAPPING BEAM PLAN



BASE PLATE SCHEDULE

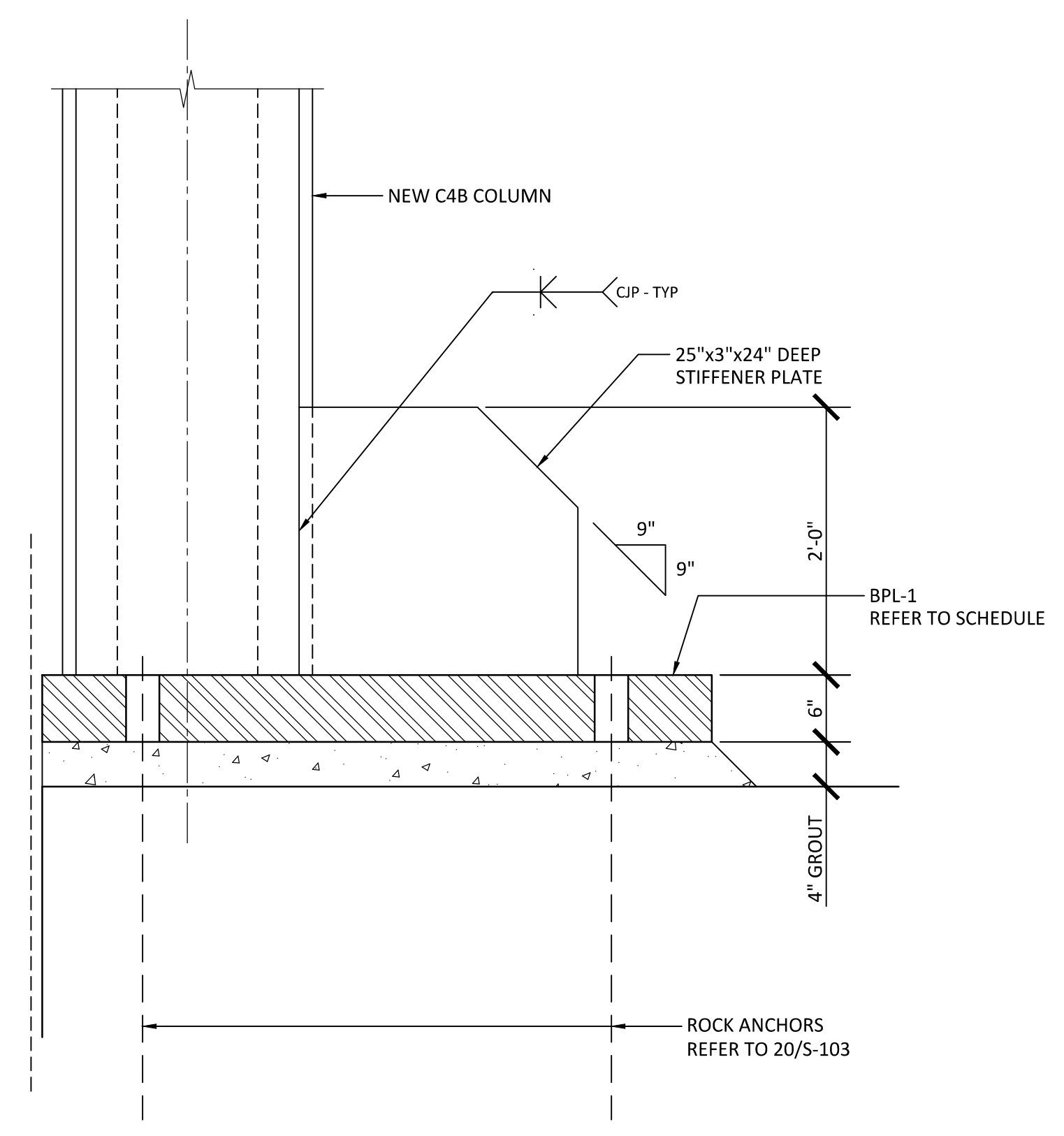
BPL	AR	as	BR	bs	1R	STEEL GRADE	WASHER PLATE	HOLES Ø in.	ANCHOR RODS OR ROCK ANCHORS	NOTES
BPL-1	5'-0"	3'-6"	5'-0"	3'-6"	6"	A572	42	YES	3 1/2"	SEE NOTES BELOW FOR "RA" SPACING & DETAIL 3/5-411
BPL-2	5'-0"	3'-6"	5'-0"	3'-6"	4"	50	YES	3 1/2"		SEE NOTES BELOW FOR "RA" SPACING

- NOTES:
- FOR FOOTING PLAN DETAILS SEE DWG S-103.
 - FOR ROCK ANCHOR SCHEDULE AND DETAILS SEE DWG S-301.
 - ALLOW BASE PLATES DIMENSIONS TO INCORPORATE + / - 3" TOLERANCE FOR ROCK ANCHOR LOCATIONS.
 - DRILL HOLES IN BASE PLATE BASED ON SITE MEASUREMENT OF ROCK ANCHOR LOCATIONS.
 - MINIMUM SPACING as & bs, FOR ROCK ANCHORS TO BE 3'-0".
 - MAXIMUM SPACING as & bs, FOR ROCK ANCHORS TO BE 4'-0".
 - PROVIDE GROUT HOLES AS REQUIRED.

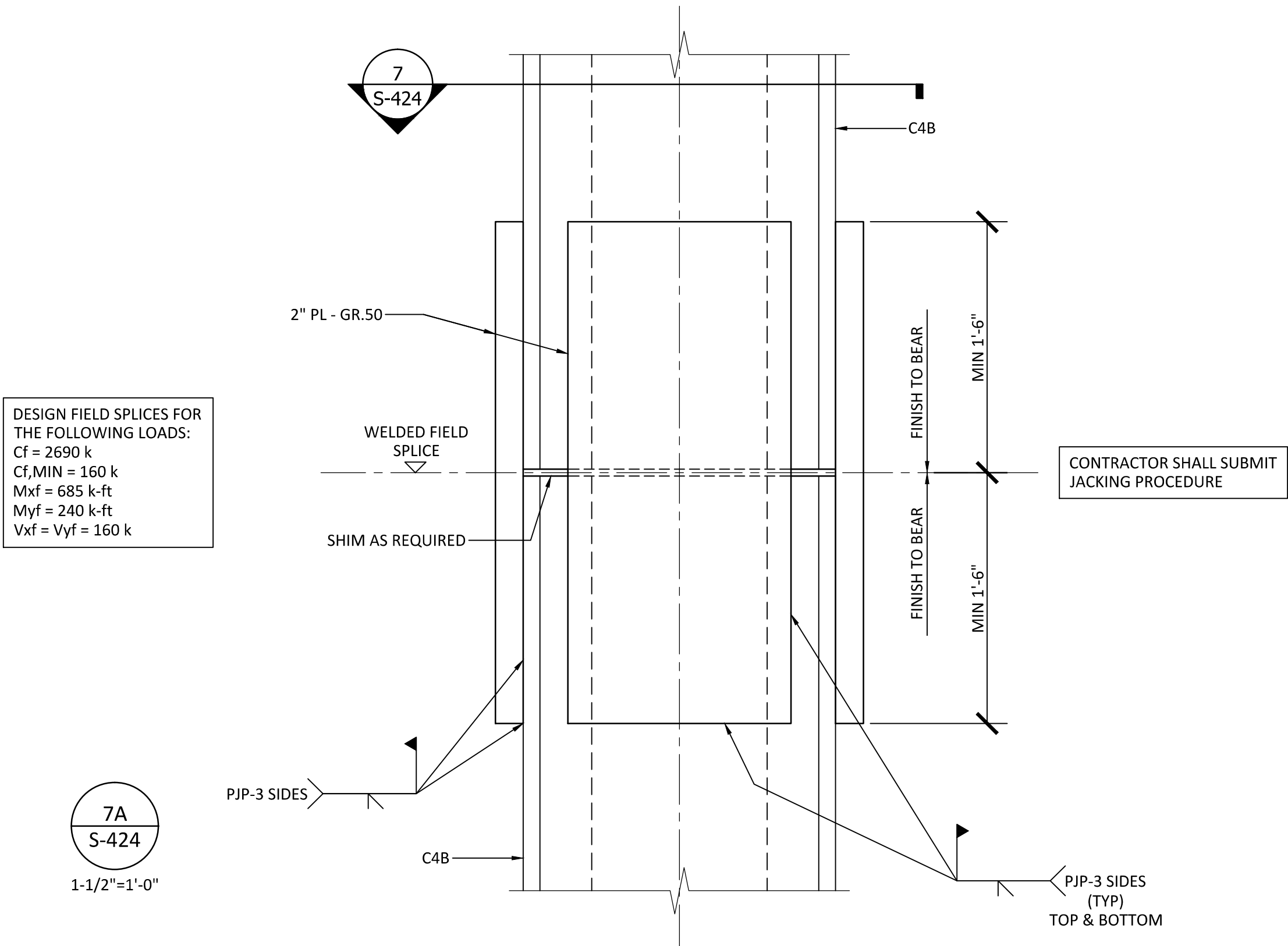


- NOTES:
- * WELD SIZE TO BE DETERMINED BASED ON THE COLUMN'S CONNECTION FORCES, BUT NOT LESS THAN (1/4) EFFECTIVE THROAT PIP.
 - COLUMN TO BASE PLATE CONNECTION TO BE DESIGNED FOR THE FORCES ON DET. 1/5-429 INCLUDING THE ECCENTRICITY "e".

12 S-424 FRAME #7 SOUTHERN COLUMN
OFFSET BASE PLATE DETAIL
1"-1'-0"



12A S-424
1"-1'-0"



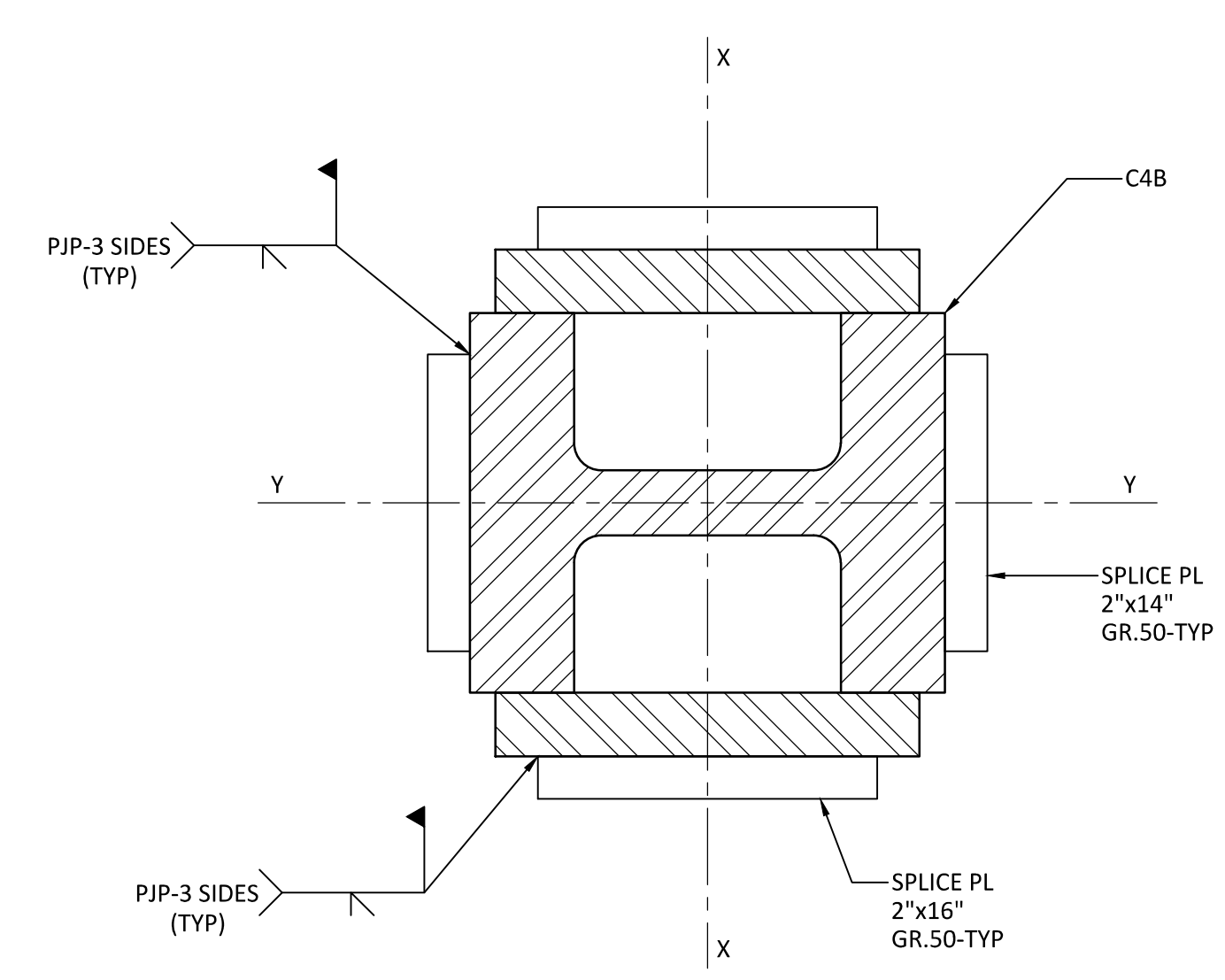
DESIGN FIELD SPLICES FOR THE FOLLOWING LOADS:
Ct = 2690 k
CtMIN = 160 k
Mx = 685 k-ft
My = 240 k-ft
Vx = Vy = 160 k

7A S-424
1-1/2"-1'-0"

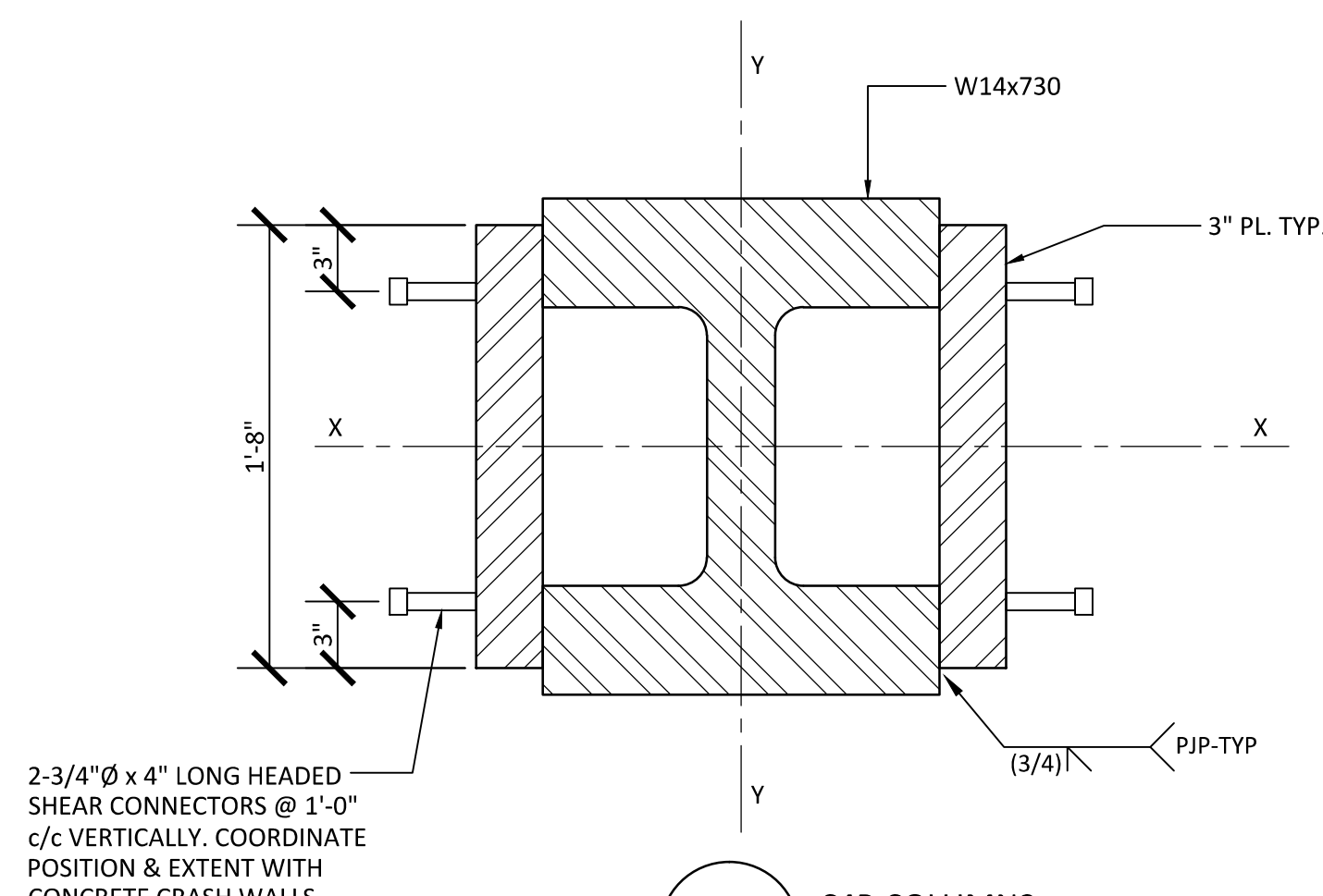
COLUMN SCHEDULE

COL NO.	COLUMN SECTION
C4B	W14 x 730 + 2 PL 3x20

- NOTES:
- ALL REINFORCING PLATES TO BE A572 STEEL GR. 50
 - COLUMN FACTORED ENVELOPE FORCES FOR CONNECTION DESIGN ARE INDICATED ON THE STEEL FRAME ELEVATIONS.
 - FORCES FROM DIFFERENT LOAD COMBINATIONS ARE AVAILABLE IF REQ'D.
 - BU UP COLUMN WELDS TO BE CHECKED IN BEAM/COLUMN CONNECTION ZONES FOR TRANSFERRING THE SPECIFIED AXIAL LOADS & BENDING MOMENTS.

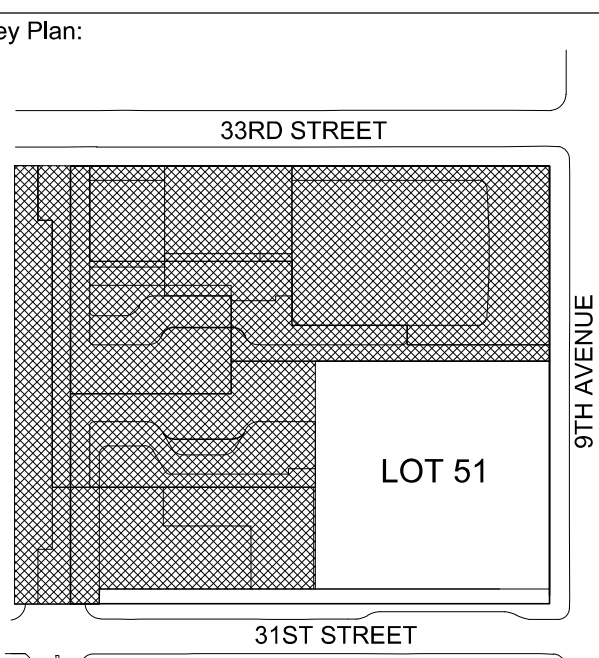


7 S-424 C4B COLUMNS
1-1/2"-1'-0"



6 S-424 C4B COLUMNS
1-1/2"-1'-0"

FOR BUILDING DEPARTMENT APPROVAL



STEEL CAPPING BEAM SECTIONS AND DETAILS



9th Avenue Development

LOT 51
401 West 31st Street, New York, NY



Brookfield Place
250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering



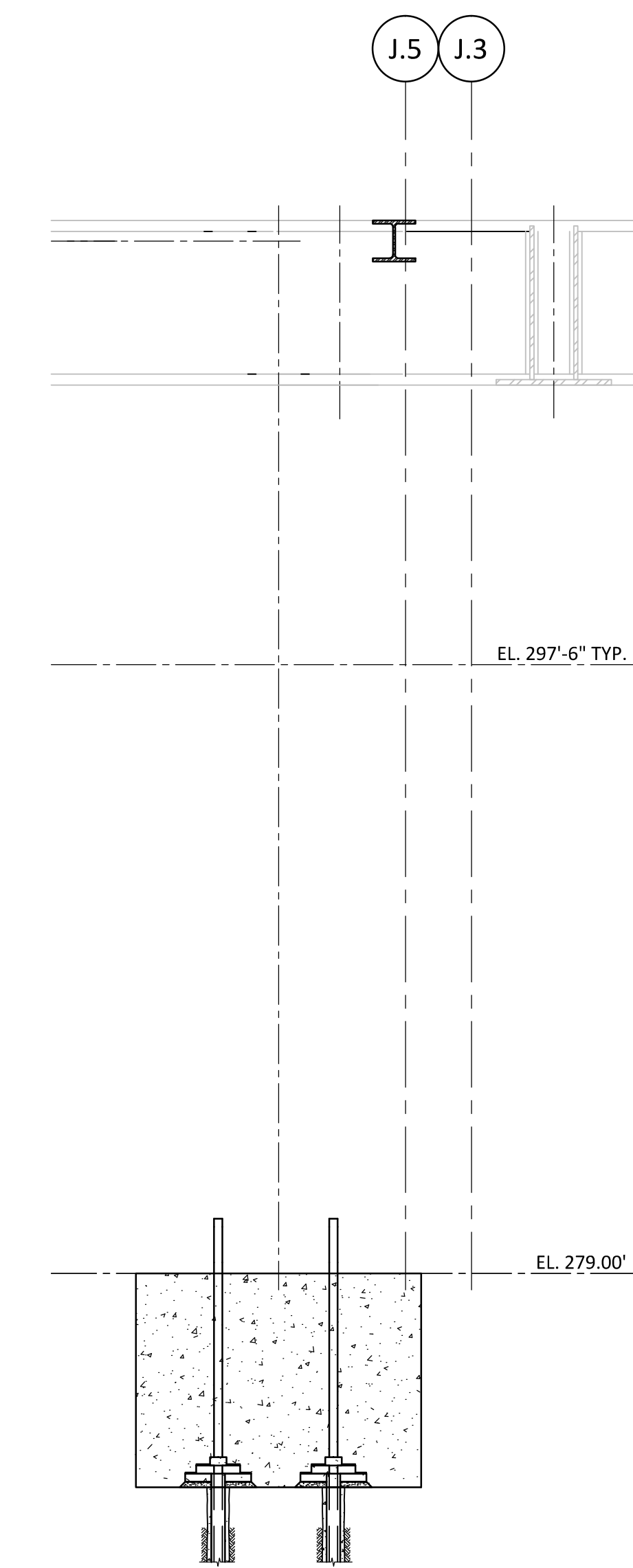
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Structural

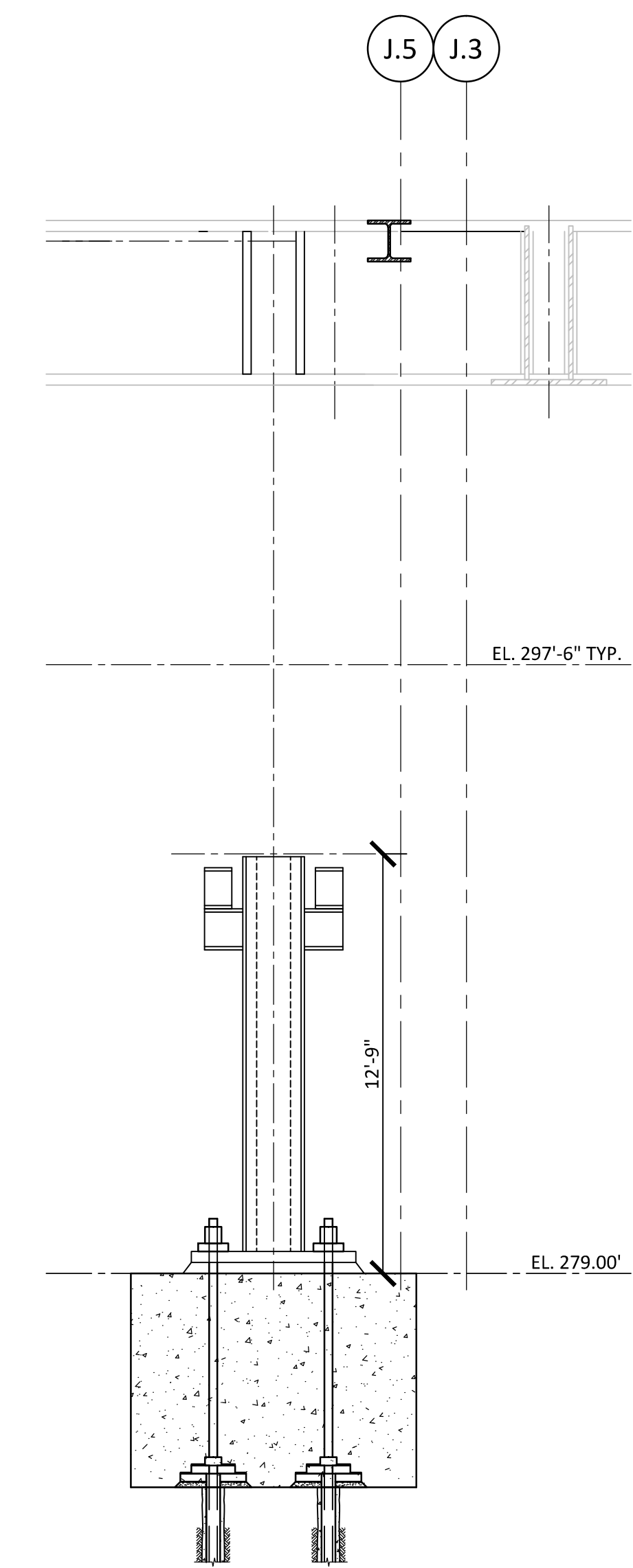
Entuitive
315 West 38th Street, Office #7049
New York, NY 10018

Geotechnical Engineering

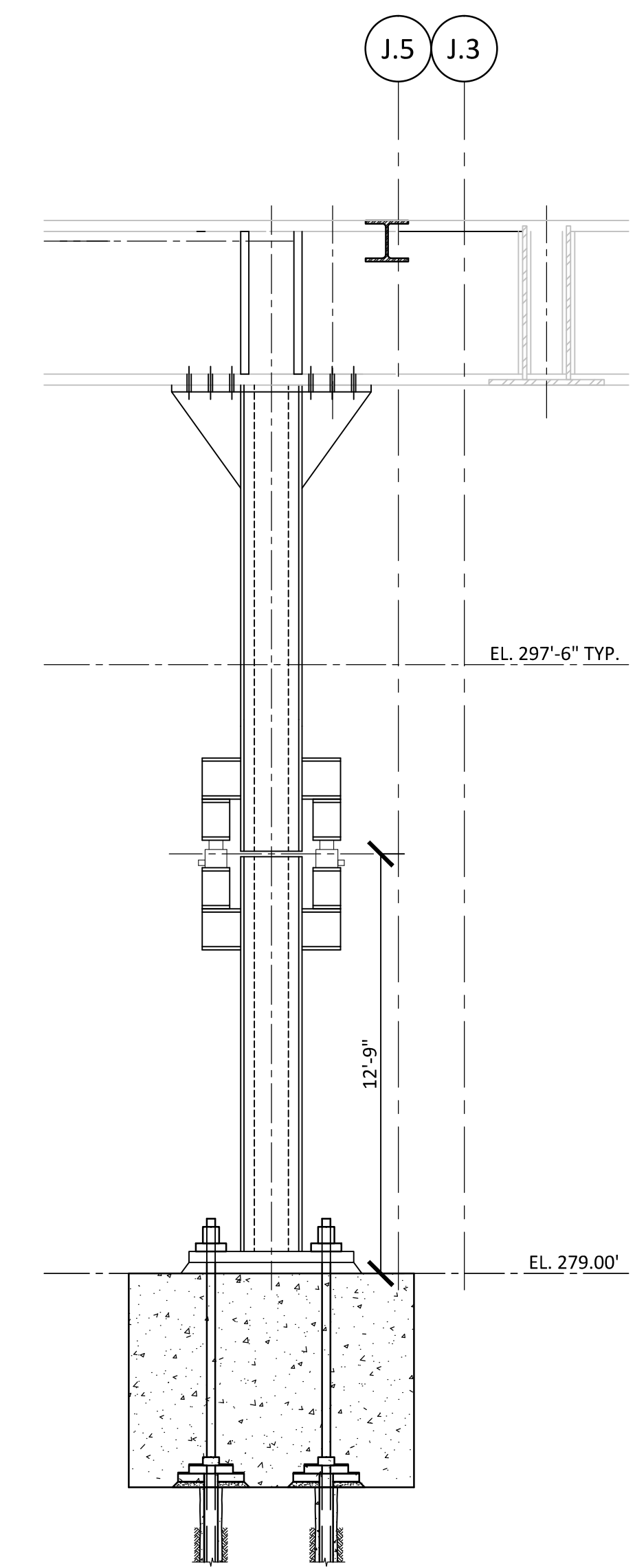
Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 W. 34th Street, New York, NY 10122



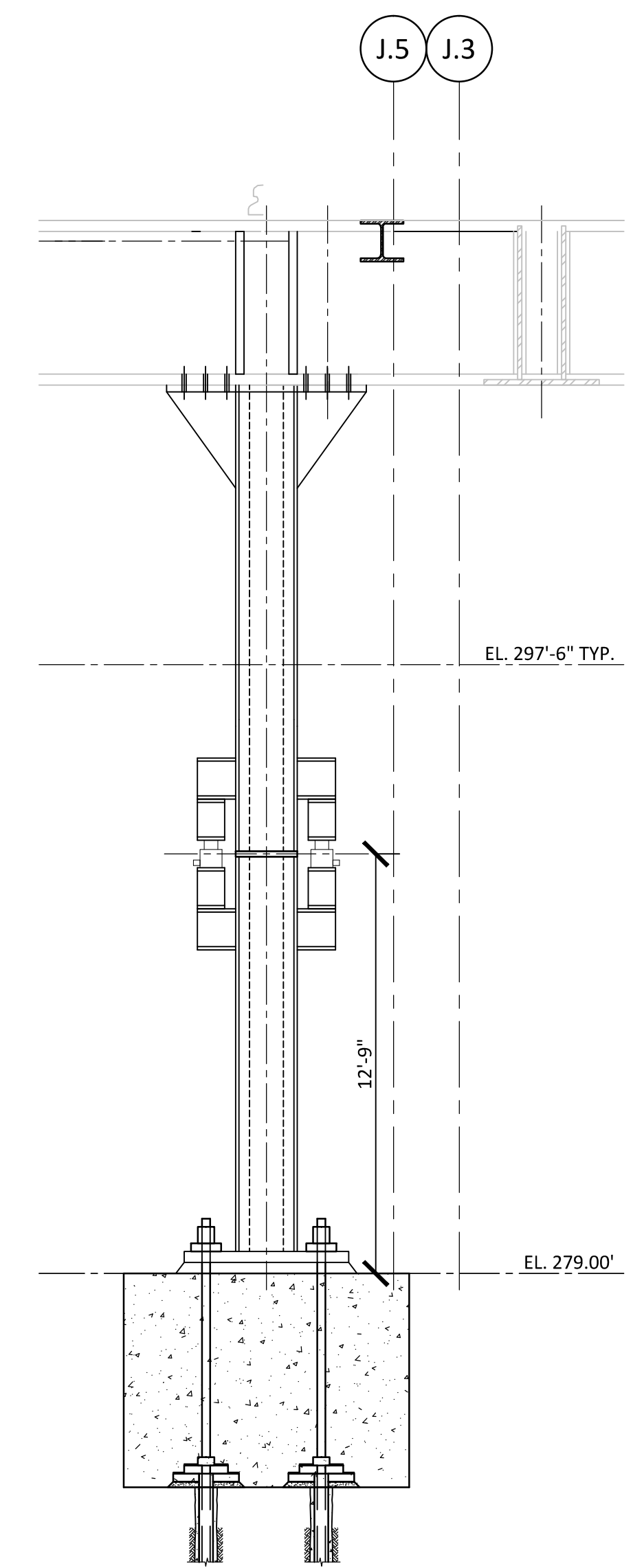
1 PHASE 1
S-425
1/4"=1'-0"
NOTES:
1. CONSTRUCT NEW FOOTING WITH ROCK ANCHORS PER DRAWING S-103.
2. PROVIDE MECHANICAL COUPLERS FOR REINFORCEMENT.
3. FIELD SURVEY AS BUILT LOCATION OF ANCHORS PRIOR TO FABRICATING NEW COLUMN BASE PLATE.



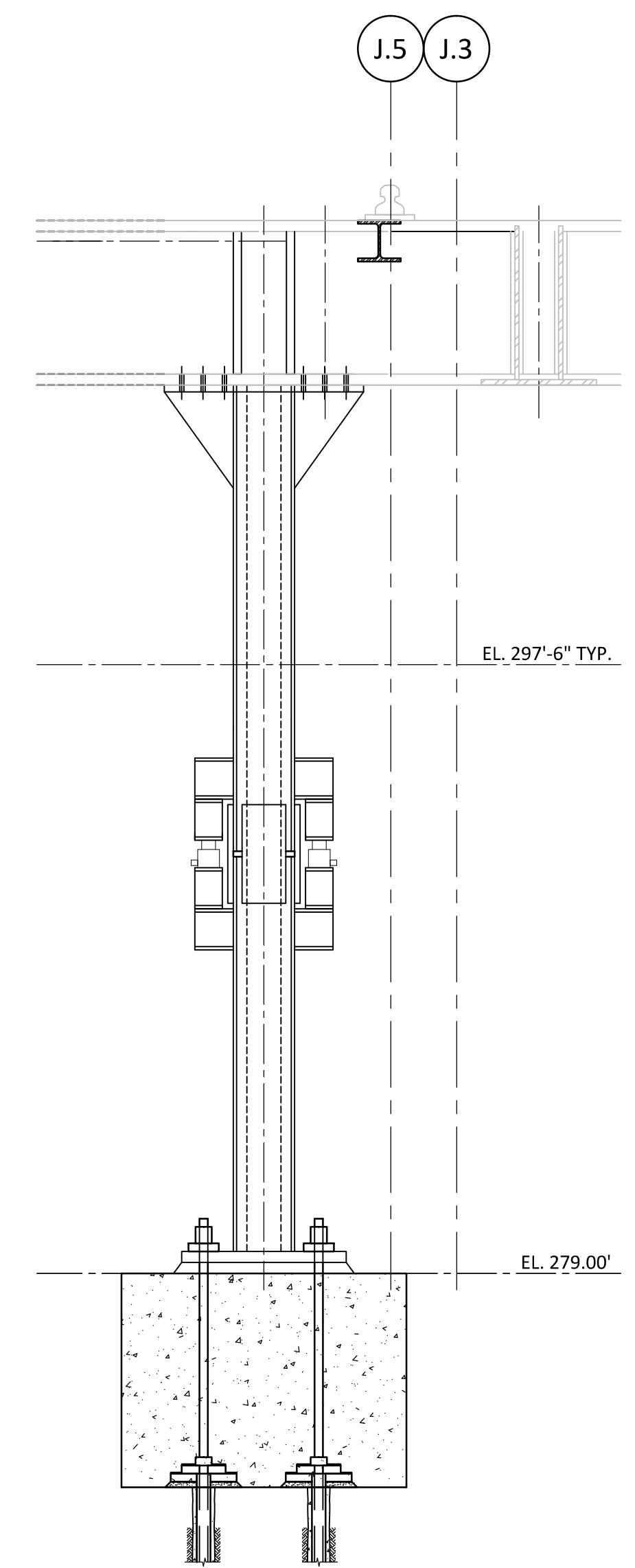
2 PHASE 2
S-425
1/4"=1'-0"
NOTES:
1. INSTALL FIRST LIFT OF COLUMN WITH SHOP WELDED BASE PLATE, WITH HOLES MATCHING SURVEYED LOCATION OF ROCK ANCHORS.
2. INSTALL BEARING STIFFENERS ABOVE.



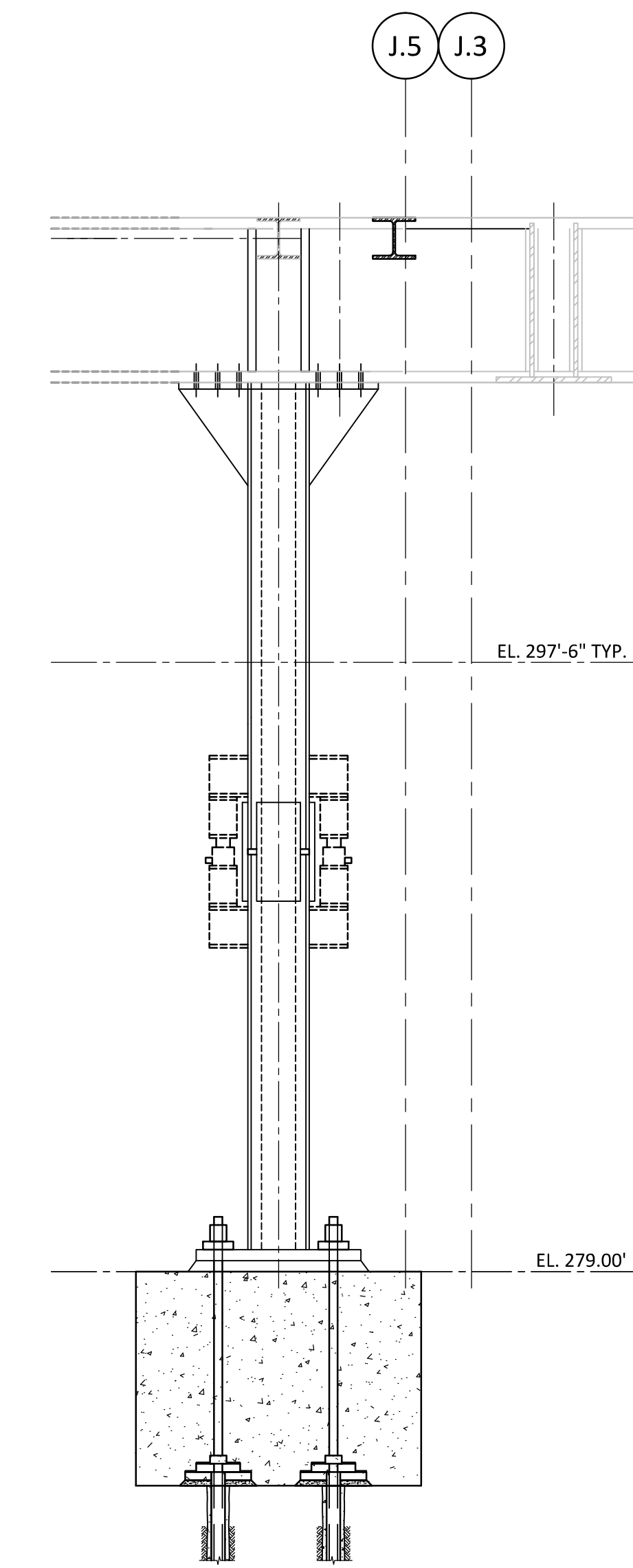
3 PHASE 3
S-425
1/4"=1'-0"
NOTES:
1. INSTALL UPPER LIFT OF COLUMN & CONNECT TO PG ABOVE.
2. INSTALL JACKS BETWEEN LOWER & UPPER LIFT OF COLUMN TO BRING UPPER LIFT/PG CONNECTION TO SNUG TIGHT.



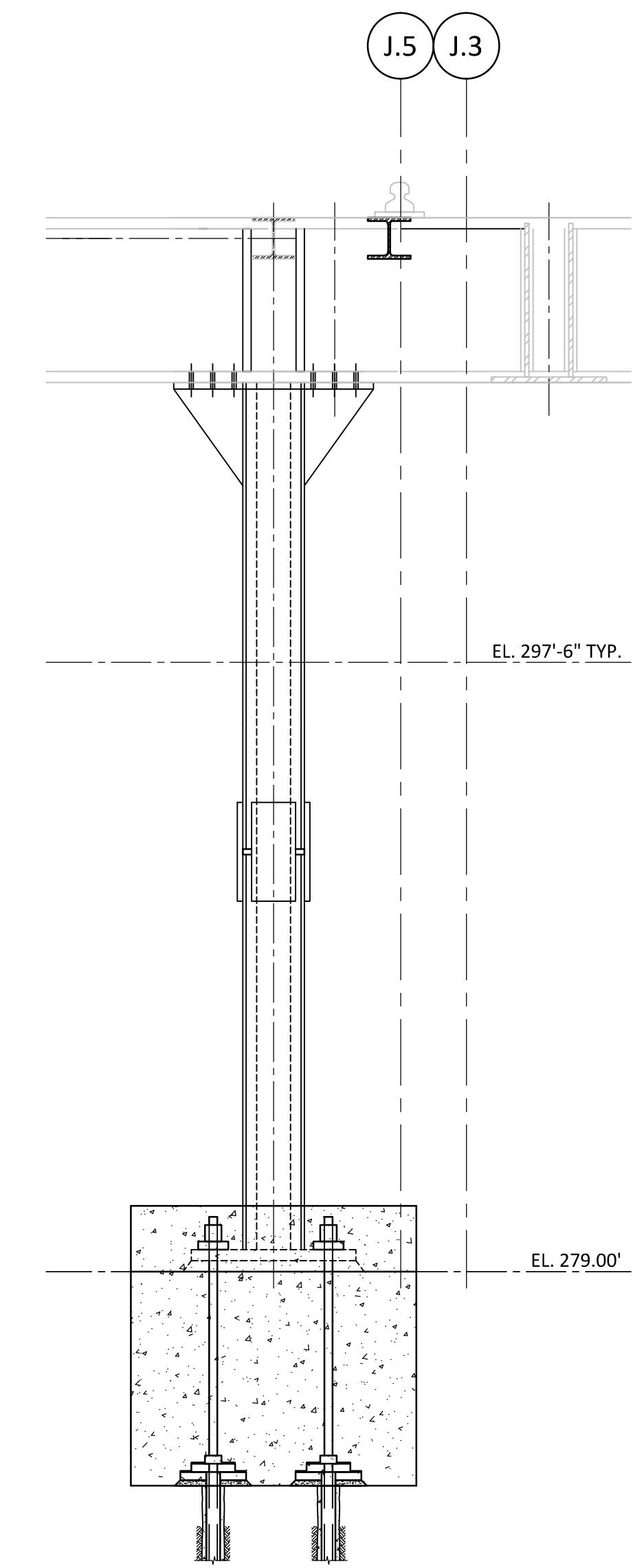
4 PHASE 4
S-425
1/4"=1'-0"
NOTES:
1. BRING FRAME TO FULL JACKING LOAD & SHIM GAP TO PROVIDE FULL BEARING.



5 PHASE 5
S-425
1/4"=1'-0"
NOTES:
1. MAKE FINAL CONNECTION AT SPLICE IN FRAME AS PER SPLICE DETAIL 7/5-424.
2. RELEASE JACK AFTER FRAME CONNECTION IS MADE.

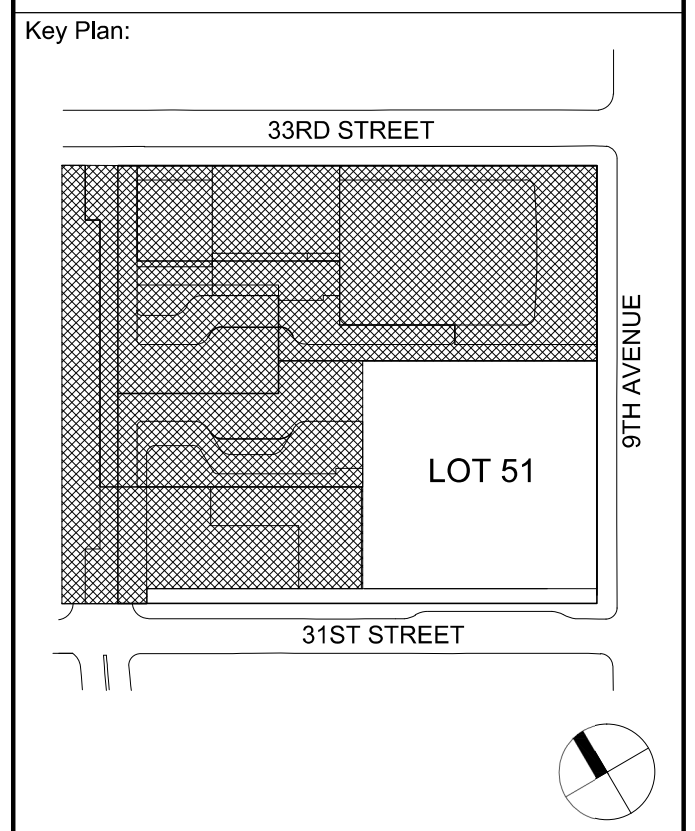


6 PHASE 6
S-425
1/4"=1'-0"
NOTES:
1. REMOVE JACKING ASSEMBLY DOWN TO COLUMN FLANGE, DO NOT GOUGE MAIN COLUMN ASSEMBLY.
2. GRIND SMOOTH.



7 PHASE 7
S-425
1/4"=1'-0"
NOTES:
1. REPEAT PHASE 2-6 FOR NEXT COLUMN.
2. INSTALLATION OF NEW COLUMNS TO BE CONSTRUCTED ONE BY ONE.
3. REMOVAL OF EXISTING COLUMNS ONLY AFTER ALL NEW COLUMNS, VERTICAL AND HORIZONTAL BRACING HAS BEEN INSTALLED.

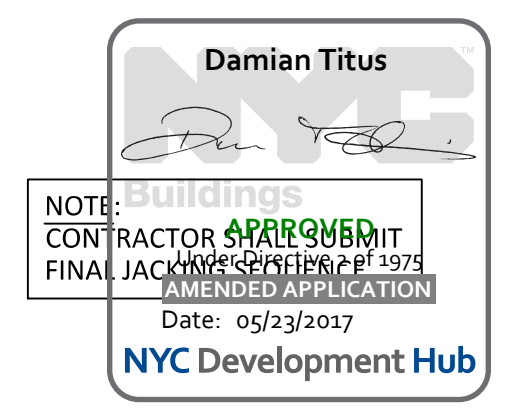
FOR BUILDING DEPARTMENT APPROVAL



Seal & Signature:

No.	Date	Description

PROPOSED STEEL BEAM CONSTRUCTION SEQUENCE



Project No.: T011-0003
Date: 24 FEB 2017
Scale: 1/4"=1'-0"
File No.: SDOB-425
Sheet No.: S-425.00
B-SCAN Sheet No.:
Page No.:

9th Avenue Development

LOT 51
 401 West 31st Street, New York, NY

Client
Brookfield

Brookfield Place
 250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering

SOM

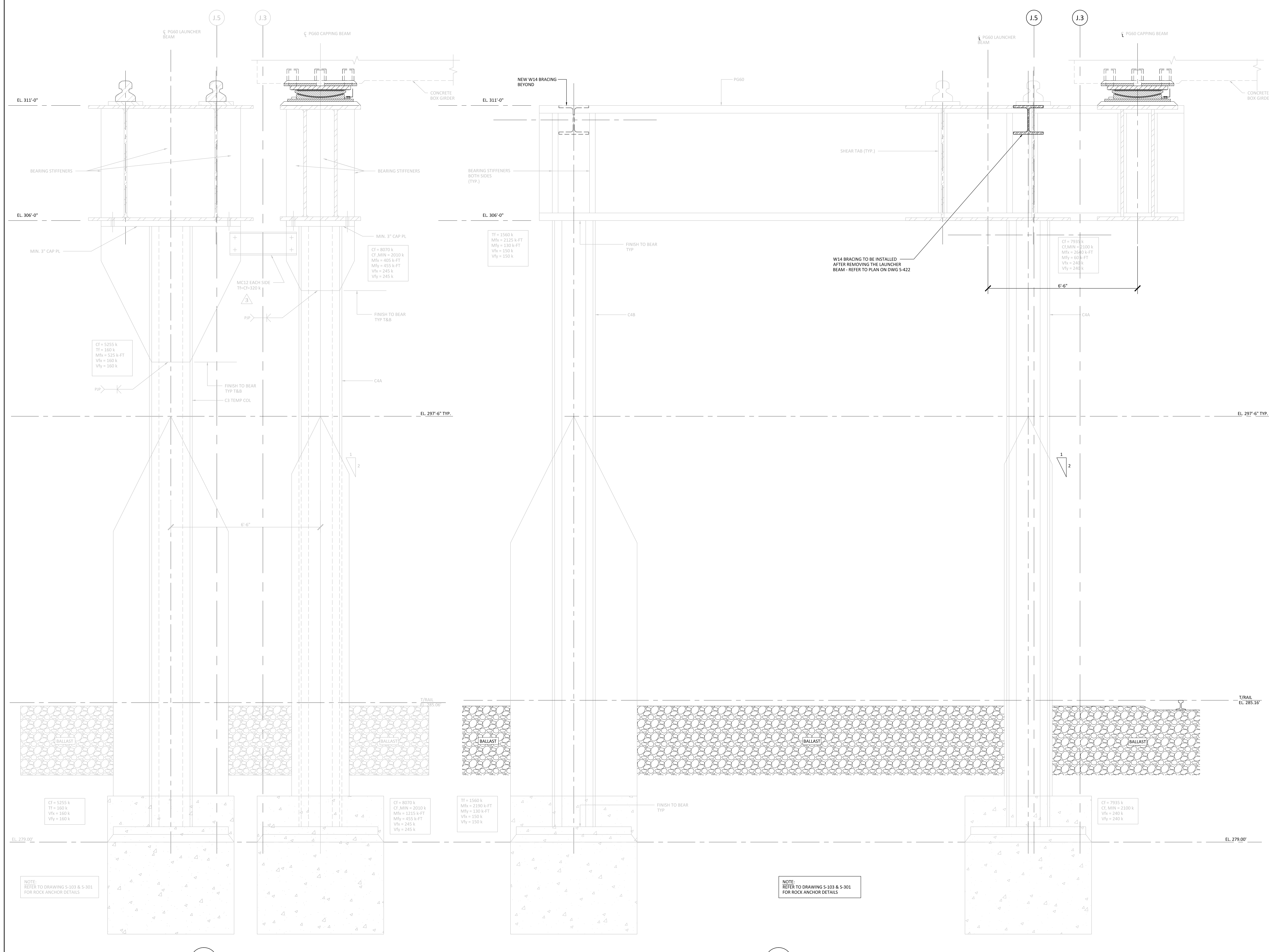
Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

Structural

Entuitive
 315 West 98th Street, Office #7049
 New York, NY 10018

Geotechnical Engineering

Mueser Rutledge Consulting Engineers
 14 Penn Plaza, 225 W. 34th Street, New York, NY 10122

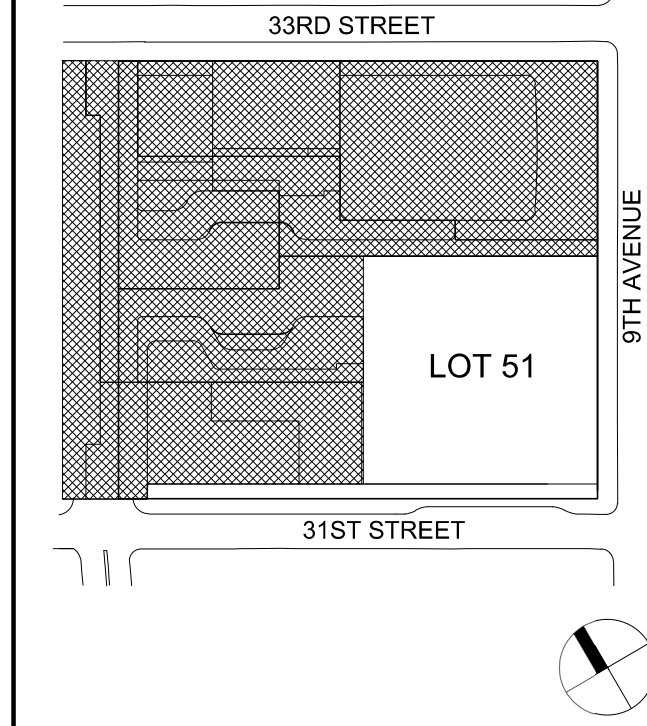


1
S-426
 FRAME 3 ELEVATION
 3/4"=1'-0"

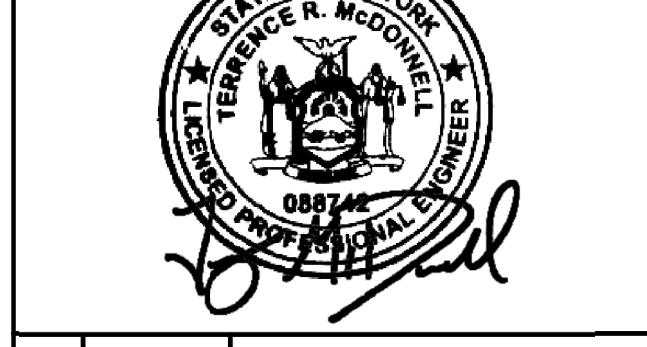
2
S-426
 FRAME 4 ELEVATION
 3/4"=1'-0"

FOR BUILDING DEPARTMENT APPROVAL

Key Plan:

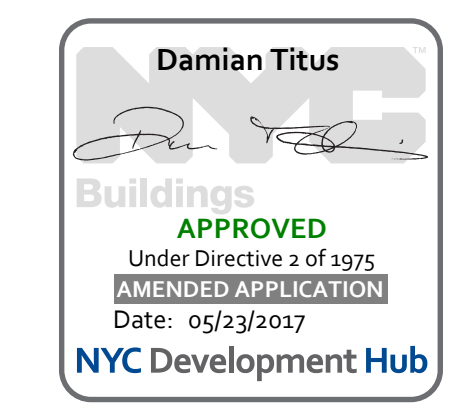


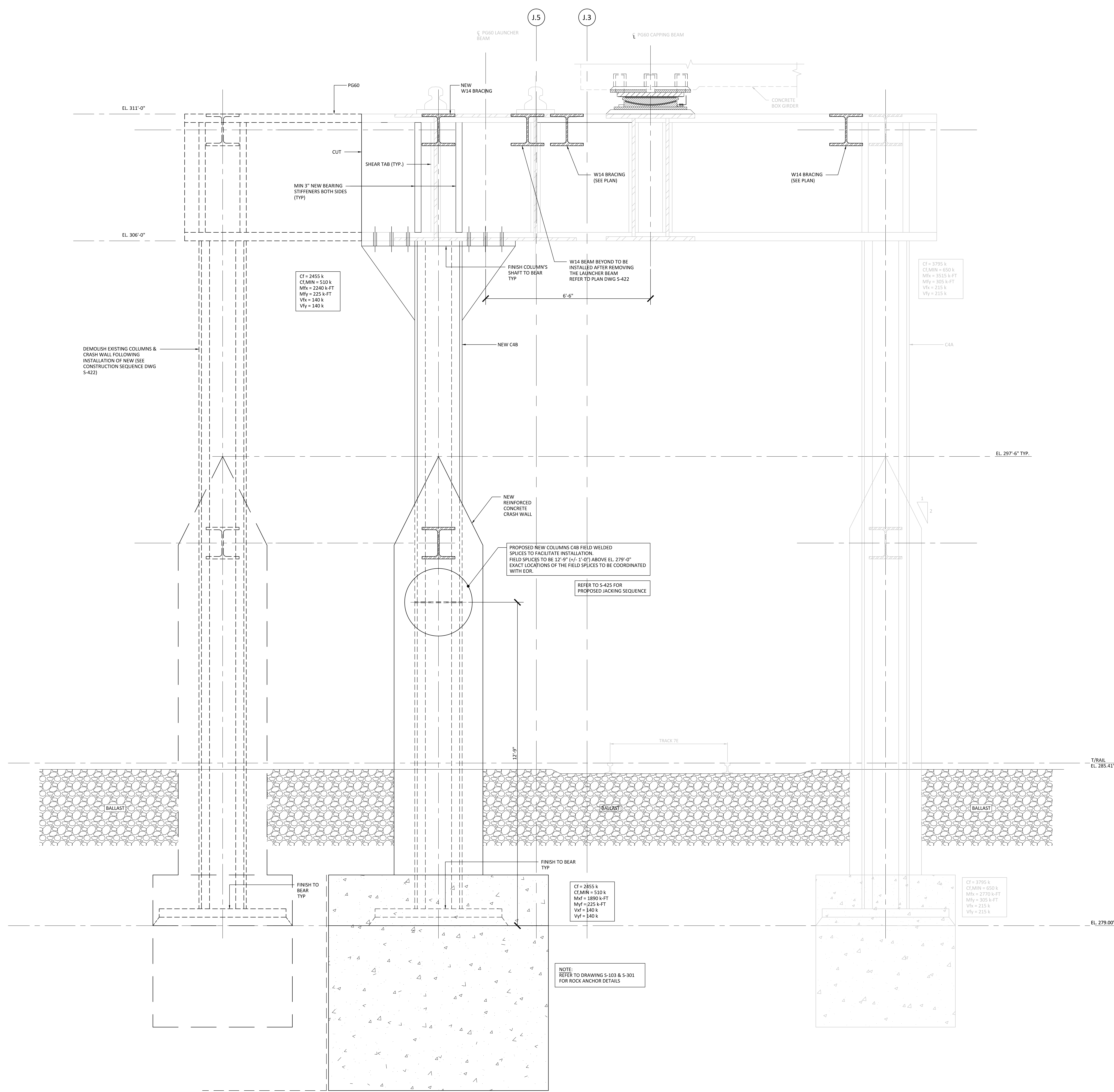
Seal & Signature:



No.	Date	Description

STEEL CAPPING BEAM SECTIONS





DEMOLISH EXISTING COLUMNS & CRASH WALL FOLLOWING INSTALLATION OF NEW (SEE CONSTRUCTION SEQUENCE DWG S-422)

CF = 2455 k
CJ, MIN = 510 k
M_x = 2240 k-FT
M_y = 225 k-FT
V_x = 140 k
V_y = 140 k

CF = 3795 k
CJ, MIN = 650 k
M_x = 3015 k-FT
M_y = 305 k-FT
V_x = 215 k
V_y = 215 k

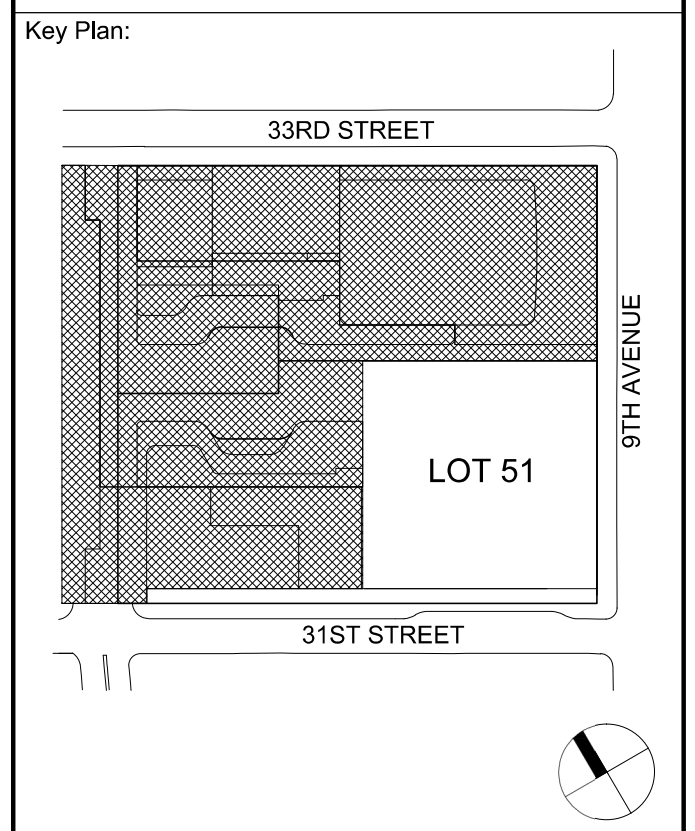
PROPOSED NEW COLUMNS C48 FIELD WELDED SPLICES TO FACILITATE INSTALLATION. FIELD SPLICES TO BE 12'-0\"/>

REFER TO S-425 FOR PROPOSED JACKING SEQUENCE

NOTE: REFER TO DRAWING S-103 & S-301 FOR ROCK ANCHOR DETAILS

1
S-427
FRAME 5 ELEVATION
3/4\"/>

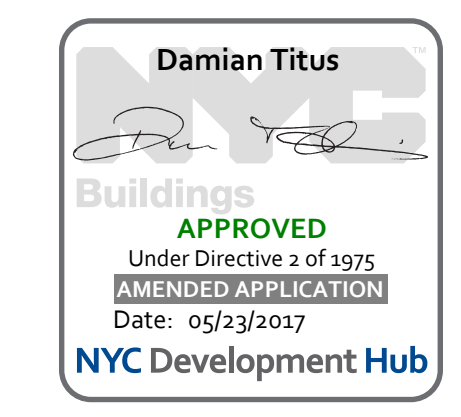
FOR BUILDING DEPARTMENT APPROVAL



Seal & Signature

No.	Date	Description

STEEL CAPPING BEAM SECTIONS

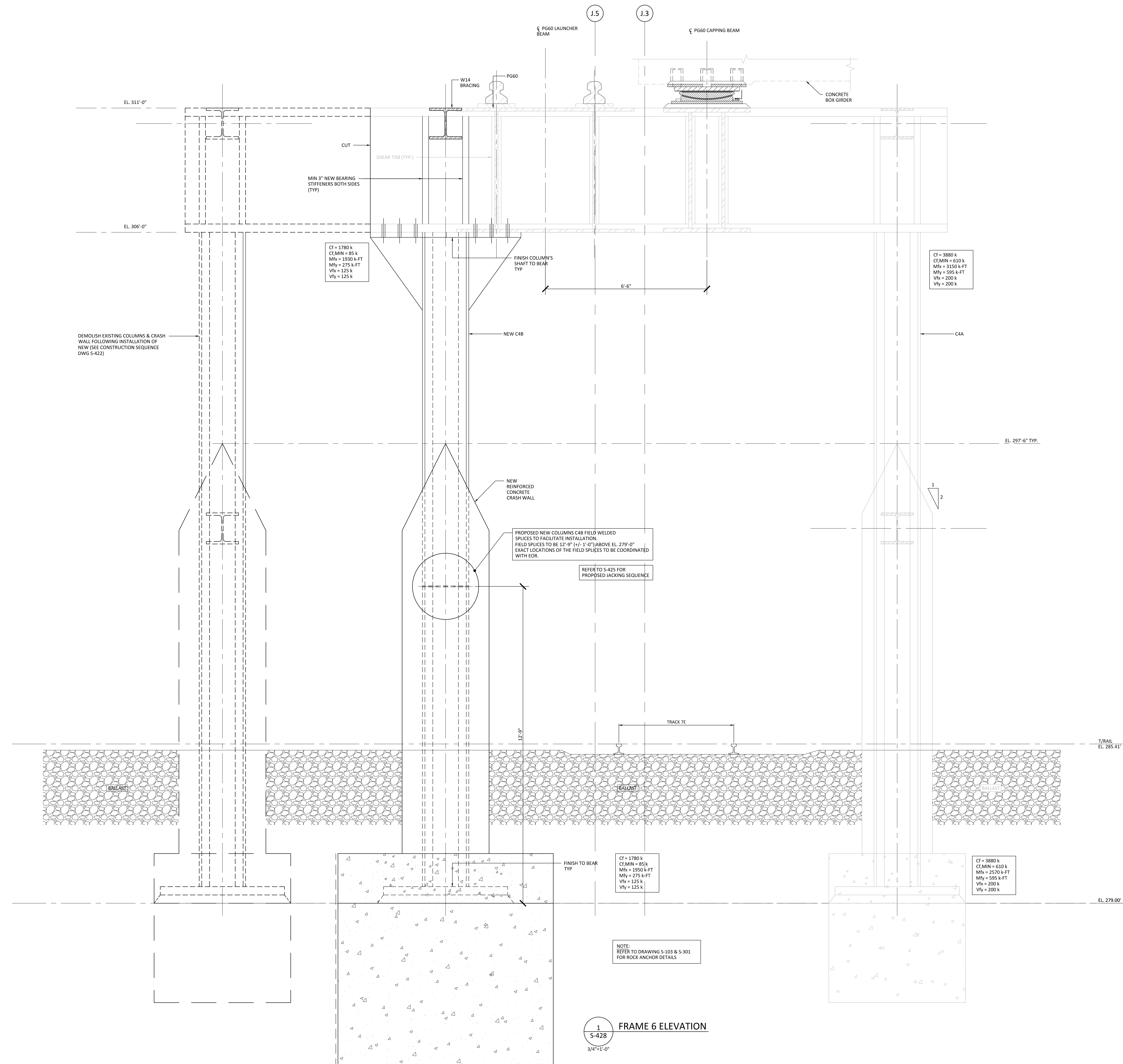


Client
Brookfield
 Brookfield Place
 250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering
SOM
 Skidmore, Owings & Merrill LLP
 14 Wall Street, New York, NY 10005

Structural
 Entulive
 315 West 38th Street, Office #7049
 New York, NY 10018

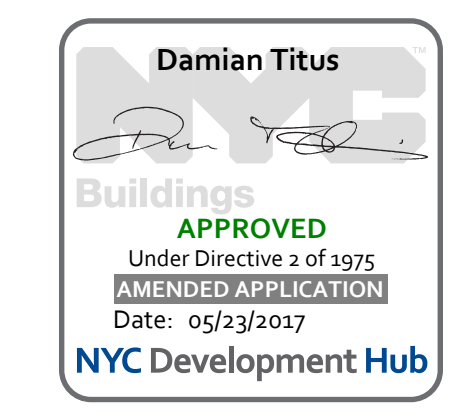
Geotechnical Engineering
 Mueser Rutledge Consulting Engineers
 14 Penn Plaza, 225 W. 34th Street, New York, NY 10122



DEMOLISH EXISTING COLUMNS & CRASH WALL FOLLOWING INSTALLATION OF NEW (SEE CONSTRUCTION SEQUENCE DWG S-422)

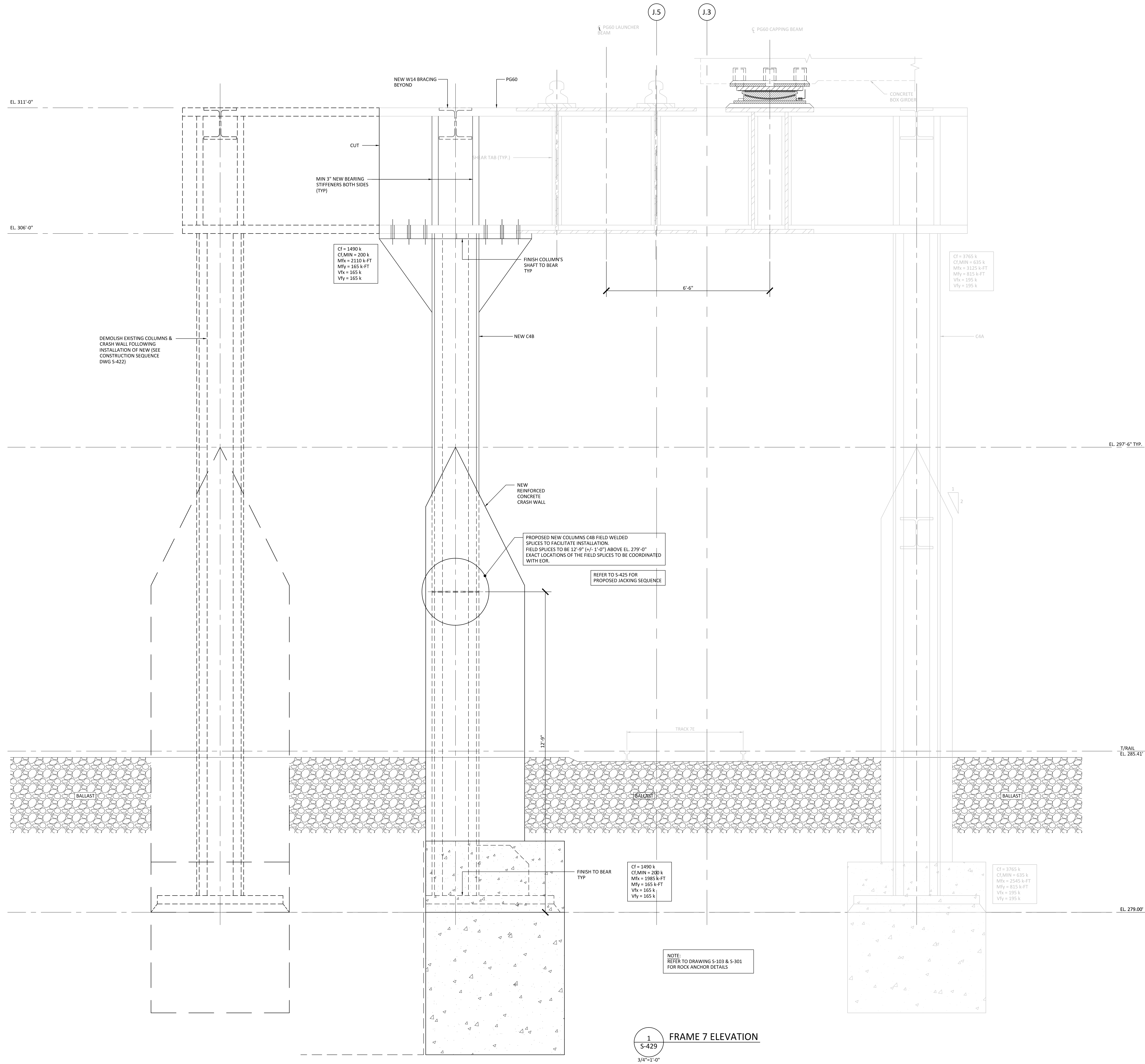
PROPOSED NEW COLUMNS CAB FIELD WELDED SPLICES TO FACILITATE INSTALLATION. FIELD SPLICES TO BE 12'-9" (+/- 1'-0") ABOVE EL. 279'-0". EXACT LOCATIONS OF THE FIELD SPLICES TO BE COORDINATED WITH EOR.

REFER TO S-425 FOR PROPOSED JACKING SEQUENCE



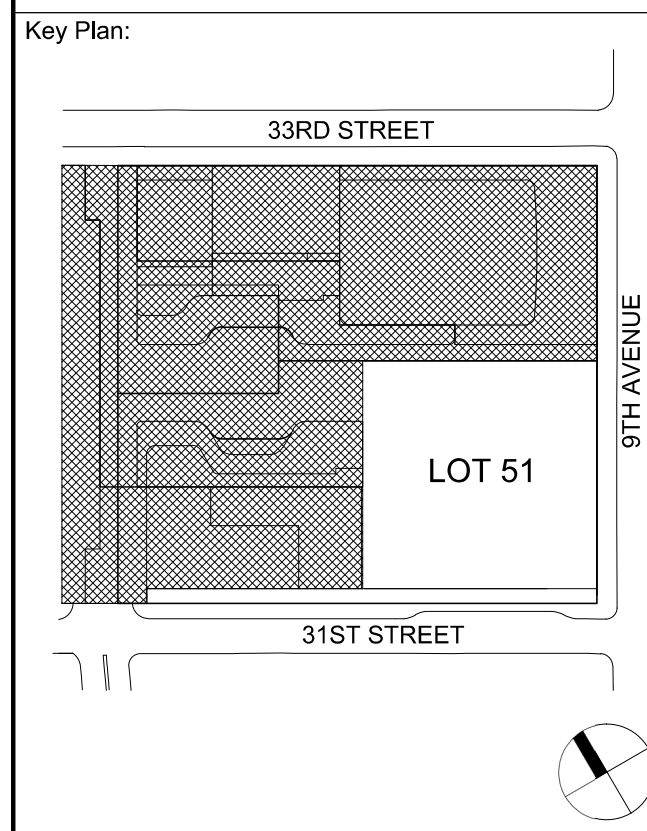
STEEL CAPPING BEAM SECTIONS

Project No.: T011-0003	Sheet No.: S-428.00
Date: 22 JAN 2016	B-SCAN Sheet No.:
Scale: 3/4"=1'-0"	File No.: SDOB-428
Page No.:	Page No.:



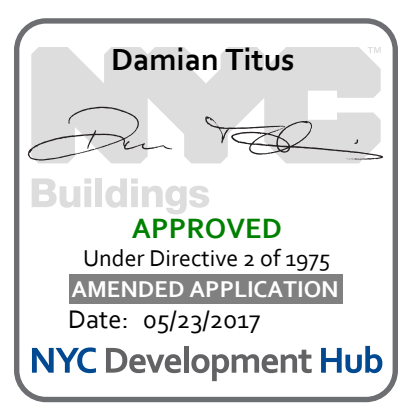
1
S-429
3/4"=1'-0"
FRAME 7 ELEVATION

FOR BUILDING DEPARTMENT APPROVAL



No.	Date	Description

STEEL CAPPING BEAM SECTIONS



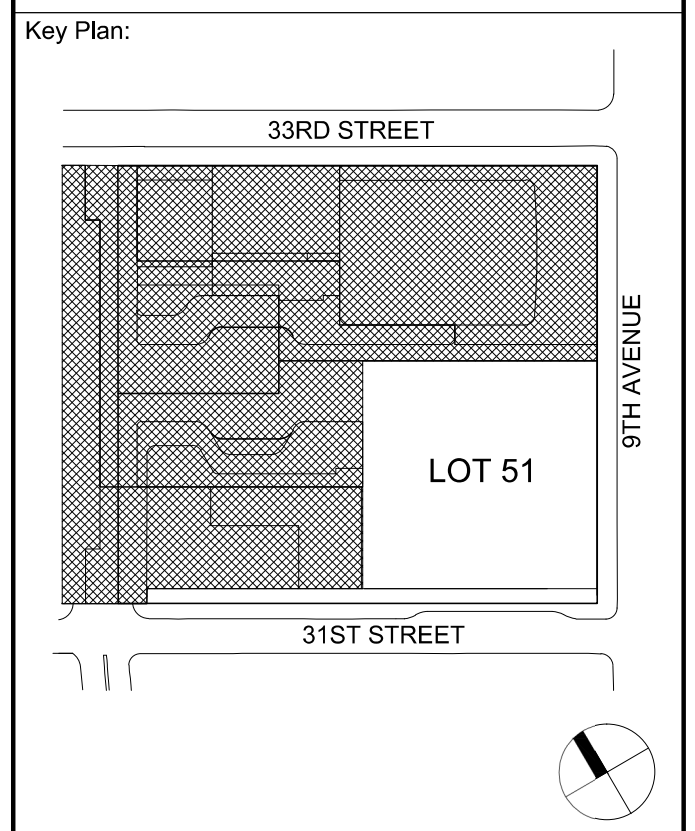
Client
Brookfield
Brookfield Place
250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering
SOM
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Structural
Entulive
315 West 38th Street, Office #7049
New York, NY 10018

Geotechnical Engineering
Mueser Rutledge Consulting Engineers
14 Penn Plaza, 225 W. 34th Street, New York, NY 10122

FOR BUILDING DEPARTMENT APPROVAL

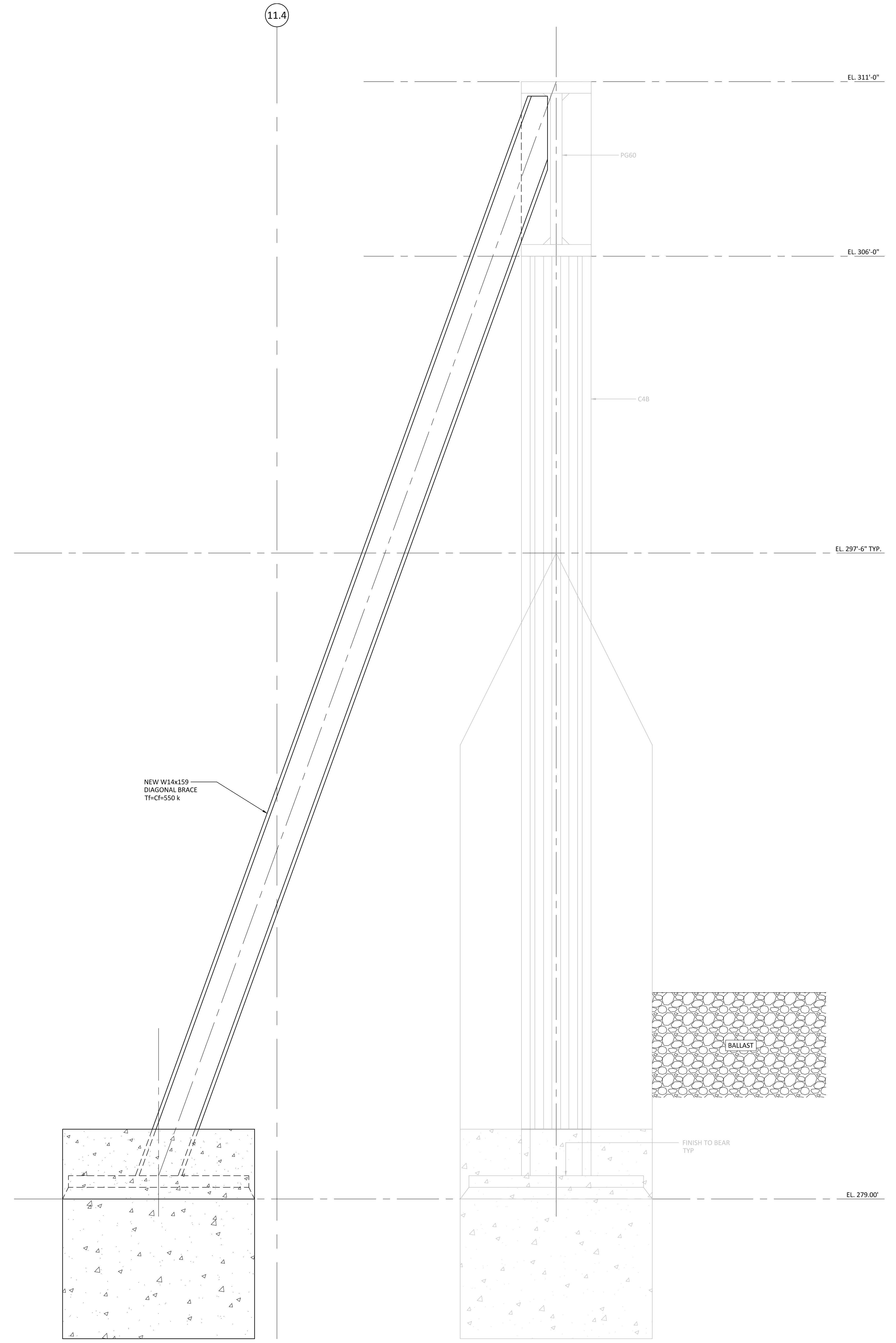


Seal & Signature:

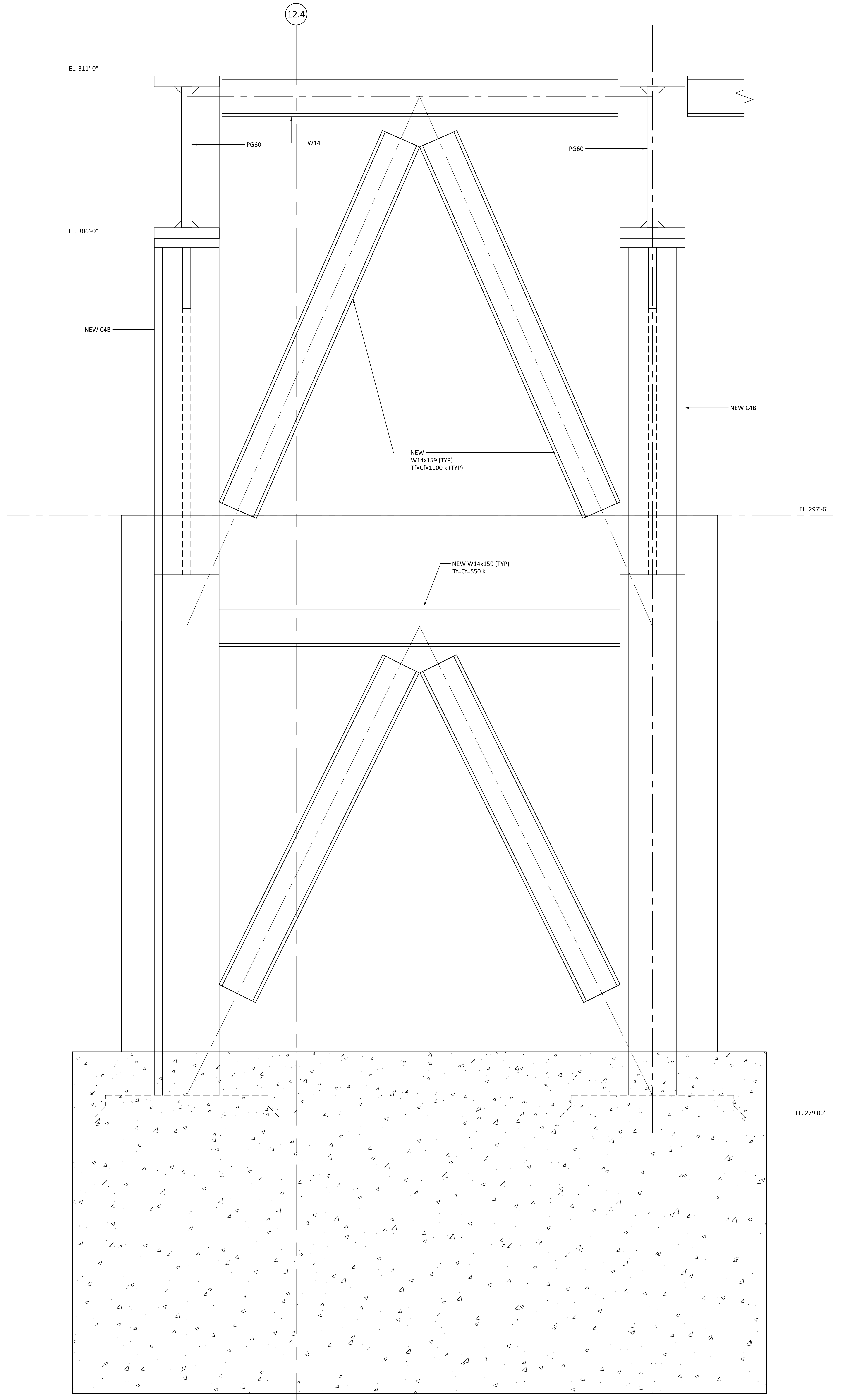
No.	Date	Description

BRACING ELEVATIONS

Project No.: T011-0003	Sheet No.: S-430.00
Date: 22 JAN 2016	B-SCAN Sheet No.:
Scale: 3/4"=1'-0"	File No.: SDOB-430
Page No.:	Page No.:



1 NEW BRACE (FRAME 4)
S-430
3/4"=1'-0"



2 NEW BRACE VB3
S-430
3/4"=1'-0"

NOTE:
REFER TO DRAWING S-103 & S-301
FOR ROCK ANCHOR DETAILS

