

STRUCTURAL SYSTEM DESCRIPTION

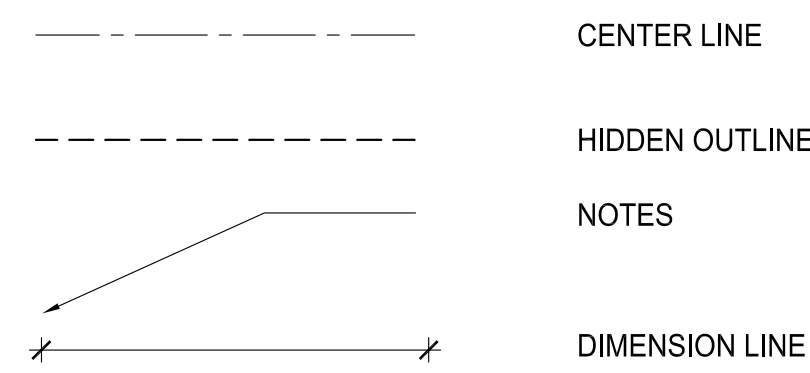
THE PROPOSED SW RESIDENTIAL TOWER SITE CONSISTS OF SOUTHERN SECTION OF DYER AVENUE OVERBUILD OVER THE EXISTING DYER AVENUE ROADWAY, EXTENDING FROM 31ST STREET TO JUST SOUTH OF THE RAILROAD TRACKS, ON THE WEST SIDE OF SW RESIDENTIAL TOWER.

THE EAST-WEST WIDTH OF THE SOUTHERN SECTION DYER AVENUE OVERBUILD IS APPROXIMATELY 66 FT AND THE NORTH-SOUTH LENGTH IS APPROXIMATELY 123 FT. THE OVERBUILD FRAMING CONSISTING OF STEEL BEAMS AND TOP CONCRETE SLAB ON METAL DECK WILL BE SUPPORTED ON THE EAST SIDE BY THE FOUNDATION WALL OF SW RESIDENTIAL TOWER AND ON THE WEST BY A FOUNDATION WALL OF THE EXISTING 450 W 33RD STREET STRUCTURE AND A STEEL COLUMN BEARING ON THE EXISTING CONCRETE SLAB SUPPORTED BY 450 W 33RD EXISTING PLATE GIRDER. THE LATERAL LOADS OF THE OVERBUILD FRAMING WILL BE SUPPORTED ON THE EAST SIDE BY THE FOUNDATION WALL OF SW RESIDENTIAL TOWER. EXPANSION JOINT WILL BE UTILIZED BETWEEN THE OVERBUILD AND 450 W 33RD STREET STRUCTURE. STEEL STRUCTURE AND METAL DECK OF THE OVERBUILD FRAMING SHALL RECEIVE APPLIED (SPRAY-ON) FIREPROOFING TO COMPLY WITH REQUIREMENTS OF NFPA 502.

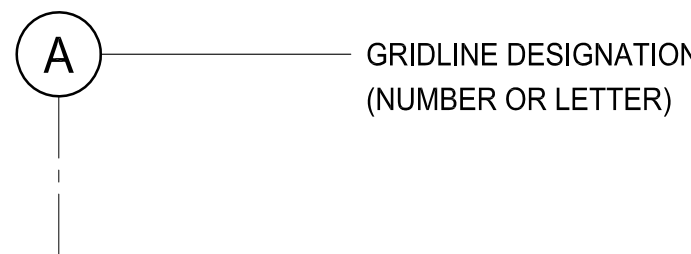
THE NYC BUILDING CODE WILL BE UTILIZED AS THE BASIS FOR ALL STRUCTURAL DESIGN. SEISMIC LOADING WILL BE BASED UPON THE PARAMETERS CONTAINED WITHIN THE CODE. REFER TO STRUCTURAL LOADING DIAGRAM DRAWING.

SYMBOL SCHEDULE

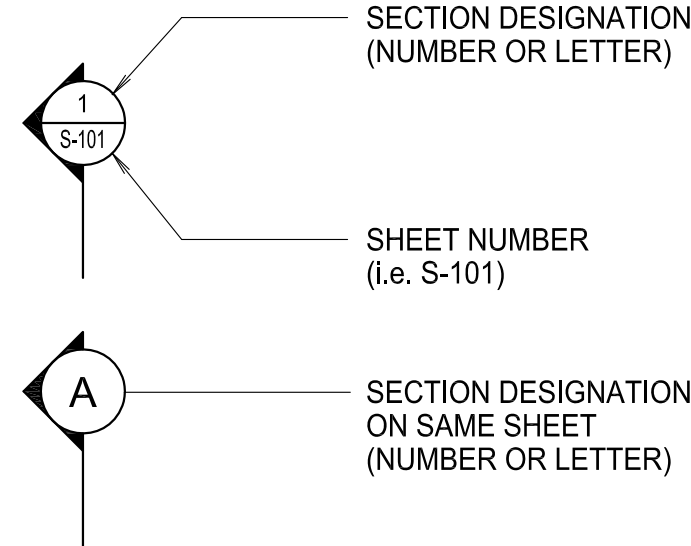
LINES



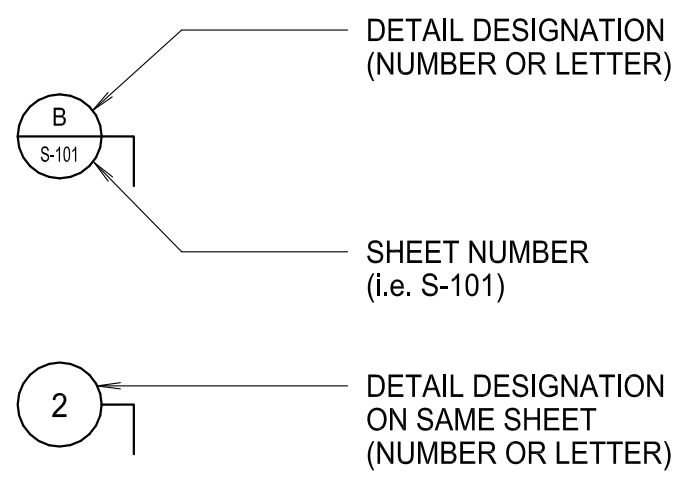
COLUMN REFERENCE SYMBOL



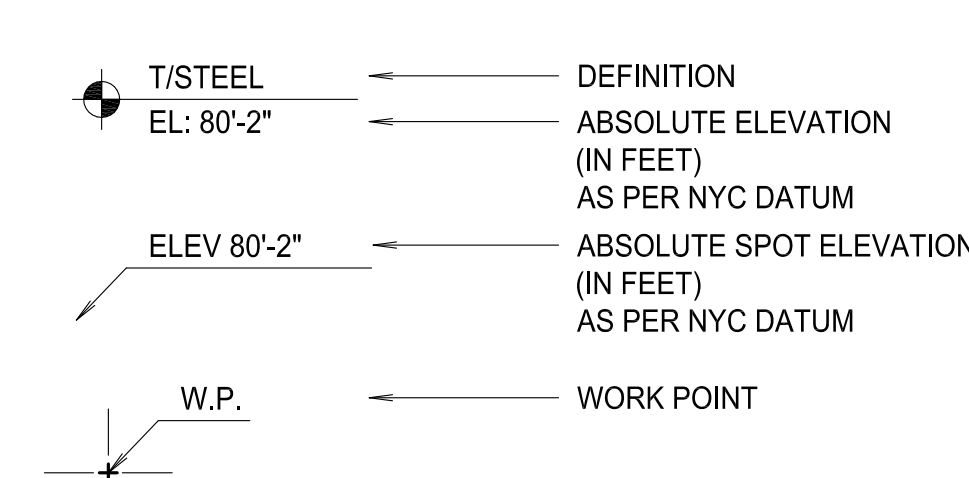
SECTION REFERENCE SYMBOLS



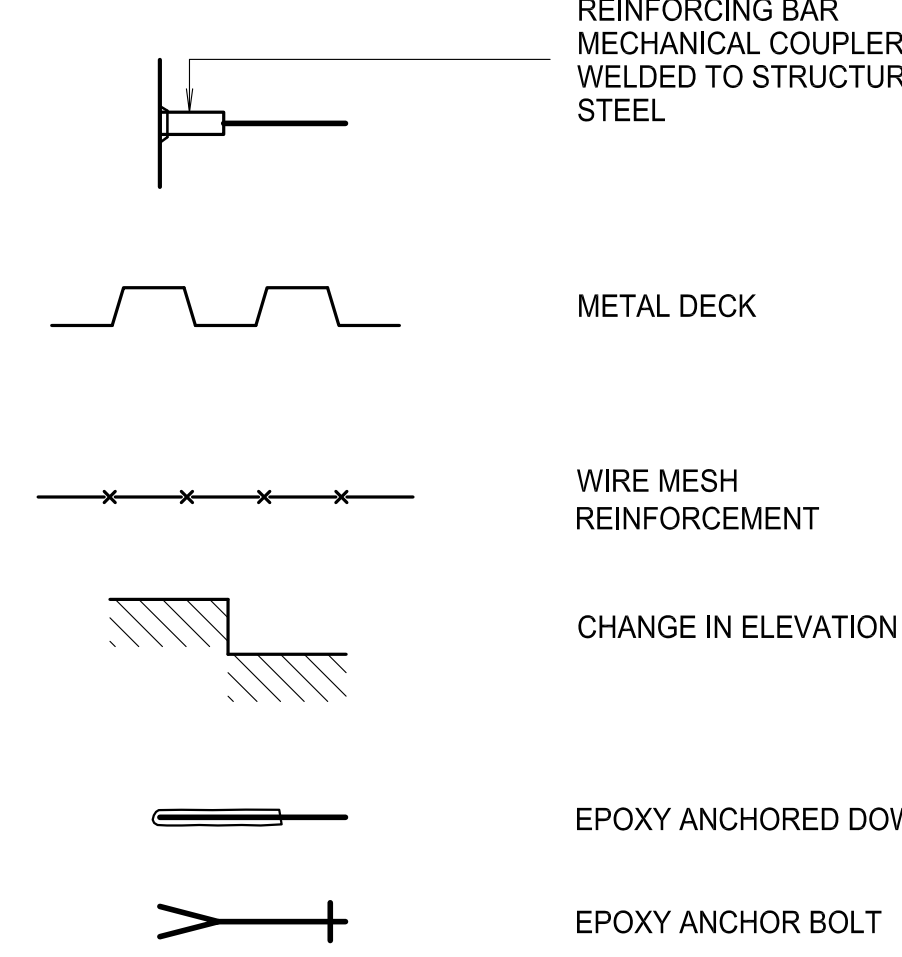
DETAIL REFERENCE SYMBOLS



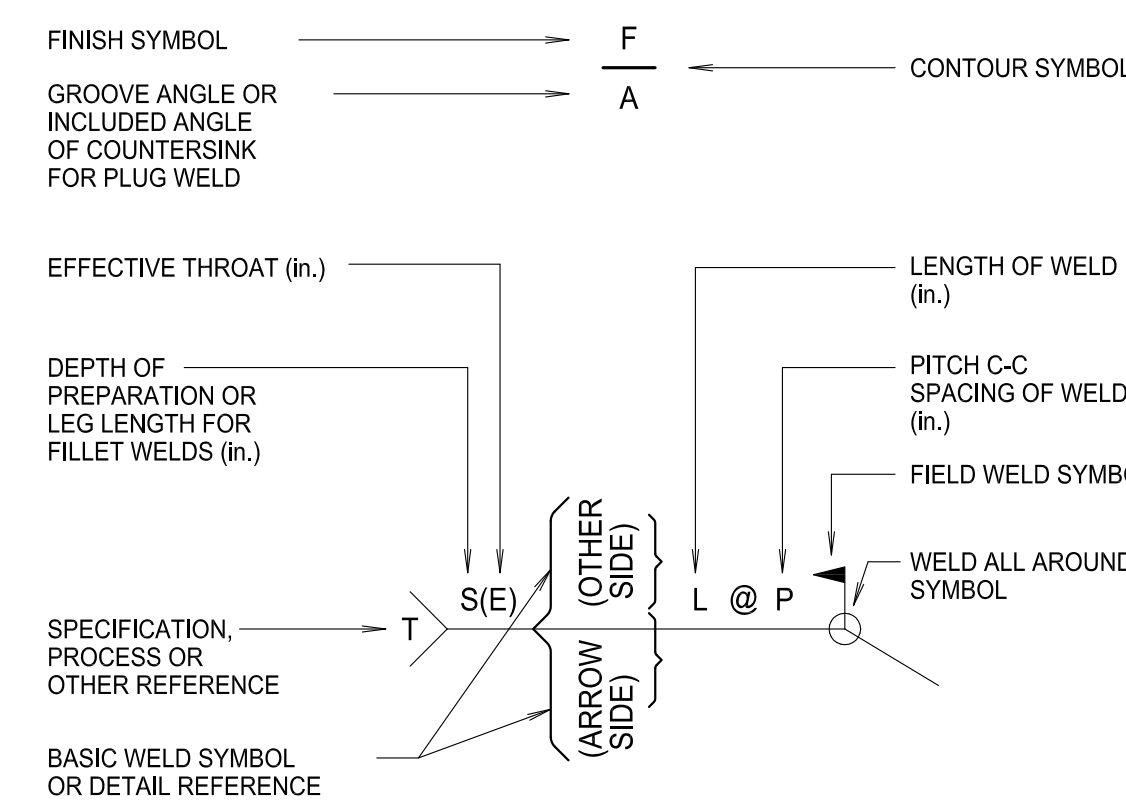
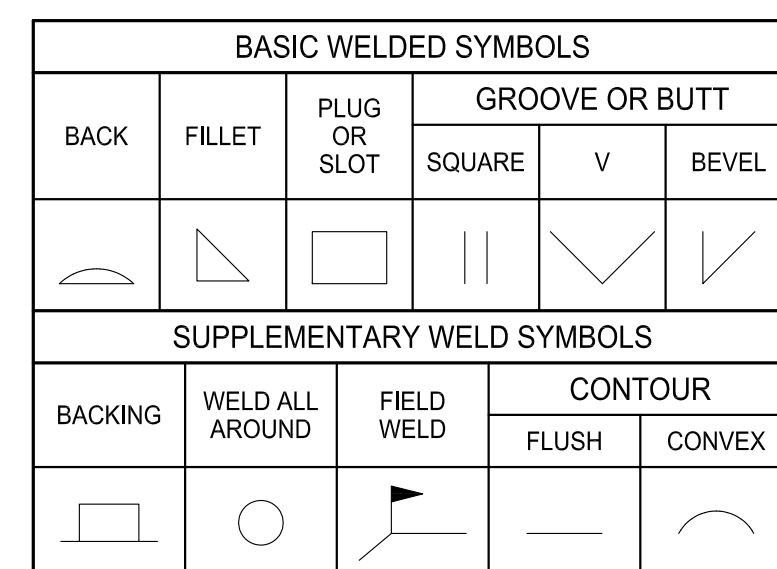
GENERAL ELEVATION SYMBOLS



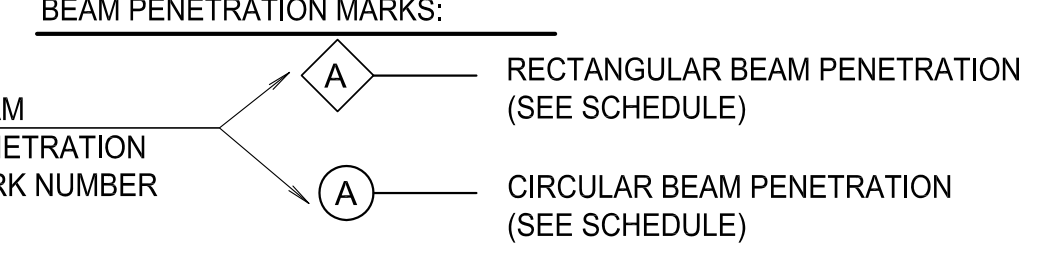
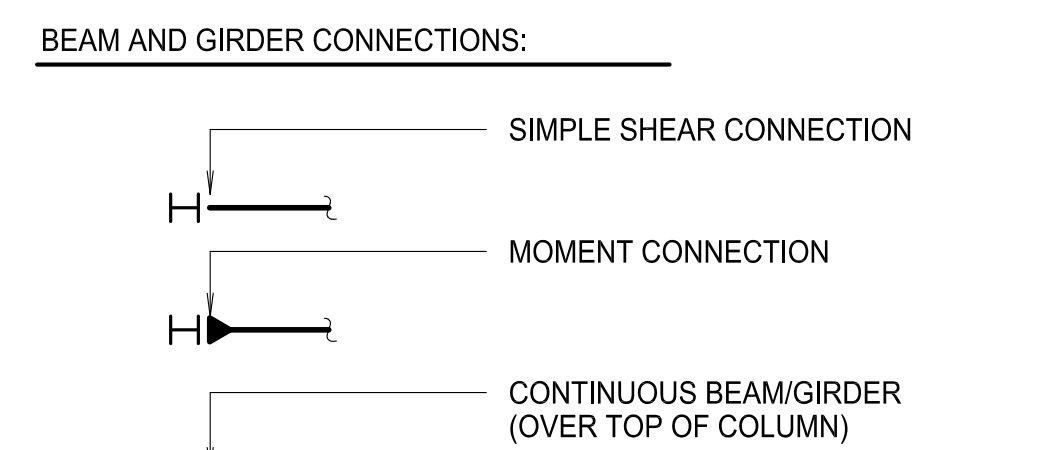
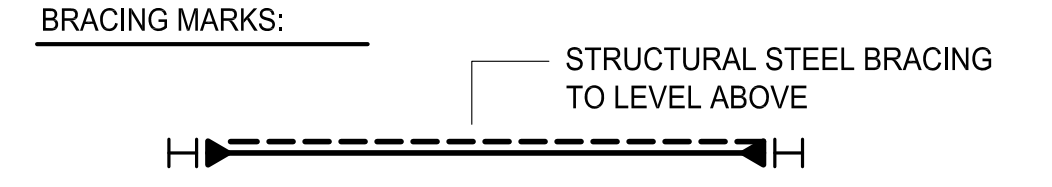
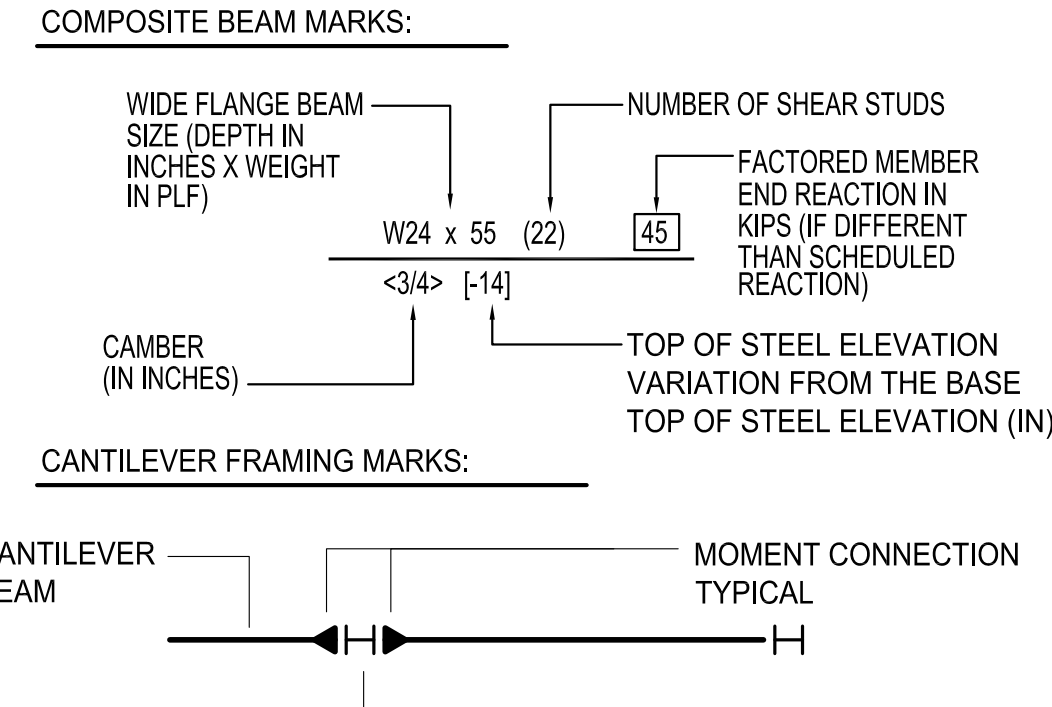
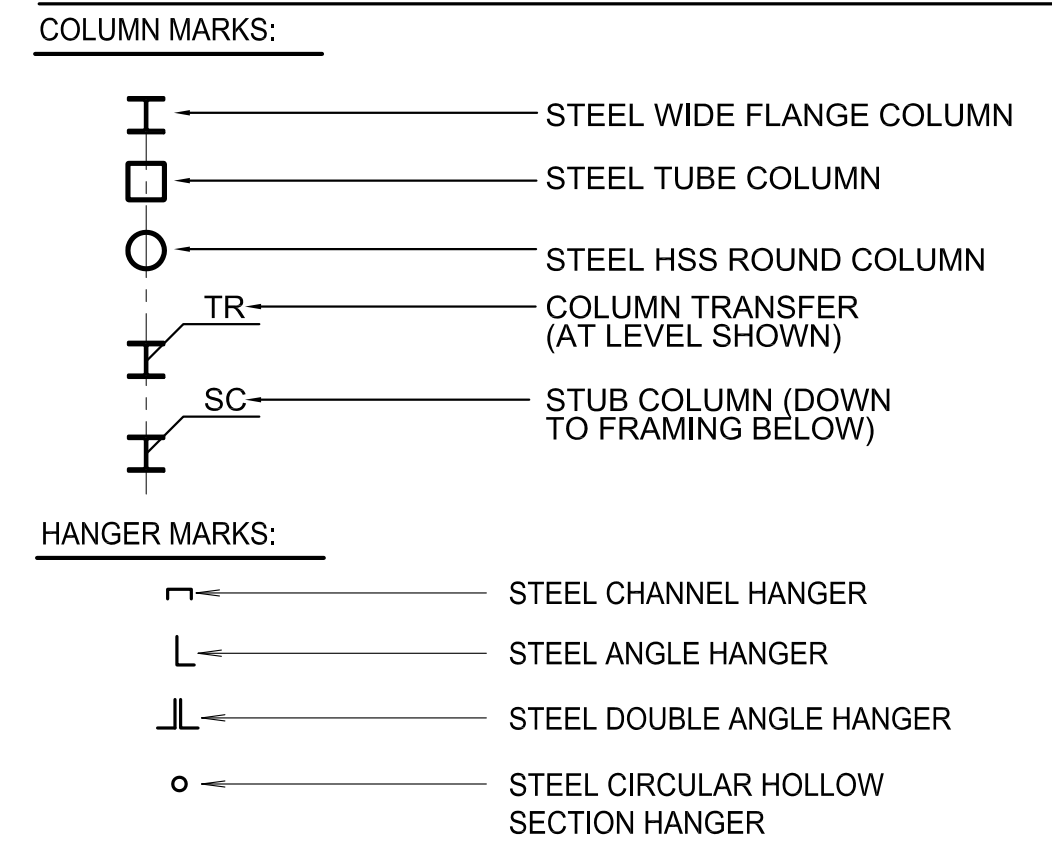
MISCELLANEOUS SYMBOLS



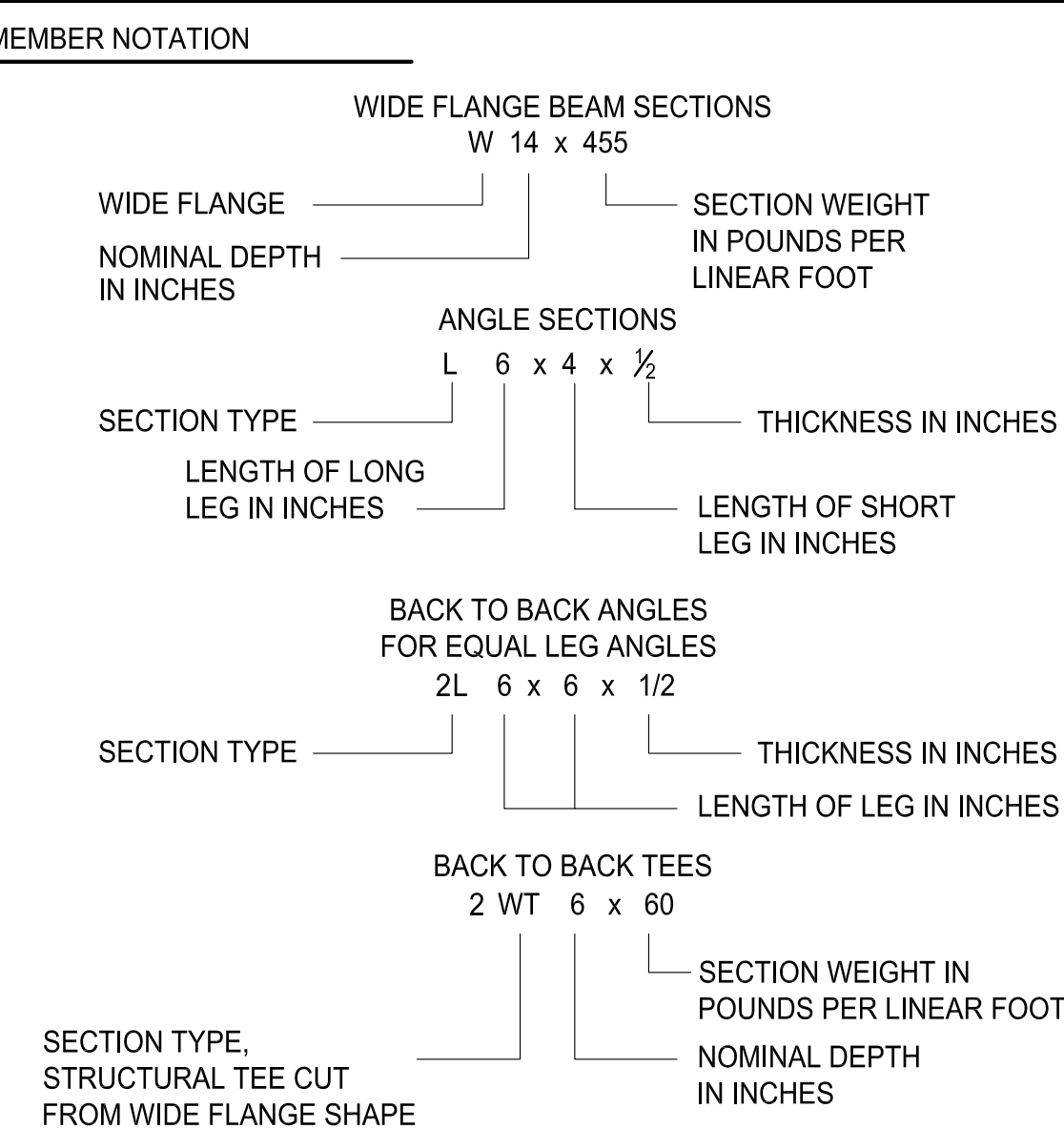
WELDED JOINT STANDARD SYMBOLS



STEEL FRAMING SYMBOLS



STEEL FRAMING NOTATION



ABBREVIATIONS

ABS	ABSOLUTE	JT	JOINT
ACI	AMERICAN CONCRETE INSTITUTE	JST	JOIST
ADDL	ADDITIONAL	KIPS	KIPS PER LINEAR FOOT
ADJ	ADJUSTABLE	KLF	KIPS PER SQUARE FOOT
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL	KSF	KIPS PER SQUARE FOOT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	<	LESS THAN
ALT	ALTERNATE	LB	POUND
&	AND	LENG	LENGTH
APPROX	APPROXIMATE	LH	LEFT HAND
ARCH	ARCHITECTURAL ASSOCIATION	LL	LIVE LOAD
ASSN	ASSOCIATION	LLB	LONG LEG BACK TO BACK
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	LLV	LONG LEG VERTICAL
AUX	AUXILIARY	LOC	LOCATION
AVG	AVERAGE	LP	LOW POINT
		LRFD	LOAD RESISTANCE FACTOR DESIGN
		LTWT	LIGHTWEIGHT
B	BOX		
B/	BOTTOM OF	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MECH	MECHANICAL
	BOTTOM OF STEEL	MEZZ	MEZZANINE
B.S.	BOTH SIDES	MFR	MANUFACTURER
B.W.	BOTH WAYS	MIN	MINIMUM
		MISC	MISCELLANEOUS
		MS	COMPOSITE METAL DECK SLAB
			MIDDLE STRIP
C	CHANNEL		
CC	DEGREE CELSIUS	N/A	NOT APPLICABLE
C-C	CENTRE TO CENTRE	NET WT	NET WEIGHT
C-F	CENTRE TO FACE		
CALC	CALCULATIONS		
CEM	CEMENT		
CHAN	CHANNEL	N.F.	NEAR FACE
CHRD	CHORD	NIC	NOT IN CONTRACT
CIR	CIRCULAR	NMWT	NORMAL WEIGHT
CJP	COMPLETE JOINT PENETRATION (WELD)	NO.	NUMBER
CL	CENTERLINE	NOM	NOMINAL
CLG	CEILING	N-S	NORTH-SOUTH
CLR	CLEAR	NTS	NOT TO SCALE
CMU	CONCRETE MASONRY UNIT		
COL	COLUMN		
COMP	COMPOSITE	OC	ON CENTER
CONC	CONCRETE	OD	OUTSIDE DIAMETER
CONST	CONSTRUCTION	OPNG	OPENING
C.J.	CONSTRUCTION JOINT	OPP	OPPOSITE
CONFIG	CONFIGURATION	OPPH	OPPOSITE HAND
CONT	CONTINUOUS		
CORP	CORPORATION		
C.R.	COLD ROLLED	P, PIP	PIPE
CS	COLUMN STRIP	PART	PARTITION
CUBIC	CUBIC	PCT, %	PERCENT
CYL	CYLINDER	PCC	PRECAST CONCRETE
		PERP	PERPENDICULAR
		PL, P L	PLATE
		PLBG	PLUMBING
		PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
		PT	POINT
		R, RAD	RADIUS
		R/C	REINFORCED CONCRETE
		RD	NON-COMPOSITE METAL
			ROOF DECK
		REF	REFERENCE
		REG	REGULAR
		REQD	REQUIRED
		REV	REVISED, REVISION
		RH	RIGHT HAND
		RS	REINFORCED METAL
			DECK SLAB
		RSA	ROLLED STEEL ANGLE
		RSC	ROLLED STEEL CHANNEL
		S.C.	SLIP CRITICAL
		SCHD	SCHEDULE
		SDI	STEEL DECK INSTITUTE
		SECT	SECTION
		SHT	SHEET
		SDL	SUPERIMPOSED DEAD LOAD
		SPECS	SPECIFICATIONS
		S.S.	STAINLESS STEEL
		ST	STUB COLUMN
		STD	STANDARD
		STL	STEEL
		STL PL	STEEL PLATE
		STRUC	STRUCTURE, STRUCTURAL
		SIM	SIMILAR
		SYS	SYSTEM
		T/	TOP OF
		T/S	TOP OF STEEL
		TDL	TENSION DEVELOPMENT LENGTH
		TECH	TECHNICAL
		TEMP	TEMPERATURE
		THK	THICK
		THRD	THREAD, THREADED
		TR	COLUMN TRANSFER
		TS	TUBE STEEL
		TUB	TUBE
		TYP	TYPICAL
		UNO	UNLESS NOTED OTHERWISE
		UTIL	UTILITY
		VERT	VERTICAL
		VIF	VERIFY IN FIELD
		W/	WITH
		W/O	WITHOUT
		W.P.	WORK POINT
		WF	WIDE FLANGE
		WGT	WEIGHT
		WL	WIND LOAD
		WT	STRUCTURAL TEE CUT
			FROM WIDE FLANGE SHAPE
		WWF, WWR	WELDED WIRE FABRIC / REINFORCEMENT

MANHATTAN WEST SOUTH WEST TOWER SITE DRAWING LIST		
GENERAL		
	S-001	STRUCTURAL SYSTEM DESCRIPTION, SYMBOLS AND ABBREVIATIONS
	S-004	STRUCTURAL CONCRETE NOTES
	S-005	STRUCTURAL STEEL NOTES
	S-011	FLOOR LOADING DIAGRAMS
FRAMING PLAN		
	S-101	SW TOWER SITE GROUND LEVEL FRAMING PLAN
	S-102	SW TOWER SITE PLAZA LEVEL FRAMING PLAN
	S-103	SW TOWER SITE PLAZA LEVEL FRAMING PLAN B
TYPICAL SECTION		
	S-201	SW TOWER SITE TYPICAL SECTION
	S-202	SW TOWER SITE SECTION
TYPICAL STRUCTURAL DETAILS		
	S-501	STRUCTURAL METAL DECK SLAB SCHEDULES AND TYPICAL DETAILS
	S-502	TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS
	S-503	TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS
	S-504	STEEL COLUMN SCHEDULE AND DETAILS
	S-510	TYPICAL STEEL STAIR DETAILS
	S-511	TYPICAL STEEL STAIR DETAILS
	S-512	STRUCTURAL ELEVATOR PLANS
	S-513	STRUCTURAL ELEVATOR SECTIONS
	S-514	STRUCTURAL ELEVATOR DETAILS
	S-551	STEEL TRUSS ELEVATION AND ESTIMATED LOADS ONTO SW TOWER FOUNDATION WALL
	S-552	STEEL TRUSS ELEVATIONS AND DETAILS
	S-553	STEEL TRUSS BEARING DETAILS AND CONNECTIONS
	S-554	IN-PLANE BRACING SECTIONS AND DETAILS

MANHATTAN WEST:

SOUTHWEST RESIDENTIAL TOWER SITE

West 31st Street
New York, NY

Client

Brookfield

250 Vesey Street, 15th Floor, New York, NY 10281

Architecture/Structural Engineering

SOM

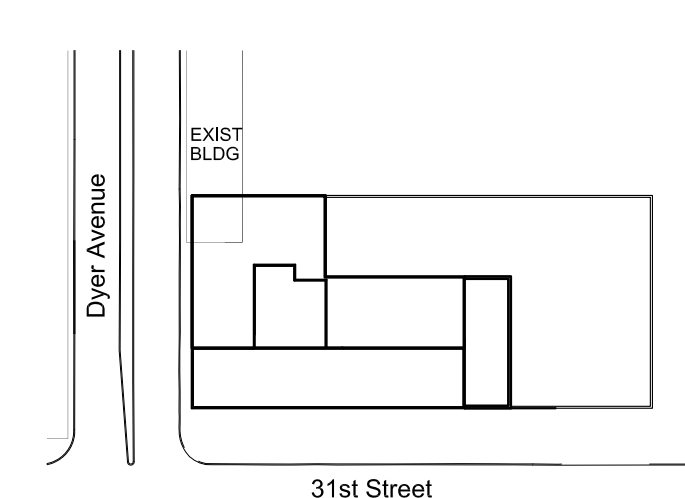
Skidmore, Owings & Merrill LLP
14 Wall Street, New York, NY 10005

Landscape Architecture

James Corner Field Operations
475 Tenth Avenue, 9th Floor, New York, NY 10018

MEP Engineering

Jaros Baum & Bolles
80 Pine Street, 12th Floor, New York, NY 10005



KEY PLAN

9	18 MAY 2015	ISSUED FOR PERMIT FILING
8	12 DEC 2014	BULLETIN #2
7	01 AUG 2014	CONSTRUCTION DOCUMENTS
6	03 JUNE 2014	50% CONSTRUCTION DOCUMENTS
5	10 MAY 2014	SUPERSTRUCTURE BID PACKAGE
4	02 MAY 2014	ISSUED FOR PERMIT FILING
3	14 MAR 2014	ISSUED FOR DESIGN DEVELOPMENT
2	28 FEB 2014	PROGRESS SET
1	24 JAN 2014	ISSUED FOR SCHEMATIC DESIGN

No. Date Description

Sheet Name:

STRUCTURAL SYSTEM DESCRIPTION, SYMBOLS AND ABBREVIATIONS

Seal & Signature: [Signature]

NYC DOB Number: [Number]

Project No: 211157

Scale: NTS

DWG No: S-001.00

CAD FILE NAME: S-001.DWG

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STRUCTURAL CONCRETE NOTES

- A. CONCRETE
1. ALL CAST-IN-PLACE CONCRETE SHALL BE OF THE TYPES AND HAVING THE MINIMUM COMPRESSIVE CYLINDER STRENGTHS AS SHOWN ON THE CONCRETE MATERIALS SCHEDULE.
2. ALL CONCRETE SHALL CONTAIN AN APPROVED WATER REDUCING, PLASTICIZING ADMIXTURE, APPROVED, HIGH-RANGE, WATER REDUCING ADMIXTURES MAY BE UTILIZED, FOR ALL THE CONCRETE PERMANENTLY EXPOSED TO WEATHER PROVIDE MAXIMUM 0.40 WATER-CEMENT RATIO, INCLUDING WATER CONTENT OF ADMIXTURE AND MINIMUM 400PSI COMPRESSIVE STRENGTH AT 28 DAYS WITH USE ONLY IN COMBINATION WITH HIGH RANGE WATER REDUCING ADMIXTURE. ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER SHALL ALSO CONTAIN AN APPROVED AIR-ENTRAINING ADMIXTURE, CORROSION INHIBITING ADMIXTURE SHALL BE UTILIZED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, BUT IT DOSAGE RATE NOT LESS THAN 2.0 GAL/YARD³
3. NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
4. SEE TECHNICAL SPECIFICATION SECTION 033000 "CAST IN PLACE CONCRETE" FOR ADDITIONAL REQUIREMENTS.

- B. REINFORCING
1. ALL REINFORCING BARS SHALL CONFORM TO THE STANDARDS OF ASTM A615, GRADE 60.
2. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, SPACED IN FORMS, AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN IBC 2006 AND 2008 NEW YORK BUILDING CODE. FOLLOW THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", ACI 315 AND ACI 318-08.
3. THE CONTRACTOR SHALL SUBMIT FOR REVIEW BY THE ARCHITECT / STRUCTURAL ENGINEER FOR APPROVAL, CHECKED SHOP DRAWINGS INDICATING PLACEMENT AND SUPPORT DETAILS INCLUDING THE ADDITIONAL REBAR PROVIDED BY THE CONTRACTOR FOR MAIN REINFORCEMENT SUPPORT FOR REVIEW PRIOR TO INSTALLATION.
4. ALL REINFORCING SPLICES SHALL DEVELOP 100% OF THE TENSILE CAPACITY OF THE REINFORCEMENT. (U.N.C.) ALTERNATIVE MECHANICAL SPLICES MAY BE CONSIDERED, PROVIDED THAT THEY DEVELOP FULL TENSILE STRENGTH.
5. ALL WIRE MESH REINFORCEMENT SHALL CONFORM TO THE STANDARDS OF ASTM A185 AND SHALL BE GALVANIZED.
6. ALL WIRE MESH REINFORCEMENT SHALL BE LAPPED TWO (2) FULL MESH PANELS AND TIED SECURELY.
7. WHERE REQUIRED, DOWELS SHALL MATCH THE SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE.
8. ADDITIONAL BARS SHALL BE PROVIDED AROUND ALL FLOOR AND WALL OPENINGS, AS SHOWN ON DETAILS.
9. ALL BAR SUPPORTS SHALL BE GALVANIZED, BAR SUPPORTS IN CONTACT WITH EXPOSED SURFACES SHALL ALSO BE PLASTIC TIPPED.
10. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT, UNLESS LARGER COVER IS NOTED ELSEWHERE:

CONCRETE SURFACE EXPOSURE		MINIMUM CONCRETE CLEAR COVER (IN)
COLUMNS	SURFACES NOT EXPOSED TO EARTH OR WEATHER	1'-1/2"
	SURFACES EXPOSED TO EARTH OR WEATHER	2"
BEAMS		1'-1/2"
SLABS (INCLUDING METAL DECK SLABS)	SURFACES NOT EXPOSED TO EARTH OR WEATHER	3/4"
	SURFACES EXPOSED TO EARTH OR WEATHER	2"
FOUNDATION ELEMENTS (ALL FACES) - CONCRETE CAST AGAINST EARTH		3"
BASEMENT WALLS / SHEAR WALLS / FOUNDATION WALLS	SURFACES NOT EXPOSED TO EARTH OR WEATHER	3/4"
	SURFACES EXPOSED TO EARTH OR WEATHER	2"
SLAB-ON-GRADE	TOP FACE	1"
	BOTTOM FACE	2"

- C. CONSTRUCTION JOINTS
1. CONSTRUCTION JOINTS IN ALL WALLS, SLABS AND BEAMS SHALL NOT BE FURTHER APART THAN 6'-0" IN ANY DIRECTION. VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL BE LOCATED AT LEAST 5'-0" FROM ANY PILASTERS, CORNERS, OR WALL OPENINGS.
2. ALL CONSTRUCTION JOINTS SHALL BE WIRE BRUSHED, CLEANED AND MOISTENED IMMEDIATELY PRIOR TO PLACING NEW CONCRETE.
3. ALLOW A MINIMUM OF THREE (3) HOURS BETWEEN PLACEMENT OF CONCRETE FOR COLUMNS, WALLS OR PIERS AND PLACEMENT OF CONCRETE ON THE ADJACENT FLOOR.
- D. CURING AND SEALING
1. PROVIDE APPROVED CURING COMPOUND AND SEALER FOR THE TOP SURFACE OF ALL SLAB WORK, UNLESS NOTED OTHERWISE.
2. PROVIDE APPROVED CURING COMPOUND, SEALER, AND HARDENER FOR ALL SLABS IN MEP AND STORAGE AREAS, UNLESS NOTED OTHERWISE.
- E. GENERAL
1. MINIMUM SLAB-ON-GRADE THICKNESS SHALL BE 8 INCHES, UNLESS NOTED OTHERWISE.
2. CONCRETE BEAMS AND SLABS SHALL NOT BE SLEEVED OR BOXED-OUT OR HAVE THE REINFORCING INTERRUPTED, UNLESS APPROVED BY THE PROJECT STRUCTURAL ENGINEER. COORDINATE SIZE AND LOCATION OF ALL SLEEVED OPENINGS WITH MEP CONSULTANTS.
3. SEE ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF ALL FLOOR FINISHES, FLOOR DEPRESSIONS AND CURBS.
4. SEE ARCHITECTURAL DRAWINGS FOR GENERAL WATERPROOFING REQUIREMENTS. SPECIFIC DETAILS SHALL BE SUPPLIED BY THE WATERPROOFING CONTRACTOR/MANUFACTURER.
5. SEE ARCHITECTURAL, HVAC, ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL WALL/SLAB OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS.
6. THE CONTRACTOR SHALL PERFORM AND SUBMIT SURVEYS, DAILY, OF ALL FINISHED REINFORCED CONCRETE AND METAL DECK CONCRETE SLAB SURFACES, BOTH BEFORE AND AFTER REMOVAL OF FORMWORK AND/OR SHORING SYSTEMS.
7. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED, EXCEPT SELF CONSOLIDATING CONCRETE AND TREMIE CONCRETE.
8. THE CONTRACTOR SHALL MEET ALL ADDITIONAL REQUIREMENTS OF LOCAL AND GOVERNMENTAL CODES AND REGULATIONS FOR ALL WORK.
9. ALL ELEVATIONS ARE REFERENCED TO NAVD 1988.
- F. EMBEDDED/ATTACHED INSERTS FOR OTHER TRADES

1. ALL EMBEDDED OR ATTACHED INSERTS OR CONNECTORS, FOR THE WORK OF OTHER TRADES, ATTACHED TO ANY STRUCTURAL CONCRETE ELEMENT BEFORE OR AFTER THE PLACEMENT OF CONCRETE, SHALL NOT CUT, MOVE, OR RELOCATE ANY REINFORCING BAR OR REINFORCING BAR SUPPORT. THE LOCATIONS OF ALL SUCH INSERTS AND THE TYPE AND INTENDED LOAD APPLICATION OF EACH SUCH ITEM SHALL BE INDICATED BY THE CONTRACTOR ON A COORDINATED, MULTI-TRADE SHOP DRAWINGS, AND SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF THE INSERTS/CONNECTORS. ANY SUCH EMBEDDED AND/OR ATTACHED ITEM SHALL NOT RESULT IN DAMAGE TO THE CONCRETE FINISH, AND SHALL BE OF A MATERIAL TYPE COMPATIBLE WITH THE CONCRETE MATERIALS, AND ALSO BE NON-CORROSIVE IN MATERIAL TYPE.
2. CONDUIT AND PIPE SHALL NOT BE PLACED IN STRUCTURAL SLABS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER. THE CONTRACTOR SHALL SUBMIT CONDUIT PLACEMENT DRAWINGS INDICATING LOCATIONS OF CAST-IN-CONDUITS AND PIPES. ALL CONDUITS SHALL BE PLACED IN THE MIDDLE THIRD OF THE SLAB THICKNESS AND SHALL BE SPACED NO CLOSER THAN 3 DIAMETERS OR WIDTHS ON CENTER. NO CONDUIT GREATER THAN 2" MAY BE PLACED IN THE STRUCTURAL SLABS.
- G. DRILLED IN ANCHORS AND REINFORCING BARS

1. DRILLED IN EXPANSION ANCHORS, ADHESIVE ANCHORS AND GROUTED BARS MAY BE USED WHERE SHOWN ON THE DRAWINGS.
2. DRILLED IN BARS SHALL BE ADHESIVE ANCHORED UNLESS NOTED OTHERWISE.
3. CONDUCT A PRECONSTRUCTION CONFERENCE AT LEAST 14 DAYS PRIOR TO INSTALLATION OF ANCHORS TO VERIFY MATERIALS AND PROCEDURES. CONFERENCE SHALL BE ATTENDED BY REPRESENTATIVES OF THE MANUFACTURER, INSTALLER, CONTRACTOR AND ARCHITECT.
4. ADHESIVE ANCHORED BARS SHALL BE INSTALLED BY TRAINED PERSONEL IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
5. PROVIDE PERIODIC SPECIAL INSPECTIONS FOR ADHESIVE ANCHORS AS PER IBC 2006 SECTION 1704.13/NYCBC 2008.

SPECIAL ADDITIONAL STRUCTURAL CONCRETE REQUIREMENTS

- A. SPECIAL CONCRETE MATERIAL NOTES
1. SEE SPECIFICATIONS FOR SPECIFIC DEFINITIONS AND ADDITIONAL REQUIREMENTS.
2. ALL CONCRETE SHALL BE SPECIFICALLY DESIGNED FOR THE HORIZONTAL AND VERTICAL PUMPING DISTANCES AS REQUIRED BY THE CONSTRUCTION SEQUENCING.
3. ALL CONCRETE SHALL BE SPECIFICALLY DESIGNED FOR THE VIRGINIA REGIONAL ENVIRONMENTAL CONDITIONS, INCLUDING SEASONAL VARIATIONS, THAT WILL SPECIFICALLY OCCUR DURING THE DIFFERENT CONSTRUCTION PHASES.
4. ALL CONCRETE MIXES SHALL CONTAIN APPROVED WATER REDUCING PLASTICIZING ADMIXTURES IN THE APPROPRIATE RANGES FOR PLACEMENT.
5. ALL CONCRETE MAY INCLUDE THE FOLLOWING SUPPLEMENTAL CEMENTITIOUS MATERIALS IN ADDITION TO THE APPROPRIATE TYPE OF PORTLAND CEMENT:
- a. GROUND GRANULATED BLAST FURNACE SLAG (GGBS): MAXIMUM 70%
b. FLY ASH (FA): MAXIMUM 30%
c. COMBINATION GGBS + FA: MAXIMUM GGBS = 50%, MAXIMUM FA = 20%
6. ALL CONCRETE SHALL HAVE WATER-TO-CEMENTITIOUS MATERIAL RATIO (W/C) BETWEEN 0.30 MINIMUM AND 0.50 MAXIMUM, UNLESS NOTED OTHERWISE. PORTLAND CEMENT / GRANULATED BLAST FURNACE SLAG / FLY ASH SHALL BE CONSIDERED AS CEMENTITIOUS MATERIALS; MICROSILICA SHALL NOT BE CONSIDERED AS A CEMENTITIOUS MATERIAL IN THE W/C RATIO.
- B. SPECIAL FLOOR SLAB LEVELING
1. AFTER THE REQUIRED POWER, HARD TROWELING AND CURING OF ALL FLOOR SLAB SURFACES, AND IN ORDER TO ACHIEVE THE APPROPRIATE FLOOR LEVELNESS, THE CONTRACTOR SHALL INSTALL AN ACCEPTABLE LATEX BASED, CEMENTITIOUS FLOWABLE FILL MATERIAL SYSTEM IN ALL INTERIOR FLOOR SLAB AREAS WHICH WILL RECEIVE APPLIED, NON-CEMENTITIOUS, ARCHITECTURAL FLOOR FINISH INTERIOR SYSTEMS (CARPET, WOOD, THIN SET STONE) AS THE FINAL FINISH SYSTEM. THE LOCATIONS, EXTENT, AND THICKNESS OF THE FLOWABLE FILL WILL BE ESTABLISHED FROM THE REVIEW OF THE CONTRACTOR'S UNSHORED HARDENED CONCRETE FLOOR SLAB SURVEYS. THESE THIN FLOWABLE CONCRETE FILL MATERIALS SHALL BE PROTECTED FROM DETERIORATION PRIOR TO THE PLACEMENT OF THE FINAL ARCHITECTURAL FLOOR FINISH SYSTEMS.
- C. PROGRESSIVE COLLAPSE SPECIAL INSPECTION
1. TO SATISFY PROGRESSIVE COLLAPSE REQUIREMENTS ACCORDING TO SECTION 1717.4 OF UFC 4-023-03 (JULY 2009), CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR REINFORCING STEEL PLACEMENT IN THE BASEMENT WALL ALONG GRID 1, BETWEEN GRID 3.7 AND 6, WITH PARTICULAR EMPHASIS ON REINFORCING STEEL ANCHORAGES AND LAPS.

CONCRETE MATERIAL SCHEDULE

DESIGNATION	CONCRETE COMPRESSIVE STRENGTH, f_c (28-DAY CYLINDER STRENGTH, psi)	CONCRETE DENSITY (pcf)	REMARKS
FOUNDATIONS	4000	145	
SLAB AND BEAM	5000	145	
METAL DECK SLAB	4000	145	
MISC. CONCRETE FILL / MEP PADS / CURBS	3000	145	

COMPRESSION LAP SPlice LENGTH AND COMPRESSION DEVELOPMENT LENGTH

BAR SIZE	COMPRESSION LAP SPlice	COMPRESSION DEVELOPMENT LENGTH			
		$f_c = 4000$ psi	$f_c = 5000$ psi	$f_c = 6000$ psi	$f_c = 7000$ psi
#3	12	8	8	8	8
#4	15	10	9	9	9
#5	19	12	12	12	12
#6	23	15	14	14	14
#7	27	17	16	16	16
#8	30	19	18	18	18
#9	34	22	21	21	21
#10	38	25	23	23	23
#11	43	27	26	26	26
#14	-	33	31	31	31
#18	-	43	41	41	41

NOTE:
1. TABULATED COMPRESSION DEVELOPMENT LENGTHS AND COMPRESSION LAP SPLICES ARE GIVEN IN INCHES, AND ARE CALCULATED FOR REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 AS PER THE REQUIREMENTS OF ACI 318 (2005).

TENSION DEVELOPMENT LENGTH

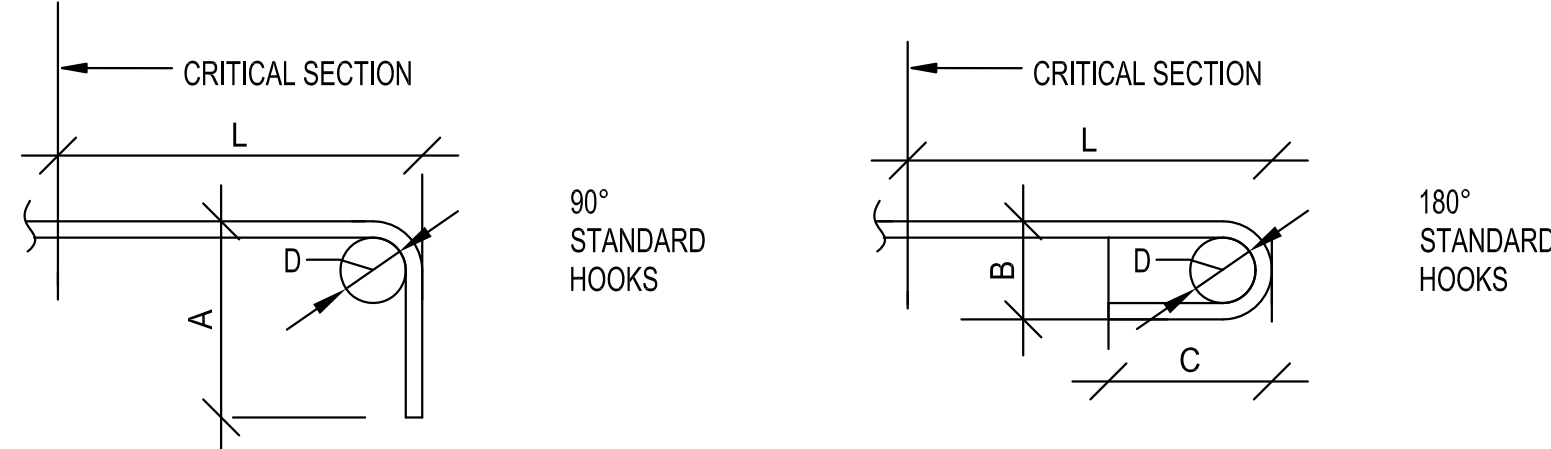
BAR SIZE	$f_c = 4000$ psi				$f_c = 5000$ psi				$f_c = 6000$ psi				$f_c = 7000$ psi			
	TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS	
	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	19	28	15	22	17	25	13	19	15	23	12	18	14	21	12	16
#4	25	37	19	29	22	33	17	26	20	31	16	24	19	28	15	22
#5	31	47	24	36	28	42	22	32	25	38	20	29	24	35	18	27
#6	37	56	29	43	33	50	26	38	31	46	24	35	28	42	22	33
#7	54	81	42	63	49	73	37	56	44	66	34	51	41	61	32	47
#8	62	93	48	71	55	83	43	64	51	76	39	58	47	70	36	54
#9	70	105	54	81	63	94	48	72	57	85	44	66	53	79	41	61
#10	79	118	61	91	70	105	54	81	64	96	49	74	59	89	46	69
#11	87	131	67	101	78	117	60	90	71	107	55	82	66	99	51	76
#14	105	157	81	121	94	140	72	108	86	128	66	99	79	119	61	91
#18	139	209	107	161	125	187	96	144	114	171	88	131	106	158	81	122

- NOTES : 1. TABULATED TENSION DEVELOPMENT LENGTHS ARE GIVEN IN INCHES, AND ARE CALCULATED FOR REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 AS PER THE
2. REQUIREMENTS OF ACI 318 (2005).
- CASES 1 AND 2 DEPEND UPON CONCRETE COVER AND THE CENTER-TO-CENTER SPACING OF THE BARS, DEFINED AS FOLLOWS:
- CASE 1: CLEAR SPACING AT LEAST ONE (1) BAR DIAMETER
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
STIRRUPS OR TIES THROUGHOUT THE DEVELOPMENT LENGTH NOT LESS THAN THE CODE MINIMUM
OR
CLEAR SPACING AT LEAST TWO (2) BAR DIAMETERS
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
- CASE 2: ALL OTHER CASES
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
4. TABULATED TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED WITH RESPECT TO NORMALWEIGHT CONCRETE. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
5. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY ONE OF THE FOLLOWING FACTORS:
- 1.5 FOR EPOXY COATED BARS WITH COVER LESS THAN 3 BAR DIAMETERS, OR CLEAR SPACING LESS THAN 6 BAR DIAMETERS
1.2 FOR ALL OTHER EPOXY COATED BARS

TENSION LAP SPlice LENGTH

BAR SIZE	LAP CLASS	$f_c = 4000$ psi				$f_c = 5000$ psi				$f_c = 6000$ psi				$f_c = 7000$ psi			
		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	A	19	28	15	22	17	25	13	19	15	23	12	18	14	21	12	16
	B	24	36	19	28	22	33	17	25	20	30	15	23	18	28	14	21
#4	A	25	37	19	29	22	33	17	25	20	31	16	24	19	28	15	22
	B	32	48	25	37	29	43	22	33	26	40	20	31	25	37	19	28
#5	A	31	47	24	36	28	42	22	32	25	38	20	29	24	35	18	27
	B	40	60	31	47	36	54	28	41	33	49	25	38	30	46	24	35
#6	A	37	56	29	43	33	50	26	38	31	46	24	35	28	42	22	33
	B	48	72	37	56	43	65	33	50	40	59	31	46	37	55	28	42
#7	A	54	81	42	63	48	72	37	56	44	66	34	51	41	61	32	47
	B	70	106	54	81	63	94	49	72	58	86	44	66	53	80	41	61
#8	A	62	93	48	71	55	83	43	64	51	76	39	58	47	70	36	54
	B	80	121	62	93	72	108	55	83	66	98	51	76	61	91	47	70
#9	A	70	105	54	81	63	94	48	72	57	85	44	66	53	79	41	61
	B	91	136	70	105	81	122	63	94	74	111	57	85	69	103	53	79
#10	A	79	118	61	91	70	105	54	81	64	96	49	74	59	89	46	69
	B	102	153	79	118	91	137	70	105	83	125	64	96	77	116	59	89
#11	A	87	131	67	101	78	117	60	90	71	107	55	82	66	99	51	76
	B	113	170	87	130	101	152	78	117	93	139	71	107	86	128	66	99

- NOTES : 1. TABULATED TENSION LAP SPlice LENGTHS ARE GIVEN IN INCHES, AND ARE CALCULATED FOR REINFORCEMENT CONFORMING TO ASTM A615 GRADE 60 AS PER THE REQUIREMENTS OF ACI 318 (2005).
2. CASES 1 AND 2 DEPEND UPON CONCRETE COVER AND THE CENTER-TO-CENTER SPACING OF THE BARS, DEFINED AS FOLLOWS:
- CASE 1: CLEAR SPACING AT LEAST ONE (1) BAR DIAMETER
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
STIRRUPS OR TIES THROUGHOUT THE DEVELOPMENT LENGTH NOT LESS THAN THE CODE MINIMUM
OR
CLEAR SPACING AT LEAST TWO (2) BAR DIAMETERS
CLEAR COVER AT LEAST ONE (1) BAR DIAMETER
- CASE 2: ALL OTHER CASES
3. TOP BARS ARE DEFINED AS HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
4. TABULATED TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED WITH RESPECT TO NORMALWEIGHT CONCRETE. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
5. FOR EPOXY COATED BARS, MULTIPLY THE TABULATED VALUES BY ONE OF THE FOLLOWING FACTORS:
- 1.5 FOR EPOXY COATED BARS WITH COVER LESS THAN 3 BAR DIAMETERS, OR CLEAR SPACING LESS THAN 6 BAR DIAMETERS
1.2 FOR ALL OTHER EPOXY COATED BARS
6. PROVIDE CLASS"B" SPlice UNLESS NOTED OTHERWISE.



STANDARD HOOK DETAILING GEOMETRY AND TENSION DEVELOPMENT LENGTH

BAR SIZE	D	90° HOOKS			180° HOOKS			TENSION DEVELOPMENT LENGTH			
		A	B	C				$f_c = 4000$ psi	$f_c = 5000$ psi	$f_c = 6000$ psi	$f_c = 7000$ psi
#3	2-1/4	6	3	5				7	7	6	6
#4	3	8	4	6				10	9	8	7
#5	3-3/4	10	5	7				12	11	10	9
#6	4-1/2	12	6	8				15	13	12	11
#7	5-1/4	14	7	10				17	15	14	13
#8	6	16	8	11				19	17	16	15
#9	6-1/2	19	11-3/4	15				22	19	18	16
#10	10-3/4	22	13-1/4	17				24	22	20	19
#11	12	24	14-3/4	19				27	24	22	21
#14	18 1/4"	31	21-3/4	27				32	29	27	25
#18	24	41	28-1/2	36				43	39	35	33

- NOTE : 1. TABULATED TENSION DEVELOPMENT LENGTHS AND STANDARD HOOK DETAILING GEOMETRY DIMENSIONS ARE GIVEN IN INCH, AND ARE CALCULATED FOR ASTM A615 GRADE 60 AS
2. PER THE REQUIREMENTS OF ACI 318 (2005).
- "D" REPRESENTS THE STANDARD HOOK FINISHED INSIDE BEND DIAMETER. "A", "B", AND "C" REPRESENT DETAILING DIMENSIONS AS DEFINED IN THE KEY DETAILS.
- TABULATED TENSION DEVELOPMENT LENGTHS HAVE BEEN CALCULATED WITH RESPECT TO NORMAL WEIGHT CONCRETE. FOR LIGHTWEIGHT CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.
- FOR EPOXY-COATED BARS, MULTIPLY THE TABULATED VALUES BY 1.2

MANHATTAN WEST:

STRUCTURAL STEEL NOTES

A. GENERAL

1. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO AISC (LRFD), 2005, SPECIFICATIONS AND 2008 NEW YORK CITY BUILDING CODE.
2. ALL WELDING WORK SHALL CONFORM TO THE AWS D1.1 "STRUCTURAL WELDING CODE - STEEL," LATEST EDITION, AND SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.
3. ALL STEEL BEAM SIZES FOLLOWED BY A NUMBER IN PARENTHESES, (XX), ARE COMPOSITE BEAMS WITH SHEAR STUDS. SEE "STRUCTURAL METAL DECK NOTES" FOR ADDITIONAL INFORMATION.
4. COMPOSITE BEAMS ARE NOT REQUIRED TO BE SHORED, UNLESS NOTED OTHERWISE.
5. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT PRIOR REVIEW BY THE ARCHITECT.
6. ALL STRUCTURAL STEEL AND METAL DECK SLAB SHALL BE FIREPROOFED TO ATTAIN THE APPLICABLE FIRE RATING REQUIRED BY CODE WITH UL APPROVED SPRAYED-ON CEMENTITIOUS FIREPROOFING MATERIALS. SEE THE ARCHITECTURAL DRAWINGS FOR SPECIFIC FIREPROOFING REQUIREMENTS. STEEL SURFACES ENCASED IN CONCRETE DOES NOT REQUIRE SPRAY FIREPROOFING.
7. AFTER FABRICATION AND JUST PRIOR TO SITE APPLICATION OF SPRAY-ON FIREPROOFING, ALL STEEL AND METAL DECK SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE AND OTHER FOREIGN MATERIALS. PRIMING AND PAINTING OF THE STRUCTURAL STEEL WILL NOT BE REQUIRED EXCEPT FOR STEEL WHICH IS PERMANENTLY EXPOSED.
8. ALL ELEVATIONS ARE REFERENCED TO A LOCAL SITE DATUM.
9. SEE SPECIFICATION SECTION 05120, "STRUCTURAL STEEL FRAMING," FOR ADDITIONAL REQUIREMENTS NOT NOTED HEREIN.

B. MATERIALS

1. STRUCTURAL STEEL GRADES SHALL BE AS FOLLOWS:

STEEL COLUMNS, FLOOR BEAMS: ASTM A992 - GRADE 50
CONNECTIONS, PLATES: ASTM A572 - GRADE 50
ANGLES: ASTM A36 GRADE 36 - OR A-572 GRADE 50
BOLTS: ASTM A325, A490, AS INDICATED

2. ALL BOLTS, NUT AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 OR A490.
3. ALL WELDING ELECTRODES SHALL BE E70XX.

C. CONNECTIONS

1. ALL CONNECTIONS, EXCEPT FOR THOSE CONNECTIONS COMPLETELY DESIGNED ON THE DRAWINGS, SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR. DETAILING SHALL BE PERFORMED USING RATIONAL ENGINEERING DESIGN AND STANDARD PRACTICE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE GENERAL DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL ONLY AND DO NOT INDICATE THE REQUIRED NUMBER OF BOLTS OR WELD SIZES, UNLESS SPECIFICALLY NOTED. THE CONTRACTOR SHALL SUBMIT ENGINEERING CALCULATIONS AND CONNECTION DETAIL DRAWINGS FOR EACH CONNECTION TYPE, MEMBER SIZE, AND REACTION INDICATED ON THE DRAWINGS FOR REVIEW BY THE ARCHITECT PRIOR TO THE SUBMITTAL OF THE STRUCTURAL STEEL SHOP DRAWINGS. AFTER REVIEW BY THE ARCHITECT AND ENGINEER, THESE DETAIL DRAWINGS SHALL BE UTILIZED AS THE STANDARD FOR FABRICATION AND SHOP DRAWING DETAILING. THE DESIGN CALCULATIONS SHALL BE PREPARED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK.
2. ALL CONNECTIONS, UNLESS NOTED OTHERWISE, SHALL BE SIMPLE SHEAR CONNECTIONS UTILIZING "SHORT-SLOTTED" HORIZONTAL HOLES AND HIGH-STRENGTH BOLTS IN BEARING-TYPE CONNECTIONS WITH THREADS EXCLUDED FROM THE SHEAR PLANE. THE CONNECTION CAPACITIES SHALL BE AS SHOWN IN NOTE C5 BELOW, OR AS NOTED ON THE STRUCTURAL FRAMING PLANS.
3. BEAM-TO-COLUMN CONNECTIONS SHALL BE MOMENT CONNECTED WHERE SHOWN ON THE DRAWINGS. ALL BOLTED MOMENT CONNECTIONS SHALL UTILIZE "SLIP-CRITICAL" BOLTS BASED ON SLIP AS AN ULTIMATE STATE. THE WEB SHEAR CONNECTION FOR THESE MEMBERS SHALL UTILIZE SINGLE SHEAR PLATE SLIP-CRITICAL TYPE CONNECTIONS WITH HIGH-STRENGTH BOLTS. REFER TO THE REQUIRED SHEAR CAPACITIES SHOWN IN NOTE C5 BELOW.
4. ALL BOLTS SHALL BE FULLY TORQUED FOR BOTH SLIP CRITICAL AND BEARING TYPE CONNECTIONS.
5. ULTIMATE END REACTION CAPACITIES (AISC FACTORED LOADS) FOR STANDARD ROLLED SHAPES:
- | | | | | | |
|-----|----------|-----|---------|--------|---------|
| W36 | 210 kips | W16 | 55 kips | HSS 16 | 55 kips |
| W33 | 180 kips | W14 | 45 kips | HSS 14 | 45 kips |
| W30 | 135 kips | W12 | 40 kips | HSS 12 | 30 kips |
| W27 | 100 kips | W10 | 20 kips | HSS 10 | 20 kips |
| W24 | 95 kips | W8 | 15 kips | HSS 8 | 15 kips |
| W21 | 85 kips | W6 | 15 kips | HSS 6 | 15 kips |
| W18 | 70 kips | W5 | 10 kips | | |
- ANY MEMBERS WITH END REACTIONS EXCEEDING THE VALUES LISTED ABOVE ARE INDICATED ON THE PLANS, EITHER WITH BOXED END REACTIONS OR IN TABULAR FORM.
6. THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2) - $\frac{3}{4}$ " INCH DIAMETER, A325 BOLTS AND $\frac{3}{4}$ " INCH DIAMETER FOR W6 AND W8 BEAMS.
7. MINIMUM FILLET WELD SIZES SHALL COMPLY WITH THE AISC SPECIFICATION REQUIREMENTS, BUT SHALL NOT BE LESS THAN $\frac{1}{2}$ " INCH, UNLESS NOTED OTHERWISE.

D. DETAILING AND FABRICATION

1. THE CONTRACTOR SHALL SUBMIT DETAILED, ENGINEERED, COORDINATED AND CHECKED SHOP DRAWINGS FOR ALL STRUCTURAL STEEL TO THE ARCHITECT FOR REVIEW PRIOR TO THE START OF FABRICATION AND/OR ERECTION.
2. ALL BEAMS SHALL BE FABRICATED WITH THE NATURAL CAMBER UP. PROVIDE ADDITIONAL CAMBERS AS INDICTED IN BRACKETS <XX> ON THE STRUCTURAL DRAWINGS. FOR CANTILEVERS, CAMBER SHALL BE MEASURED AT THE FREE END.
3. ALL SIMPLE SHEAR CONNECTIONS SHALL BE CAPABLE OF END ROTATION AS PER THE REQUIREMENTS OF AISC SPECIFICATION, CHAPTER J1.2, "SIMPLE CONNECTIONS."
4. ALL EXISTING CONDITIONS MUST BE SURVEYED PRIOR TO DETAILING TO FIRST DETERMINE TOLERANCES THAT MUSH BE ACCOMMODATED.
5. ALL BEAMS FRAMING INTO NEW CONCRETE WALLS SHALL BE DETAILED TO SUIT THE HORIZONTAL FIELD TOLERANCES AS PER AISC 303 FOR ERECTION TOLERANCES.

E. ERECTION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES, ESPECIALLY WITH RELATION TO TEMPERATURE DIFFERENTIALS, ERECTION TOLERANCES, AND WITH RESPECT TO STRUCTURAL STEEL FRAMING INTO REINFORCED CONCRETE WALLS.
2. SURVEY THE TOPS OF ALL COLUMNS AT LEVEL. RECORD X, Y & Z - COORDINATES MEASURED CONSISTENTLY FROM AN ESTABLISHED BENCHMARK. PROVIDE A COPY OF THE SURVEY DATA TO THE ARCHITECT AND STRUCTURAL ENGINEER WITHIN TWO DAYS OF THE COMPLETION OF EACH SURVEY.
3. ALL ERECTION PROCEDURES, DESIGNS AND CALCULATIONS SHALL BE PERFORMED BY THE CONTRACTOR'S QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK. ANY REVIEW OF SUCH CALCULATIONS AND/OR DRAWINGS BY THE ARCHITECT WILL BE SOLELY LIMITED TO ANY EFFECTS ON THE INTEGRITY OF THE PERMANENT PRIMARY STRUCTURE.
4. ALL ADDITIONAL STEEL REQUIRED BY THE CONTRACTOR FOR ERECTION PURPOSES AND SITE ACCESS OF STOCKPILED MATERIALS SHALL BE PROVIDED AT NO COST TO THE OWNER. ALL SUCH ADDITIONAL STEEL SHALL BE REMOVED BY THE CONTRACTOR UNLESS APPROVED BY THE OWNER IN WRITING.
5. THE CONTRACTOR SHALL SUBMIT A METHODS STATEMENT FOR ALL STRUCTURAL STEEL/METAL DECK ERECTION PROGRAMS.

F. NON-SELF-SUPPORTING STEEL FRAMES

THE STEEL STRUCTURE (COMPRISED OF GRAVITY COLUMNS, FLOOR BEAMS AND MOMENT FRAMES) IS A NON-SELF-SUPPORTING FRAME. THE FLOOR DIAPHRAGM (METAL DECK AND HARDENED CONCRETE SLAB TOPPING) AND ADJACENT R/C CONCRETE WALLS ARE REQUIRED TO PROVIDE STABILITY AND STRENGTH TO RESIST THE LOADS FOR WHICH THE FRAME IS DESIGNED. THE CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY SUPPORT AS NECESSARY UNTIL THE COMPLETE STRUCTURE IS ERECTED. THE STEEL TRUSS AT DYER AVE. OVERBUILD HAS NOT BEEN DESIGNED AS A SELF-SUPPORTING STRUCTURE. ALL MEMBERS FRAMING INTO THE STEEL TRUSS ARE REQUIRED TO BE INSTALLED TO PROVIDE STRUCTURAL STABILITY. ANY TEMPORARY SUPPORT SHOULD BE PROVIDED BY CONTRACTOR AS NECESSARY UNTIL THE COMPLETE STRUCTURE IS ERECTED.

G. TESTING AND INSPECTION

TESTING AND INSPECTION OF BOTH SHOP AND FIELD STRUCTURAL STEEL FABRICATION AND ERECTION WORK, INCLUDING WELDED AND BOLTED CONNECTIONS, SHALL BE AS FOLLOWS:

1. ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE VISUALLY INSPECTED.
2. ALL WELDERS SHALL BE AWS CERTIFIED.
3. ALL WELDS SHALL BE AWS/AISC PREQUALIFIED.
4. ALL WELDS SHALL BE VISUALLY INSPECTED PER AWS D1.1. WELD MEASUREMENTS SHALL BE PERFORMED FOR 15% OF ALL WELDS ON A RANDOM BASIS.
5. MAGNETIC PARTICLE TESTING IN ACCORDANCE WITH ASTM E709 SHALL BE PERFORMED FOR A MINIMUM OF:
- a. 10% OF ALL FILLET WELDS CHOSEN AT RANDOM, FINAL PHASE ONLY.
 - b. 100% OF TENSION MEMBER CONNECTION WELDS (I.E., HANGER CONNECTION PLATES, ETC.) FOR ROOT AND FINAL PASSES.
6. ULTRASONIC TESTING IN ACCORDANCE WITH AWS D1.1 SHALL BE PERFORMED FOR A MINIMUM OF:
- a. 100% OF ALL FULL PENETRATION WELDS.
 - b. 20% OF ALL COLUMN SPLICE WELDS, CHOSEN AT RANDOM.
7. ULTRASONIC TESTING AND VISUAL INSPECTION IN ACCORDANCE WITH ASTM A435, STRAIGHT BEAM ULTRASONIC EXAMINATION OF STEEL PLATES, OR ASTM A898, STRAIGHT BEAM ULTRASONIC EXAMINATION OF ROLLED STEEL STRUCTURAL SHAPES, AS APPLICABLE SHALL BE UTILIZED TO VERIFY BASE MATERIALS FOR LAMINATIONS, INCLUSIONS, AND OTHER DISCONTINUITIES AS FOLLOWS:
- a. ALL ROLLED COLUMN FLANGES AND WEBS THICKER THAN $1\frac{1}{2}$ " LOCATED AT MOMENT CONNECTIONS. TEST AREA IS DEFINED AS 6" ABOVE AND BELOW BEAM FLANGE CONNECTION.
 - b. ALL GUSSET PLATES USED IN X-BRACED FRAMES GREATER THAN $1\frac{1}{2}$ " THICK.
 - c. ALL COLUMN FLANGES IN COLUMNS WITH GUSSET PLATES ATTACHED TO BOTH FLANGES. TEST AREA IS DEFINED AS 6" AT 2'-0" INTERVALS.
8. ALL BOLTED CONNECTIONS SHALL BE VISUALLY INSPECTED AND TESTED WITH A CALIBRATED TORQUE WRENCH TO VERIFY A MINIMUM OF 25% OF BOLTS IN EACH CONNECTION (2 BOLTS PER CONNECTION MINIMUM).
9. THE REQUIRED CONTACT SURFACE CONDITIONS OF ALL SHEAR CONNECTIONS SHALL BE VISUALLY INSPECTED IMMEDIATELY PRIOR TO BEAM ERECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REMEDIAL WORK REQUIRED TO CONTACT SURFACES.
10. THE OWNER'S STRUCTURAL STEEL TESTING SHALL PERFORM ALL FIELD INSPECTION AND TESTING AS OUTLINED ABOVE, AND MONITOR THE CONTRACTOR'S INSPECTION AND TESTING OUTLINED ABOVE FOR ALL SHOP WORK. IF THE CONTRACTOR'S QUALITY CONTROL PROGRAM IS NOT AISC CERTIFIED, THE CONTRACTOR SHALL ENGAGE AN APPROVED STRUCTURAL STEEL TESTING LABORATORY, ACCEPTABLE TO THE OWNER, WHO SHALL PERFORM ALL SHOP TESTING AND INSPECTION.
11. THE STRUCTURAL STEEL FABRICATOR AND ERECTOR SHALL SCHEDULE ALL WORK TO ALLOW THE ABOVE INSPECTION AND TESTING REQUIREMENTS TO BE COMPLETED.

STRUCTURAL STEEL PAINTING

1. ALL STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED AS REQUIRED BY THE TECHNICAL SPECIFICATION SECTION 099100.
2. ALL STRUCTURAL STEEL TO RECEIVE SPRAYED-ON FIREPROOFING AND/OR TO BE ENCASED IN CONCRETE DOES NOT REQUIRE PAINTING UNLESS NOTED OTHERWISE.
3. THE FOLLOWING STRUCTURAL STEEL ELEMENTS ARE AESS. PROVIDE FINISH AND PAINT AS PER ARCHITECTURAL SPECIFICATIONS:
- STAIRS
 - ELEVATOR STRUCTURE

STRUCTURAL METAL DECK NOTES

1. ALL METAL DECK SHALL BE FABRICATED FROM STEEL TYPE ASTM A653, GRADE A, HAVING A MINIMUM YIELD STRENGTH OF 33,000 PSI. ALL FLOOR DECKING SHALL BE HOT-DIPPED GALVANIZED, OR PHOSPHATIZED AND PAINTED. ALL DECKING AT ROOF LEVELS, PARKING/VEHICULAR LEVELS, LOADING DOCK FREIGHT AREAS, AND SIDEWALK AREAS SHALL BE HOT-DIPPED GALVANIZED.
2. ALL METAL DECK SHALL BE DESIGNED FOR THE SPAN AND LOADING CONDITIONS SHOWN ON THE STRUCTURAL DRAWINGS AND IN THE METAL DECK SCHEDULE. NONCELLULAR METAL DECK SHALL BE PROVIDED IN ALL AREAS, UNLESS NOTED OTHERWISE.
3. METAL DECK SECTION PROPERTIES SHALL BE COMPUTED IN ACCORDANCE WITH THE AISI "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION, UNLESS NOTED OTHERWISE.
4. THE MINIMUM GAGE OF ALL METAL DECK SHALL BE 18 GAGE WHEN THE CONCRETE TOPPING SLAB THICKNESS (TC, SEE DETAILS 6/S-501) IS LESS THAN OR EQUAL TO $4\frac{1}{2}$ " AND 16 GAGE WHEN CONCRETE TOPPING SLAB THICKNESS IS GREATER THAN $4\frac{1}{2}$ ".
5. THE METAL DECK CONTRACTOR SHALL SUBMIT, TO THE ARCHITECT FOR REVIEW, STRUCTURAL ENGINEERING CALCULATIONS, PREPARED AND SEALED BY A QUALIFIED, PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK, PROVIDE PUBLISHED MANUFACTURER'S DATA, AND INDEPENDENTLY CERTIFIED LOAD TEST DATA, VERIFYING THAT THE METAL DECK AND RELATED DECK ACCESSORIES SATISFY THE SPECIFIED LOADING AND DEFLECTION REQUIREMENTS FOR THE SPANS INDICATED ON THE DRAWINGS.
6. THE CONTRACTOR SHALL PROVIDE DETAILED, COORDINATED, AND CHECKED SHOP DRAWINGS INDICATING LOCATION, GAGE AND SIZE OF EACH PIECE OF DECKING AND RELATED ACCESSORIES. THE DRAWINGS SHALL CLEARLY SHOW WELDING DETAILS TO STRUCTURAL FRAMING ELEMENTS, SIDE LAP CONNECTION DETAILS, DECK OPENING/EDGE CLOSURES, AND WHERE REQUIRED, SUPPLEMENTARY DECK AND/OR CLOSURE REINFORCING.
7. ALL NON-CELLULAR COMPOSITE METAL DECK SHALL HAVE WIDE RIBS SUITABLE FOR SHEAR STUD PLACEMENT WHERE STUDS ARE REQUIRED. THE CONFIGURATION OF THE METAL DECK SHALL BE SUCH AS TO DEVELOP THE FULL HORIZONTAL SHEAR VALUE OF THE STUD FOR THE PARTICULAR METAL DECK-SLAB CONFIGURATION PER THE AISC SPECIFICATIONS, LATEST EDITION.
8. ALL DECKING SHALL BE WELDED TO STRUCTURAL STEEL BY QUALIFIED WELDERS USING PRE-QUALIFIED PROCEDURES. THE TECHNICAL SPECIFICATIONS ESTABLISH A PROCEDURE FOR PRE-QUALIFICATION OF THE PLUG WELDING OF THE STEEL DECKING TO THE STRUCTURAL STEEL FOR THE PARTICULAR GAGES USED. PRIOR TO THE START OF ERECTION OF THE STEEL DECK, EACH WELDER SHALL BE QUALIFIED USING THIS PROCEDURE AS WITNESSED BY THE OWNER'S TESTING LABORATORY.
9. ALL METAL DECK SHALL BE WELDED AT 12" INCHES MAXIMUM ON CENTER TO THE SUPPORTING STEEL WITH A $\frac{3}{8}$ " INCH DIAMETER PLUG WELD. SIDE LAPS SHALL BE FASTENED WITH #10 TEK SCREWS AT 18" INCHES MAXIMUM ON CENTER.
10. THE METAL DECK SHALL BE DESIGNED TO BE UNSHORED AND CONTINUOUS OVER A MINIMUM OF THREE (3) SPANS IN THE DIRECTION INDICATED. METAL DECKING FOR SINGLE AND DOUBLE SPANS, IF REQUIRED, SHALL ALSO SATISFY THE SPECIFIED LOAD AND DEFLECTION REQUIREMENTS, NOTED HEREIN.
11. THE METAL DECK SHALL BE DESIGNED FOR AN ASSUMED SUITABLE CONSTRUCTION LIVE LOAD TAKING INTO CONSIDERATION THE PARTICULAR METHOD OF CONCRETE PLACEMENT TO BE USED ON THE PROJECT. SPAN AND LOAD CONDITIONS INDICATED BY THE SUPPORTING FRAMEWORK, OPENINGS, AND ACTUAL DECK PIECE SIZES UTILIZED. THE ASSUMED CONSTRUCTION LIVE LOAD SHALL NOT BE LESS THAN 20 PSF. THE CONTRACTOR SHALL NOT EXCEED THE ASSUMED CONSTRUCTION DESIGN LIVE LOAD WITHOUT FIRST TAKING ALL NECESSARY SAFETY PRECAUTIONS SUCH AS SHORING, ETC. ADDITIONALLY, FOLLOW ALL APPLICABLE CITY, LOCAL AND AISI REQUIREMENTS FOR TEMPORARY CONSTRUCTION LOADINGS, IF MORE STRINGENT.
12. COMPOSITE METAL DECK DESIGN CRITERIA: (CELLULAR AND NON-CELLULAR DECKS)

A. METAL DECK: (CONSTRUCTION LOADS ONLY)

- a. MAXIMUM DECK DEFLECTION FOR CONCRETE WET WEIGHT SHALL BE LESS THAN OR EQUAL TO $L/240$, BUT NOT TO EXCEED $\frac{1}{8}$ ", COMPUTED EITHER ON A SINGLE SPAN BASIS, OR ON LOADING ONLY ONE (1) SPAN FOR MULTIPLE SPAN CONDITIONS.
 - b. MAXIMUM STRESS IN DECK FOR CONCRETE WET WEIGHT AND CONSTRUCTION LOADS SHALL BE LESS THAN OR EQUAL TO 0.6 Fy (Fy = YIELD STRESS) COMPUTED ON A SINGLE SPAN BASIS, OR ON LOADING TWO ADJACENT SPANS FOR MULTIPLE SPAN CONDITIONS.
 - c. ALLOW FOR AN AVERAGE OF 5 PSF WET CONCRETE WEIGHT FOR CONCRETE LEVELING (AS PER SPECIFICATIONS) IN ADDITION TO THE SPECIFIED SLAB THICKNESS, FOR STRESS AND DEFLECTION CALCULATIONS.
 - d. PROVIDE DECK SHORING, IF REQUIRED, TO MEET THE CONDITIONS OF ITEMS NO. a, b, AND c ABOVE.
 - e. ALL FORM DECKS, FOR REINFORCED CONCRETE SLABS, SHALL BE DESIGNED FOR THE SAME CRITERIA STATED IN ITEMS NOS. a, b, c, AND d ABOVE.
- B. COMPOSITE METAL DECK SLAB: (FINAL DESIGN LOAD)
- a. THE DECK SHALL DEVELOP FULL COMPOSITE ACTION FOR IMPOSED LOADS AS SHOWN IN THE DECK SCHEDULE.
 - b. MAXIMUM DEFLECTION UNDER SUPERIMPOSED LOAD SHALL BE LESS THAN OR EQUAL TO $L/360$.
 - c. MAXIMUM STRESS IN DECK FOR TOTAL LOAD USING APPROPRIATE NON-COMPOSITE AND COMPOSITE PROPERTIES SHALL BE LESS THAN OR EQUAL TO 0.75 Fy.
 - d. MAXIMUM ALLOWABLE STRESS IN CONCRETE SHALL BE AS PER ACI 318, LATEST EDITION.
 - e. THE COMPOSITE DECK SHALL BE DESIGNED ON THE BASIS OF OBTAINING A MINIMUM FACTOR OF SAFETY OF 2 FOR THE TOTAL SUPERIMPOSED LOAD ON A SINGLE SPAN BASIS.

16. SHEAR STUDS:

- a. ALL SHEAR STUD PLACEMENT DIAGRAMS SHOWN REPRESENT IDEALIZED CONDITIONS, AND ACTUAL FRAMING CONFIGURATIONS MAY REQUIRE ADDITIONAL MODIFICATIONS AND INTERPRETATIONS.
 - b. THE CONTRACTOR SHALL SUBMIT CHECKED SHOP DRAWINGS INDICATING THE SHEAR STUD LAYOUT, INCLUDING SIZE, SPACING AND GROUPING, FOR EACH BEAM.
 - c. THE NUMBER OF STUDS PER BEAM AS SHOWN ON THE DRAWINGS INCLUDES REDUCTIONS BASED ON RIB WIDTH, NUMBER OF STUDS PER CELL, DECK-RIB ORIENTATION, AND SLAB THICKNESS AS PER AISC SPECIFICATIONS FOR COMPOSITE CONSTRUCTION, LATEST EDITION. THE ASSUMED ALLOWABLE HORIZONTAL SHEAR DESIGN VALUE (ASD) FOR A NOMINAL $\frac{3}{4}$ "-DIA. x 6" LONG STUD IS 12.5 KIPS PER STUD FOR NON-CELLULAR DECK WITH NORMAL WEIGHT CONCRETE. THE ASSUMED DECK NOMINAL RIB HEIGHT IS 3" AND THE ASSUMED AVERAGE CONCRETE RIB WIDTH IS 8". THE METAL DECK CONTRACTOR SHALL SUBMIT LOAD TEST DATA VERIFYING THE HORIZONTAL SHEAR CAPACITY OF SHEAR STUDS FOR DIFFERENT DECK TYPES AND CELL CONFIGURATIONS, AS DETAILED ON THE SHOP DRAWINGS. IF ANY OF THE ASSUMPTIONS LISTED ABOVE ARE VIOLATED, THE METAL DECK CONTRACTOR SHALL SUBMIT STRUCTURAL DESIGN CALCULATIONS, PREPARED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW YORK, BASED ON THE DETAILED SHOP DRAWINGS, PROVIDE ALL EXTRA STUDS AS MAY BE REQUIRED TO ACHIEVE THE TOTAL HORIZONTAL SHEAR CAPACITY.
 - d. MAXIMUM SPACING OF STUDS SHALL BE 12" ON CENTER.
 - e. SHEAR STUDS SHALL BE EITHER WELDED DIRECTLY TO STRUCTURAL STEEL ELEMENTS AT LOCATIONS WITHOUT DECK OR WELDED TYPE THROUGH THE METAL DECK BY PREQUALIFIED METHODS. IF THROUGH DECK WELDING IS UNFEASIBLE, THE STUDS SHALL BE INSTALLED IN PRE-PUNCHED HOLES IN THE METAL DECK. THE CONTRACTOR SHALL ESTABLISH SPECIFIC WELDING REQUIREMENTS FOR EACH THICKNESS OF FRAMING ELEMENT AND/OR GAGE OF METAL DECK.
17. THE OWNER'S TESTING LABORATORY SHALL INSPECT AND TEST ALL METAL DECK AND SHEAR STUD INSTALLATION WORK, PERFORM STANDARD BEND TEST ON 10% OF STUDS AND STRUCK WITH HAMMER ALL STUDS TO SUBJECTIVELY VERIFY WELD QUALITY. SEE TECHNICAL SPECIFICATION SECTION 053100, "STEEL DECKING" FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS.
18. CONDUIT SHALL NOT BE PLACED IN STRUCTURAL SLABS.
19. SEE SPECIFICATION SECTION 053100, "STEEL DECKING", FOR ADDITIONAL REQUIREMENTS.

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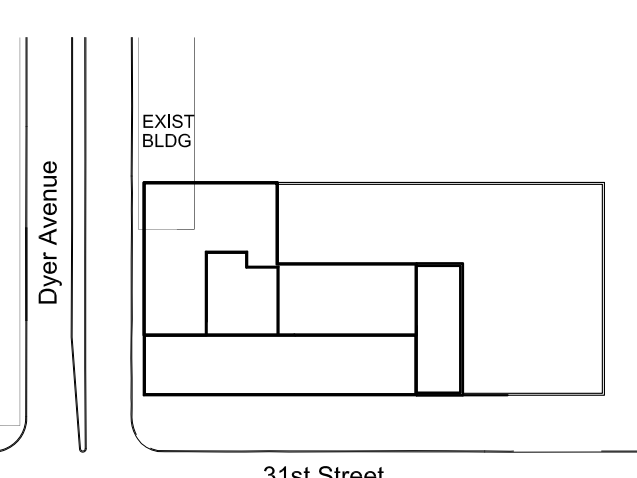
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No. Date Description

Sheet Name:

STRUCTURAL STEEL NOTES

Seal & Signature

Date: 08 JAN 2014

NYCE DOB Number: 12563

Project No: 211157

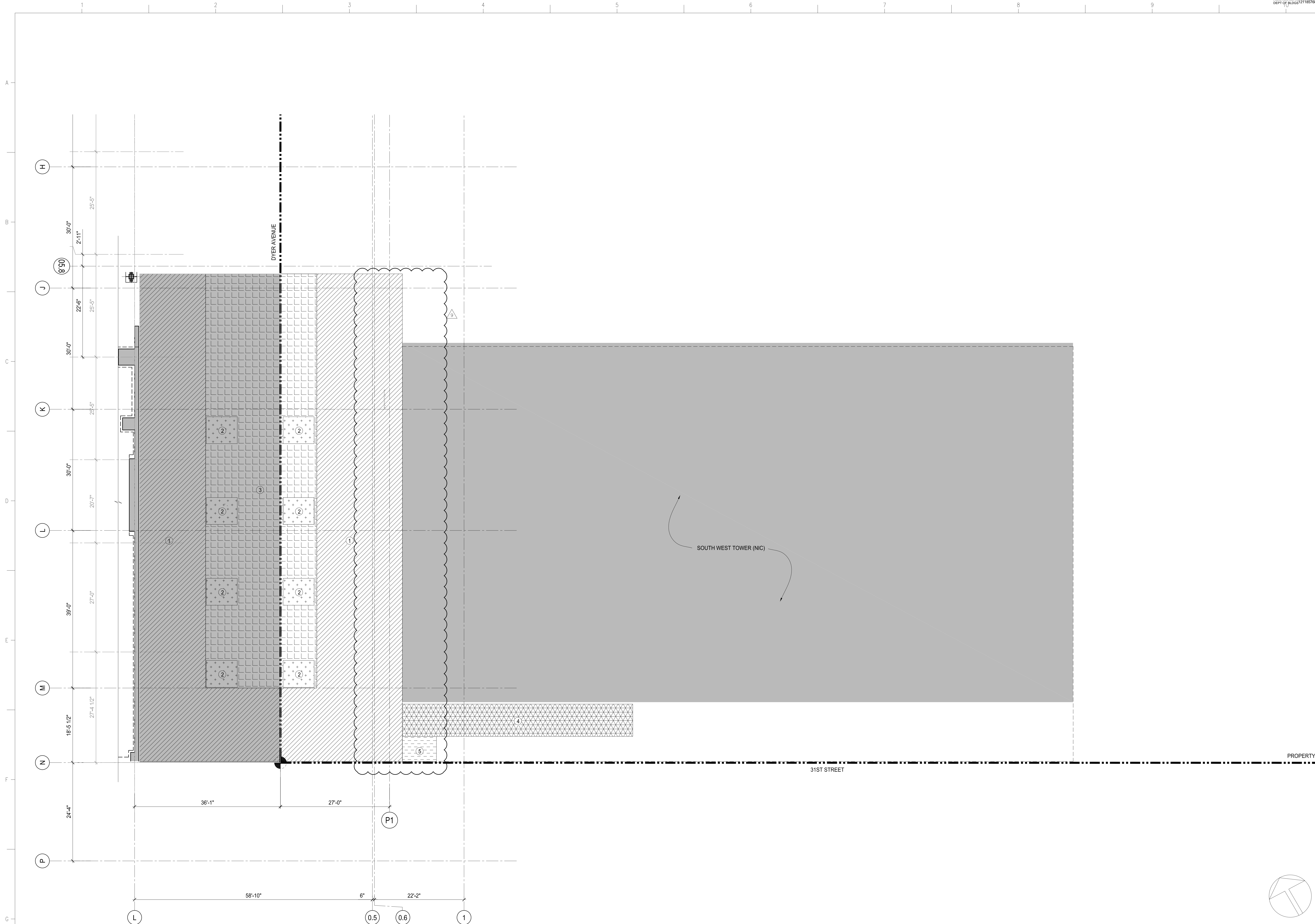
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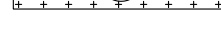
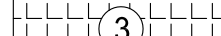
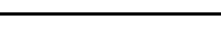
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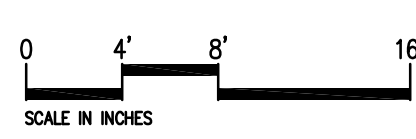


SUPERIMPOSED LOAD TABLE					SNOW LOADS SNOW LOADS WERE DETERMINED IN ACCORDANCE WITH THE CITY OF NEW YORK BUILDING CODE, 2008 AND ASCE 07 STRUCTURAL OCCUPANCY CATEGORY: IV IMPORTANCE FACTOR, I _s : 1.2 GROUND SNOW LOADS, P _g : 25 PSF EXPOSURE FACTOR, C _e : 1.0 THERMAL FACTOR, C _t : 1.2	SEISMIC LOADS SEISMIC LOADS WERE DETERMINED IN ACCORDANCE WITH THE CITY OF NEW YORK BUILDING CODE, 2008 AND ASCE 07 STRUCTURAL OCCUPANCY CATEGORY: IV SEISMIC USE GROUP: III IMPORTANCE FACTOR, I _e : 1.5 SEISMIC DESIGN CATEGORY: C SOIL CLASS: B DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS: S _{ds} = 0.243g, S _{d1} = 0.047g SEISMIC FORCE-RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEAR WALLS DESIGN COEFFICIENTS AND FACTORS: R = 4, C _d = 4 NOTE: SEISMIC LOADS APPLICABLE FOR OVERBUILD ONLY	
MARK	AREA	SDL psf	LL psf	SL psf			REMARKS
 1	DYER AVE OVERBUILD (SOUTHERN SECTION 1)	125	100	25			
 2	TREE PIT	530	100	25			
 3	DYER AVE OVERBUILD (SOUTHERN SECTION 2)	125	100	115			115 psf STOCKPILED SNOW LOAD
 4	STAIRWAY	50	100	25			
 5	ELEVATOR ROOF	50	20	25			

NOTES:

- STRUCTURAL SYSTEM IS NOT DESIGNED FOR CONSTRUCTION MATERIAL STAGING AREA. ANY ADDITIONAL LOADING SHOULD BE COORDINATED WITH ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.
- THE STRUCTURAL SLAB IS DESIGNED TO SUPPORT A MAXIMUM CONCENTRATED FORCE OF 6KIPS FOR MAINTENANCE EQUIPMENT. THE STRUCTURAL SYSTEM CAN SUPPORT THE WEIGHT OF ONLY ONE VEHICLE PER STRUCTURAL STEEL BEAM.

1 LOADING DIAGRAM
SCALE: 1/8" = 1'-0"



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LOADING DIAGRAMS

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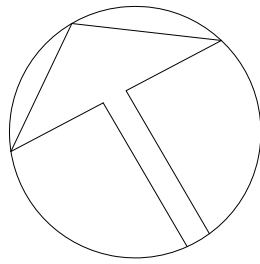
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Sheet Name:		

SW TOWER SITE GROUND LEVEL FRAMING PLAN

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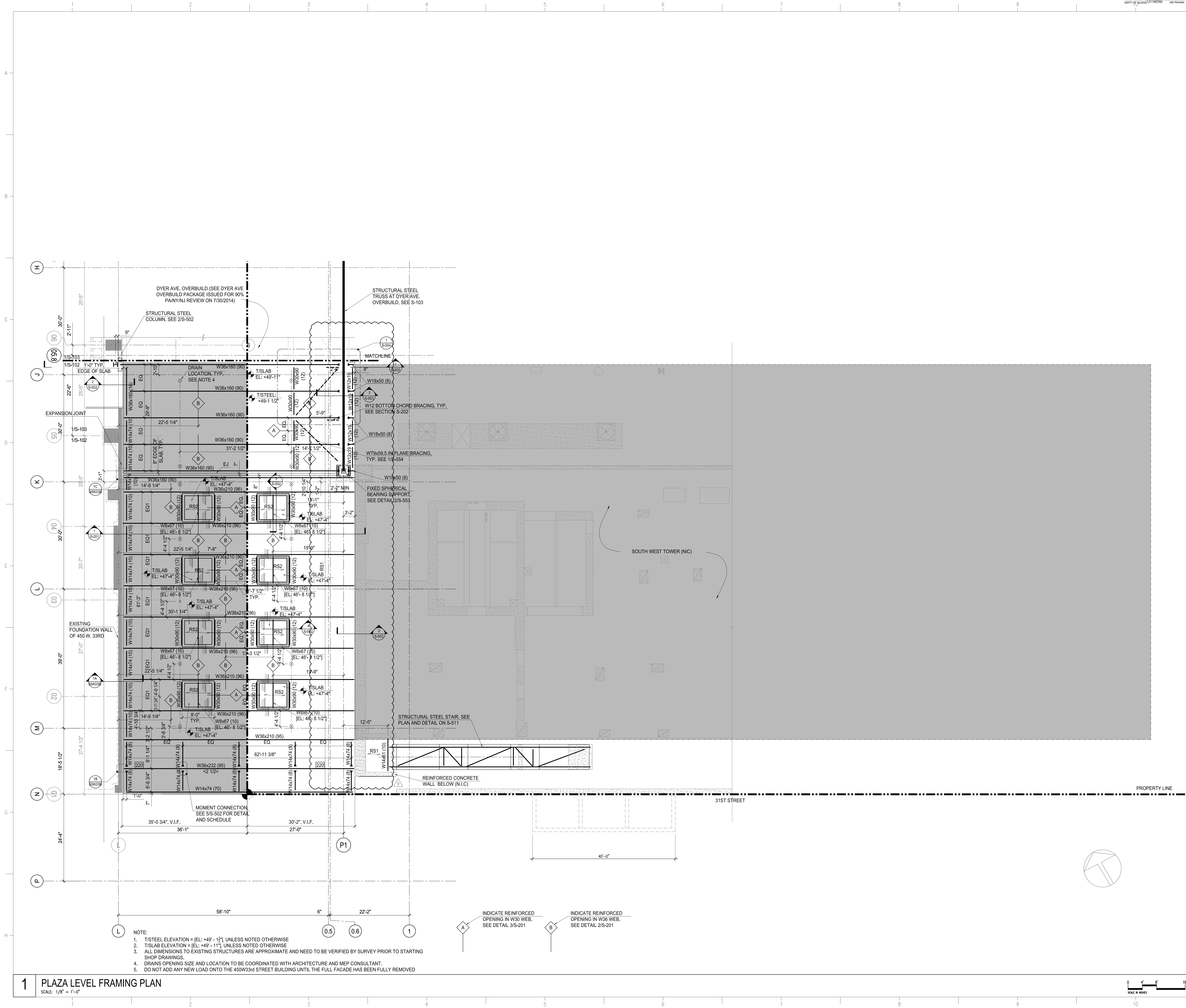


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- NOTE:
1. T/STEEL ELEVATION = [EL: +49' - 1 1/2"], UNLESS NOTED OTHERWISE
 2. T/SLAB ELEVATION = [EL: +49' - 11"], UNLESS NOTED OTHERWISE
 3. ALL DIMENSIONS TO EXISTING STRUCTURES ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.
 4. DRAINS OPENING SIZE AND LOCATION TO BE COORDINATED WITH ARCHITECTURE AND MEP CONSULTANT.
 5. DO NOT ADD ANY NEW LOAD ONTO THE 450W33rd STREET BUILDING UNTIL THE FULL FACADE HAS BEEN FULLY REMOVED

1 PLAZA LEVEL FRAMING PLAN
SCALE: 1/8" = 1'-0"

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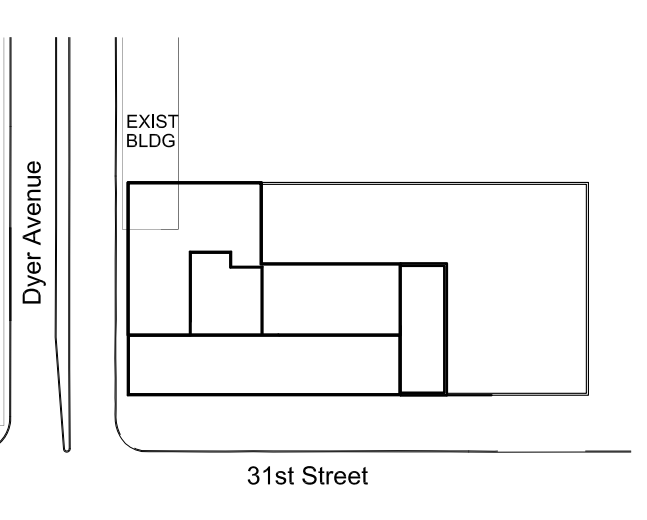
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KEY PLAN

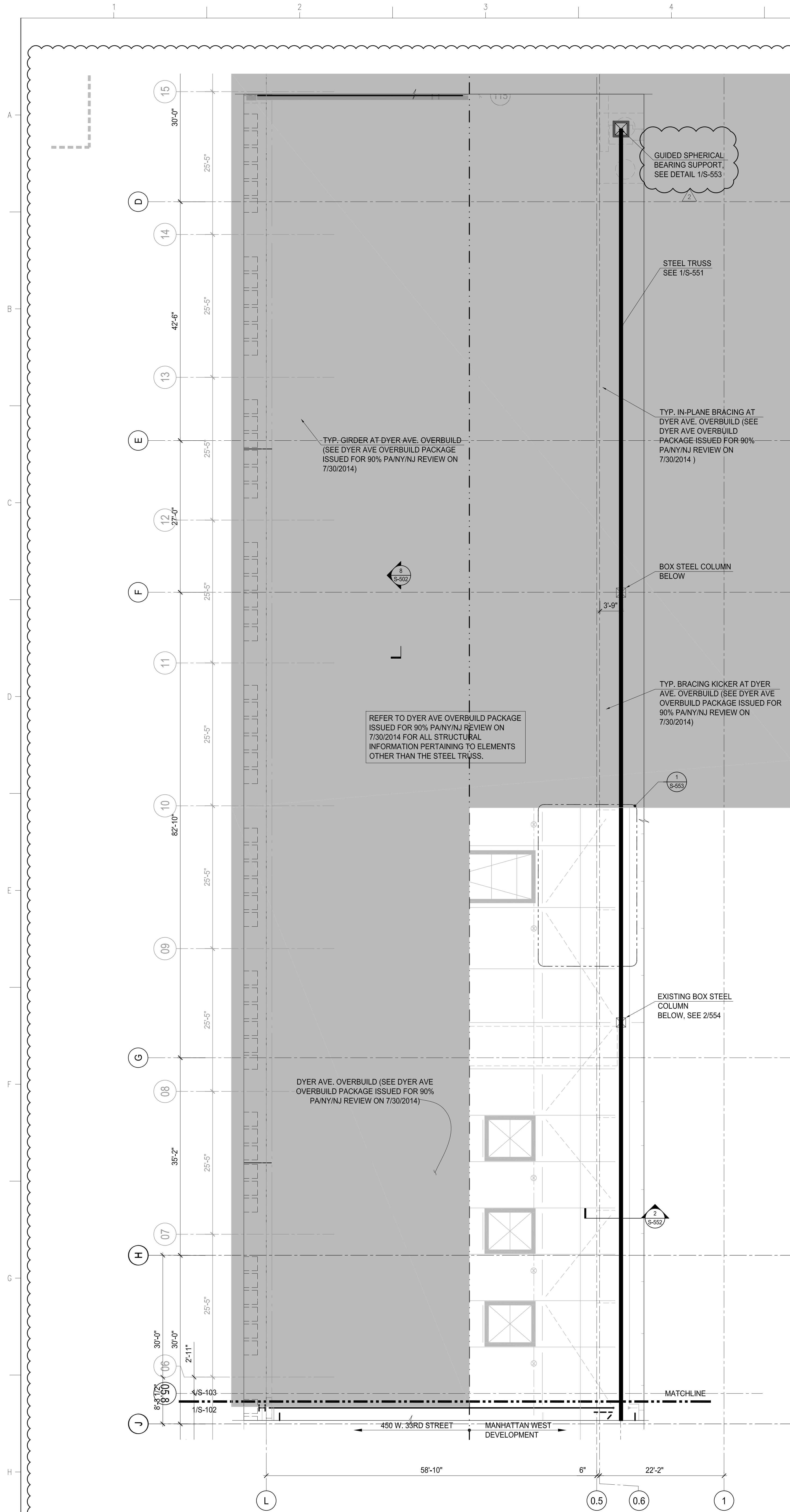
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SW TOWER SITE
PLAZA LEVEL
FRAMING PLAN

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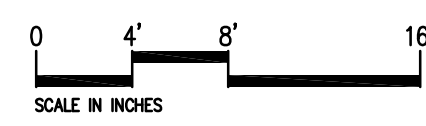
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1 PLAZA LEVEL FRAMING PLAN B
SCALE: 1/8" = 1'-0"

- NOTE:
1. T/STEEL ELEVATION = [EL: +49' - 1¹/₂'] UNLESS NOTED OTHERWISE
 2. T/SLAB ELEVATION = [EL: +49' - 11'] UNLESS NOTED OTHERWISE
 3. ALL DIMENSIONS TO EXISTING STRUCTURES ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.
 4. DRAINS OPENING SIZE AND LOCATION TO BE COORDINATED WITH ARCHITECTURE AND MEP CONSULTANT.
 5. TRUSS IS A NON-SELF SUPPORTING ELEMENT. SEE NOTE F/S-005.
 6. DO NOT ADD ANY NEW LOAD ONTO THE 450W33RD STREET BUILDING UNTIL THE FULL FACADE HAS BEEN FULLY REMOVED



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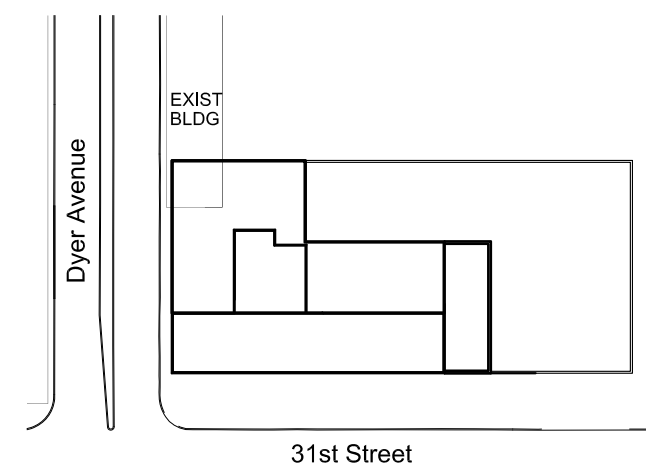
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FRAMING PLAN B

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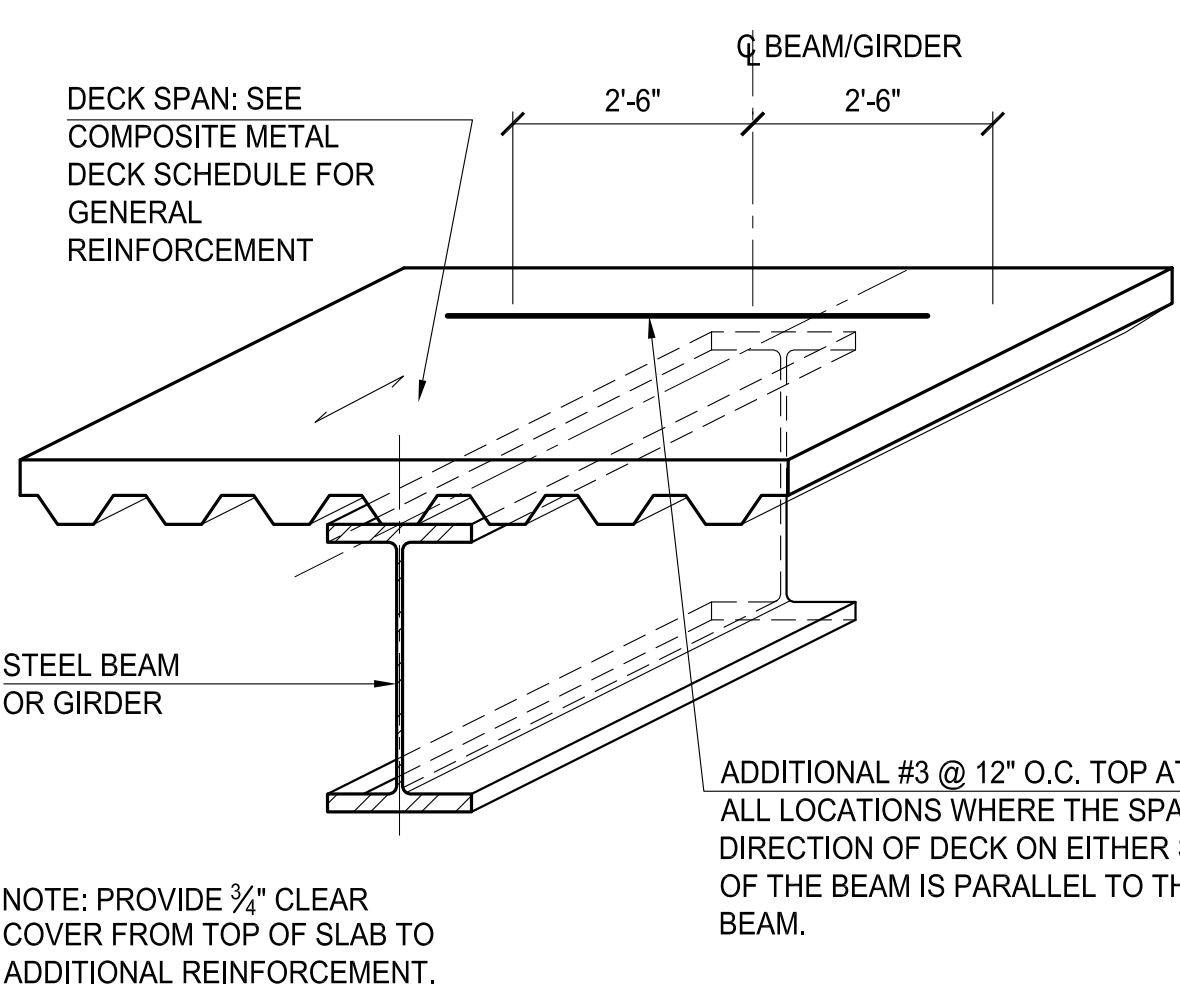
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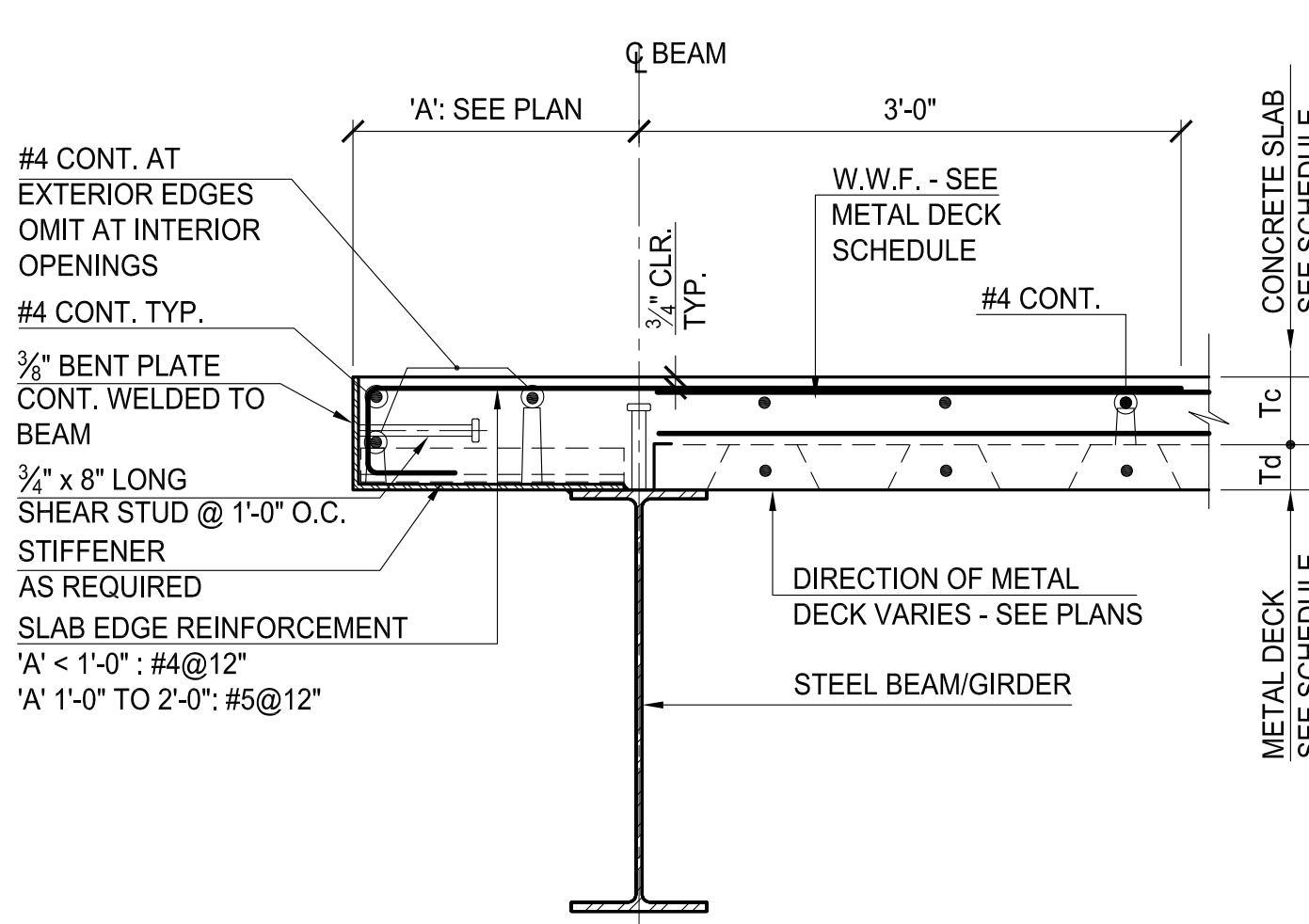
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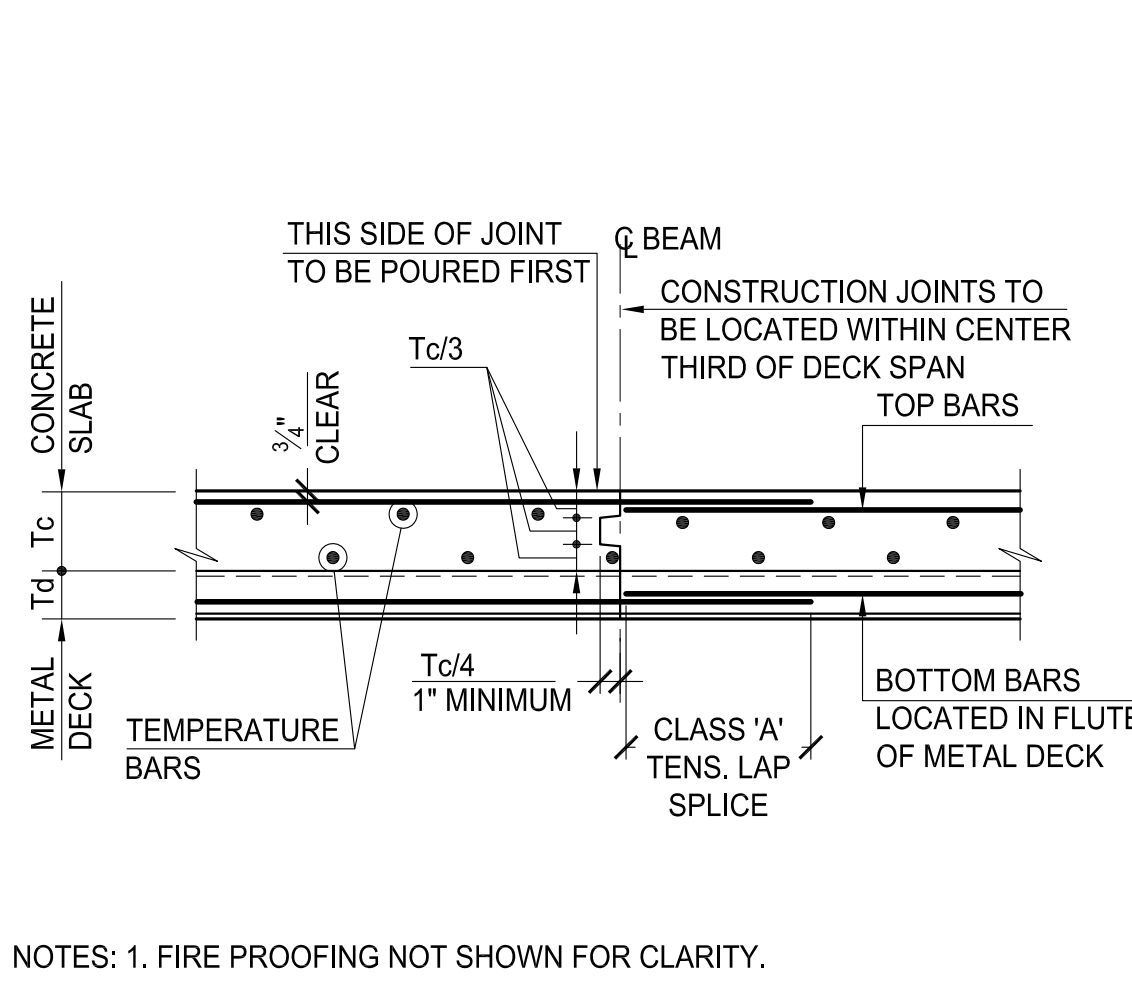
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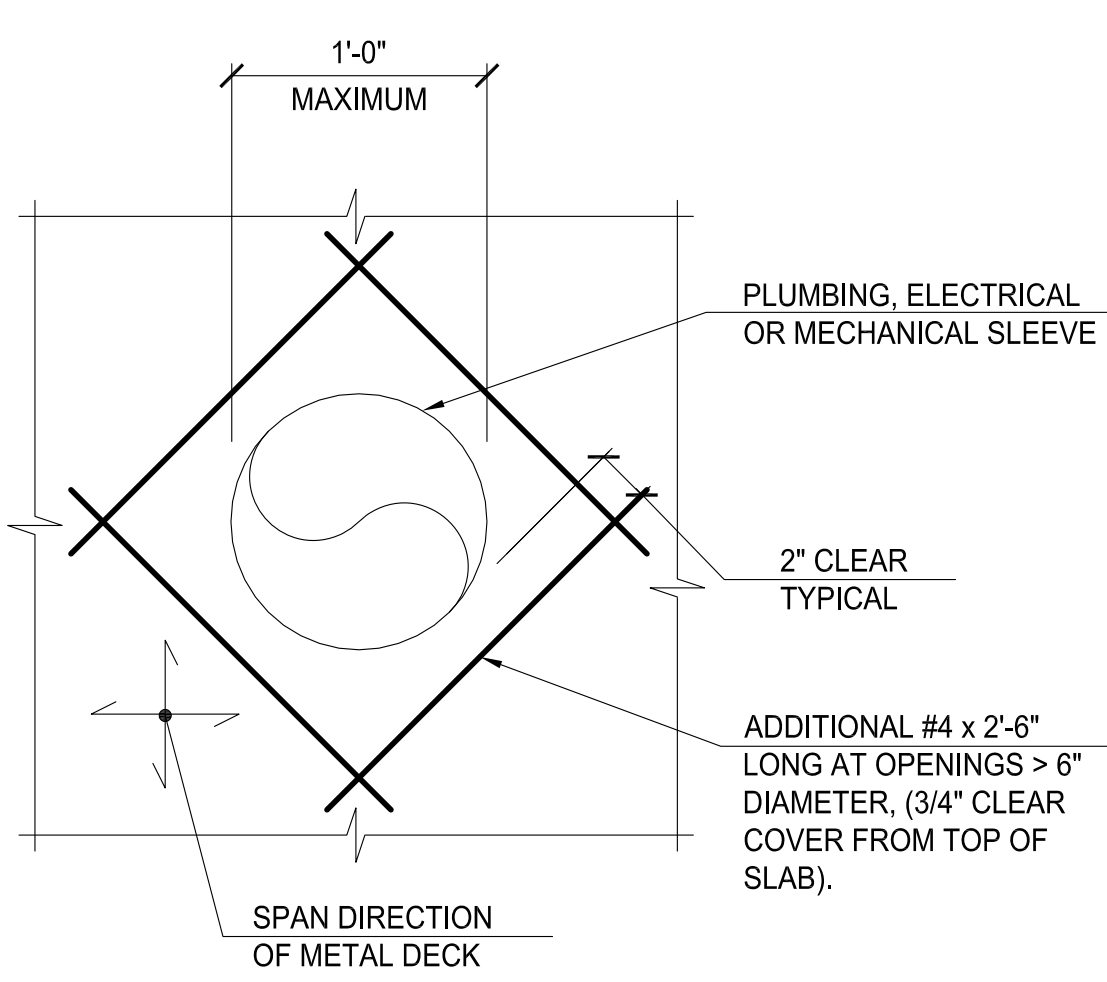
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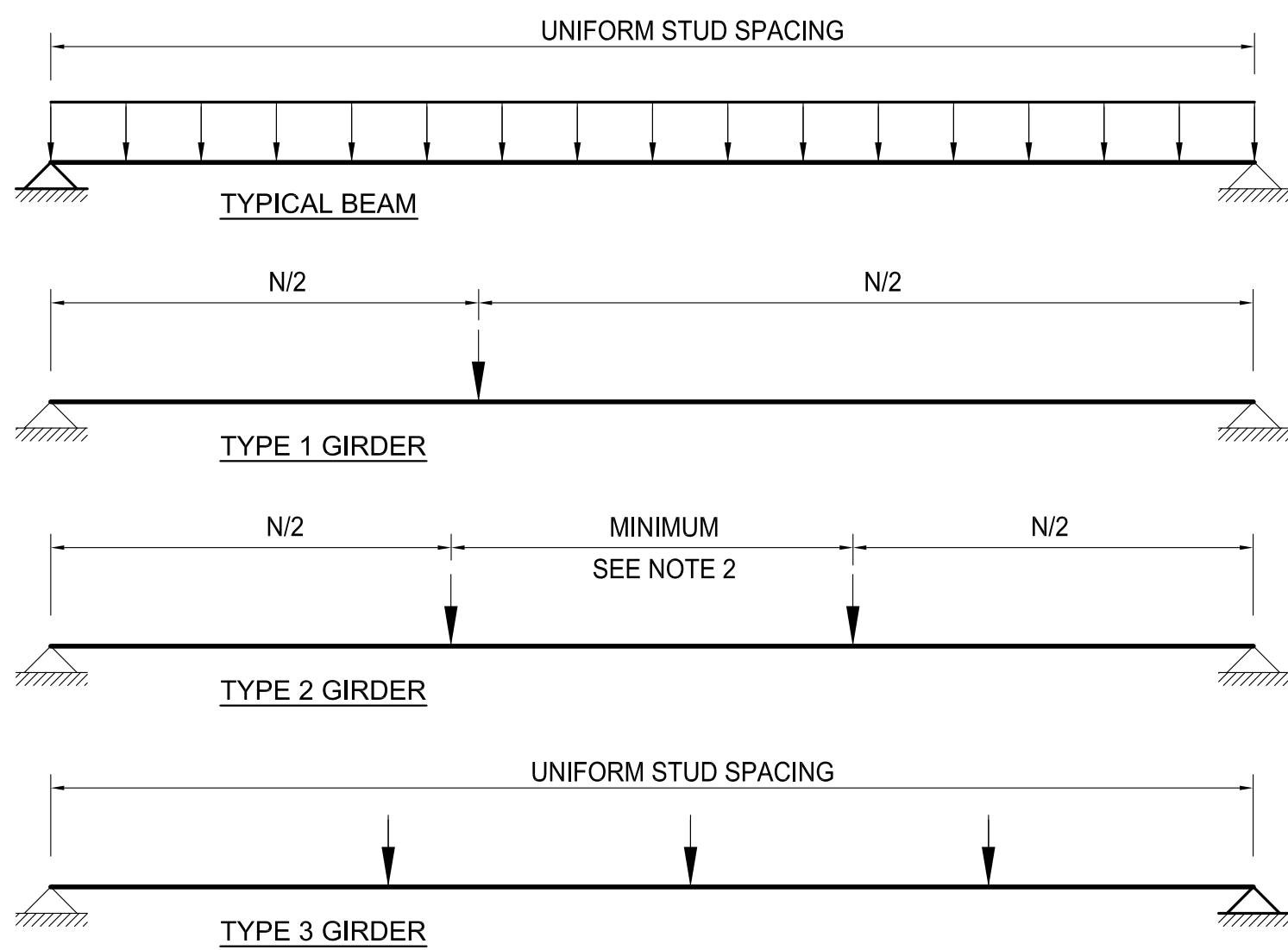
2 TYPICAL METAL DECK SLAB EDGE DETAIL
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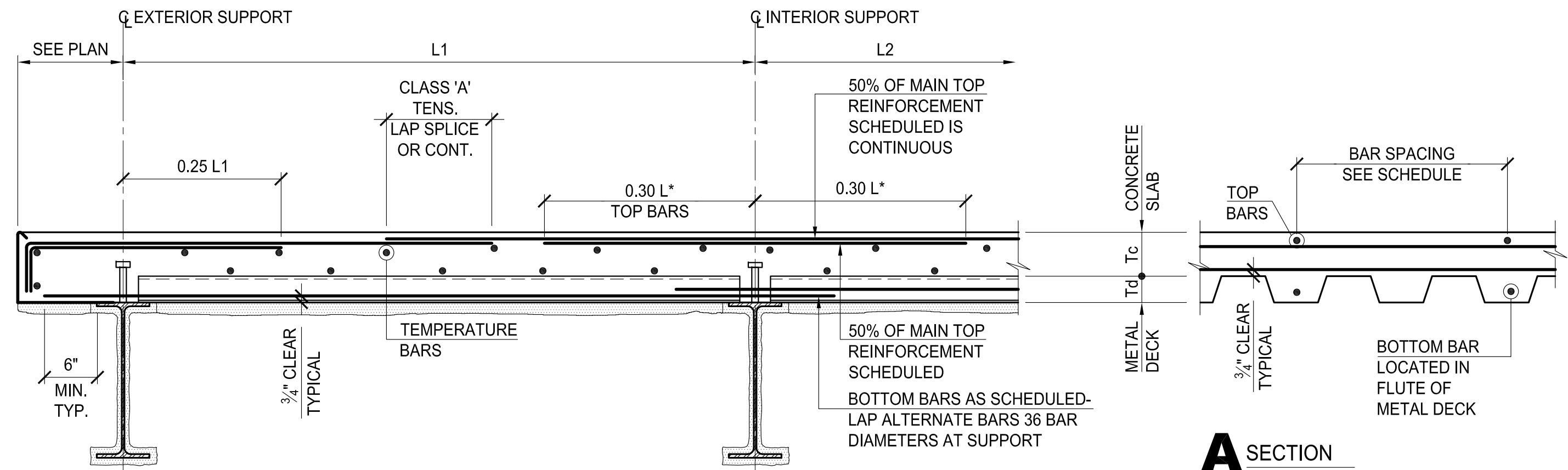
3 TYPICAL REINFORCED METAL DECK SLAB CONSTRUCTION JOINT
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4 TYPICAL METAL DECK SLAB CIRCULAR OPENING
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5 SHEAR STUD PLACEMENT DIAGRAM
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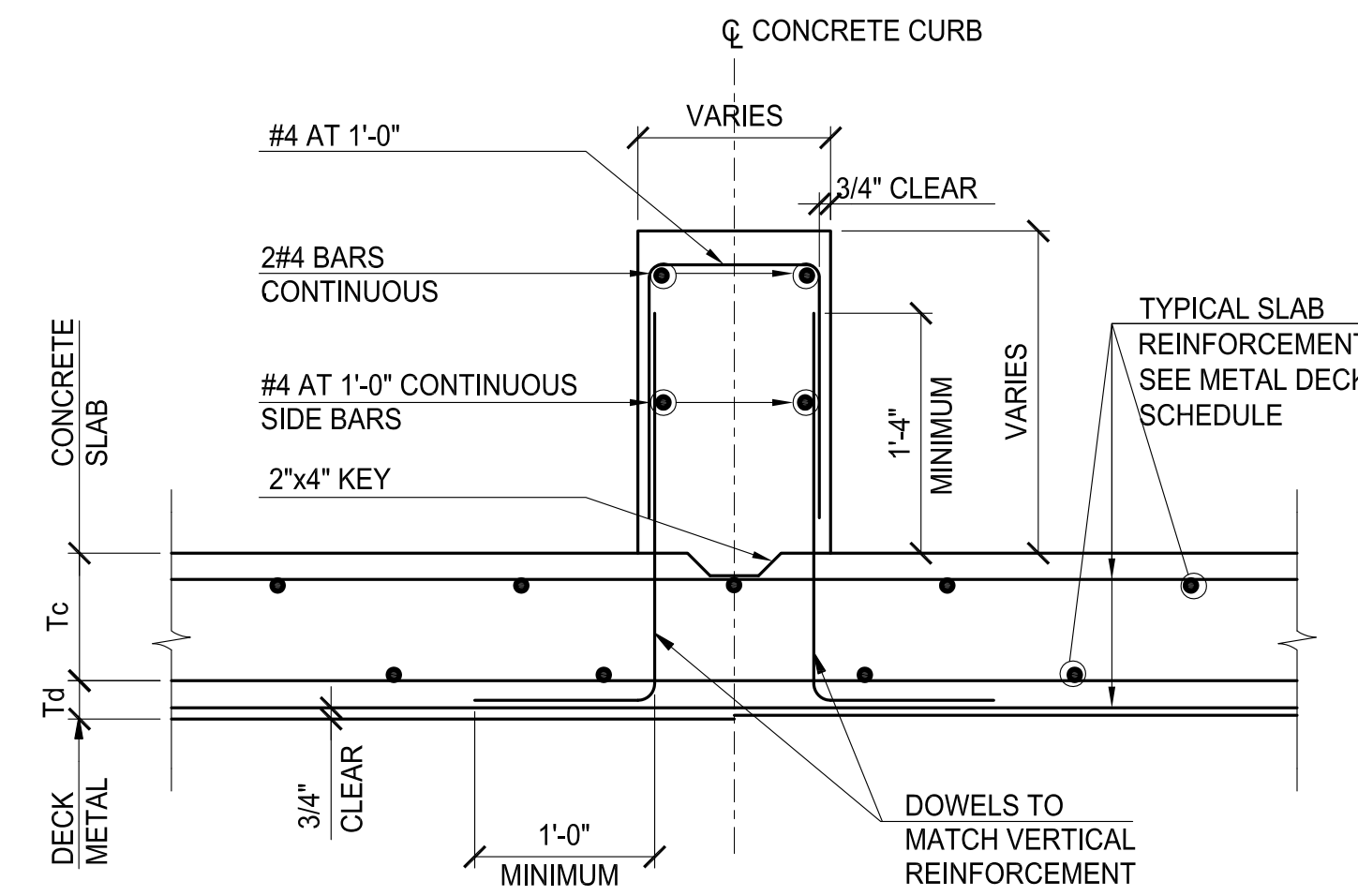


NOTES: 1. L* IS GREATER OF L1 OR L2.
2. METAL DECK SHALL BE DESIGNED AS FORM DECK.
3. SLAB REINFORCING AND SPACING IS BASED ON DECK PROFILE WITH 12" RIB SPACING. ACTUAL SPACING AND QUANTITY SHALL BE CONTINGENT ON SPECIFIC DECK PROFILE PROVIDED BY DECK MANUFACTURER.

REINFORCED METAL DECK SLAB SCHEDULE

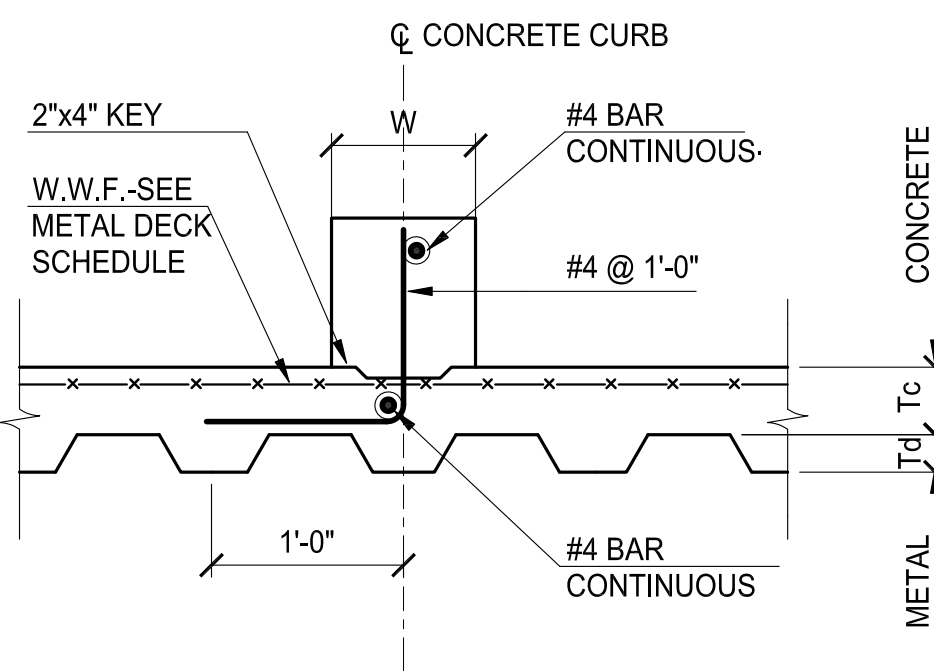
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			LL	SDL	BOT.	TOP					
RS1	3	6 1/2	100	100	#8 @12	#8 @12	#4 @12	145	4000	6	PLAZA LEVEL
RS2	3	4 1/2	100	100	#8 @12	#8 @12	#4 @12	145	4000	6	TREE PIT AND ROOF OF ELEV.

REBAR fy = 60 ksi
DECK fy = 33 ksi



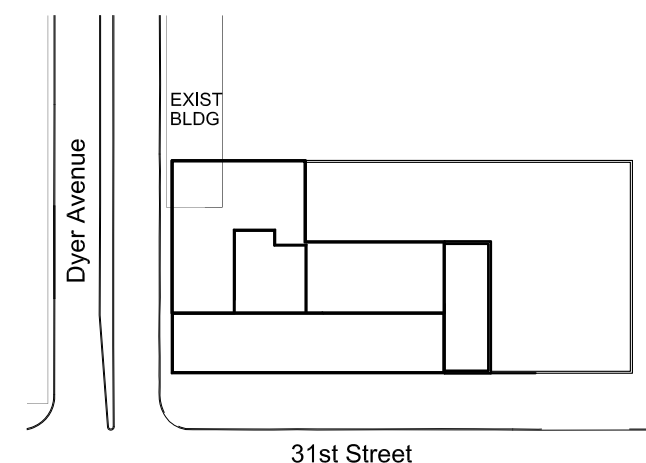
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2. FOR CURB SIZE AND LOCATION, SEE ARCHITECTURAL DRAWINGS.
3. PROVIDE 3/4" CLEAR COVER TO BARS UNLESS NOTED OTHERWISE.
4. PROVIDE HORIZONTAL REBARS FROM CURB INTO FILL SLAB AS REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS.

7 TYPICAL DETAILS FOR CONCRETE CURBS
SCALE: NOT TO SCALE



NOTES: 1. THIS DETAIL APPLIES WHEN W>=6".
2. FOR CURB SIZE AND LOCATION, SEE ARCHITECTURAL DRAWINGS.
3. PROVIDE 3/4" CLEAR COVER TO BARS UNLESS NOTED OTHERWISE.
4. FIRE PROOFING NOT SHOWN FOR CLARITY.
5. PROVIDE HORIZONTAL REBARS FROM CURB INTO FILL SLAB AS REQUIRED. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS.

8 TYPICAL DETAILS FOR CONCRETE CURBS ON METAL DECK SLAB
SCALE: NOT TO SCALE



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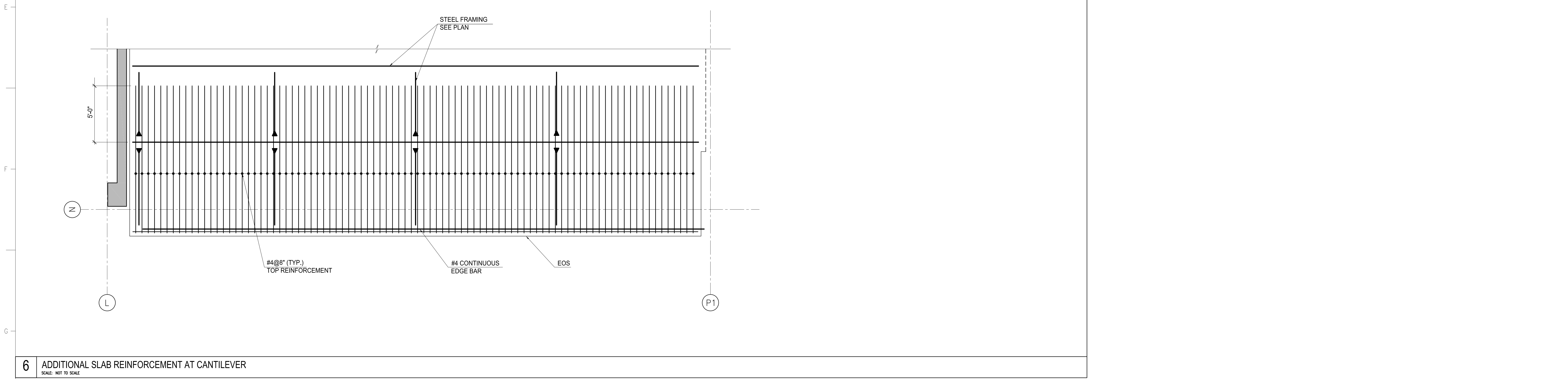
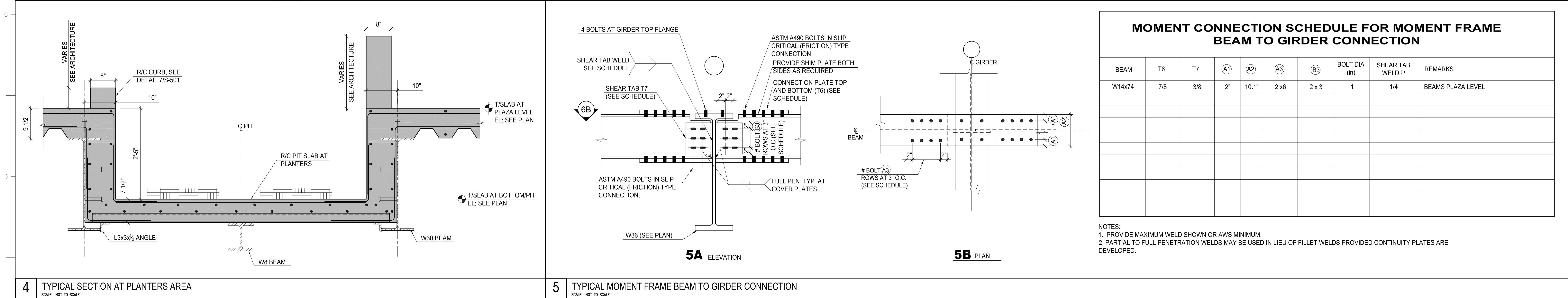
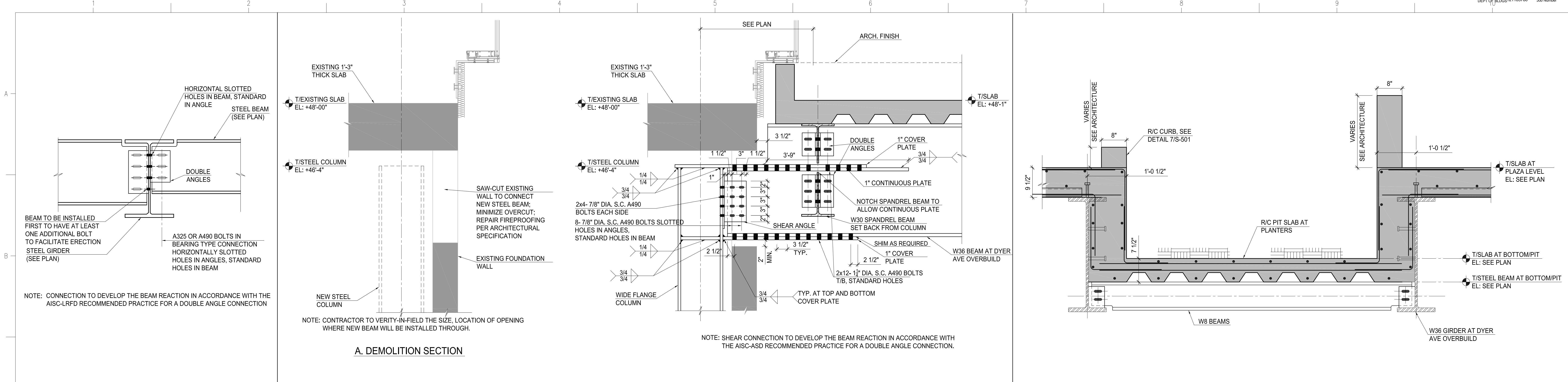
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STRUCTURAL METAL DECK
SLAB SCHEDULES
AND TYPICAL DETAILS

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5 10 MAY 2014 SUPERSTRUCTURE BID PACKAGE

4 02 MAY 2014 ISSUED FOR PERMIT FILING

3 14 MAR 2014 ISSUED FOR DESIGN DEVELOPMENT

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TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS

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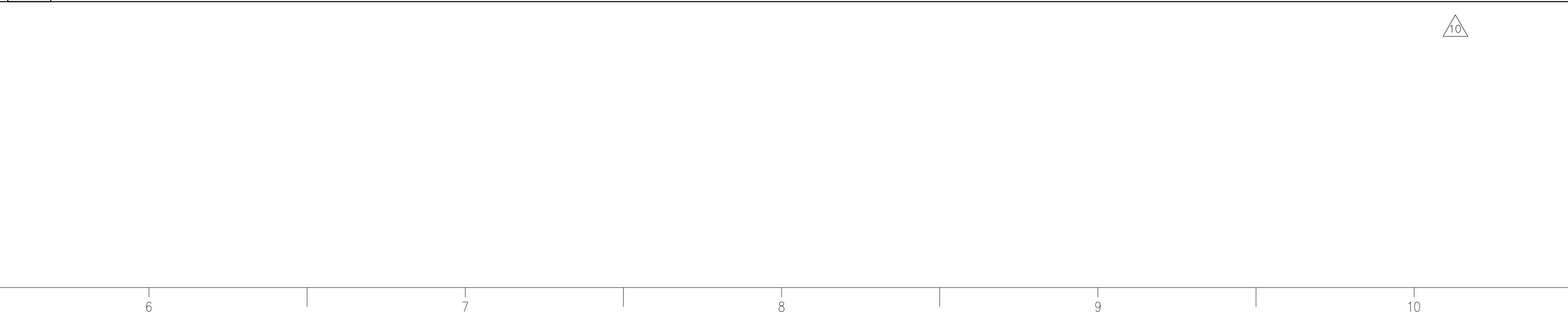
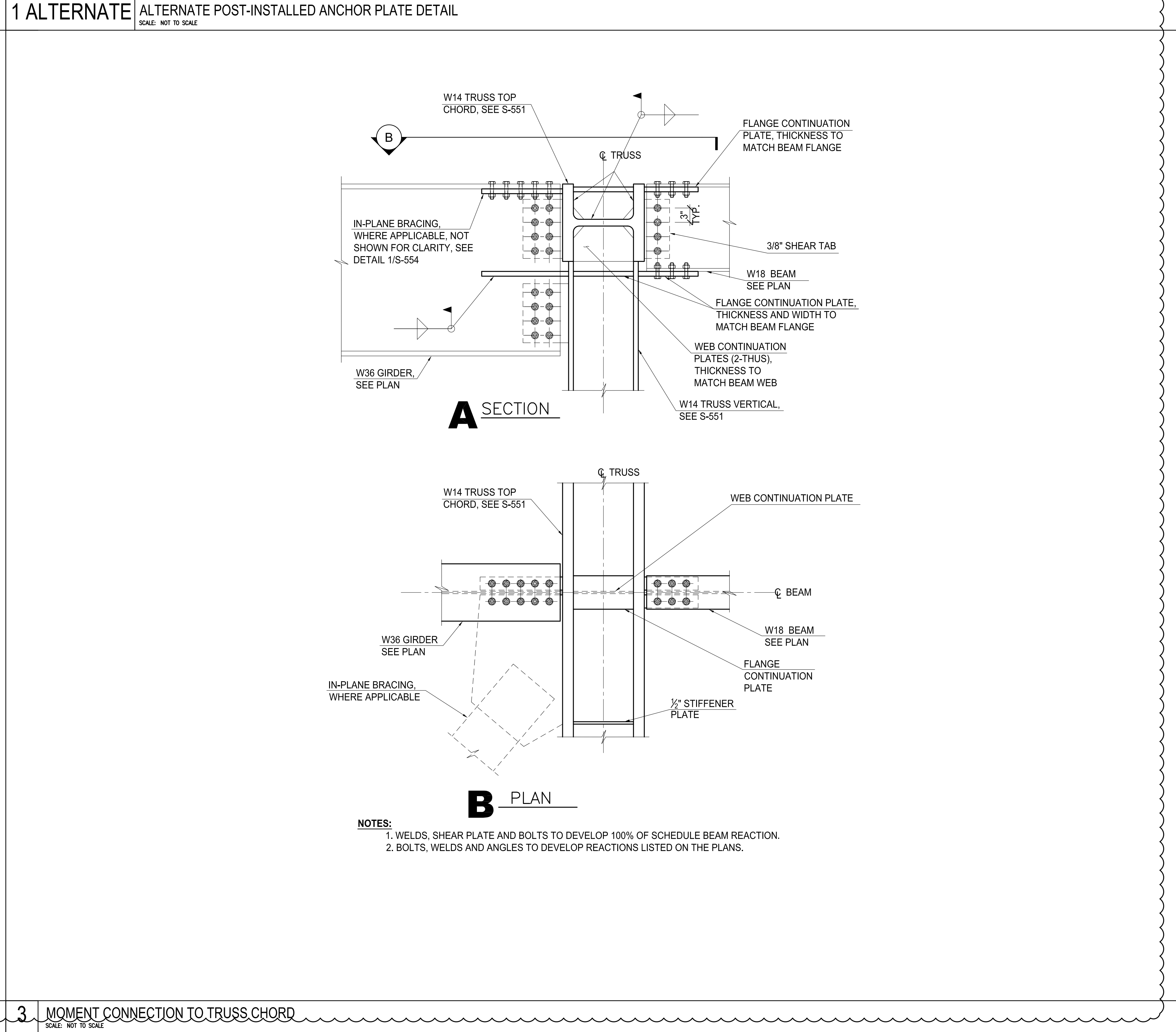
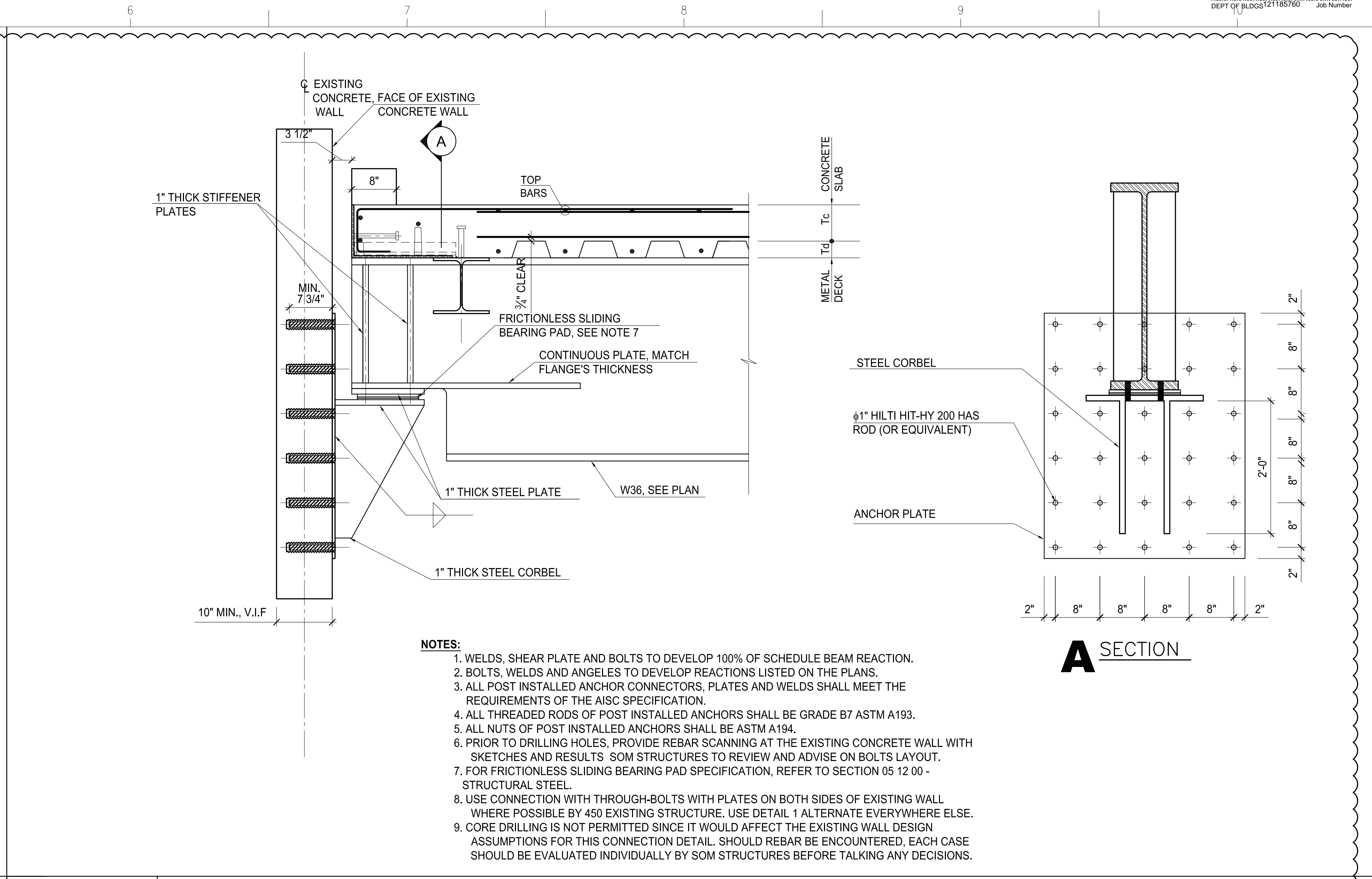
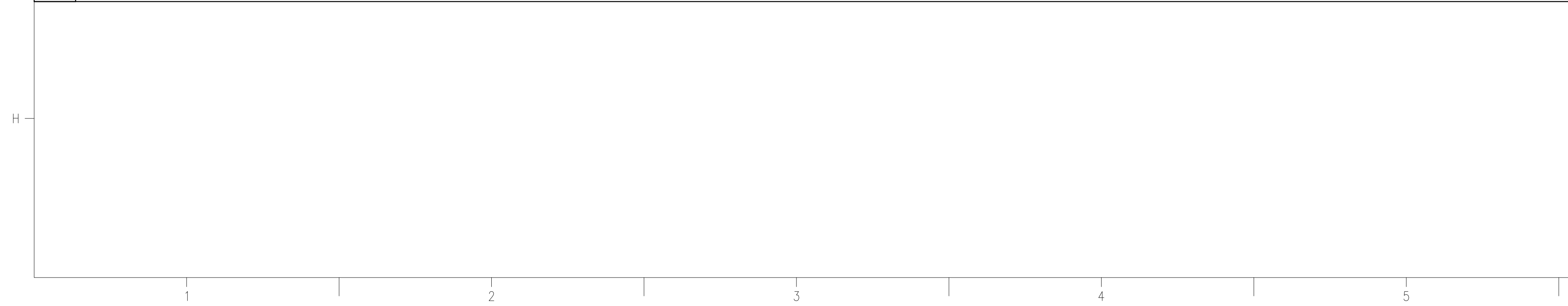
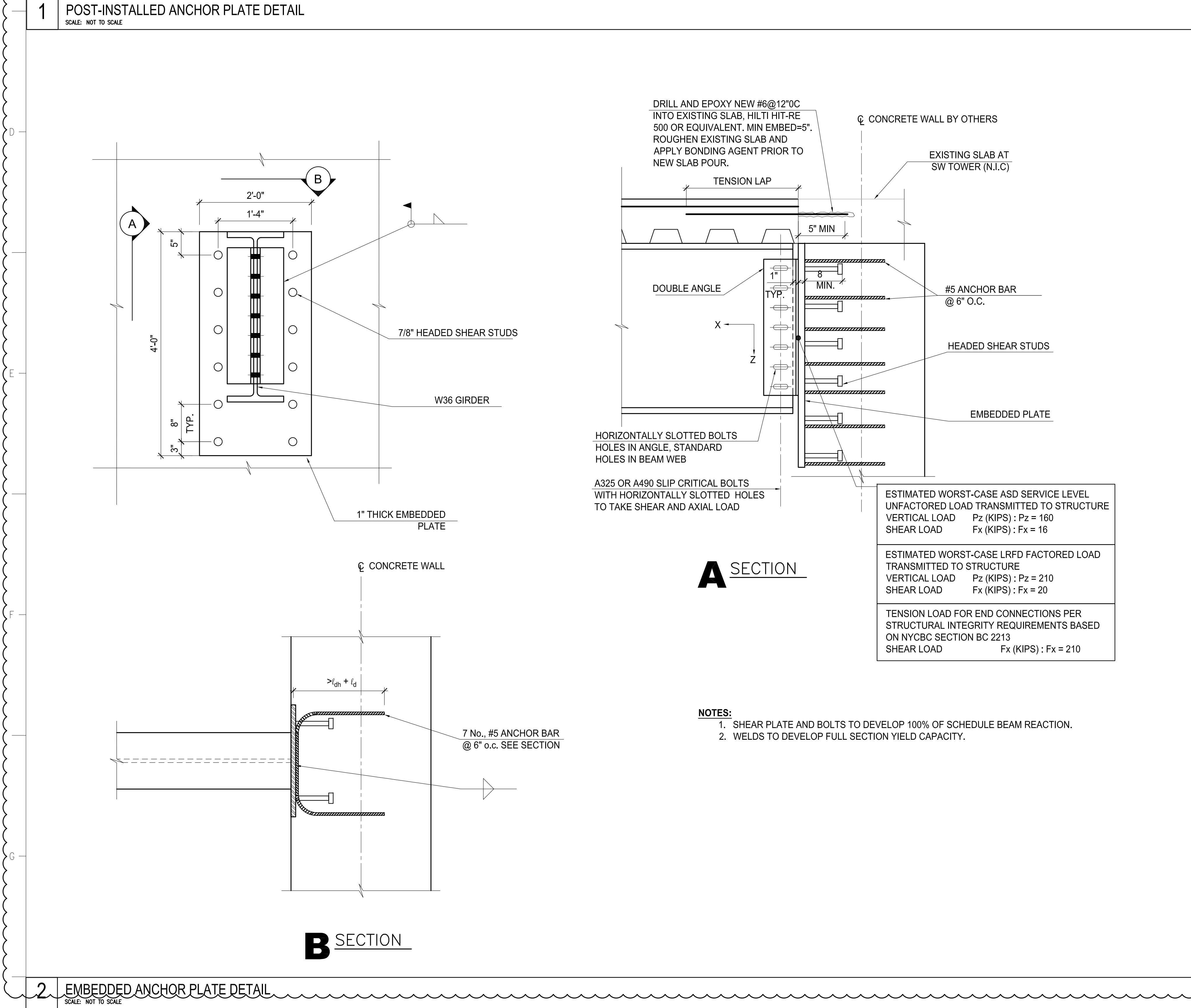
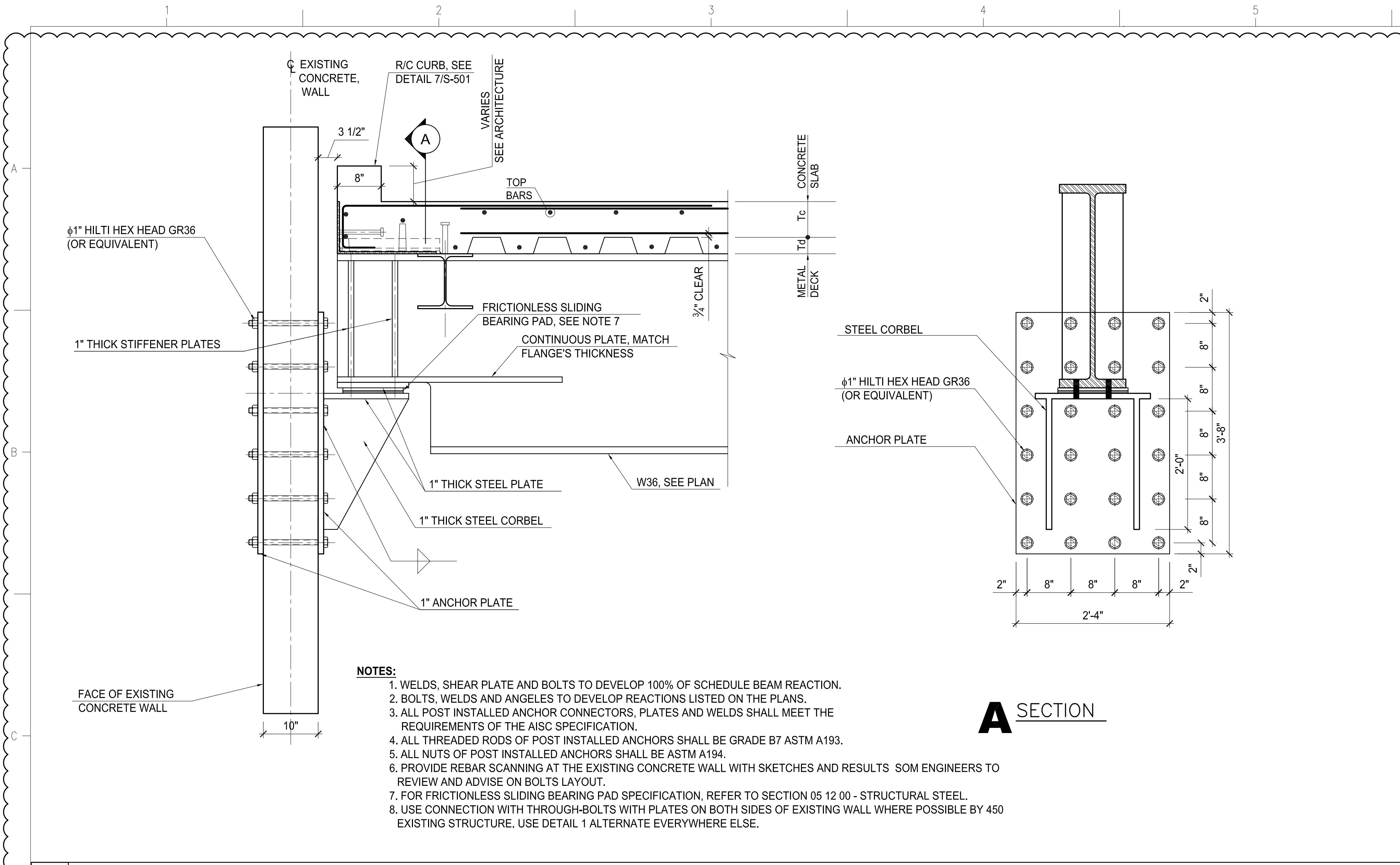
Seal: AS NOTED

DWG No: S-502.00

CAD FILE Name: S-502.DWG

9 of 17

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MANHATTAN WEST:

SOUTHWEST RESIDENTIAL TOWER SITE

West 31st Street
New York, NY

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Brookfield

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Architecture/Structural Engineering

SOM

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Landscape Architecture

James Corner Field Operations
475 Tenth Avenue, 9th Floor, New York, NY 10018

MEP Engineering

Jaros Baum & Boles
80 Pine Street, 12th Floor, New York, NY 10005

No.	Date	Description
1	24 JAN 2014	PROGRESS SET
2	28 FEB 2014	ISSUED FOR SCHEMATIC DESIGN
3	14 MAR 2014	ISSUED FOR DESIGN DEVELOPMENT
4	02 MAY 2014	ISSUED FOR PERMIT FILING
5	16 MAY 2014	SUPERSTRUCTURE BID PACKAGE
6	03 JUNE 2014	50% CONSTRUCTION DOCUMENTS
7	01 AUG 2014	CONSTRUCTION DOCUMENTS
8	12 DEC 2014	BULLETIN #2
9	09 JAN 2015	BULLETIN #3
10	18 MAY 2015	ISSUED FOR PERMIT FILING

Sheet Name:

TYPICAL STRUCTURAL STEEL SECTIONS AND DETAILS

Seal & Signature

DATE OF NEW YORK STATE EXAMINATION: 08 JAN 2014

NYC DOB Number: 211157

Project No: 211157

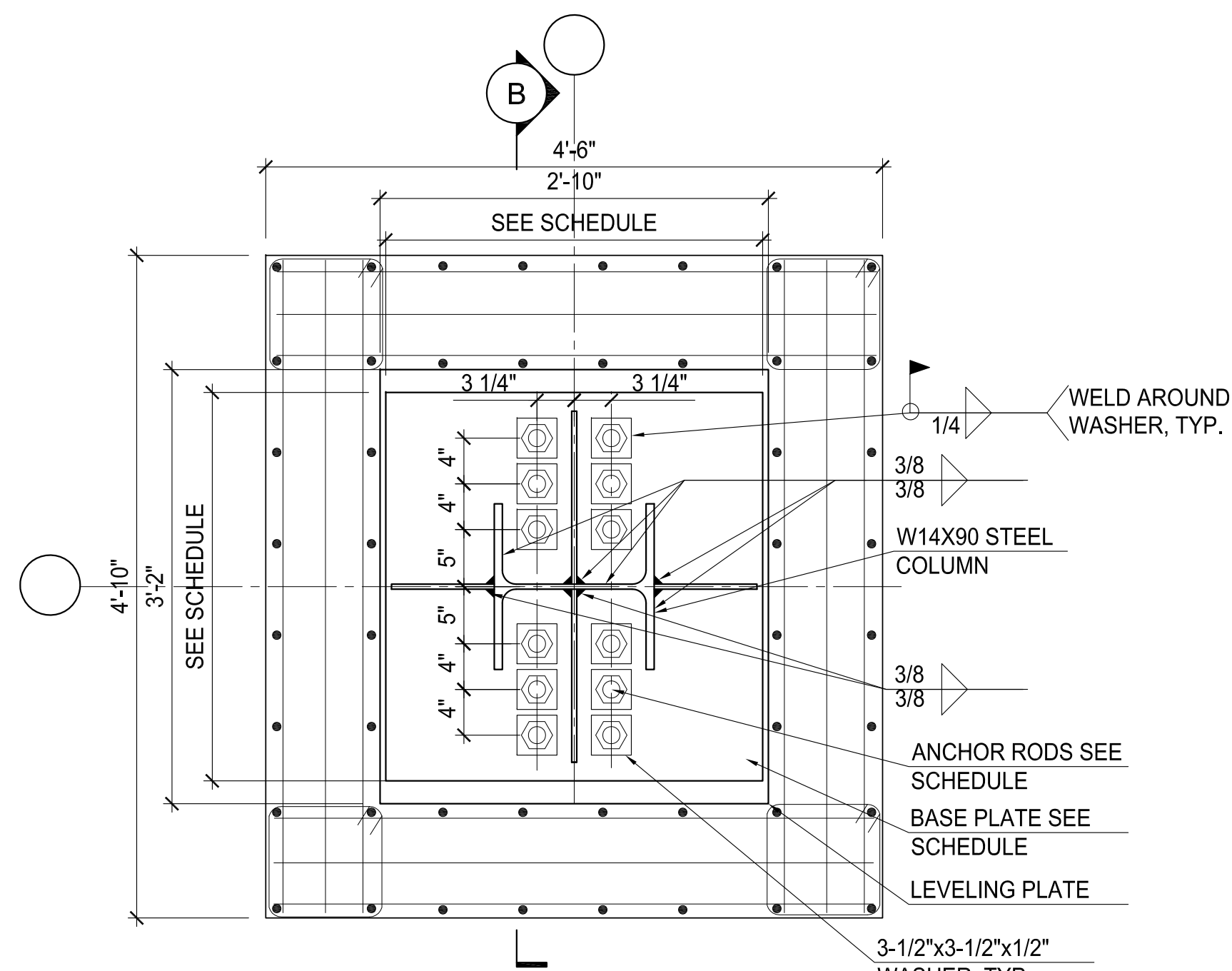
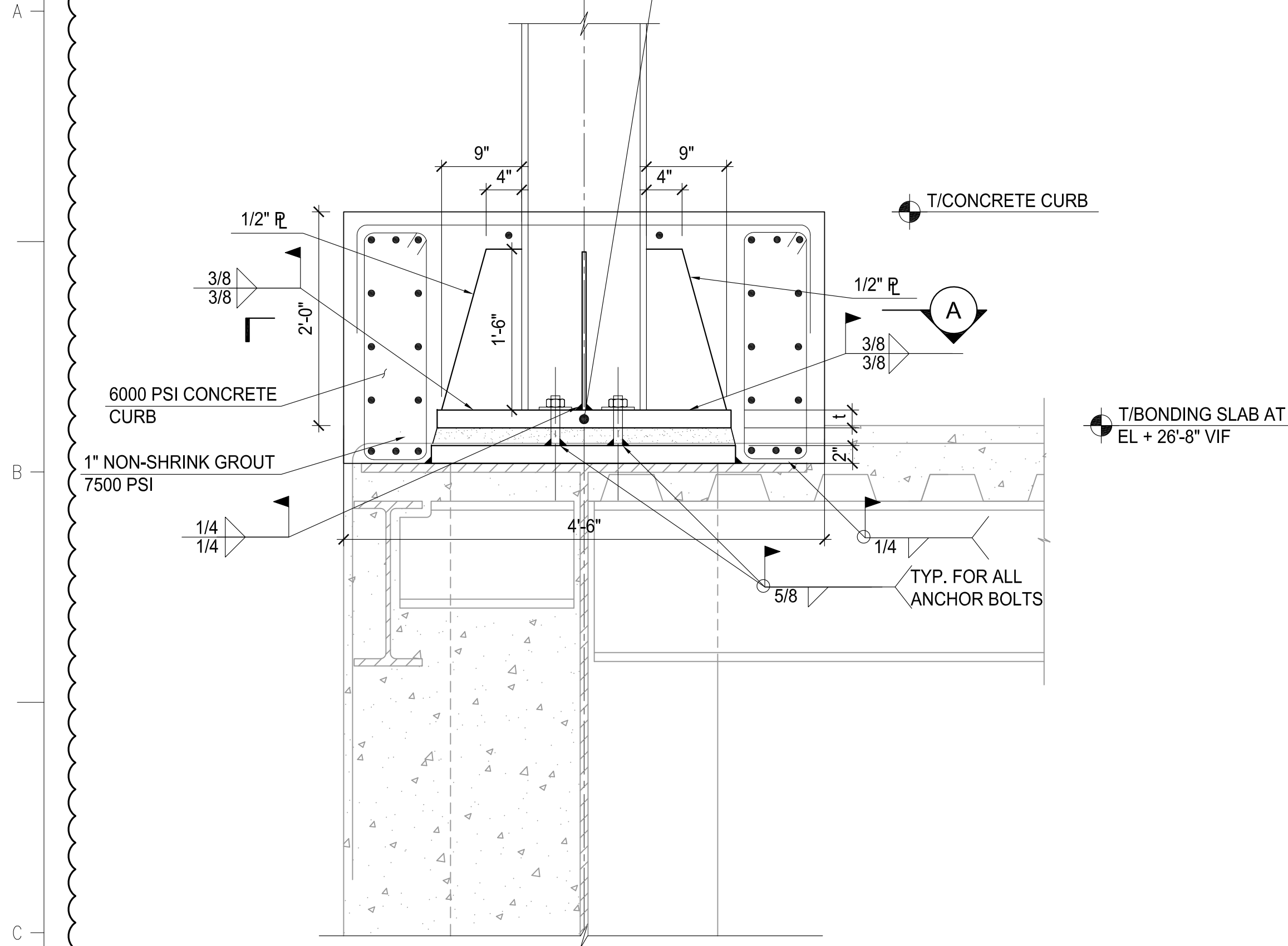
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CAD FILE Name: S-503.00

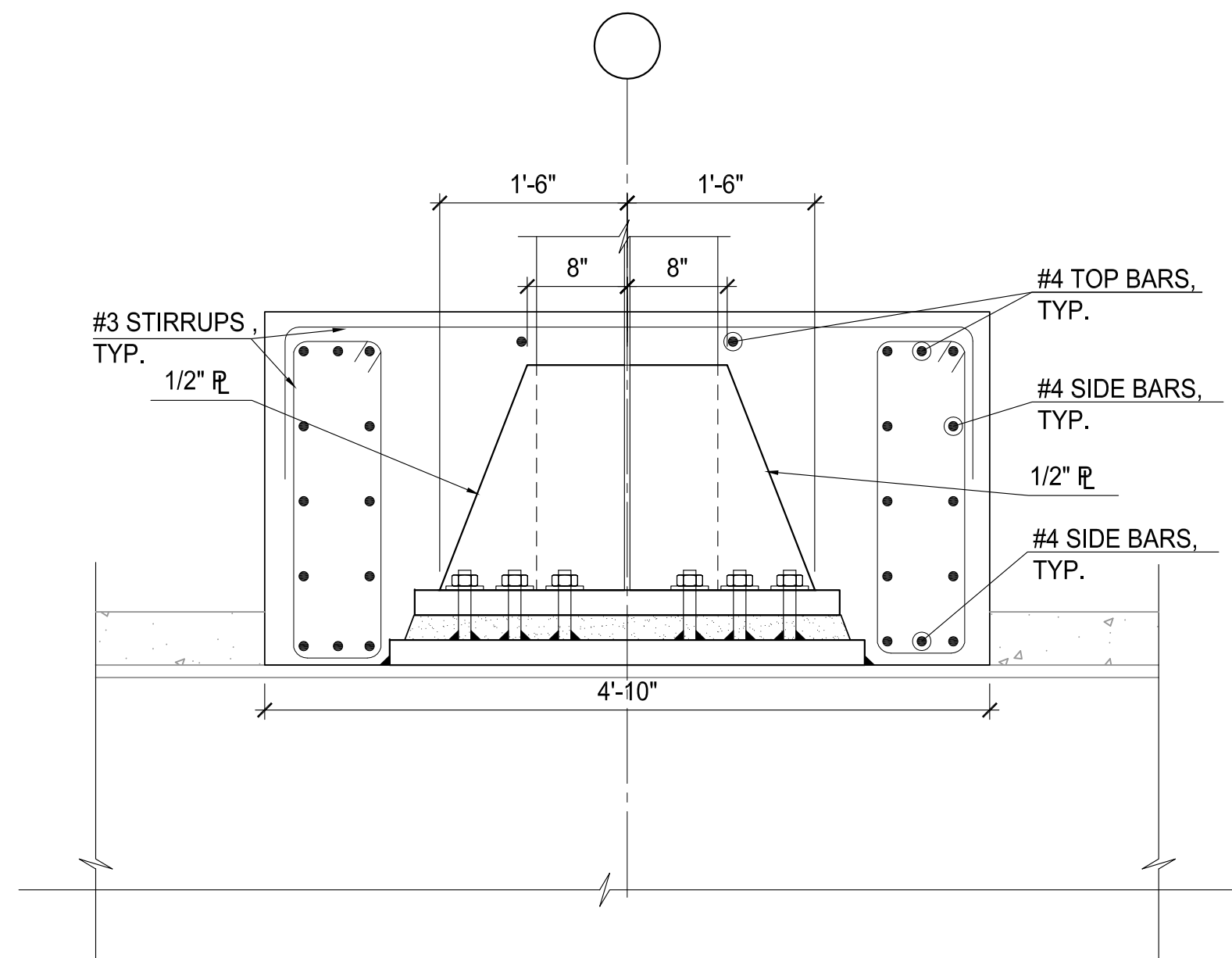
10 of 17

1
2
4
5
6
7
8
9
A
B
C
D
E
F
G
H

ESTIMATED WORST-CASE LRFD FACTORED LOAD TRANSMITTED TO STRUCTURE
VERTICAL LOAD P_z (KIPS) : $P_z = 550$
SHEAR LOAD F_x (KIPS) : $F_x = 251$
 F_y (KIPS) : $F_y = 61$



A SECTION



B SECTION

STEEL COLUMN SCHEDULE

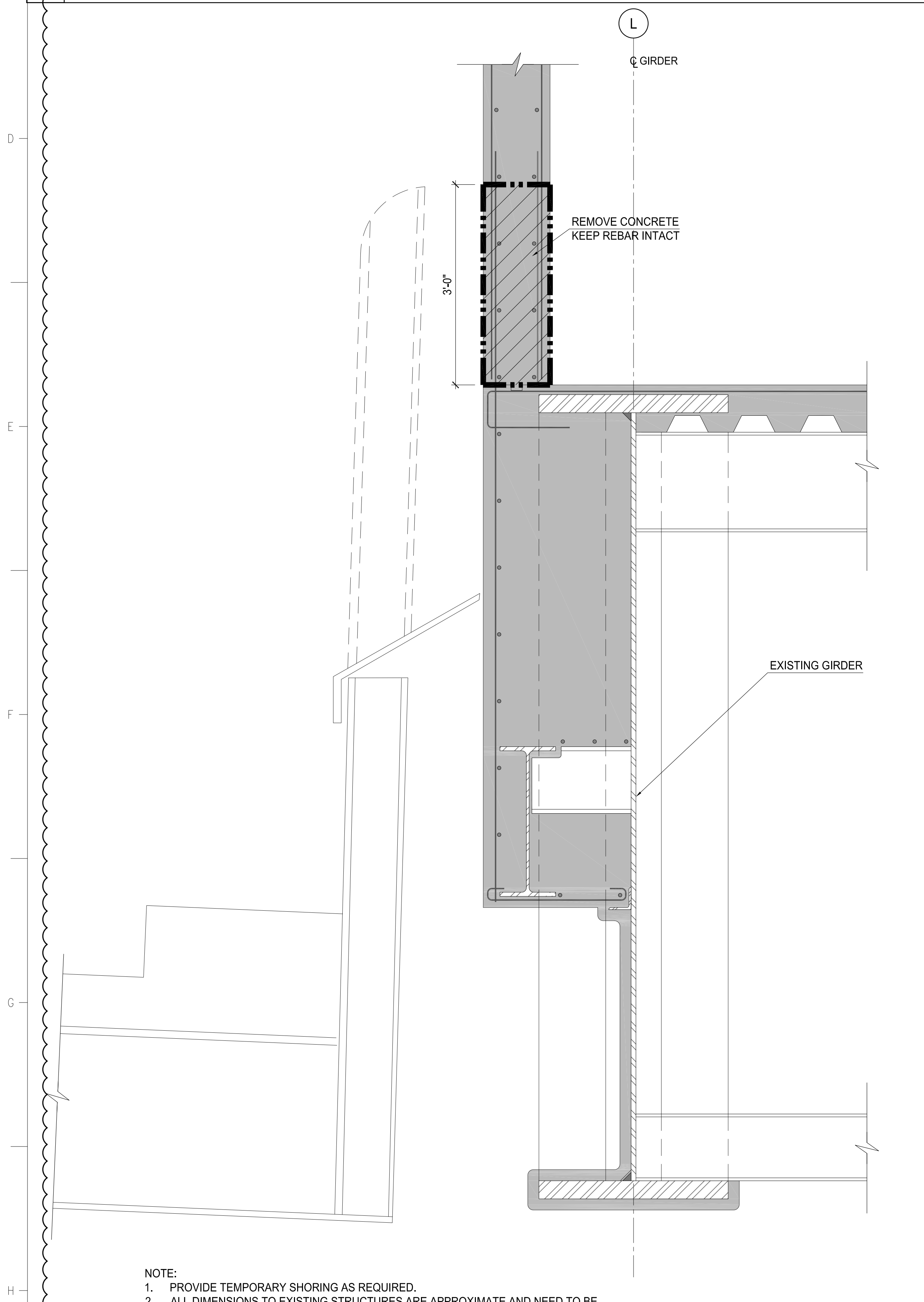
ROLLED SECTIONS: ASTM A992
BASE PLATES: ASTM A372, GRADE 50
ANCHOR BOLTS: ASTM F1554, GRADE 55 U.N.O.

COLUMN MARK	L/C - L/K	REMARK
FLOOR LEVEL		
PLAZA LEVEL		
DYER AVE BRIDGE LEVEL	W14x90	
BASE PLATE (IN)	W	33"
	L	34"
	t	2 1/4"
DETAIL		
ANCHOR BOLTS	1-1/2"	
REMARKS		

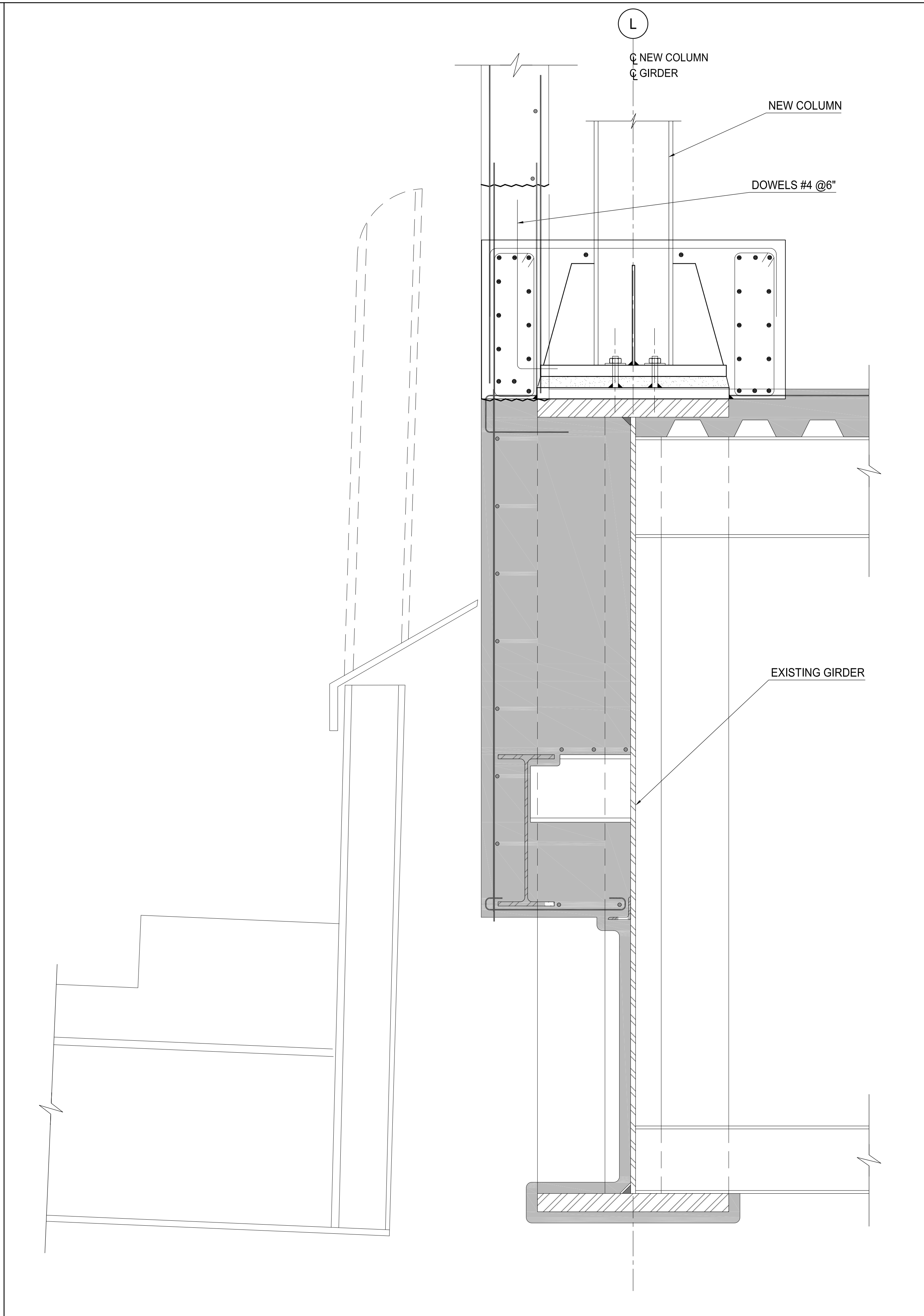
NOTE:
1. ALL DIMENSIONS TO EXISTING STRUCTURES ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.

BASE PLATE DETAIL FOR STEEL COLUMN AT EXISTING BUILDING

SCALE: NOT TO SCALE

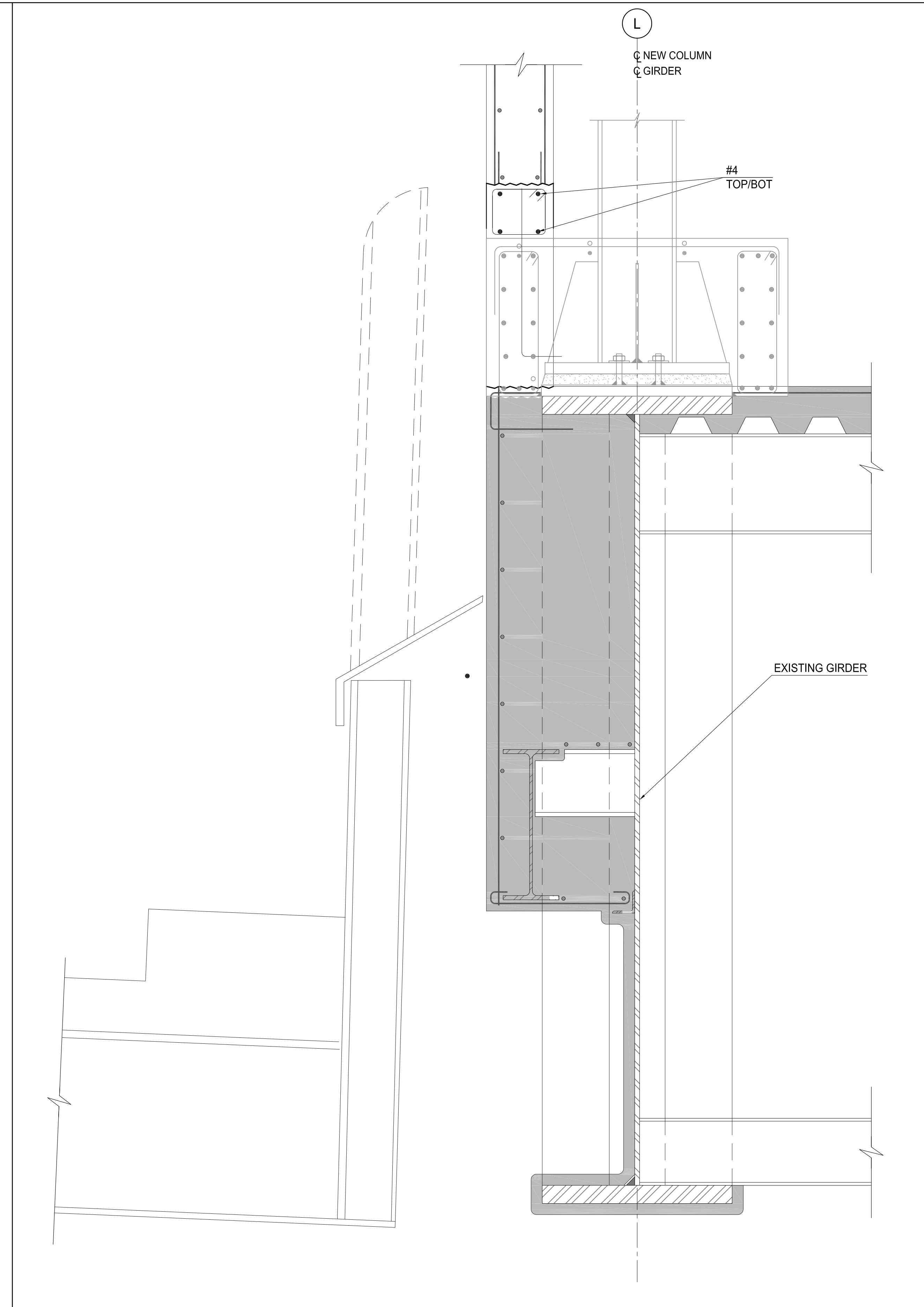


NOTE:
1. PROVIDE TEMPORARY SHORING AS REQUIRED.
2. ALL DIMENSIONS TO EXISTING STRUCTURES ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.



SETTING BLOCK - COLUMN PLACEMENT

SCALE: NOT TO SCALE



WALL PATCH

SCALE: NOT TO SCALE

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TOWER
SITE
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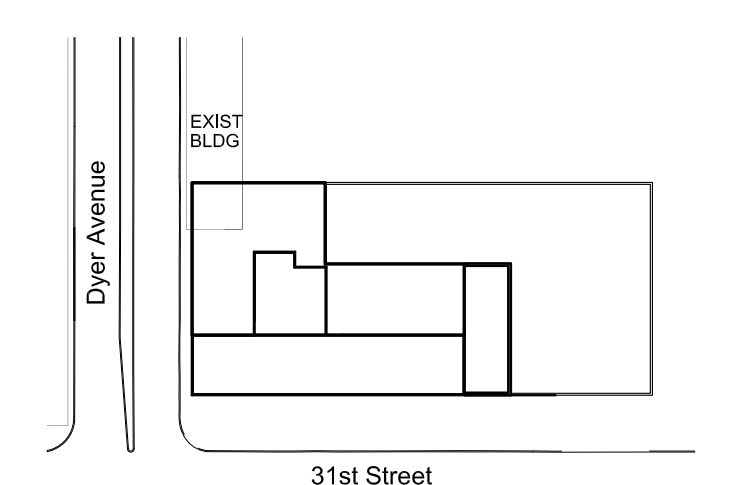
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KEY PLAN

10	15 MAY 2015	ISSUED FOR PERMIT FILING
9	09 JAN 2015	BULLETIN #3
8	12 DEC 2014	BULLETIN #2
7	01 AUG 2014	CONSTRUCTION DOCUMENTS
6	03 JUNE 2014	50% CONSTRUCTION DOCUMENTS
5	16 MAY 2014	SUPERSTRUCTURE BID PACKAGE
4	02 MAY 2014	ISSUED FOR PERMIT FILING
3	14 MAR 2014	ISSUED FOR DESIGN DEVELOPMENT
2	28 FEB 2014	PROGRESS SET
1	24 JAN 2014	ISSUED FOR SCHEMATIC DESIGN

No. Date Description

Sheet Name:

STEEL COLUMN SCHEDULE AND DETAILS

Seal & Signature
DATE OF NEW YORK STATE EXAMINATION
NYC DOB Number:
Project No: 211157
Scale: AS NOTED
DWG No: S-504.00
CAD FILE Name: S-504.DWG
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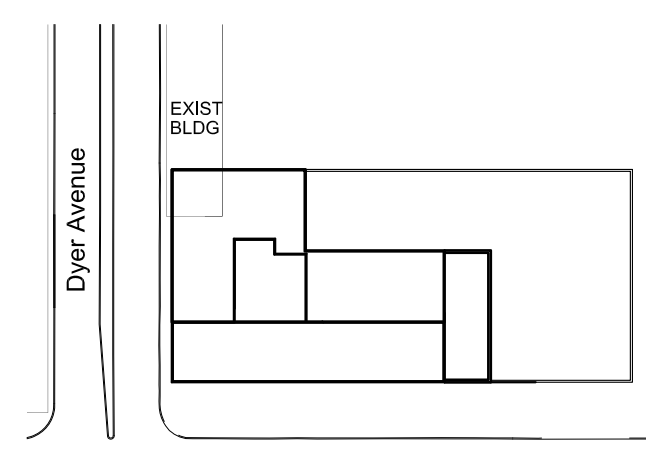
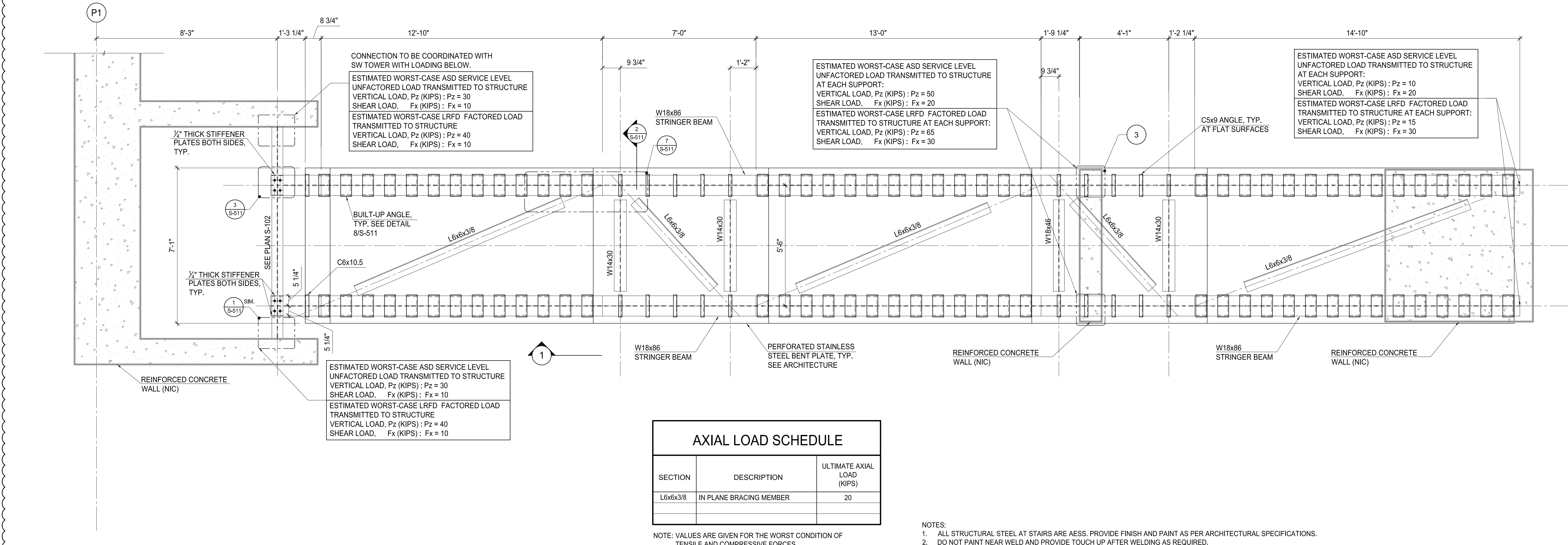
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- NOTES:
- ALL STRUCTURAL STEEL AT STAIRS ARE AESS. PROVIDE FINISH AND PAINT AS PER ARCHITECTURAL SPECIFICATIONS.
 - DO NOT PAINT NEAR WELD AND PROVIDE TOUCH UP AFTER WELDING AS REQUIRED.

1 STAIR SECTION
SCALE: 1/2"=1'



KEY PLAN

4	18 MAY 2015	ISSUED FOR PERMIT FILING
3	09 JAN 2015	BULLETIN #3
2	12 DEC 2014	BULLETIN #2
1	09 SEPT 2014	ADDENDUM No. 01
No.	Date	Description

Sheet Name:

TYPICAL
STAIR DETAILS

Seal & Signature



Date: 09 JAN 2014

NYC DOB Number:

Project No: 201120

Drawn: AS NOTED

DWG No:

S-510.00

CAD FILE NAME:

S-510.DWG

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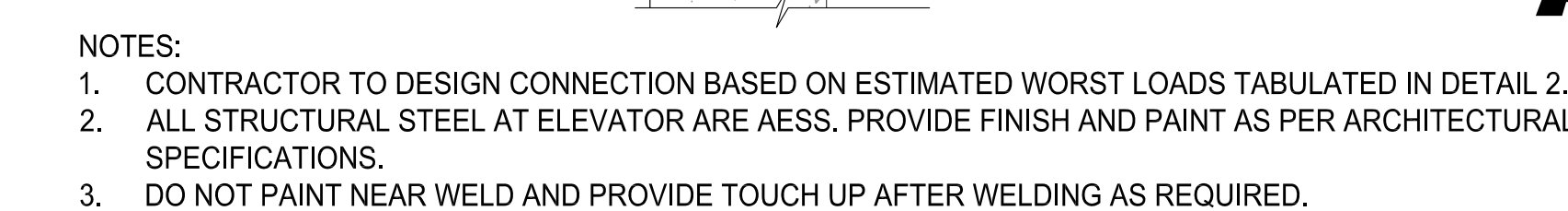
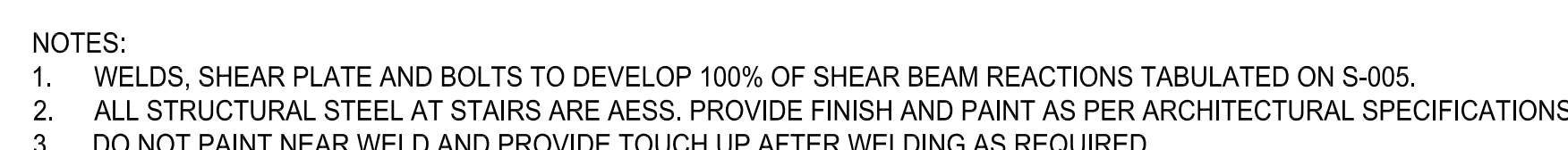


Diagram illustrating the elevation view of a beam-to-column connection. The connection features a bent plate (labeled 7) and in-plane bracing. Key dimensions and components are shown:

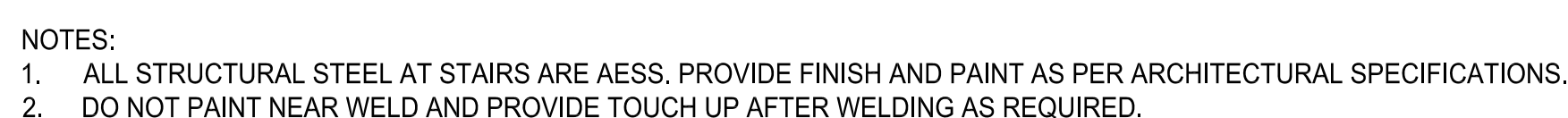
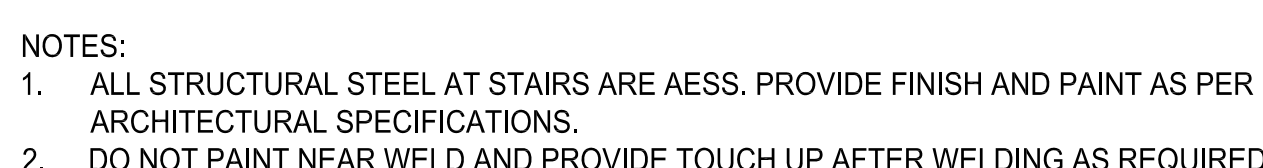
- Overall width: 3'-6 1/2"
- Distance from column centerline to bent plate centerline: 2'-9"
- Distance from bent plate centerline to column centerline: 2'-9"
- Column centerline: C STAIR
- Beam centerline: C
- Perforated stainless steel bent plate, typical (TYP.)
- C5x9 channel section
- W18 beam section
- W14 beam section
- A325 or A490 slip critical bolts
- Standard holes in beam and gusset short-slot in shear plate (typ.)
- In-plane bracing
- T/STEEL EL: VARIES

- NOTES:
1. WELDS, SHEAR PLATE AND BOLTS TO DEVELOP 100% OF SHEAR BEAM REACTIONS TABULATED ON S-005.
 2. ALL STRUCTURAL STEEL AT STAIRS ARE AESS. PROVIDE FINISH AND PAINT AS PER ARCHITECTURAL SPECIFICATIONS.
 3. DO NOT PAINT NEAR WELD AND PROVIDE TOUCH UP AFTER WELDING AS REQUIRED.



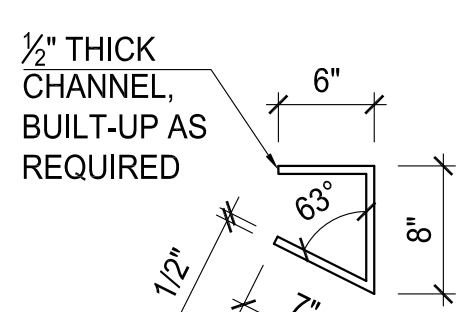
2 STAIR CONNECTION DETAIL

3	STAIR TOP CONNECTION DETAIL
---	-----------------------------



5 SECTION DETAIL AT TYPICAL VERTICAL THREAD

6 PLAN DETAIL AT TYPICAL HORIZONTAL THREAD
SCALE: 1"=1'



PROVIDE 1/2" THICK
STIFFENERS AT EACH
END, SEE SECTION 5
FOR LOCATION

4 1/4"

3 SIDES,
TYP.



9	STAIR DETAIL SCALE: 1"=1'
---	------------------------------

10	W18 STRINGER TO CONCRETE CONNECTION DETAIL AT BASE OF STAIRS SCALE: 1/4"=1'-0"
----	---



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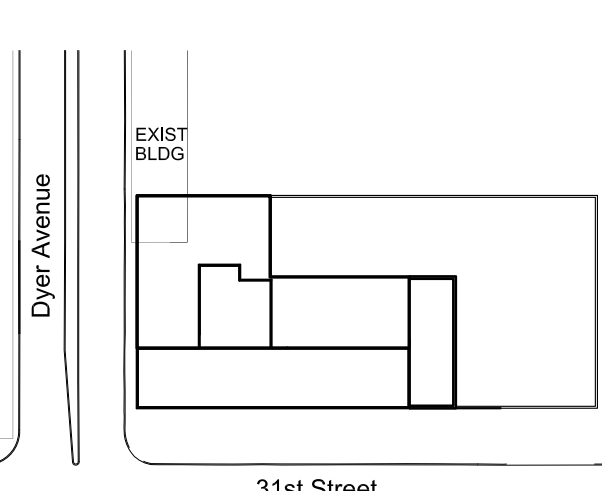
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9	15 MAY 2015	ISSUED FOR PERMIT FILING
8	12 DEC 2014	BULLETIN #2
7	09 SEP 2014	ADDENDUM No. 01
6	01 AUG 2014	CONSTRUCTION DOCUMENTS
5	03 JUNE 2014	50% CONSTRUCTION DOCUMENTS
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1	28 FEB 2014	PROGRESS SET
No.	Date	Description

TYPICAL STAIR DETAILS

Seal & Signature

Page 22/21

NYC DOB Number

Project No: 21115

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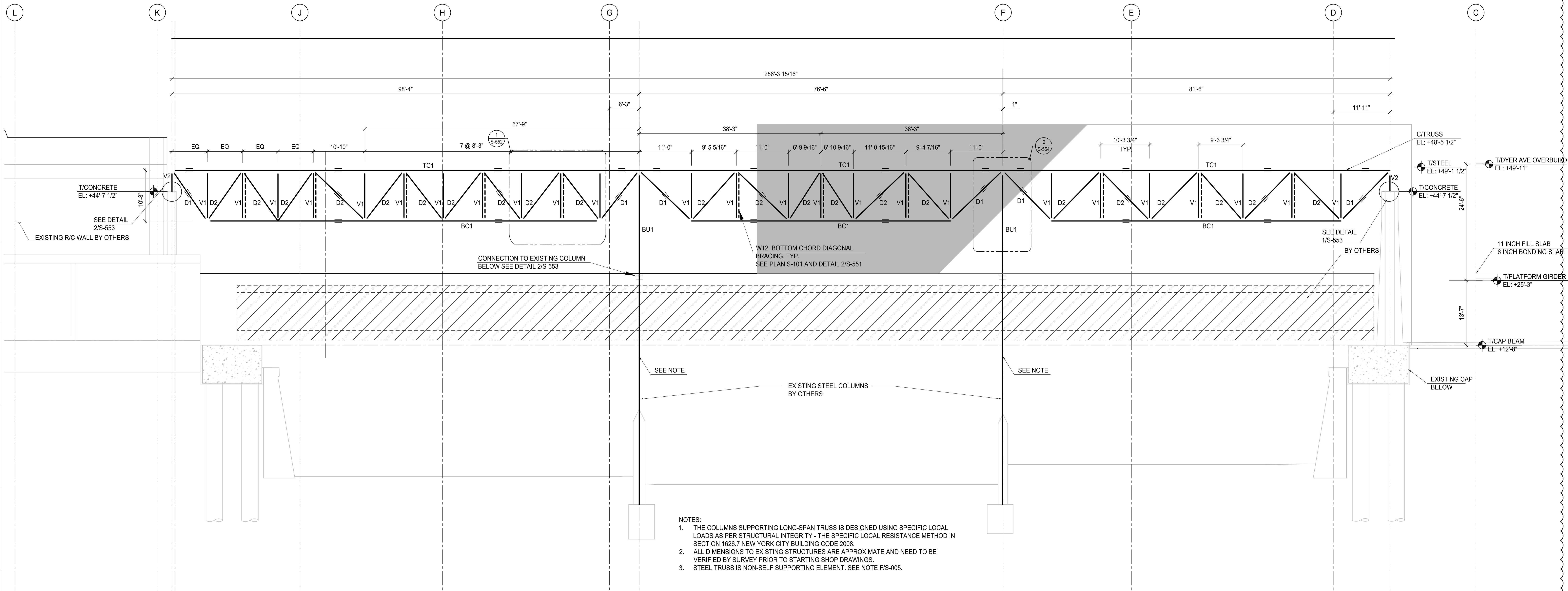
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S-5

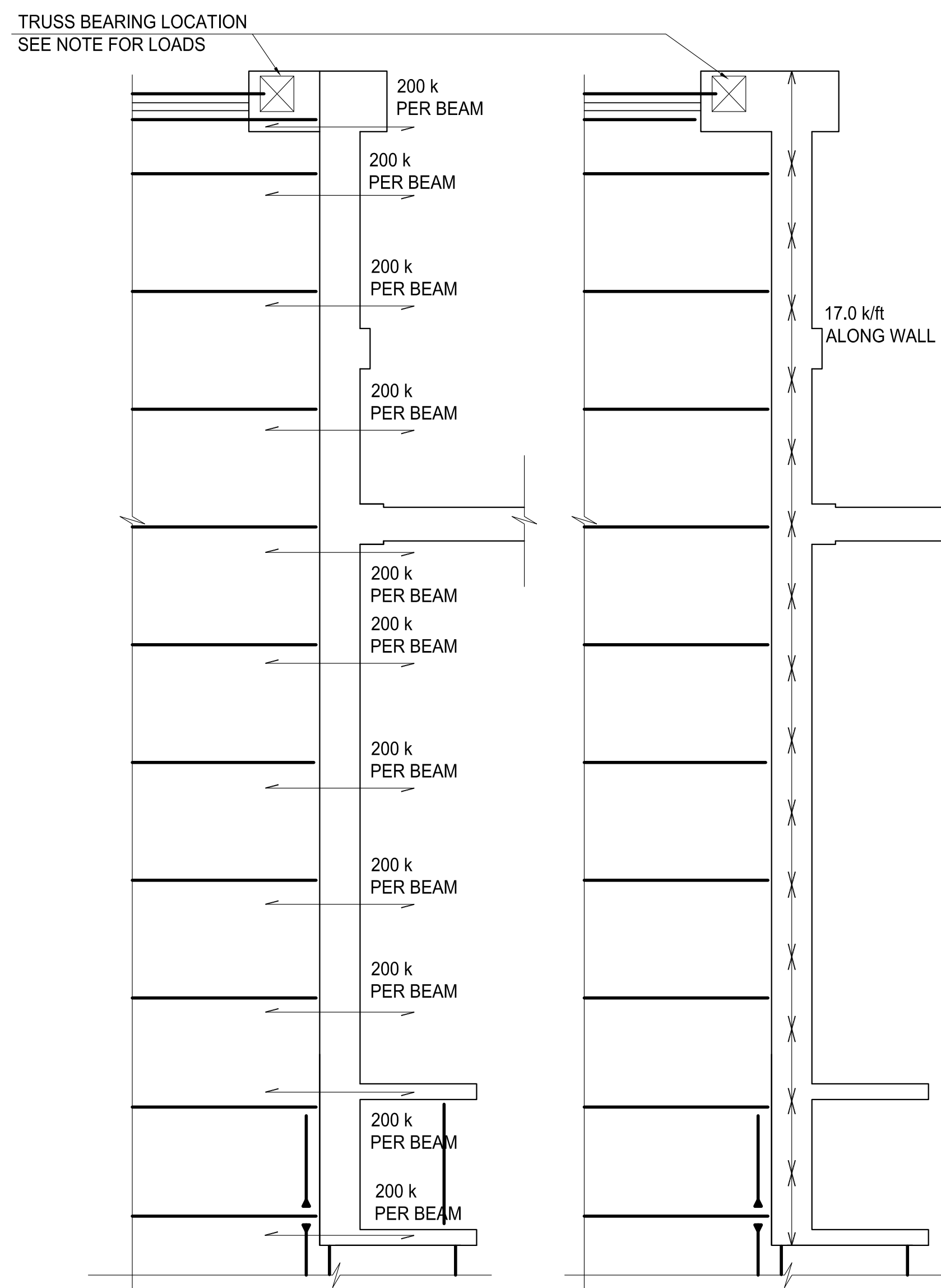
CAD FILE Name

S-551.DWG

Wernli LLP, 2814



1 TRUSS ELEVATION
SCALE: 1/8"=1'-0"



2 LATERAL LOADS ON FOUNDATION WALL
SCALE: NOT TO SCALE

NOTE:
STRUCTURAL LOADS AT SOUTH SUPPORT OF DYER AVE OVERBUILD TRUSS
GRAVITY LOADS (UNFACTORED)
DL = 650 KIPS
LL = 300 KIPS
SL = 140 KIPS
LATERAL SEISMIC LOADS (LOAD FACTOR OF 1.0)
EQ_EAST-WEST DIR = 200 KIPS
EQ_NORTH-SOUTH DIR = 400 KIPS
MAX LOAD ALLOWED LONG TERM DEFLECTION: 1/2 IN.
ASSUMPTION:
- STRUCTURAL OCCUPANCY CATEGORY: IV
- SOIL CLASS: B
- DESIGN SPECTRAL RESPONSE ACCELERATION
PARAMETERS: S_{ds} = 0.243g, S_{d1} = 0.047g
- R VALUE (RESPONSE MODIFICATION COEFFICIENT) OF CONCRETE WALL SUPPORTING THE TRUSS IS 4 (ORDINARY REINFORCED CONCRETE SHEAR WALLS) PER TABLE 1617.6.2/NYCBC 2008.
- THE HEIGHT OF CONCRETE WALL SUPPORTING THE TRUSS IS AROUND 38 FEET.
NOTE: LOADS FOR PROGRESSIVE COLLAPSE AND BLAST EFFECT HAVE NOT BE INCLUDED IN THESE VALUES.

TRUSS MEMBER SCHEDULE			
MARK		STEEL SIZE	REMARKS
TC1		TOP CHORD	W14x311
BC1		BOTTOM CHORD	W14x342
D1		DIAGONAL MEMBER	W14x342
D2		DIAGONAL MEMBER	W14x132
V1		VERTICAL MEMBER	W14x132
V2		VERTICAL MEMBER	W14x426
BU1		BUILT-UP COLUMN	SEE DET. 2A/S-554

NOTES:
1. SEE S-552 FOR TRUSS MEMBER SPLICE DETAIL.

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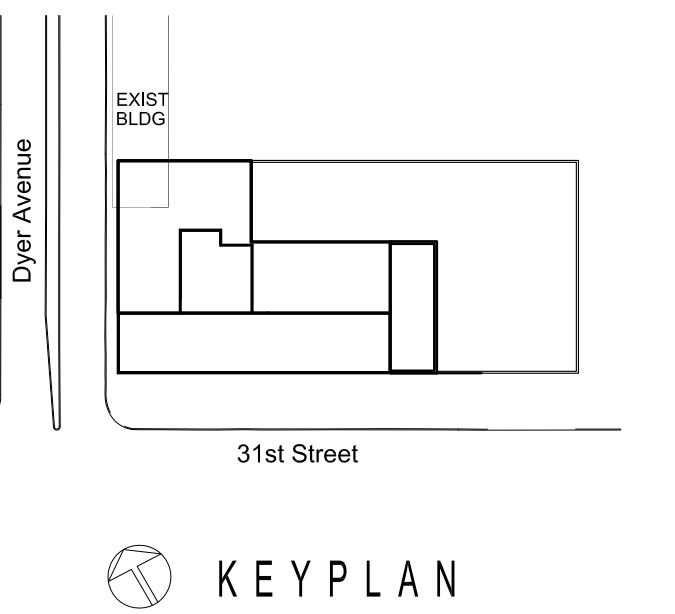
Client

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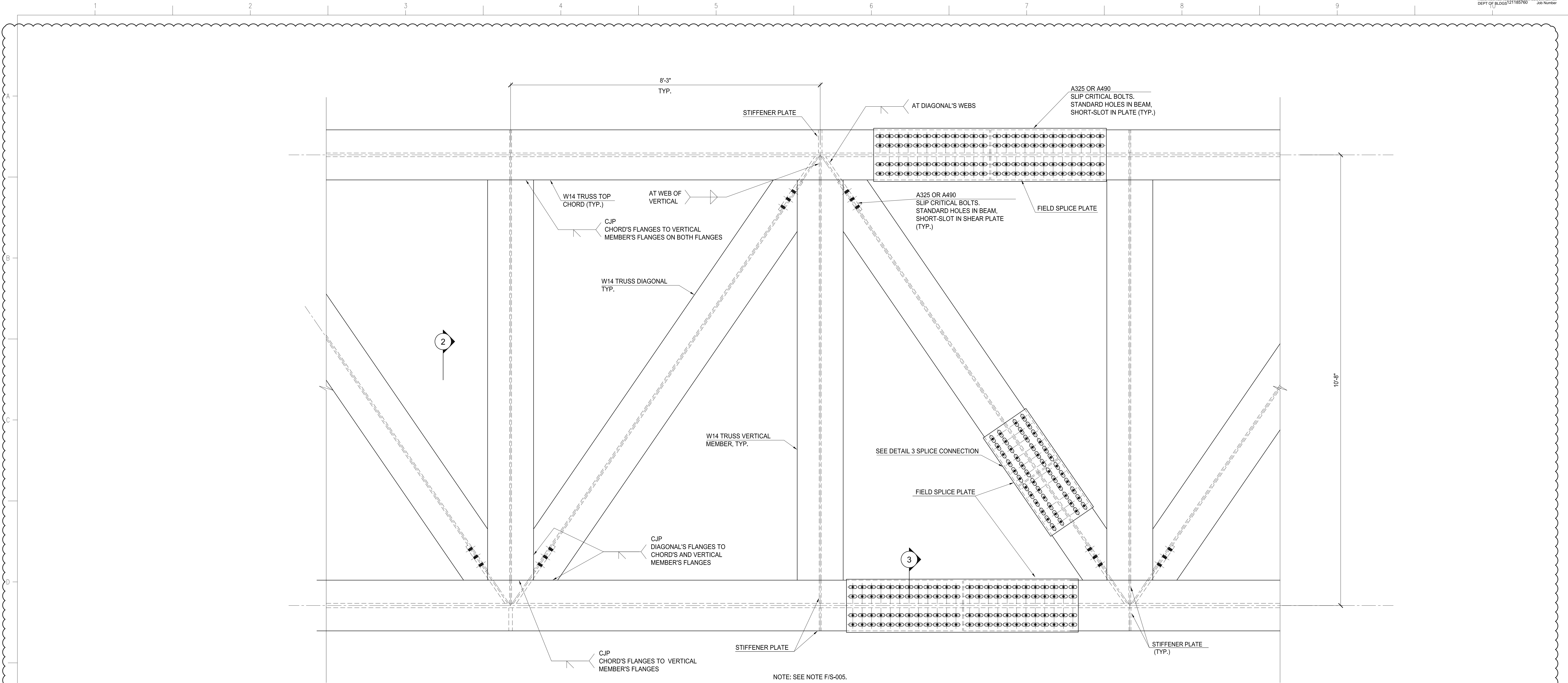
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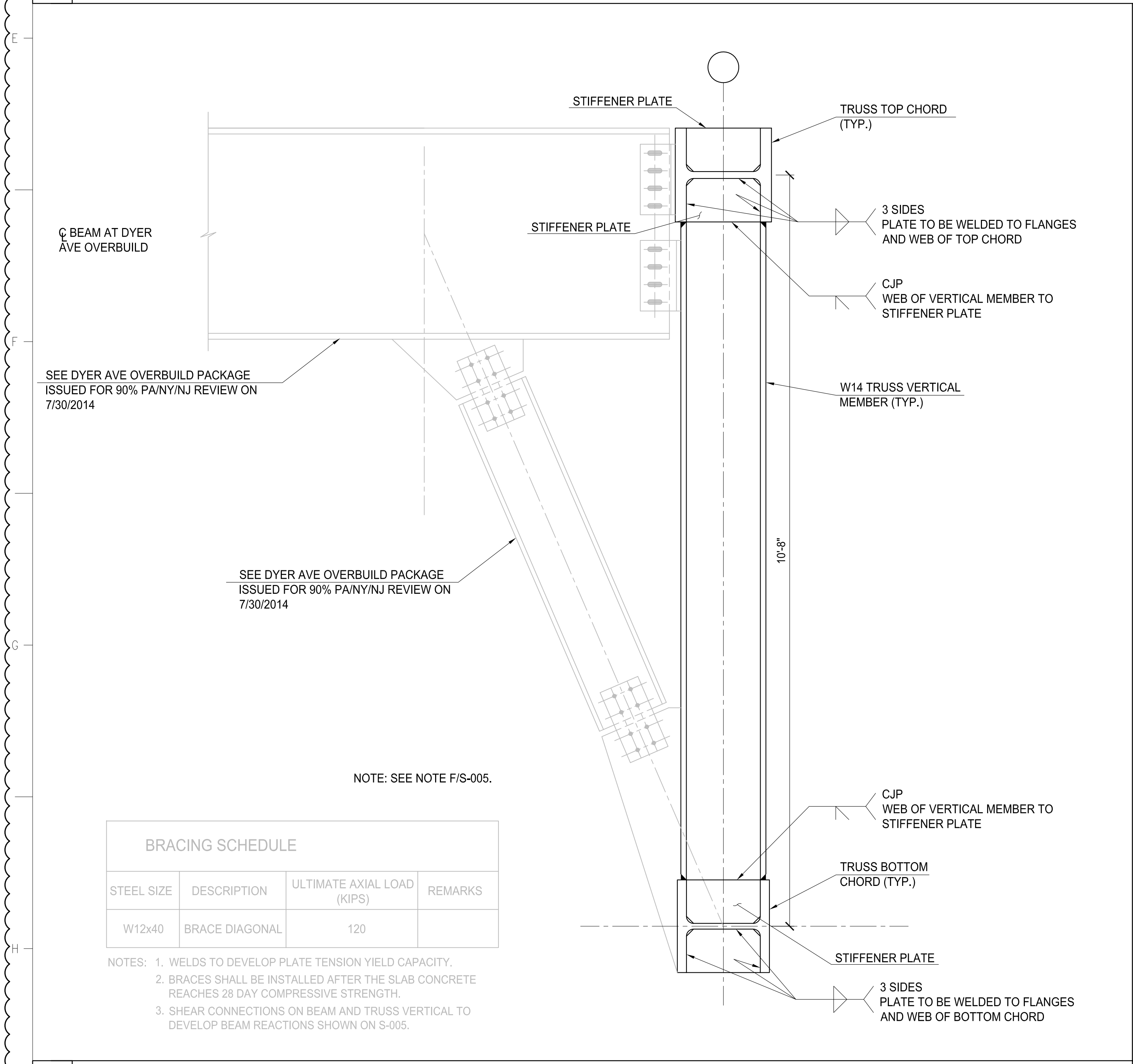
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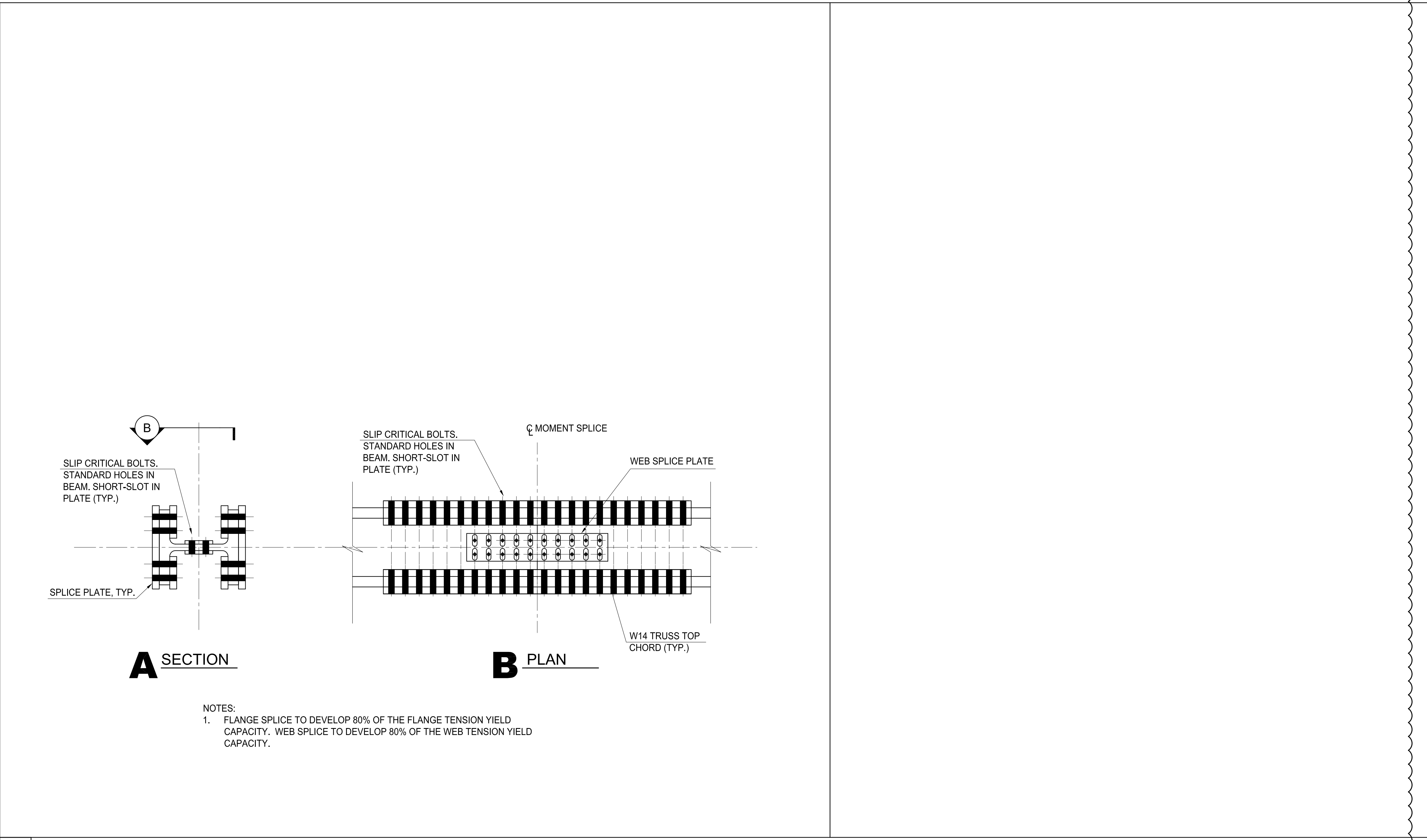
2 18 MAY 2015 ISSUED FOR PERMIT FILING
1 12 DEC 2014 BULLETIN #2
No. Date Description
Sheet Name:
STEEL TRUSS ELEVATION
AND ESTIMATED LOADS
ONTO SW TOWER FND WALL
Seal & Signature
STATE OF NEW YORK
JAMES W. MERRILL
Professional Engineer
No. 101107
S-551.00
CADD FILE NAME: S-551.DWG
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1 TRUSS DETAIL CONNECTIONS
SCALE: NOT TO SCALE



2 TRUSS BOTTOM CHORD BRACING
SCALE: NOT TO SCALE



3 TYPICAL FIELD SPLICE DETAIL
SCALE: NOT TO SCALE

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Dyer Avenue

EXIST. BLDG.

31st Street

KEY PLAN

3	18 MAY 2015	ISSUED FOR PERMIT FILING
2	09 JAN 2015	BULLETIN #3
1	12 DEC 2014	BULLETIN #2

No.	Date	Description
Sheet Name:		

STEEL TRUSS
ELEVATIONS
AND DETAILS

Seal & Signature

DATE OF NEW YORK
STATE SEAL
NYCE DOB Number:
Project No: 211157
Scale: AS NOTED
DWG No:
S-552.00

CAD FILE NAME: S-552.00 15 of 17

MANHATTAN
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RESIDENTIAL
TOWER
SITE
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New York, NY

Client

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Architecture/Structural Engineering

SOM

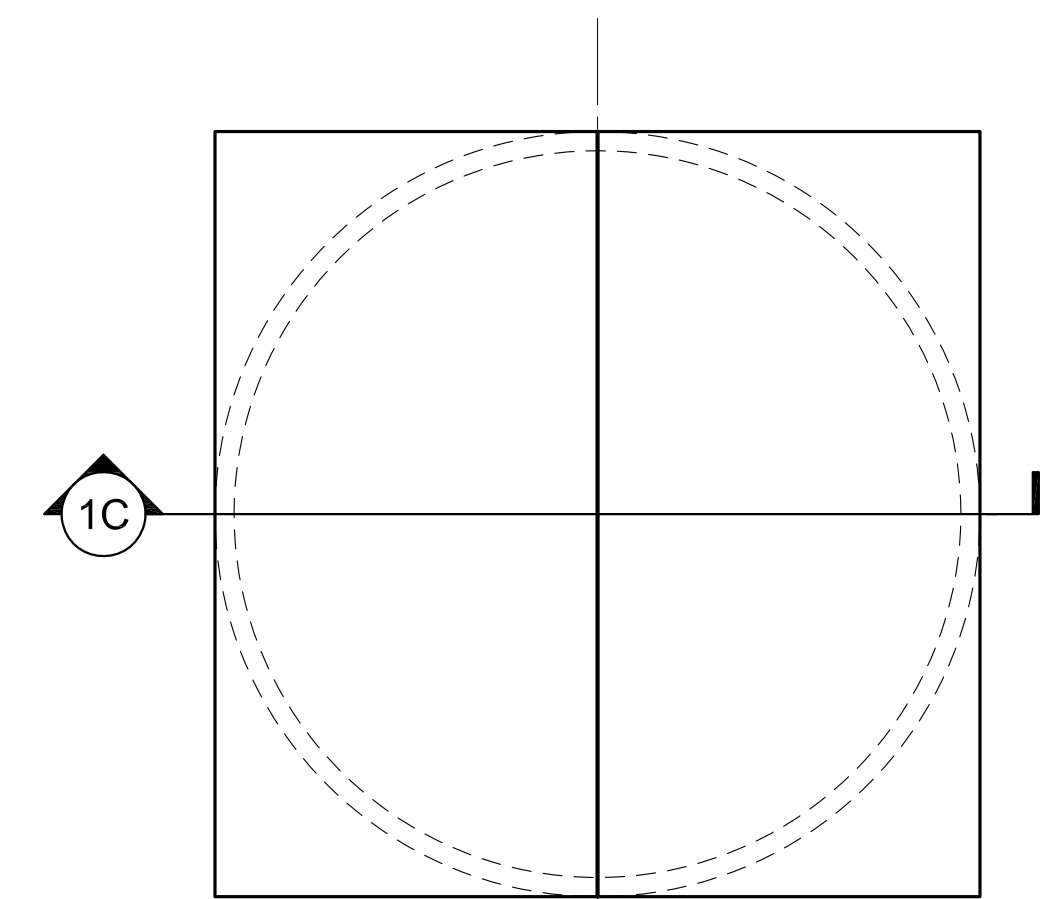
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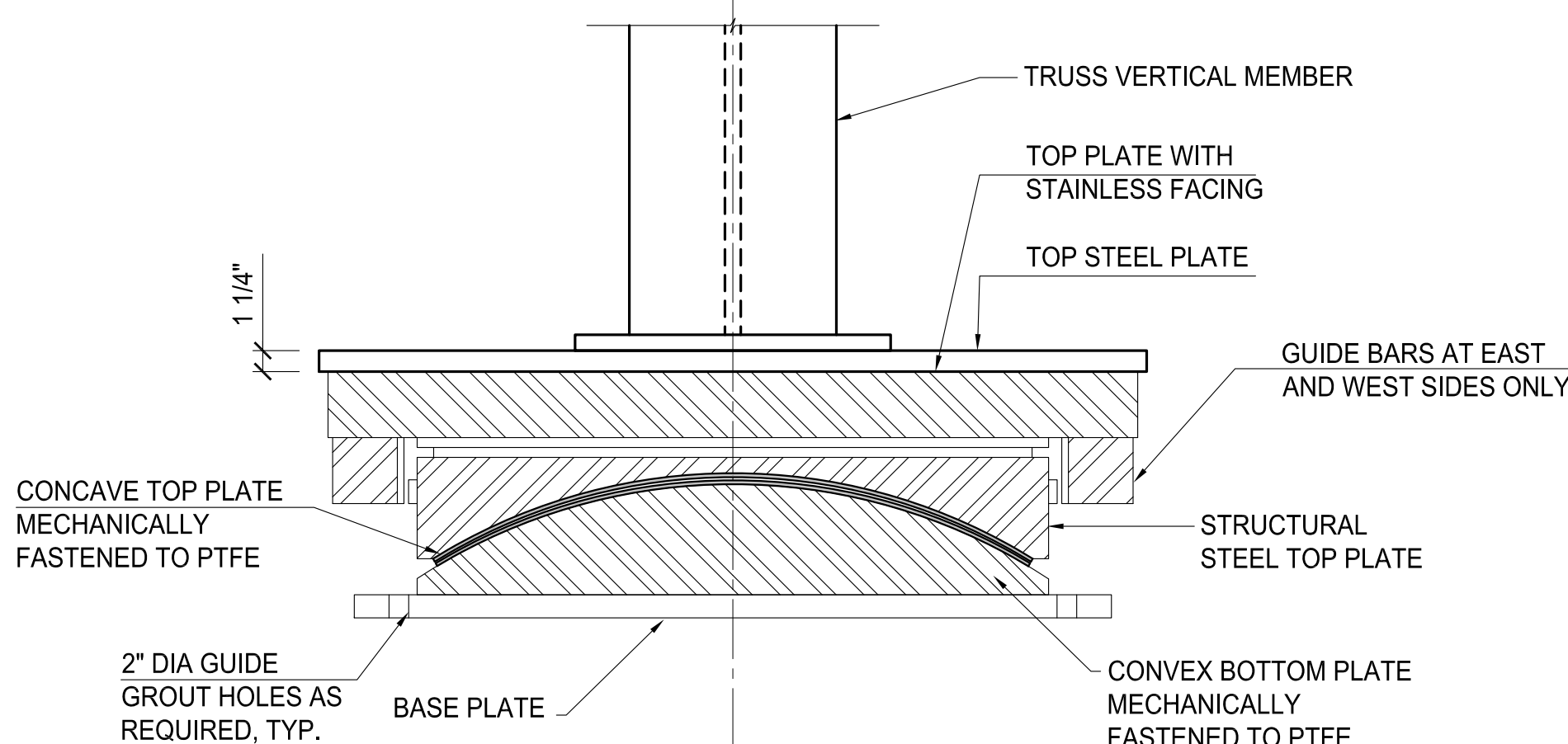
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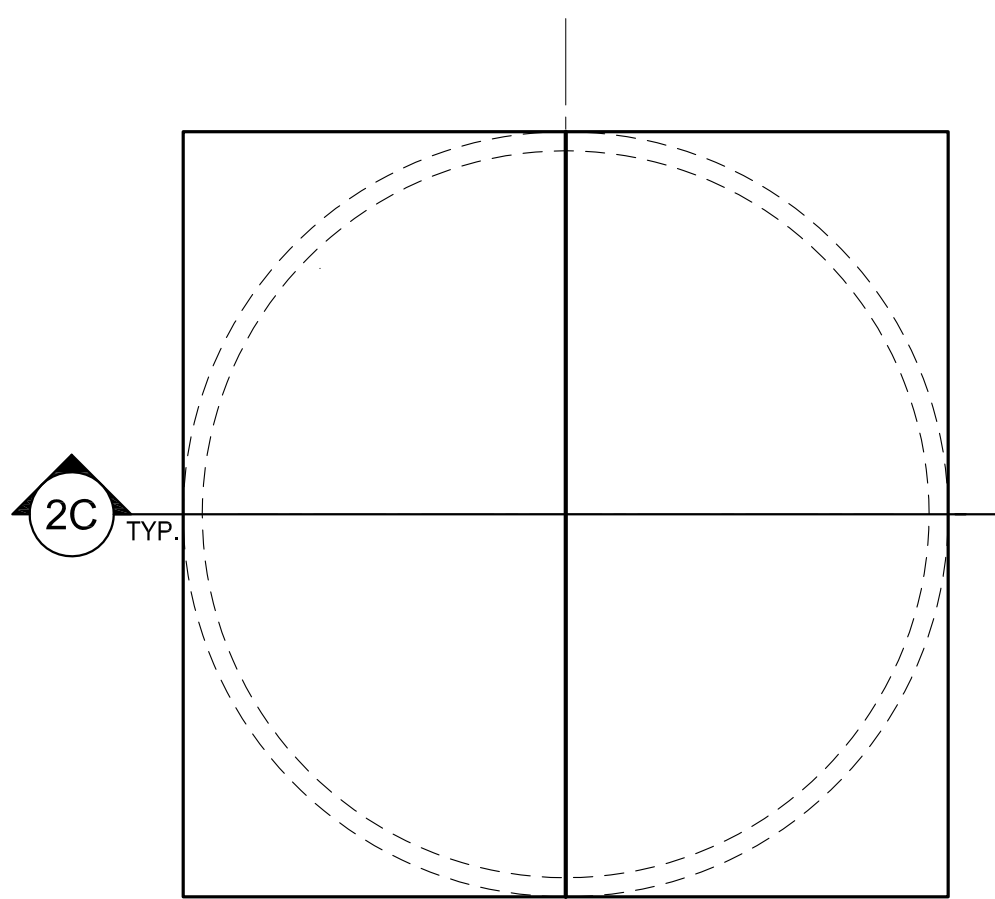
NOTES:
1. T/SLAB EL: +44' 7-1/2" UNLESS NOTED OTHERWISE.

1A GUIDED SPHERICAL BEARING PLAN
SCALE: NOT TO SCALE



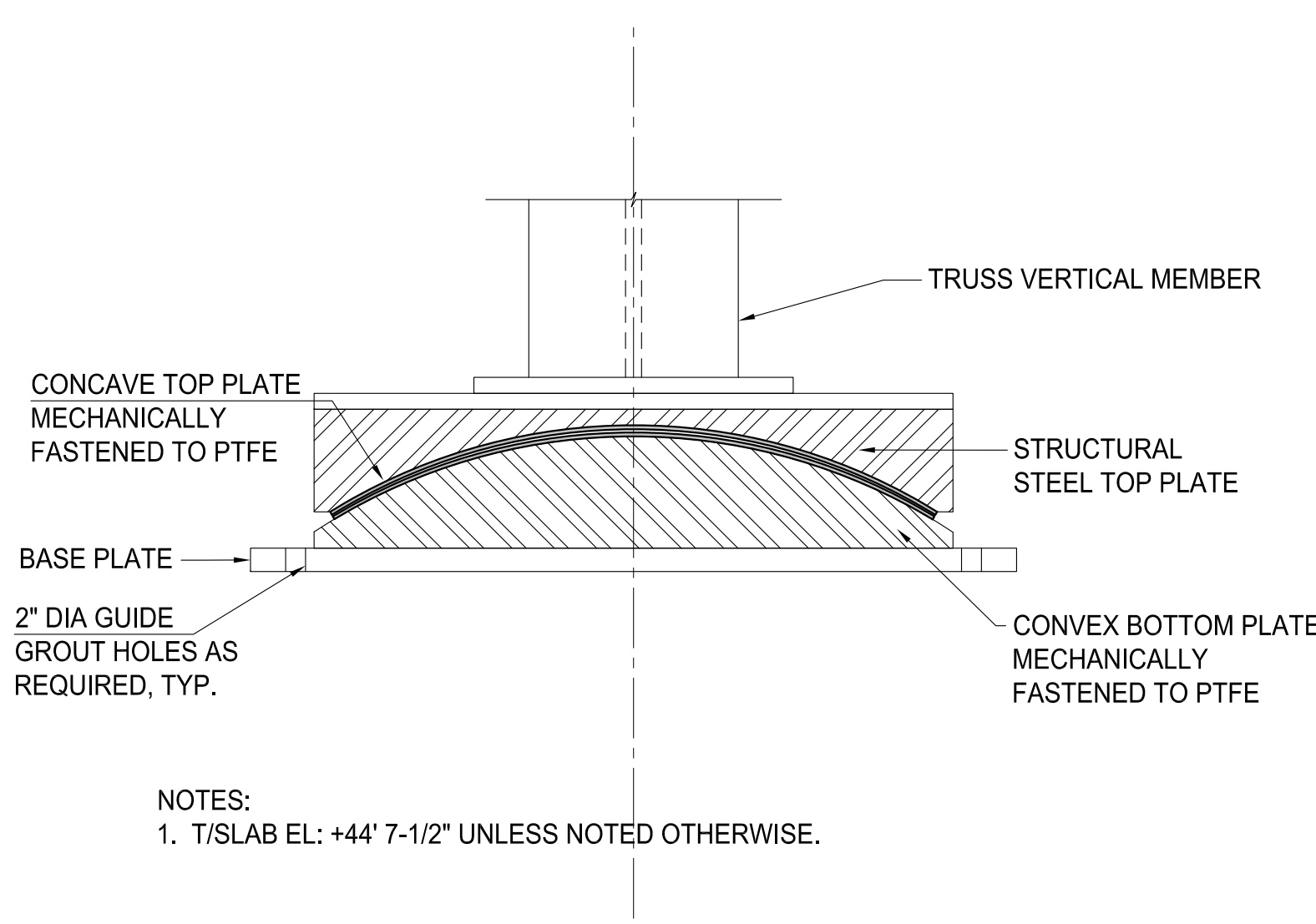
NOTES:
1. T/SLAB EL: +44' 7-1/2" UNLESS NOTED OTHERWISE.

1B GUIDED SPHERICAL BEARING SECTION
SCALE: NOT TO SCALE



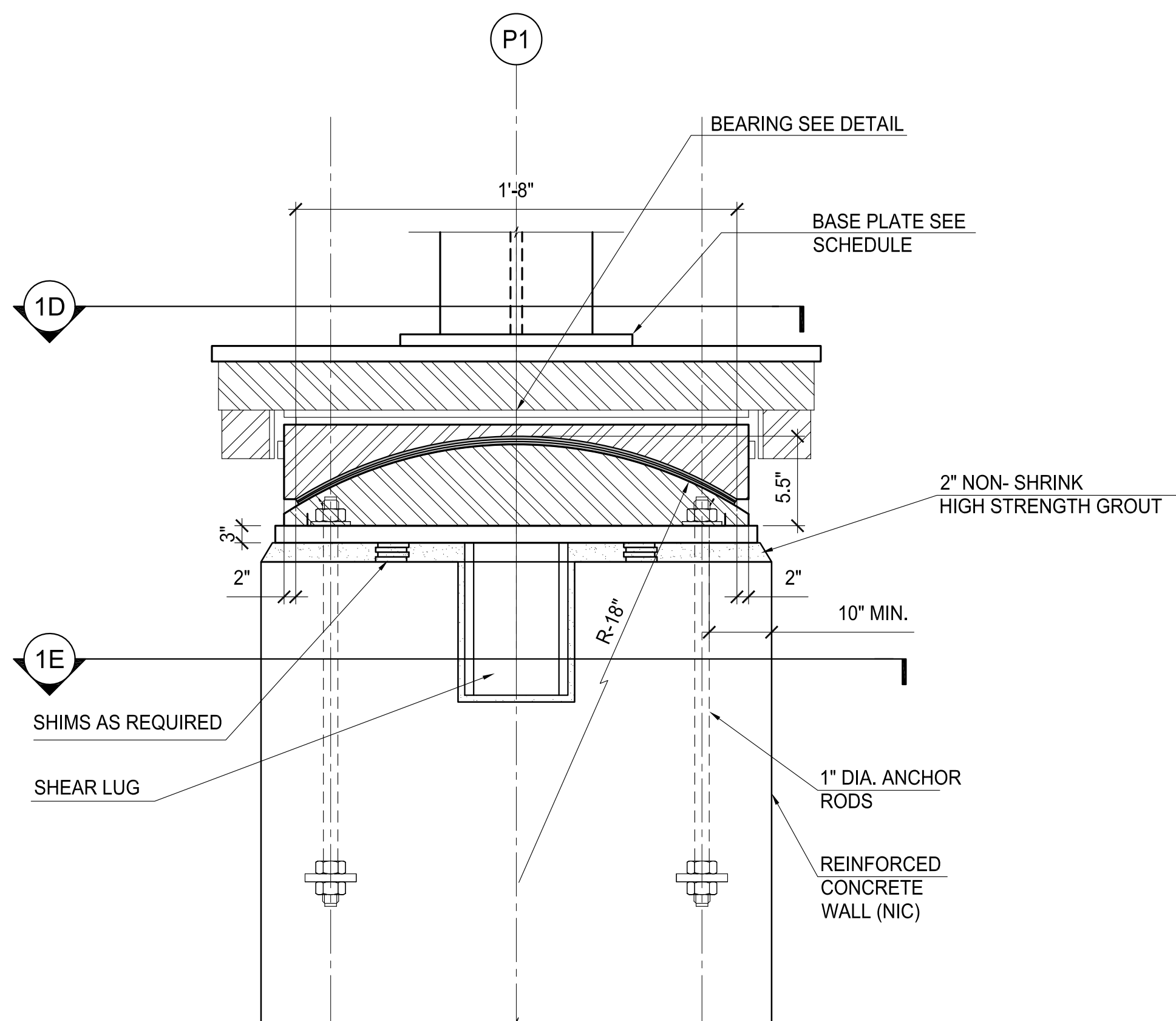
NOTES:
1. T/SLAB EL: +44' 7-1/2" UNLESS NOTED OTHERWISE.

2A FIXED SPHERICAL BEARING PLAN
SCALE: NOT TO SCALE

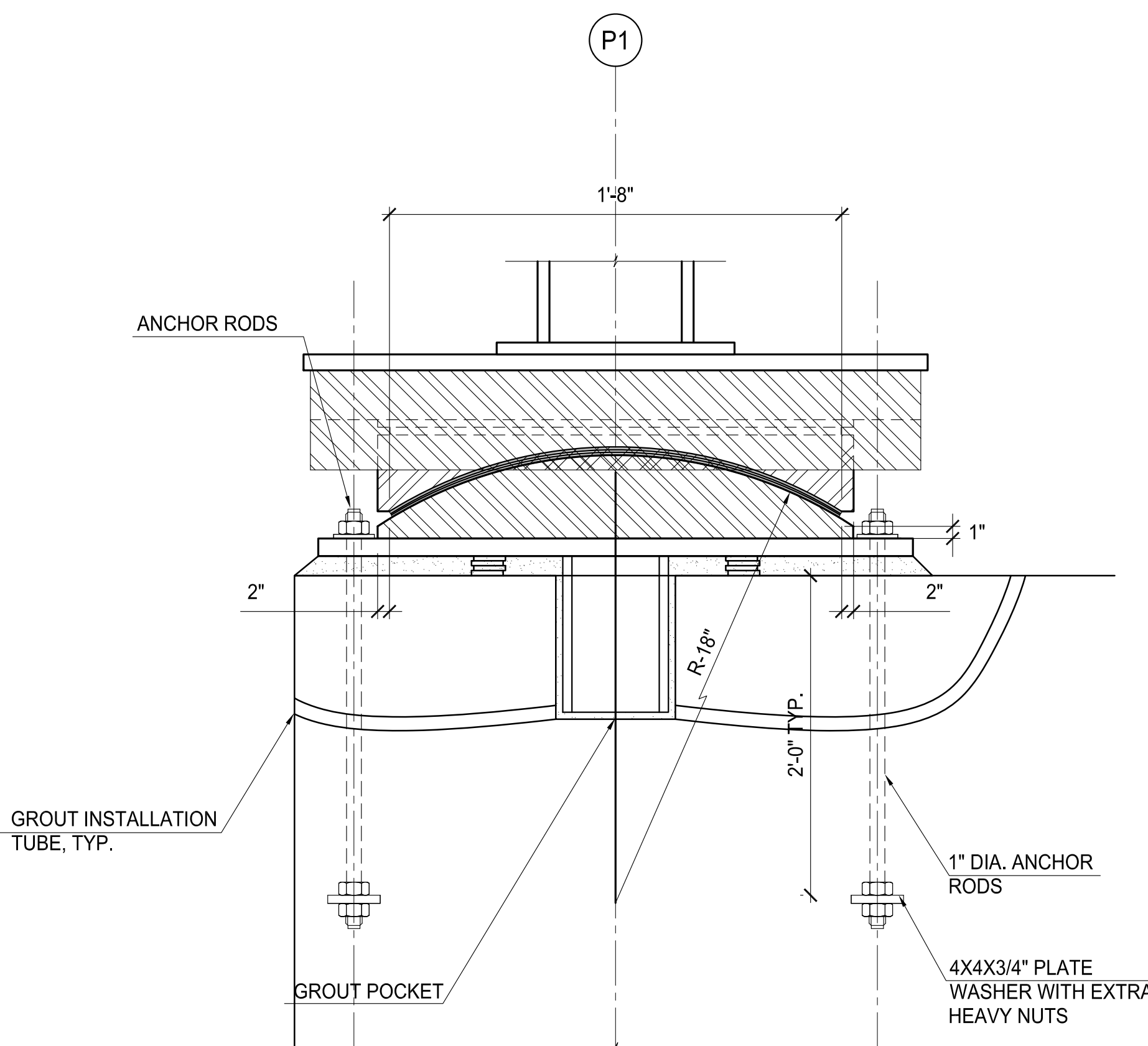


NOTES:
1. T/SLAB EL: +44' 7-1/2" UNLESS NOTED OTHERWISE.

2B FIXED SPHERICAL BEARING SECTION
SCALE: NOT TO SCALE

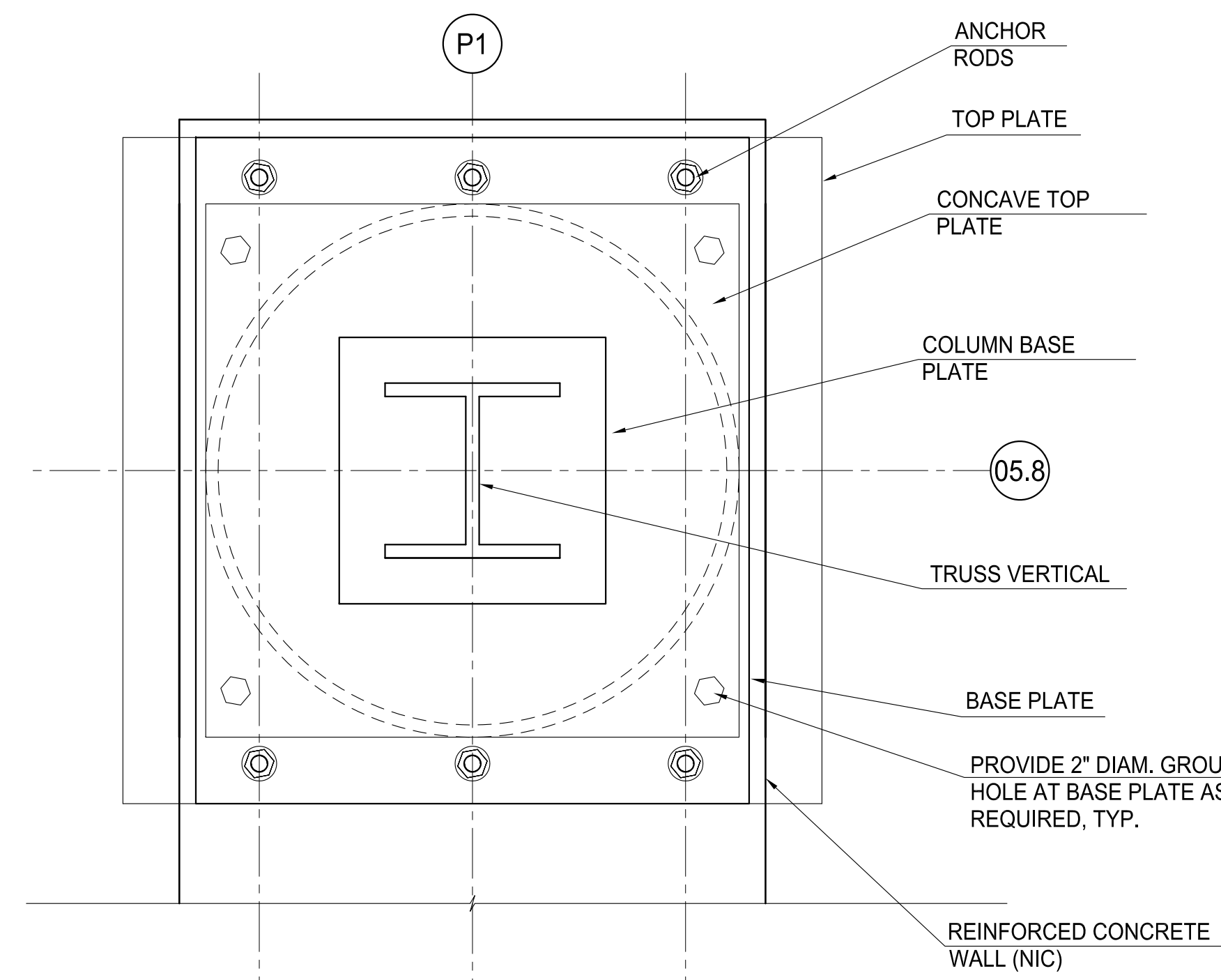


EAST-WEST DIRECTION

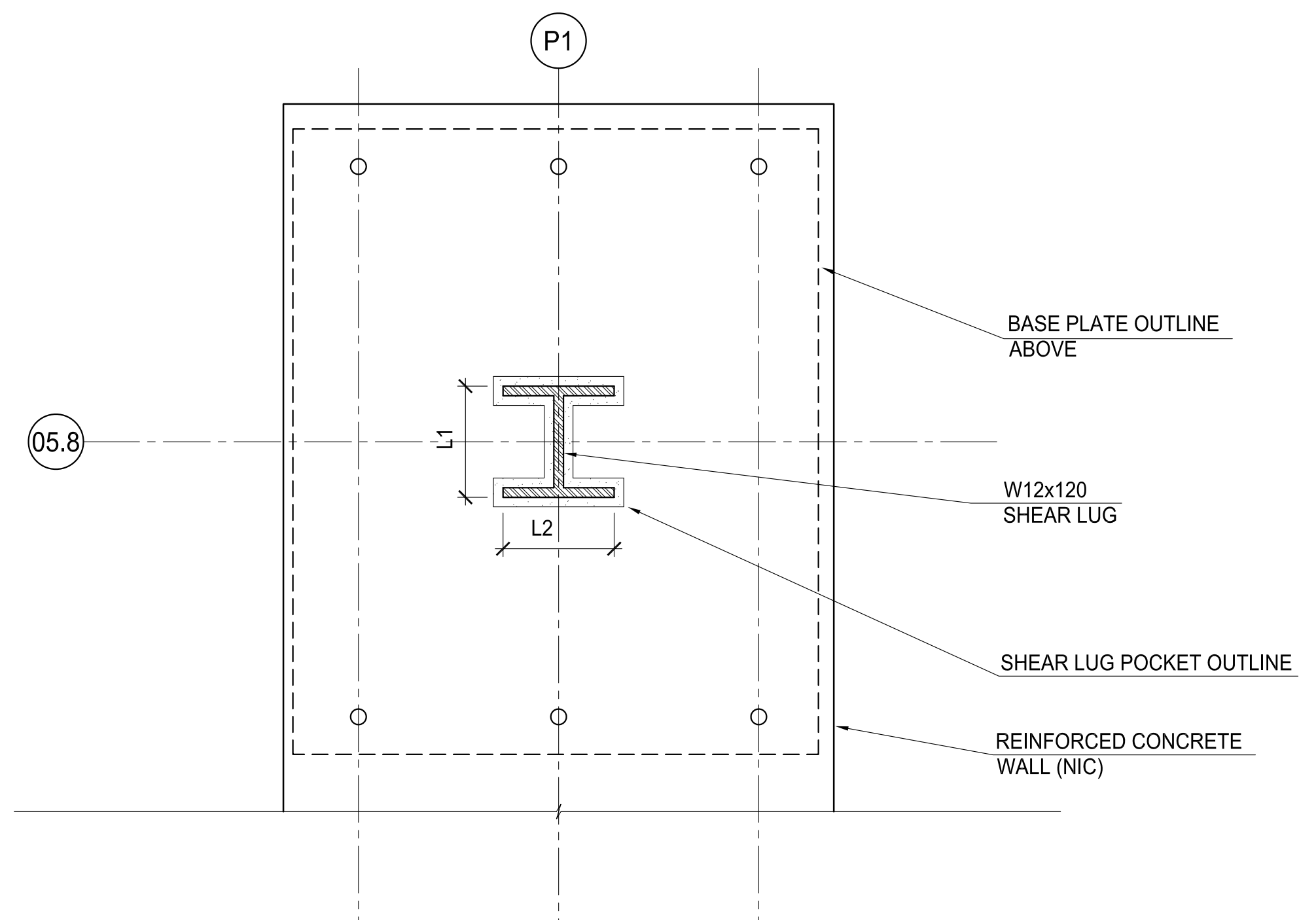


NORTH-SOUTH DIRECTION

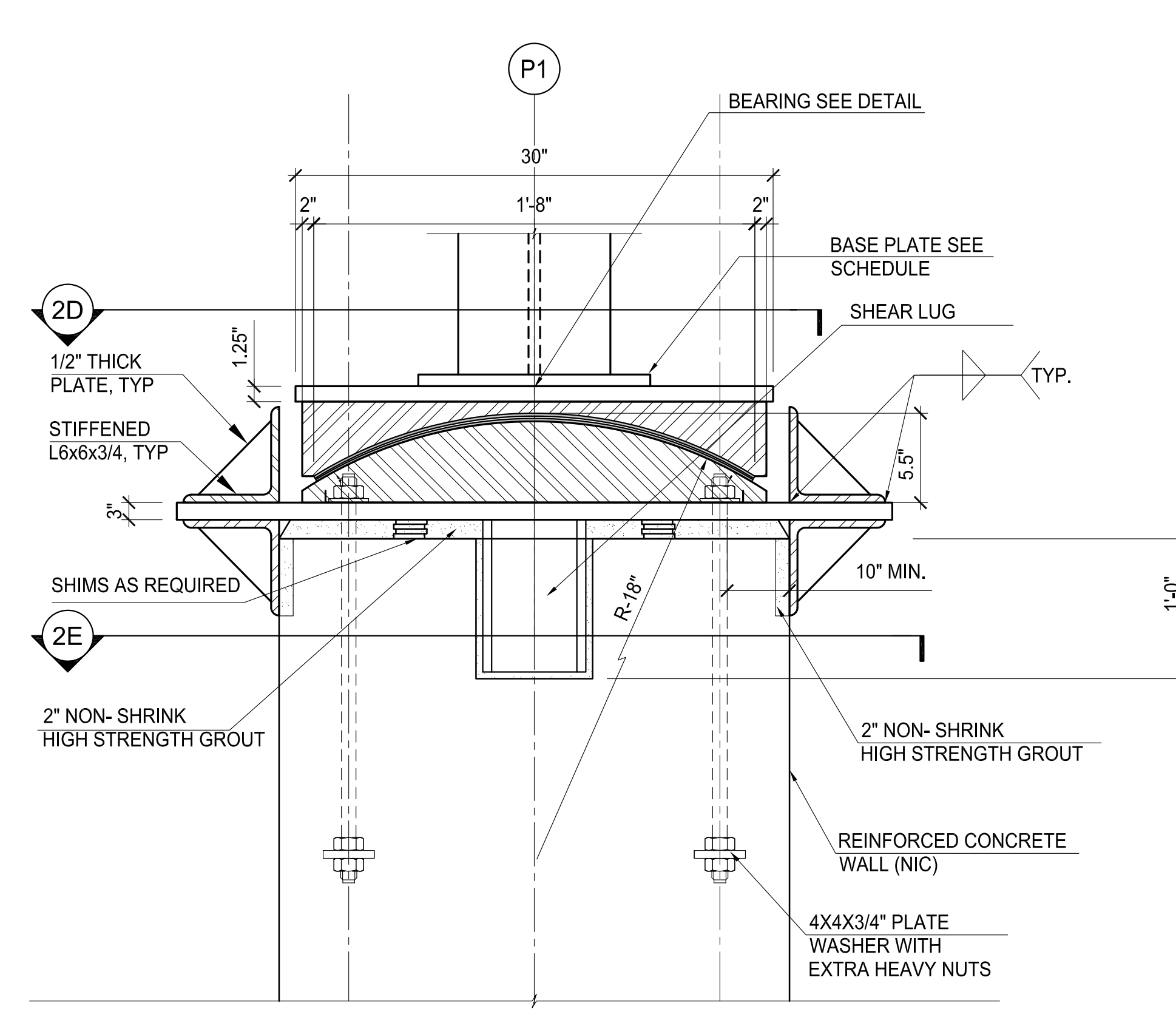
1C SECTIONS
SCALE: NOT TO SCALE



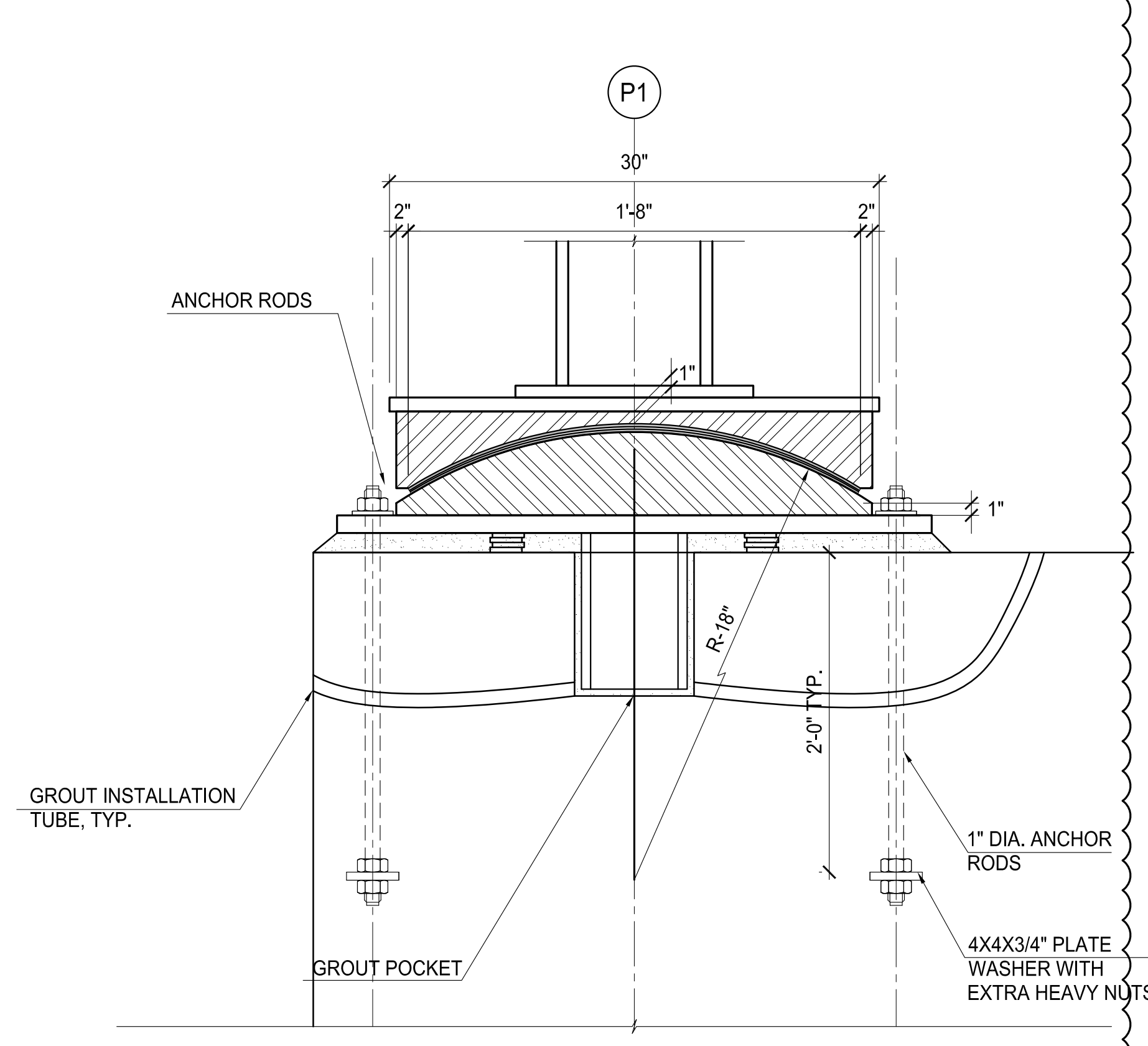
1D PLAN
SCALE: NOT TO SCALE



1E SHEAR LUG DETAIL
SCALE: NOT TO SCALE

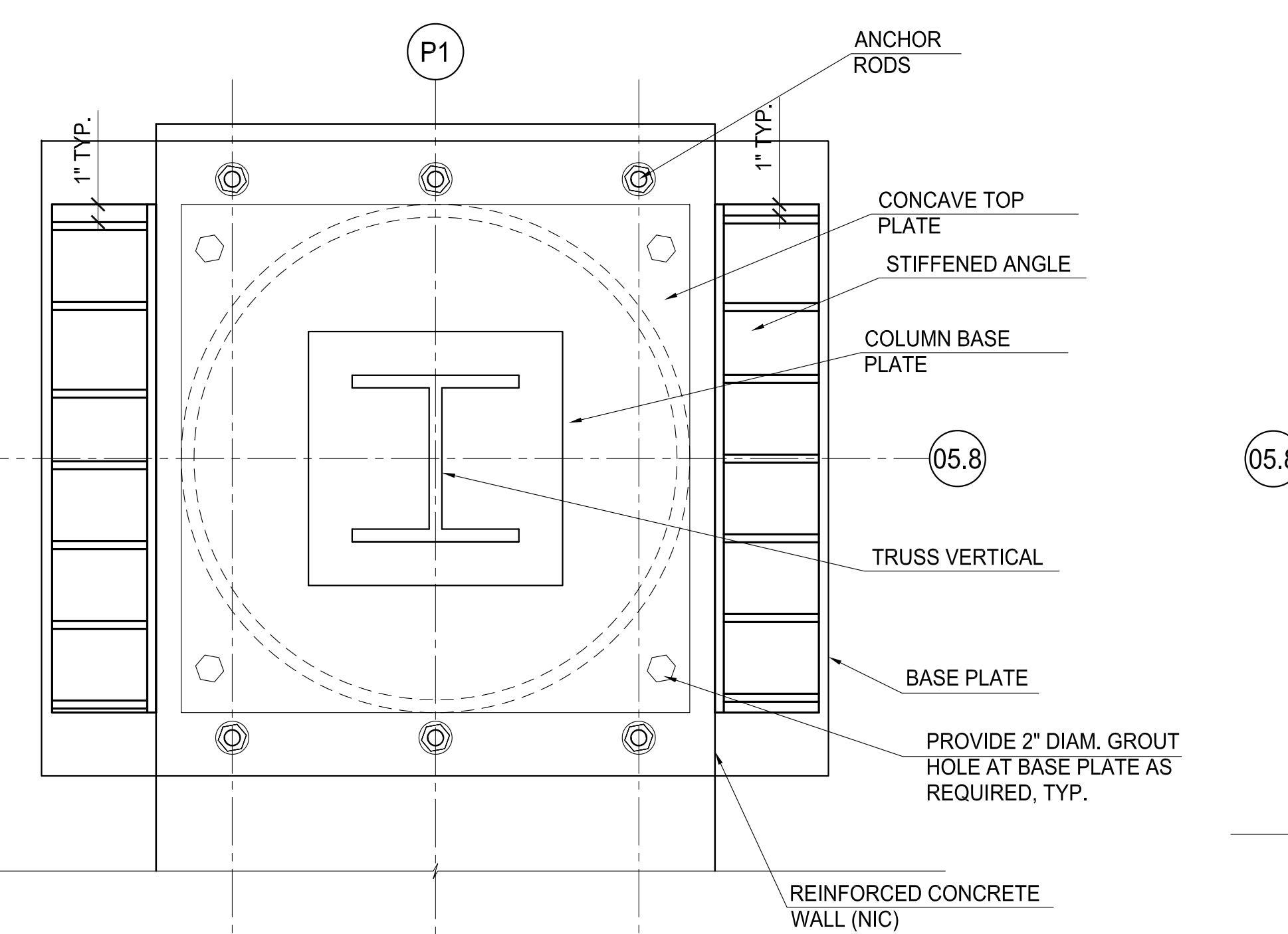


EAST-WEST DIRECTION

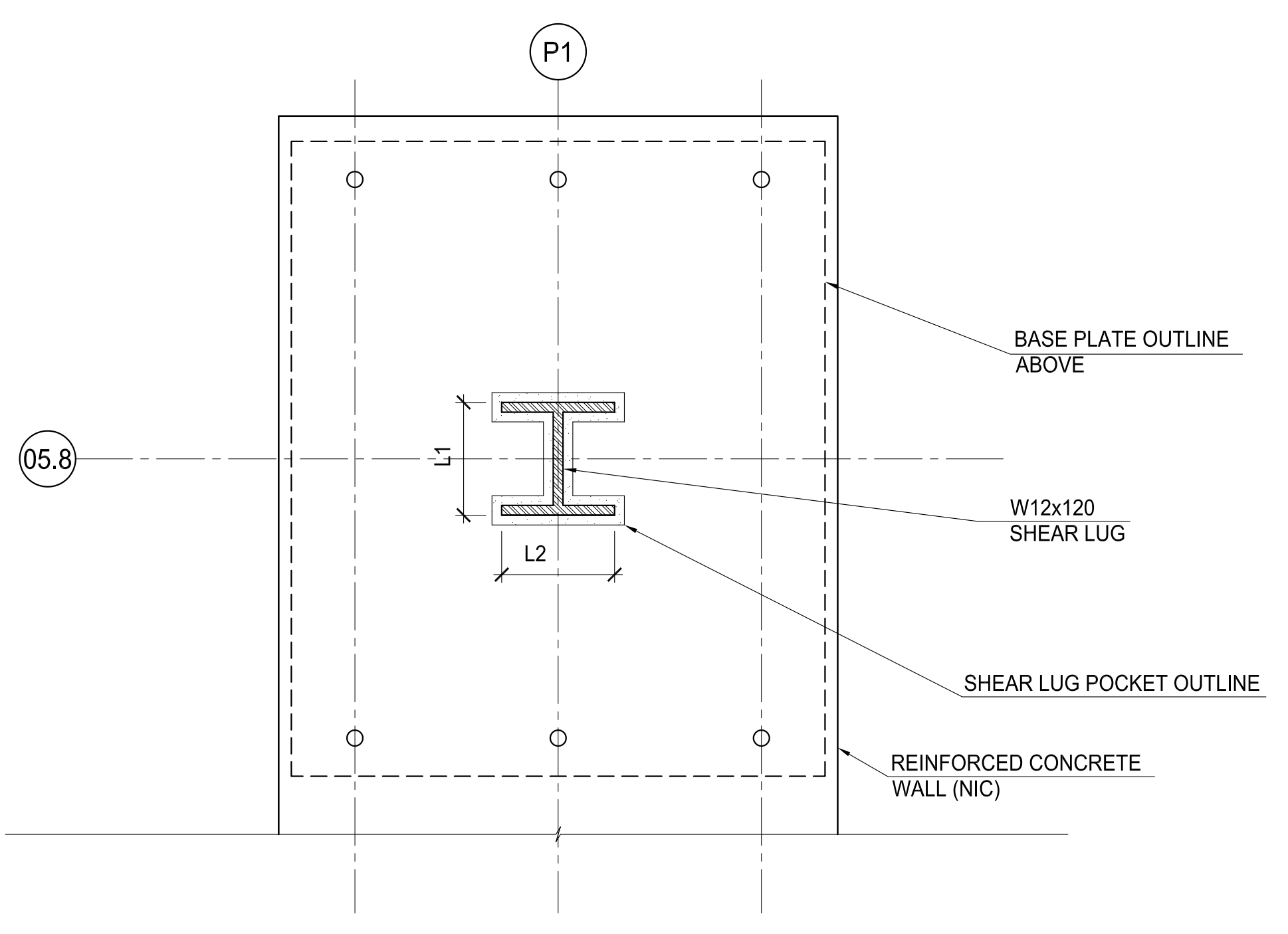


NORTH-SOUTH DIRECTION

2C SECTION
SCALE: NOT TO SCALE



2D PLAN
SCALE: NOT TO SCALE



2E SHEAR LUG DETAIL
SCALE: NOT TO SCALE

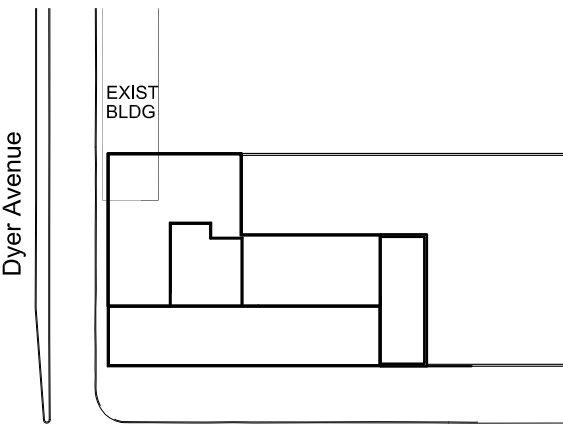
1 GUIDED SPHERICAL BEARING DETAILS & SECTIONS AT NORTH TRUSS SUPPORT
SCALE: NOT TO SCALE

2 FIXED SPHERICAL BEARING DETAILS & SECTIONS AT SOUTH TRUSS SUPPORT
SCALE: NOT TO SCALE

SPHERICAL BEARING TABLE

BEARING	SERVICE MOVEMENTS		SERVICE ROTATIONS		DETAIL
	± X (in)	± Y (in)	± X (rad)	± Y (rad)	
GUIDED BEARING	-	1.5	.004	.020	1
FIXED BEARING	-	-	.003	.003	2

NOTES:
1. SEE DETAILS FOR PLATE DIMENSIONS AND SIZES
2. REFER TO S-550 FOR REACTION VALUES AT BEARING SUPPORTS

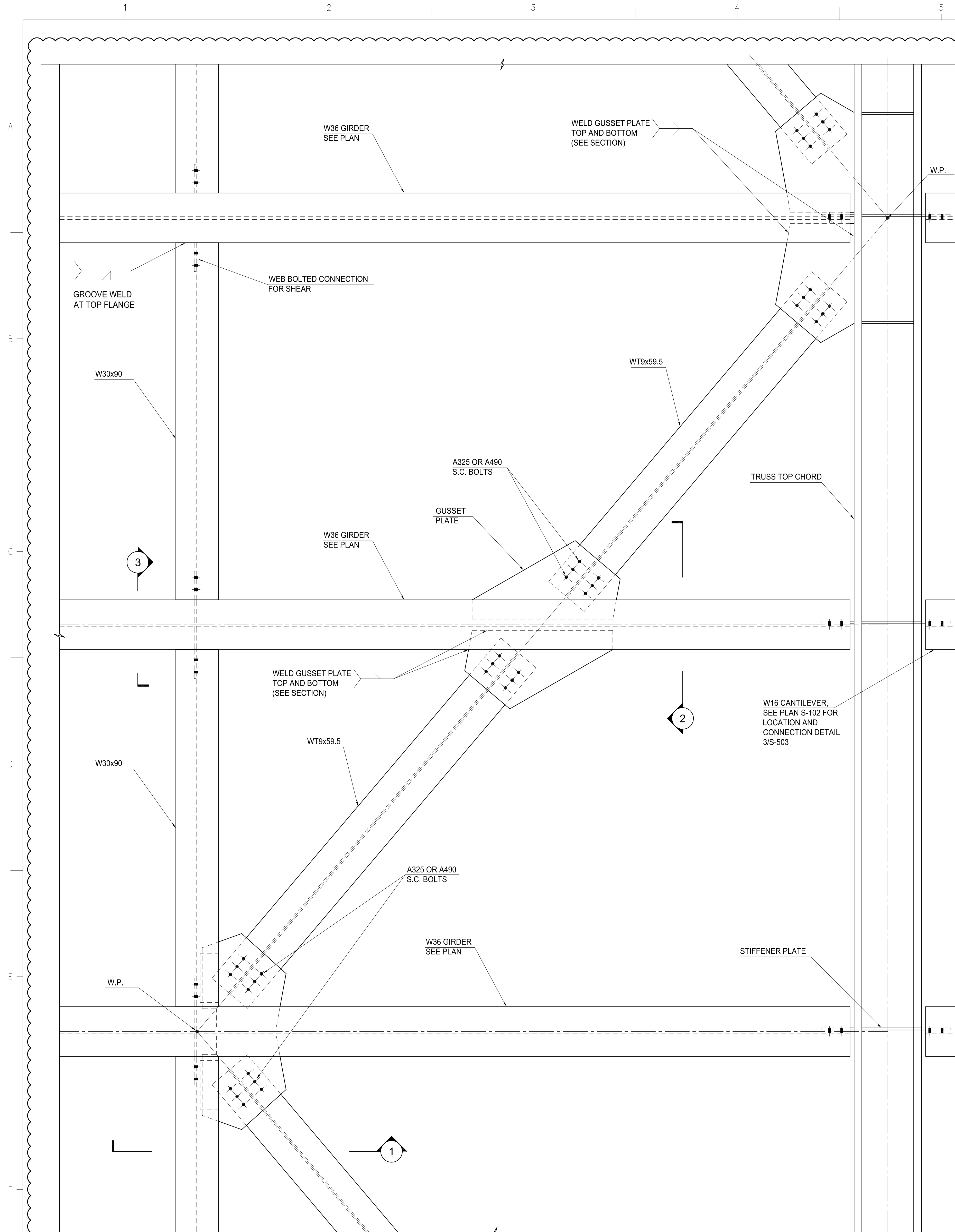


KEY PLAN

2 18 MAY 2015 ISSUED FOR PERMIT FILING
1 12 DEC 2014 BULLETIN #2
No. Date Description

Steel Truss
BEARING DETAILS
AND CONNECTIONS

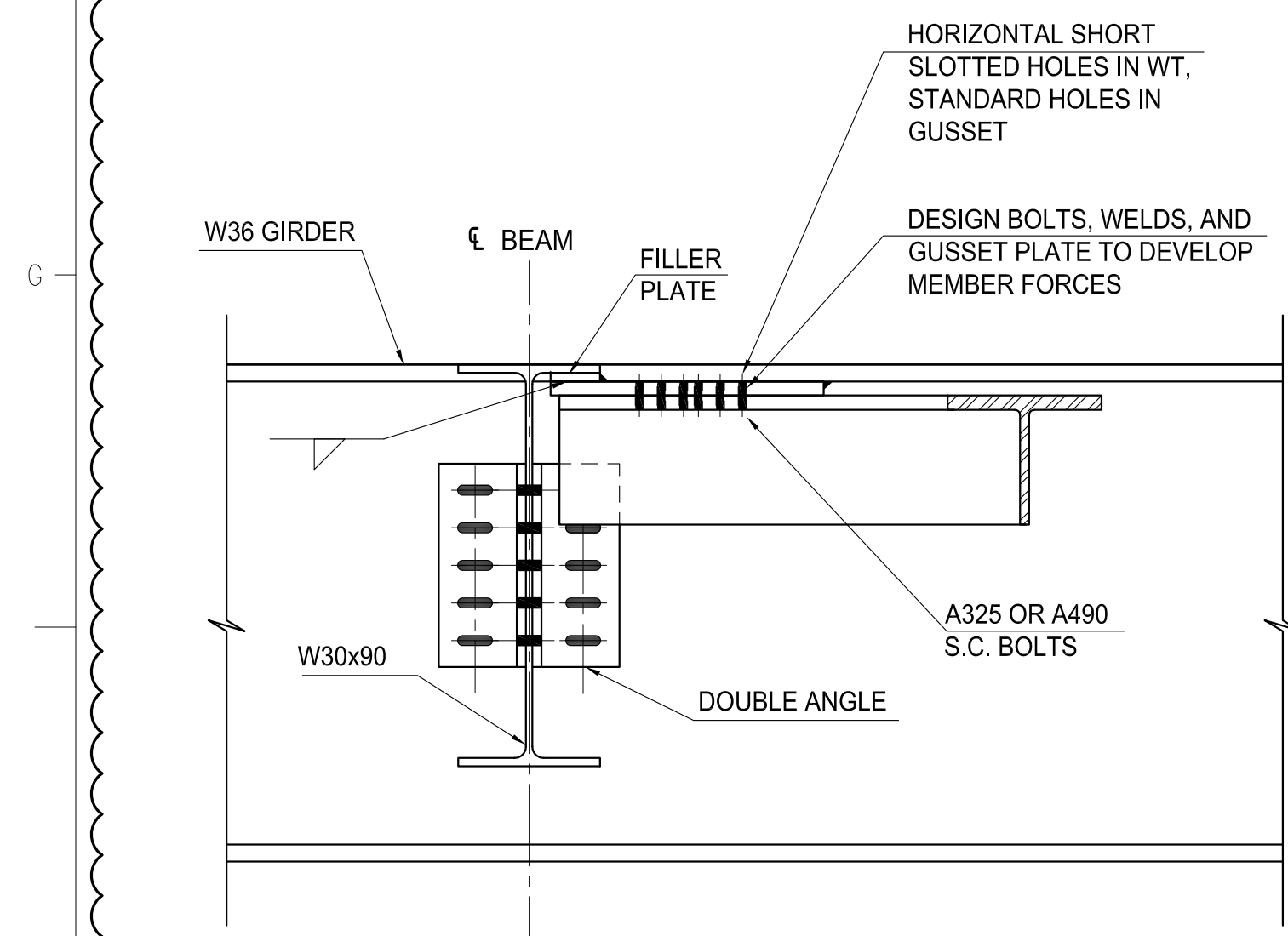
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DATE OF NEW YORK
STATE EXAMINATION
JAN 2015
PROFESSIONAL
S-553.00
CAD FILE NAME: S-553.00
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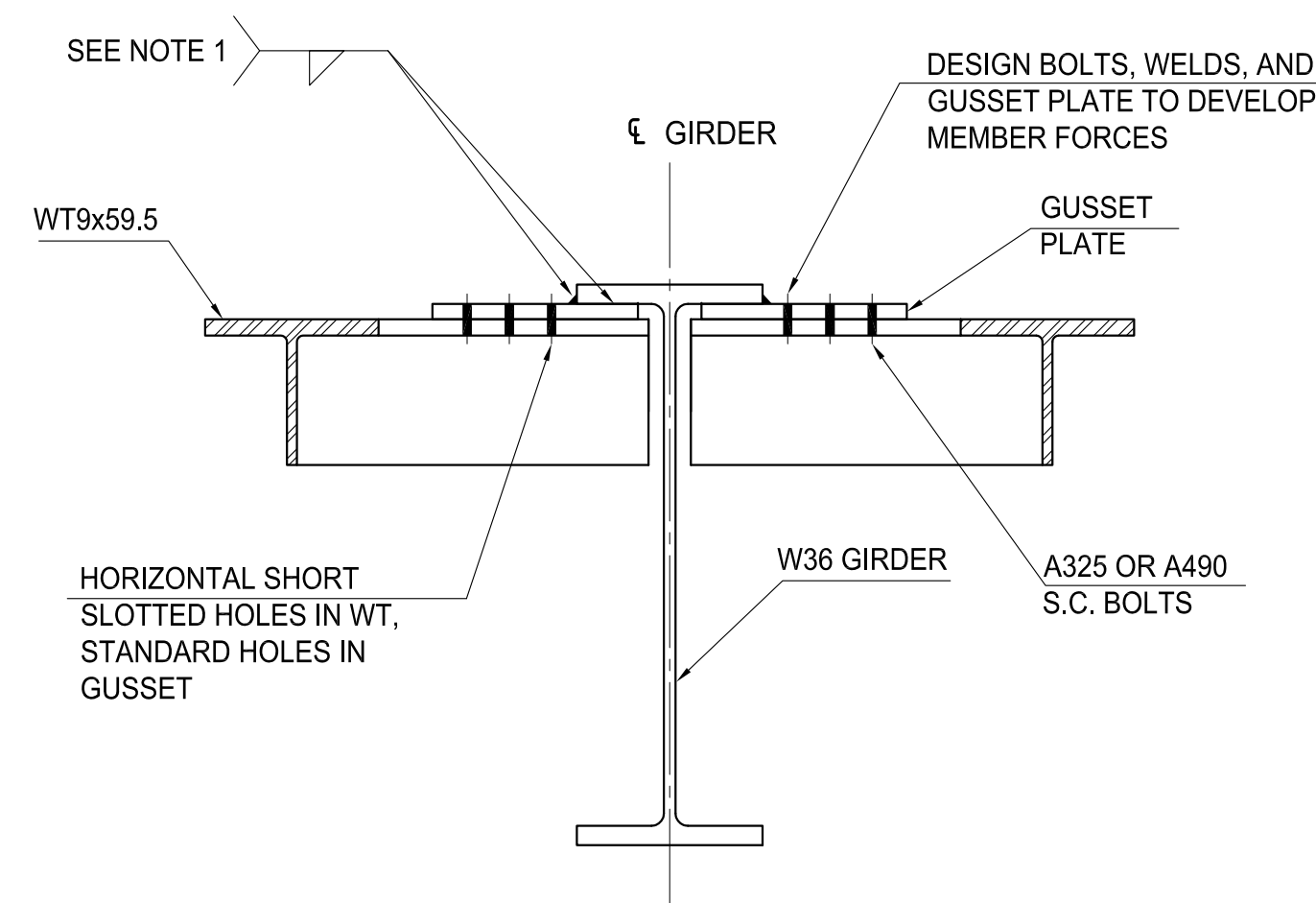
NOTE: STEEL TRUSS IS NON-SELF SUPPORTING ELEMENT. SEE NOTE F/ SEE S-005.

FLOOR BRACING SCHEDULE		ROLLED SHAPES: ASTM A992	
STEEL SIZE	DESCRIPTION	GUSSETS: ASTM A572 GR 50	REMARKS
WT9x59.5	BRACE DIAGONAL	250	
W30x90	BRACE CHORD	420	NOTE 1

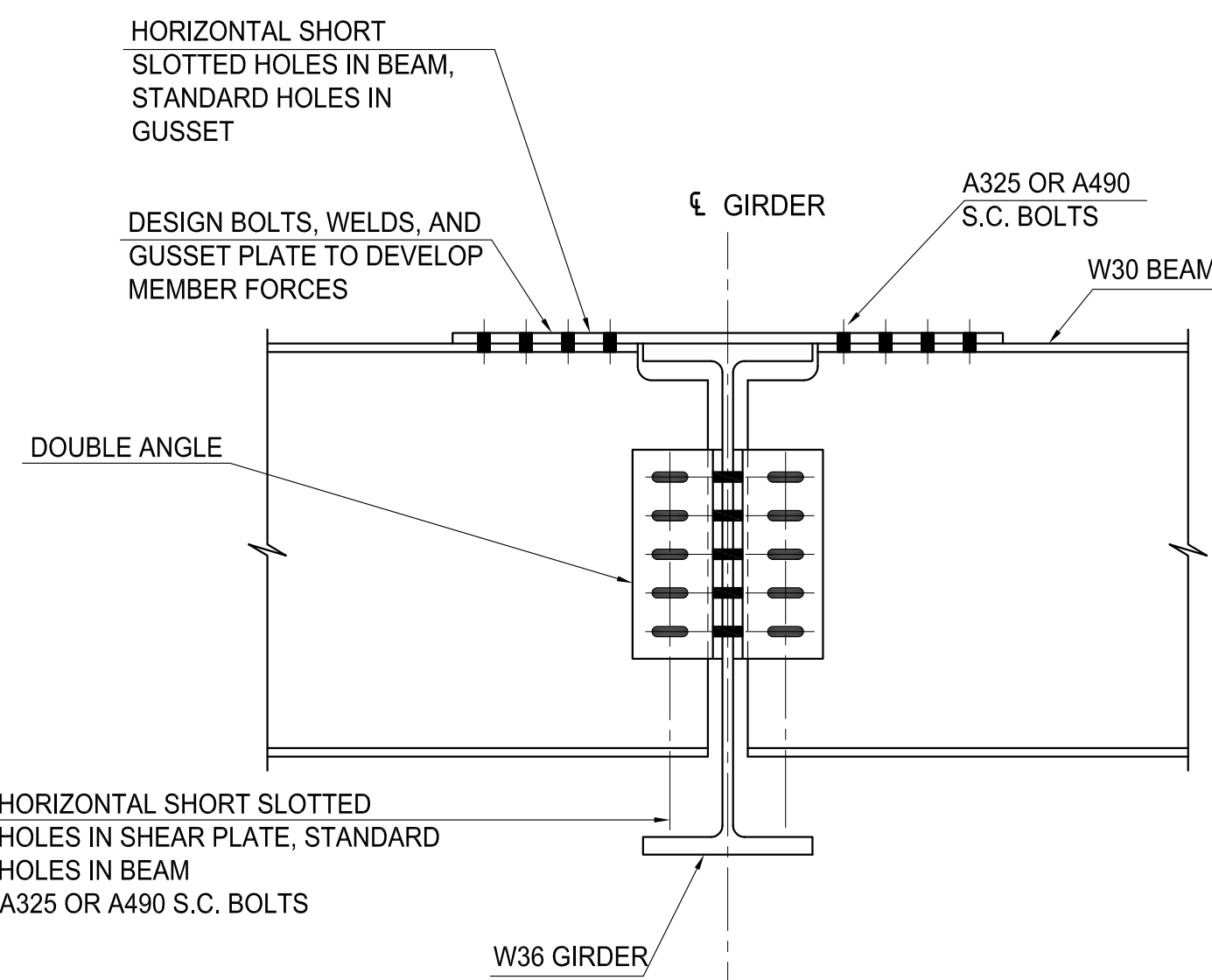
NOTES: 1. FOR THE ULTIMATE BEAM END REACTIONS SEE S-005.



1 SECTION

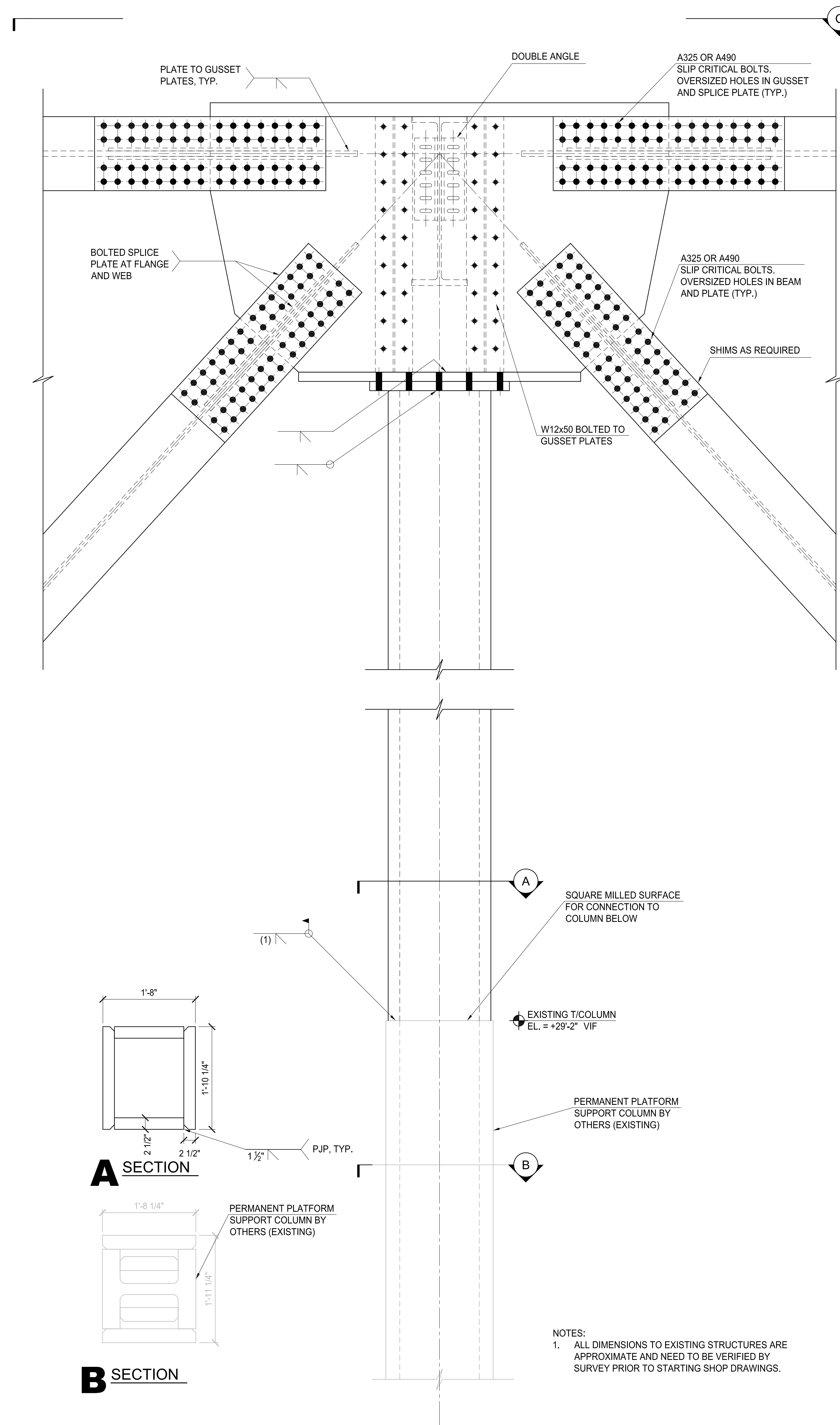


2 SECTION



3 SECTION

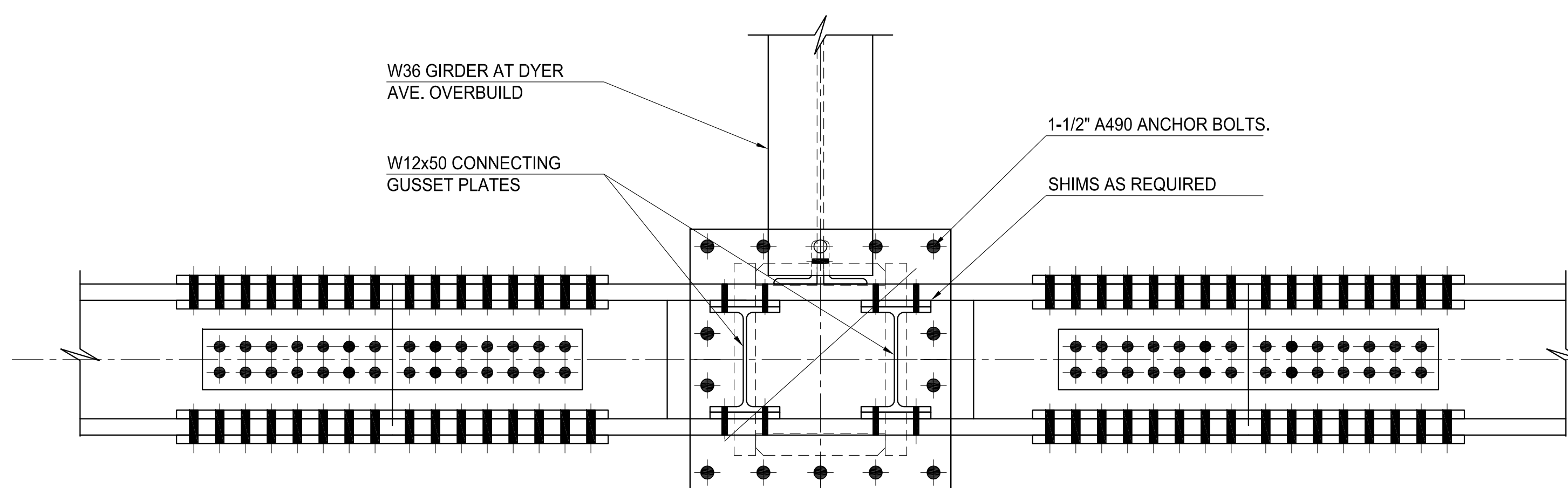
NOTES: 1. DESIGN WELD TO DEVELOP PLATE TENSION YIELD CAPACITY



A SECTION

B SECTION

NOTES:
1. ALL DIMENSIONS TO EXISTING STRUCTURES ARE APPROXIMATE AND NEED TO BE VERIFIED BY SURVEY PRIOR TO STARTING SHOP DRAWINGS.



C PLAN

MANHATTAN WEST:
SOUTHWEST RESIDENTIAL TOWER SITE
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New York, NY

Brookfield

250 Vesey Street, 15th Floor, New York, NY 10281

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SOM

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MEP Engineering

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KEY PLAN

No.	Date	Description
2	18 MAY 2015	ISSUED FOR PERMIT FILING
1	12 DEC 2014	BULLETIN #2

Sheet Name:
IN-PLANE BRACING SECTIONS AND DETAILS

Seal & Signature: [Professional Engineer Seal]
Date: 08 JAN 2014
NYC DOB Number:
Project No: 211157
Scale: AS NOTED
DWG No:
S-554.00
CAD FILE NAME: S-554.DWG
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