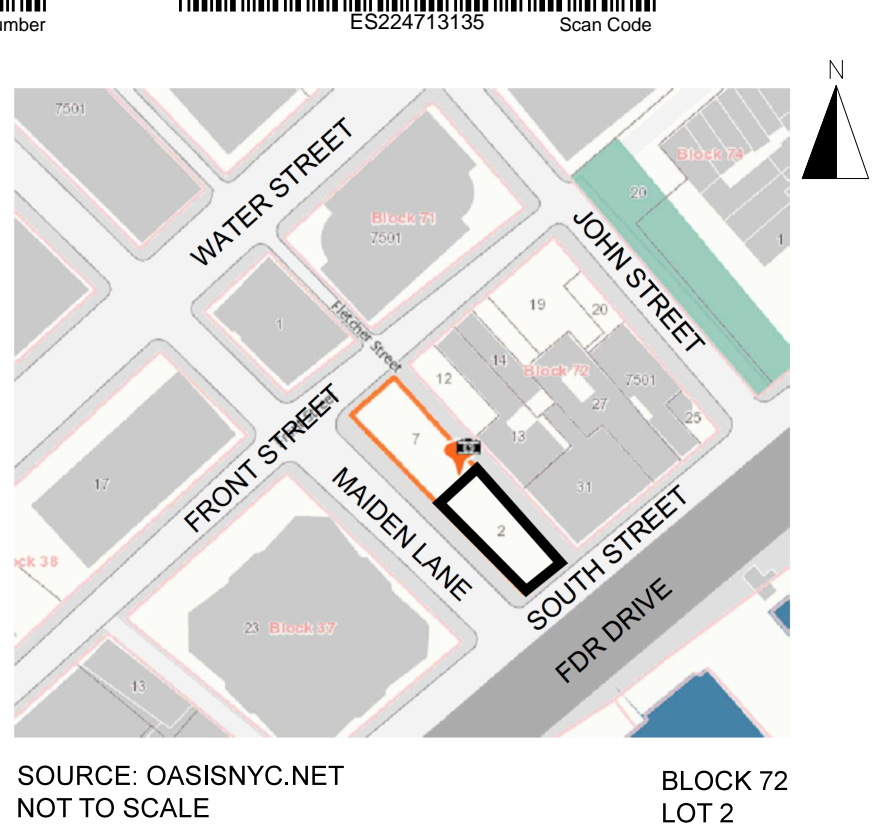


161 MAIDEN LANE



SOURCE: OASISNYC.NET
NOT TO SCALE

BLOCK 72
LOT 2

GENERAL

- THESE DRAWINGS MAY BE USED FOR CONSTRUCTION ONLY IF RA CONSULTANTS LLC IS THE SPECIAL INSPECTION AGENCY FOR:
 - EXCAVATION - SHEETING, SHORING, AND BRACING
 - STRUCTURAL SAFETY - STRUCTURAL STABILITY (FOR SOE ELEMENTS)
 - SOIL - SITE PREPARATION
 - SOIL - INVESTIGATION (BORINGS/TEST PITS)
- IF RA CONSULTANTS LLC HAS BEEN RELEASED OR HAS WITHDRAWN ITS RESPONSIBILITY FOR SPECIAL INSPECTIONS AND A FIRM OTHER THAN RA CONSULTANTS LLC IS ENGAGED BY THE OWNER, OWNER'S REPRESENTATIVE, OR CONTRACTOR FOR SPECIAL INSPECTION OF THE DESIGN SHOWN ON THESE DRAWINGS, THEN WE REQUIRE THAT RA CONSULTANTS LLC BE RETAINED TO REVIEW THE INSPECTION AGENCY'S FIELD REPORTS AND FOR SITE VISITS BY OUR PERSONNEL DURING RELEVANT CONSTRUCTION ACTIVITIES.
- ALL ELEVATIONS ARE REFERENCED TO NAVD88.
- BASE PLANS AND SECTIONS ARE DEVELOPED FROM:
 - ARCHITECTURAL SURVEY BY TRUE NORTH SURVEYORS, P.C., DATED 11/12/2013
 - STRUCTURAL DRAWINGS BY WSP STRUCTURAL ENGINEERS DATED 8/20/2014.
- SOIL DATA OBTAINED FROM:
 - GEOTECHNICAL REPORT FOR 161 MAIDEN LANE BY RA CONSULTANTS LLC DATED 8/14/2014.
- LOCATION OF EXISTING AND PROPOSED CONDITIONS INCLUDING BUT NOT LIMITED TO FOUNDATION WALL, FOOTINGS, AND SLAB LOCATIONS AND ELEVATIONS WERE TAKEN FROM STRUCTURAL AND ARCHITECTURAL DRAWINGS.
- LOCATIONS AND ELEVATIONS OF ALL PROPOSED STRUCTURAL BUILDING ELEMENTS SHOWN ON THIS DRAWING MAY BE APPROXIMATE AND SHALL BE SUPERSEDED BY FINAL STRUCTURAL AND ARCHITECTURAL DRAWINGS.
- IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE UTILITIES AND BELOW GROUND STRUCTURES IN THE AREA OF PRIOR TO COMMENCEMENT OF WORK.
- IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS IN THE FIELD. IF CONDITIONS OBSERVED IN THE FIELD DIFFER FROM THESE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO EVALUATE THE CONDITION. MODIFICATIONS TO THESE DRAWINGS MAY BE NECESSARY.
- THESE DRAWINGS DO NOT ADDRESS SAFETY ISSUES RELATED TO THE EXCAVATION AND SHORING WORK. OTHERS SHALL BE RESPONSIBLE FOR SITE SAFETY AND PROVIDE A SAFETY PLAN CONFORMING TO OSHA AND ALL APPLICABLE LAWS.
- BARRIERS AND FENCING AROUND SITE MUST BE PROVIDED BY CONTRACTOR IN ACCORDANCE WITH NEW YORK CITY DEPARTMENT OF BUILDINGS AND ALL APPLICABLE LAWS.
- IF THE CONDITIONS OBSERVED AS THE EXCAVATION ADVANCES ARE DIFFERENT THAN THE CONDITIONS SHOWN ON THE DESIGN DRAWINGS, THE CONTRACTOR SHALL STOP WORK AND NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER.
- OBSERVED MOVEMENTS OF THE SUPPORT OF EXCAVATION OR OTHER STRUCTURES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER.
- LOOSE AREAS OF FOUNDATION WALL OR FOOTINGS THAT ARE DAMAGED OR LOOSE SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR EVALUATION AND REMEDIAL MEASURES.
- PINS, WIRE MESH, AND PARGING MAY BE REQUIRED TO STABILIZE THE FOUNDATION WALL, OR FOOTINGS.
- ALL STRUCTURAL STEEL SHALL BE GRADE 50, ASTM A-572.
- 1-BAG MIX SHALL CONSIST OF 1-94 LB. BAG OF

CEMENT TO 1 CY OF SAND. QUANTITY OF WATER SHALL BE ADEQUATE TO ALLOW THE MIX TO FLOW.

- NOTIFY DOB 24- TO 48-HRS PRIOR TO EXCAVATION (RULE 52).

SURVEY AND MONITORING

- A PRE-CONSTRUCTION (PRE-CONDITION) SURVEY OF THE ADJACENT STRUCTURES SHALL BE DONE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW AND FAMILIARIZE HIMSELF WITH THE RESULTS OF THE SURVEY. THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE ADJACENT STRUCTURES (INSIDE AND OUT) PRIOR TO STARTING THE WORK.
- MONITOR THE ADJACENT BUILDINGS AT ABOUT 25-FT INTERVALS FOR VERTICAL AND LATERAL MOVEMENT. NOTE THAT MONITORING LOCATIONS ARE NOT SHOWN ON THE SUPPORT OF EXCAVATION PLAN FOR CLARITY.
- OBTAIN BASELINE READINGS OF THE MONITORING POINTS PRIOR TO EXCAVATION AND NEW CONSTRUCTION.
- PERFORM OPTICAL SURVEYS AT LEAST TWICE PER MONTH. IF MOVEMENTS OCCUR, INCREASE THE FREQUENCY OF THE READINGS AS DIRECTED BY THE ENGINEER.
- VIBRATION MONITORS (SEISMOGRAPHS) SHALL BE PLACED ADJACENT TO AREAS WHERE WORK IS BEING PERFORMED. NOTE THAT SEISMOGRAPH LOCATIONS ARE NOT SHOWN ON THE SUPPORT OF EXCAVATION PLAN FOR CLARITY.
- NON-LANDMARK BUILDING MOVEMENT AND VIBRATION CRITERIA:
 - IF THE VERTICAL OR LATERAL BUILDING MOVEMENT REACHES 1/4-INCH IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER AND ENGINEER.
 - IF THE BUILDING MOVEMENT REACHES 1/2-INCH, IMMEDIATELY INFORM THE CONSTRUCTION MANAGER AND ENGINEER AND STOP WORK. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER AND APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURES BY THE ENGINEER.
 - IF THE VIBRATIONS REACH 1-INCHES PER SECOND (IPS) THE CONSTRUCTION MANAGER AND ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
 - IF THE VIBRATIONS EXCEED 2-IPS, IMMEDIATELY INFORM THE CONSTRUCTION MANAGER AND ENGINEER AND STOP WORK. THE WORK SHALL RESUME UPON APPROVAL BY THE CONSTRUCTION MANAGER AND APPROVED REMEDIAL MEASURES AND/OR MODIFIED CONSTRUCTION PROCEDURES BY THE ENGINEER.
- VIBRATION MONITORS SHALL TAKE REAL TIME READINGS.
- ALL MONITORING DATA SHALL BE PRESENTED TO THE CONSTRUCTION MANAGER AND ENGINEER AT THE END OF EACH DAY.

TIE-DOWNS (ROCK ANCHORS)

- TIE-DOWNS SHALL BE INSTALLED IN ACCORDANCE WITH POST-TENSIONING INSTITUTE (PTI) RECOMMENDATIONS.
 - TIE-DOWNS SHALL BE TESTED TO 1.33 THE DESIGN LOAD SHOWN ON THESE DRAWINGS.
 - AT LEAST 5% OF TIE-BACKS AND TIE-DOWNS SHALL BE PERFORMANCE TESTED
 - THE REMAINDER SHALL BE PROOF TESTED
 - TIE-DOWNS SHALL BE LOCKED AT THE LOCK-OFF LOAD SPECIFIED IN THESE DRAWINGS.
 - IF ANY OF THE ABOVE TOLERANCES ARE EXCEEDED AND IN THE OPINION OF THE ENGINEER REQUIRE CORRECTIVE MEASURES. SUCH CORRECTIVE MEASURES, INCLUDING COSTS OF ENGINEERING AND REDESIGN, SHALL BE PAID FOR BY THE CONTRACTOR.
- SOIL IMPROVEMENT (SOILCRETE)
- SOIL SHALL BE IMPROVED TO THE REQUIRED

COMPRESSIVE STRENGTH AS SHOWN ON THESE DRAWINGS.

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN A GROUT MIX AND INSTALLATION PROCEDURE TO ATTAIN THE DESIRED SOILCRETE STRENGTH.
 - CONTRACTOR SHALL SUBMIT TO THE OWNER'S REPRESENTATIVE BEFORE THE START OF WORK A GROUT MIX DESIGN (BELOW) INDICATING SOURCES, TYPES OF GROUT MATERIALS AS FOLLOWS:
 - CEMENT, PORTLAND, TYPE ____, ACI ____.
 - GROUND GRANULATED BLAST FURNACE SLAG ACI ____.
 - FLYASH, CLASS ____, ASTM ____.
 - WATER ____.
 - ADDITIVES AS APPROVED BY THE ENGINEER
 - CONTRACTOR SHALL SUBMIT TO THE OWNER'S REPRESENTATIVE BEFORE THE START OF WORK A WORK PROCEDURES PLAN AND DRAWING OUTLINING A PRE-PRODUCTION TEST PROGRAM AND THE SPACING, LOCATION, DEPTH AND QUANTITY OF GROUT TO ACHIEVE THE CRITERIA DETAILED IN THESE DRAWINGS. JET GROUTING SHALL BE PERFORMED IN ACCORDANCE WITH THE ACCEPTED GROUT INJECTION PLAN AND DRAWING TO ACHIEVE THE FOLLOWING IN THE INSITU SOIL WITHIN THE WORK AREA:
 - VOLUME COVERAGE OF 100% OF THE QUANTITY SHOWN ON THE DRAWINGS.
 - STRENGTH BY WET SAMPLING/CAST MOLDS TO AVERAGE REQUIRED UNCONFINED COMPRESSIVE STRENGTH (SEE TESTING PROGRAM AND CRITERIA BELOW) AFTER 28 DAY CURE PERIOD. UP TO 5% OF THE TEST RESULTS MAY BE LESS THAN THIS VALUE
 - SHEAR STRENGTH OF CORE SAMPLES SHALL AVERAGE 75 PER CENT OF SHEAR STRENGTH DETERMINED FROM REQUIRED UNCONFINED COMPRESSIVE STRENGTH (SEE TESTING PROGRAM AND CRITERIA BELOW) AFTER 21 DAYS CURE PERIOD. UP TO 5% OF THE TEST RESULTS MAY BE LESS THAN THIS VALUE.
- CONTRACTOR SHALL USE THE SAME EQUIPMENT, MATERIALS, AND PROCEDURES AS THOSE DETERMINED IN THE PRE-PRODUCTION TEST PROGRAM TO GIVE SATISFACTORY RESULTS TO PERFORM PRODUCTION JET GROUTING FOR THE REQUIRED SOIL IMPROVEMENT. CONTRACTOR SHALL INSTALL SOILCRETE COLUMNS, ENSURING THAT CONTINUOUS SPOIL RETURN UP THE BOREHOLE ANNULUS IS ACHIEVED DURING ALL WORK.
- AT COMPLETION OF DAILY JET GROUTING OPERATIONS, CONTRACTOR SHALL THOROUGHLY CLEAN SITE AND LOAD ALL SPOIL DEBRIS, WATER, AND SPILLED MATERIAL INTO TRUCKS AS PROVIDED BY OWNER. SPOIL STOCKPILING OVERNIGHT IS PERMITTED PRIOR TO TRANSFER TO A PREDETERMINED WASTE OR FILL LOCATION BY OWNER. DISPOSAL OF SPOIL SHALL BE THE RESPONSIBILITY OF THE OWNER.
- CONTRACTOR SHALL SUBMIT DAILY RECORDS FOR EACH GROUT LOCATION INCLUDING DEPTH OF TREATMENT, START AND STOP TIMES, ALL JETTING PARAMETERS AND GROUT INJECTED.
- GROUT INJECTION AND MONITOR AND EXTRACTION RATES SHALL BE SUFFICIENT TO PRODUCE GROUT COLUMNS MEETING THE REQUIREMENTS SPECIFIED HEREIN.
- EQUIPMENT FOR MIXING, PUMPING AND HOLDING GROUT SHALL BE IN A SECURE LOCATION AND SHALL BE OPERATED TO MINIMIZE SPILLAGE OF MATERIAL.
- CONTRACTOR SHALL ENSURE CONTINUOUS SPOIL RETURN DURING ALL JET GROUTING OPERATIONS.
- ANY JET GROUT HOLE LOST OR DAMAGED SHALL BE BACKFILLED WITH CEMENT GROUT AND REPLACED BY ANOTHER HOLE, AT NO ADDITIONAL COST TO THE OWNER.
- ALL JET GROUTING SHALL BE PERFORMED UNDER THE OBSERVATION OF THE ENGINEER.
- SOIL SHALL BE IMPROVED TO THE DESIRED COMPRESSIVE STRENGTH AS SHOWN ON THESE DRAWINGS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DESIGN A GROUT MIX AND INSTALLATION PROCEDURE TO ATTAIN THE DESIRED SOILCRETE STRENGTH.
- CONTRACTOR SHALL SUBMIT TO THE OWNER'S REPRESENTATIVE BEFORE THE START OF WORK
 - GROUT MIX DESIGN INDICATING SOURCES AND TYPES OF GROUT MATERIALS.
 - WORK PROCEDURES, SEQUENCE AND CONTROL CRITERIA.
 - A WORK PROCEDURES PLAN OUTLINING THE

SPACING, LOCATION, DEPTH AND QUANTITY OF GROUT TO ACHIEVE THE CRITERIA DETAILED IN THESE DRAWINGS.

- CONTRACTOR SHALL SUBMIT DAILY RECORDS FOR EACH GROUT LOCATION INCLUDING DEPTH OF TREATMENT, START AND STOP TIMES, ALL JETTING PARAMETERS AND GROUT INJECTED.
- ALL JET GROUTING SHALL BE PERFORMED UNDER THE INSPECTION OF THE ENGINEER.
- GROUT INJECTION AND MONITOR AND EXTRACTION RATES SHALL BE SUFFICIENT TO PRODUCE GROUT COLUMNS MEETING THE REQUIREMENTS SPECIFIED HEREIN.
- EQUIPMENT FOR MIXING, PUMPING AND HOLDING GROUT SHALL BE IN A SECURE LOCATION AND SHALL BE OPERATED TO MINIMIZE SPILLAGE OF MATERIAL.
- ENSURE CONTINUOUS SPOIL RETURN DURING ALL JET GROUTING OPERATIONS.
- ANY JET GROUT HOLE LOST OR DAMAGED SHALL BE BACKFILLED WITH CEMENT GROUT AND REPLACED BY ANOTHER HOLE, AT NO ADDITIONAL COST TO THE OWNER.

TESTING PROGRAM

- THE REQUIRED 28-DAY UNCONFINED COMPRESSIVE STRENGTH OF THE PRODUCT AS DETERMINED BY LABORATORY TESTING SHALL BE:
 - FILL ZONE (TO APPROXIMATELY 26-FT BELOW GROUND SURFACE (BGS)) - 1,000 LB/SQ. IN (PSI)
 - CLAY ZONE (TO APPROXIMATELY 35 BGS - 350 PSI)
 - UPPER SAND ZONE TO APPROXIMATELY 50 BGS - 1,000 PSI
- CONTRACTOR SHALL GRAB SAMPLES DAILY FROM INSTALLED PRODUCT FROM DEPTHS WITHIN THE ABOVE MENTIONED ZONES AS REQUESTED BY OWNER'S ENGINEER.
- MINIMUM FOUR SAMPLES SHALL BE OBTAINED FROM EACH DEPTH FORMED INTO 3-IN DIAMETER BY 6-IN LONG CYLINDERS FOR LABORATORY TESTING. THE SAMPLES SHALL BE CONTAINED IN MOIST CONDITIONS ON SITE (NOT MORE THAN THREE DAYS) UNTIL SHIPPED TO THE LABORATORY TO BE DESIGNATED BY THE OWNER.
- JET GROUT COLUMNS FOR THE JET GROUT MAY EXTEND BELOW ELEVATION -50 IF REQUESTED OR APPROVED BY THE OWNER'S ENGINEER IN WRITING.
- IF SPECIFIED COMPRESSIVE STRENGTHS ARE NOT OBTAINED CONTRACTOR SHALL DEVELOP A CONTINGENCY PLAN INCLUDING INSTALLATION OF SETTLEMENT REDUCING PILES IF NECESSARY TO BE REVIEWED AND ACCEPTED BY THE OWNER'S ENGINEER. THE COST OF IMPLEMENTING THE CONTINGENCY PLAN SHALL BE BORNMA AT LOCATIONS SPECIFIED BY THE ENGINEER.
- ALL TIE-DOWNS SHALL BE PROOF AND/OR PERFORMANCE TESTED IN ACCORDANCE WITH PTI RECOMMENDATIONS AND GUIDELINES.

MATERIALS & TESTING

- THE OWNER/CONSTRUCTION MANAGER SHALL RETAIN THE SERVICES OF AN INDEPENDENT TESTING LABORATORY/COMPANY.
- CONCRETE PLACEMENT TIME SHALL NOT EXCEED 2-HOURS OR AS RECOMMENDED BY THE TESTING COMPANY.
- PERFORM ONE SLUMP TEST FOR EACH BATCH OF CONCRETE. SLUMP SHALL BE BETWEEN 4- AND 6-INCHES FOR UNDERPINNING.

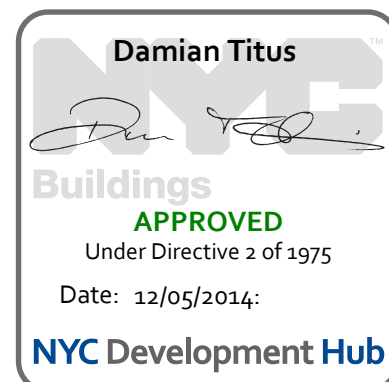
- MAKE A SET OF 5 (MINIMUM) CYLINDERS EACH DAY CONCRETE IS CAST FOR UNDERPINNING OR GROUT IS BEING PLACED FOR SOLDIER PILES.
- PERFORM COMPRESSION TEST ON 1 CYLINDER AT 7 DAYS AND 1 AT 14 DAYS. IF THE DESIGN STRENGTH IS ACHIEVED AT 14 DAYS, NO FURTHER TESTING IS REQUIRED. OTHERWISE TEST ONE OR TWO CYLINDERS, DEPENDING IF THE DESIGN STRENGTH IS ACHIEVED AT 28 DAYS. ONE OR TWO SAMPLES SHALL BE SAVED FOR 56 DAY TESTING IF THE PREVIOUS CYLINDERS FAIL TO MEET DESIGN STRENGTH REQUIREMENTS.
- PROVIDE TESTING RESULTS TO THE CONSTRUCTION MANAGER AND/OR OWNER.
- IF THE DESIGN STRENGTH REQUIREMENTS ARE NOT MET, THE CONTRACTOR SHALL PERFORM REMEDIATION AS DIRECTED BY THE CONSTRUCTION MANAGER, AT NO ADDITIONAL COST TO THE OWNER.
- ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1 USING E-70 ELECTRODES.
- ALL STRUCTURAL STEEL SHALL BE GRADE 50, ASTM A-572.
- 1-BAG MIX SHALL CONSIST OF 1-94 LB. BAG OF CEMENT TO 1 CY OF SAND. QUANTITY OF WATER SHALL BE ADEQUATE TO ALLOW THE MIX TO FLOW.
- TIMBER LAGGING SHALL BE ROUGH CUT, FULL SIZE CONSTRUCTION GRADE, WITH A MINIMUM ALLOWABLE BENDING STRESS OF 1200-PSI. TIMBER SIZES SHOWN ARE ACTUAL SIZES.
- MISCELLANEOUS STEEL (PLATES AND WEDGES) SHALL BE ASTM A36.

SPECIAL INSPECTIONS

- A SPECIAL INSPECTOR AND/OR SPECIAL INSPECTION AGENCY SHALL HAVE RESPONSIBILITIES AS SET FORTH IN CHAPTER 17 OF THE NEW YORK CITY BUILDING CODE AND ELSEWHERE IN THE CODES WHERE SPECIAL INSPECTIONS ARE REQUIRED. THE RESPONSIBILITIES OF THE SPECIAL INSPECTOR OR SPECIAL INSPECTION AGENCY AT A SPECIAL INSPECTION SHALL INCLUDE THOSE TASKS AND STANDARDS SET FORTH IN CHAPTER 17 OF THE CODE, THE REFERENCE STANDARDS AND ELSEWHERE IN THE CODE, THIS RULE OR ANY RULE OF ANY AGENCY IN CONNECTION WITH THE WORK THAT IS THE SUBJECT OF SUCH SPECIAL INSPECTION.
- NECESSARY SPECIAL INSPECTIONS:
 - EXCAVATION - SHEETING, SHORING, AND BRACING.
 - SOIL - SITE PREPARATION.
 - SOIL - INVESTIGATION (BORINGS/TEST PITS).
 - STRUCTURAL STEEL - WELDING

LIST OF DRAWINGS

1 OF 5	SOE-001	NOTES
2 OF 5	SOE-100	SUPPORT OF EXCAVATION PLAN
3 OF 5	SOE-200	SECTIONS
4 OF 5	SOE-201	SECTIONS
5 OF 5	SOE-201	DETAILS



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SEAL AND SIGNATURE DATE: MAY 5 2014

PROJ. NO.: 13C1126

DRAWN BY: JH

CHECKED BY: NMA

DRAWING: SOE-001

SHEET: 1 OF 5

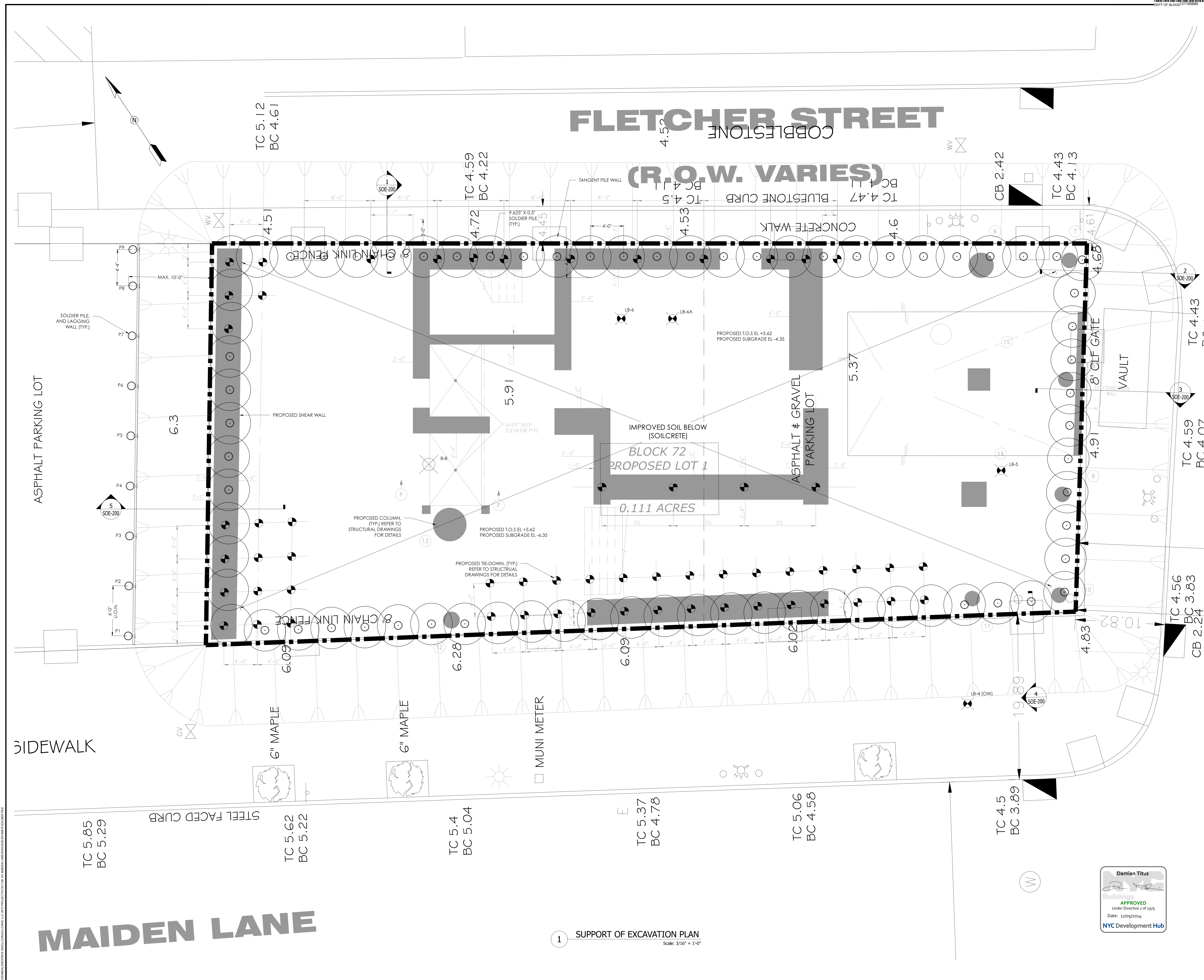
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PROJECT: 161 MAIDEN LANE
NEW YORK, NY

TITLE: SUPPORT OF EXCAVATION NOTES

161 MAIDEN LANE
NEW YORK, NY

161 MAIDEN LANE
NEW YORK, NY



KEY PLAN

SOURCE: OASISNYC.NET
NOT TO SCALE

BLOCK 72
LOT 2

NOTE:

1. REFER TO DRAWING NUMBER SOE-001 FOR NOTES AND LIST OF DRAWINGS.

LEGEND:

- LB-X APPROXIMATE BORING LOCATION BY LANGAN
- LB-X(OW) APPROXIMATE BORING LOCATION BY LANGAN WITH OBSERVATION WELL
- B-X APPROXIMATE BORING LOCATION BY RA CONSULTANTS LLC
- +X.X APPROXIMATE GROUND WATER TABLE ELEVATION
- PROPOSED ROCK ANCHORS, REFER TO STRUCTURAL DRAWINGS FOR DETAILS.

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9/2/2014	ISSUED FOR FILING	
8/21/2014	UPDATED SOE SYSTEM	
REV	DATE	DETAILS

PROJECT

161 MAIDEN LANE
NEW YORK, NY

TITLE

SUPPORT OF EXCAVATION PLAN

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SEAL AND SIGNATURE

STATE OF NEW YORK
JEROME M. RUBIN, M.
LICENSED PROFESSIONAL ENGINEER

DATE: MAY 5 2014

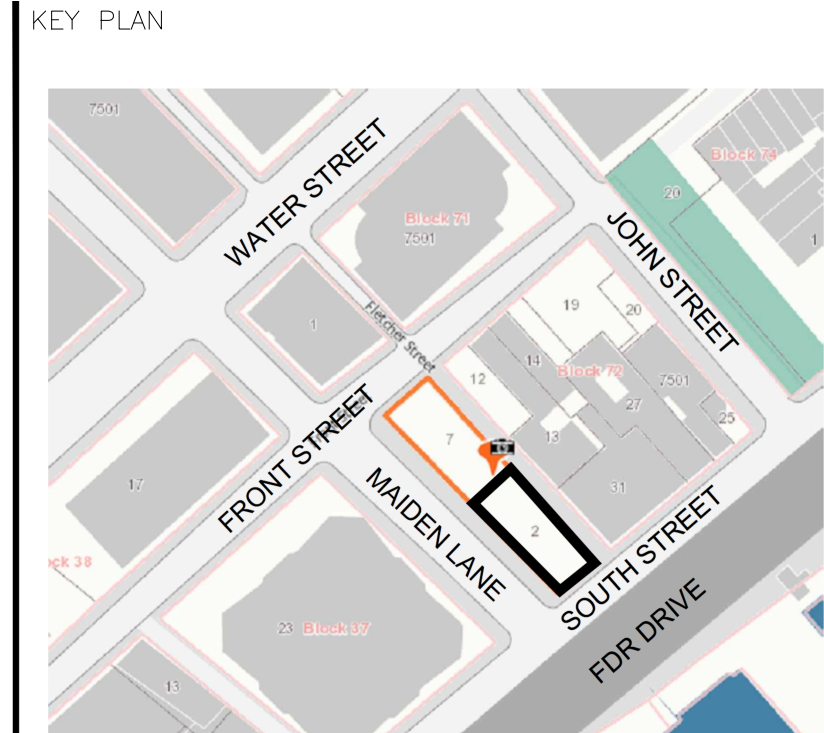
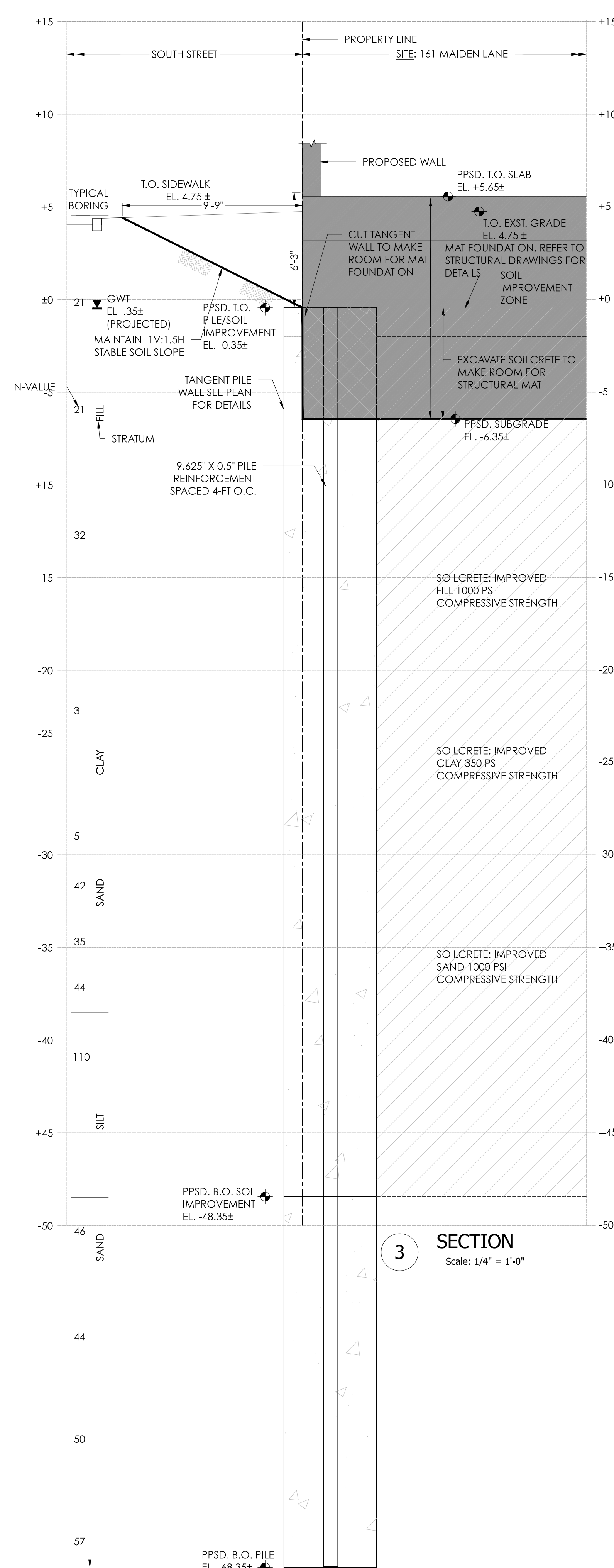
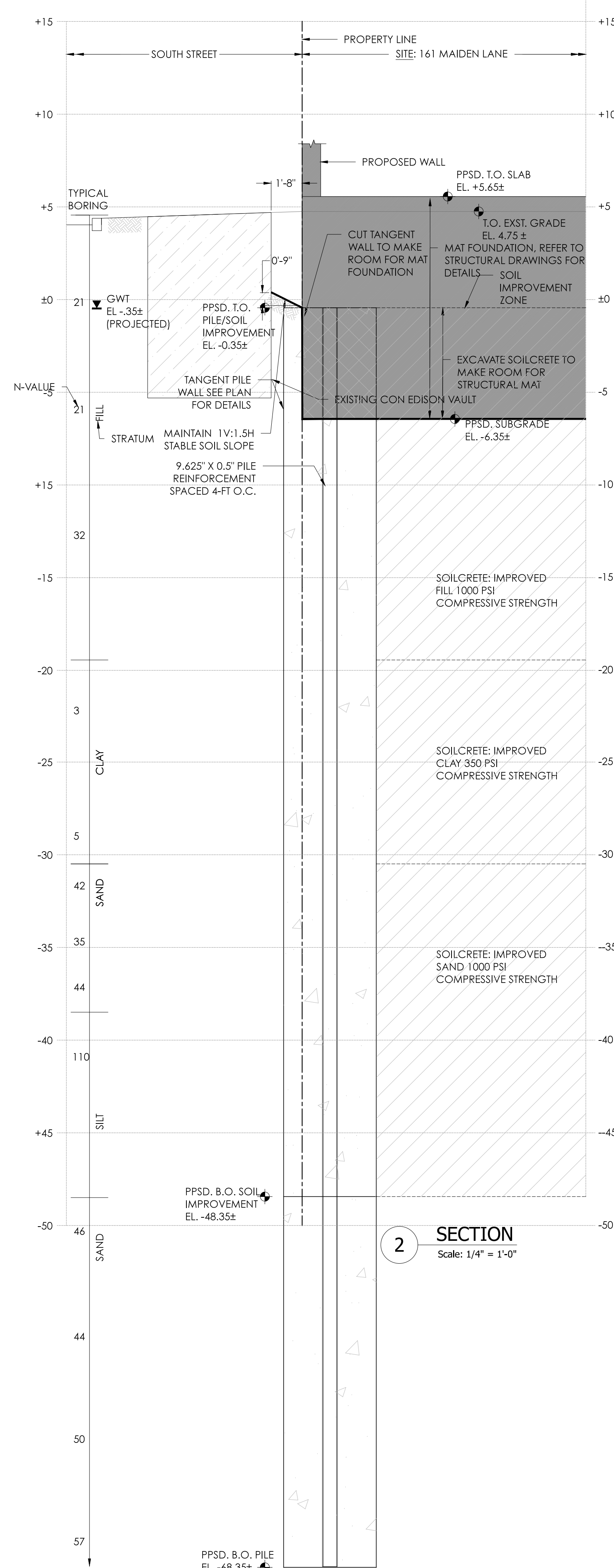
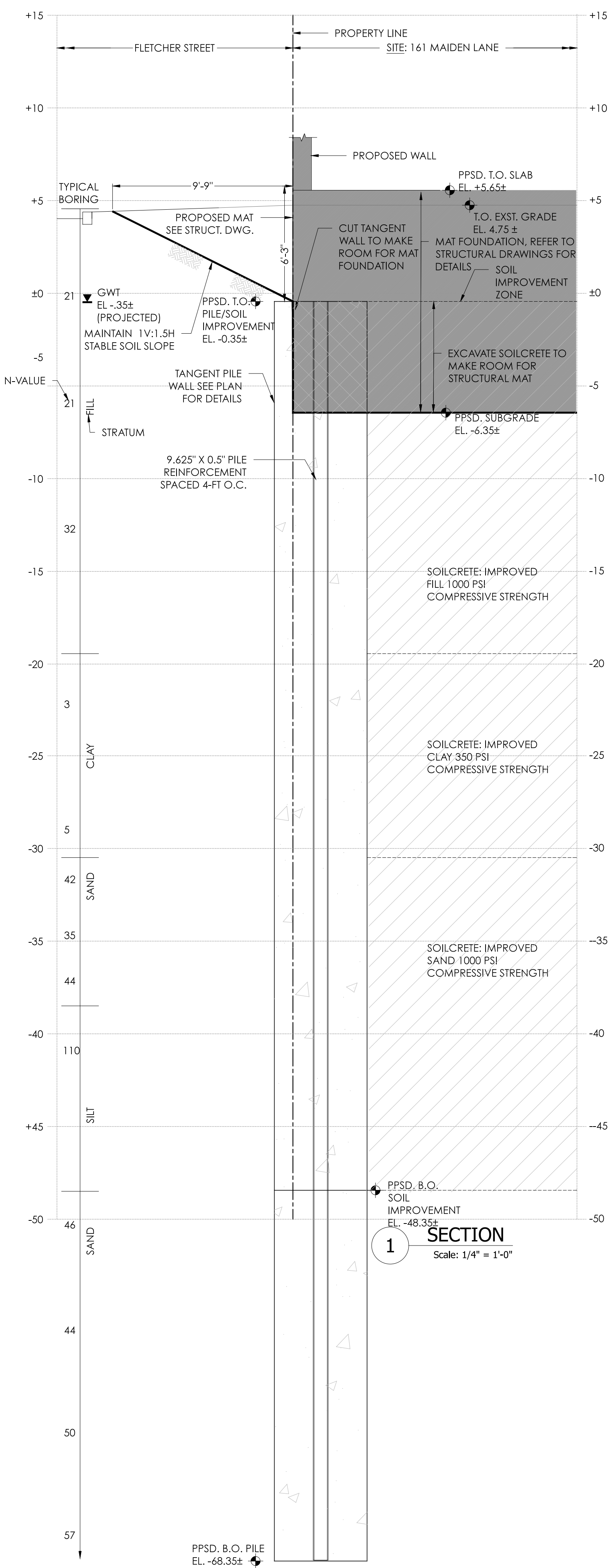
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DRAWN BY: JH

CHECKED BY: NMA

DRAWING: SOE-100.00

SHEET: 2 OF 5



- NOTES:
1. REFER TO DRAWING NUMBER SOE-001 FOR NOTES AND LIST OF DRAWINGS.
 2. REFER TO DRAWING NUMBER SOE-100 FOR PLAN, LEGEND AND INSTALLATION PROCEDURE.

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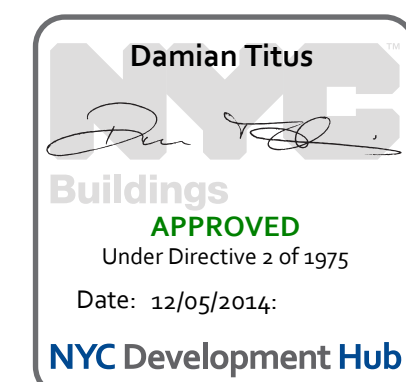
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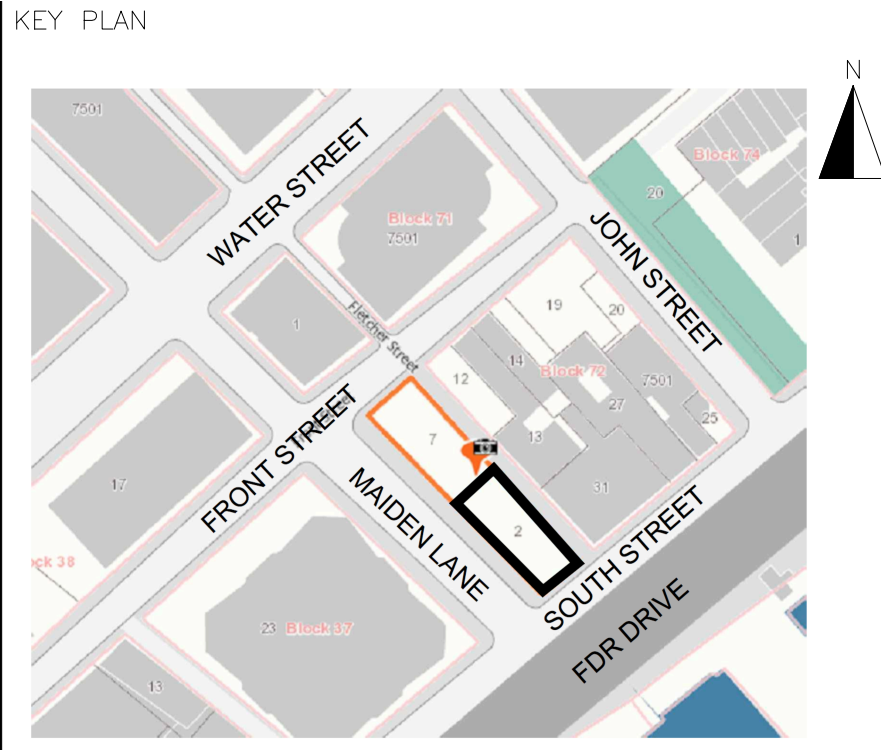
PROJECT
161 MAIDEN LANE
NEW YORK, NY

TITLE
SUPPORT OF EXCAVATION PLAN

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DRAWING:
SOE-200.00
SHEET: 3 OF 5



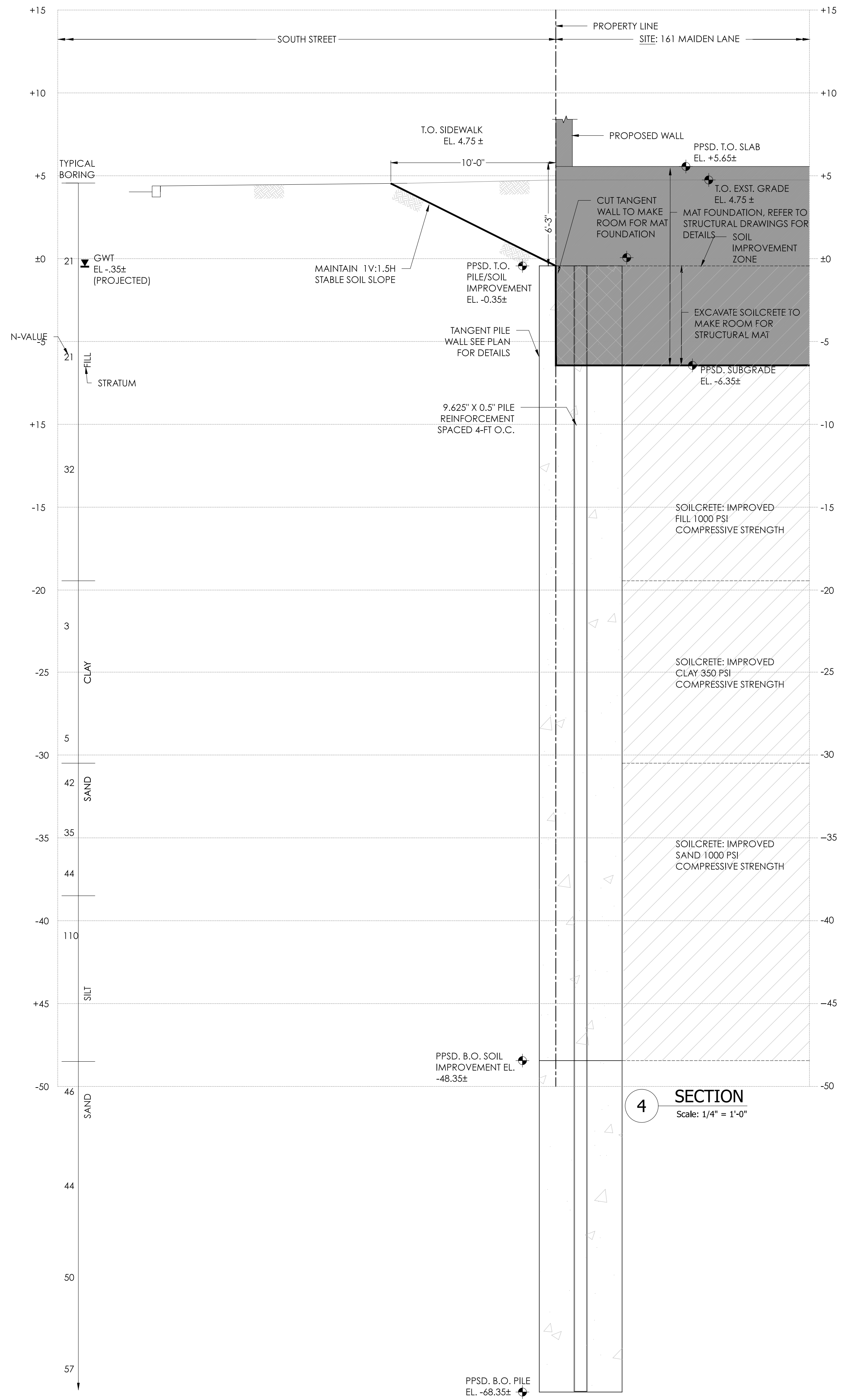


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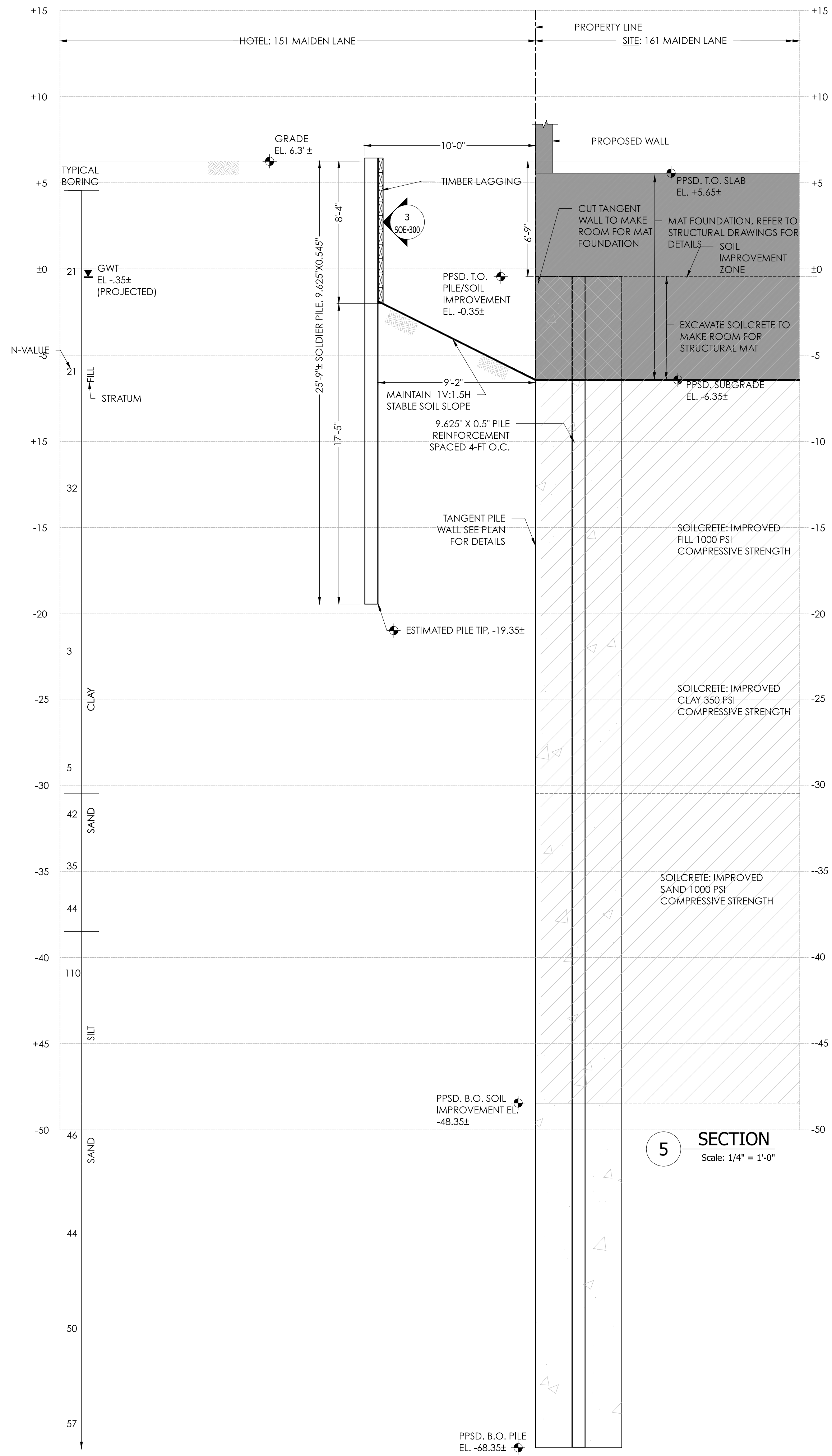
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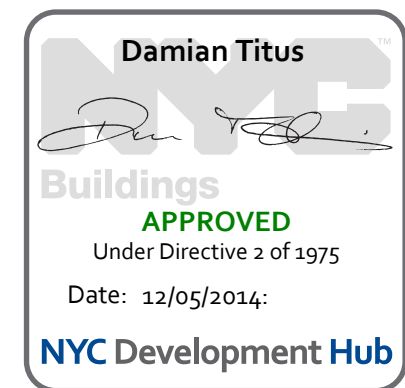
1. REFER TO DRAWING NUMBER SOE-001 FOR NOTES AND LIST OF DRAWINGS.
2. REFER TO DRAWING NUMBER SOE-100 FOR PLAN, LEGEND AND INSTALLATION PROCEDURE.



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



5 SECTION
Scale: 1/4" = 1'-0"



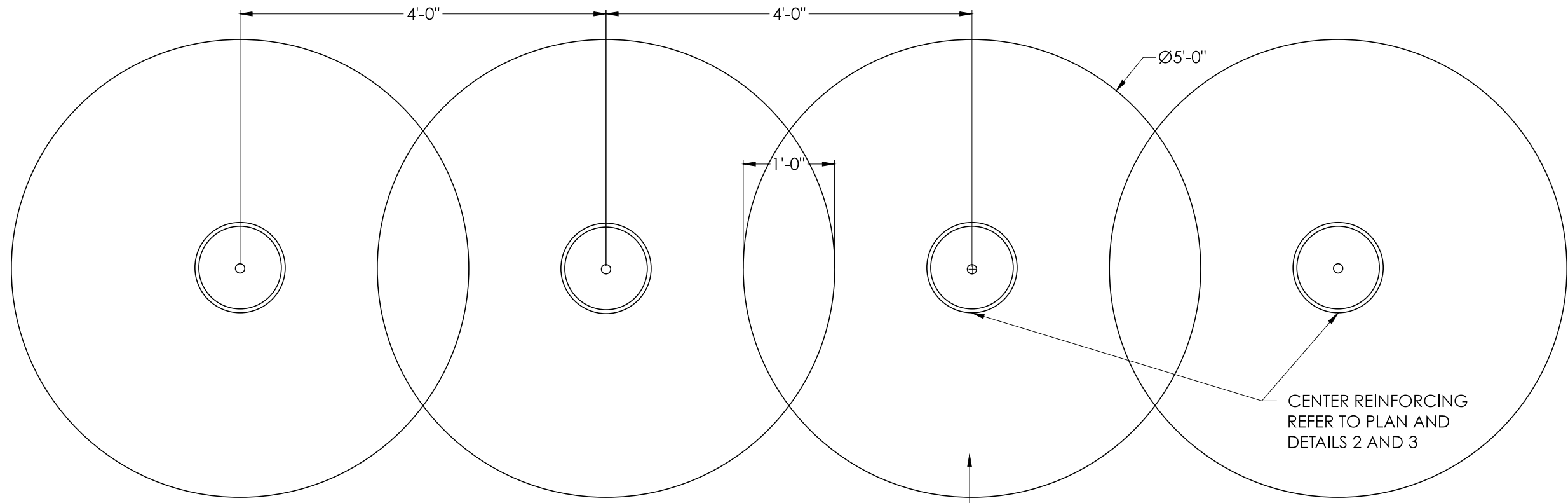
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REV.	DATE	DETAILS
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8/21/2014	UPDATED SOE SYSTEM	

PROJECT
161 MAIDEN LANE
NEW YORK, NY
TITLE
SUPPORT OF EXCAVATION
SECTIONS

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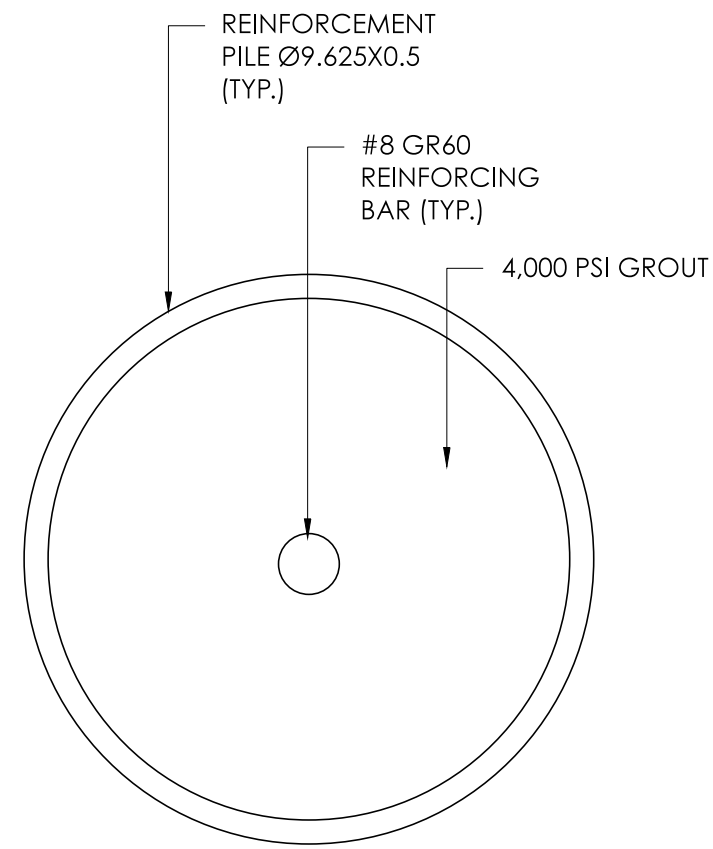
SEAL AND SIGNATURE
STATE OF NEW YORK
LICENSED PROFESSIONAL ENGINEER
DATE: MAY 5, 2014
PROJ. NO.: 13C1126
DRAWN BY: JH
CHECKED BY: NMA
DRAWING:
SOE-201.00
SHEET: 4 OF 5



- NOTES:
1. REFER TO PLAN FOR ROCK ANCHOR LOCATIONS.
 2. REFER TO DETAIL 2 FOR WALL REINFORCING.
 3. REFER TO DETAIL 4 FOR ROCK ANCHOR.

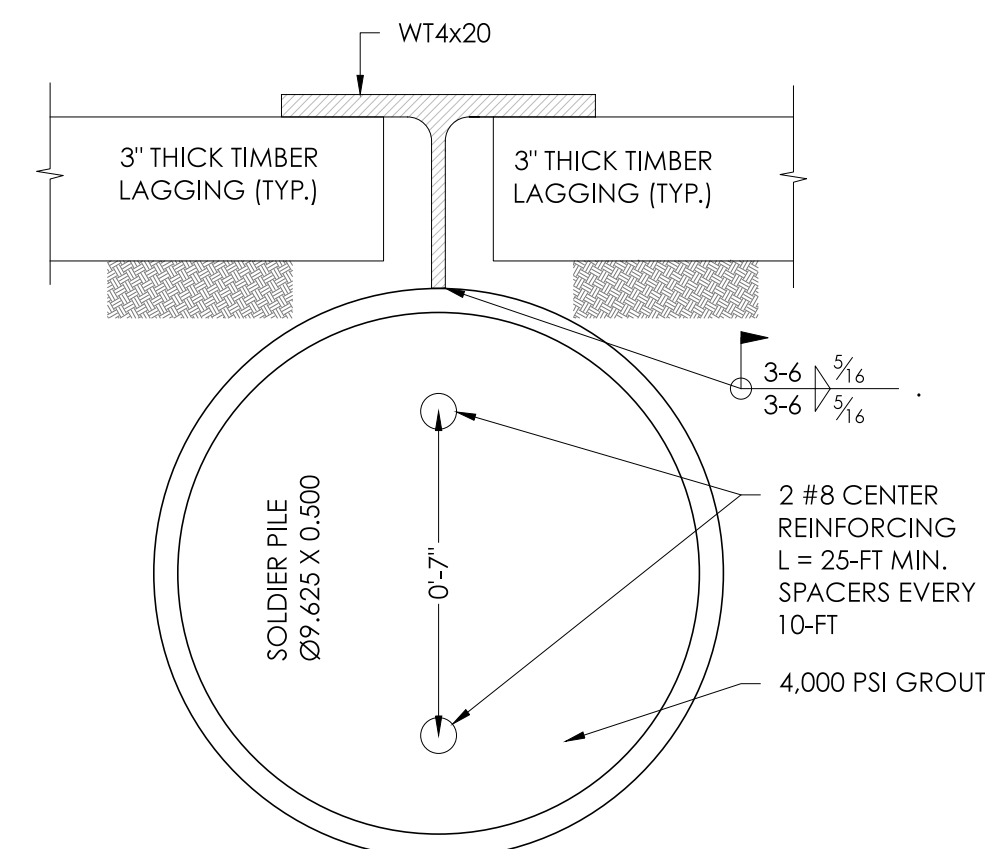
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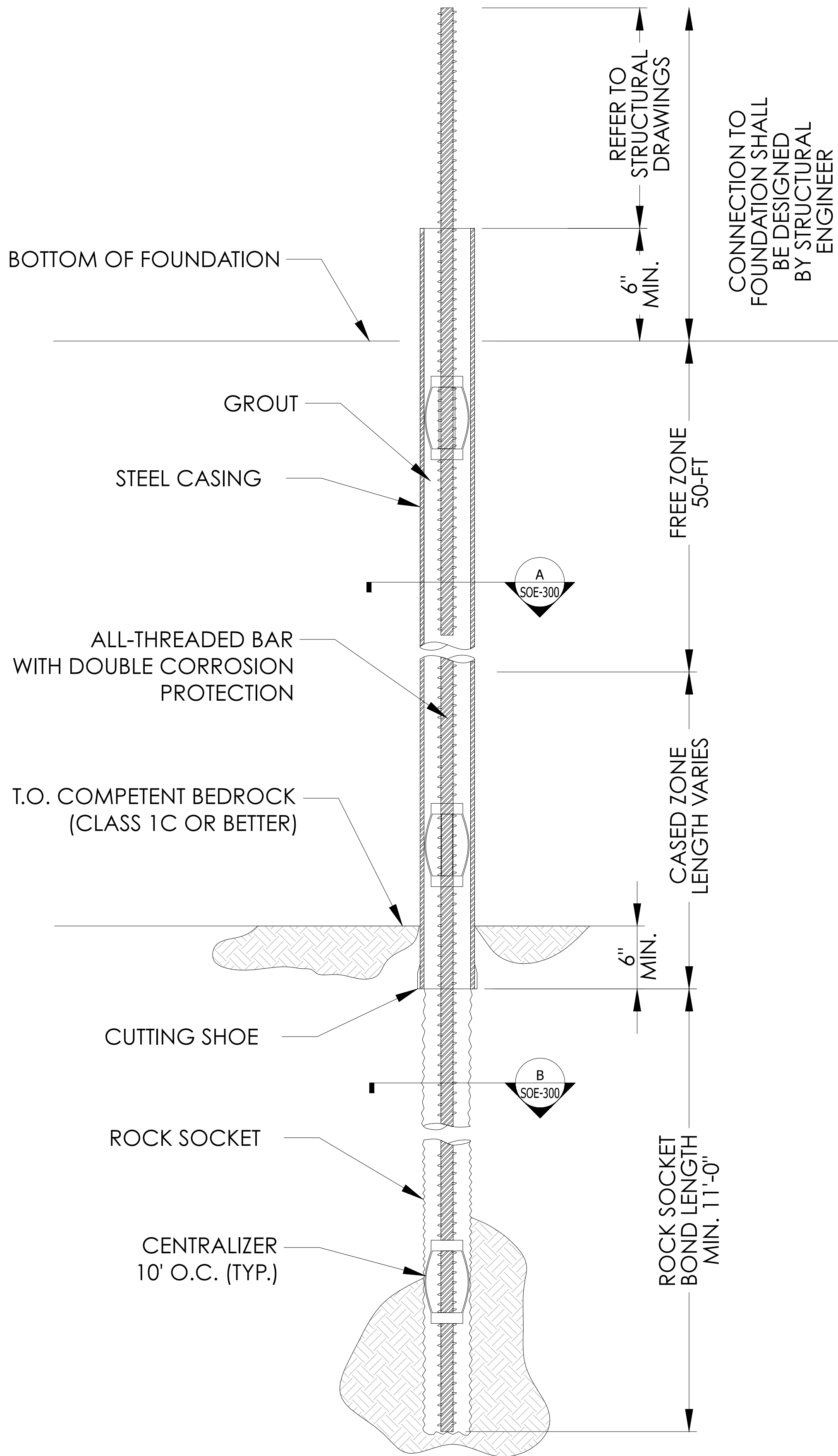
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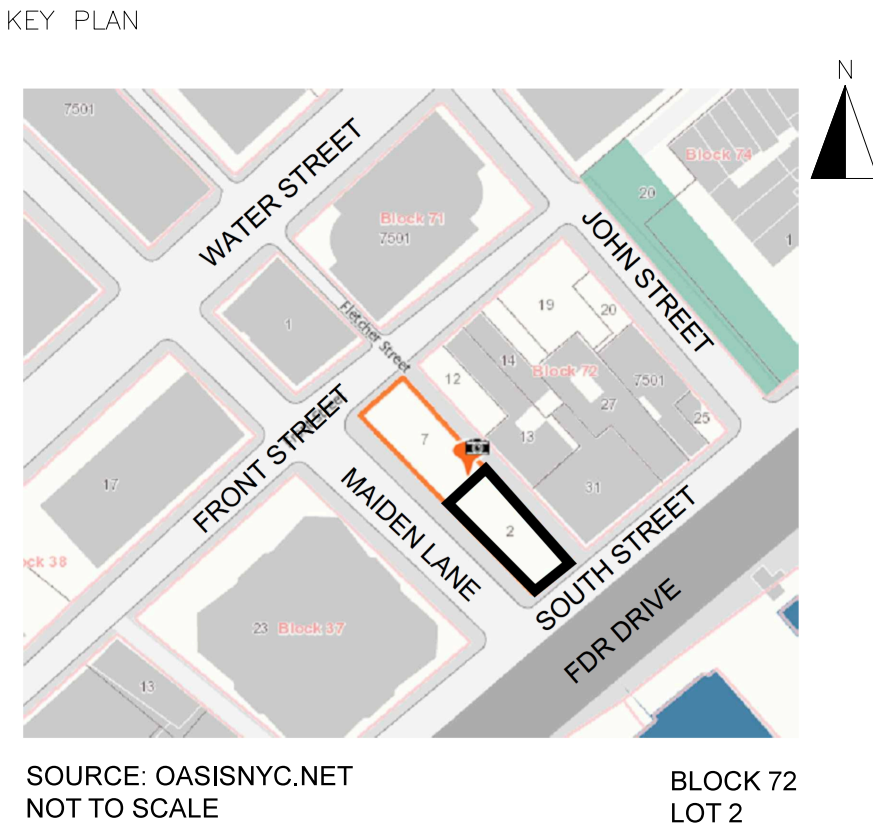
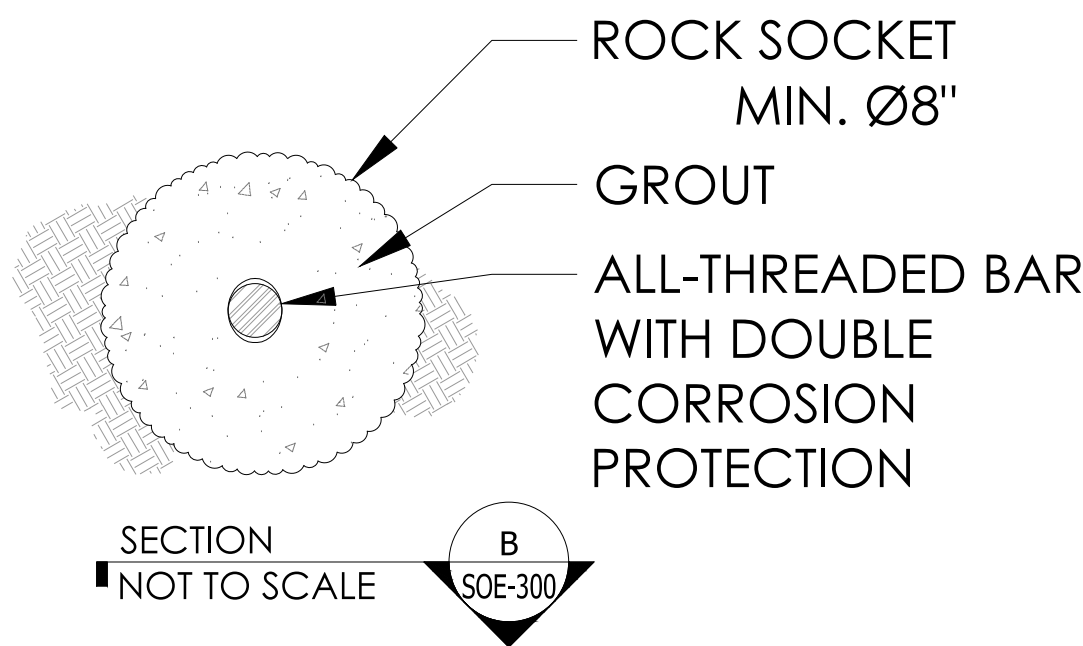
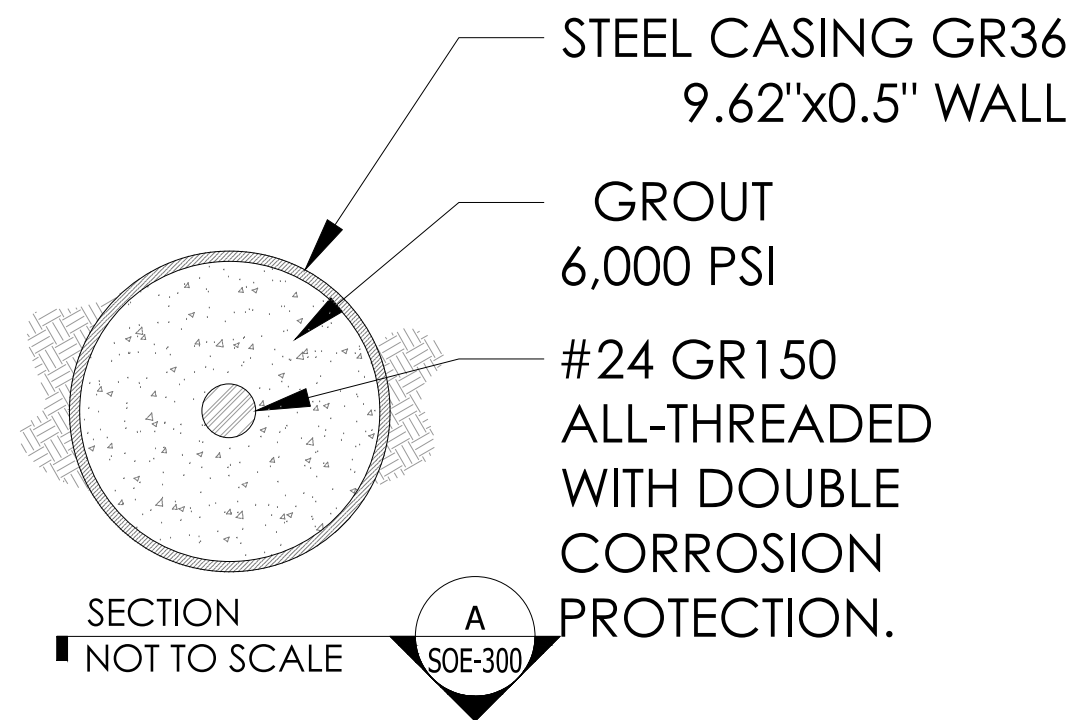
SOLDIER PILE DETAIL (TYP.)
NOT TO SCALE

3



580-KIP ROCK ANCHOR
NOT TO SCALE

4



- NOTES:
1. REFER TO DRAWING NUMBER SOE-001 FOR NOTES AND LIST OF DRAWINGS.
 2. REFER TO DRAWING NUMBER SOE-100 FOR PLAN, LEGEND AND INSTALLATION PROCEDURE.

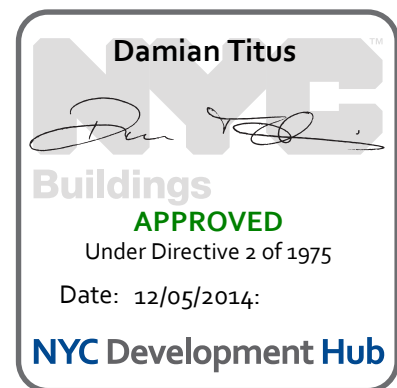
(C) RA CONSULTANTS LLC CURRENT AND PRIOR YEARS
UNAUTHORIZED ALTERATION OR ADDITION TO THESE DRAWINGS IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW. COPIES OF THESE DRAWINGS NOT BEARING THE LICENCED ENGINEER'S INKED SEAL OR EMBOSSED SEAL SHALL NOT BE CONSIDERED TO BE A VALID TRUE COPY.

REV.	DATE	DETAILS
9/2/2014	ISSUED FOR FILING	
8/21/2014	UPDATED SOE SYSTEM	

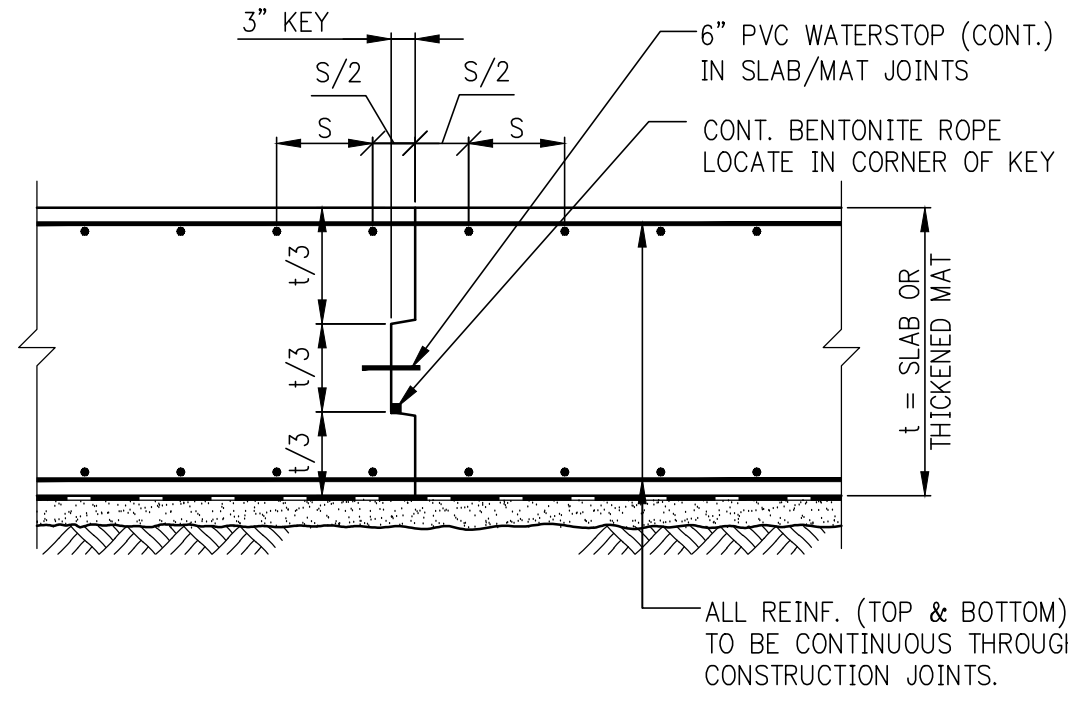
PROJECT
161 MAIDEN LANE
NEW YORK, NY
TITLE
SUPPORT OF EXCAVATION
DETAILS

RA CONSULTANTS LLC
Geotechnical Engineering
512 SEVENTH AVENUE
NEW YORK, NY 10013
(718) 646-484-3250 (F) 646-484-3251 WWW.RACLLC.COM

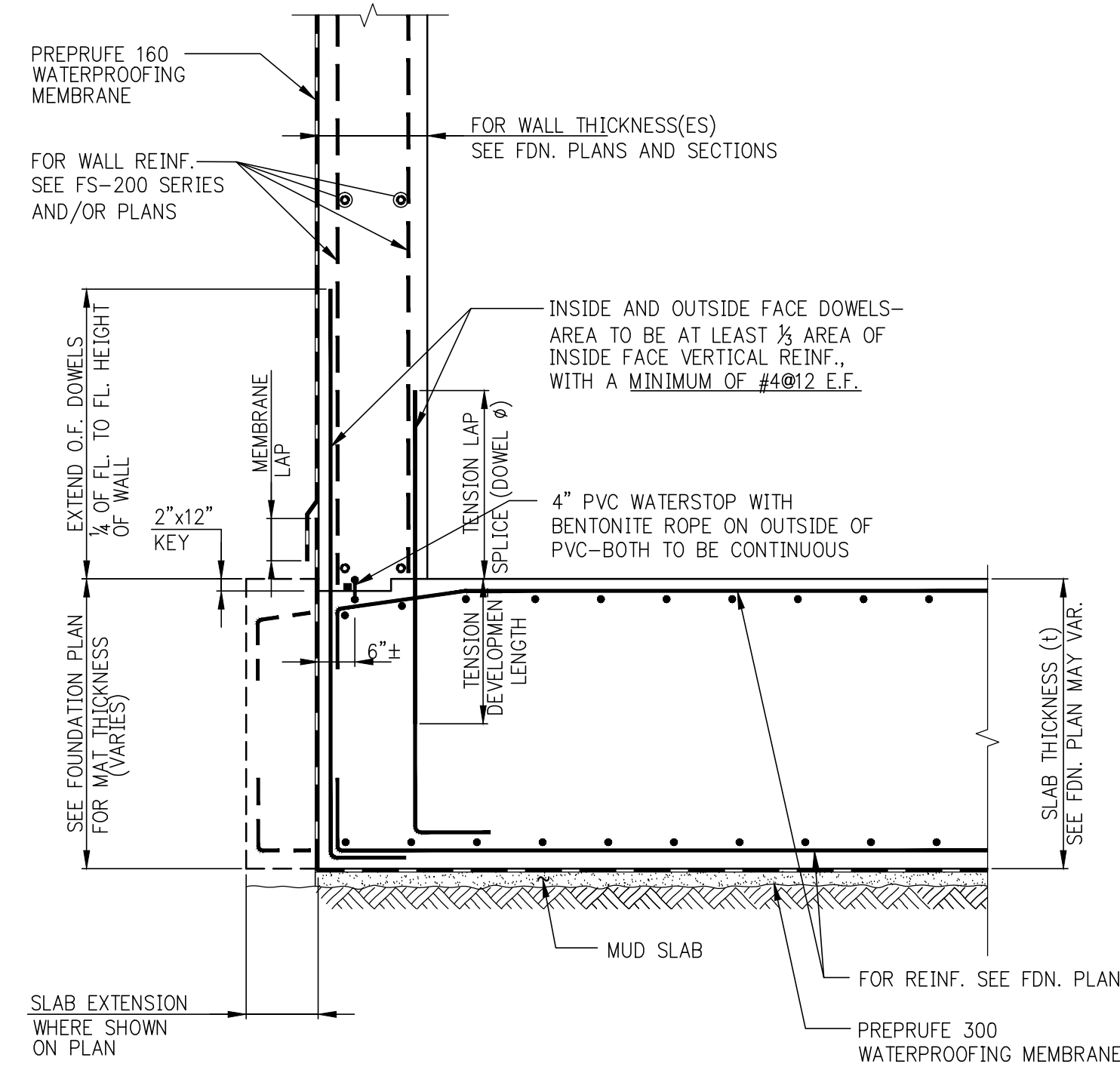
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DRAWN BY: JH	CHECKED BY: NMA
DRAWING:	SOE-300.00
SHEET: 5 OF 5	



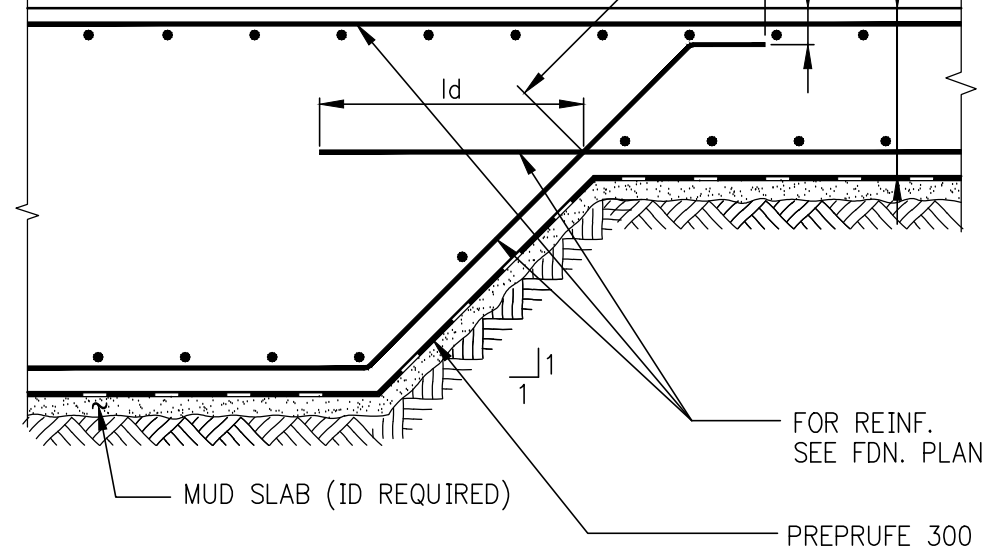
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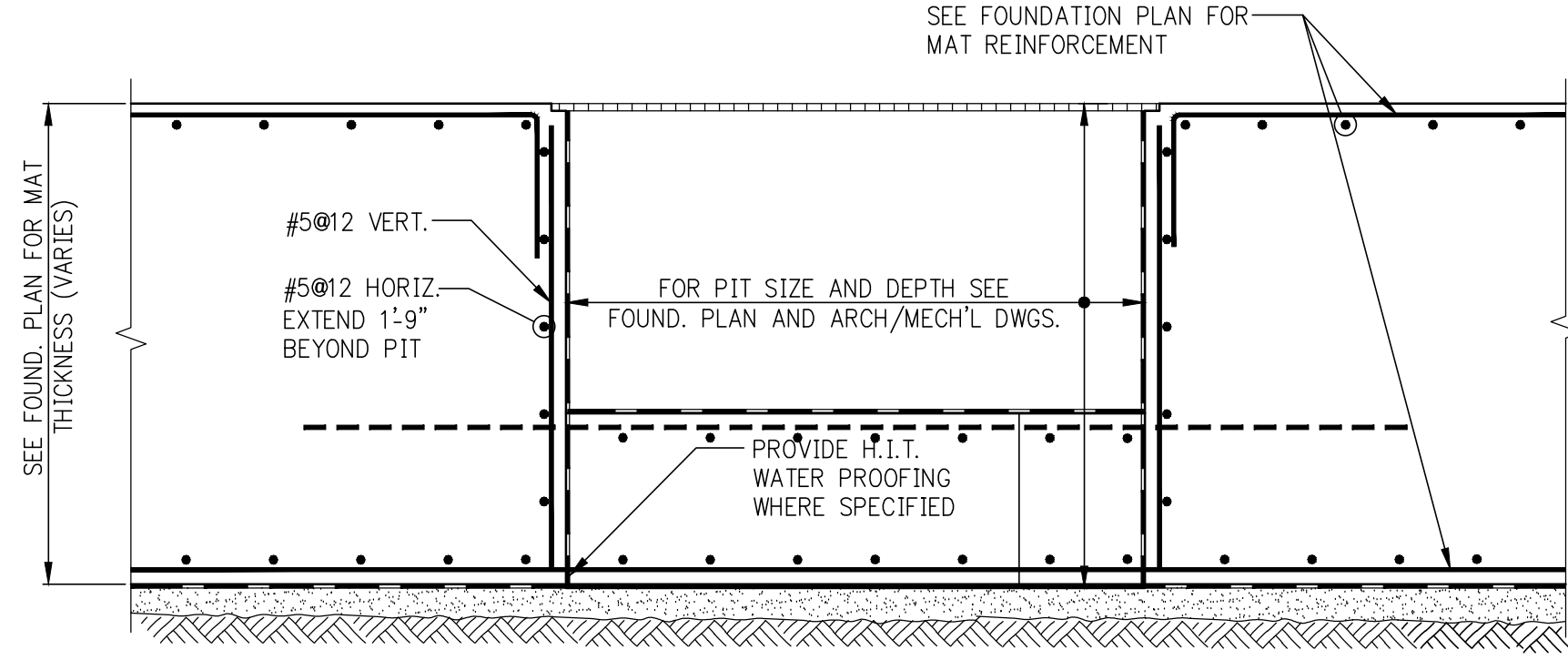
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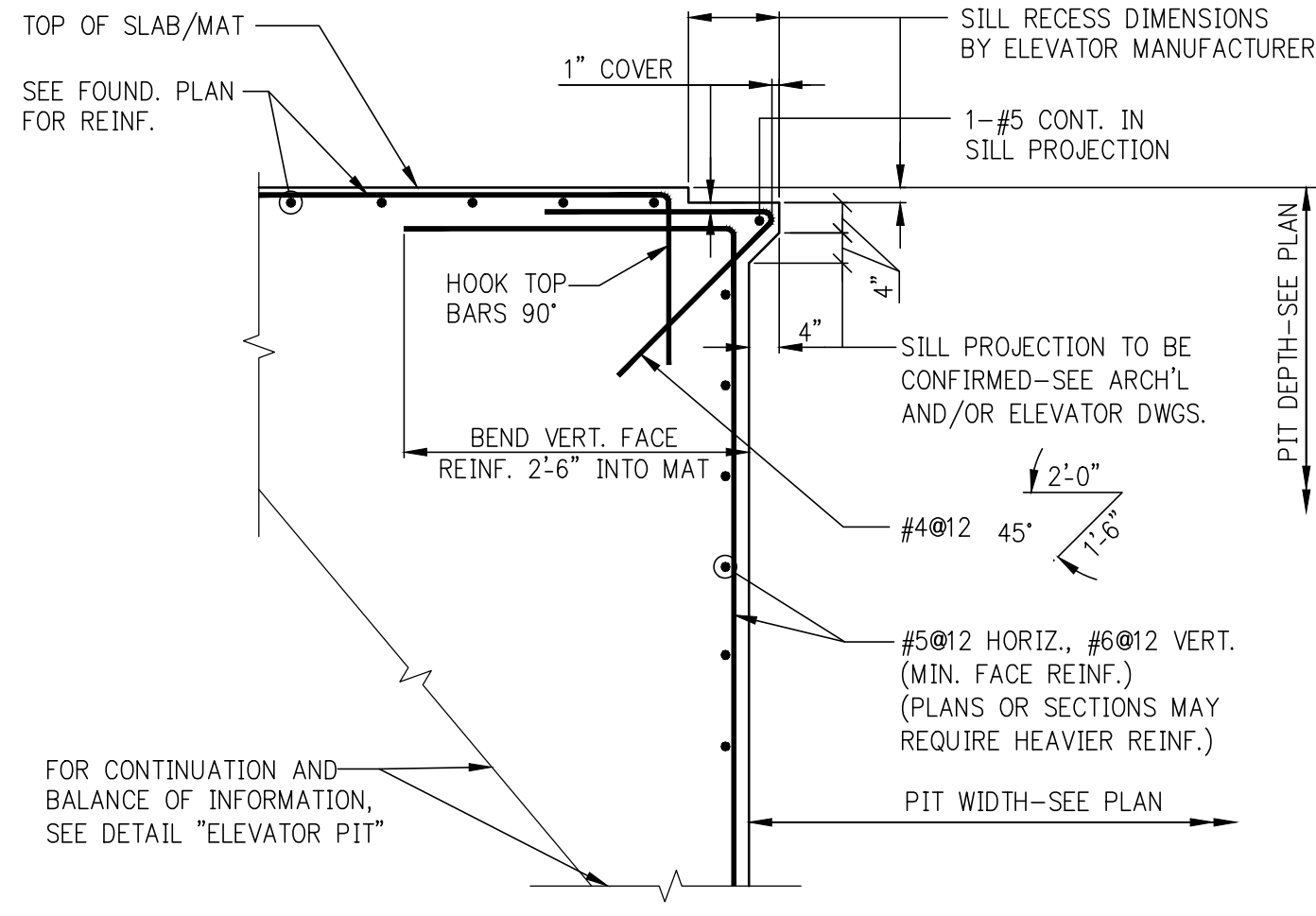
MAT FOUNDATION AT EXTERIOR WALL



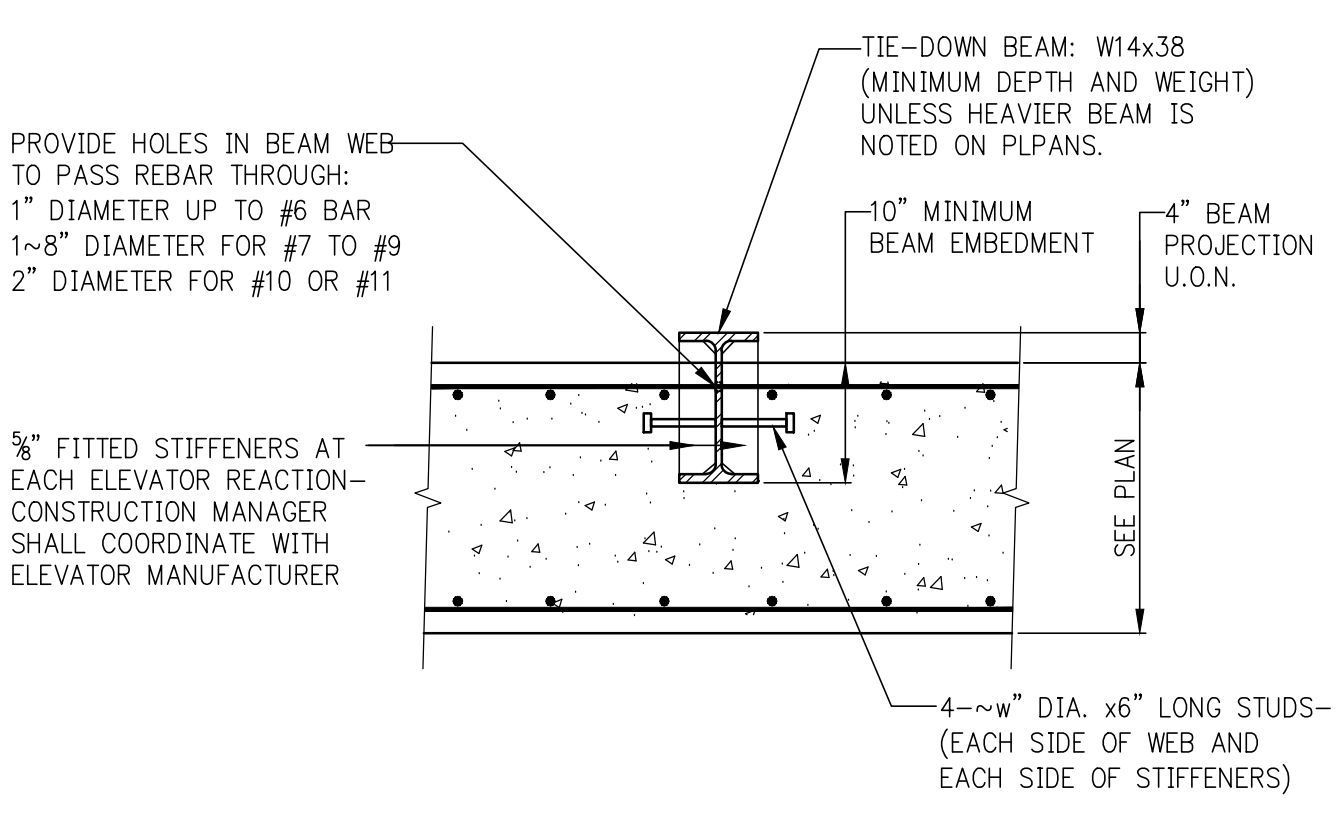
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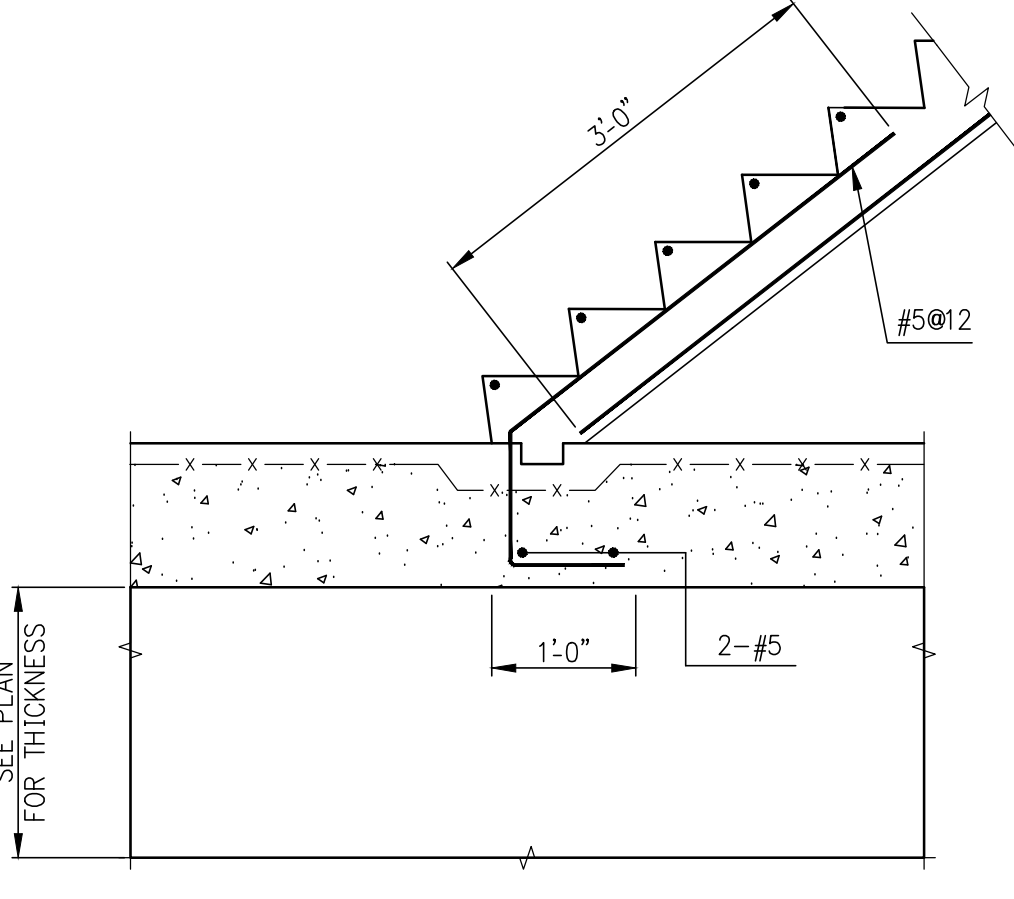
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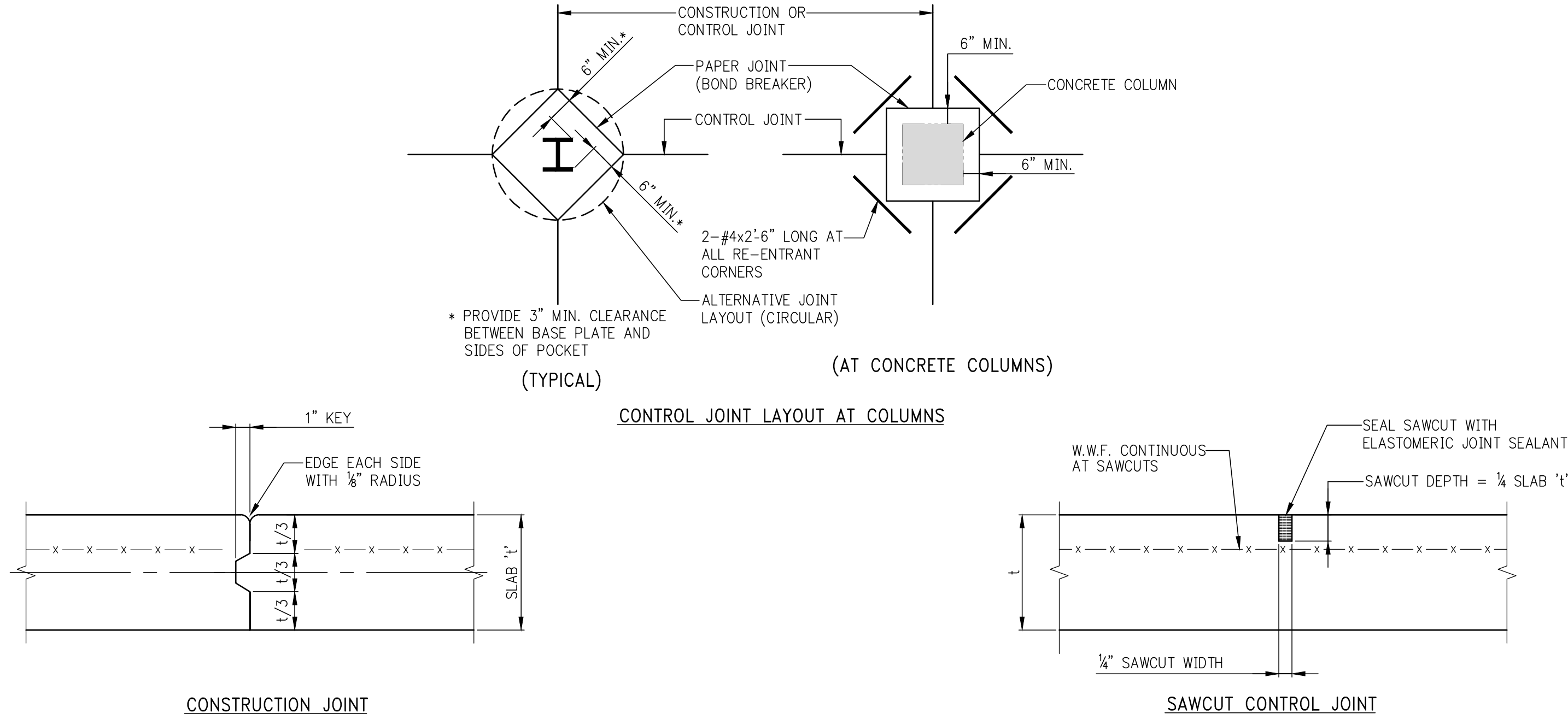
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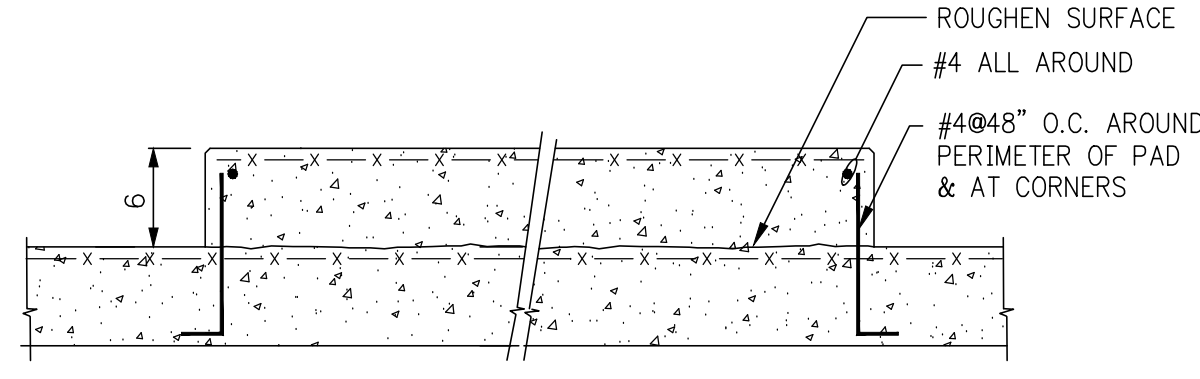
ELEVATOR TIE-DOWN BEAM



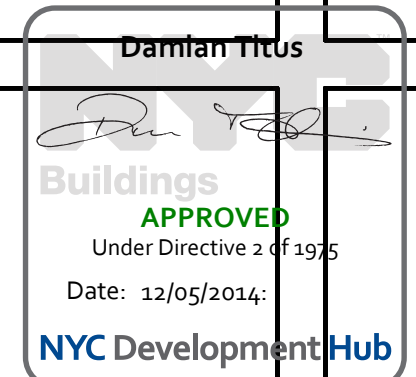
TYP. STAIR DETAIL AT FILL SLAB



FILL SLAB JOINT DETAILS



TYPICAL SEISMIC CONCRETE PAD DETAIL



4	08-29-2014	50% CD
3	07-25-2014	50% CD
2	04-30-2014	ISSUED FOR NYC DOB (100% CD)
1	04-01-2014	FOUNDATION OPTIONS

Client

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PROJECT

one seaport
151-161 Maiden Lane
New York, NY
(Between South Street & Front Street)

DOB SCAR

DOB STAMPS & SIGNATURES

DOB TITLE

FOUNDATION TYPICAL
DETAILS 1

NB#

DOB DATE: JANUARY 6, 2014
PROJECT #: 1310880
SCALE: AS NOTED
FO-200.00
CAD FILE: P:\1310880_151 Maiden Lane

TABLE #1: TENSION LAP SPLICE LENGTHS (CLASS B MINIMUM)									
TABLE 1.A: ¾" COVER TO OUTER LAYER BARS OUTER LAYER LAP LENGTHS (IN INCHES)					TABLE 1.C: 1½" COVER TO OUTER LAYER BARS OUTER LAYER LAP LENGTHS (IN INCHES)				
NOTE: USE TABLE 1.A IF BAR SPACING IS LESS THAN 4" O/C UP TO 8½" O/C FOR #3, #4, #5, #6, #7, #8, #9, #10, #11									
BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
#3	16	16	16	16	16	16	16	16	16
#4	21	20	20	20	20	20	20	20	20
#5	31	27	24	24	24	24	24	24	24
#6	43	37	33	30	29	29	29	29	29
#7	69	60	53	49	45	42	40	38	36
#8	85	74	66	60	56	52	49	47	45
#9	103	89	80	73	67	63	59	56	54
#10	121	105	94	86	79	74	70	66	63
#11	140	122	109	99	92	86	81	77	74
TABLE 1.B: ¾" COVER TO OUTER LAYER BARS INNER LAYER LAP LENGTHS (IN INCHES)									
NOTE: USE TABLE 1.A IF BAR SPACING IS LESS THAN 4" O/C UP TO 8½" O/C FOR #3, #4, #5, #6, #7, #8, #9, #10, #11									
BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
#3	16	16	16	16	16	16	16	16	16
#4	20	20	20	20	20	20	20	20	20
#5	24	24	24	24	24	24	24	24	24
#6	30	29	29	29	29	29	29	29	29
#7	48	42	38	34	34	34	34	34	34
#8	61	53	47	43	40	39	39	39	39
#9	75	65	58	53	49	46	44	44	44
#10	89	77	69	63	58	55	51	49	49
#11	104	90	81	74	68	64	60	57	55
TABLE 1.D: 1½" COVER TO OUTER LAYER BARS INNER LAYER LAP LENGTHS (IN INCHES)									
NOTE: USE TABLE 1.A IF BAR SPACING IS LESS THAN 5" O/C UP TO 8½" O/C FOR #3, #4, #5, #6, #7, #8, #9, #10, #11									
BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000	
#3	16	16	16	16	16	16	16	16	16
#4	20	20	20	20	20	20	20	20	20
#5	24	24	24	24	24	24	24	24	24
#6	29	29	29	29	29	29	29	29	29
#7	37	34	34	34	34	34	34	34	34
#8	43	39	39	39	39	39	39	39	39
#9	53	46	44	44	44	44	44	44	44
#10	64	55	49	49	49	49	49	49	49
#11	75	65	58	54	54	54	54	54	54

NOTES FOR TENSION LAP SPLICES

1. REINFORCEMENT IS UNCOATED, WITH $f_y=60,000$ PSI.
2. CONCRETE IS NORMAL WEIGHT (144-150#/C.F.).
3. FOR "TOP" BAR SPLICE LENGTHS ("TOP" IS DEFINED BY ACI 318 AS HAVING MORE THAN 12 INCHES OF FRESH CONCRETE CAST BELOW THE BAR), TABULATED LENGTHS MUST BE MULTIPLIED BY 1.3.
4. LENGTHS TABULATED MUST BE MULTIPLIED BY THE FOLLOWING MODIFICATION FACTORS:
 - a. LIGHTWEIGHT CONCRETE1.3
 - b. EPOXY-COATED BARS:
 - 1.) BARS WITH COVER < 3db, OR WITH CLEAR SPACING < 6db, .15 FOR BOTTOM & VERTICAL BARS, .13 FOR TOP BARS •
 - 2.) ALL OTHER CONDITIONS1.2
 - * FOR EPOXY-COATED "TOP" BARS THE MAXIMUM FOR COMBINED FACTORS = 1.7
5. WHERE TENSION DEVELOPMENT LENGTH (l_d) IS REQUIRED ON PLANS OR IN DETAILS, SEE TENSION DEVELOPMENT LENGTH TABLES.
6. CLASS A LAP SPLICE LENGTHS ARE EQUAL TO TENSION DEVELOPMENT LENGTHS. SEE TABLES FOR TENSION DEVELOPMENT LENGTHS (l_d). APPLY APPROPRIATE MODIFICATION FACTORS TO CLASS A SPLICE LENGTHS.

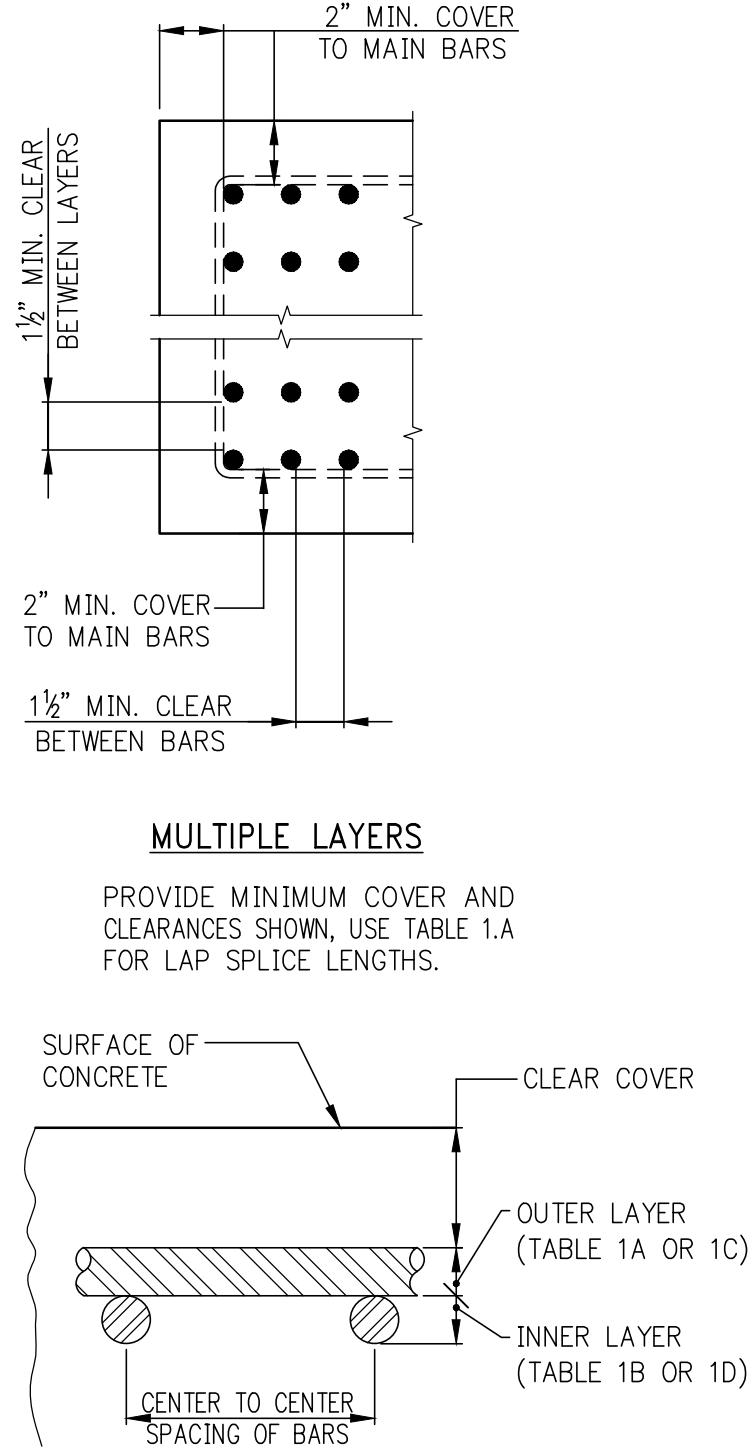


TABLE #2:

TENSION DEVELOPMENT LENGTHS (l_d) (IN INCHES)

TABLE 2.A: 3/4" COVER TO OUTER LAYER BARS

OUTER LAYER DEVELOPMENT LENGTHS

BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
#3	12	12	12	12	12	12	12	12
#4	16	14	13	12	12	12	12	12
#5	24	21	19	17	16	15	14	13
#6	33	28	25	23	22	20	19	18
#7	53	46	41	37	35	32	31	29
#8	66	57	51	46	43	40	38	36
#9	79	69	61	56	52	49	46	43
#10	93	81	72	66	61	57	54	51
#11	108	94	84	76	71	66	62	59

TABLE 2.C: 1 1/2" COVER TO OUTER LAYER BARS

OUTER LAYER DEVELOPMENT LENGTHS

BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
#3	12	12	12	12	12	12	12	12
#4	13	12	12	12	12	12	12	12
#5	16	14	13	13	13	13	13	13
#6	20	17	15	15	15	15	15	15
#7	32	28	25	23	21	20	19	18
#8	41	36	32	29	27	25	24	23
#9	50	44	39	36	33	31	29	28
#10	60	52	47	43	40	37	35	33
#11	71	61	55	50	46	43	41	39

TABLE 2.B: 3/4" COVER TO OUTER LAYER BARS

INNER LAYER DEVELOPMENT LENGTHS

BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
#3	12	12	12	12	12	12	12	12
#4	13	12	12	12	12	12	12	12
#5	16	14	13	13	13	13	13	13
#6	23	20	18	16	15	15	15	15
#7	37	32	29	26	24	23	22	20
#8	47	41	36	33	31	29	27	26
#9	57	50	44	41	38	35	33	31
#10	68	59	53	48	45	42	40	38
#11	80	69	62	57	52	49	46	44

TABLE 2.D: 1 1/2" COVER TO OUTER LAYER BARS

INNER LAYER DEVELOPMENT LENGTHS

BAR SIZE	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
#3	12	12	12	12	12	12	12	12
#4	13	12	12	12	12	12	12	12
#5	16	14	13	13	13	13	13	13
#6	20	17	15	15	15	15	15	15
#7	29	25	22	20	19	18	18	18
#8	33	28	25	23	22	20	20	20
#9	41	35	31	29	27	25	23	23
#10	49	42	38	35	32	30	28	27
#11	58	50	45	41	38	35	33	32

NOTES FOR TENSION DEVELOPMENT LENGTHS (l_d)

1. REINFORCEMENT IS UNCOATED, WITH $f_y=60,000$ PSI.
2. CONCRETE IS NORMAL WEIGHT (144-150#/C.F.).
3. FOR "TOP" BAR DEVELOPMENT LENGTHS ("TOP" IS DEFINED BY ACI 318 AS HAVING MORE THAN 12 INCHES OF FRESH CONCRETE CAST BELOW THE BAR), TABULATED LENGTHS MUST BE MULTIPLIED BY 1.3.
4. LENGTHS TABULATED MUST BE MULTIPLIED BY THE FOLLOWING MODIFICATION FACTORS:
 - a. LIGHTWEIGHT CONCRETE1.3
 - b. EPOXY-COATED BARS:
 - 1.) BARS WITH COVER < 3db, OR WITH CLEAR SPACING < 6db, .15 FOR BOTTOM & VERTICAL BARS, .13 FOR TOP BARS •
 - 2.) ALL OTHER CONDITIONS1.2
 - * FOR EPOXY-COATED "TOP" BARS THE MAXIMUM FOR COMBINED FACTORS = 1.7
5. WHERE TENSION DEVELOPMENT LENGTH (l_d) IS REQUIRED ON PLANS OR IN DETAILS, SEE TENSION DEVELOPMENT LENGTH TABLES.
6. CLASS A LAP SPLICE LENGTHS ARE EQUAL TO TENSION DEVELOPMENT LENGTHS. SEE TABLES FOR TENSION DEVELOPMENT LENGTHS (l_d). APPLY APPROPRIATE MODIFICATION FACTORS TO CLASS A SPLICE LENGTHS.

TABLE #3									
TENSION DEVELOPMENT LENGTHS FOR STANDARD END HOOKS (l_{dh}) (LENGTHS IN INCHES)									
BAR SIZE	CONCRETE STRENGTH (PSI)								
	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000 ⁴	
#3	9	7	7	6	6	6	6	6	
#4	11	10	9	8	7	7	7	6	
#5	14	12	11	10	9	9	8	8	
#6	17	15	13	12	11	10	10	9	
#7	19	17	15	14	13	12	11	11	
#8	22	19	17	16	15	14	13	12	
#9	25	22	19	18	16	15	15	14	
#10	28	24	22	20	19	17	16	16	
#11	31	27	24	22	21	19	18	17	
#14	37	32	29	27	25	23	22	21	
#18	50	43	39	35	33	31	29	27	

NOTES:

1. TABLE 3 CONFORMS TO ACI 318-2002 (AND 2005). TABULATED VALUES ARE BASED UPON ACI 12.5.2, ASSUMING GRADE 60 REINFORCEMENT AND NORMALWEIGHT CONCRETE.
2. PER ACI 12.5.3, c), FOR #11 AND SMALLER BARS, IF COVER TO BAR IS 2 1/2 INCHES OR MORE, AND FOR 90 DEGREE HOOK WITH COVER ON BAR EXTENSION BEYOND HOOK NOT LESS THAN 2 INCHES, A MODIFICATION FACTOR OF 0.7 MAY BE APPLIED. MINIMUM l_{dh} SHALL NOT BE LESS THAN 8db NOR 6 INCHES.

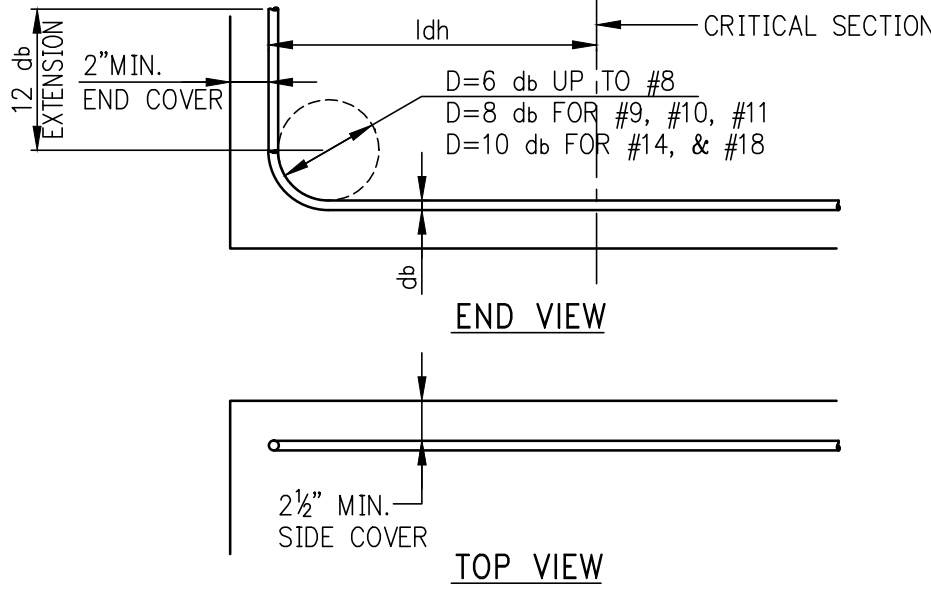


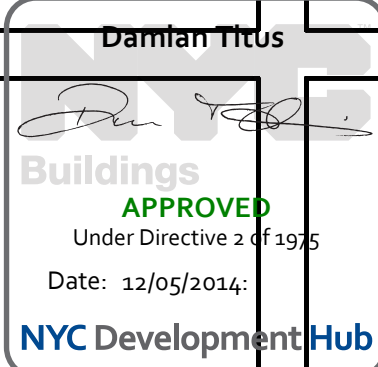
TABLE #4				
COMPRESSION LAP SPLICES (LENGTHS IN INCHES)				
BAR SIZE	GRADE OF REINFORCEMENT			
	60 KSI (30 DIA.)	75 KSI (44 DIA.)	80 KSI (48 DIA.)	
#3	12	17	18	
#4	15	22	24	
#5	19	28	30	
#6	23	33	36	
#7	27	39	42	
#8	30	44	48	
#9	34	50	54	
#10	38	56	61	
#11	43	62	68	
#14 and #18	1. LAP SPLICES ARE NOT PERMITTED USE MECHANICAL CONNECTIONS OR WELDED SPLICES FOR #14 AND #18. PER ACI 318 (12.14.3).			
	2. LAP SPLICES OF #14 AND #18 BARS TO #11 AND SMALLER BARS ARE PERMITTED PER ACI 318 (12.16.2).			
	3. FOR BARS OF DIFFERENT SIZE, USE LARGER OF: SPLICE LENGTH OF SMALLER BAR (TABLE #4) OR DEVELOPMENT LENGTH OF LARGER BAR (FROM TABLE #5) PER ACI 318 (12.16.2).			

NOTE:
TABLE #4 APPLIES FOR NORMALWEIGHT CONCRETE WITH $f_c = 3,000$ PSI OR GREATER.

TABLE #5		DEVELOPMENT LENGTHS FOR BARS IN COMPRESSION (LENGTHS IN INCHES)	
BAR SIZE	$f_y = 60,000$ PSI CONC. f_c (IN PSI) 3,000 4,000 5,000 OR MORE	$f_y = 75,000$ PSI CONC. f_c (IN PSI) 3,000 4,000 5,000 OR MORE	$f_y = 80,000$ PSI CONC. f_c (IN PSI) 3,000 4,000 5,000 OR MORE
#3	12 12 12 12 12 12 12 12 12	12 12 12 12 12 12 12 12 12	12 12 12 12 12 12 12 12 12
#4	12 12 12 12 12 12 12 12 12	12 12 12 12 12 12 12 12 12	12 12 12 12 12 12 12 12 12
#5	14 12 12 12 12 12 12 12 12	14 12 12 12 12 12 12 12 12	14 12 12 12 12 12 12 12 12
#6	17 15 14 21 18 17 22 19 18	17 15 14 21 18 17 22 19 18	17 15 14 21 18 17 22 19 18
#7	19 17 16 24 21 20 26 22 21	19 17 16 24 21 20 26 22 21	19 17 16 24 21 20 26 22 21
#8	22 19 18 28 24 23 29 25 24	22 19 18 28 24 23 29 25 24	22 19 18 28 24 23 29 25 24
#9	25 22 21 31 27 26 33 28 27	25 22 21 31 27 26 33 28 27	25 22 21 31 27 26 33 28 27
#10	28 24 23 34 30 28 36 31 30	28 24 23 34 30 28 36 31 30	28 24 23 34 30 28 36 31 30
#11	31 27 26 38 33 31 40 34 33	31 27 26 38 33 31 40 34 33	31 27 26 38 33 31 40 34 33
#14	37 32 31 48 42 39 51 44 42	37 32 31 48 42 39 51 44 42	37 32 31 48 42 39 51 44 42
#18	50 43 41 62 54 51 65 56 54	50 43 41 62 54 51 65 56 54	50 43 41 62 54 51 65 56 54

CAISSON NOTES:

1. REFER TO GEOTECHNICAL REPORT BY RA CONSULTANTS LLC DATED FEBRUARY 15, 2014. FOR DRILLED CAISSON CRITERIA.
2. THE DESIGN AND INSTALLATION OF CAISSONS, CAISSON CAPS, AND RELATED CONSTRUCTION IS TO CONFORM TO THE REQUIREMENTS SET FORTH IN THE NEW YORK CITY BUILDING CODE, AND THE SPECIFICATIONS.
3. CAISSON CAPACITIES TO BE: PER FD-100.00 (TO BE VERIFIED BY CAISSON CONTRACTOR)
THE PROPOSED CAISSONS IS AS FOLLOWS:
A.1 THE 4700 KIPI DRILLED - IN CAISSONS CONSIST OF:
- CASING = MIN.
- FREE LENGTH (CASED) = MIN. INTO NYCBC CLASS
- BOND LENGTH (UNCASED) = MIN.
- INTERNAL REDNF. (75 KSI) = (FULL LENGTH) ADD'L IN SOCKET
- GROUT = PSI MIN
B. SEE SPECS FOR CAISSON INSTALLATION OPERATIONS.
4. DRILLED CAISSON SHAFTS SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT. EACH ROCK SOCKET MUST BE INSPECTED BY TV CAMERA TO CONFIRM QUALITY OF ROCK.
5. CONCRETE SHALL BE PLACED IN SHAFTS USING TREMIE PLACEMENT. CONCRETE MUST NOT BE ALLOWED TO FREE FALL INTO THE SHAFT. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS.
6. ALL CAISSONS AND CAISSON CAPS TO BE CONCENTRIC WITH COLUMNS ABOVE UNLESS OTHERWISE NOTED ON PLAN.
7. RECORDS OF PENETRATION OF EVERY CAISSON AND THE BEHAVIOR OF SAME DURING INSTALLATION ARE TO BE SUBMITTED TO THE ENGINEER OF RECORD.
8. ESTIMATED CAISSON LENGTH IS APPROXIMATELY 111-151 FEET FOR CAISSONS. CAISSON LENGTH WILL VARY DUE TO ACTUAL CLASS 1c ROCK ELEVATION.



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