APPENDIX C.10

CASE 10-T-0139

SITE PLANS AND CONSTRUCTION DRAWINGS

STRUCTURAL DRAWINGS – CONVERTER AND SERVICE BUILDING PACKAGE
ASTORIA HVDC CONVERTER STATION - SEGMENT 22

CHPE
Champlain Hudson
Power Express

ASTORIA HVDC CONVERTER STATION

CONVERTER AND SERVICE BUILDING STRUCTURAL PACKAGE

SCOPE OF WORK

THE BUILDING STRUCTURAL SCOPE OF WORK INCLUDES THE DESIGN OF STRUCTURAL SYSTEMS INCLUDING ACCESS REQUIREMENTS FOR THE ASSOCIATED LOCATIONS INDICATED BELOW:

1. CONVERTER BUILDING
2. SERVICE BUILDING
3. HVAC ROOM

FLOOD ZONE DESIGN CERTIFICATION:

THE EXISTING PROPERTY IS IN THE SPECIAL FLOOD HAZARD AREA (SFHA), ZONE AE PER EFFECTIVE 2015 FLOOD INSURANCE RATE MAP(FIRM). THIS IS TO CONFIRM THAT THE PROPOSED INSTALLATION IS IN COMPLIANCE WITH THE REQUIREMENTS SET FORTH IN APPENDIX Q OF THE NYC BUILDING CODE.

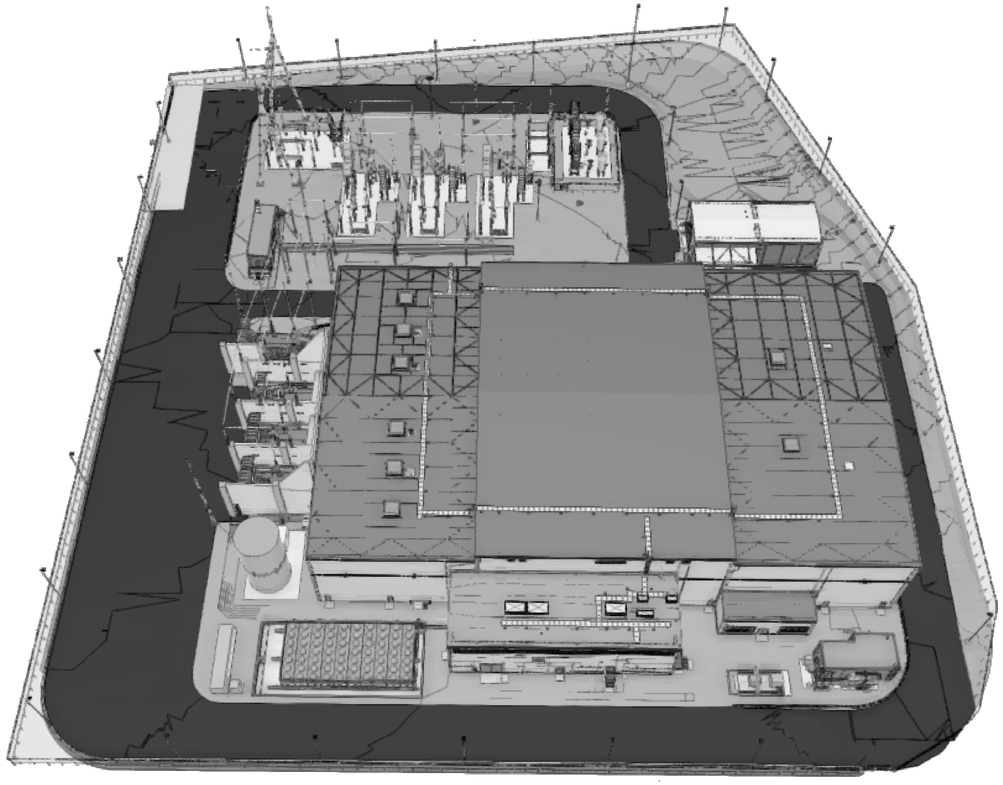
NYC ENERGY CODE COMPLIANCE:

STATEMENT: TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE. PROPOSED WORK MEETS THE GUIDELINES AND INSTRUCTIONS OUTLINED IN THE 2020 NYC ECC CHAPTER 4.

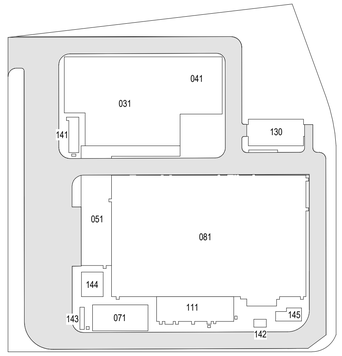
SPECIAL INSPECTIONS

FOLLOWING SPECIAL AND PROGRESS INSPECTIONS SHALL BE PERFORMED PER NYC BUILDING CODE 2022. NOTIFY ARCHITECT, ENGINEER AND OWNER FOR SPECIAL INSPECTIONS AT LEAST 72 HOURS BEFORE THE SPECIAL INSPECTION WORK STARTS.

SPECIAL INSPECTION	CODE/ SECTION
STRUCTURAL STEEL - WELDING	BC 1704.3.1
STRUCTURAL STEEL - DETAILS	BC 1704.3.2
STRUCTURAL STEEL - HIGH STRENGTH BOLTING	BC 1704.3.3



1 T-001.00 OVERALL SITE VIEW2
N.T.S.



KEY PLAN
N.T.S.

PLAN NORTH

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	VSP	EK	12/12/2022
A	INTERIM SUBMISSION	VSP	EK	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTOR AND SERVICE BUILDING STRUCTURAL COVER SHEET

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	V. PATEL
CHECKED BY	E. KIDANE
DRAWING NO	T-001.00
CADD FILE N0	1 of 74

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GN GENERAL REQUIREMENTS

GN-1. THE DESIGN DRAWINGS ARE NOT TO BE CONSIDERED ALL INCLUSIVE, AND IT IS THE FIELD PERSONNEL'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH FOUNDATION INSTALLATION OR ANY OTHER CONSTRUCTION. ANY DISCREPANCIES FOUND BETWEEN THE DESIGN DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD FOR REEVALUATION BEFORE PROCEEDING WITH WORK.

GN-2. IN CASE OF CONFLICT BETWEEN DESIGN DRAWINGS AND SPECIFICATIONS, THE ENGINEER OF RECORD SHALL BE NOTIFIED TO OBTAIN CLARIFICATION PRIOR TO PROCEEDING WITH WORK.

GN-3. ONLY USE DIMENSIONS INDICATED ON THE DESIGN DRAWINGS. DO NOT SCALE DESIGN DRAWINGS.

GN-4. STRUCTURES HAVE BEEN DESIGNED TO BE STABLE IN THEIR FINAL STATE. CONTRACTOR TO ENGAGE A QUALIFIED ENGINEER FOR ALL TEMPORARY CONDITIONS. ERECTION AIDS, LIFTING DEVICES, ETC. ARE NOT SHOWN AND ARE THE RESPONSIBILITY OF THE ERECTOR'S ENGINEER OR AS APPROVED BY THE ENGINEER OF RECORD.

CS CODES AND SPECIFICATIONS

CS-1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING CODES AND MANUALS.

a. NFPA 850: RECOMMENDED PRACTICE FOR FIRE PROTECTION FOR ELECTRIC GENERATING PLANTS AND HIGH VOLTAGE DIRECT CURRENT CONVERTER STATIONS (2020).

b. NEW YORK CITY BUILDING CODE, 2022

c. INTERNATIONAL BUILDING CODE, 2015 AS MODIFIED BY NYCBC

d. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE/SEI 7-2016

e. ASCE 113-2008 SUBSTATION STRUCTURE DESIGN GUIDE.

f. ASCE 48-19 DESIGN OF STEEL TRANSMISSION POLE STRUCTURES.

g. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-2014 AS MODIFIED BY NYBC1908.

h. SPECIFICATIONS FOR STRUCTURAL CONCRETE, ACI 301-2010

i. MANUAL OF STANDARD PRACTICE, CRSI MSP-1 2009

j. BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES, ASCE 5-13 OR TMS 402/602-16

k. STEEL CONSTRUCTION MANUAL – 15TH EDITION, AISC 325-2015

l. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISC 360-2016

m. STRUCTURAL WELDING CODE – STEEL, AWS D1.1/D1.1M:2015

n STRUCTURAL WELDING CODE – REINFORCING STEEL, STEEL REINFORCING BARS, AWS D1.4/D1.4M:2018

o. STANDARD FOR NON-COMPOSITE STEEL FLOOR DECK, ANSI/SDI NC1.0- 2017

p. STANDARD FOR STEEL ROOF DECK, ANSI/SDI RD1.0- 2017

q. STANDARD FOR COMPOSITE STEEL FLOOR DECK - SLABS, SDI C- 2017

r. STANDARD FOR QUALITY CONTROL AND QUALITY ASSURANCE FOR INSTALLATION OF STEEL DECK, SDI QA/QC- 2017

s. OCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS, DEPARTMENT OF LABOR, PART 1910 AND PART 1926

CS-2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

a. SECTION 03 10 00, CONCRETE FORMING AND ACCESSORIES

b. SECTION 03 20 00, CONCRETE REINFORCING

c. SECTION 03 30 00, CAST-IN-PLACE CONCRETE

d. SECTION 03 41 00, PRECAST STRUCTURAL CONCRETE

e. SECTION 03 60 00, GROUTING

f. SECTION 05 05 13, GALVANIZING

g. SECTION 05 05 23.01, WELDING

h. SECTION 05 05 23.02, MISC METAL FASTENINGS

i. SECTION 05 12 00, STRUCTURAL STEEL FRAMING

j. SECTION 05 31 13, STEEL FLOOR DECKING

k. SECTION 05 31 23, STEEL ROOF DECKING

l. SECTION 05 40 00, COLD FORMED METAL FRAMING

m. SECTION 05 50 00, METAL FABRICATION

n. SECTION 05 51 00, METAL STAIRS

o. SECTION 05 52 13, PIPE AND TUBE RAILINGS

p. SECTION 05 53 00, METAL GRATINGS

q. SECTION 31 09 16, DRIVEN PILE LOAD TESTING

r. SECTION 31 20 00, EARTH MOVING

s. SECTION 31 23 19, DEWATERING

t. SECTION 31 62 00, DRIVEN PILES

u. SECTION 31 62 16, STEEL PILES (INCLUDING SHEET PILES FOR EXCAVATION SUPPORT)

DL DESIGN LOADS

DL-1. REFER TO LOAD DIAGRAMS FOR SPECIFIC CONDITIONS.

DL-2. RISK CATEGORY.....IV

DL-3. MINIMUM LIVE LOADS:

a. CATWALKS.....40 PSF

b. CONTROL ROOMS.....250 PSF

c. ELECTRICAL EQUIPMENT ROOMS.....75 PSF + ACTUAL EQUIPMENT WEIGHT

d. FIRE PROTECTION SPRINKLER PIPING SUPPORT.....5x WATER WT + 250 LB

e. ISOLATED PLATFORM FOR SERVICING EQUIPMENT.....150 PSF

f. PLATFORMS & WALKWAYS.....100 PSF

g. ROOF LIVE LOAD.....20 PSF

h. SLABS-ON-GRADE.....250 PSF

i. STAIRS AND RAMPS.....100 PSF

j. STORAGE AREA.....250 PSF

CS-3. SURCHARGE ADJACENT TO STRUCTURES:

a. AASHTO DESIGN TRUCK LOADING.....HL-93

b. SIDEWALK, VEHICULAR DRIVEWAYS SUBJECTED AND YARD SUBJECTED TO TRUCKING.....300 PSF

DL-4. WIND LOADS:

a. IMPORTANCE FACTOR (I_w).....1.0

b. BASIC WIND SPEED (V_{ULT}).....132 MPH

c. NOMINAL WIND SPEED (V_{ASD}).....102 MPH

d. EXPOSURE CATEGORY.....C

DL-5. SEISMIC LOADS:

a. IMPORTANCE FACTOR (I_e).....1.5

b. SITE CLASS.....D

c. MAPPED SPECTRAL RESPONSE ACCELERATIONS:

i. 0.2 SECOND SHORT PERIOD (S_S).....0.296

ii. 1.0 SECOND PERIOD (S_1).....0.061

d. DESIGN SPECTRAL RESPONSE ACCELERATIONS:

i. 0.2 SECOND SHORT PERIOD (S_{DS}).....0.310

ii. 1.0 SECOND PERIOD (S_{D1}).....0.098

e. SEISMIC DESIGN CATEGORY.....C

f. SEISMIC RESPONSE COEFICIENT.....CS=0.10

g. RESPONSE MODIFICATION FACTOR.....R=3

h. OVER STRENGTH FACTOR.....3

i. ANALYSIS PROCEDURE USED.....EQUIVALENT LATERAL FORCE PROCEDURE

j. BASIC SEISMIC FORCE RESISTING SYSTEM.....STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE

DL-6. SNOW LOADS:

a. IMPORTANCE FACTOR (I_s).....1.15

b. GROUND SNOW LOAD (p_g).....25 PSF

c. EXPOSURE FACTOR (C_e).....1.0

d. THERMAL FACTOR (C_t).....1.2

e. FLAT ROOF SNOW LOAD (pf).....24.15 PSF

DL-7. SERVICEABILITY

a. ROOF MEMBERS - VERTICAL DEFLECTION:

i. LIVE.....L/180

ii. DEAD + LIVE.....L/120

b. FLOOR MEMBERS - VERTICAL DEFLECTION:

i. LIVE.....L/360

ii. DEAD.....L/240

c. GIRTS:

i. VERTICAL DEFLECTION.....L/360

ii. LATERAL DEFLECTION.....L/180

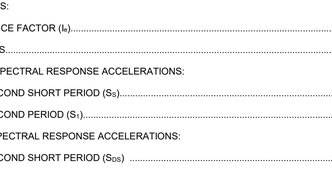
d. LATERAL DRIFT DUE TO 10-YR MRI WIND LOADS:

i. BUILDINGS.....H/400

ii. PIPE RACK AND SIMILAR OPEN STRUCTURES.....H/200

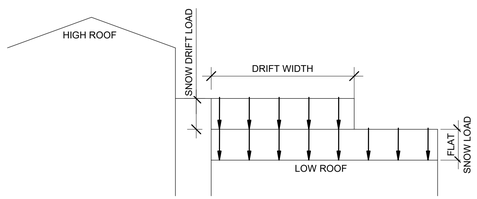
DL-8. REFER TO VENDOR DOCUMENTATION FOR SPECIFIC EQUIPMENT FOUNDATION LOAD AND SERVICEABILITY INFORMATION.

SNOW LOAD DIAGRAMS



DRIFT	SNOW DRIFT LOAD (PSF)	WIDTH (FT)
LOW ROOF	90.1	21

SNOW DRIFT DIAGRAM



DRIFT	SNOW DRIFT LOAD (PSF)	WIDTH (FT)
LOW ROOF	72.2	15

SLIDING SNOW DIAGRAM

CM CONCRETE MATERIALS

CM-1. CONCRETE MIX DESIGN, PLACEMENT, AND CURING SHALL BE IN ACCORDANCE WITH ACI 301.

CM-2. USE A MINIM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 5,000 PSI UNLESS NOTED OTHERWISE.

CM-3. ALL EXTERIOR FOUNDATIONS SHALL BE BROOM FINISHED, UNLESS NOTED OTHERWISE. ALL INTERIOR SLABS SHALL BE SMOOTH TROWEL FINISHED UNLESS NOTED OTHERWISE.

CM-4. ALL MASS CONCRETE WILL BE INDICATED ON THE INDIVIDUAL FOUNDATION AND CONCRETE DESIGN DRAWINGS. PLACEMENTS OF MASS CONCRETE SHALL BE INSTALLED IN ACCORDANCE WITH THERMAL CONTROL PLANS AND BE APPROVED BY THE ENGINEER OF RECORD.

CM-5. CONCRETE SHALL BE CURED ACCORDING TO ACI 308.1. CONCRETE SHALL BE PROTECTED FROM LOSS OF MOISTURE FOR NOT LESS THAN SEVEN DAYS AFTER PLACEMENT AND WITH NECESSARY PROTECTION FOR COLD OR HOT WEATHER PLACEMENT.

CM-6. THE USE OF CALCIUM CHLORIDE AND OTHER CHLORIDE-CONTAINING AGENTS IS PROHIBITED. THE USE OF RECYCLED CONCRETE IS PROHIBITED. PLACEMENT WITHIN/CONTACT BETWEEN ALUMINUM ITEMS (INCLUDING ALUMINUM CONDUIT) AND CONCRETE IS PROHIBITED.

CM-7. ALL PERMANENTLY EXPOSED CONCRETE EDGES SHALL HAVE A 3/4" CHAMFER UNLESS NOTED OTHERWISE.

CM-8. CONSULT MECHANICAL AND ELECTRICAL DRAWINGS FOR OPENINGS AND EMBEDDED ITEMS SUCH AS FLOOR DRAIN SYSTEMS, CONDUIT, ETC.

CM-9. OBSERVABLE CRACKS SHALL BE REPORTED TO THE ENGINEER OF RECORD TO DETERMINE CAUSE AND APPROPRIATE REPAIR PROCEDURE.

CM-10. PERFORM CONCRETE TESTING IN ACCORDANCE WITH SPECIFICATIONS.

RE CONCRETE REINFORCEMENT

RE-1. REINFORCING BAR STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60 AND GRADE 80 DEFORMED BARS UNLESS NOTED OTHERWISE. WELDED WIRE REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A1064. MILL TEST CERTIFICATES SHALL BE PROVIDED IN ACCORDANCE WITH SPECIFICATIONS.

RE-2. FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 AND ACI 301.

RE-3. CHAIRS, SPACERS, STANDEES, AND CARRIER BARS SHALL BE SIZED, SPACED, AND PLACED TO PROVIDE THE REQUIRED SPACING, ALIGNMENT, AND CLEARANCES OF REINFORCING. CARRIER BARS SHALL NOT BE USED AS PRIMARY REINFORCING BARS.

RE-4. REINFORCING BAR LAP SPLICES NOT OTHERWISE INDICATED SHALL BE ACI CLASS B. WELDED WIRE REINFORCEMENT SHALL BE LAPPED ONE PANEL PLUS TWO INCHES MINIMUM.

RE-5. WHERE A 90-DEGREE, 135–DEGREE, OR 180-DEGREE HOOK IS GRAPHICALLY INDICATED, PROVIDE CORRESPONDING ACI 318-14 STANDARD HOOKS UNLESS NOTED OTHERWISE.

RE-6. DOWELS SHALL MATCH SIZE AND SPACING OF MAIN REINFORCEMENT UNLESS NOTED OTHERWISE.

RE-7. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE.

RE-8. ALL BENDING OF REINFORCEMENT SHALL BE DONE COLD.

RE-9. PROVIDE MECHANICAL SPLICES FOR BARS LARGER THAN #11 OR WHERE INDICATED. ALL MECHANICAL SPLICES SHALL BE APPROVED BY THE ENGINEER OF RECORD.

RE-10. WELDING OF REINFORCING IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER OF RECORD.

RE-11. PROVIDE MIN CONCRETE COVER OVER REINFORCING STEEL AS FOLLOWS UNLESS NOTED OTHERWISE:

CONCRETE EXPOSURE	MEMBER	REINFORCEMENT	SPECIFIED COVER, IN.
CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	ALL	ALL	3
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	ALL	#6 THROUGH #18 BARS	2
		#5 BAR, W31 OR D31 WIRE AND SMALLER	1-1/2
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	SLABS, JOISTS, AND WALLS	#14 AND #18 BARS	1-1/2
		#11 BAR AND SMALLER	3/4
	BEAMS, COLUMNS, PEDESTALS, AND TENSION TIES	PRIMARY REINFORCEMENT, STIRRUPS, TIES, AND HOOPS	1-1/2

RE-12. PROVIDE SPLICES, DEVELOPMENT, AND STANDARD HOOKS AS FOLLOWS UNLESS NOTED OTHERWISE:

REINFORCING STEEL SPLICE CHART FOR F'_C = [5000 PSI]

BAR SIZE	SPLICE LENGTH (CLASS B) TOP BARS	SPLICE LENGTH (CLASS B) OTHER BARS	DEVELOPEMENT LEGNTH TOP BARS	DEVELOPEMENT LEGNTH OTHER BARS	DEVELOPEMENT LENGTH FOR STANDARD HOOKS	LENGTH OF STANDARD HOOKS
#3	22"	17"	17"	13"	6"	7"
#4	29"	22"	22"	17"	9"	9"
#5	36"	27"	28"	21"	11"	11"
#6	43"	33"	33"	25"	13"	14"
#7	62"	48"	48"	37"	15"	16"
#8	72"	55"	55"	42"	17"	18"
#9	81"	62"	62"	48"	19"	23"
#10	91"	70"	70"	54"	22"	25"
#11	101"	78"	78"	60"	24"	28"

CJ CONCRETE CONSTRUCTION JOINTS

CJ-1. SEE DESIGN DRAWINGS FOR ALL CONSTRUCTION JOINT, CRACK CONTROL JOINT, EXPANSION JOINT, AND ISOLATION JOINT LOCATIONS.

CJ-2. NO HORIZONTAL CONSTRUCTION JOINTS SHALL BE PERMITTED IN BEAMS, WALLS, OR SLABS UNLESS SPECIFICALLY SHOWN ON THE DESIGN DRAWINGS OR APPROVED BY THE ENGINEER OF RECORD.

CJ-3. PROVIDE CONTINUOUS WATERSTOPS AT ALL CONSTRUCTION JOINTS EXPOSED TO SOIL OR WATER ON THE DESIGN DRAWINGS UNLESS NOTED OTHERWISE. INSTALL PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.

CJ-4. WATERSTOPS SHALL BE FOUR-INCH RIBBED CENTERBULB-TYPE POLYVINYL CHLORIDE PER SPECIFICATIONS UNLESS NOTED OTHERWISE.

CJ-5. FOR ALL CONSTRUCTION JOINTS ROUGHEN EXPOSED CONCRETE SURFACE TO AN AMPLITUDE OF APPROXIMATELY 1/4" UNLESS NOTED OTHERWISE. CLEAN THE EXPOSED CONCRETE SURFACE OF ALL LOOSE MATERIAL AND LAITANCE.

CJ-6. SAWCUT JOINTS SHALL BE CUT AS SOON AS THE CONCRETE HAS HARDENED SUFFICIENTLY TO PREVENT AGGREGATE BEING DISLODGED BY SAW; GENERALLY, WITHIN FOUR HOURS AFTER PLACING IN HOT WEATHER AND NOT MORE THAN 12 HOURS IN COLD WEATHER.

SP STRUCTURAL PRECAST CONCRETE

SP-1. DO NOT USE POWER-DRIVEN ANCHORS OR ANCHORS WHICH REQUIRE DRILLING AT PRESTRESSED UNITS. SUBMIT PROPOSED ANCHOR PROCEDURES FOR PRECAST UNITS TO THE ENGINEER OF RECORD AND PRECAST SUPPLIER FOR REVIEW.

SP-2. ALL PRECAST DESIGN, DETAILING, AND CONNECTIONS SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF PCI AND SPECIFICATIONS.

GT GROUT

GT-1. GROUT SHALL BE NON-SHRINK, NON-METALLIC, NON-GASEOUS, PREMIX TYPE UNLESS NOTED OTHERWISE. COMPRESSIVE STRENGTH OF CEMENTITIOUS GROUT SHALL BE MINIMUM 5000 PSI AT 28 DAYS. COMPRESSIVE STRENGTH OF EPOXY GROUT SHALL BE MINIMUM 12,000 PSI AT SEVEN DAYS. CURING SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS.

GT-2. THE ORDER OF PRECEDENCE FOR GROUTING OF MACHINERY AND EQUIPMENT SHALL BE AS FOLLOWS: EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS, DESIGN DRAWINGS, AND THEN SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN THESE DOCUMENTS, NOTIFY THE ENGINEER OF RECORD PRIOR TO PROCEEDING WITH WORK.

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
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PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STRUCTURAL GENERAL NOTES

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-001.00
CADD FILE N0	2 of 74

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PA POST INSTALLED ANCHORS

PA-1. EXPANSION ANCHOR BOLTS SHALL BE HILTI KWIK BOLT TZ (ICC ESR-1917) OR APPROVED EQUAL IN ACCORDANCE WITH ICC-ES AC193 AND SHALL BE STAINLESS STEEL SS 304 STAINLESS FOR EXTERIOR USE UNLESS NOTED OTHERWISE.

PA-2. CONCRETE SHALL ACHIEVE A MINIMUM OF 75% OF DESIGN STRENGTH BEFORE EXPANSION ANCHORS CAN BE INSTALLED.

PA-3. ADHESIVE ANCHORS SHALL BE HILTI HIT-HY 200 (ICC ESR-3187), HIT-RE 500 V3 (ICC ESR-3814) ANCHOR SYSTEM, OR APPROVED EQUAL IN ACCORDANCE WITH ICC-ES AC308. FULLY THREADED RODS SHALL BE ASTM F1554 GRADE 55, MADE PER SUPPLEMENTARY REQUIREMENT S1, HOT-DIPPED GALVANIZED TO ASTM F2329, WITH ASTM A563 HEAVY HEX NUTS UNLESS NOTED OTHERWISE.

PA-4. CONCRETE SHALL BE A MINIMUM OF 21 DAYS OLD BEFORE ADHESIVE ANCHORS CAN BE INSTALLED. PROOF TESTING SHALL BE REQUIRED AND COORDINATED WITH THE ENGINEER OF RECORD AND THE ADHESIVE MANUFACTURER FOR ANY ADHESIVE ANCHORS INSTALLED IN CONCRETE THAT IS LESS THAN 21 DAYS OLD.

PA-5. EMBEDMENT SHALL BE AS ANNOTATED IN THE ANCHOR BOLT SCHEDULE.

PA-6. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE DESIGN DRAWINGS. INSTALL ANCHORS TO MEET THE REQUIREMENTS INDICATED IN THE CONTRACT DOCUMENTS AND THE MANUFACTURER' S RECOMMENDATIONS. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

PA-7. FIELD PERSONNEL SHALL OBTAIN APPROVAL FROM THE ENGINEER OF RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.

PA-8. SPECIAL INSPECTION OF POST-INSTALLED ANCHORS SHALL BE PROVIDED AS REQUIRED BY ICC- ES EVALUATION REPORTS AND SECTION 1705.3 OF THE IBC AND ALL POST-INSTALLED ANCHOR INSTALLERS SHALL BE TRAINED BY THE MANUFACTURER'S FIELD REPRESENTATIVES.

PA-9. FOLLOW MANUFACTURER INSTRUCTIONS FOR POST-INSTALLED ANCHORS INCLUDING BUT NOT LIMITED TO ANCHOR HOLE REQUIREMENTS.

SS STRUCTURAL STEEL

SS-1. STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS NOTED OTHERWISE:

a. W-SHAPES.....ASTM A992
b. L-SHAPES.....ASTM A572 GRADE 50
c. C-SHAPES.....ASTM A572 GRADE 50
d. HSS.....ASTM A500 GRADE C
e. SEAMLESS PIPE.....ASTM A53 GRADE B
f. PLATES
   i. UP TO 4" THICK, INCLUSIVE.....ASTM A572 GRADE 50
   ii. OVER 4" THICK.....ASTM A36
g. SMOOTH RODS.....ASTM A572 GRADE 50
   i. BAR STOCK.....ASTM A572 GRADE 50

SS-2. GUARDRAIL MEMBERS SHALL BE THE MATERIAL AND SIZE SHOWN BELOW FOR THE RESPECTIVE TYPE IN ORDER OF PREFERENCE:

a. POST
   i. PIPE1-1/2XS.....ASTM A53 GRADE B, TYPE E OR S
   ii. HSS1.900X0.188.....ASTM A1085 OR ASTM A500 GRADE B/C
b. SLEEVES
   i. PIPE2STD.....ASTM A53 GRADE B, TYPE E OR S
   ii. HSS2.375X0.154.....ASTM A1085 OR ASTM A500 GRADE B/C
c. OTHER MEMBERS
   i. PIPE1-1/2STD.....ASTM A53 GRADE B, TYPE E OR S
   ii. HSS1.900X0.145.....ASTM A1085 OR ASTM A500 GRADE B/C

SS-3. WHERE NO CAMBER IS INDICATED, FABRICATE BEAMS SO THAT ANY NATURAL CAMBER IS UPWARD AFTER ERECTION.

SS-4. SPLICES SHALL ONLY BE ALLOWED AT LOCATIONS SPECIFICALLY INDICATED ON THE DESIGN DRAWINGS UNLESS APPROVED OTHERWISE BY THE ENGINEER OF RECORD.

SS-5. PROVIDE DRAIN HOLES IN ALL STEEL AS REQUIRED TO PREVENT ANY ACCUMULATION OF WATER. ALL PENETRATIONS THROUGH MAIN MEMBERS SHALL NOT EXCEED ONE INCH DIAMETER AND SHALL BE GROUND SMOOTH. DRAINS SHALL BE KEPT CLEAN AND OPEN.

SS-6. SHOW ALL COPES, HOLES, OPENINGS, AND MODIFICATIONS REQUIRED IN STRUCTURAL STEEL MEMBERS FOR ERECTION OR THE WORK OF OTHER TRADES ON THE SHOP DRAWINGS FOR APPROVAL BY THE ENGINEER OF RECORD.

SS-7. FIELD MODIFICATION OF STRUCTURAL STEEL IS PROHIBITED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD.

SS-8. A QUALIFICATION TEST RECORD SHALL BE SUBMITTED FOR EACH WELDER ON SITE PERFORMING STRUCTURAL WELDING AS SHOWN ON THE DESIGN DRAWINGS.

SS-9. WHERE MINIMUM CHARPY V-NOTCH IMPACT TESTING IS REQUIRED ON DESIGN DRAWINGS, SEE SPECIFICATION 93.62.02.

SS-10. FOR HSS MEMBERS, 1/4" THICK CAP PLATES SHALL BE PROVIDED TO COVER ALL EXPOSED MEMBER ENDS. CAP PLATE DIMENSIONS SHALL BE 1/4" SMALLER THAN THE HSS EXTENTS AND SHALL BE ATTACHED USING A 1/8" ALL-AROUND FILLET WELD.

SC STRUCTURAL STEEL CONNECTIONS

SC-1. ALL STEEL DETAILS AND CONNECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AISC 360.

SC-2. CONNECTION MATERIAL SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS UNLESS NOTED OTHERWISE:

a. BOLTS .....ASTM F3125, GRADE A325, F1852, A490, OR F2280
b. NUTS.....ASTM A563
c. WASHERS.....ASTM F436
d. ANCHORS.....ASTM F1554 GRADE 55, MADE PER S1
e. STUDS.....COLD DRAWN CARBON STEEL BAR PER ASTM A29 GRADES 1010 THRU 1020, ROUND 3/4" DIA, TYPE B HEADED STUD

SC-3. ALL BOLTS CONNECTING STEEL TO STEEL SHALL FOLLOW THE AISC 348 SPECIFICATION.

SC-4. ALL BOLTS SHALL BE TAKEN TO A SNUG-TIGHTENED CONDITION.

SC-5. ALL BOLTS USED FOR PERMANENT BOLT-UP SHALL BE FREE OF DIRT AND RUST AND PROTECTED FROM THE WEATHER UNTIL INSTALLED.

SC-6. A SKIDMORE WILHELM HYDRAULIC TENSION CALIBRATOR SHALL BE USED TO VERIFY THE PRETENSIONING METHOD DEVELOPS ADEQUATE BOLT PRETENSION AS REQUIRED BY AISC 348.

SC-7. BOLT HOLES SHALL NOT BE REAMED OR DRILLED IN THE FIELD PRIOR TO RECEIVING APPROVAL FROM THE ENGINEER OF RECORD, EXCEPT BOLT HOLES MAY BE REAMED UP TO 1/32" LARGER THAN THEIR SPECIFIED DIAMETERS PER AISC 348 TABLE 3.1 USING THE APPROPRIATELY SIZED BRIDGE REAMER.

SC-8. PROVIDE ERECTION AIDS AS REQUIRED AND REMOVE THEM AFTER WORK IS COMPLETE.

SC-9. EXCEPT WHERE SPECIFICALLY NOTED, CONNECTION DETAILS ON THE DRAWINGS ARE CONSIDERED COMPLETELY DESIGNED AND SHALL NOT BE MODIFIED WITHOUT SPECIFIC WRITTEN APPROVAL FROM THE ENGINEER OF RECORD. WHERE DETAILING, FABRICATION REQUIREMENTS, ERECTION REQUIREMENTS, OR FIELD PERSONNEL'S PREFERENCES REQUIRE MODIFICATIONS TO THESE CONNECTION DESIGNS, FABRICATOR SHALL CONSULT THE ENGINEER OF RECORD. ALTERNATIVE CONNECTIONS TO THOSE SHOWN ON DRAWINGS MAY ONLY BE CONSIDERED ACCEPTABLE IF THE FABRICATOR FORMALLY SUBMITS ALTERNATIVES AND THE ENGINEER OF RECORD APPROVES THE SUBMITTAL.

SC-10. FOR CONNECTION DESIGN AND DETAILING, SET CONNECTION WORK POINT AT INTERSECTION OF MEMBER CENTROIDS UNLESS NOTED OTHERWISE.

SC-11. BEAM CONNECTION DESIGN NOTES:

a. BOLTED MOMENT CONNECTIONS AT CANTILEVERS AND BACK SPANS SHALL BE PRETENSIONED JOINTS.
b. DO NOT USE OVERSIZED OR SLOTTED HOLES FOR ANY CONNECTIONS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER OF RECORD.

SC-12. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1. WELD PREPARATION AND WELD PROCESS SELECTION TO MEET THIS CRITERION IS THE RESPONSIBILITY OF THE FABRICATOR.

SC-13. ALL WELD SIZES SHALL BE THE LARGER OF THE SIZE REQUIRED BY CONNECTION FORCES, THE MINIMUM SIZE PER AWS D1.1, OR 3/16" MINIMUM FILLET WELD UNLESS NOTED OTHERWISE. FILLET WELD SIZES SHOWN ON THE DESIGN DRAWINGS SHALL BE INCREASED IN ACCORDANCE WITH AWS D1.1 AS REQUIRED BY GAPS OR SKEWS BETWEEN COMPONENTS.

SC-14. ALL PARTIAL JOINT PENETRATION WELD SIZES INDICATED ARE EFFECTIVE. WELD PREPARATION AND WELD PROCESS SELECTION TO MEET THIS CRITERION IS THE RESPONSIBILITY OF THE FABRICATOR.

SC-15. USE RUNOFF TABS AT ALL BEVEL AND FULL PENETRATION WELDS. REMOVE RUNOFF TABS BY NEAT CUTS AFTER WELD IS COMPLETED. GRIND SMOOTH WHERE REQUIRED.

SC-16. AT FULL PENETRATION WELDS, REMOVE WELD BACK UP BARS AND GRIND SMOOTH AFTER WELD IS COMPLETED UNLESS NOTED OTHERWISE.

SC-17. ALL CONNECTIONS SHOWN ON THE DRAWINGS ARE DESIGNED UTILIZING THE FOLLOWING BOLT SIZES AND GRADES:

a. 7/8" DIAMETER ASTM F3125 GRADE A325/F1852 BOLTS UNLESS NOTED OTHERWISE

SC-18. TYPICAL CONNECTION DIMENSIONS UNLESS NOTED OTHERWISE:

a. BOLT SPACING.....3"
b. MINIMUM EDGE DISTANCE.....1 1/2"
c. HOLE TYPE.....STANDARD
d. BEAM GAGE.....STANDARD
e. ANGLE GAGE.....STANDARD

SC-19. PROVIDE 1/2" CLEAR DISTANCE BETWEEN CONNECTION ELEMENTS UNLESS NOTED OTHERWISE.

SC-20. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN GRAPHICALLY AS HEX BOLTS MAY BE TENSION CONTROL BOLTS AS PERMITTED BY THE GENERAL NOTES.

SC-21. CONNECTION CALLOUT APPLIES TO BOTH ENDS OF MEMBER ON DESIGN DRAWINGS UNLESS NOTED OTHERWISE.

SC-22. AT WELDED HSS-TO-HSS CONNECTIONS, WHERE AN ALL-AROUND FILLET WELD IS SPECIFIED ON THE DESIGN DRAWINGS, IT IS ACCEPTABLE TO SUBSTITUTE FLARE BEVEL GROOVE WELDS WHEN THERE IS INSUFFICIENT WELD SHELF TO ACHIEVE A FILLET WELD. FLARE BEVEL GROOVE WELD EFFECTIVE THROAT SHALL EQUAL 0.59 TIMES THE HSS WALL THICKNESS.

SD STEEL DECK GENERAL REQUIREMENTS

SD-1. THE DESIGN, MANUFACTURE, AND ERECTION OF STEEL DECK AND ITS ANCHORAGE SHALL, AT A MINIMUM, BE IN ACCORDANCE WITH THE GOVERNING SDI STANDARD.

SD-2. FABRICATE STEEL DECK UNITS AND ACCESSORIES FROM STEEL SHEET CONFORMING TO ASTM A653 SS GRADE 50 UNLESS NOTED OTHERWISE.

SD-3. STEEL DECK SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A653, COATING DESIGNATION G90 UNLESS NOTED OTHERWISE.

SD-4. CONFIGURE ALL STEEL DECK USING THREE SPAN CONTINUOUS LAYOUTS WHEREVER POSSIBLE UNLESS NOTED OTHERWISE.

SD-5. CONFIGURE ALL STEEL DECK AS SHOWN ON THE DRAWINGS.

SD-6. STEEL DECK HAS BEEN DESIGNED FOR UNSHORED CONDITIONS UNLESS NOTED OTHERWISE.

SD-7. COMPOSITE STEEL FLOOR DECK HAS BEEN DESIGNED FOR A MINIMUM CONSTRUCTION LIVE LOAD OF 50 PSF.

SD-8. STEEL ROOF DECK HAS BEEN DESIGNED FOR A MINIMUM CONSTRUCTION LIVE LOAD OF 30 PSF.

SD-9. STEEL DECK SHALL NOT BE CANTILEVERED UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.

SD-10. FIELD PERSONNEL SHALL COORDINATE DECK OPENING SIZES AND LOCATIONS FROM ARCHITECTURAL AND MECHANICAL/ELECTRICAL/PLUMBING DRAWINGS, PROVIDE HEADER MEMBERS OR REINFORCEMENT AS REQUIRED BY TYPICAL DETAILS EVEN IF NOT SHOWN ON THE PLANS, AND SUBMIT PROPOSED OPENINGS THROUGH SLAB/DECK FOR REVIEW BY THE ENGINEER OF RECORD.

SD-11. STEEL DECK DAMAGED BY IMPROPER STORAGE SHALL NOT BE USED IN CONSTRUCTION.

SD-12. ALL STEEL DECK OPENINGS AND LEADING EDGES SHALL BE PROTECTED DURING CONSTRUCTION.

FD COMPOSITE AND NON-COMPOSITE STEEL FLOOR DECK

FD-1. PROVIDE STEEL FLOOR DECK WITH THE DEPTH AND GAGE INDICATED ON THE DESIGN DRAWINGS.

FD-2. DISTRIBUTE STEEL STUDS UNIFORMLY OVER BEAM SPAN UNLESS NOTED OTHERWISE. MAXIMUM SPACING OF HEADED STUDS SHALL NOT EXCEED 12" ON CENTER (ONE STUD PER FOOT).

FD-3. HEADED SHEAR STUDS SHALL BE 3/4" DIAMETER AND EXTEND A MINIMUM OF 1 1/2" ABOVE THE TOP OF STEEL DECK WITH A MINIMUM CLEAR COVER OF 1/2" FROM THE TOP OF SLAB.

FD-4. STEEL FLOOR DECK-SLABS SHALL BE POURED LEVEL AND CONCRETE FIELD PERSONNEL SHALL INCLUDE ADDITIONAL QUANTITY OF CONCRETE DUE TO BEAM AND DECK DEFLECTION, OR AS INDICATED ON THE DESIGN DRAWINGS.

FD-5. DESIGN AND DETAIL DECK ENCLOSURES AND DECK ACCESSORIES FOR CONSTRUCTIONS LOADS.

FD-6. DO NOT LOAD DECK UNTIL THE CONCRETE HAS ATTAINED 100% OF ITS DESIGN STRENGTH.

RD STEEL ROOF DECK

RD-1. PROVIDE STEEL ROOF DECK WITH THE DEPTH AND GAGE INDICATED ON THE DESIGN DRAWINGS. PROVIDE ANCHORAGE TO SUPPORTING MEMBERS AS INDICATED ON THE DESIGN DRAWINGS.

RD-2. DO NOT DIRECTLY HANG FROM STEEL ROOF DECK WITHOUT THE PRIOR APPROVAL FROM THE ENGINEER OF RECORD.

RD-3. UNSCHEDULED ROOF OPENINGS SHALL BE REINFORCED PER THE APPROVAL OF THE ENGINEER OF RECORD.

ER STEEL ERECTION

ER-1. ERECT STRUCTURAL STEEL PER AISC 303.

ER-2. THE FIELD PERSONNEL SHALL COORDINATE A STEEL ERECTION PROCEDURE WITH THE ENGINEER OF RECORD SUBMIT AN ERECTION PROCEDURE PREPARED BY AN ENGINEER LICENSED IN THE JURISDICTION WHERE THE PROJECT IS LOCATED FOR REVIEW BY THE ENGINEER OF RECORD. THIS PROCEDURE MUST INCLUDE THE SURVEY REQUIREMENTS AS DEFINED BY SPECIFICATION 95.62.

ER-3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION 95.62.

SG STEEL GRATING

SG-1. ALL GRATING SHALL BE PLAIN TYPE 19-W-4 WITH 1 1/4" DEEP BY 3/16" THICK BEARING BARS UNLESS NOTED OTHERWISE. EXTERIOR GRATING SHALL BE SERRATED.

SG-2. ALL GRATING AND MISCELLANEOUS PLATE STEEL SHALL BE GALVANIZED UNLESS NOTED OTHERWISE.

SG-3. ALL GRATING SHALL BE ASTM A1011 STEEL. GRATING SHALL BE BANDED AT EDGES AND OPENINGS WITH BAR THE SAME SIZE AS THE BEARING BARS.

SG-4. ALL GRATING SHALL BE SECURELY FASTENED TO SUPPORTING STEEL WITH CLIPS UNLESS NOTED OTHERWISE. FOLLOW MANUFACTURER RECOMMENDATIONS FOR GRATING ATTACHMENTS.

SG-5. AT EACH END OF GRATING SPAN, PROVIDE 1" MINIMUM BEARING SURFACE FOR GRATING DEPTHS UP TO AND INCLUDING 2 1/4", AND 2" MINIMUM BEARING SURFACE FOR GRATING DEPTHS EXCEEDING 2 1/4".

CF COLD-FORMED STEEL FRAMING

CF-1. ALL COLD-FORMED STEEL FRAMING ON STRUCTURAL DRAWINGS IS FOR DESIGN INTENT ONLY.FINAL DESIGN AND COORDINATION IS THE RESPONSIBILITY OF COLD-FORMED METAL FRAMING PROVIDER.

CF-2. ALL COLD-FORMED STEEL FRAMING SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH AISI S100.

CF-3. STEEL FOR ALL 14 AND 16 GAGE STUDS SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI. STEEL FOR ALL 20 GAGE STUDS AND FOR ALL GAGES OF TRACK, ACCESSORIES AND BRIDGING SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI.

CF-4. ALL COLD-FORMED STEEL FRAMING SHALL BE GALVANIZED.

CF-5. ALL STUDS SHALL BE SECURELY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACKS UNLESS NOTED OTHERWISE.

CF-6. PROVIDE DOUBLE STUDS AT ALL JAMB CORNERS, INTERSECTIONS, BEAM BEARINGS, AND JOIST BEARINGS.

CF-7. BRIDGING SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS WITH THE FOLLOWING MINIMUM REQUIREMENTS: FOR NON-BEARING WALLS, PROVIDE BRIDGING AT MID-HEIGHT FOR WALLS LESS THAN OR EQUAL TO 10'-0" HIGH. PROVIDE BRIDGING AT 5'-0" ON CENTER MAXIMUM FOR WALLS GREATER THAN 10'-0" HIGH.

CF-8. FIELD WELDING OF STEEL STUDS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL BY THE ENGINEER OF RECORD.

CF-9. SUBMIT CALCULATIONS AND SHOP DRAWINGS, PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN THE JURISDICTION WHERE THE PROJECT IS LOCATED, FOR ALL COLD-FORMED STEEL FRAMING.

SA SAFETY AND ACCESS

SA-1. GUARDRAIL DESIGNED TO MEET HEIGHT, SPACING, AND OTHER PROVISIONS IN ACCORDANCE WITH OSHA STANDARDS – 29 CFR, PART 1910, SUBPART D AND CAL/OSHA – TITLE 8.

SA-2. ALL GUARDRAILS SHALL BE GALVANIZED OR PAINTED.

SA-3. LADDERS AND CAGES SHALL HAVE ALL EDGES, CORNERS, AND WELDS GROUND SMOOTH.

SA-4. THE PERMANENT FALL PROTECTION SYSTEM AND ALL COMPONENTS SHALL COMPLY WITH OSHA STANDARDS – 29 CFR, PART 1910, SUBPART I (PERSONAL PROTECTIVE EQUIPMENT) AND APPLICABLE STATE STANDARDS FOR FALL RESTRAINT AND FALL ARREST.

SA-5. THE SYSTEM SHALL BE CAPABLE OF SUPPORTING A MINIMUM OF TWO WORKERS AT 5000 LB PER WORKER.

SA-6. SUBMIT PRODUCT DATA, COMPONENT LIST, MAINTENANCE DATA AND TEST REPORTS DEMONSTRATING COMPLIANCE WITH CONTRACT REQUIREMENTS FOR REVIEW.

SA-7. PROVIDE SOFTENERS AT ALL EDGES, BEAM FLANGES, CORNERS, ETC.

SA-8. WIRE ROPE SHALL NOT BE USED WHERE AN ELECTRICAL HAZARD IS ANTICIPATED.

SA-9. WIRE ROPE SHALL MEET THE REQUIREMENTS OF ASTM A492 STAINLESS STEEL ROPE WIRE.

SA-10. WIRE ROPE SHALL NOT BE LESS THAN 3/8" DIAMETER.

FL FLOOD

FL-1. THE SITE IS DEFINED AS A ZONE (NON-COASTAL).

FL-2. BASE FLOOD ELEVATION, BFE, = 13 FEET NAVD 88.

FL-3. RECOMMENDED FREE BOARD BY THE 2022 NYCBC-APPENDIX G IS 2.0 FEET.

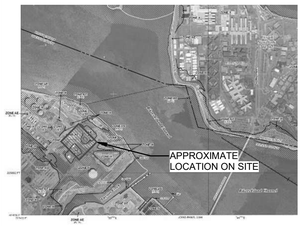
FL-4. RECOMMENDED DESIGN FLOOD ELEVATION, DFE = 15 FEET NAVD 88.

FL-5. THE STRUCTURE IS NOT SUBJECTED TO HYDRODYNAMIC LOADS.

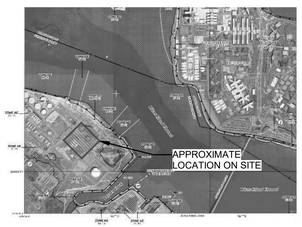
DESIGN ELEVATION / DEPTH	FEET IN NAVD 88
DESIGN BASE FLOOD ELEVATION	13.0
FINISH FLOOR ELEVATION	15.0
SEA LEVEL RISE	NOT CONSIDERED

FEMA FIRM PANEL 3604970092:

FLOOD INSURANCE RATE MAP 2007
ELEVATIONS IN NAVD 88



FLOOD INSURANCE RATE MAP 2015
ELEVATIONS IN NAVD 88 FIRM IS PRELIMINARY



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REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
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Hitachi Energy
901 Main Campus Drive
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PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STRUCTURAL GENERAL NOTES

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-002.00
CADD FILE N0	3 of 74

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SI-1. REQUIRED SPECIAL INSPECTION OF STEEL CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED	BC REFERENCED
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.3; APPLICABLE ASTM MATERIAL SPECIFICATIONS; AND RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS SECTION 2	-
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	RCSC SPECIFICATION FOR STRUCTURAL JOINTS USAGE HIGH-STRENGTH BOLTS SECTION 2.1	-
2. INSPECTION OF HIGH-STRENGTH BOLTING:				
a. SNUG-TIGHT JOINTS.	-	X	AISC 360 SECTION M2.5; AND RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS SECTION 9	1705.2.3
b. PRE TENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	-	X		
c. PRE-TENSIONED AND SLIP CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	-		
d. PRE-INSTALLATION VERIFICATION TESTING.	X	-	SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS SECTION 8.2	1705.2.3.1
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD FORMED STEEL DECK:				
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360.	-	X	AISC 360 SECTIONS 43.1, N2.1, N3.2 (a) AND (k)(1)	-
b. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	-	APPLICABLE ASTM STANDARDS	-
c. MANUFACTURERS' CERTIFIED MILL TEST REPORTS.	-	X	APPLICABLE ASTM MATERIAL STANDARDS	
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS	-	-	AISC 360 SECTIONS 43.5 AND N3.2(e), AND APPLICABLE AWS A5 DOCUMENTS AND AWS D1.1 5.3.1 AND APPROVED CONTRACT DOCUMENTS	-
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	-	AISC 360 SECTION 43.5	-
5. INSPECTION OF WELDING:				
a. STRUCUTRAL STEEL:	-	-	-	-
1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.	X	-	AWS D1.1	1705.2.1
2) MULTIPASS FILLET WELDS.	X	-		
3) SINGLE-PASS FILLET WELDS > 5/16".	X	-		
4) PLUG AND SLOT WELDS.	X	-		
5) SINGLE-PASS FILLET WELDS > 5/16".	-	X		
6) FLOOR AND ROOF DECK WELDS.	-	X	AWS D1.3	-
7) COLD FORMED STEEL WELDS.	-	X	AWS D1.3	-
b. REINFORCING STEEL:	-	-	AWS D1.4	1903.6.2
1) PRE-WELDING VERIFICATION OF BASE METAL.	-	X		
2) REINFORCING STEEL-RESTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE SHEAR WALLS AND SHEAR REINFORCEMENT.	X	-		
3) SHEAR REINFORCEMENT.	X NOTE a	-		
4) OTHER REINFORCEMENT STEEL.	-	X NOTE b		
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:			-	1705.2.2
a. DETAILS SUCH AS BRACING AND STIFFENING.	-	X		
b. MEMBER LOCATIONS.	-	X		
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	-	X		

SI-2. REQUIRED SPECIAL INSPECTION OF COLD-FORMED STEEL CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED	BC REFERENCED
1. MATERIAL VERIFICATION:				
a. VERIFY IDENTIFICATION MARKINGS CONFORM TO AISI S240 AND AS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	X	-	AISI S240, SECTION D6.5	-
b. VERIFY THAT MATERIAL IS CLEAN, STRAIGHT AND UNDAMAGED.	-	X	-	-
2. INSPECTION OF GENERAL FRAMING:				
a. VERIFY THAT MEMBER SIZES CONFORM TO THE APPROVED CONSTRUCTION DOCUMENTS>	-	X	AISI S240 SECTION C	-
b. VERIFY THAT MEMBER LAYOUT CONFORMS TO THE APPROVED CONSTRUCTION DOCUMENTS.	-	X		-
c. VERIFY THAT PROPER BEARING LENGTHS ARE PROVIDED IN ACCORDANCE WITH APPROVED CONSTRUCTION DOCUMENTS.	-	X		-
d. VERIFY THAT PUNCHED HOLES AND SHEARED OR FLAME CUT EDGES OF MATERIAL IN MEMBERS ARE CLEAN AND FREE FROM NOTCHES AND BURRED EDGES.	-	X		-
d. PRE-INSTALLATION VERIFICATION TESTING.	X	-		1705.2.3.1
3. INSPECTION OF FRAMING CONNECTIONS AND ANCHORAGES:				
a. VERIFY THAT SCREWS, BOLTS, AND OTHER FASTENERS CONFORM TO APPROVED CONSTRUCTION DOCUMENTS REQUIREMENTS FOR DIAMETER, LENGTH, QUANTITY, SPACING EDGE DISTANCE, AND LOCATIONS.	-	X	AISI S240, SECTION D6.7	-
b. VERIFY THAT MANUFACTURED CONNECTORS, SUCH AS JOIST HANGERS, CAPS, STRAPS, CLIPS, TIES, HOLD-DOWNS, AND ANCHORS CONFORM TO APPROVED CONSTRUCTION DOCUMENT REQUIREMENTS FOR MANUFACTURER, TYPE, GAUGE, AND FASTENER REQUIREMENTS.	-	-	AISI S240 SECTION D6.9	-
c. POST-INSTALLED CONNECTIONS TO CONCRETE.	X	-	AISI S240 SECTION D6.9	-
4. INSPECTION OF WELDING:				
a. INSPECT WELDS IN ACCORDANCE WITH S240 SECTION D6.6.	-	X	AWS D1.3, AISI S240 SECTION D6.6	-
b. ADDITIONAL REQUIREMENTS FOR WELDS PERFORMED AS A PART OF A LATERAL FORCE-RESISTING SYSTEM	X NOTE a	-	AISI S240 SECTION D6.9	-
5. BRACING:				
a. VERIFY THAT TEMPORARY BRACING, SHORING, JACKS, ETC., ARE INSTALLED, AND NOT REMOVED UNTIL NO LONGER NECESSARY, IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND APPROVED ERECTION DRAWINGS.	-	X	AISI S240 SECTION E6	-
b. VERIFY THAT PERMANENT BRACING, WEB STIFFENERS, BRIDGING, BLOCKING, WIND BRACING, ETC, ARE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND APPROVED ERECTION DRAWINGS.	-	X		-
c. WHERE A COLD-FORMED STEEL TRUSS CLEAR SPAN IS 60 FEET (18 288 MM) OR GREATER, THE SPECIAL INSPECTOR SHALL VERIFY THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE.	-	X		2211.1.3.2
6. PRE-INSTALLATION DOCUMENT SUBMITTALS	-	X	AISI S240, SECTION D3	-
7. LATERAL FORCE-RESISTING SYSTEM ADDITIONAL REQUIREMENTS	-	X	AISI S240, SECTION D6.9	-

SI-3. INSPECTORS SHALL SUBMIT REPORTS TO FIELD PERSONNEL AND ENGINEER OF RECORD INDICATING APPROVAL OF MATERIALS, METHODS OF CONSTRUCTION, AND COMPLIANCE WITH SPECIFICATIONS AFTER SATISFACTORY COMPLETION OF REQUIRED TESTS AND SUBMISSION OF REQUIRED TEST REPORTS.

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901 Main Campus Drive
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WAEL M YOUSSEF
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CADD FILE N0	4 of 74

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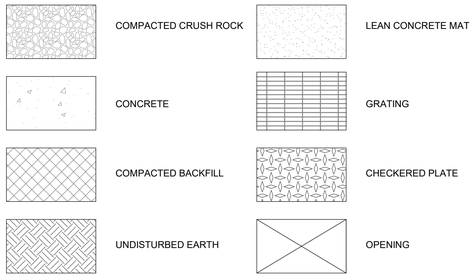
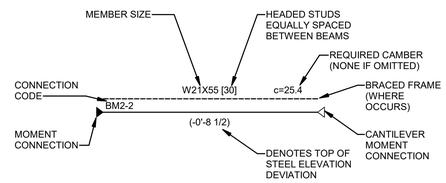
ABBREVIATIONS

AB	ANCHOR BOLT
ACI	AMERICAN CONCRETE INSTITUTE
ADHV	ADHESIVE
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
ANC	ANCHOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
AR	ANCHOR ROD
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR
TESTING	AND MATERIALS
AVG	AVERAGE
AWS	AMERICAN WELDING SOCIETY
BB	BACK TO BACK
BC	BOLT CIRCLE
BF	BRACED FRAME
BLDG	BUILDING
BM	BEAM
BO	BOTTOM OF
BOC	BOTTOM OF CONCRETE
BOF	BOTTOM OF FOOTING
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BT	BRACING TRUSS
CA	COLUMN ABOVE
CB	COLUMN BELOW
CC	CENTER TO CENTER
C&C	COMPONENTS AND CLADDING
CHKD	CHECKERED
CFMF	COLD-FORMED METAL FRAMING
CJ	CONSTRUCTION/CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CTR	CENTER
CTRD	CENTERED
CY	CUBIC YARD
DEG	DEGREE
DEMO	DEMOLITION/DEMOLISH
DET	DETAIL
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
DWL	DOWEL
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMB	EMBEDMENT
EOD	EDGE OF DECK
EOG	EDGE OF GRATING
EOR	ENGINEER OF RECORD
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
FD	FLOOR DRAIN
FDN	FOUNDATION
FIN	FINISH
FLG	FLANGE
FLR	FLOOR
FS	FAR SIDE
FT	FOOT
FTG	FOOTING
FV	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GRTG	GRATING
HA	HANGER ABOVE
HB	HANGER BELOW
HGR	HANGER
HORIZ	HORIZONTAL
HP	HIGH POINT
HR	HANDRAIL
HS	HEADED STUDS
HT	HEIGHT
ID	INSIDE DIAMETER
IJ	ISOLATION JOINT
IN	INCHES
INT	INTERIOR
JST	JOIST
JT	JOINT
K	KIP
KB	KNEE BRACE
KPL	KICK PLATE
KSI	KIPS PER SQUARE INCH
L	LENGTH
LB	POUND
LF	LINEAR FEET
LFRS	LATERAL FORCE RESISTING SYSTEM
Ld	STRAIGHT BAR DEVELOPMENT LENGTH
LG	LONG
Lh	DEVELOPMENT LENGTH FOR STANDARD HOOKS
LL	LIVE LOAD
LLBB	LONG LEGS BACK TO BACK
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LP	LOW POINT
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
LSH	LONG SLOTTED HOLE
LT	LIGHT
MACH	MACHINE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL/ELECTRICAL/ PLUMBING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
MWFRS	MAIN WIND FORCE RESISTING SYSTEM
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OLP	OPERATING LOAD PRESSURE
OLTP	OPERATING LOAD TRANSIENT PRESSURE
OPNG	OPENING
OPP	OPPOSITE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OVS	OVERSIZED
PA	POST ABOVE
PB	POST BELOW
PCF	POUNDS PER CUBIC FOOT
PENE	PENETRATION
PERP	PERPENDICULAR
PG	PLATE GIRDER
PJFF	PULSE JET FABRIC FILTER
PJP	PARTIAL JOINT PENETRATION
PL	PLATE
PLCS	PLACES
PLTF	PLATFORM
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
R	RADIUS
RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS
RD	ROOF DRAIN
REBAR	REINFORCING BAR
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
REV	REVISION
SC	SLIP CRITICAL
SCH	SCHEDULE
SECT	SECTION
SEI	STRUCTURAL ENGINEERING INSTITUTE
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SLBB	SHORT LEGS BACK TO BACK
SPA	SPACES
SPEC	SPECIFICATIONS
SPL	SPLICE
SQ	SQUARE
SS	STAINLESS STEEL
SSH	SHORT SLOTTED HOLE
SSL	SHORT SLOTTED
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
STRUCT	STRUCTURAL
SUPT	SUPPORT
SYM	SYMMETRICAL
SYS	SYSTEM
T & B	TOP AND BOTTOM
TEMP	TEMPORARY
THD	THREAD
THK	THICK
THRU	THROUGH
TO	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
w/	WITH
w/o	WITHOUT
WF	WIDE FLANGE
WP	WORK POINT
WS	WATER STOP
WT	WEIGHT
WWR	WELDED WIRE REINFORCEMENT

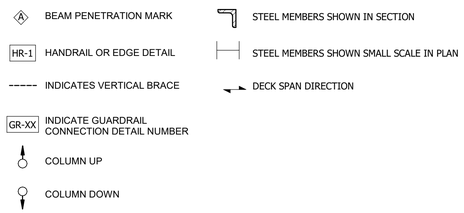
LEGEND



STEEL BEAM NOTATIONS



STEEL BEAM LEGEND



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Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STRUCTURAL GENERAL NOTES

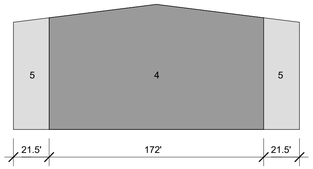
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-004.00
CADD FILE NO	5 of 74

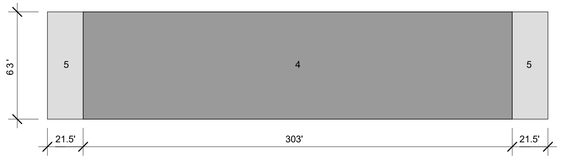
Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M2-S-001.rvt

12/7/2022 11:39:44 AM

CONVERTER BUILDING C&C WIND LOAD

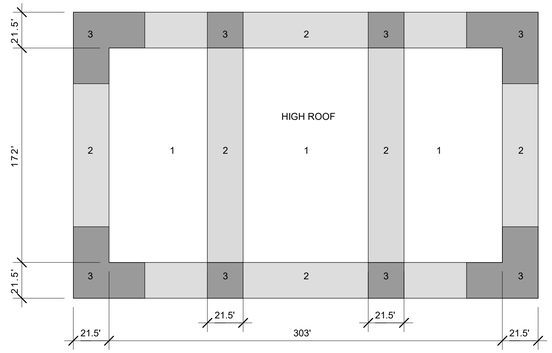


ELEVATION OF GABLE WALL



ELEVATION OF SIDE WALL

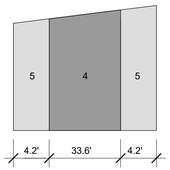
COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF (W)	4	46.7	-46.7
50 SF (W)	4	43.0	-44.3
200 SF (W)	4	37.5	-40.5
>500 SF (W)	4	33.8	-33.8
<=10 SF (W)	5	46.7	-35.7
50 SF (W)	5	43.0	-75.8
200 SF (W)	5	37.5	-60.9
>500 SF (W)	5	33.8	-51.1



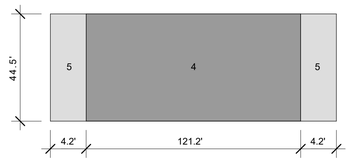
PLAN ON ROOF

COMPONENT	ZONE	PRES (-VE) (PSF)
<=10 SF	1	-68.4
20 SF	1	-64.5
50 SF	1	-59.5
>100 SF	1	-55.6
<=10 SF	2	-107.3
20 SF	2	-102.0
50 SF	2	-94.9
>100 SF	2	-89.5
<=10 SF	3	-146.3
20 SF	3	-139.4
50 SF	3	-130.2
>100 SF	3	-123.3

SERVICE BUILDING C&C WIND LOAD

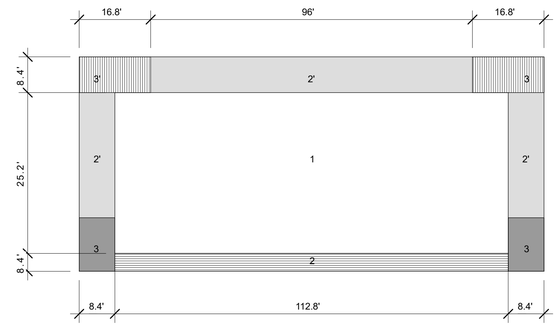


ELEVATION OF GABLE WALL



ELEVATION OF SIDE WALL

COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF	4	43.0	-46.6
50 SF	4	38.6	-42.1
200 SF	4	34.7	-38.3
>500 SF	4	32.2	-35.8
<=10 SF	5	43.0	-57.3
50 SF	5	38.6	-48.5
200 SF	5	34.7	-40.8
>500 SF	5	32.2	-35.8



PLAN ON ROOF

COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF	1	19.1	-50.9
20 SF	1	17.9	-50.9
50 SF	1	16.3	-50.9
>100 SF	1	15.1 #	-50.9
<=10 SF	2	19.1	-58.9
20 SF	2	17.9	-57.7
50 SF	2	16.3	-56.1
>100 SF	2	15.1 #	-54.9
<=10 SF	2'	19.1	-70.8
20 SF	2'	17.9	-69.6
50 SF	2'	16.3	-68.0
>100 SF	2'	15.1 #	-66.8
<=10 SF	3	19.1	-78.8
20 SF	3	17.9	-71.6
50 SF	3	16.3	-62.1
>100 SF	3	15.1 #	-54.9
<=10 SF	3'	19.1	-110.6
20 SF	3'	17.9	-98.6
50 SF	3'	16.3	-82.8
>100 SF	3'	15.1 #	-70.8

THE FINAL NET DESIGN WIND PRESSURE, INCLUDING ALL PERMITTED REDUCTIONS, USED IN THE DESIGN SHALL NOT BE LESS THAN 16 PSF ACTING IN EITHER DIRECTION

12/7/2022 11:39:46 AM

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Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
A	FINAL SUBMISSION	DJF	WA	12/12/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

COMPONENTS AND CLADDING WIND LOAD DIAGRAMS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-005.00
CADD FILE N0	6 of 74

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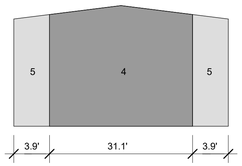
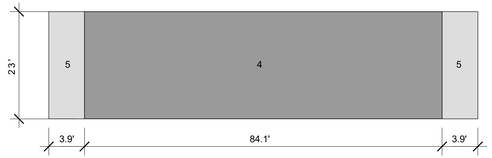
STORAGE ENCLOSURE C&C WIND LOAD

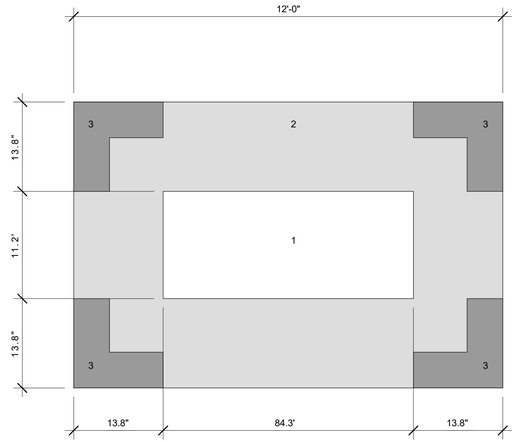


ELEVATION OF GABLE WALL



ELEVATION OF SIDE WALL

COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF	4	37.8	-41.0
50 SF	4	33.9	-37.1
200 SF	4	30.6	-33.7
>500 SF	4	28.4	-31.5
<=10 SF	5	37.8	-50.4
50 SF	5	33.9	-42.6
200 SF	5	30.6	-35.9
>500 SF	5	28.4	-31.5

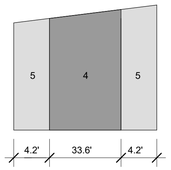


PLAN ON ROOF

COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF	1	16.8	-65.8
100 SF	1	13.3 #	-51.4
200 SF	1	13.3 #	-47.1
>500SF	1	13.3 #	-41.3
<=10 SF	2	16.8	-86.8
100 SF	2	13.3 #	-68.3
200 SF	2	13.3 #	-62.7
>500 SF	2	13.3 #	-55.3
<=10 SF	3	16.8	-118.3
100 SF	3	13.3 #	-81.3
200 SF	3	13.3 #	-70.1
>500 SF	3	13.3 #	-55.3

THE FINAL NET DESIGN WIND PRESSURE, INCLUDING ALL PERMITTED REDUCTIONS, USED IN THE DESIGN SHALL NOT BE LESS THAN 16 PSF ACTING IN EITHER DIRECTION

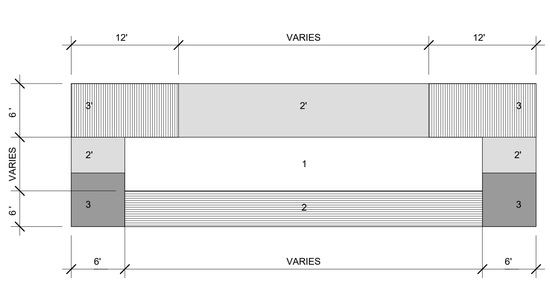
ALL ENCLOSURES WITH H</= 15'-0" C&C WIND LOAD



ELEVATION OF GABLE WALL

ELEVATION OF SIDE WALL

COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF	4	34.8	-37.7
50 SF	4	31.2	-34.1
200 SF	4	28.1	-31.0
>500 SF	4	26.1	-29.0
<=10 SF	5	34.8	-46.4
50 SF	5	31.2	-39.2
200 SF	5	28.1	-33.1
>500 SF	5	26.1	-29.0



PLAN ON ROOF

COMPONENT	ZONE	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<=10 SF	1	15.5 #	-41.2
20 SF	1	14.5 #	-41.2
50 SF	1	13.2 #	-41.2
>100 SF	1	12.2 #	-41.2
<=10 SF	2	15.5 #	-47.7
20 SF	2	14.5 #	-46.7
50 SF	2	13.2 #	-45.4
>100 SF	2	12.2 #	-44.4
<=10 SF	2'	15.5 #	-57.3
20 SF	2'	14.5 #	-56.4
50 SF	2'	13.2 #	-55.1
>100 SF	2'	12.2 #	-54.1
<=10 SF	3	15.5 #	-63.8
20 SF	3	14.5 #	-58.0
50 SF	3	13.2 #	-50.3
>100 SF	3	12.2 #	-44.4
<=10 SF	3'	15.5 #	-89.5
20 SF	3'	14.5 #	-79.8
50 SF	3'	13.2 #	-67.0
>100 SF	3'	12.2 #	-57.3

THE FINAL NET DESIGN WIND PRESSURE, INCLUDING ALL PERMITTED REDUCTIONS, USED IN THE DESIGN SHALL NOT BE LESS THAN 16 PSF ACTING IN EITHER DIRECTION

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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
A	FINAL SUBMISSION	DJF	WA	12/12/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

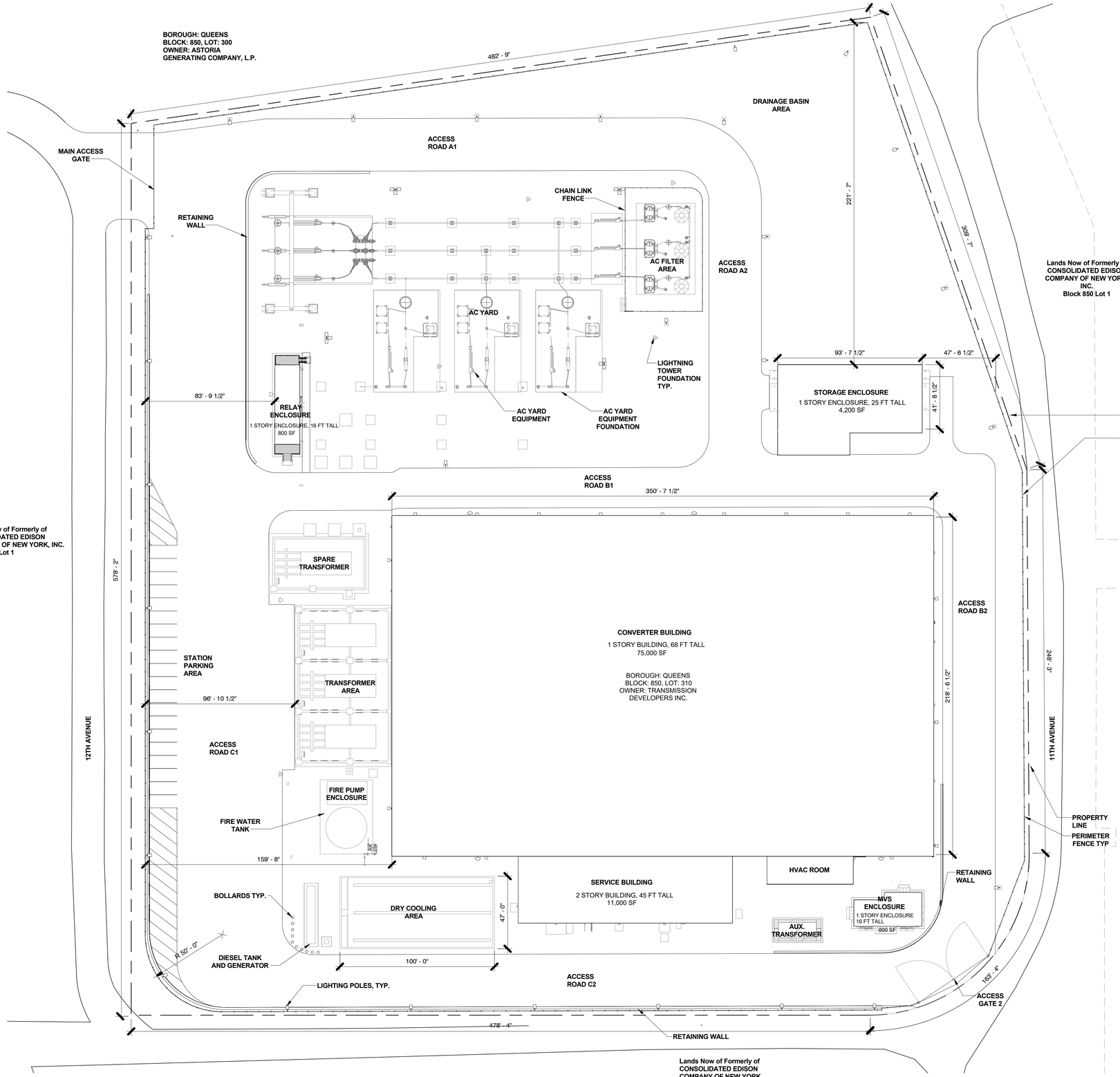
Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

COMPONENTS AND CLADDING WIND LOAD DIAGRAMS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

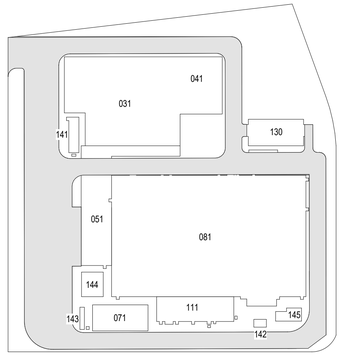
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-006.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M2-S-001.rvt	7 of 74



1 S-007.00 SITE OVERALL PLAN
1/32" = 1'-0"

12/7/2022 11:39:51 AM

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

TRUE NORTH PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

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Block #850 - Lot #310 - BIN #4624437

OVERALL SITE PLAN

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-007.00
CADD FILE N0	8 of 74

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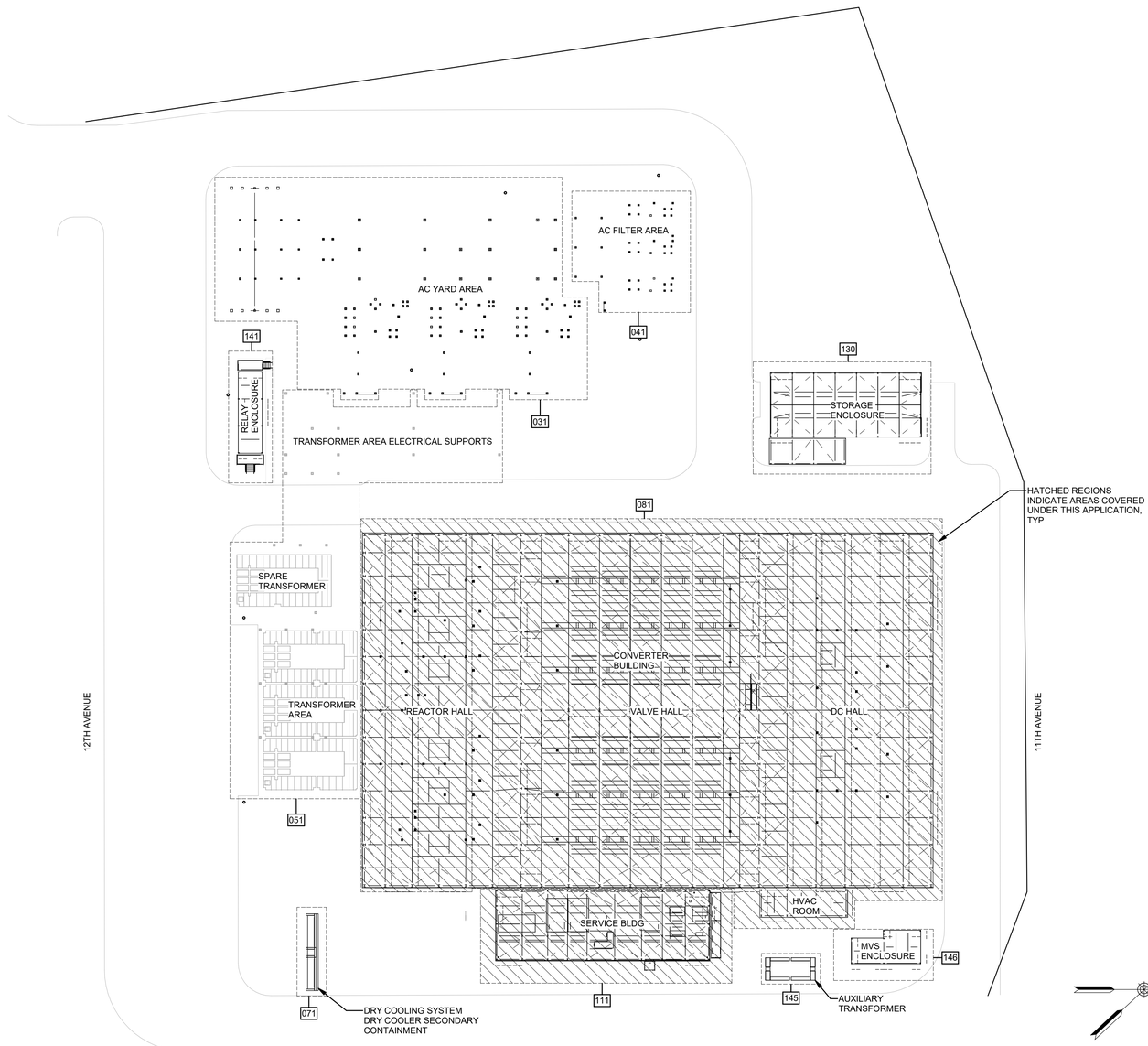
STEEL SHEET INDEX

PPID	SHEET NAME	SHEET NUMBER
000	STRUCTURAL GENERAL NOTES	S-001.00
000	STRUCTURAL GENERAL NOTES	S-002.00
000	STRUCTURAL GENERAL NOTES	S-003.00
000	STRUCTURAL GENERAL NOTES	S-004.00
000	COMPONENTS AND CLADDING WIND LOAD DIAGRAMS	S-005.00
000	COMPONENTS AND CLADDING WIND LOAD DIAGRAMS	S-006.00
000	OVERALL SITE PLAN	S-007.00
000	STEEL LOCATION PLAN	S-010.00
081	CONVERTER BUILDING - 3D VIEW	S-020.00
111	SERVICE BUILDING 3D VIEW	S-030.00
081	CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA A	S-101.00
081	CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA B	S-102.00
081	CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA C	S-103.00
081	CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA D	S-104.00
081	CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA E	S-105.00
081	CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA F	S-106.00
081	CONVERTER BUILDING - ROOF FRAMING PLAN - AREA A	S-107.00
081	CONVERTER BUILDING - ROOF FRAMING PLAN - AREA B	S-108.00
081	CONVERTER BUILDING - ROOF FRAMING PLAN AREA C	S-109.00
081	CONVERTER BUILDING- ROOF FRAMING PLAN AREA D	S-110.00
081	CONVERTER BUILDING - ROOF FRAMING PLAN AREA E	S-111.00
081	CONVETER BUILDING - ROOF FRAMING PLAN AREA F	S-112.00
081	HVAC ENCLOSURE - FRAMING PLANS AND SECTIONS	S-113.00
081	CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA A	S-114.00
081	CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA B	S-115.00
081	CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA C	S-116.00
081	CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA D	S-117.00
081	CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA E	S-118.00
081	CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA F	S-119.00
111	SERVICE BUILDING COLUMN AND BASE PLATE PLAN	S-125.00
111	SERVICE BUILDING FLOOR FRAMING PLAN	S-126.00
111	SERVICE BUILDING ELEVATED SLAB AND THRID FLOOR FRAMING PLANS	S-127.00
111	SERVICE BUILDING ROOF FRAMING PLAN	S-128.00
111	SERVICE BUILDING ACCESS STEEL FRAMING AND GRATING PLANS	S-129.00
081	CONVERTER BUILDING - EXTERIOR WALL FRAMING ELEVATIONS	S-201.00
081	CONVERTER BUILDING - EXTERIOR WALL FRAMING ELEVATIONS	S-202.00
081	CONVERTER BUILDING - INTERIOR WALL FRAMING ELEVATIONS	S-203.00
081	CONVERTER BUILDING - INTERIOR WALL FRAMING ELEVATIONS	S-204.00
081	CONVERTER BUILDING - TRUSS 3 AND 1 ELEVATIONS	S-210.00
081	CONVERTER BUILDING - TRUSS 4 AND 2 ELEVATIONS	S-211.00
081	CONVERTER BUILDING - GIRT FRAMING ELAVATIONS	S-220.00
081	CONVERTER BUILDING - GIRT FRAMING ELAVATIONS	S-221.00
081	HVAC ENCLOSURE - GIRT FRAMING ELAVATIONS	S-222.00
111	SERVICE BUILDING FRAMING ELEVATIONS	S-240.00
111	SERVICE BUILDING FRAMING ELEVATIONS	S-241.00
111	SERVICE BUILDING GIRT FRAMING ELEVATIONS	S-242.00
081	CONVERTER BUILDING - STEEL SECTIONS & DETAILS	S-301.00
081	CONVERTER BUILDING - STEEL SECTIONS & DETAILS	S-302.00
111	SERVICE BUILDING INTERIOR STAIR FRAMING PLAN AND SECTIONS	S-411.00
000	GUARDRAIL TYPICAL DETAILS	S-601.00
000	KICKPLATE TYPICAL DETAILS	S-602.00
000	GRATING TYPICAL DETAILS	S-603.00
000	STEEL STAIR TYPICAL CONNECTIONS	S-604.00
000	STEEL STAIR TYPICAL DETAILS	S-605.00
000	LADDER TYPICAL CONNECTIONS	S-606.00
000	LADDER TYPICAL DETAILS	S-607.00
000	TYPICAL GIRT DETAILS	S-608.00
000	STEEL BEAM TYPICAL CONNECTIONS	S-609.00
000	STEEL HB TYPICAL DETAILS	S-610.00
000	STEEL BG TYPICAL CONNECTIONS	S-611.00
000	TYPICAL VERTICAL BRACE CONNECTIONS	S-612.00
000	STEEL COLUMN TYPICAL CONNECTIONS	S-613.00
000	GUARDRAIL TYPICAL CONNECTIONS	S-614.00
000	GUARDRAIL TYPICAL CONNECTIONS	S-615.00
000	STEEL PLATFORM TYPICAL CONNECTIONS	S-616.00
000	STEEL PLATFORM TYPICAL CONNECTIONS	S-617.00
000	TYPICAL METAL DECK ATTACHMENT DETAILS	S-618.00
000	TYPICAL METAL DECK ATTACHMENT DETAILS	S-619.00
081	CONVERTER BUILDING - REACTOR HALL COLUMN SCHEDULE	S-701.00
081	CONVERTER BUILDING - VALVE HALL AREA C COLUMN SCHEDULE	S-702.00
081	CONVERTER BUILDING - VALVE HALL AREA D COLUMN SCHEDULE	S-703.00
081	CONVERTER BUILDING - DC HALL COLUMN SCHEDULE	S-704.00
111	SERVICE BUILDING COLUMN SCHEDULE	S-711.00

Grand total: 73

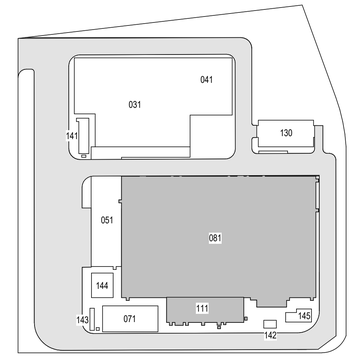
STRUCTURE NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. SEE DRAWINGS S-601.00 THRU S-617.00 FOR TYPICAL STEEL CONNECTIONS, AND STEEL DETAILS.



1 / S-010.00 STEEL LOCATION PLAN
1" = 40'-0"
40' 20' 0 40' 80'

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

K Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

PKS Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STEEL LOCATION PLAN

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

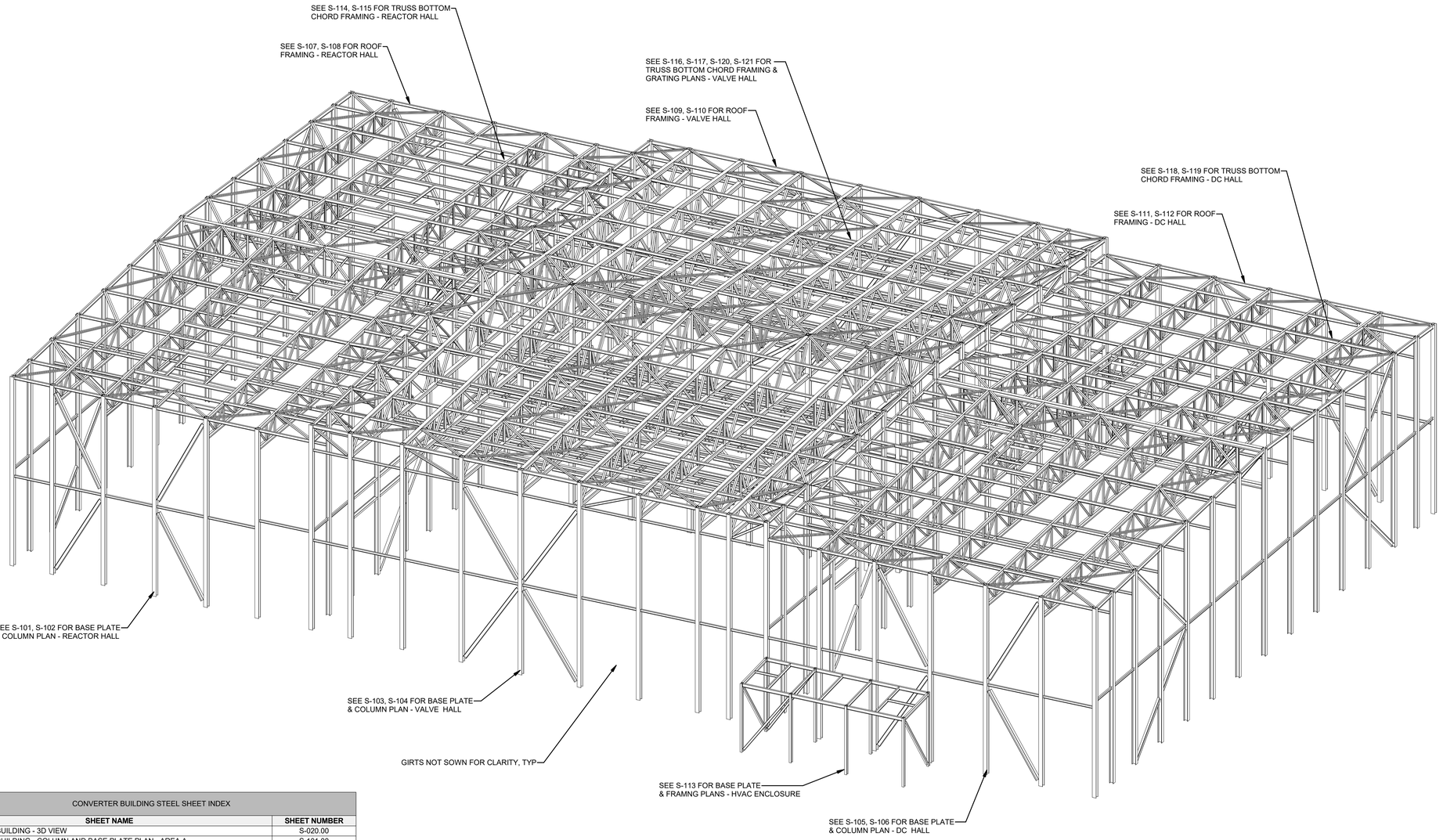
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-010.00
CADD FILE N0	9 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-000-ZZ-M3-S-001.rvt

12/9/2022 3:47:51 PM

STRUCTURE NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. SEE DRAWING S-010.00 FOR STEEL LOCATION PLAN.
3. SEE DRAWINGS S-601.00 THRU S-617.00 FOR TYPICAL STEEL CONNECTIONS AND STEEL DETAILS.
4. THE STEEL IN THE CONVERTER BUILDING SHALL BE HOT DIP GALVANIZED.



1 / S-020.00 CONVERTER BUILDING - 3D VIEW
N.T.S.

PLAN NORTH

CONVERTER BUILDING STEEL SHEET INDEX	
SHEET NAME	**SHEET NUMBER**
CONVERTER BUILDING - 3D VIEW	S-020.00
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA A	S-101.00
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA B	S-102.00
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA C	S-103.00
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA D	S-104.00
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA E	S-105.00
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA F	S-106.00
CONVERTER BUILDING - ROOF FRAMING PLAN - AREA A	S-107.00
CONVERTER BUILDING - ROOF FRAMING PLAN - AREA B	S-108.00
CONVERTER BUILDING - ROOF FRAMING PLAN AREA C	S-109.00
CONVERTER BUILDING- ROOF FRAMING PLAN AREA D	S-110.00
CONVERTER BUILDING - ROOF FRAMING PLAN AREA E	S-111.00
CONVETER BUILDING - ROOF FRAMING PLAN AREA F	S-112.00
HVAC ENCLOSURE - FRAMING PLANS AND SECTIONS	S-113.00
CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA A	S-114.00
CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA B	S-115.00
CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA C	S-116.00
CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA D	S-117.00
CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA E	S-118.00
CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA F	S-119.00
CONVERTER BUILDING - EXTERIOR WALL FRAMING ELEVATIONS	S-201.00
CONVERTER BUILDING - EXTERIOR WALL FRAMING ELEVATIONS	S-202.00
CONVERTER BUILDING - INTERIOR WALL FRAMING ELEVATIONS	S-203.00
CONVERTER BUILDING - INTERIOR WALL FRAMING ELEVATIONS	S-204.00
CONVERTER BUILDING - TRUSS 3 AND 1 ELEVATIONS	S-210.00
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CONVERTER BUILDING - GIRT FRAMING ELAVATIONS	S-220.00
CONVERTER BUILDING - GIRT FRAMING ELAVATIONS	S-221.00
HVAC ENCLOSURE - GIRT FRAMING ELAVATIONS	S-222.00
CONVERTER BUILDING - STEEL SECTIONS & DETAILS	S-301.00
CONVERTER BUILDING - STEEL SECTIONS & DETAILS	S-302.00
CONVERTER BUILDING - REACTOR HALL COLUMN SCHEDULE	S-701.00
CONVERTER BUILDING - VALVE HALL AREA C COLUMN SCHEDULE	S-702.00
CONVERTER BUILDING - VALVE HALL AREA D COLUMN SCHEDULE	S-703.00
CONVERTER BUILDING - DC HALL COLUMN SCHEDULE	S-704.00

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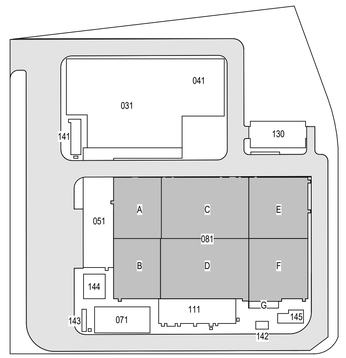
ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE + ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - 3D VIEW

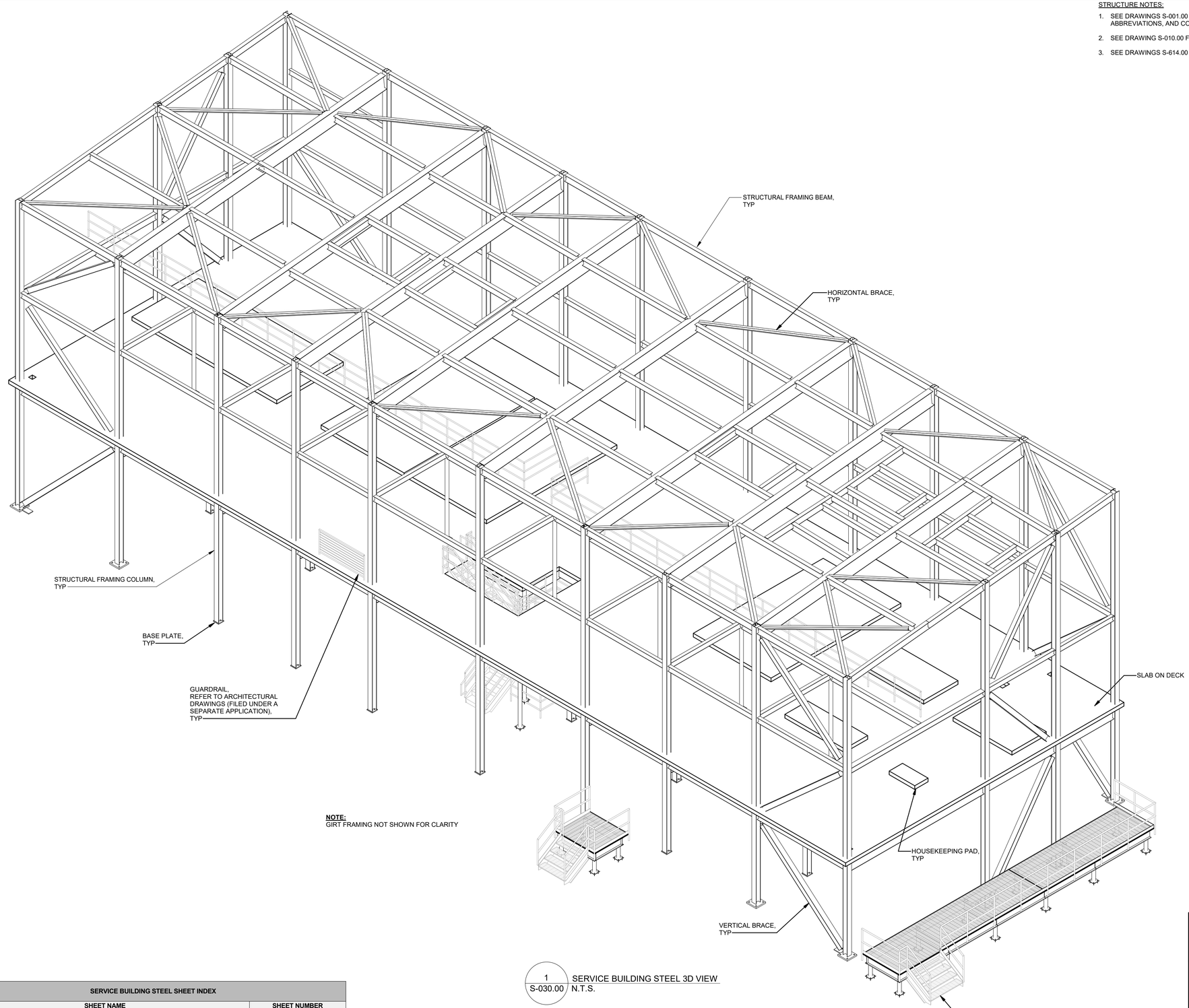
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-020.00
CADD FILE N0	10 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt

STRUCTURE NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. SEE DRAWING S-010.00 FOR STEEL LOCATION PLAN.
3. SEE DRAWINGS S-614.00 THRU S-618.00 FOR TYPICAL STEEL CONNECTIONS.



NOTE:
GIRT FRAMING NOT SHOWN FOR CLARITY

1 / S-030.00 SERVICE BUILDING STEEL 3D VIEW
N.T.S.

PLAN NORTH

SERVICE BUILDING STEEL SHEET INDEX	
SHEET NAME	**SHEET NUMBER**
SERVICE BUILDING 3D VIEW	S-030.00
SERVICE BUILDING COLUMN AND BASE PLATE PLAN	S-125.00
SERVICE BUILDING FLOOR FRAMING PLAN	S-126.00
SERVICE BUILDING ELEVATED SLAB AND THRID FLOOR FRAMING PLANS	S-127.00
SERVICE BUILDING ROOF FRAMING PLAN	S-128.00
SERVICE BUILDING ACCESS STEEL FRAMING AND GRATING PLANS	S-129.00
SERVICE BUILDING FRAMING ELEVATIONS	S-240.00
SERVICE BUILDING FRAMING ELEVATIONS	S-241.00
SERVICE BUILDING GIRT FRAMING ELEVATIONS	S-242.00
SERVICE BUILDING INTERIOR STAIR FRAMING PLAN AND SECTIONS	S-411.00
SERVICE BUILDING COLUMN SCHEDULE	S-711.00

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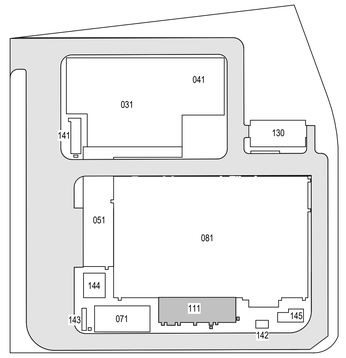
ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING 3D VIEW

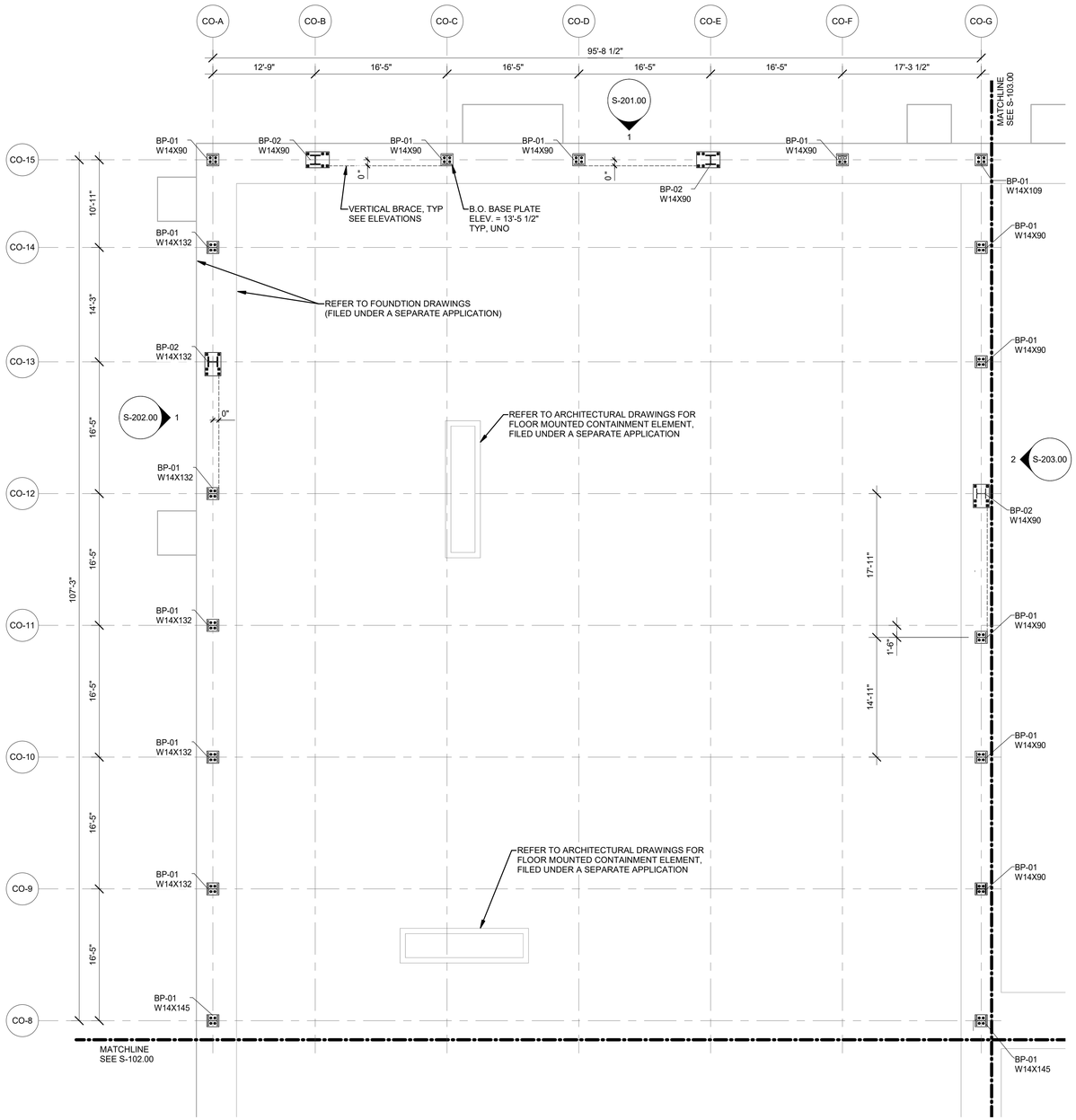
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-030.00
CADD FILE N0	11 of 74

Autodesk Docs://CHPE Astoria/CHA-KE-111-ZZ-M3-S-001.rvt

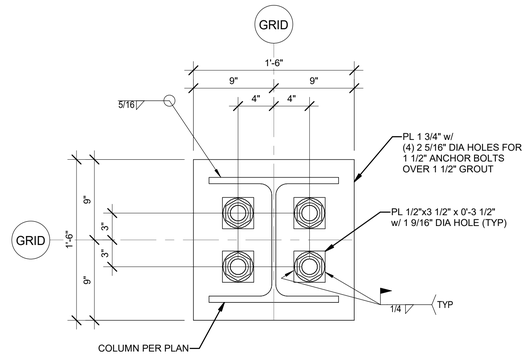
SHEET NOTES:

1. SEE SHEET S-020.00 FOR STRUCTURAL NOTES.
2. SEE SHEETS S-701.00 - S-704.00 FOR COLUMN SCHEDULES.

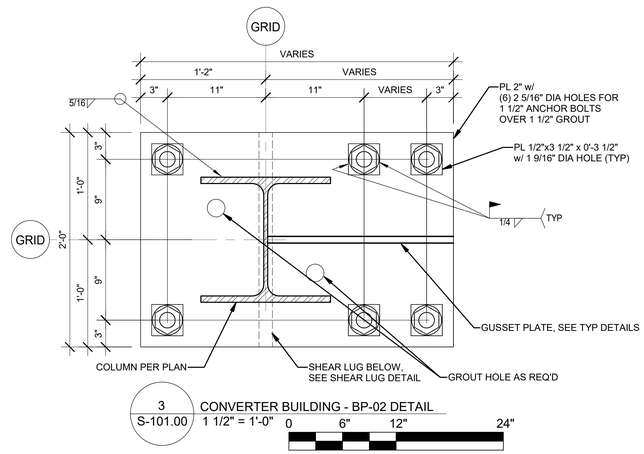


REACTOR HALL

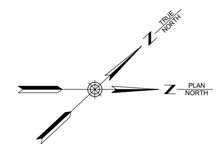
1 / S-101.00 CONVERTER BUILDING - COLUMN AND BASE PLAN
1/8" = 1'-0" 1' 0 4' 8' 16'



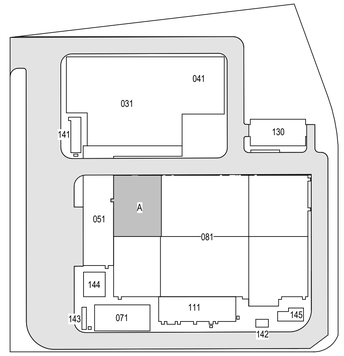
2 / S-101.00 CONVERTER BUILDING - BP-01 DETAIL
1 1/2" = 1'-0" 0 6" 12" 24"



3 / S-101.00 CONVERTER BUILDING - BP-02 DETAIL
1 1/2" = 1'-0" 0 6" 12" 24"



ISSUED FOR PERMIT



KEY PLAN
N.T.S.

TRUE NORTH
PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA A

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-101.00
CADD FILE N0	12 of 74

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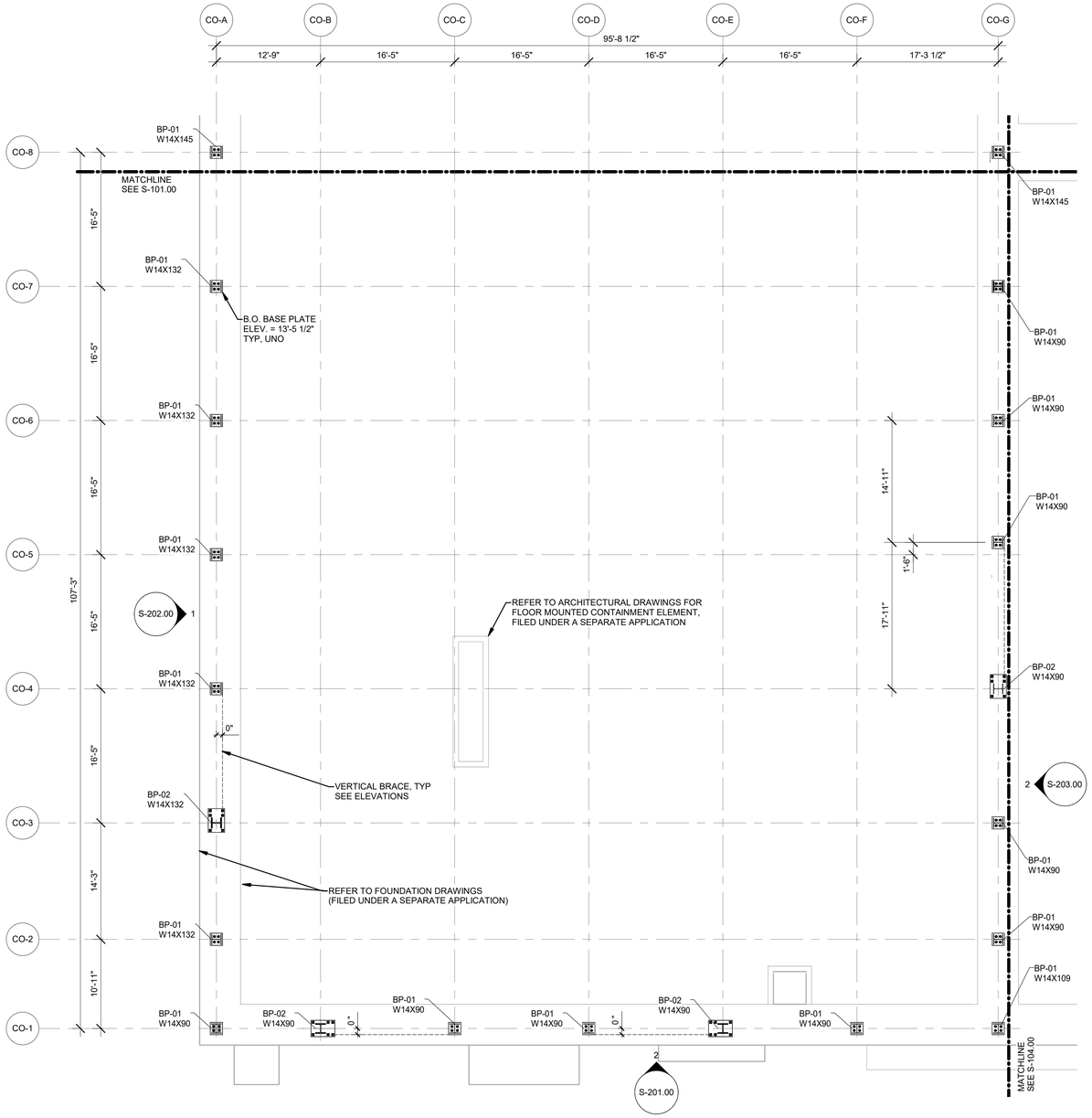
12/9/2022 3:05:24 PM

SHEET NOTES:

1. SEE SHEET S-020.00 FOR STRUCTURAL NOTES.
2. SEE SHEET S-101.00 FOR BASE PLATE DETAILS.
3. SEE SHEETS S-701.00 - S-704.00 FOR COLUMN SCHEDULES.



REACTOR HALL

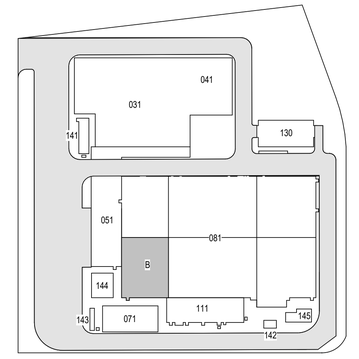
1 / S-102.00 CONVERTER BUILDING - COLUMN AND BASE PLAN

1/8" = 1'-0"

1' 0 4' 8' 16'

12/9/2022 3:05:26 PM

ISSUED FOR PERMIT



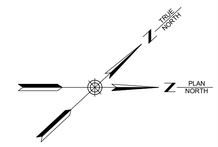
Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606



PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

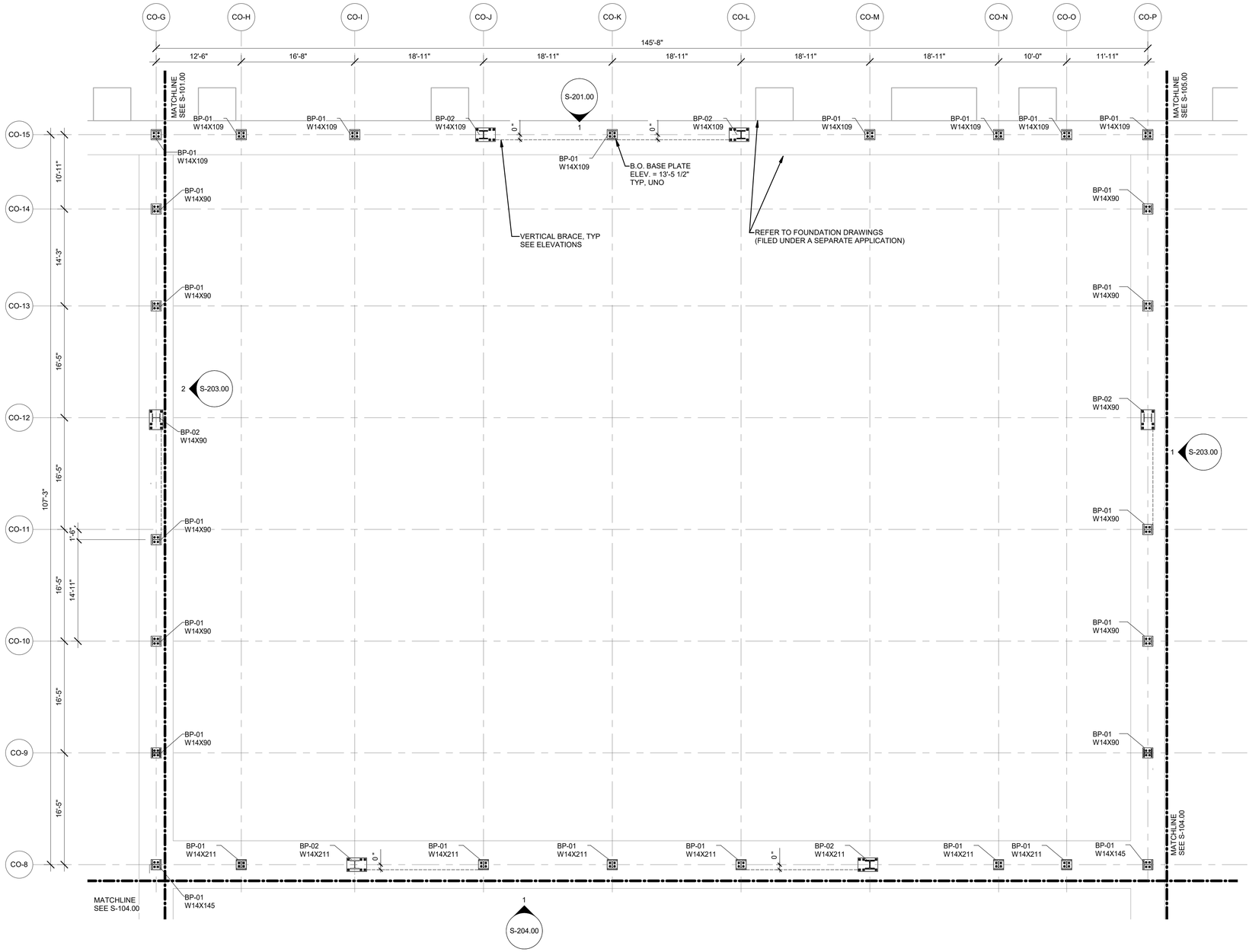
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA B

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	JB
CHECKED BY	W. ABBASSI
DRAWING NO	S-102.00
CADD FILE NO	13 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt

SHEET NOTES:

1. SEE SHEET S-020.00 FOR STRUCTURAL NOTES.
2. SEE SHEET S-101.00 FOR BASE PLATE DETAILS.
3. SEE SHEETS S-701.00 - S-704.00 FOR COLUMN SCHEDULES.



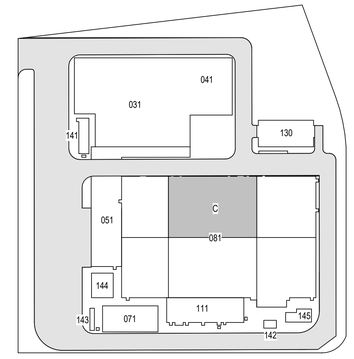
VALVE HALL

1 / S-103.00 CONVERTER BUILDING - COLUMN AND BASE PLAN

1/8" = 1'-0"

1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

TRUE NORTH

PLAN NORTH

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

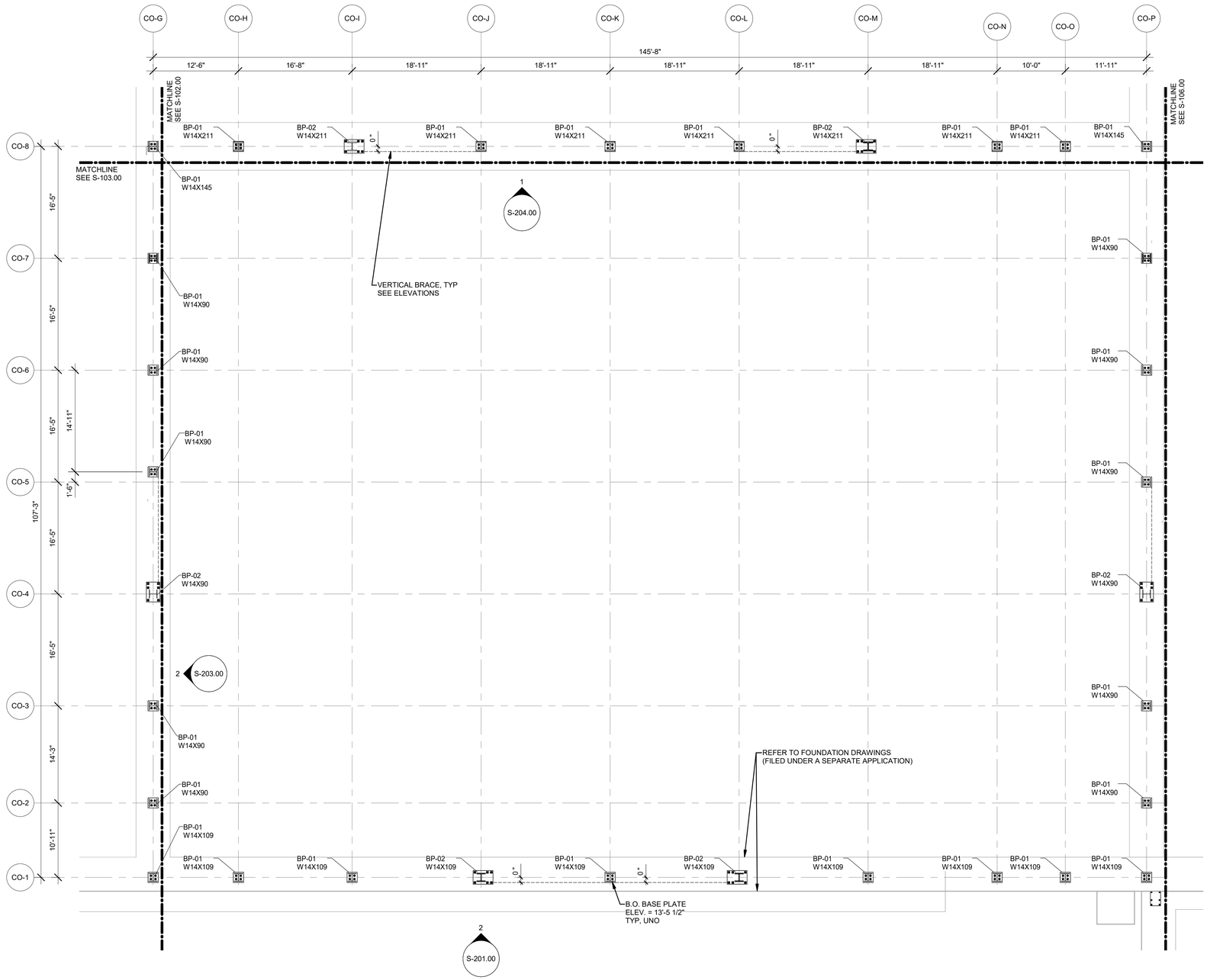
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA C

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-103.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-MS-S-001.rvt	14 of 74

12/9/2022 3:05:29 PM



VALVE HALL

1 / S-104.00 CONVERTER BUILDING - COLUMN AND BASE PLAN

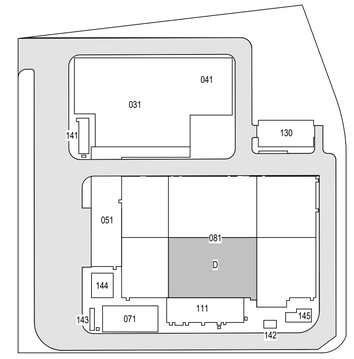
1/8" = 1'-0"

1' 0 4' 8' 16'

SHEET NOTES:

1. SEE SHEET S-020.00 FOR STRUCTURAL NOTES.
2. SEE SHEET S-101.00 FOR BASE PLATE DETAILS.
3. SEE SHEETS S-701.00 - S-704.00 FOR COLUMN SCHEDULES.

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

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REV	DESCRIPTION	DRW BY	CHK BY	DATE
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A	INTERIM SUBMISSION	JB	WA	09/13/2022

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Woodcliff Lake, NJ 07677

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901 Main Campus Drive
Raleigh, North Carolina 27606

TRUE NORTH
PLAN NORTH

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA D

STATE OF NEW YORK
WAEL M YOUSSEF
LICENSED PROFESSIONAL ENGINEER
080653

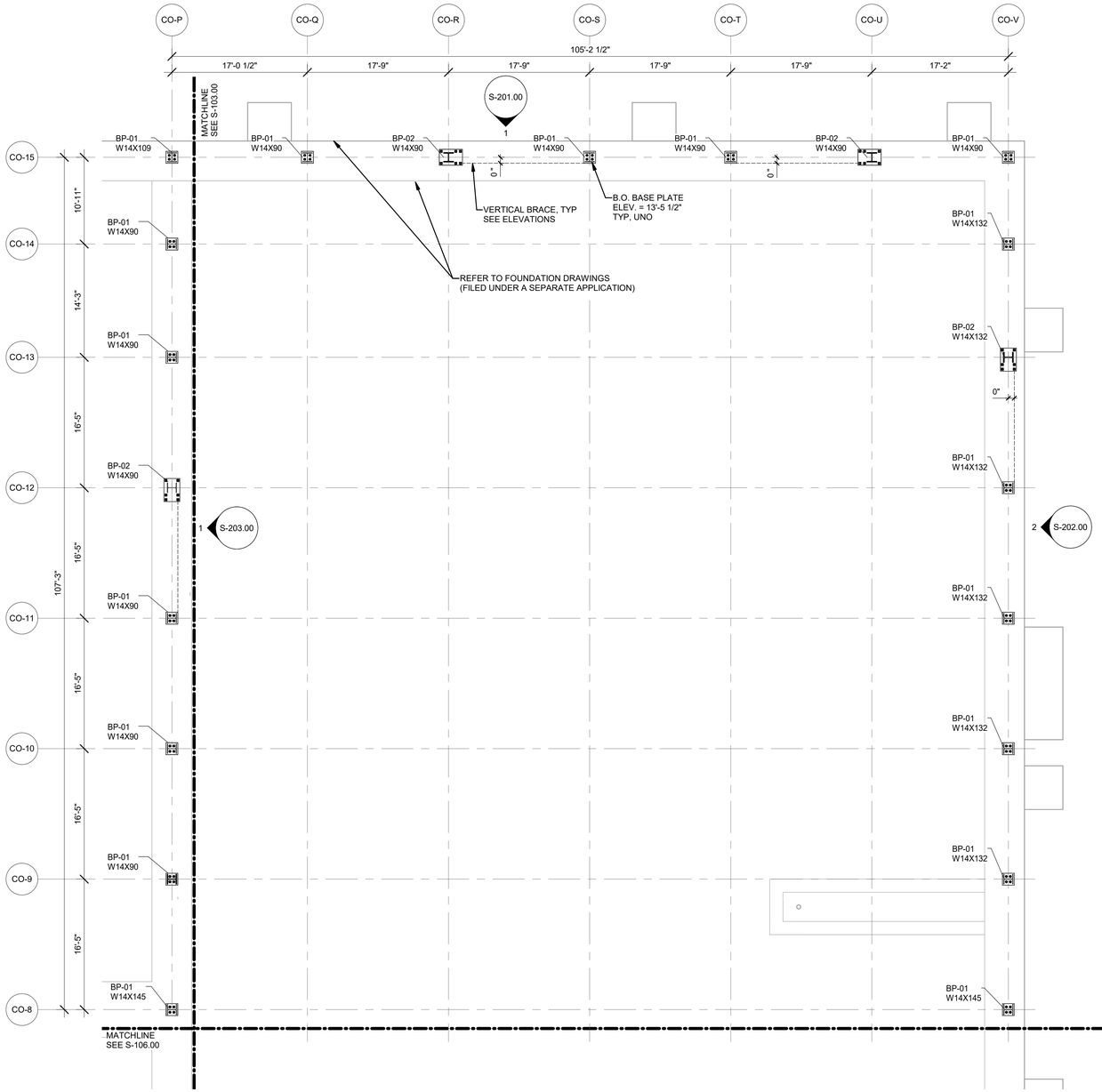
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-104.00
CADD FILE N0	15 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt

12/9/2022 3:05:32 PM

SHEET NOTES:

1. SEE SHEET S-020.00 FOR STRUCTURAL NOTES.
2. SEE SHEET S-101.00 FOR BASE PLATE DETAILS.
3. SEE SHEETS S-701.00 - S-704.00 FOR COLUMN SCHEDULES.



DC HALL

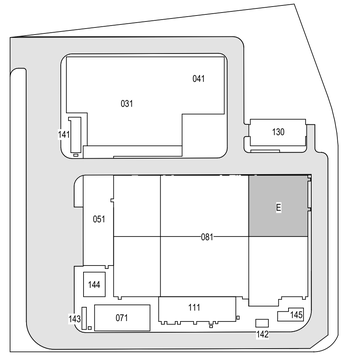
1 / S-105.00 CONVERTER BUILDING - COLUMN AND BASE PLAN

1/8" = 1'-0"

1' 0 4' 8' 16'

12/9/2022 3:05:35 PM

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

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Block #850 - Lot #310 - BIN #4624437

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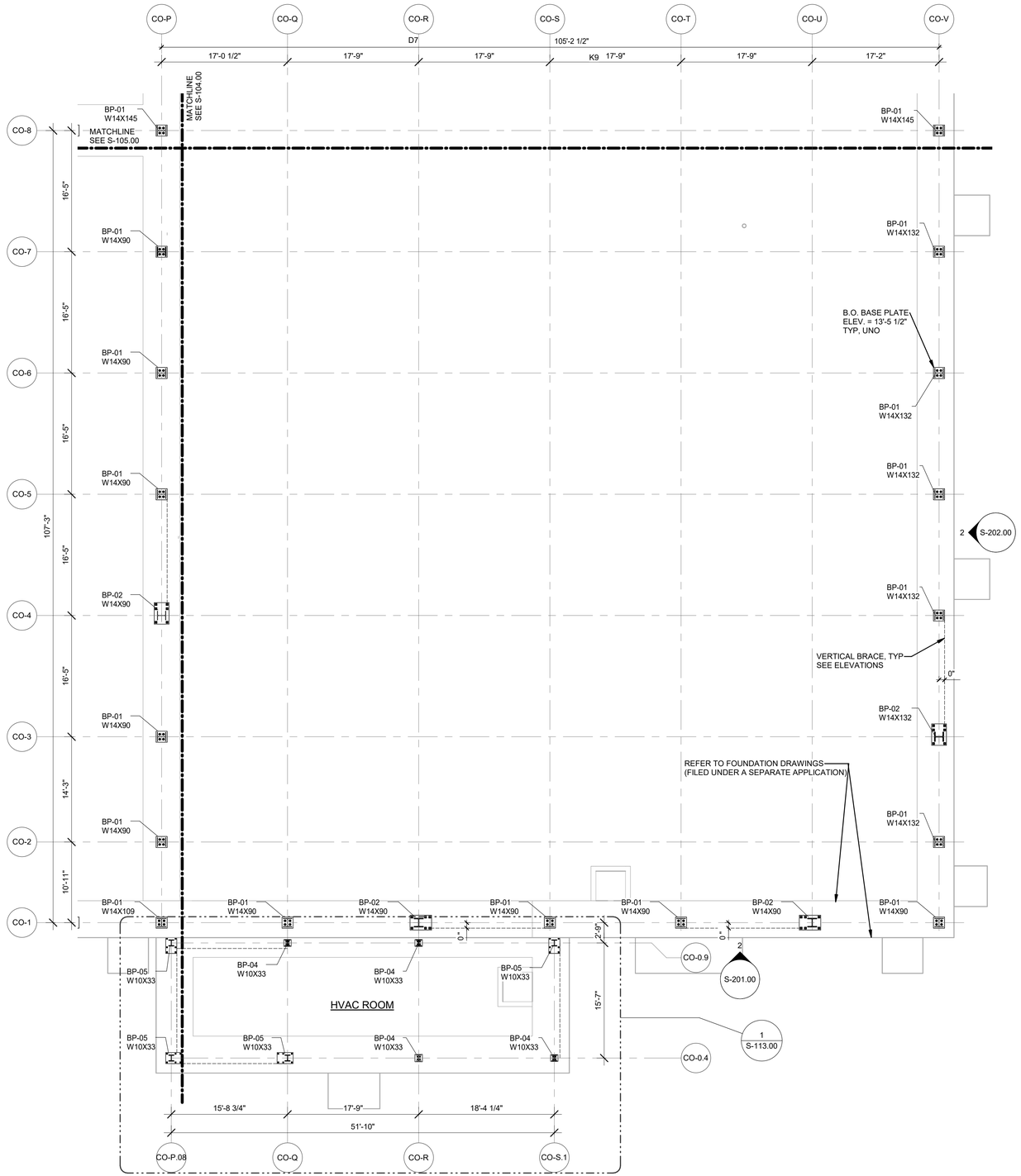
CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA E

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-105.00
CADD FILE N0	16 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt



DC HALL

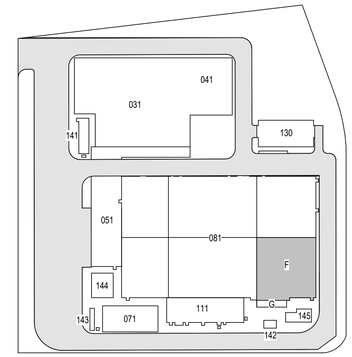
1 S-106.00 CONVERTER BUILDING - COLUMN AND BASE PLAN
1/8" = 1'-0"

1' 0 4' 8' 16'

SHEET NOTES:

1. SEE SHEET S-020.00 FOR STRUCTURAL NOTES.
2. SEE SHEET S-101.00 FOR BASE PLATE DETAILS.
3. SEE SHEETS S-701.00 - S-704.00 FOR COLUMN SCHEDULES.

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - COLUMN AND BASE PLATE PLAN - AREA F

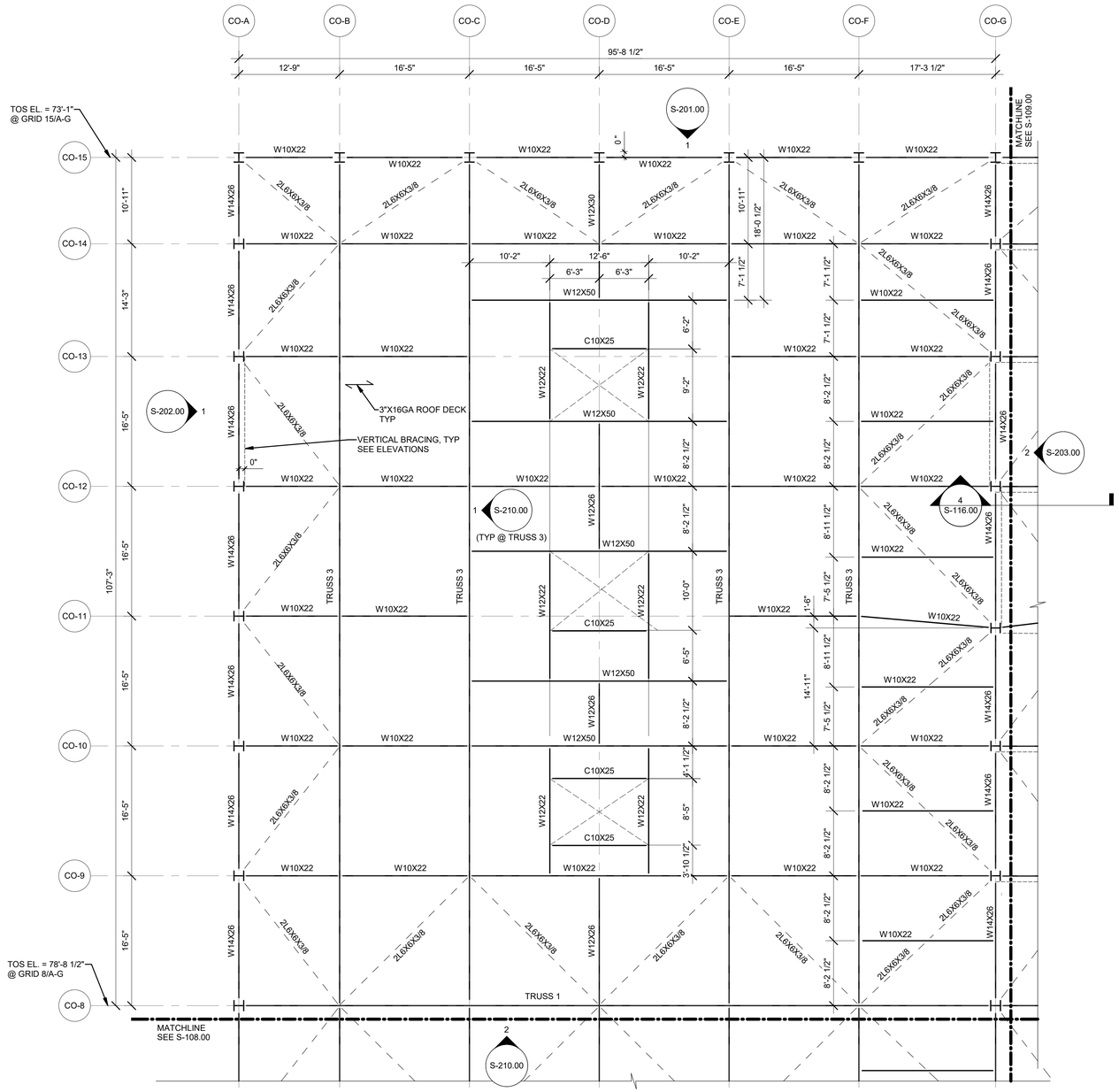
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-106.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt
	17 of 74

12/9/2022 3:05:38 PM

SHEET NOTES:

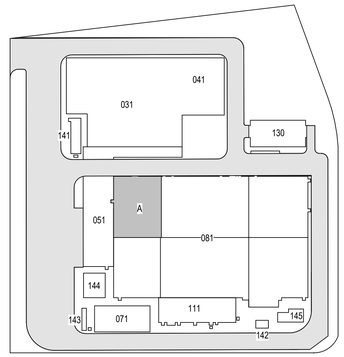
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



REACTOR HALL

1 / S-107.00 CONVERTER BUILDING - ROOF FRAMING PLAN
1/8" = 1'-0"
1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN
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25 Mohawk Avenue
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REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
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Astoria HVDC Converter Station

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Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - ROOF FRAMING PLAN - AREA A

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-107.00
CADD FILE NO	18 of 74
Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt	

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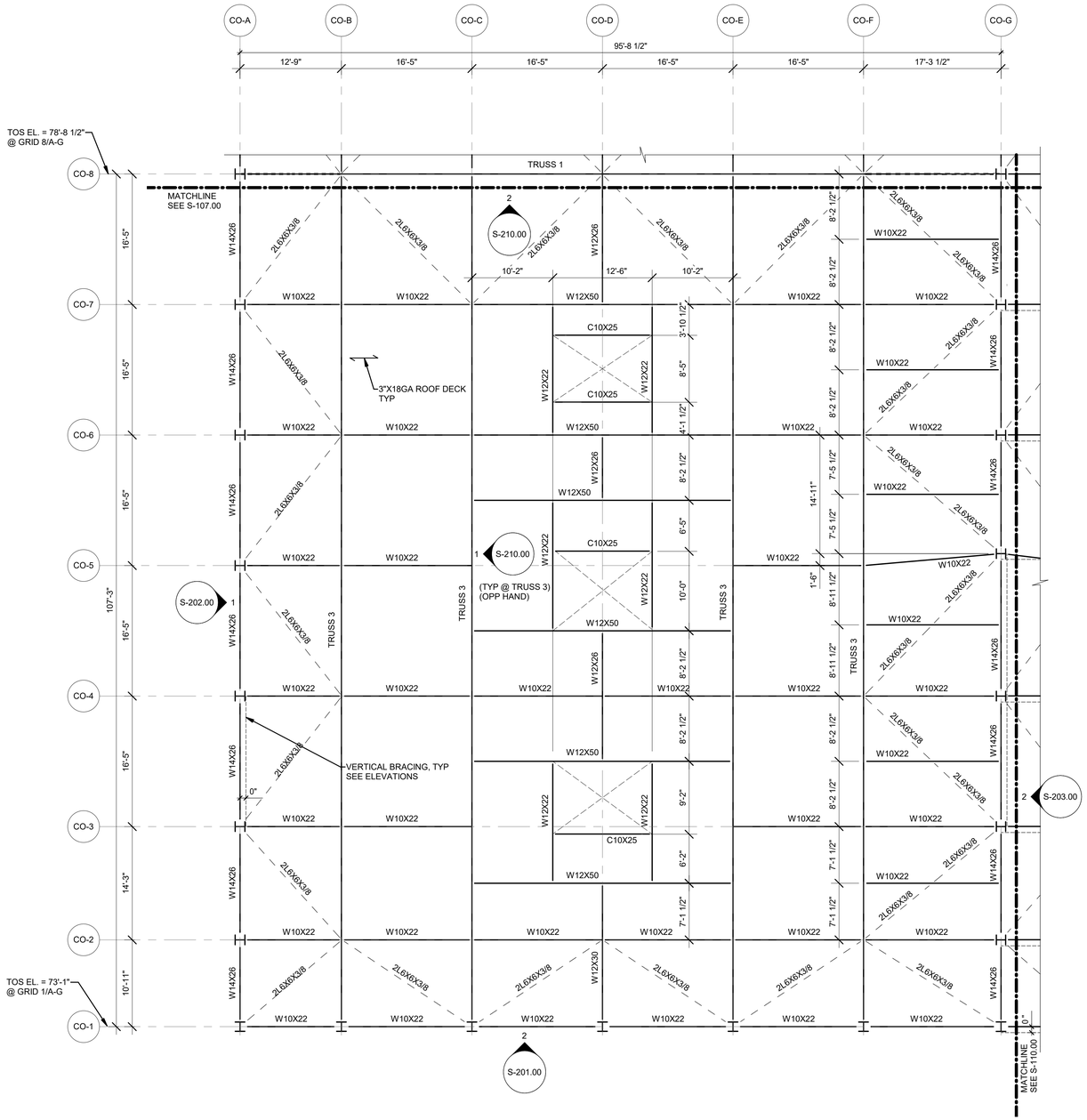
SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

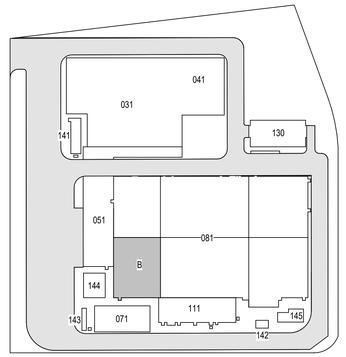


REACTOR HALL

1 / S-108.00 CONVERTER BUILDING - ROOF FRAMING PLAN
1/8" = 1'-0"

1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN
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PLAN NORTH

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REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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CONVERTER BUILDING - ROOF FRAMING PLAN - AREA B

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WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-108.00
CADD FILE N0	19 of 74

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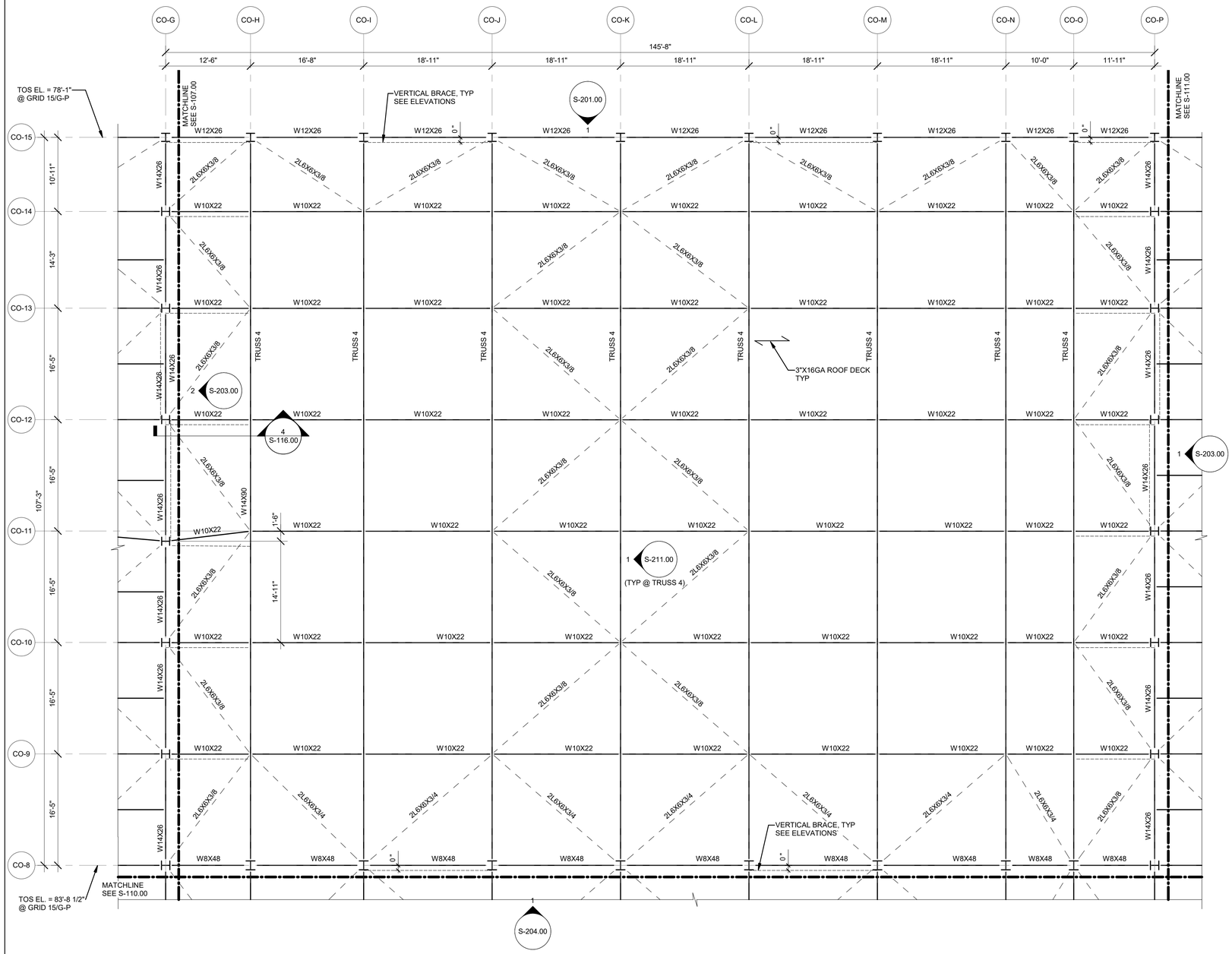
SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



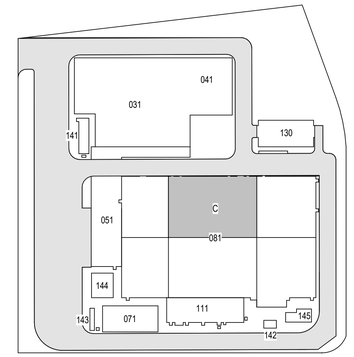
VALVE HALL

1 / S-109.00 CONVERTER BUILDING - ROOF FRAMING PLAN

1/8" = 1'-0"

1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN N.T.S.

PLAN NORTH

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370 7th Avenue
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New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - ROOF FRAMING PLAN AREA C

STATE OF NEW YORK
WAEL M YOUSSEF
LICENSED PROFESSIONAL ENGINEER
080653

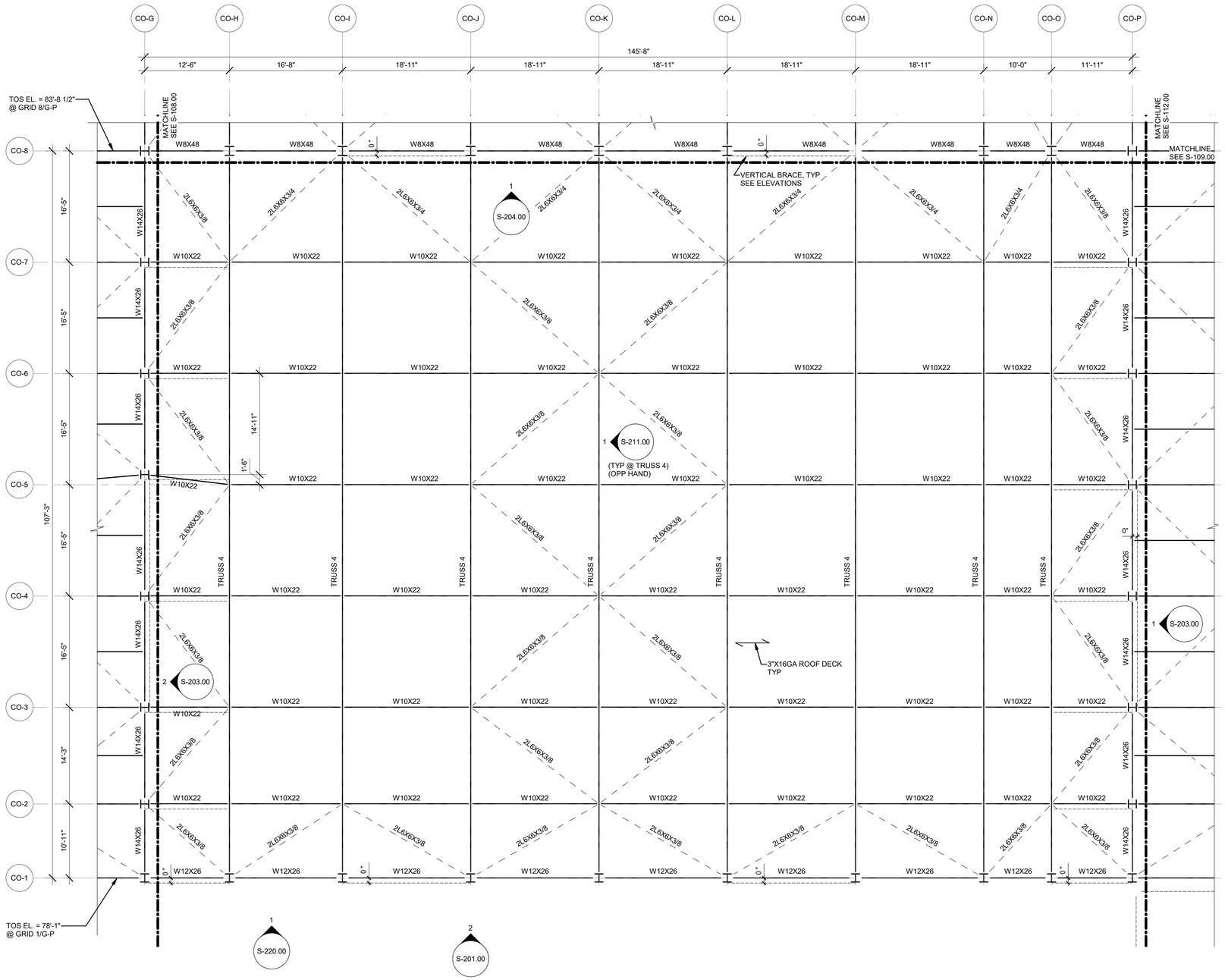
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-109.00
CADD FILE N0	20 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt

12/9/2022 3:05:46 PM

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

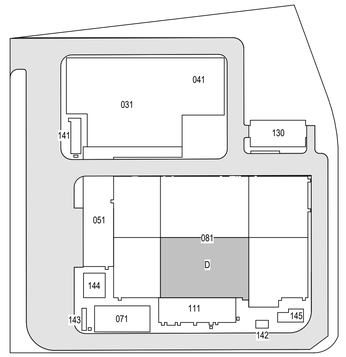


VALVE HALL

1 / S-110.00 CONVERTER BUILDING - ROOF FRAMING PLAN
1/8" = 1'-0"

1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
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Kiewit
470 Chestnut Ridge Rd # 2,
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Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING- ROOF FRAMING PLAN AREA D

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

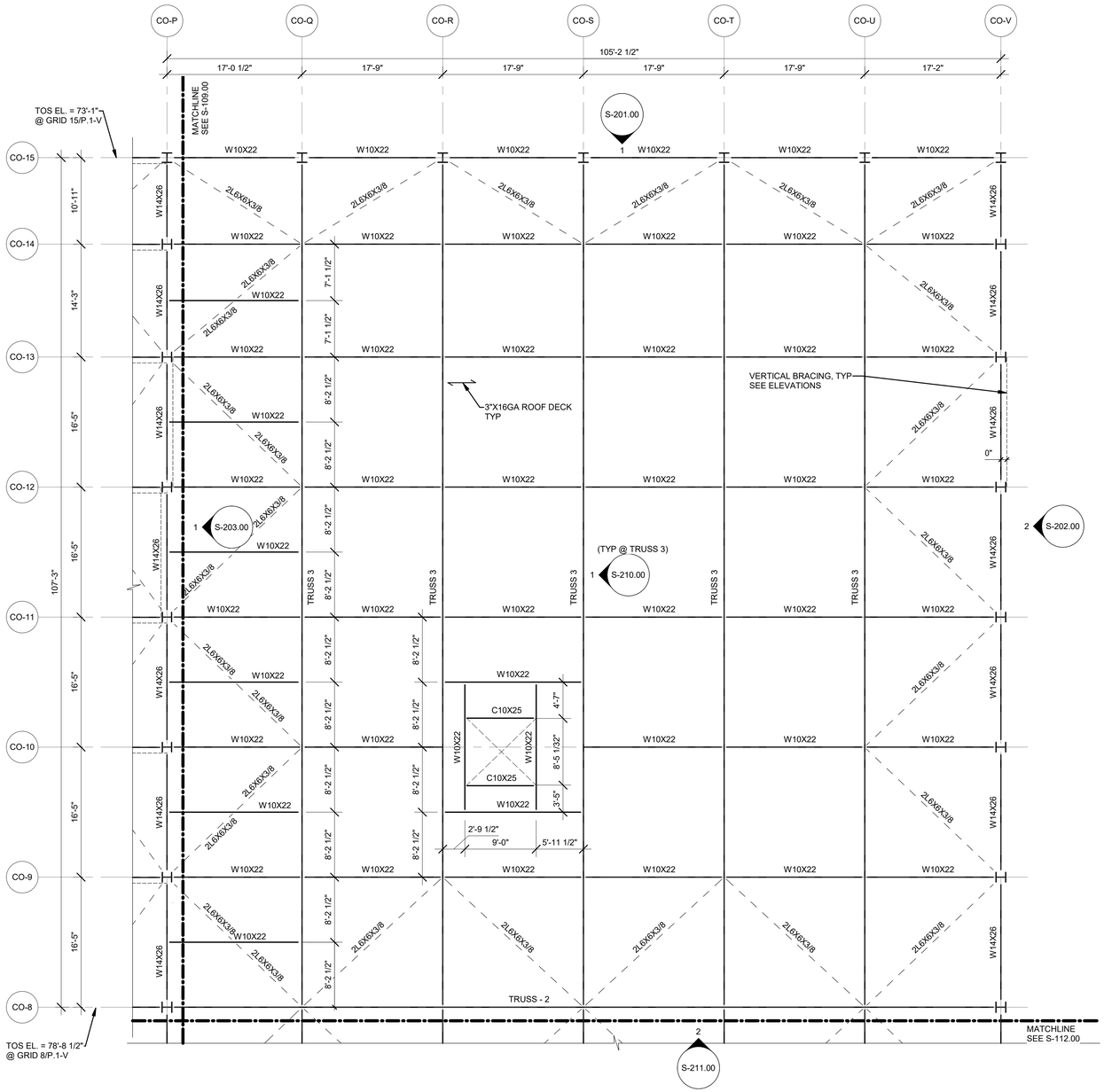
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-110.00
CADD FILE N0	21 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-MS-S-001.rvt

12/9/2022 3:05:49 PM

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



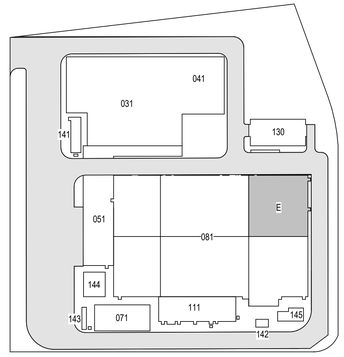
DC HALL

1 / S-111.00 CONVERTER BUILDING - ROOF FRAMING PLAN
1/8" = 1'-0"

1' 0 4' 8' 16'

12/9/2022 3:05:52 PM

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

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Raleigh, North Carolina 27606

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Champlain Hudson Power Express

Astoria HVDC Converter Station

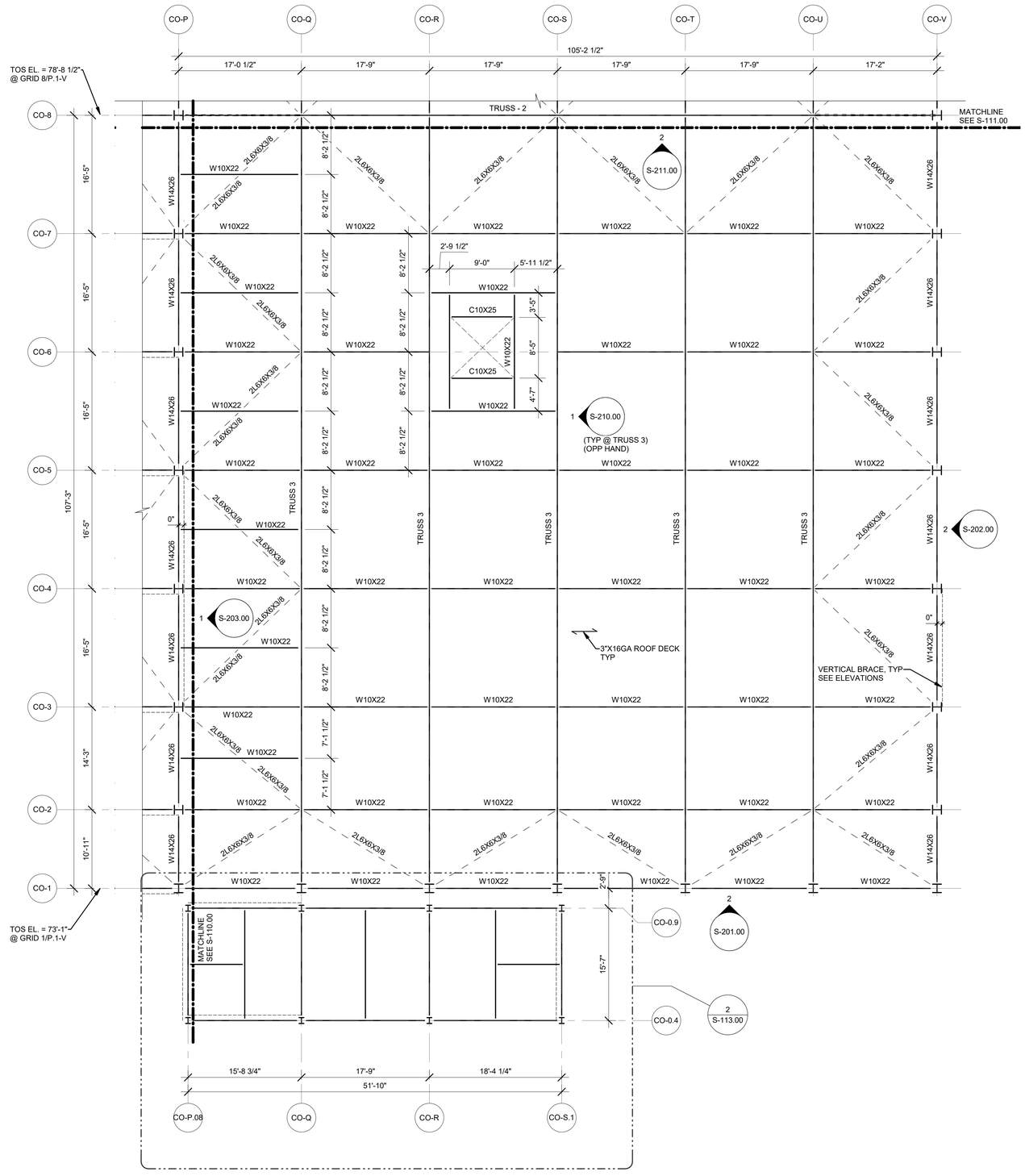
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - ROOF FRAMING PLAN AREA E

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-111.00
CADD FILE N0	22 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt



DC HALL

1 / S-112.00 CONVERTER BUILDING - ROOF FRAMING PLAN

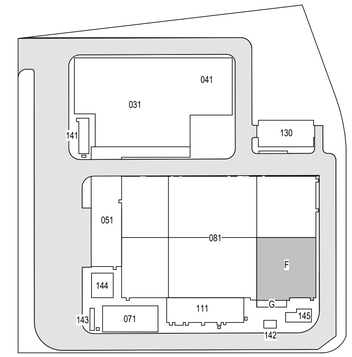
1/8" = 1'-0"

1' 0 4' 8' 16'

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
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SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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CONVETER BUILDING - ROOF FRAMING PLAN AREA F

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

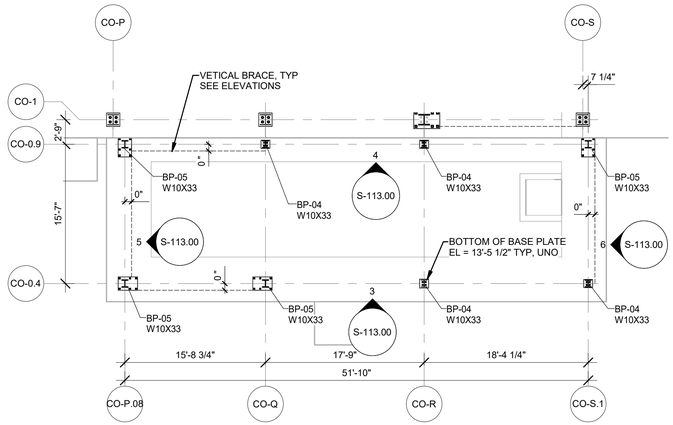
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-112.00
CADD FILE NO	23 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt

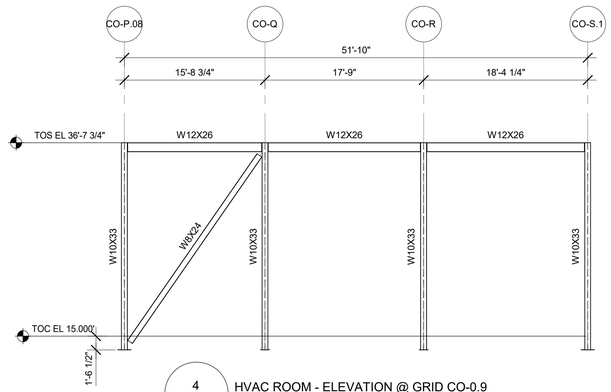
12/9/2022 3:05:55 PM

SHEET NOTES:

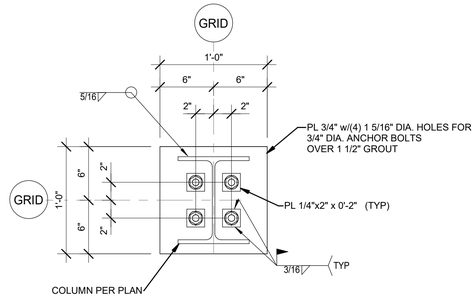
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWINGS S-220.00 - S-222.00 FOR GIRT ELEVATIONS



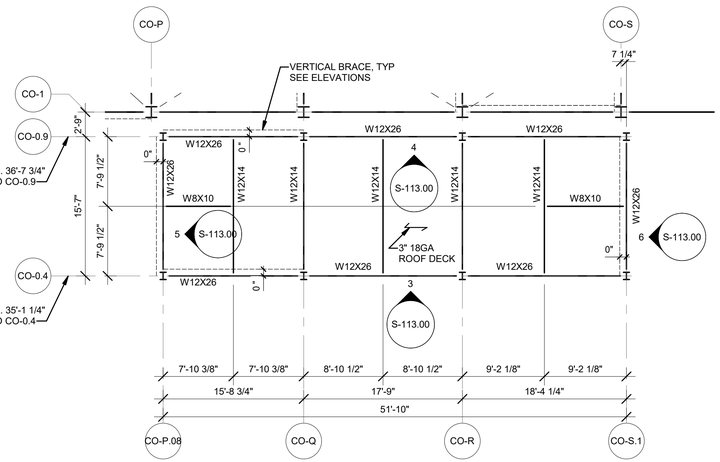
1 S-113.00 HVAC ROOM - COLUMN AND BASE PLAN
1/8" = 1'-0"
REF: S-106.00
1' 0 4' 8' 16'



4 S-113.00 HVAC ROOM - ELEVATION @ GRID CO-0.9
1/8" = 1'-0"
REF: S-104.00
1' 0 4' 8' 16'

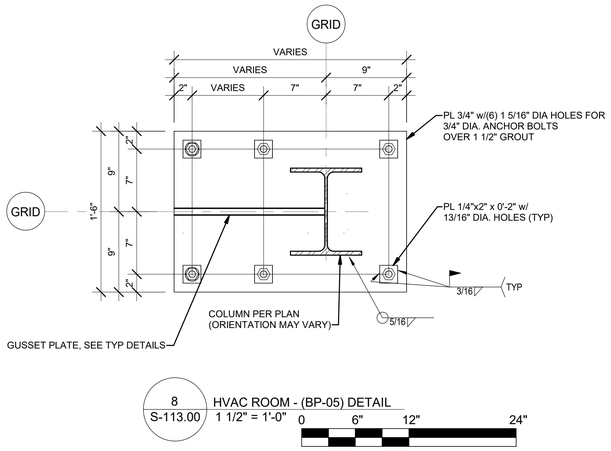


7 S-113.00 HVAC ROOM - BP-04 DETAIL
1 1/2" = 1'-0"
0 6" 12" 24"

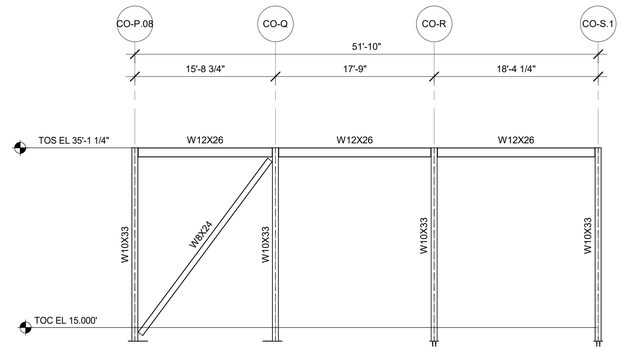


2 S-113.00 HVAC ROOM - ROOF FRAMING PLAN
1/8" = 1'-0"
REF: S-112.00
1' 0 4' 8' 16'

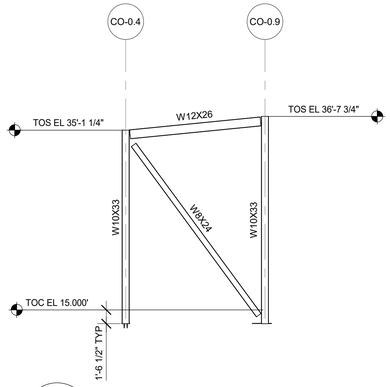
5 S-113.00 HVAC ROOM - ELEVATION @ GRID CO-P.08
1/8" = 1'-0"
1' 0 4' 8' 16'



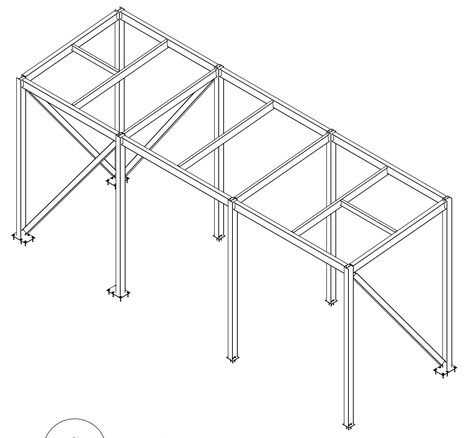
8 S-113.00 HVAC ROOM - (BP-05) DETAIL
1 1/2" = 1'-0"
0 6" 12" 24"



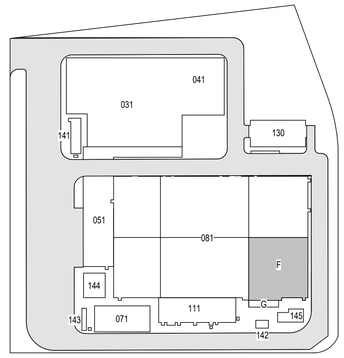
3 S-113.00 HVAC ROOM - ELEVATION @ GRID CO-0.4
1/8" = 1'-0"
REF: S-113.00
1' 0 4' 8' 16'



6 S-113.00 HVAC ROOM - ELEVATION @ GRID CO-S.1
1/8" = 1'-0"
REF: S-113.00
1' 0 4' 8' 16'



9 S-113.00 HVAC ROOM - 3D VIEW



KEY PLAN
N.T.S.

PLAN NORTH

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Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE + ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

HVAC ENCLOSURE - FRAMING PLANS AND SECTIONS

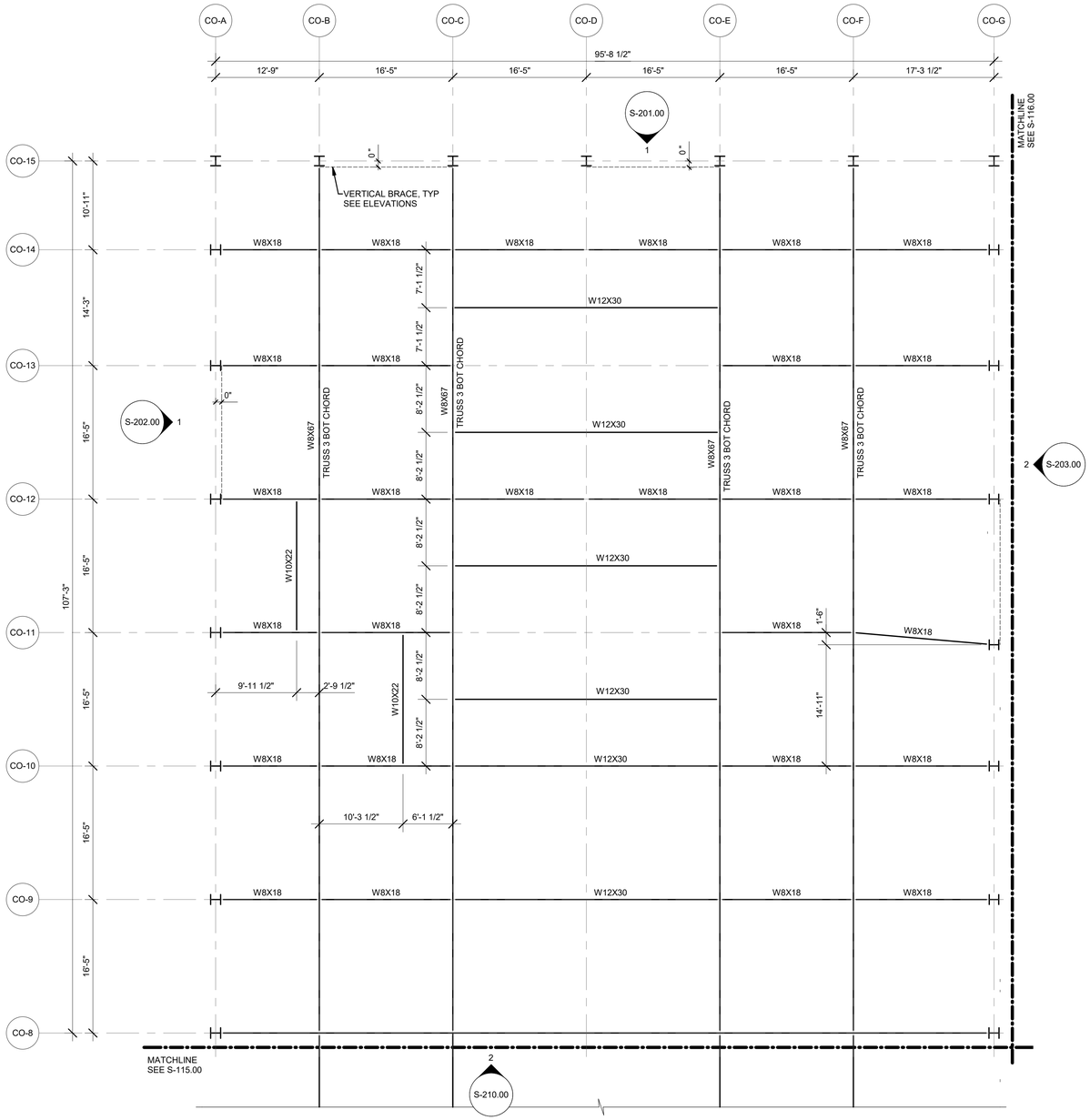
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-113.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt
	24 of 74

12/9/2022 3:06:00 PM

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



REACTOR HALL

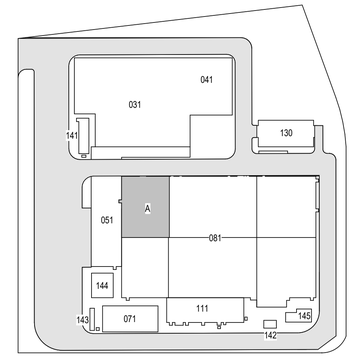
1 / S-114.00 CONVERTER BUILDING - FRAMING PLAN @ TOS EL 67'-3 1/4"

1/8" = 1'-0"

1' 0 4' 8' 16'

12/9/2022 3:06:02 PM

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

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B	FINAL SUBMISSION	JB	WA	12/12/2022
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470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

TRUE NORTH

PLAN NORTH

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA A

STATE OF NEW YORK
WAEL M YOUSSEF
080653
PROFESSIONAL ENGINEER
LICENSED

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	JB
CHECKED BY	W. ABBASSI
DRAWING NO	S-114.00
CADD FILE N0	25 of 74

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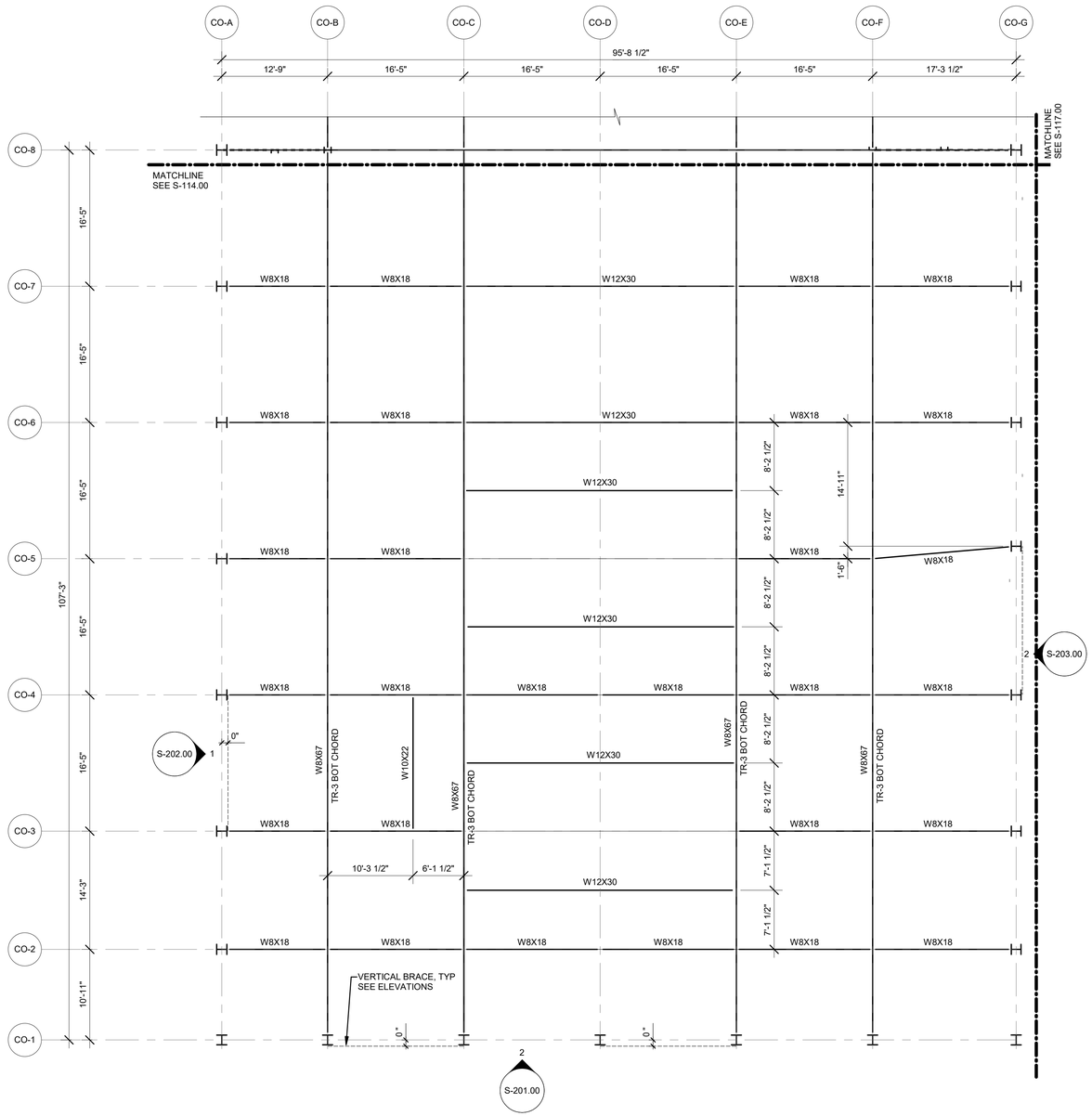
SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

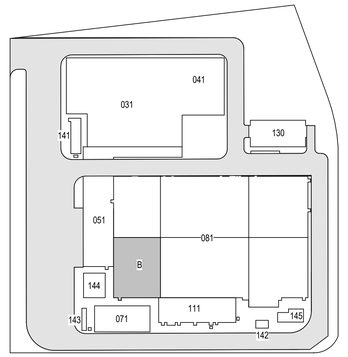


REACTOR HALL

1 / S-115.00 CONVERTER BUILDING - FRAMING PLAN @ TOS EL 67'-3 1/4"
1/8" = 1'-0"

1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN
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PLAN NORTH

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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
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A	INTERIM SUBMISSION	JB	WA	09/13/2022

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470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PLAN NORTH

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA B

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-115.00
CADD FILE N0	26 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt

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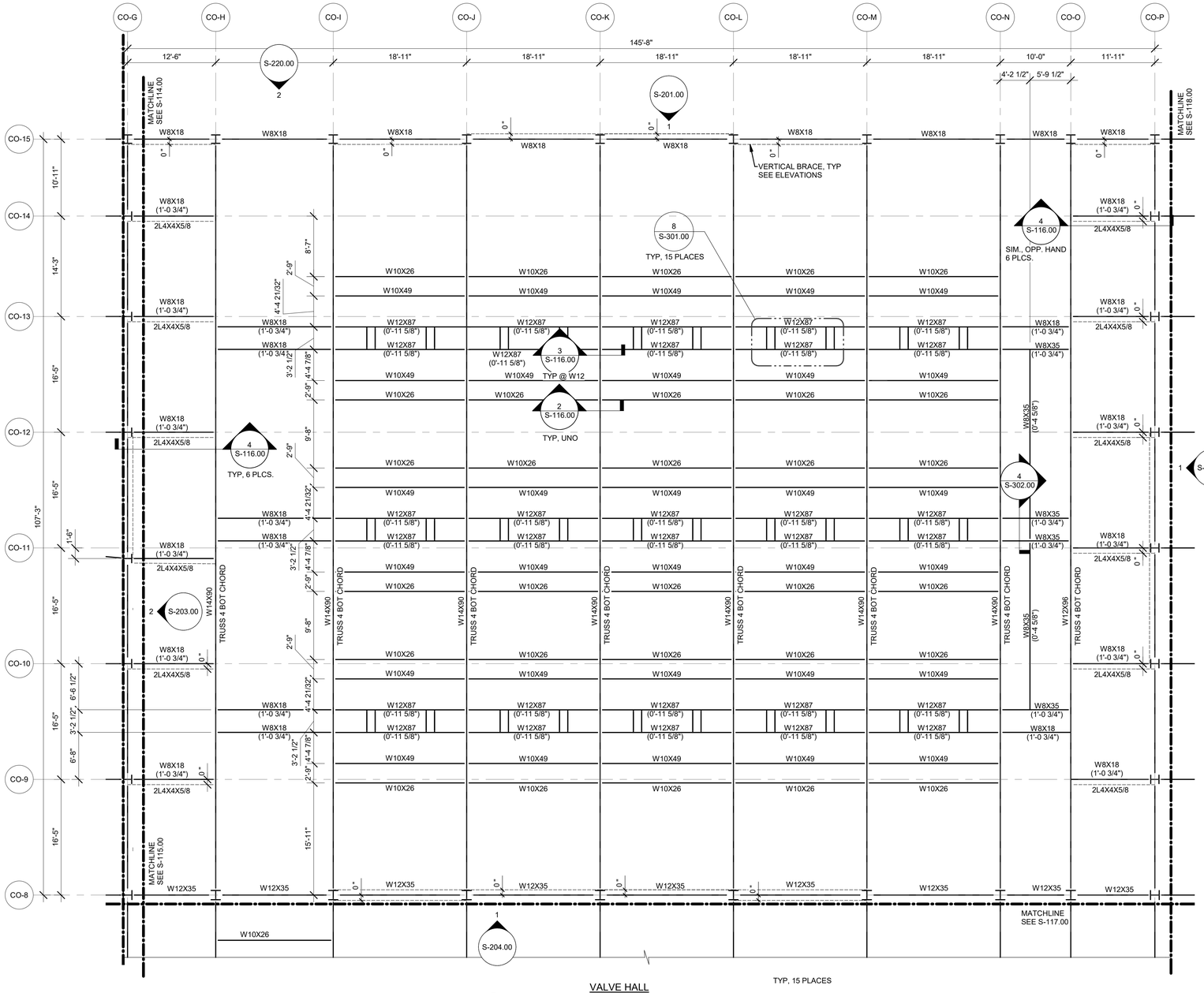
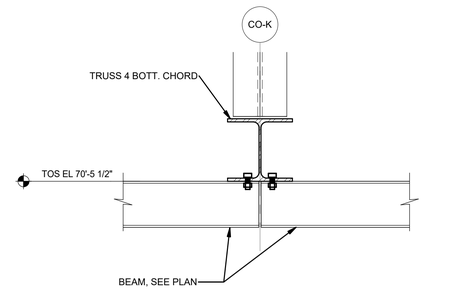


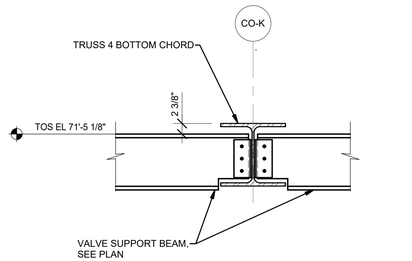
1 S-116.00 CONVERTER BUILDING - FRAMING PLAN @ TOS EL 70'-5 1/2"
1/8" = 1'-0" 1' 0 4' 8' 16'

SHEET NOTES:

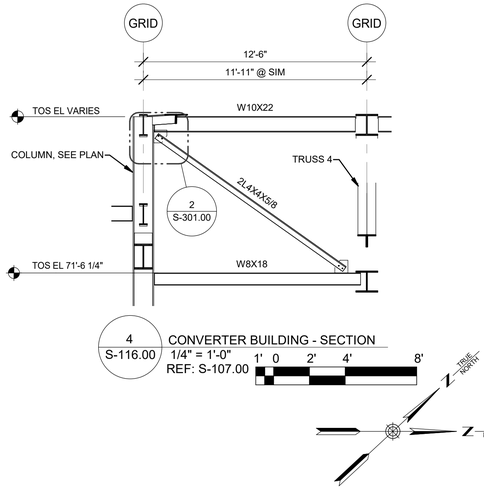
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



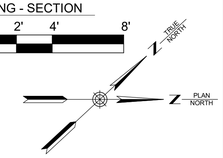
2 S-116.00 CONVERTER BUILDING - SECTION
3/4" = 1'-0" 1' 0 1' 2'



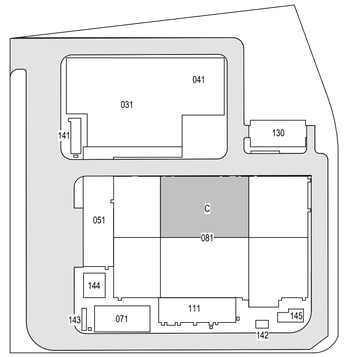
3 S-116.00 CONVERTER BUILDING - SECTION
3/4" = 1'-0" 1' 0 1' 2'



4 S-116.00 CONVERTER BUILDING - SECTION
1/4" = 1'-0" 1' 0 2' 4' 8'
REF: S-107.00



ISSUED FOR PERMIT



KEY PLAN
N.T.S.

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SUITE 1604
New York, NY 10001

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25 Mohawk Avenue
Sparta, NJ 07871

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Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA C

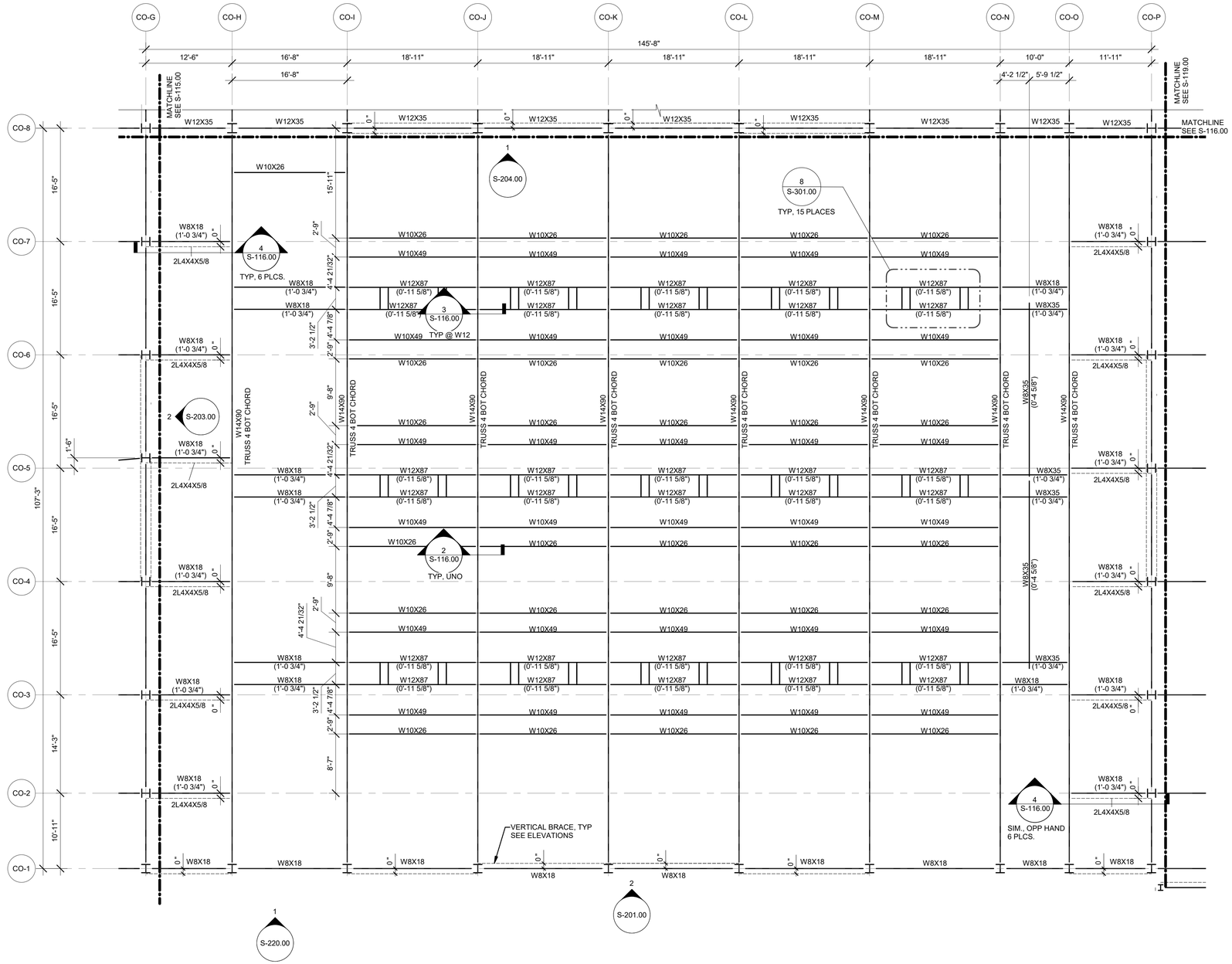
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-116.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZZ-M3-S-001.rvt
	27 of 74

12/9/2022 3:06:09 PM

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

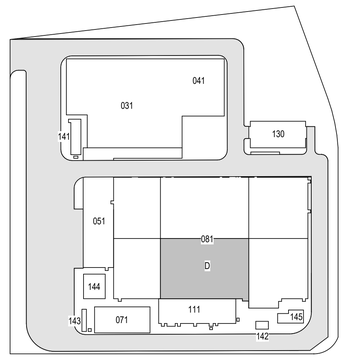


VALVE HALL

1 / S-117.00 CONVERTER BUILDING - FRAMING PLAN @ TOS EL 70'-5 1/2"
1/8" = 1'-0"

1' 0 4' 8' 16'

ISSUED FOR PERMIT



KEY PLAN
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PLAN NORTH

Engineering and Land Surveying, P.C.
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SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

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Kiewit
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Raleigh, North Carolina 27606

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PROJECT

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Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA D

STATE OF NEW YORK
WAEL M YOUSSEF
LICENSED PROFESSIONAL ENGINEER
080653

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-117.00
CADD FILE N0	28 of 74

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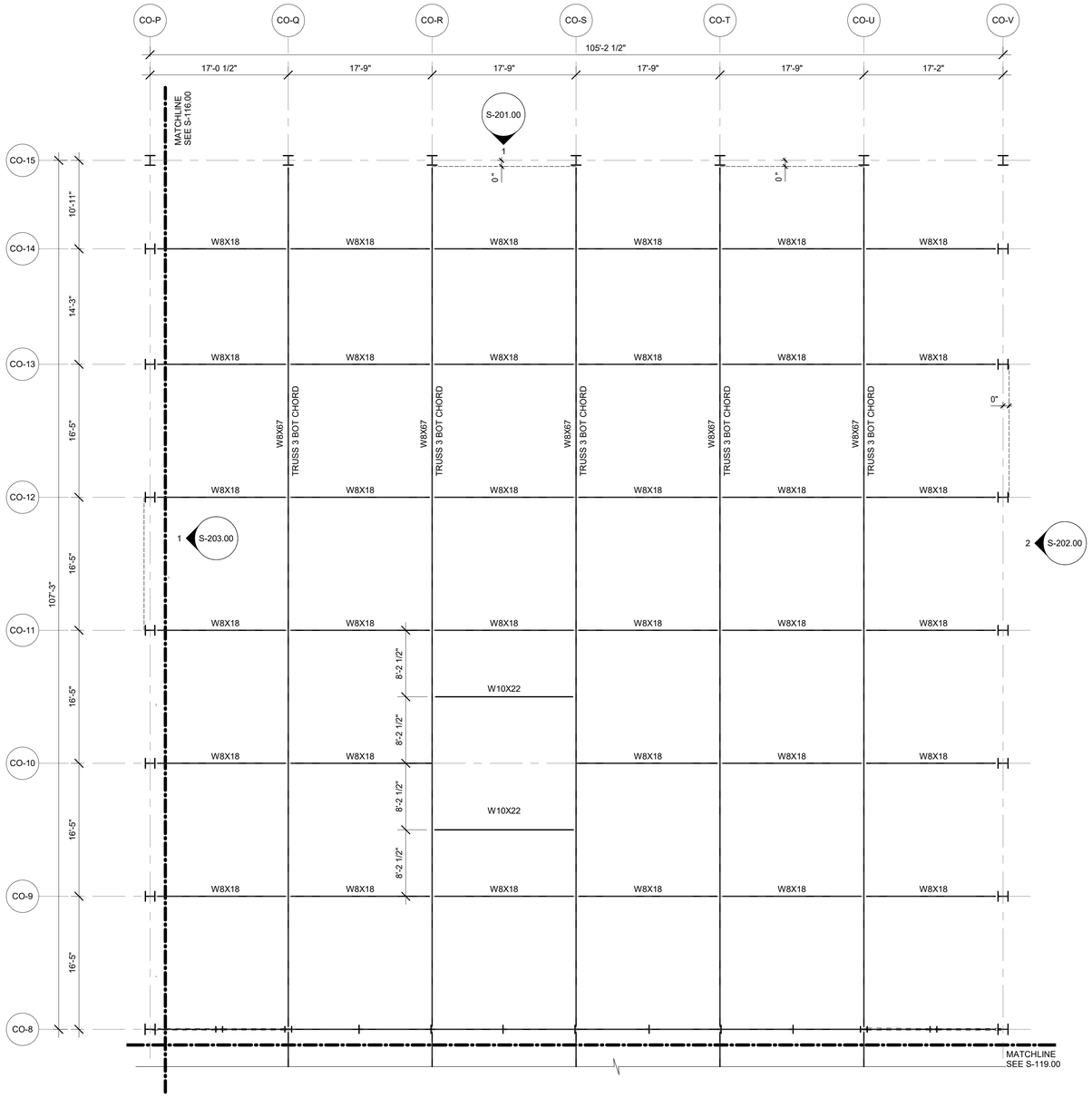
12/9/2022 3:06:12 PM

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



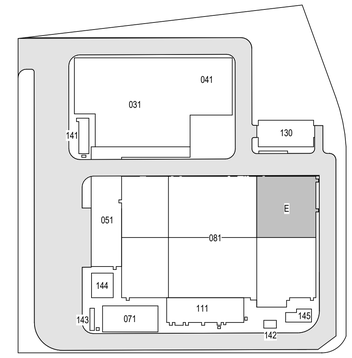
DC HALL

1 / S-118.00 CONVERTER BUILDING - FRAMING PLAN @ TOS EL 67'-3 1/4"
1/8" = 1'-0"

1' 0 4' 8' 16'

12/9/2022 3:06:14 PM

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
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Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

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PLAN NORTH

PROJECT

CHPE
Champlain Hudson Power Express

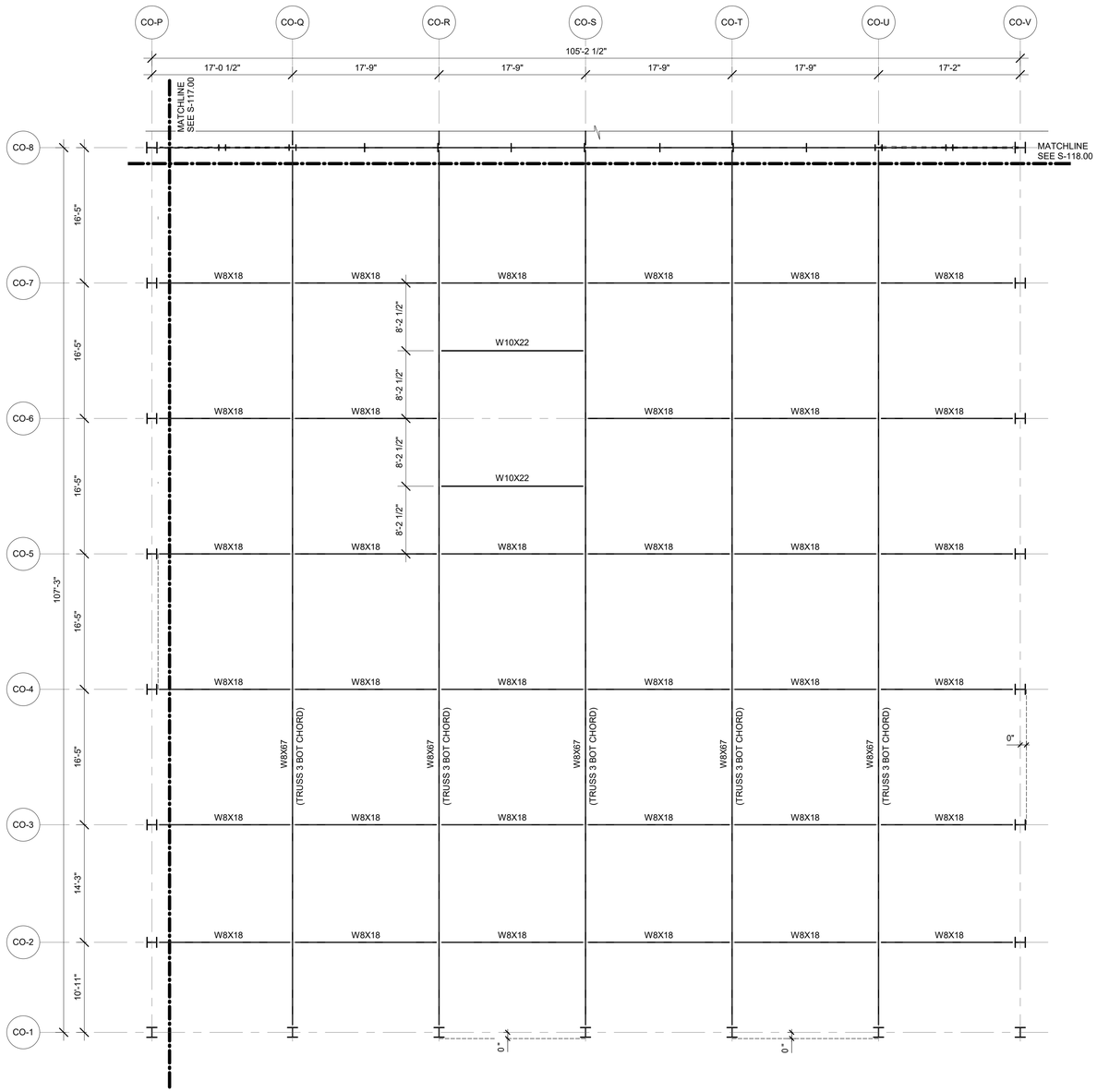
Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA E

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-118.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-091-ZZ-M3-S-001.rvt
	29 of 74



DC HALL

1 / S-119.00 CONVERTER BUILDING - FRAMING PLAN @ TOS EL 67'-3 1/4"

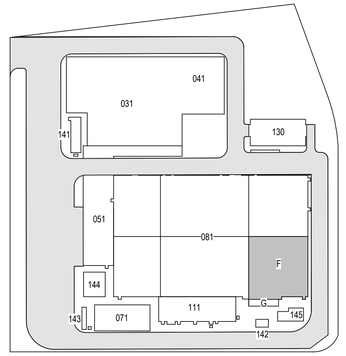
1/8" = 1'-0"

1' 0 4' 8' 16'

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

ISSUED FOR PERMIT



KEY PLAN
N.T.S.

PLAN NORTH

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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

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Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
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Raleigh, North Carolina 27606

PROJECT

CHPE
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Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

TRUE NORTH

PLAN NORTH

CONVERTER BUILDING - TRUSS BOTTOM CHORD FRAMING - AREA F

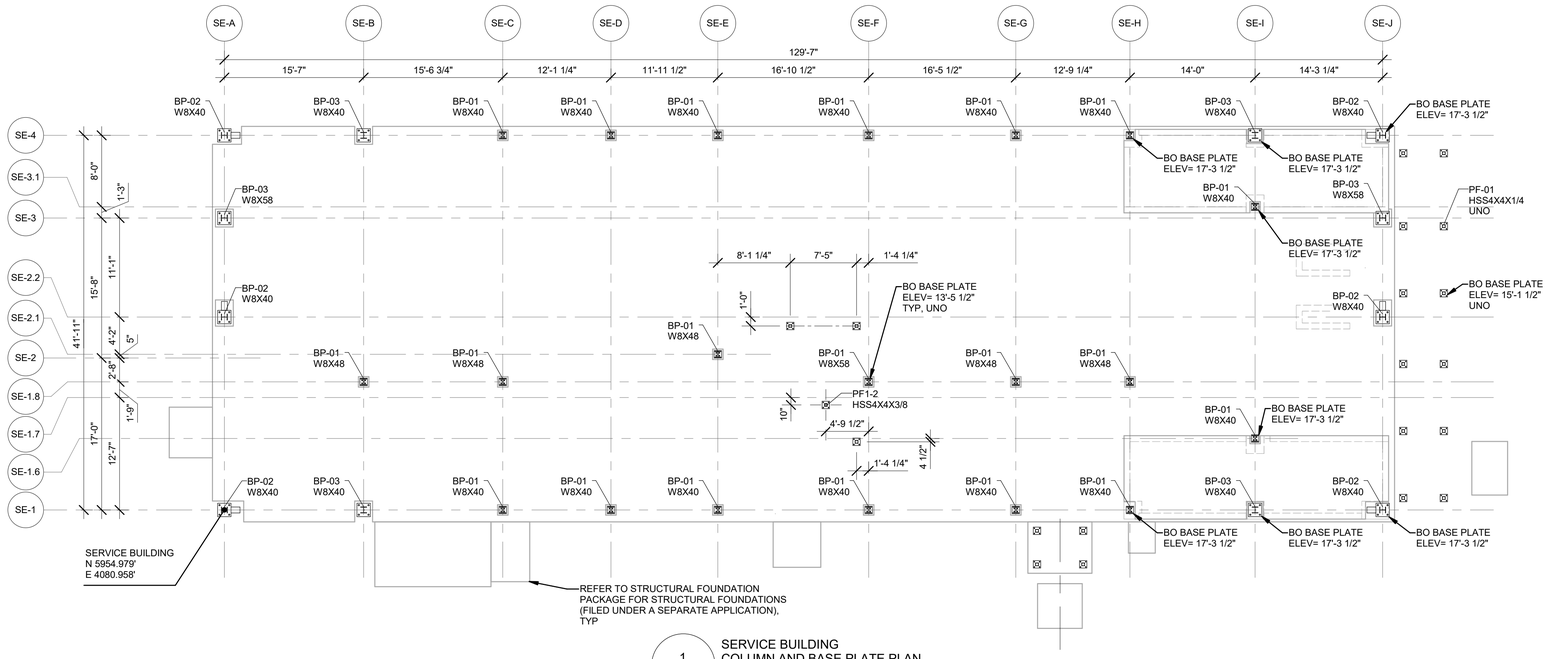
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-119.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt
	30 of 74

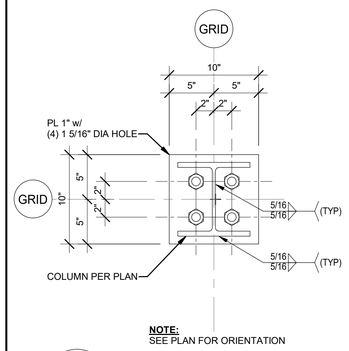
12/9/2022 3:06:16 PM

SHEET NOTES:

1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. BP-XX ON PLAN DENOTES BASE PLATE DETAILS.
3. LD-XX ON PLAN DENOTES LADDER TYPICAL CONNECTION, SEE DRAWING S-611.00.
4. PF-XX ON PLAN DENOTES PLATFORM TYPICAL DETAILS, SEE DRAWING S-621.00.

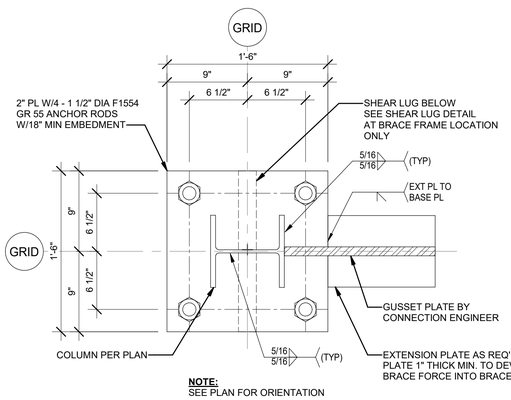


1 S-125.00 SERVICE BUILDING COLUMN AND BASE PLATE PLAN
1/8" = 1'-0"
1' 0 4' 8' 16'



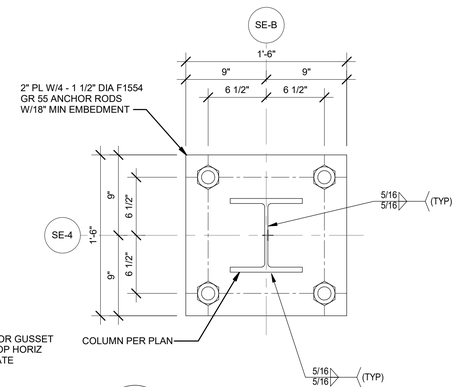
NOTE:
SEE PLAN FOR ORIENTATION

2 S-125.00 SERVICE BUILDING BP-01 DETAIL
1 1/2" = 1'-0"
0 6" 12" 24"

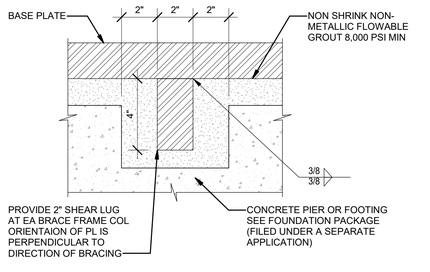


NOTE:
SEE PLAN FOR ORIENTATION

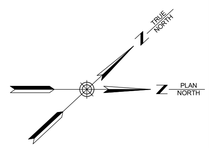
3 S-125.00 SERVICE BUILDING BP-02 DETAIL
1 1/2" = 1'-0"
0 6" 12" 24"



4 S-125.00 SERVICE BUILDING BP-03 DETAIL
1 1/2" = 1'-0"
0 6" 12" 24"



5 S-125.00 TYPICAL SHEAR LUG DETAIL
3" = 1'-0"
3" 0 3" 9"



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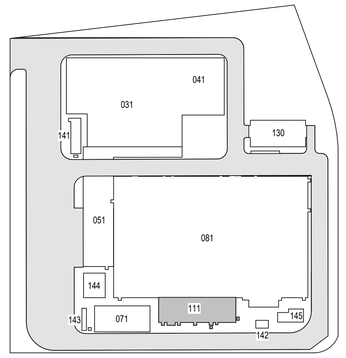

KEY PLAN
N.T.S.

PLAN NORTH

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370 7th Avenue
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New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
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A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING COLUMN AND BASE PLATE PLAN

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

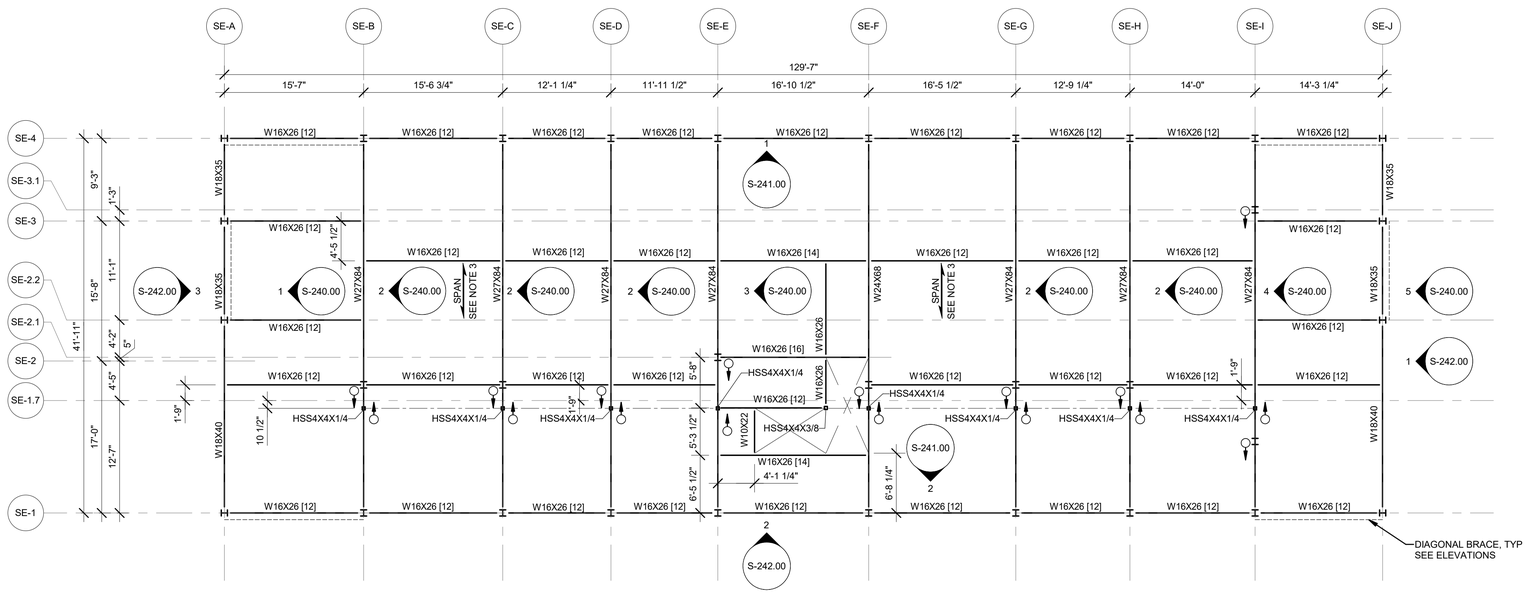
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-125.00
CADD FILE N0	31 of 74

Autodesk Docs://CHPE_Astoria/CHA-ASE-111-ZZ-M3-S-001.rvt

12/7/2022 11:34:40 AM

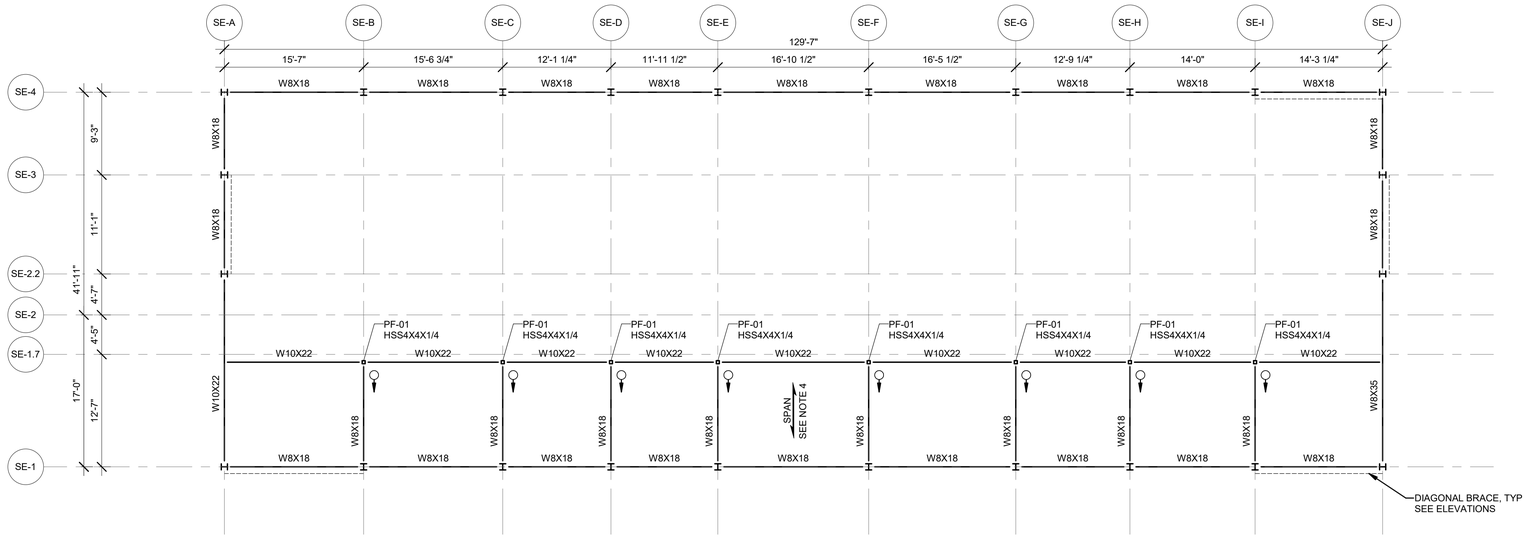
SHEET NOTES:

1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. LD-XX ON PLAN DENOTES LADDER TYPICAL CONNECTION, SEE DRAWING S-611.00.
3. ON PLAN INDICATES 3" DEEP 16 GAGE GALVANIZED COMPOSITE METAL DECK WITH 4 1/2" NORMAL WEIGHT CONCRETE (F'c=4000 PSI) TOPPING TOTAL THICKNESS 7 1/2". REINFORCED WITH 6X6-W2.1X2.1 W.W.R.
4. 3" DEEP 18 GAGE GALVANIZED METAL ROOF DECK.



1 S-126.00 SERVICE BUILDING
FLOOR FRAMING PLAN @ TOS 30'-3"
1/8" = 1'-0"

1' 0 4' 8' 16'

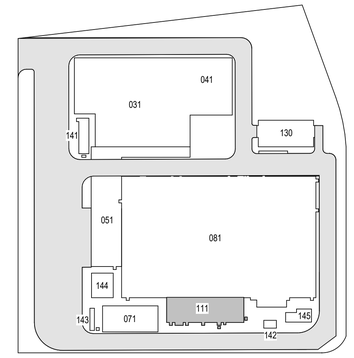


2 S-126.00 SERVICE BUILDING
THIRD FLOOR FRAMING PLAN @ TOS 42' 9"
1/8" = 1'-0"

1' 0 4' 8' 16'

12/7/2022 11:34:43 AM

ISSUED FOR PERMIT



KEY PLAN
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SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

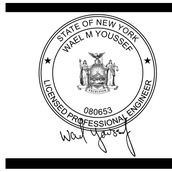
PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

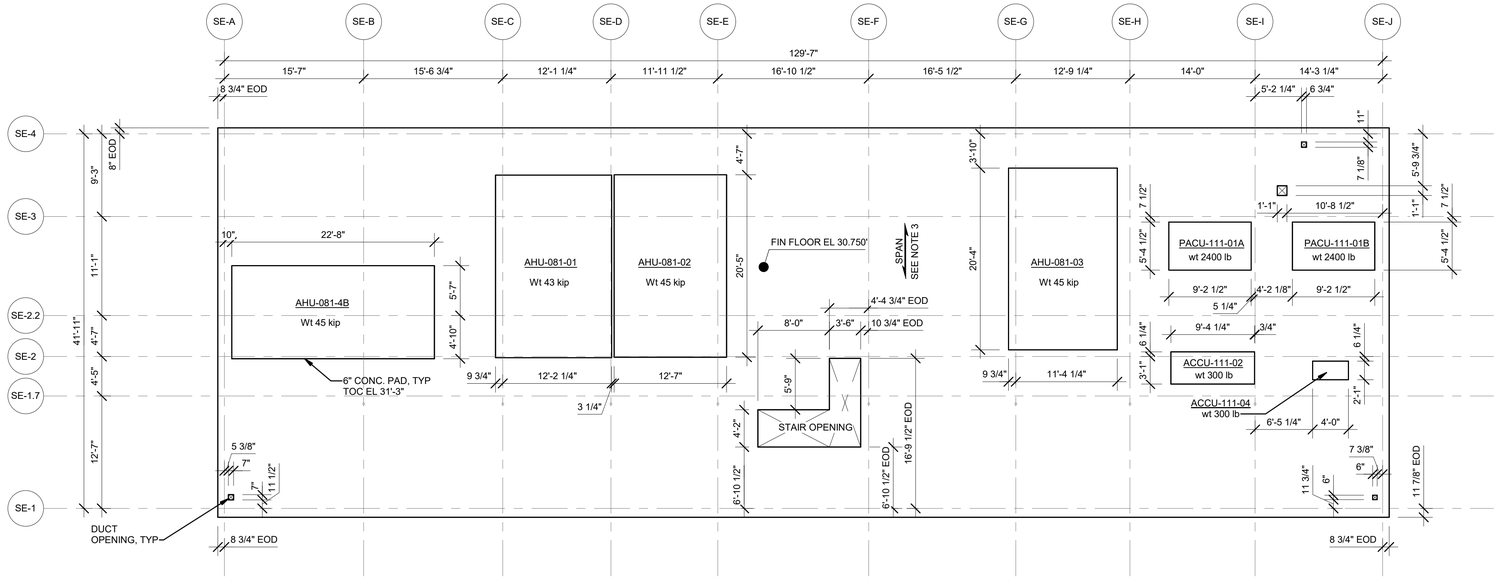
SERVICE BUILDING FLOOR FRAMING PLAN



DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-126.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-111-ZZ-M3-S-001.rvt
	32 of 74

SHEET NOTES:

1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. LD-XX ON PLAN DENOTES LADDER TYPICAL CONNECTION, SEE DRAWING S-611.00.
3. 3" x 16 GA DECK WITH 4 1/2" CONC TOPPING (TOTAL DEPTH = 7 1/2")



1 / S-127.00 SERVICE BUILDING SECOND FLOOR SLAB PLAN @ TOC EL 30'-9"

1/8" = 1'-0"

1' 0 4' 8' 16'

SERVICE BUILDING BEAM CONNECTION DESIGN FORCES

BEAM SIZE	DESIGN AXIAL FORCE (KIPS)	DESIGN SHEAR FORCE (KIPS)
W8	20	15
W10	25	20
W16	10	40
W18	10	50
W24	10	50
W27	10	130

SERVICE BUILDING IN-PLANE BRACE CONNECTION DESIGN FORCES (ASD)

BEAM SIZE	DESIGN AXIAL FORCE (KIPS)	MIN. SHEAR IN-PLANE & OUT-IF-PLANE (KIPS)
2L4x4x3/8	15	2

SERVICE BUILDING VERTICAL BRACE CONNECTION DESIGN FORCES (ASD)

BEAM SIZE	DESIGN AXIAL FORCE (KIPS)	MIN. SHEAR IN-PLANE & OUT-IF-PLANE (KIPS)
W8x24	50	5
W8x35	75	5
W8x40	125	5

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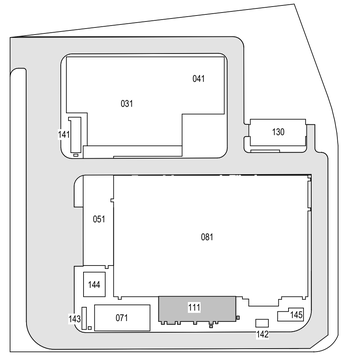

KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
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Kiewit
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Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

TRUE NORTH

PLAN NORTH

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING ELEVATED SLAB AND THRID FLOOR FRAMING PLANS

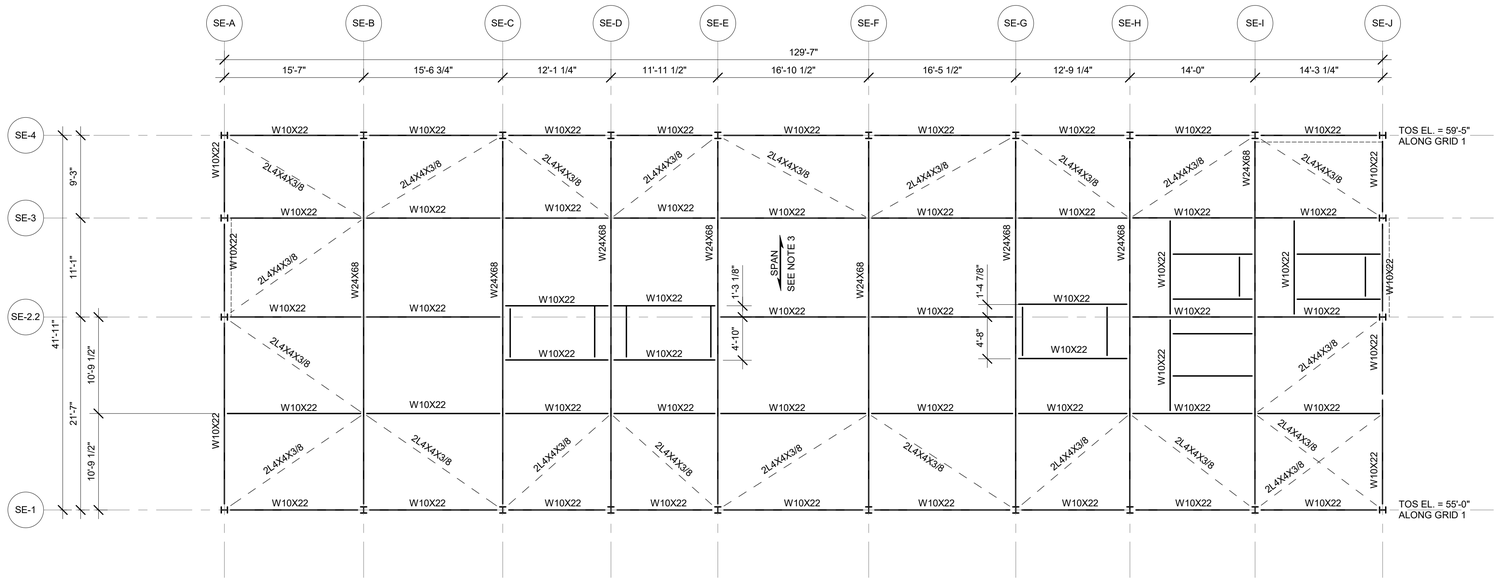
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-127.00
CADD FILE N0	33 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-111-ZZ-MS-S-001.rvt

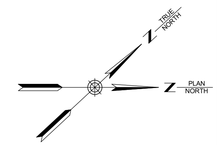
SHEET NOTES:

1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. CONNECTION CODES ON ONE SIDE OF MEMBER APPLIES TO BOTH SIDES UNO.
3. 3" DEEP 18 GAGE GALVANIZED METAL ROOF DECK.
4. LD-XX ON PLAN DENOTES LADDER TYPICAL CONNECTION, SEE DRAWING S-611.00.



1 / S-128.00 SERVICE BUILDING ROOF FRAMING PLAN
1/8" = 1'-0"

1' 0 4' 8' 16'



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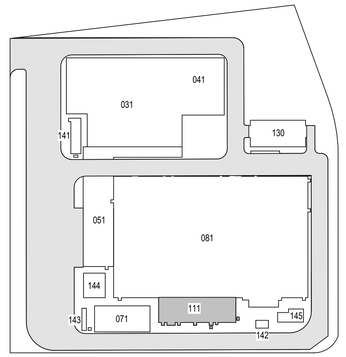

KEY PLAN
N.T.S.

PLAN NORTH

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING ROOF FRAMING PLAN

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-128.00
CADD FILE N0	34 of 74

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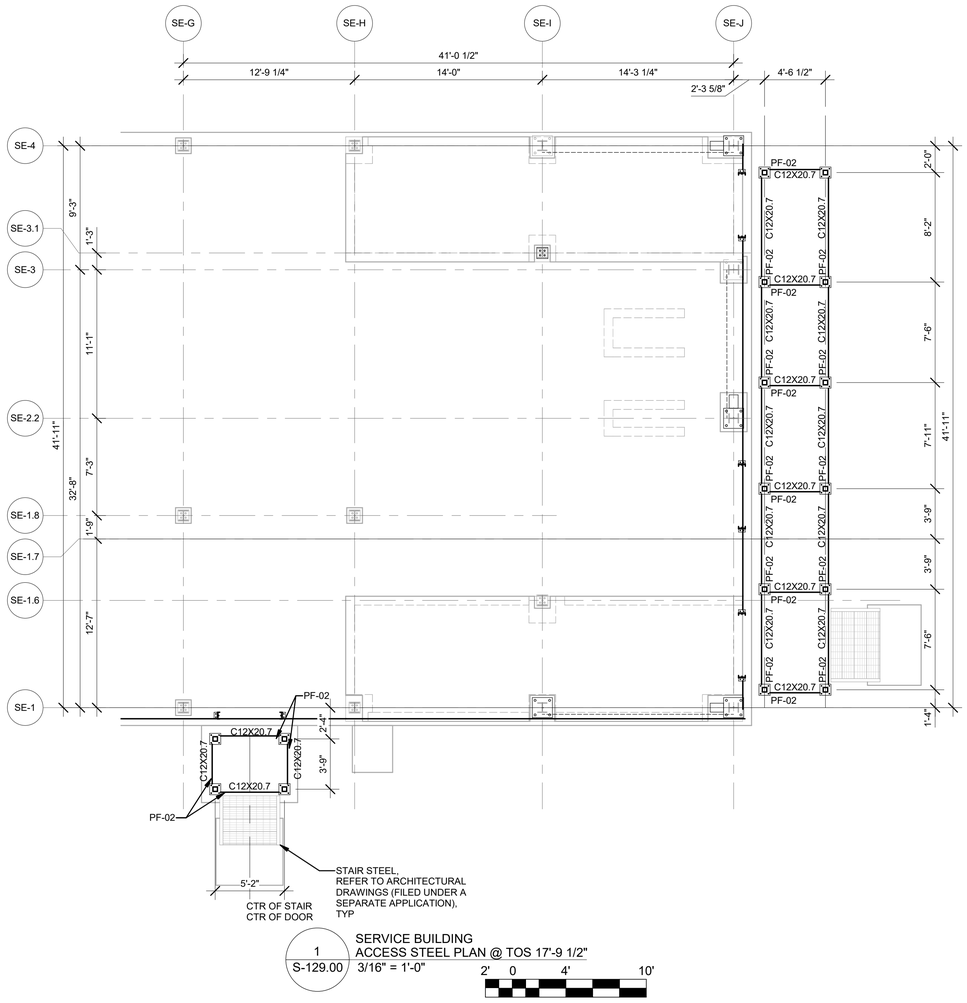
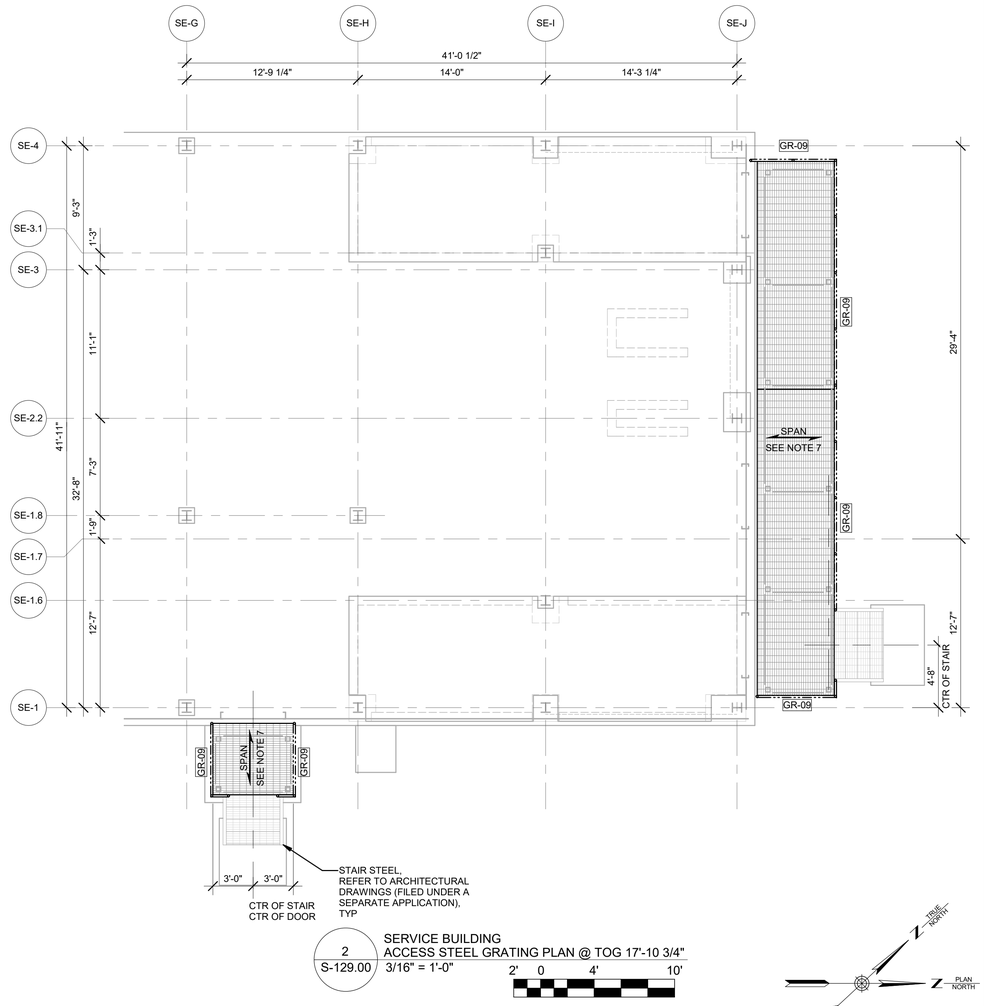
SHEET NOTES:

1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. LD-XX ON PLAN DENOTES LADDER TYPICAL CONNECTION, SEE DRAWING S-611.00.
3. PF-XX ON PLAN DENOTES PLATFORM TYPICAL DETAILS, SEE DRAWING S-621.00.
4. BMX-X ON PLAN DENOTES TYPICAL BEAM CONNECTION DETAILS, SEE DRAWING S-614.00.
5. CONNECTION CODES ON ONE SIDE OF MEMBER APPLIES TO BOTH SIDES UNO.
6. GR-XX ON PLAN DENOTES GUARDRAIL TYPICAL DETAILS, SEE DRAWING S-615.00.
7. 1 1/4" DEEP STEEL GRATING.



1 / S-129.00 SERVICE BUILDING ACCESS STEEL PLAN @ TOS 17'-9 1/2"
3/16" = 1'-0"
2' 0 4' 10'



2 / S-129.00 SERVICE BUILDING ACCESS STEEL GRATING PLAN @ TOG 17'-10 3/4"
3/16" = 1'-0"
2' 0 4' 10'

TRUE NORTH
PLAN NORTH

12/7/2022 11:34:49 AM

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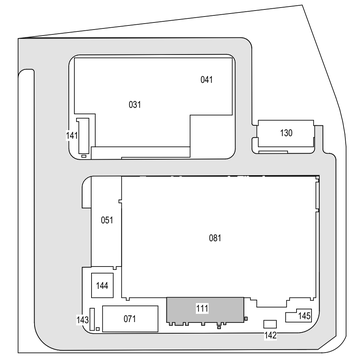

KEY PLAN
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PLAN NORTH

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New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

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901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING ACCESS STEEL FRAMING AND GRATING PLANS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-129.00
CADD FILE N0	35 of 74

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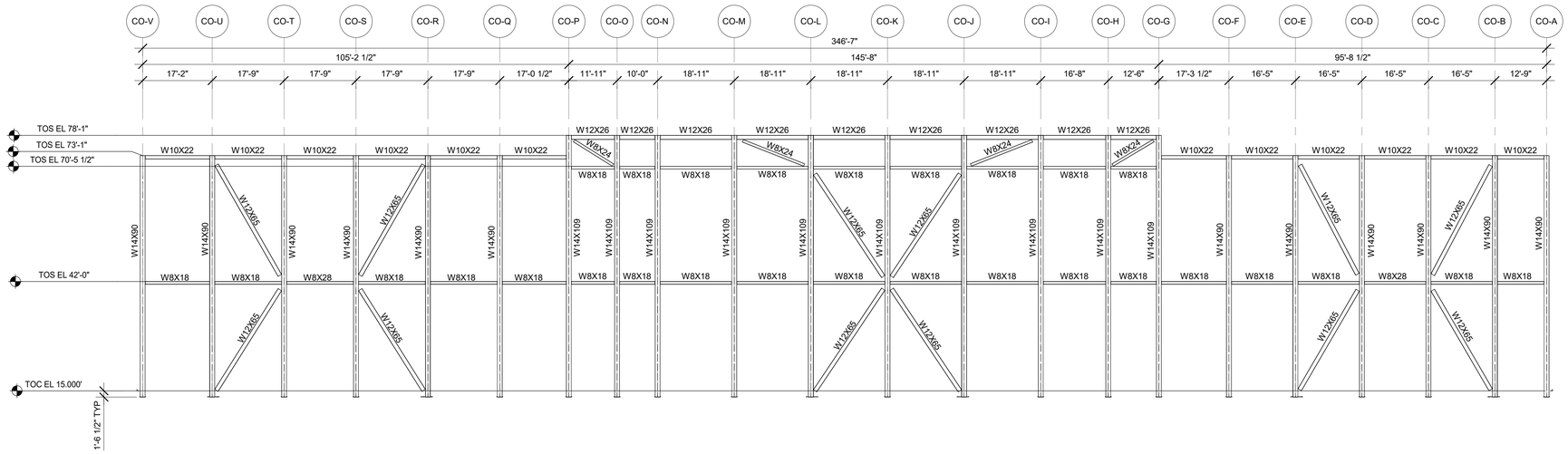
SHEET NOTES:

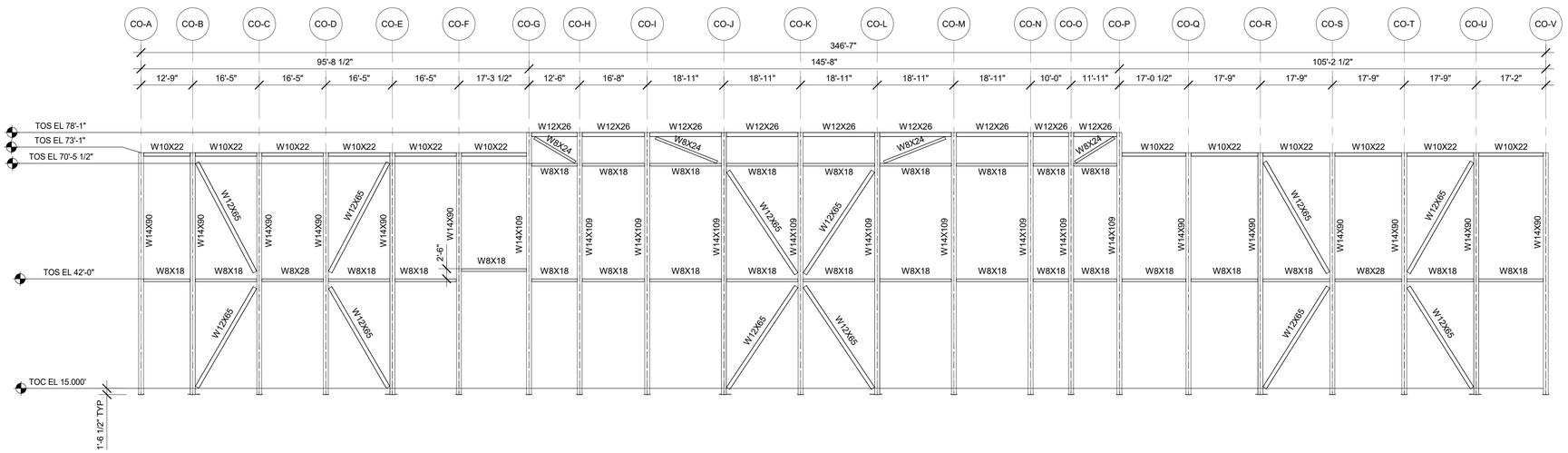
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWINGS S-220.00 - S-222.00 FOR GIRT ELEVATIONS



1 / S-101.00 CONVERTER BUILDING - EXTERIOR ELEVATION @ GRID CO-15

1/16" = 1'-0"

2' 0 8' 16' 32'



2 / S-101.00 CONVERTER BUILDING - EXTERIOR ELEVATION @ GRID CO-1

1/16" = 1'-0"

2' 0 8' 16' 32'

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SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
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REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
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470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - EXTERIOR WALL FRAMING ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-201.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-08I-ZZ-M3-S-001.rvt
	36 of 74

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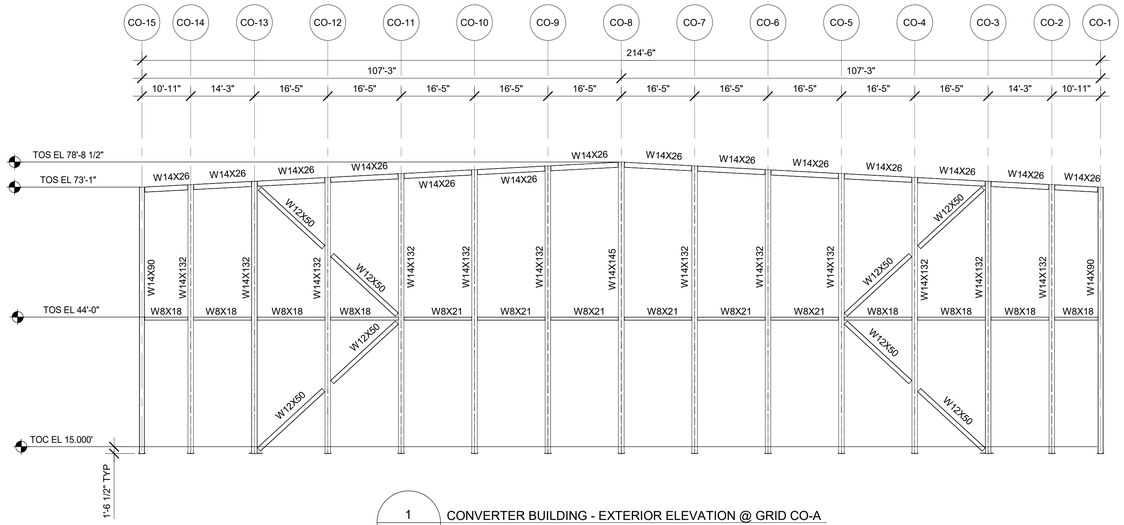
SHEET NOTES:

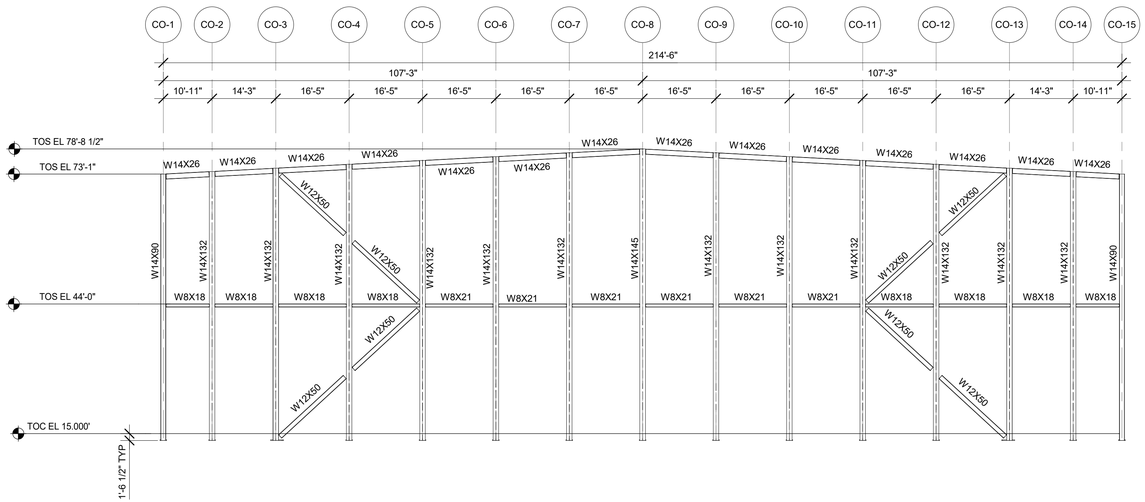
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWINGS S-220.00 - S-222.00 FOR GIRT ELEVATIONS



1 / S-101.00 CONVERTER BUILDING - EXTERIOR ELEVATION @ GRID CO-A

1/16" = 1'-0"

2' 0 8' 16' 32'



2 / S-101.00 CONVERTER BUILDING - EXTERIOR ELEVATION @ GRID CO-V

1/16" = 1'-0"

2' 0 8' 16' 32'

12/9/2022 3:06:22 PM

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SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - EXTERIOR WALL FRAMING ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-202.00
CADD FILE N0	37 of 74

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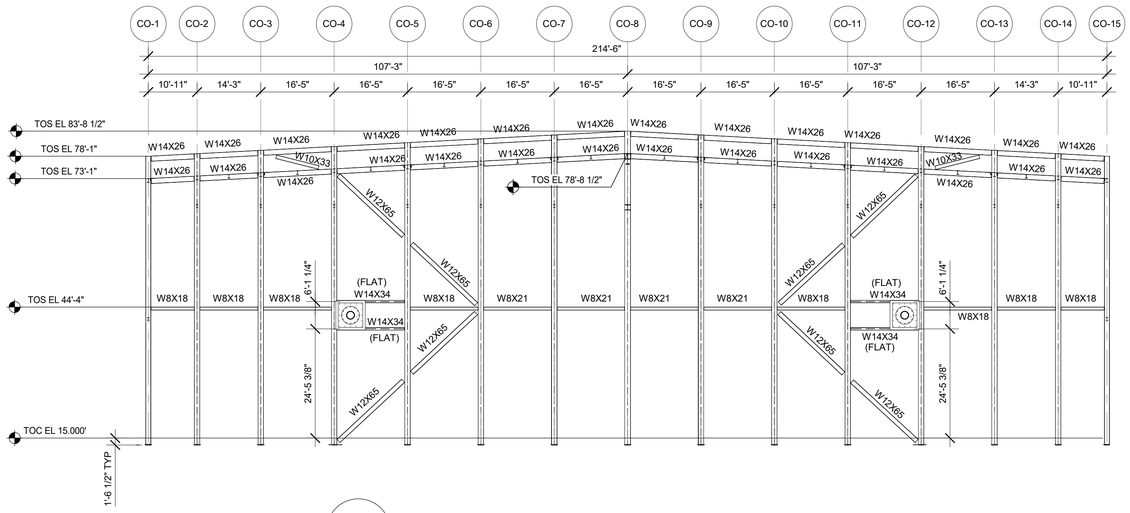
SHEET NOTES:

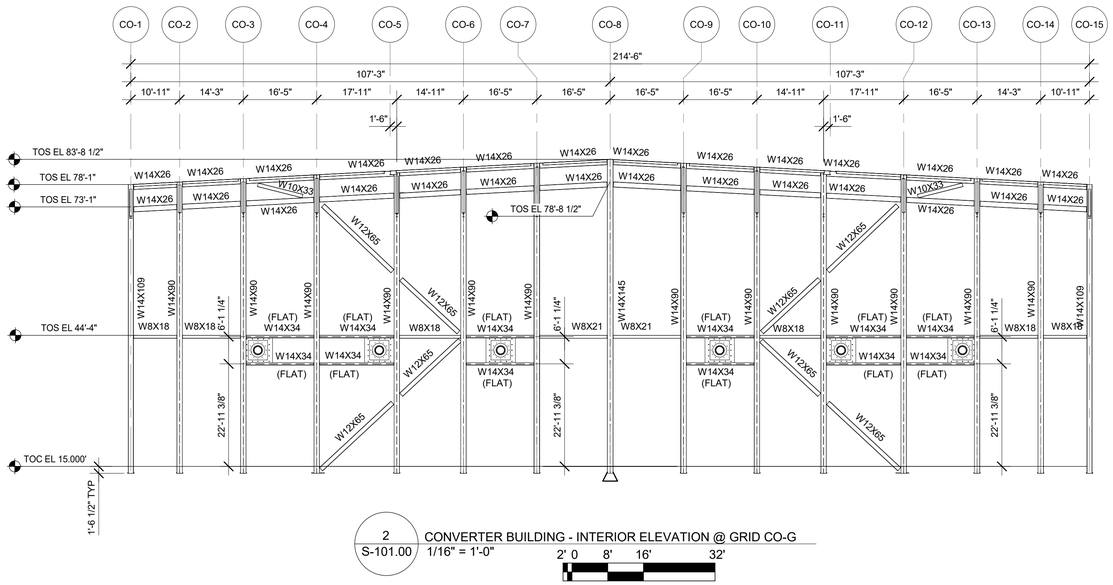
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



1 / S-103.00 CONVERTER BUILDING - INTERIOR ELEVATION @ GRID CO-P

1/16" = 1'-0"

2' 0 8' 16' 32'



2 / S-101.00 CONVERTER BUILDING - INTERIOR ELEVATION @ GRID CO-G

1/16" = 1'-0"

2' 0 8' 16' 32'

12/9/2022 3:06:37 PM

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370 7th Avenue
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New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - INTERIOR WALL FRAMING ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-203.00
CADD FILE N0	38 of 74

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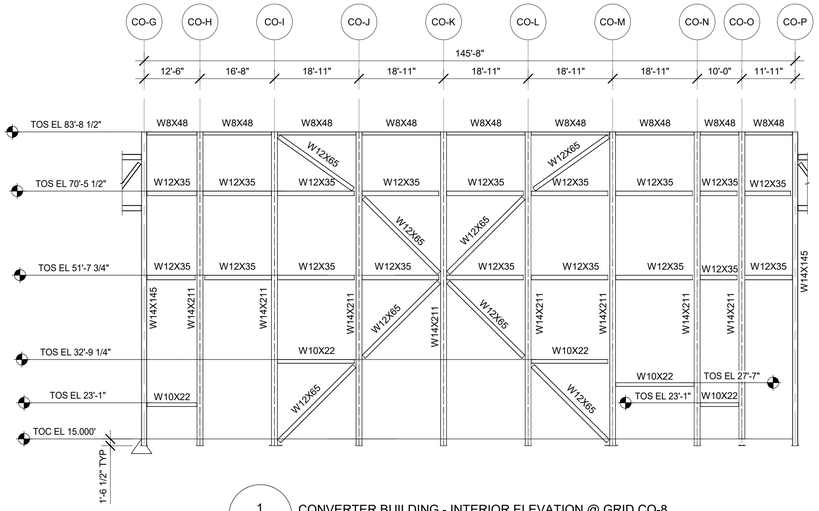
SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



1 / S-103.00 CONVERTER BUILDING - INTERIOR ELEVATION @ GRID CO-8

1/16" = 1'-0"

2' 0 8' 16' 32'

ISSUED FOR PERMIT

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New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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PROJECT

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Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - INTERIOR WALL FRAMING ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-204.00
CADD FILE NO	39 of 74

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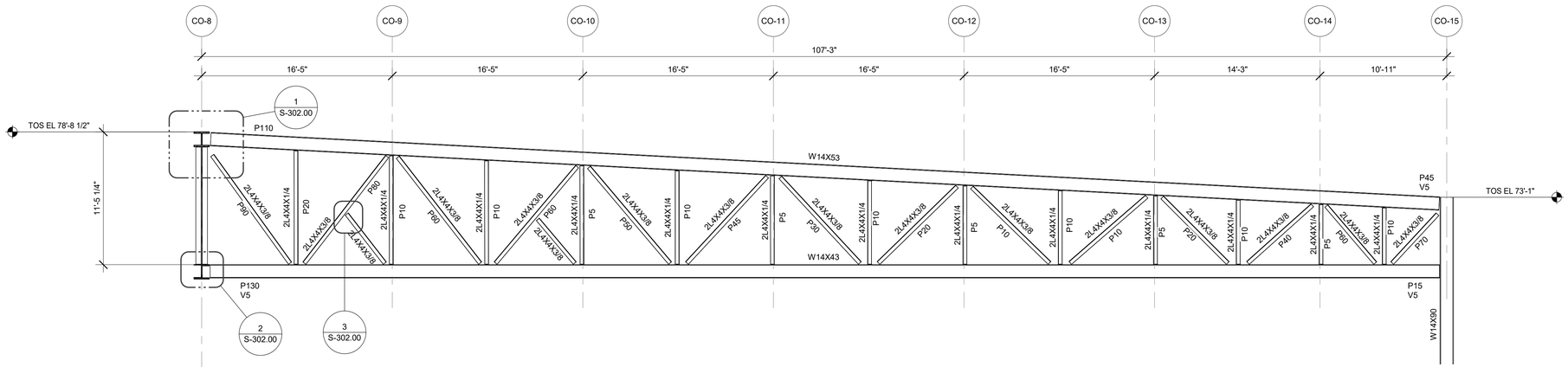
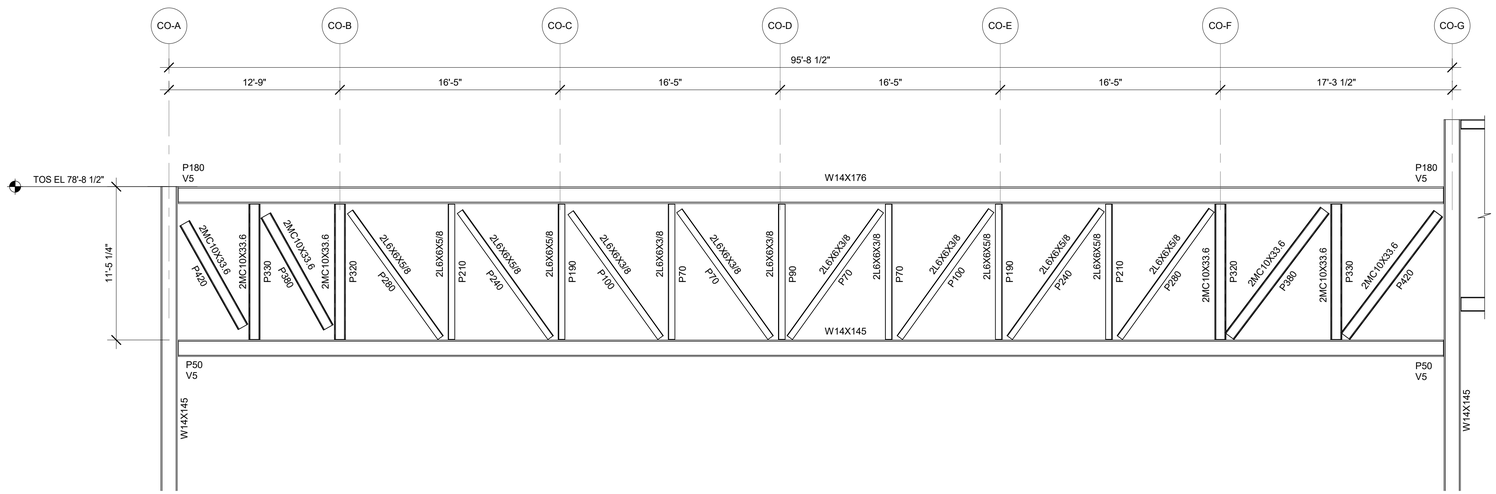
12/9/2022 3:06:39 PM

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



1 / S-107.00 CONVERTER BUILDING - TRUSS 3 ELEVATION (RACTOR & DC HALLS)
3/16" = 1'-0"
2' 0 4' 10'



2 / S-107.00 CONVERTER BUILDING - TRUSS 1 ELEVATION (REACTOR HALL)
3/16" = 1'-0"
2' 0 4' 10'

ISSUED FOR PERMIT

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SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS 3 AND 1 ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-210.00
CADD FILE N0	40 of 74

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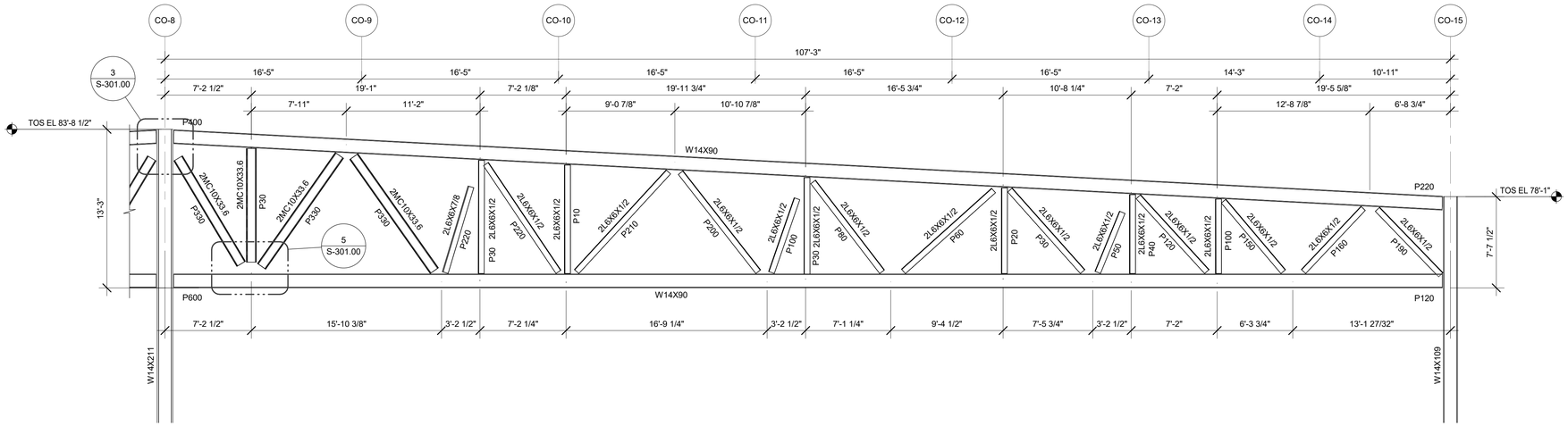
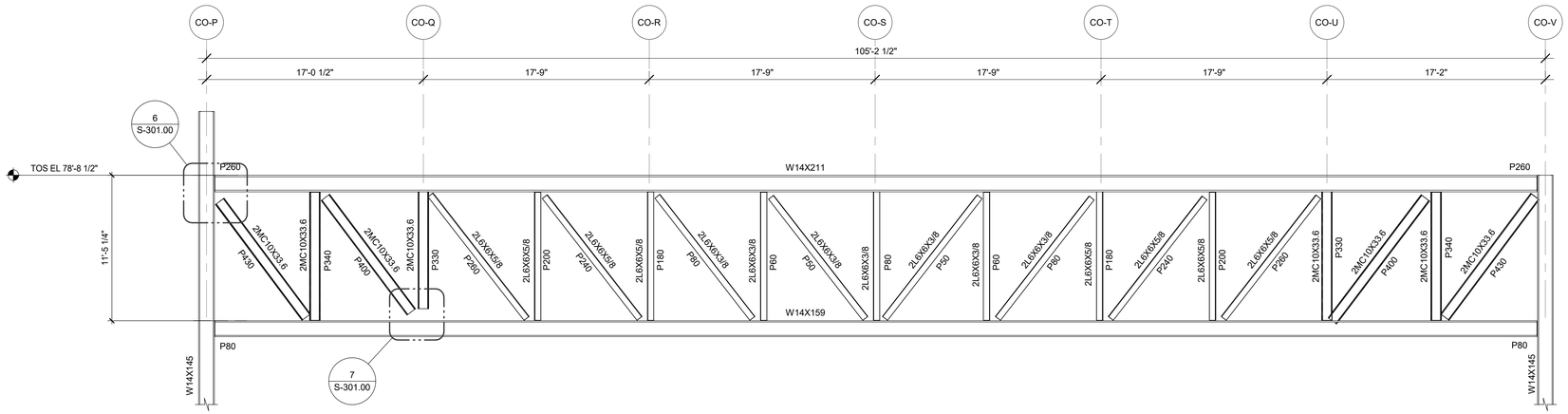
SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



1 / S-107.00 CONVERTER BUILDING - TRUSS 4 ELEVATION (VALVE HALL)
3/16" = 1'-0"
2' 0 4' 10'



2 / S-109.00 CONVERTER BUILDING - TRUSS 2 ELEVATION (DC HALL)
3/16" = 1'-0"
2' 0 4' 10'

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New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

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Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - TRUSS 4 AND 2 ELEVATIONS

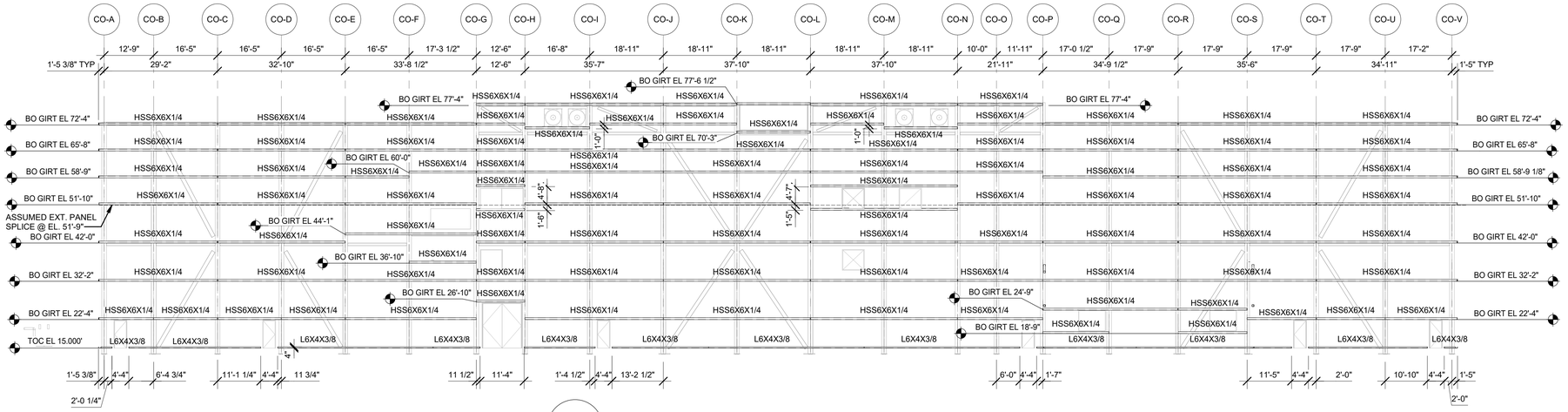
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-211.00
CADD FILE N0	41 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-MS-S-001.rvt

SHEET NOTES:

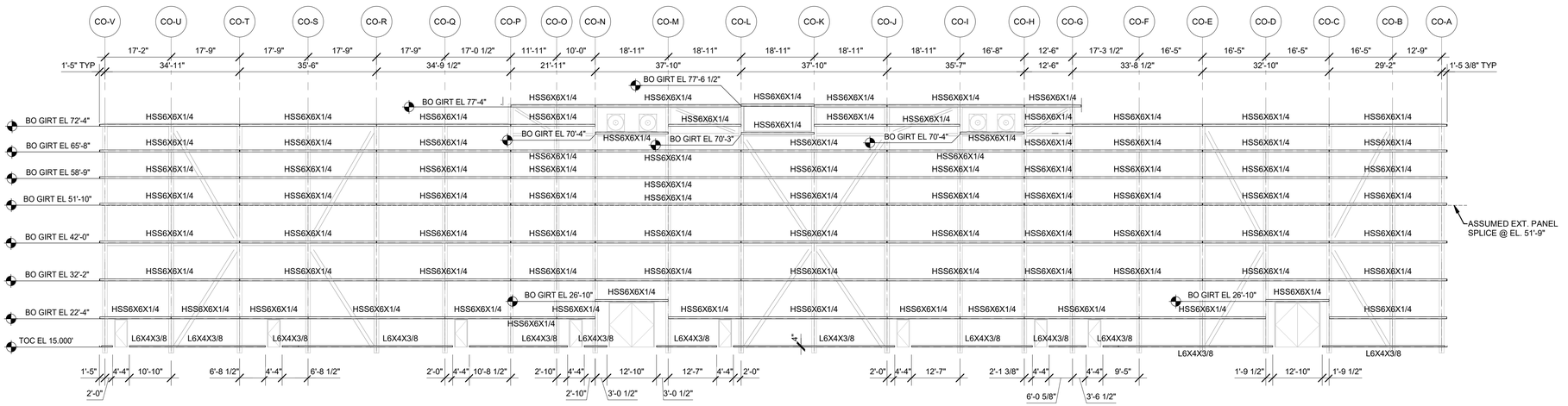
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



1 / S-102.00 CONVERTER BUILDING - GIRT FRAMING ELEVATION @ GRID CO-1

1/16" = 1'-0"

2' 0 8' 16' 32'



2 / S-105.00 CONVERTER BUILDING - GIRT FRAMING ELEVATION @ GRID CO-15

1/16" = 1'-0"

2' 0 8' 16' 32'

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - GIRT FRAMING ELAVATIONS

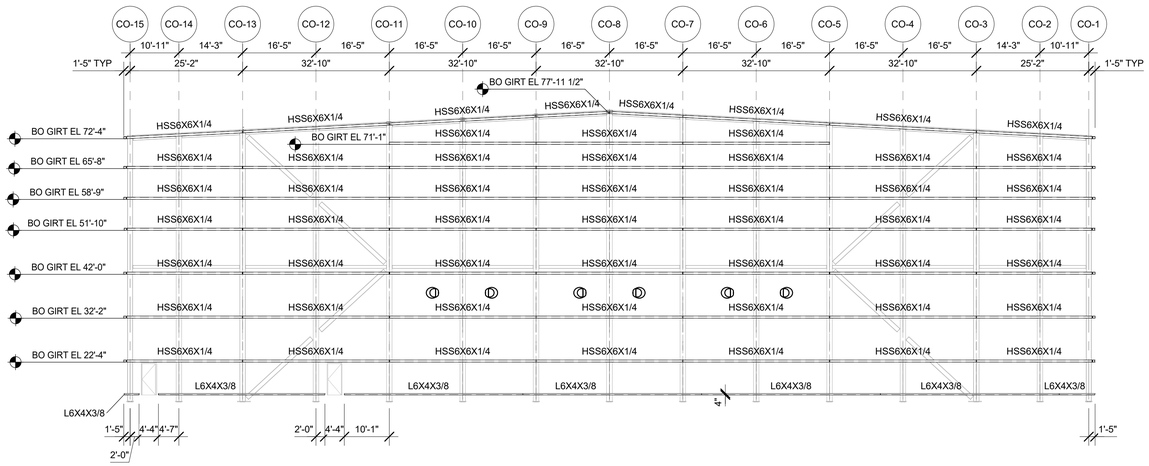
STATE OF NEW YORK · WAEL M YOUSSEF · LICENSED PROFESSIONAL ENGINEER · 080653

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-220.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-M3-S-001.rvt
	42 of 74

12/9/2022 3:06:51 PM

SHEET NOTES:

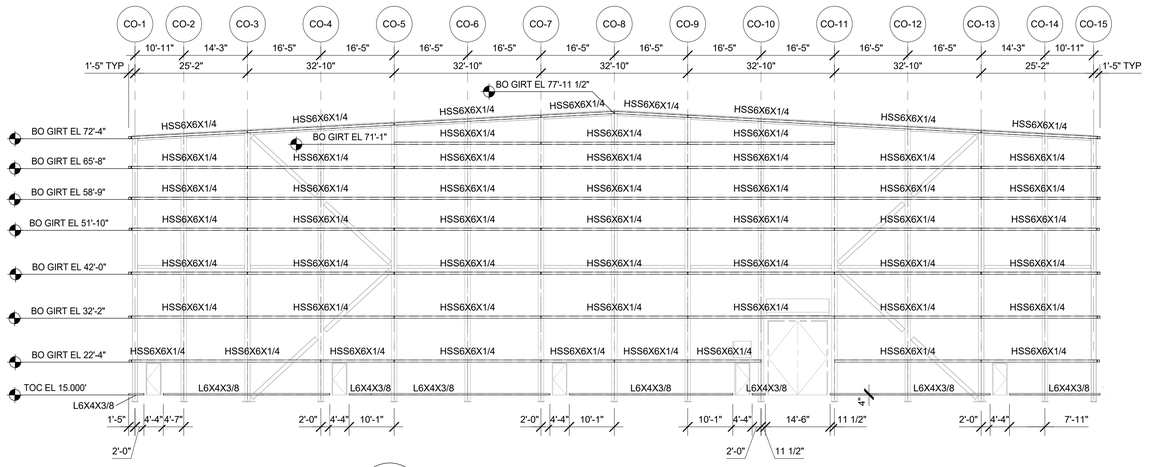
1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE



1 / S-101.00 CONVERTER BUILDING - GIRT FRAMING ELEVATION @ GRID CO-A

1/16" = 1'-0"

2' 0 8' 16' 32'



2 / S-111.00 CONVERTER BUILDING - GIRT FRAMING ELEVATION @ GRID CO-V

1/16" = 1'-0"

2' 0 8' 16' 32'

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
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Kiewit
470 Chestnut Ridge Rd # 2,
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CONVERTER BUILDING - GIRT FRAMING ELAVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-221.00
CADD FILE N0	43 of 74

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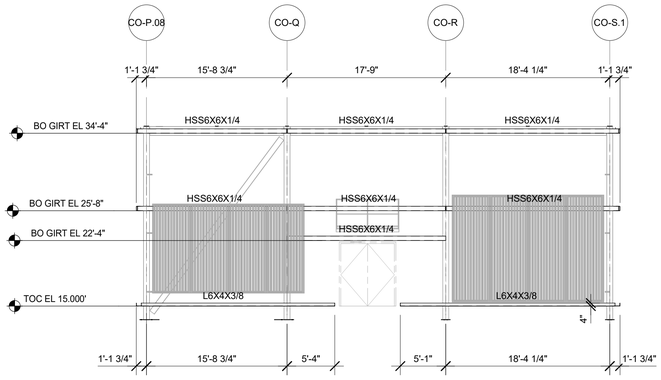
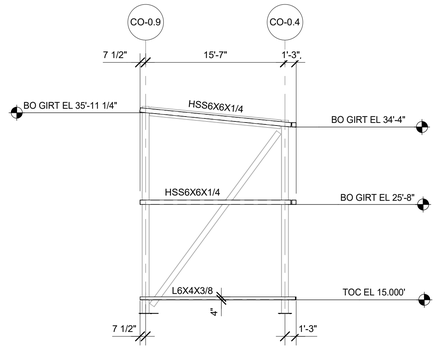


1 / S-222.00 HVAC ENCLOSURE - GIRT FRAMING ELEVATION @ GRID CO-0.4
1/8" = 1'-0"



2 / S-222.00 HVAC ENCLOSURE - GIRT FRAMING ELEVATION @ GRID CO-P.08
1/8" = 1'-0"
REF: S-117.00

3 / S-222.00 HVAC ENCLOSURE - GIRT FRAMING ELEVATION @ GRID CO-S.1
1/8" = 1'-0"

SHEET NOTES:

1. SEE DRAWING S-020.00 FOR STRUCTURAL NOTES.
2. SEE DRAWING S-302.00 FOR CONNECTION LOAD TABLE

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25 Mohawk Avenue
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PROJECT

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Astoria HVDC Converter Station

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Block #850 - Lot #310 - BIN #4624437

HVAC ENCLOSURE - GIRT FRAMING ELAVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

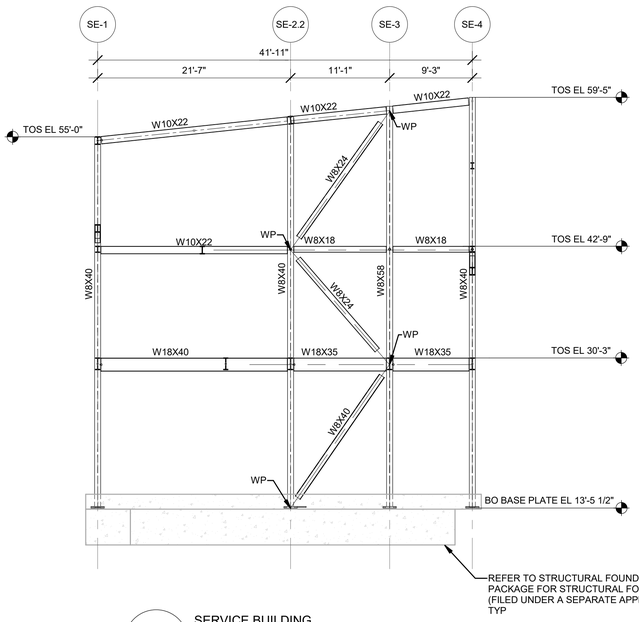
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-222.00
CADD FILE N0	44 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-MS-S-001.rvt

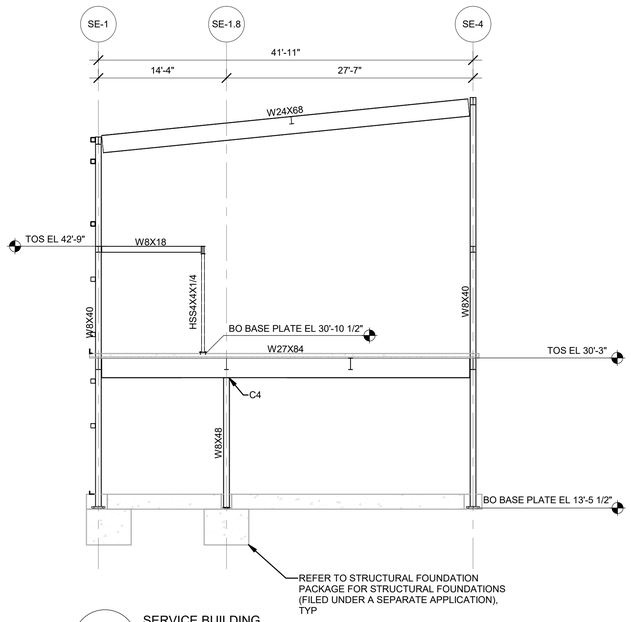
12/9/2022 3:07:00 PM

SHEET NOTES:

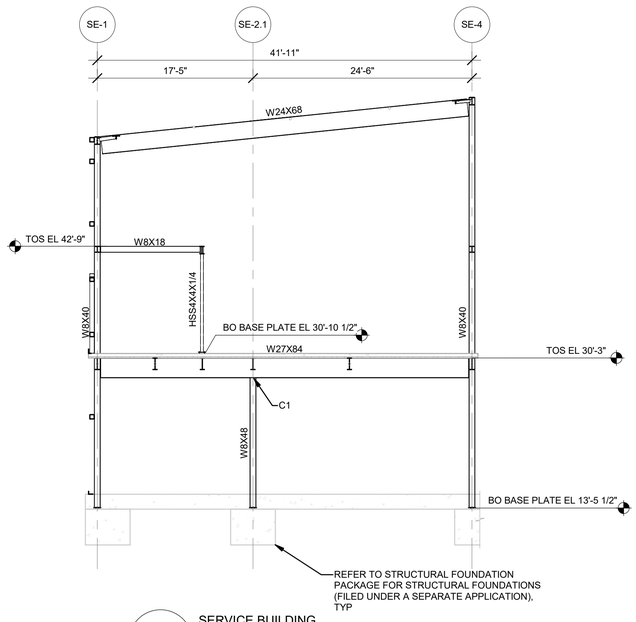
1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. BMX-X ON PLAN DENOTES TYPICAL BEAM CONNECTION DETAILS, SEE DRAWING S-614.00.
3. CONNECTION CODES ON ONE SIDE OF MEMBER APPLIES TO BOTH SIDES UNO.



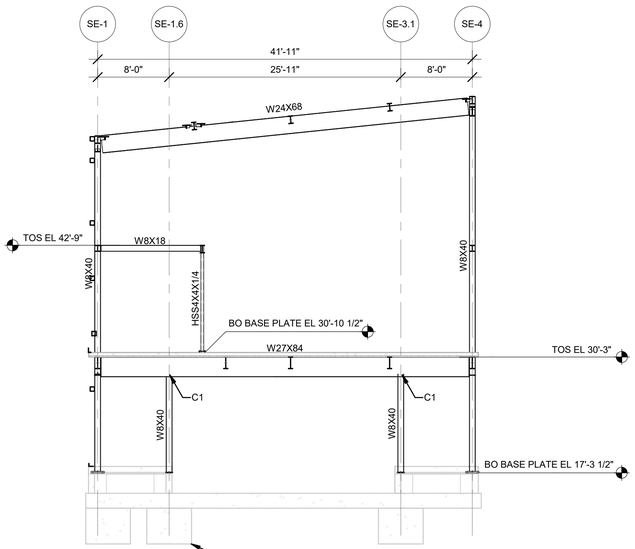
1 S-126.00 SERVICE BUILDING ELEVATION ALONG GRID A LOOKING SOUTH
1/8" = 1'-0"
1' 0 4' 8' 16'



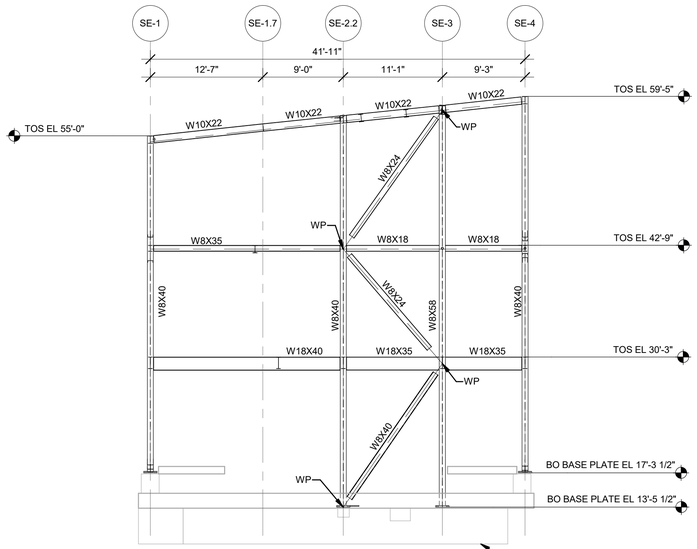
2 S-126.00 SERVICE BUILDING ELEVATION ALONG GRIDS B,C,D,F,G,H & I LOOKING SOUTH
1/8" = 1'-0"
1' 0 4' 8' 16'



3 S-126.00 SERVICE BUILDING ELEVATION ALONG GRID E LOOKING SOUTH
1/8" = 1'-0"
1' 0 4' 8' 16'



4 S-126.00 SERVICE BUILDING ELEVATION ALONG GRID I LOOKING WEST
1/8" = 1'-0"
1' 0 4' 8' 16'



NOTE:
STEEL ACCESS NOT SHOWN FOR CLARITY

5 S-126.00 SERVICE BUILDING ELEVATION ALONG GRID J LOOKING SOUTH
1/8" = 1'-0"
1' 0 4' 8' 16'

12/7/2022 11:34:53 AM

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Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING FRAMING ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-240.00
CADD FILE N0	45 of 74

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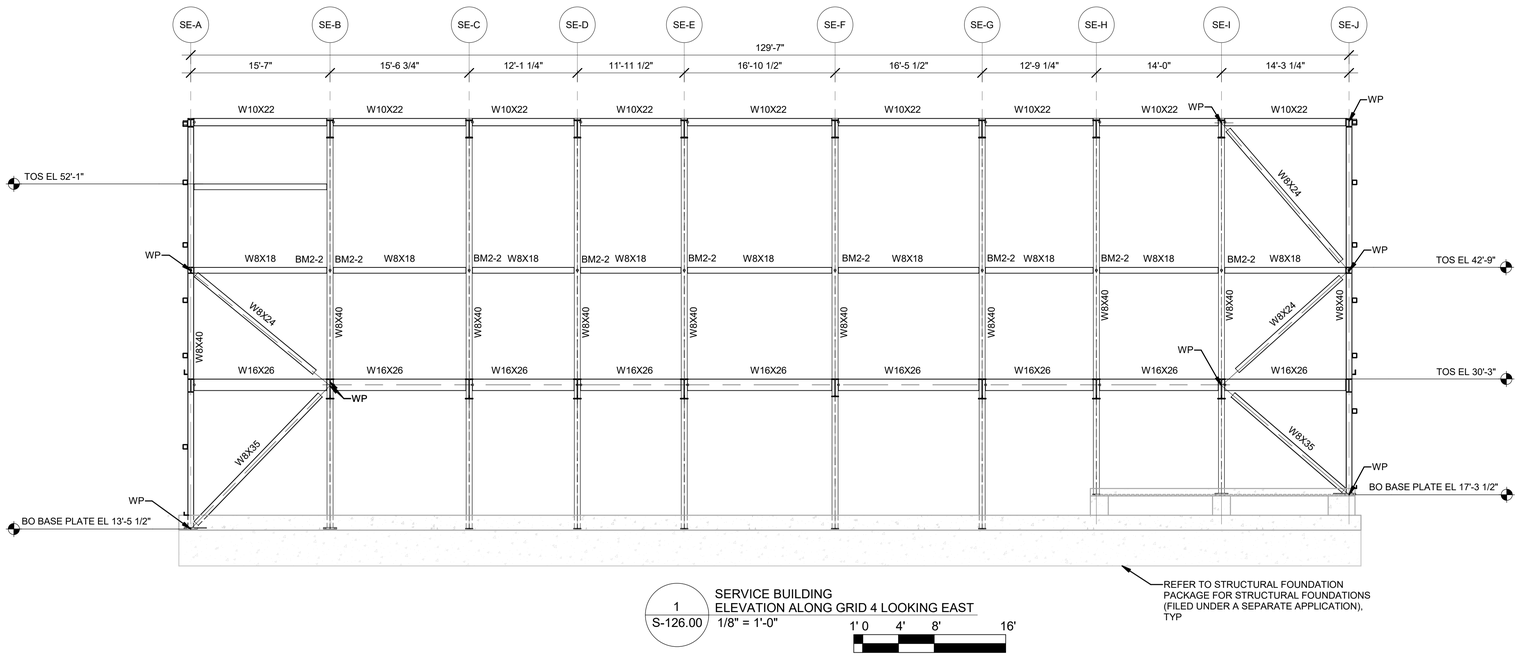
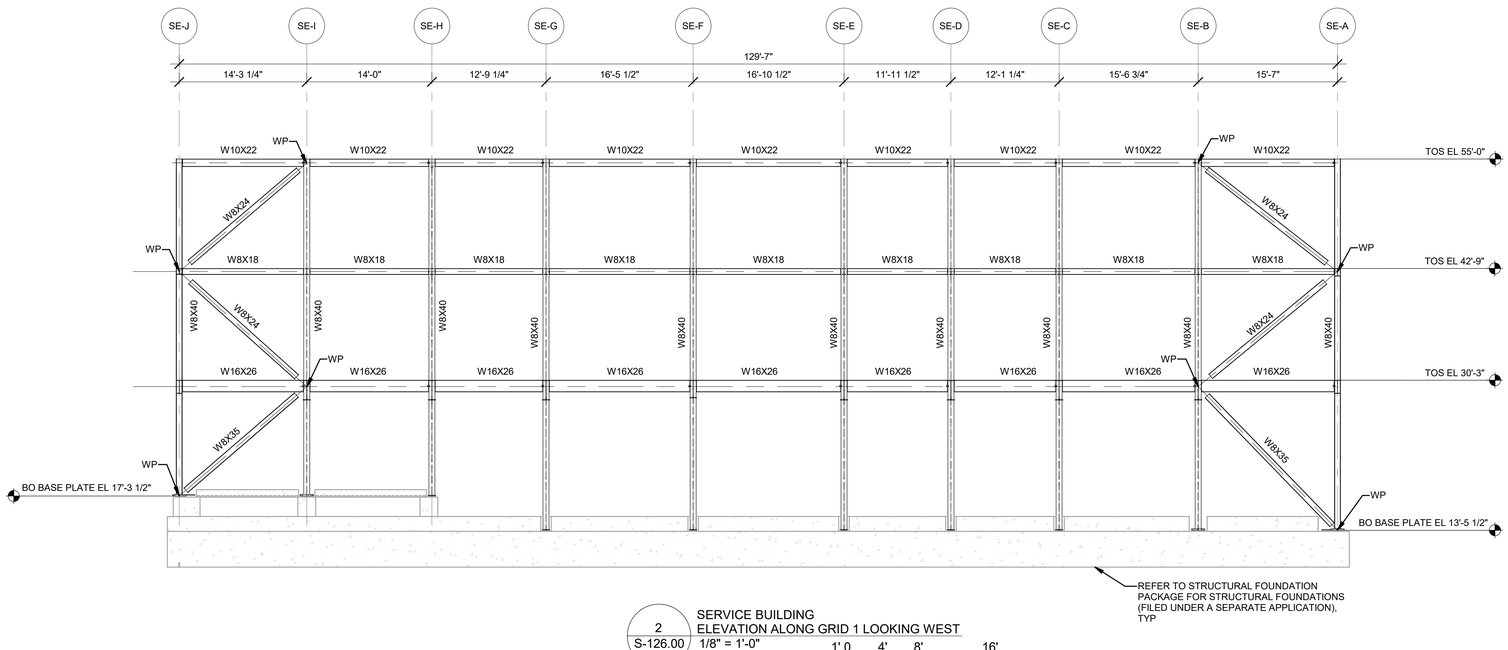


1 / S-126.00 SERVICE BUILDING ELEVATION ALONG GRID 4 LOOKING EAST
1/8" = 1'-0"
1' 0 4' 8' 16'



2 / S-126.00 SERVICE BUILDING ELEVATION ALONG GRID 1 LOOKING WEST
1/8" = 1'-0"
1' 0 4' 8' 16'

SHEET NOTES:

1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. BMX-X ON PLAN DENOTES TYPICAL BEAM CONNECTION DETAILS, SEE DRAWING S-614.00.
3. CONNECTION CODES ON ONE SIDE OF MEMBER APPLIES TO BOTH SIDES UNO.

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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	CS	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

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Champlain Hudson Power Express

Astoria HVDC Converter Station

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Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING FRAMING ELEVATIONS

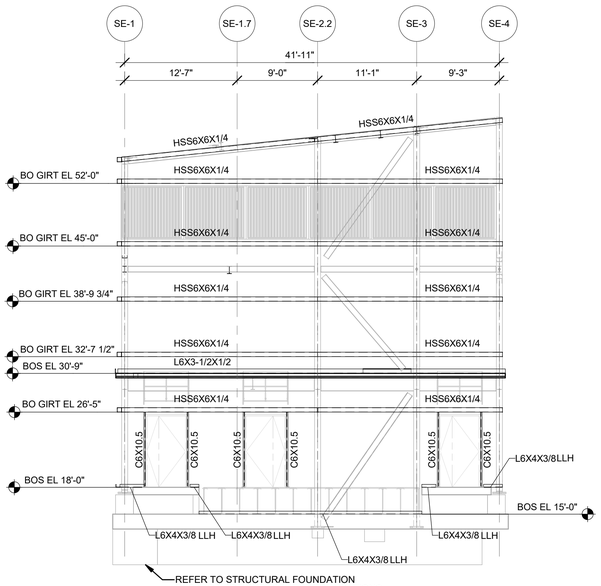
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	C.SPAULDING
CHECKED BY	W.ABBASSI
DRAWING NO	S-241.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-111-ZZ-MS-S-001.rvt	46 of 74

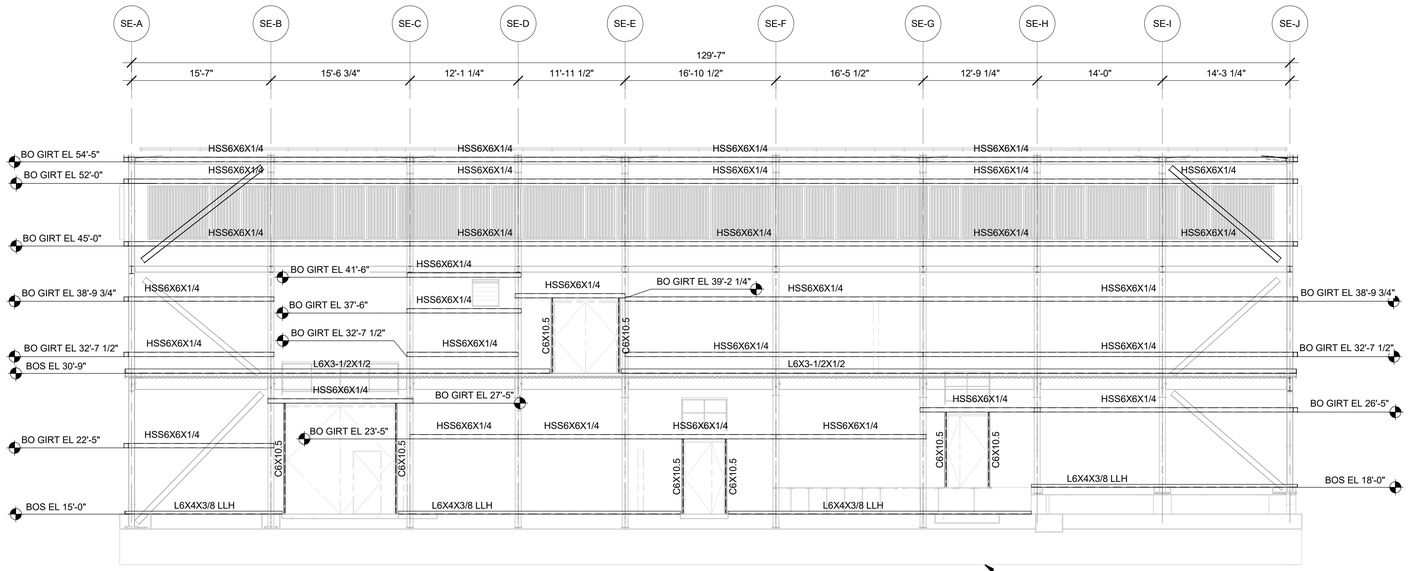
12/7/2022 11:34:56 AM

SHEET NOTES:

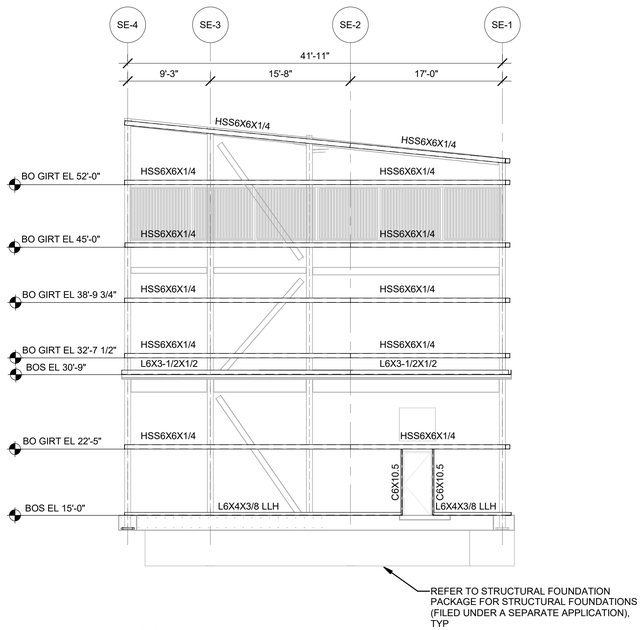
1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.
2. BMX-X ON PLAN DENOTES TYPICAL BEAM CONNECTION DETAILS, SEE DRAWING S-614.00.
3. CONNECTION CODES ON ONE SIDE OF MEMBER APPLIES TO BOTH SIDES UNO.



1 S-126.00 SERVICE BUILDING GIRT ELEVATION ALONG GRID J LOOKING SOUTH
1/8" = 1'-0"
1' 0 4' 8' 16'



2 S-126.00 SERVICE BUILDING GIRT ELEVATION ALONG GRID 1 LOOKING WEST
1/8" = 1'-0"
1' 0 4' 8' 16'



3 S-126.00 SERVICE BUILDING GIRT ELEVATION ALONG GRID A LOOKING NORTH
1/8" = 1'-0"
1' 0 4' 8' 16'

12/7/2022 11:35:03 AM

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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
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470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING GIRT FRAMING ELEVATIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W.ABBASSI
DRAWING NO	S-242.00
CADD FILE N0	47 of 74

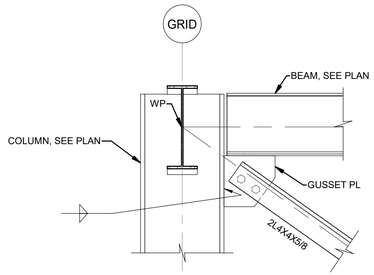
Autodesk Docs://CHPE Astoria/CHA-KIE-111-ZZ-M3-S-001.rvt

CONVERTER BUILDING BEAM CONNECTION DESIGN FORCES		
BEAM SIZE	DESIGN AXIAL FORCE (KIPS)	DESIGN SHEAR FORCE (KIPS)
W8	20	5
W10	35	5
W12	30	25
W14	40	10

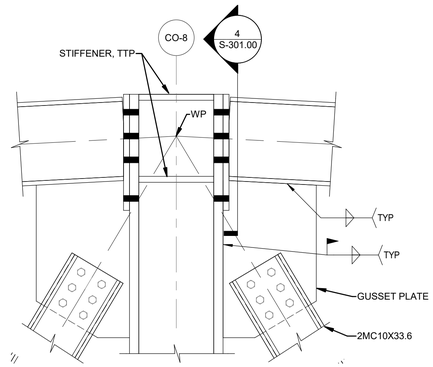
CONVERTER BUILDING IN-PLANE BRACE CONNECTION DESIGN FORCES (ASD)		
BRACE SIZE	DESIGN AXIAL FORCE (KIPS)	MIN. SHEAR IN-PLANE & OUT-IF-PLANE (KIPS)
2L6X6X3/8	60	5
2L6X6X3/4	110	5

CONVERTER BUILDING VERTICAL BRACE CONNECTION DESIGN FORCES (ASD)		
BRACE SIZE	DESIGN AXIAL FORCE (KIPS)	MIN. SHEAR IN-PLANE & OUT-IF-PLANE (KIPS)
W8x24	30	5
W10X33	60	5
W12X50	45	5
W12X65	180	5
2L4X4X5/8	40	5

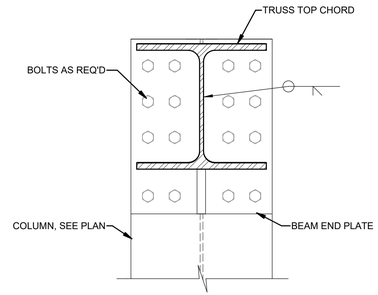
1 / S-301.00 CONVERTER BUILDING CONNECTION FORCES
12" = 1'-0"



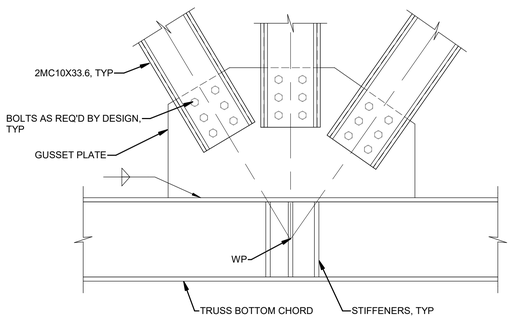
2 / S-116.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



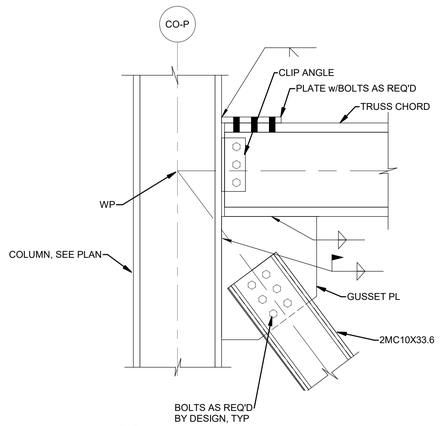
3 / S-211.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



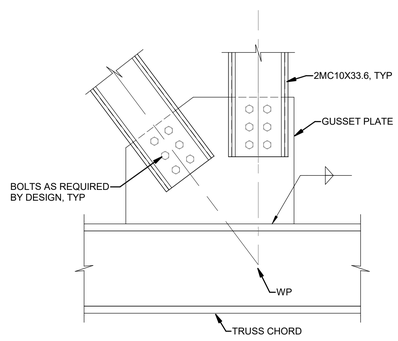
4 / S-301.00 CONVERTER BUILDING - DETAIL
1 1/2" = 1'-0"
REF: S-301.00



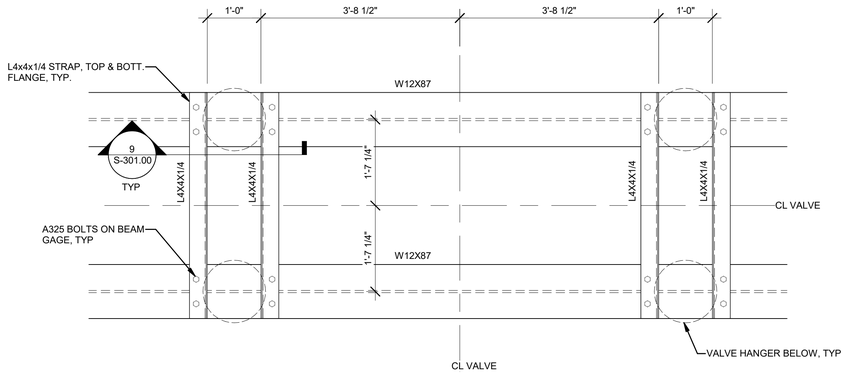
5 / S-211.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



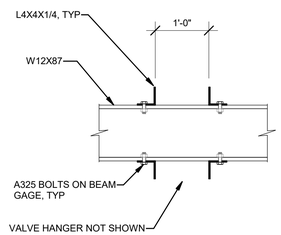
6 / S-211.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



7 / S-211.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



8 / S-116.00 CONVERTER BUILDING - DETAIL
3/4" = 1'-0"



9 / S-301.00 CONVERTER BUILDING - SECTION
3/4" = 1'-0"

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New York, NY 10001

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Hitachi Energy
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Raleigh, North Carolina 27606

PROJECT

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Champlain Hudson Power Express

Astoria HVDC Converter Station

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Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - STEEL SECTIONS & DETAILS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	J.BURKLE
CHECKED BY	W. ABBASSI
DRAWING NO	S-301.00
CADD FILE N0	48 of 74

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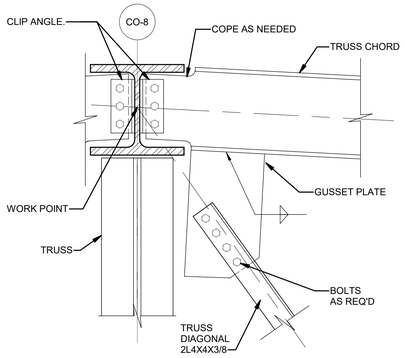
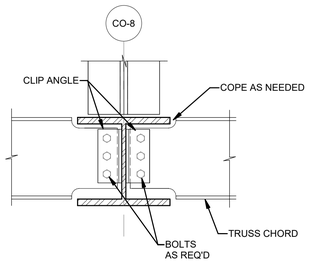
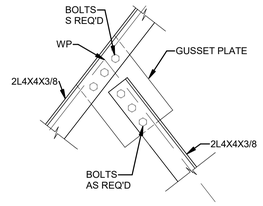


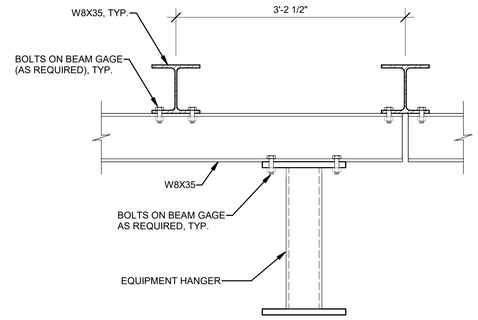
1 S-210.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



2 S-210.00 CONVERTER BUILDING - DETAIL
1" = 1'-0"



3 S-210.00 CONVERTER BUILDING - SECTION
1" = 1'-0"



4 S-116.00 CONVERTER BUILDING - SECTION
1" = 1'-0"

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	JB	WA	12/12/2022
A	INTERIM SUBMISSION	JB	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

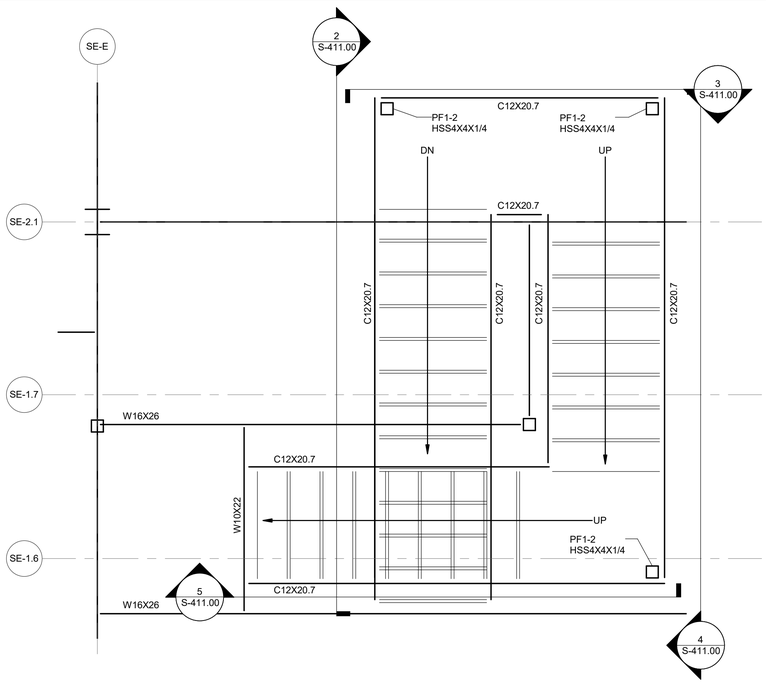
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

CONVERTER BUILDING - STEEL SECTIONS & DETAILS

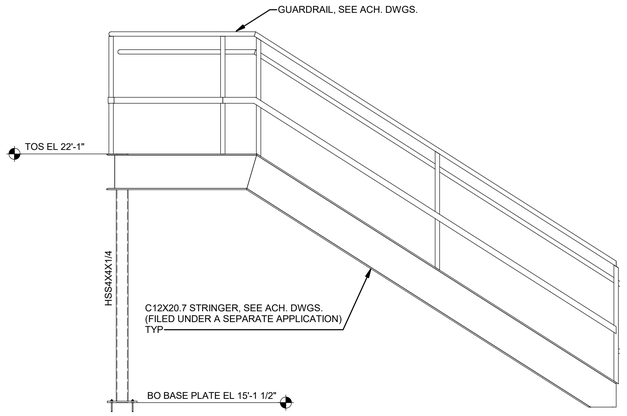
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	G. BENNINGTON
CHECKED BY	W. ABBASSI
DRAWING NO	S-302.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-081-ZZ-MS-S-001.rvt	49 of 74

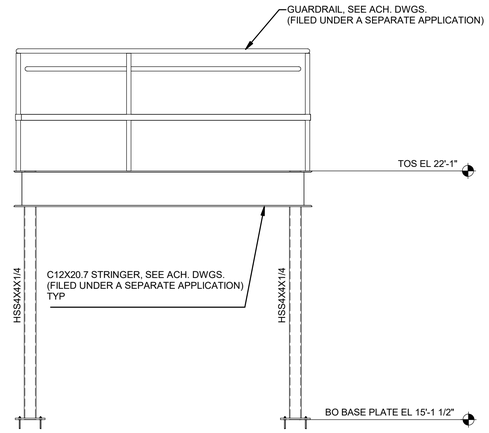
12/9/2022 3:07:05 PM



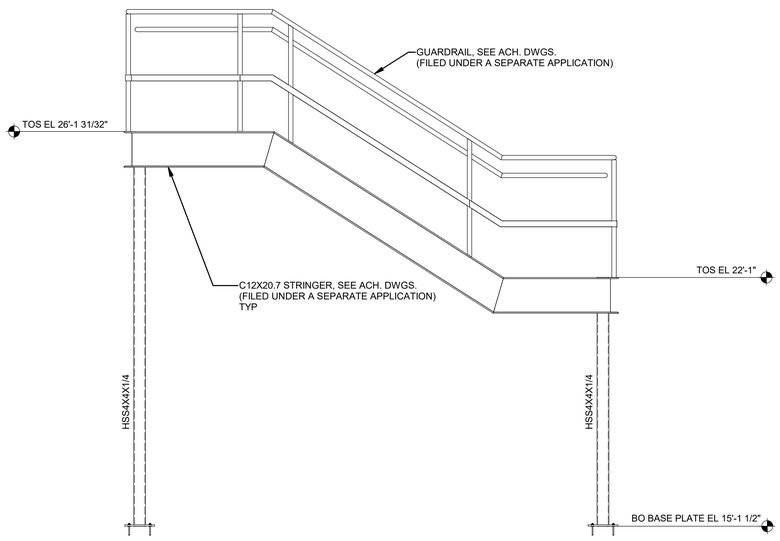
1 S-411.00 SERVICE BUILDING INTERIOR STAIR FRAMING PLAN
1/2" = 1'-0"



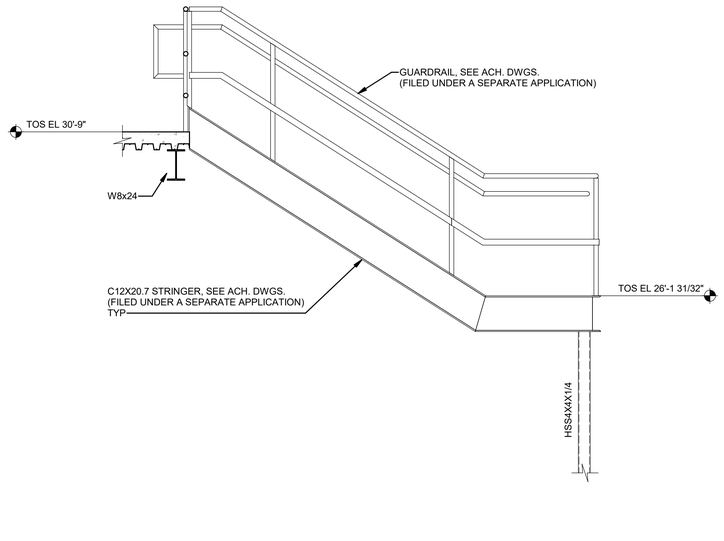
2 S-411.00 SERVICE BUILDING - SECTION AT INTERIOR STAIR LOOKING EAST
1/2" = 1'-0"



3 S-411.00 SERVICE BUILDING - SECTION AT INTERIOR STAIR LOOKING SOUTH
1/2" = 1'-0"



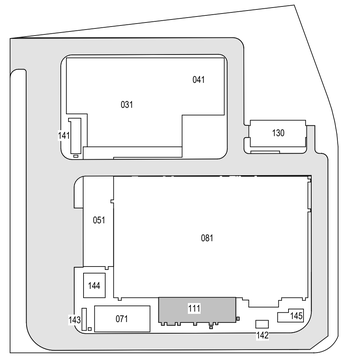
4 S-411.00 SERVICE BUILDING - SECTION AT INTERIOR STAIR LOOKING WEST
1/2" = 1'-0"



5 S-411.00 SERVICE BUILDING - SECTION AT INTERIOR STAIR LOOKING NORTH
1/2" = 1'-0"

SHEET NOTES:
1. SEE DRAWING S-030.00 FOR STRUCTURE NOTES.

ISSUED FOR PERMIT



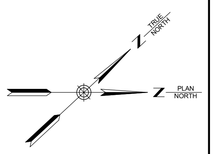
Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606



PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

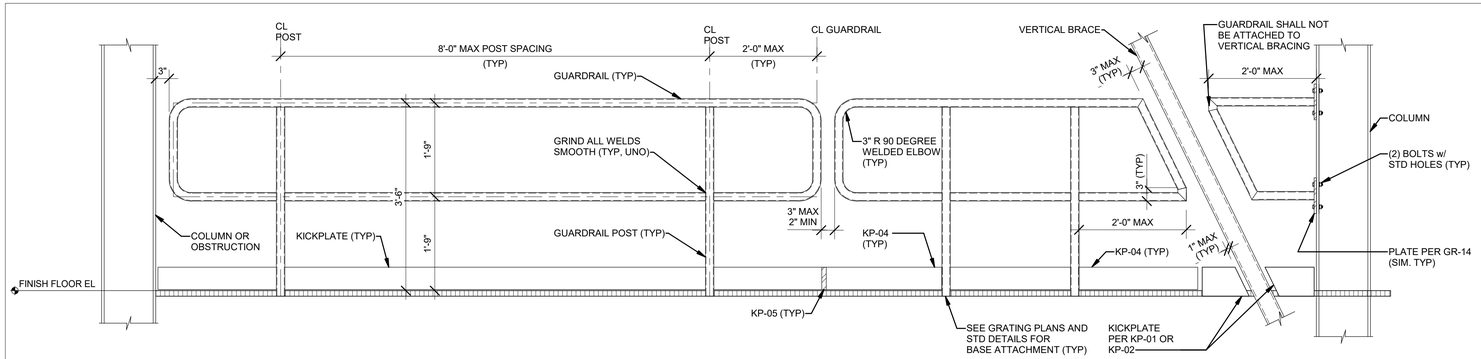
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SERVICE BUILDING INTERIOR STAIR FRAMING PLAN AND SECTIONS

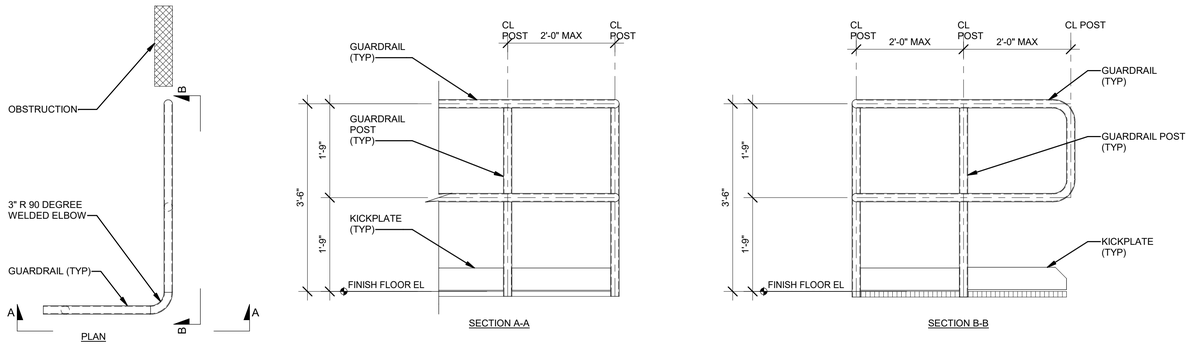
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W.ABBASSI
DRAWING NO	S-411.00
CADD FILE N0	50 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-111-ZZ-MS-S-001.rvt

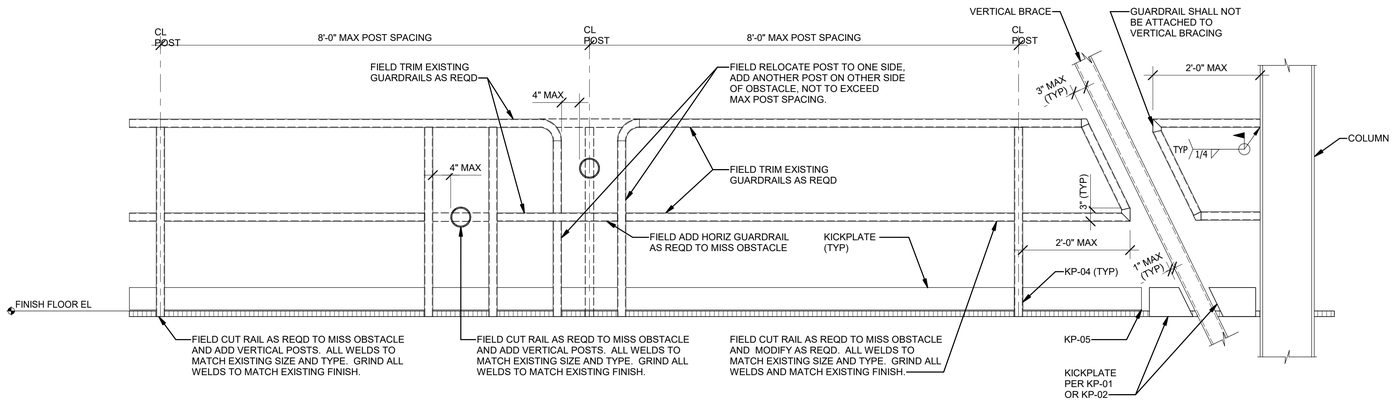
12/7/2022 11:35:06 AM



1 / S-601.00 GR-20
GUARDRAIL DETAIL AND MODIFICATIONS AT VERTICAL BRACES
3/4" = 1'-0"
1' 0 1' 2'



2 / S-601.00 GR-21
GUARDRAIL RETURN AT CORNER
3/4" = 1'-0"
1' 0 1' 2'



3 / S-601.00 GR-22
GUARDRAIL FIELD MODIFICATIONS AT INTERFERENCES
3/4" = 1'-0"
1' 0 1' 2'

SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 7/8" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE WITH STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. CONNECTIONS ARE SCHEMATICALLY SHOWN FOR DESIGN INTENT. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES

ISSUED FOR PERMIT

K Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

GUARDRAIL TYPICAL DETAILS

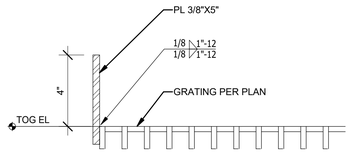
STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-601.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M2-S-001.rvt	51 of 74

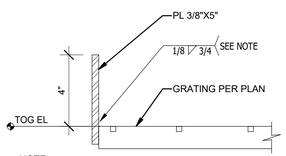
12/7/2022 11:39:52 AM

SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. AT GRATING PENETRATIONS, WELD AT EVERY BEARING BAR. OTHERWISE WELD THE FIRST, LAST, AND EVERY FOURTH BEARING BAR.

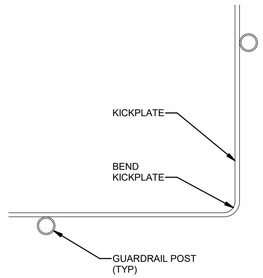


1 S-602.00 KP-01 KICKPLATE DETAIL 3" = 1'-0"

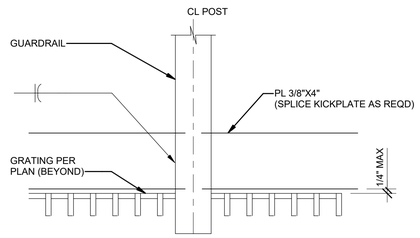


NOTE:
A. AT GRATING PENETRATIONS, WELD AT EVERY BEARING BAR, OTHERWISE WELD THE FIRST, LAST, AND EVERY FOURTH BEARING BAR.

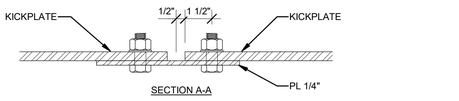
2 S-602.00 KP-02 KICKPLATE DETAIL 3" = 1'-0"



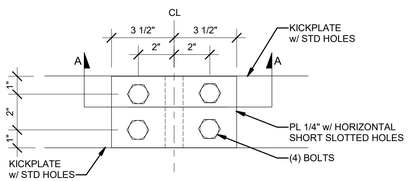
3 S-602.00 KP-03 KICKPLATE CORNER DETAIL 3" = 1'-0"



4 S-602.00 KP-04 KICKPLATE CONNECTION 3" = 1'-0"

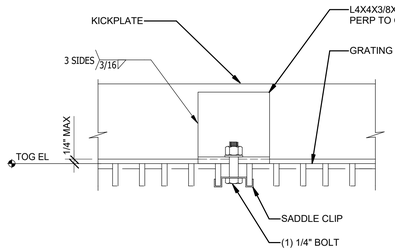


SECTION A-A



NOTE:
ALTERNATIVELY, SPLICE PLATE CAN BE WELDED WITH 3/16 FILLET WELDS TO BOTH KICKER PLATES. IN THE EVENT OF A WELDED CONNECTION, PROVIDE MIN. 1/2" SHELF DIMENSION TO ALLOW FOR THE FILLET WELD ON ALL SIDES.

5 S-602.00 KP-05 KICKPLATE SPLICE 3" = 1'-0"



6 S-602.00 KP-06 KICKPLATE CONNECTION 3" = 1'-0"

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SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

KICKPLATE TYPICAL DETAILS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-602.00
CADD FILE N0	52 of 74

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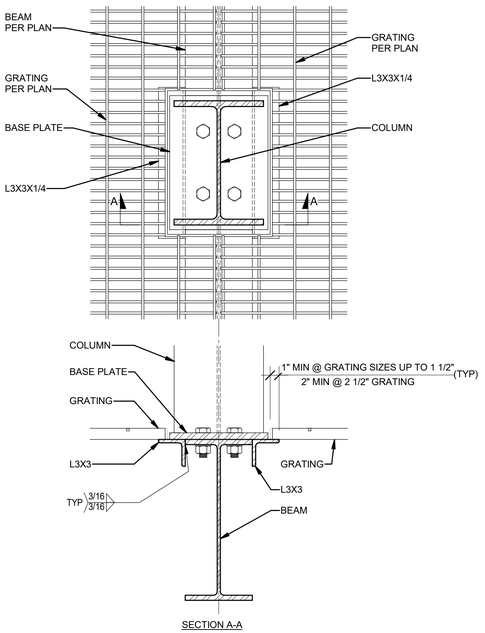
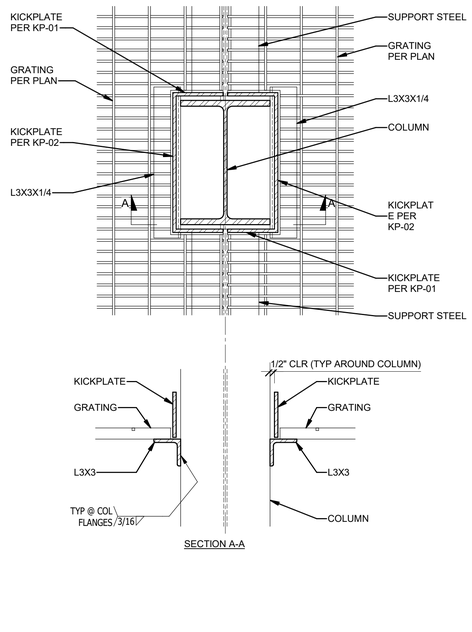
SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. SQUARE PENETRATION SHALL BE USED FOR OPENINGS WITH LEAST DIMENSION LESS THAN OR EQUAL TO 1'-0".
3. MATCH WT SPACING TO BEAM SPACING ON PLAN.
4. AT GRATING PENETRATIONS, WELD AT EVERY BEARING BAR. OTHERWISE WELD THE FIRST, LAST, AND EVERY FOURTH BEARING BAR.



SECTION A-A

1 / S-603.00 SG-01
GRATING OPENING AT BASE PLATE
1 1/2" = 1'-0"

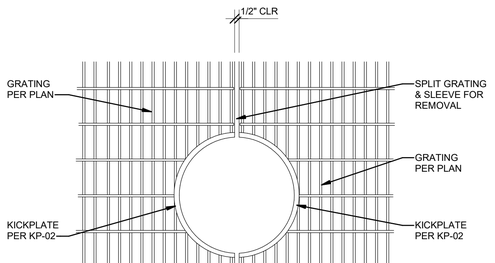


SECTION A-A

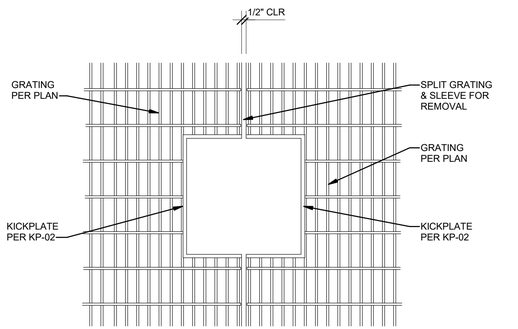
2 / S-603.00 SG-02
GRATING AT COLUMN PENETRATION DETAIL
1 1/2" = 1'-0"

5 / S-603.00 SG-05
CANTILEVER GRATING SUPPORT
1" = 1'-0"

6 / S-603.00 SG-06
TRIM BANDING DETAIL
3" = 1'-0"

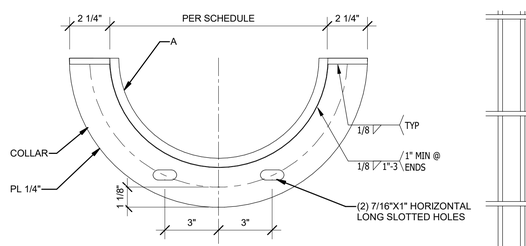


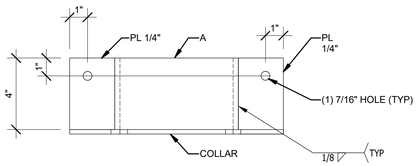
3 / S-603.00 SG-03
CIRCULAR PENETRATION AT GRATING
1 1/2" = 1'-0"



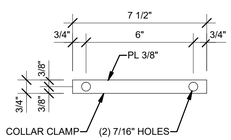
NOTE:
SQUARE PENETRATION SHALL BE USED FOR OPENINGS WITH LEAST DIMENSION LESS THAN OR EQUAL TO 1'-0".

4 / S-603.00 SG-04
SQUARE PENETRATION AT GRATING
1 1/2" = 1'-0"



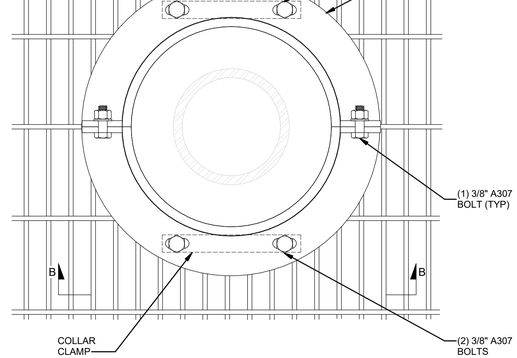


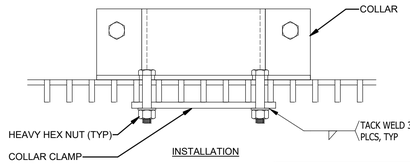
SECTION A-A



FABRICATION

COLLAR SCHEDULE	
PIPE OD	"A"
UP TO 4"	PIPE 6 STD
4"-8"	PIPE 10 STD
8"-12"	PIPE 14 STD





INSTALLATION

SECTION B-B

7 / S-603.00 SG-07
BOLTED KICKPLATE COLLAR
3" = 1'-0"

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

GRATING TYPICAL DETAILS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-603.00
CADD FILE N0	53 of 74

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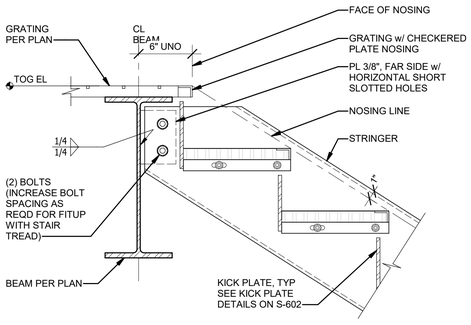
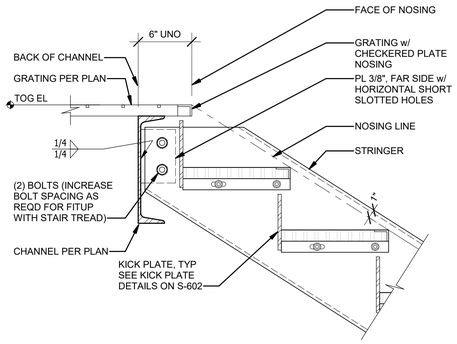
12/7/2022 11:39:57 AM

SHEET NOTES:

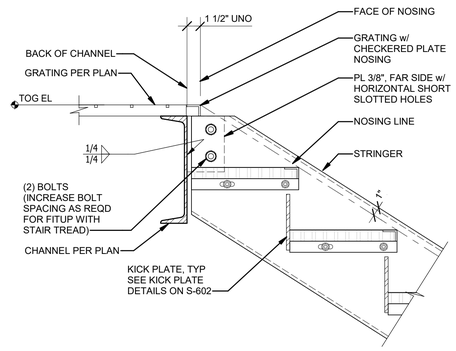
1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. CONTRACTOR TO REMOVE BOTTOM TREAD WHEN DRILLING FOR POST-INSTALLED ANCHOR.



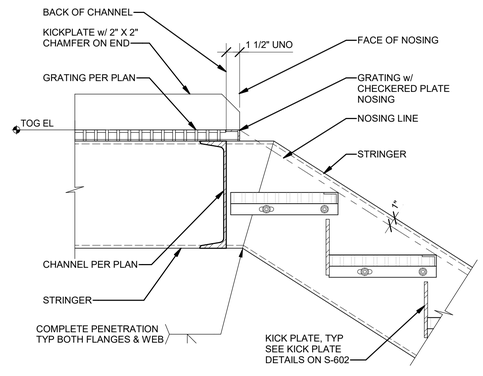
1 S-604.00 ST-01
STAIR DETAIL TOP BEAM
1 1/2" = 1'-0" 0 6" 12" 24"



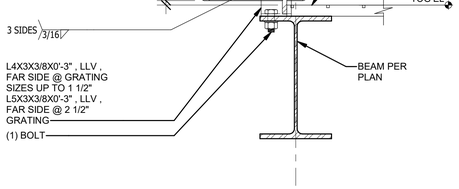
2 S-604.00 ST-02
STAIR DETAIL TOP CHANNEL
1 1/2" = 1'-0" 0 6" 12" 24"



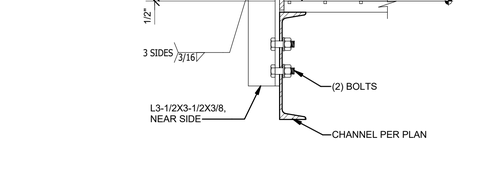
3 S-604.00 ST-03
STAIR DETAL TOP CHANNEL
1 1/2" = 1'-0" 0 6" 12" 24"



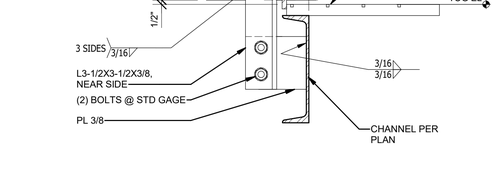
4 S-604.00 ST-04
BENT STRINGER AT TOP
1 1/2" = 1'-0" 0 6" 12" 24"



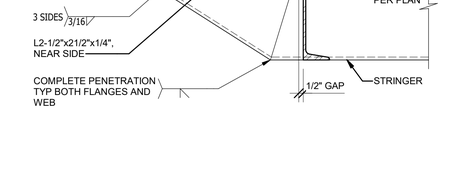
5 S-604.00 ST-05
STAIR DETAIL BOTTOM BEAM
1 1/2" = 1'-0" 0 6" 12" 24"



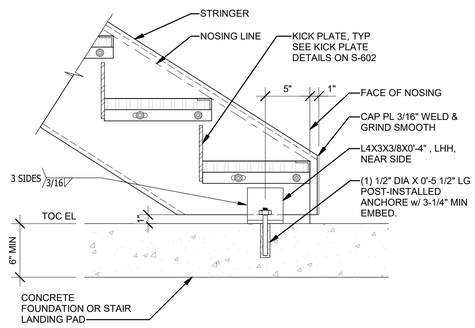
6 S-604.00 ST-06
STAIR DETAIL BOTTOM CHANNEL
1 1/2" = 1'-0" 0 6" 12" 24"



7 S-604.00 ST-07
STAIR DETAIL BOTTOM CHANNEL
1 1/2" = 1'-0" 0 6" 12" 24"



8 S-604.00 ST-08
BENT STRINGER AT BOTTOM
1 1/2" = 1'-0" 0 6" 12" 24"



NOTE:
CONTRACTOR TO REMOVE BOTTOM THEAD WHEN DRILLING FOR POST INSTALLED ANCHOR.

9 S-604.00 ST-09
STAIR DETAIL BOTTOM SLAB
1 1/2" = 1'-0" 0 6" 12" 24"

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SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STEEL STAIR TYPICAL CONNECTIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-604.00
CADD FILE N0	54 of 74

Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M0-S-001.rvt

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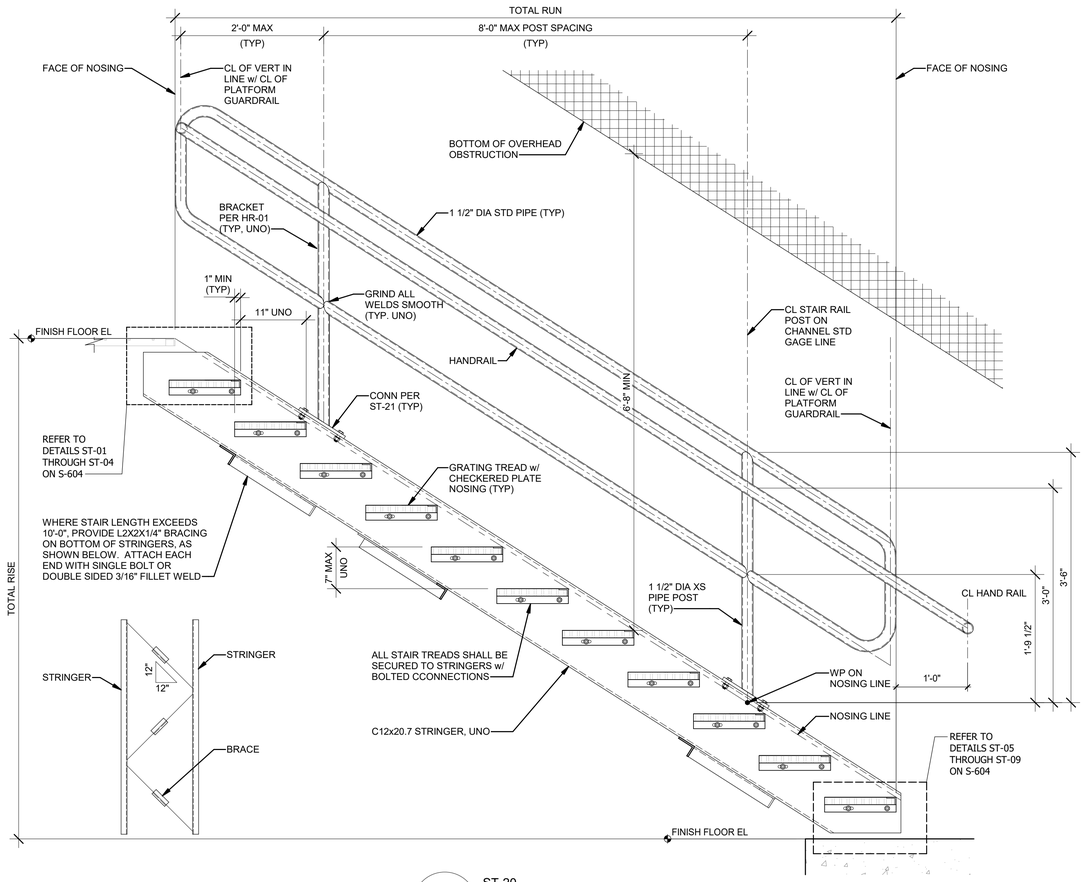
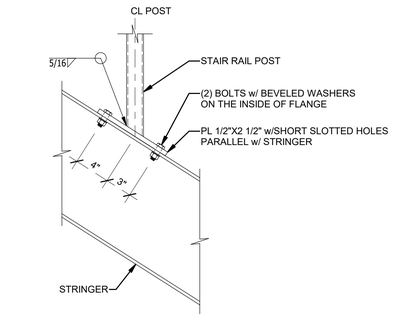
SHEET NOTES:

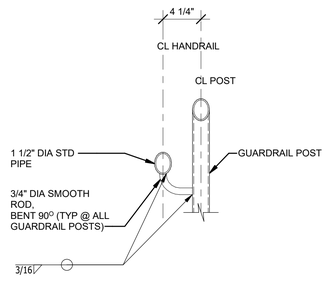
1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.



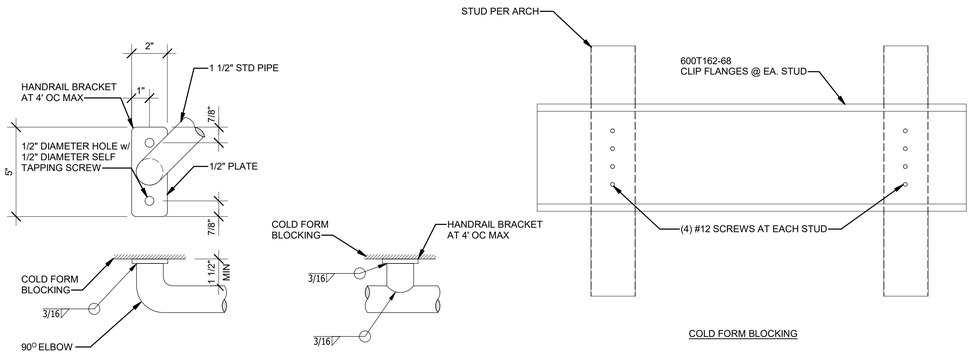
1 S-605.00 ST-20
STAIR WITH STAIR RAIL
1" = 1'-0" 1' 6" 0 1' 2'



2 S-605.00 ST-21
STAIR RAIL TO STAIR STRINGER
1 1/2" = 1'-0" 0 6" 12" 24"



4 S-605.00 HR-01
HANDRAIL TO GUARDRAIL POST
1 1/2" = 1'-0" 0 6" 12" 24"



COLD FORM BLOCKING

5 S-605.00 HR-02
HANDRAIL TO WALL
3" = 1'-0" 3" 0 3" 9"

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Champlain Hudson Power Express

Astoria HVDC Converter Station

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Block #850 - Lot #310 - BIN #4624437

STEEL STAIR TYPICAL DETAILS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-605.00
CADD FILE N0	55 of 74

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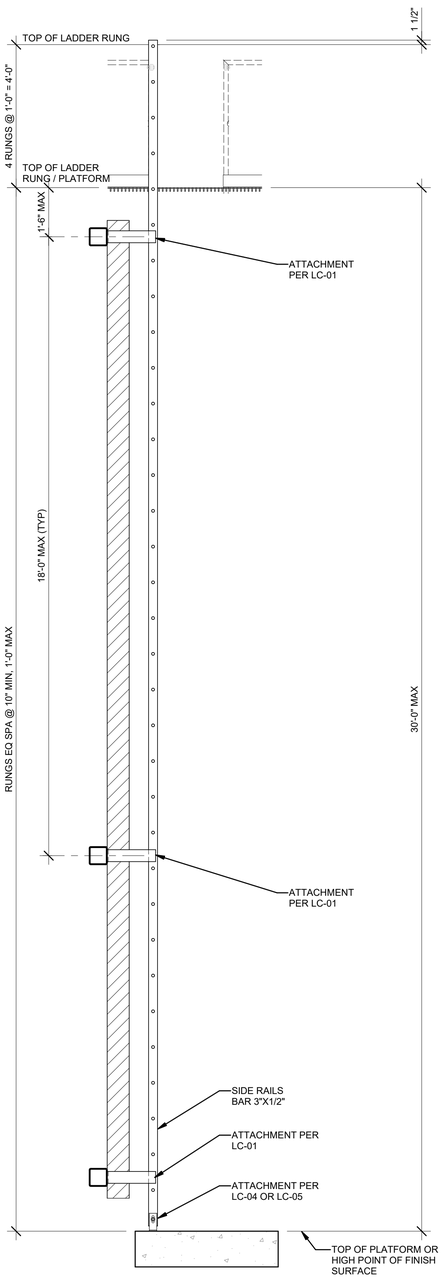
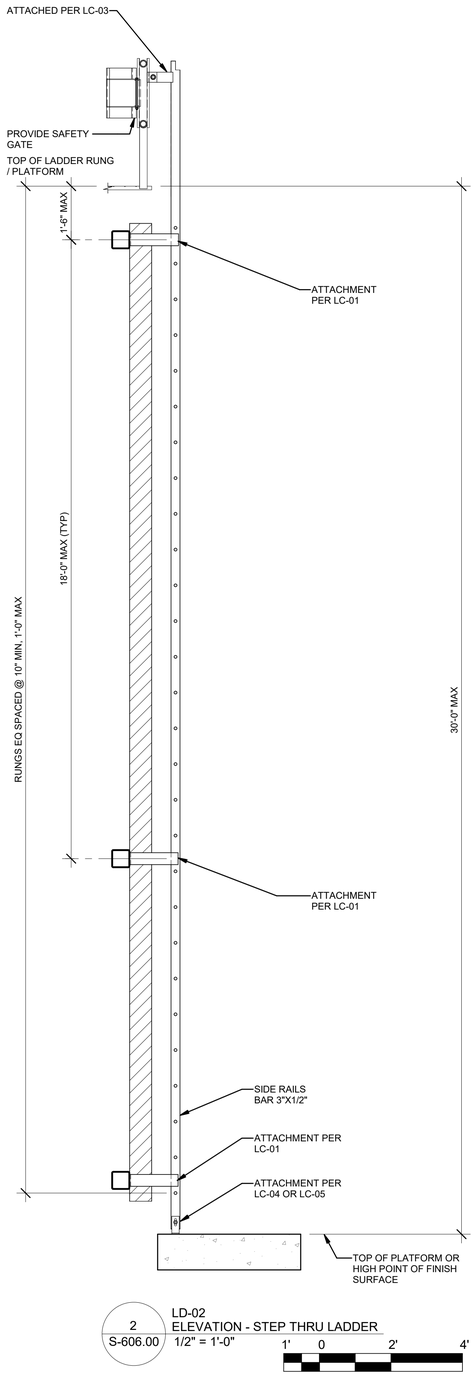
SHEET NOTES:

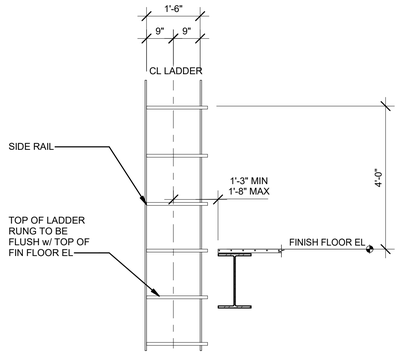
1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.



1 S-606.00 LD-01
ELEVATION - SIDE STEP LADDER
1/2" = 1'-0"
1' 0 2' 4'



2 S-606.00 LD-02
ELEVATION - STEP THRU LADDER
1/2" = 1'-0"
1' 0 2' 4'



3 S-606.00 LD-05
ELEVATION AT SIDE STEP LADDER
1/2" = 1'-0"
1' 0 2' 4'

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PROJECT

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Champlain Hudson Power Express

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Block #850 - Lot #310 - BIN #4624437

LADDER TYPICAL CONNECTIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-606.00
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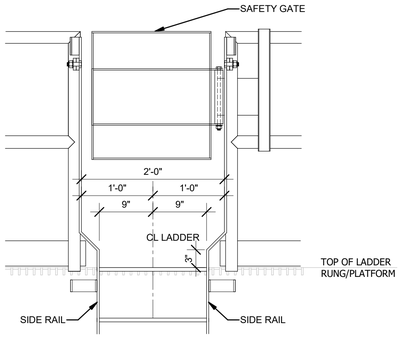
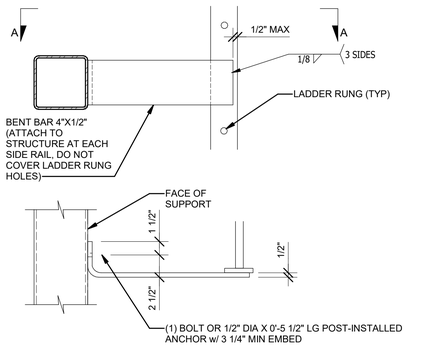
SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.

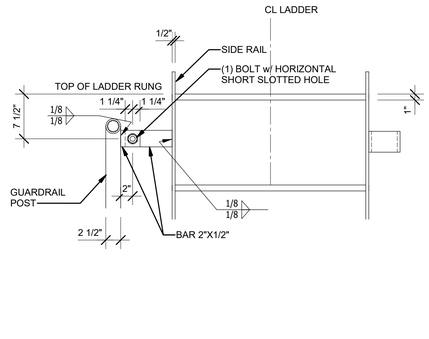


1 / S-607.00 LD-10
TOP OF LADDER AT SAFETY GATE
1" = 1'-0"



SECTION A-A

2 / S-607.00 LC-01
INTERMEDIATE LADDER CONNECTION
1 1/2" = 1'-0"



3 / S-607.00 LC-02
TOP OF SIDE STEP ACCESS LADDER CONNECTION
1" = 1'-0"

4 / S-607.00 LC-03
TOP OF STEP THRU ACCESS LADDER CONNECTION
1" = 1'-0"

SECTION A-A

5 / S-607.00 LC-04
BOTTOM OF LADDER AT GRADING OR STEEL
3" = 1'-0"

6 / S-607.00 LC-05
BOTTOM OF LADDER AT CONCRETE
3" = 1'-0"

7 / S-607.00 LC-06
RUNG ATTACHMENT TO SIDE RAIL
1 1/2" = 1'-0"

NOTE:
CONTRACTOR MAY PROVIDE AN 1/8" FLARE BEVEL GROOVE FIELD WELD IN PLACE OF THE U-BOLT ASSEMBLY.

8 / S-607.00 LC-07
LADDER CAGE TO GUARDRAIL CONNECTION
1 1/2" = 1'-0"

9 / S-607.00 LC-08
TOP OF SIDE STEP ACCESS LADDER CONNECTION
1 1/2" = 1'-0"

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LADDER TYPICAL DETAILS

STATE OF NEW YORK
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080653
LICENSED PROFESSIONAL ENGINEER

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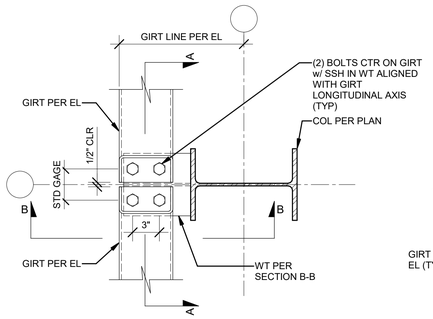
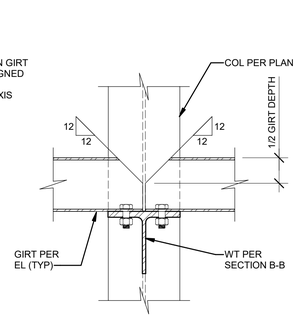
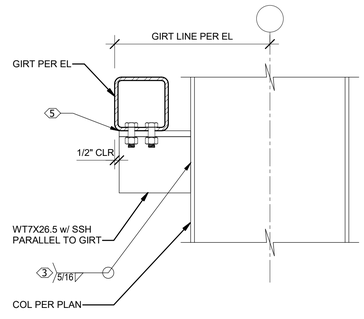
CHECKED BY	W. ABBASSI
DRAWING NO	S-607.00
CADD FILE N0	Autodesk Docs://CHPE Astoria/CHA-KE-000-XX-M0-S-001.rvt
	57 of 74

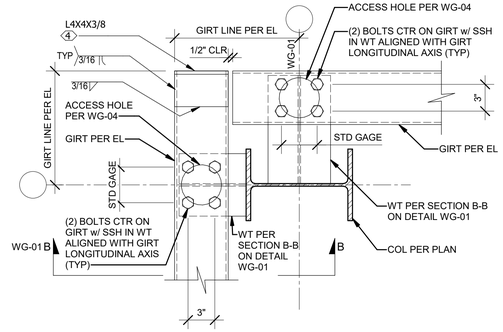


SECTION A-A





SECTION B-B

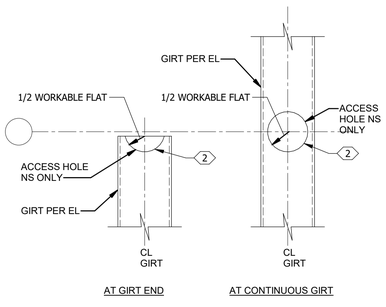


SHEET NOTES:

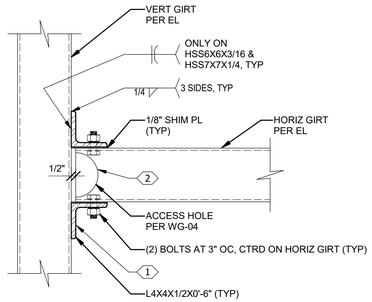
1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.

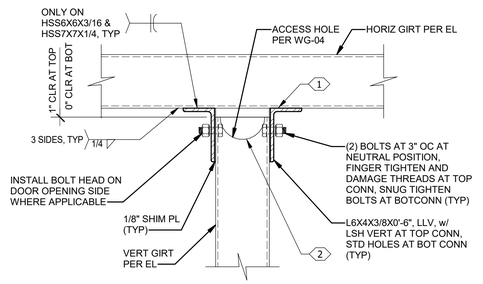
1 S-608.00 — WG-01 GIRT CONNECTION — 1 1/2" = 1'-0" — 0 6" 12" 24"

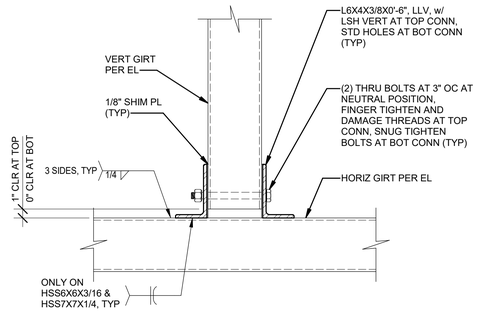
2 S-608.00 — WG-02 CORNER GIRT CONNECTION — 1 1/2" = 1'-0" — 0 6" 12" 24"



AT GIRT END AT CONTINUOUS GIRT





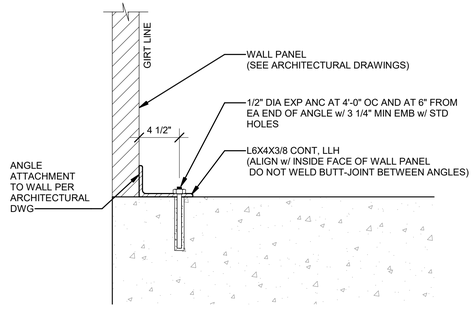


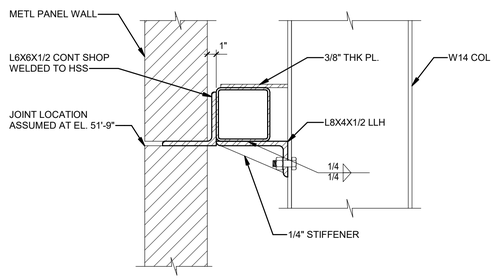
3 S-608.00 — WG-04 ACCESS HOLE — 1 1/2" = 1'-0" — 0 6" 12" 24"

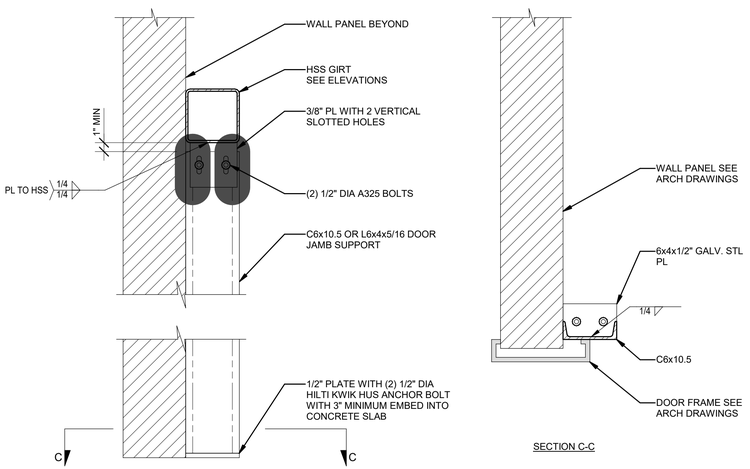
4 S-608.00 — WG-05 HORIZONTAL GIRT TO VERTICAL GIRT CONNECTION — 1 1/2" = 1'-0" — 0 6" 12" 24"

5 S-608.00 — WG-06 VERTICAL GIRT TO HORIZONTAL GIRT CONNECTION — 1 1/2" = 1'-0" — 0 6" 12" 24"

6 S-608.00 — WG-07 VERTICAL GIRT TO HORIZONTAL GIRT CONNECTION (ALTERNATE DETAIL) — 1 1/2" = 1'-0" — 0 6" 12" 24"







SECTION C-C

7 S-608.00 — WG-08 METAL PANEL BASE CONNECTION — 1 1/2" = 1'-0" — 0 6" 12" 24"

8 S-608.00 — TYPICAL HSS GIRT CONNECTION AT PANEL JOINT — 1 1/2" = 1'-0" — 0 6" 12" 24"

9 S-608.00 — TYPICAL DETAIL AT EXTERIOR DOOR JAMB — 1 1/2" = 1'-0" — 0 6" 12" 24"

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PROJECT

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TYPICAL GIRT DETAILS

STATE OF NEW YORK
WAEL M YOUSSEF
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LICENSED PROFESSIONAL ENGINEER

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DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-608.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M2-S-001.rvt	58 of 74

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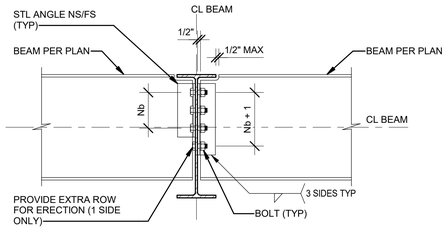
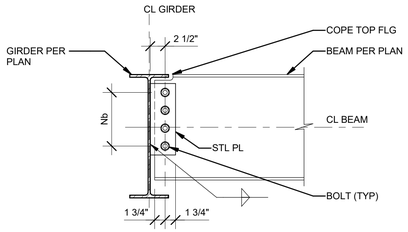
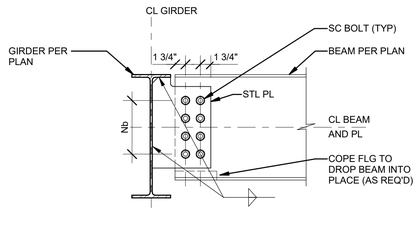


MIN. ROWS OF BOLTS (Nb)	
W6, W8, W10	2
W12, W14	3
W16	4
W18, W21	5
W24, W27	6

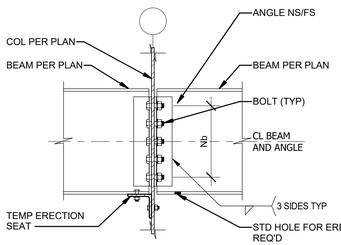
1 S-609.00 BM1
BEAM TO BEAM DBL CLIP ANGLE W/ TOP COPE ONLY
1" = 1'-0"

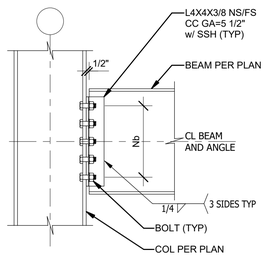


2 S-609.00 BM2
BEAM TO GIRDER SHEAR PLATE
1" = 1'-0"

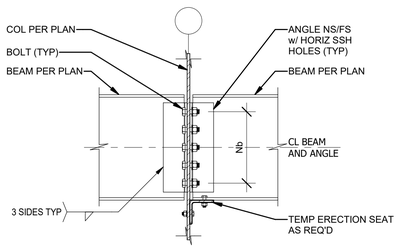


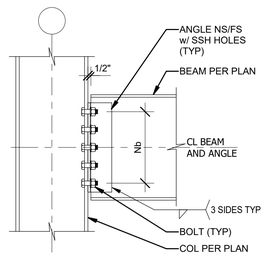
3 S-609.00 BM3
BEAM TO GIRDER EXTENDED SHEAR PLATE
1" = 1'-0"



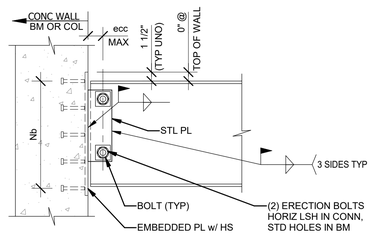


4 S-609.00 BM4
BEAM TO COLUMN DOUBLE CLIP ANGLE
1" = 1'-0"

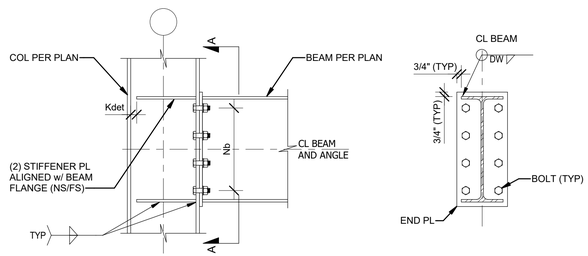




5 S-609.00 BM5
HIGH AXIAL BEAM TO COLUMN DOUBLE CLIP ANGLE
1" = 1'-0"



6 S-609.00 BM6
BEAM TO CONCRETE EMBED PLATE
1" = 1'-0"



7 S-609.00 BM7
FLUSH END PLATE (BEAM ON ONE SIDE)
1" = 1'-0"

SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 3/4" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE, UNO. STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES.
4. WITH THE EXCEPTION OF BOLTED ANGLES, THE WORKLINE FOR ALL BRACING MEMBERS SHALL BE AT THE CENTROID.

ISSUED FOR PERMIT

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Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STEEL BEAM TYPICAL CONNECTIONS

STATE OF NEW YORK · WAEL M YOUSSEF · 080653 · LICENSED PROFESSIONAL ENGINEER

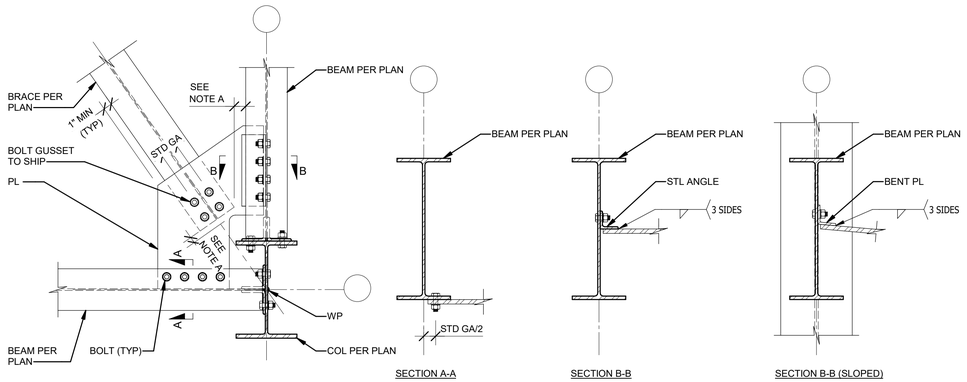
DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-609.00
CADD FILE N0	59 of 74

Autodesk Docs://CHPE Astoria/CHA-KE-000-XX-M2-S-001.rvt

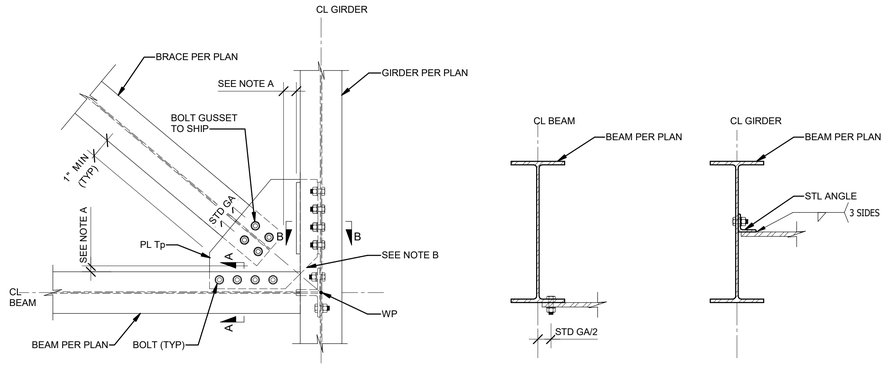
12/7/2022 11:40:11 AM

SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 3/4" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE, UNO. STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES.
4. WITH THE EXCEPTION OF BOLTED ANGLES, THE WORKLINE FOR ALL BRACING MEMBERS SHALL BE AT THE CENTROID.



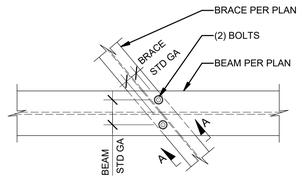
NOTE:
A. DIMENSION FROM BRACE TO EITHER BEAM OR EDGE OF PLATE SHALL BE SET AT 1".
B. MINIMUM 30 DEGREE ANGLE BETWEEN BRACE AND BEAMS

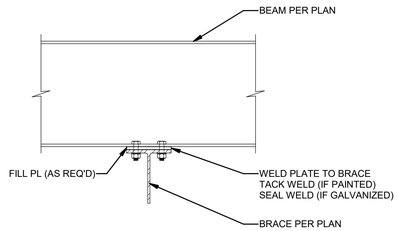


NOTES:
A. DIMENSION FROM BRACE TO EITHER BEAM OR ANGLE SHALL BE SET AT 1".
B. FOR SHEAR TAB, EXTENDED SHEAR TAB AMD SINGLE ANGLE ADJACENT CONNECTIONS COPE GUSSET PLATE AS REQUIRED.

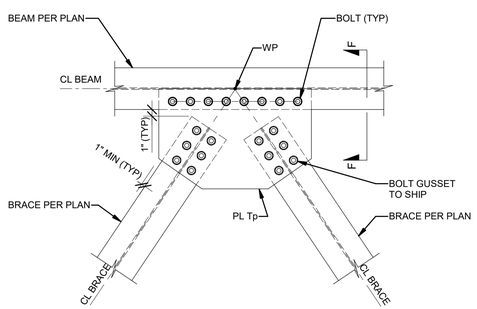
1 / S-610.00 HB1
WT HORIZONTAL BRACE AT COLUMN
1" = 1'-0"

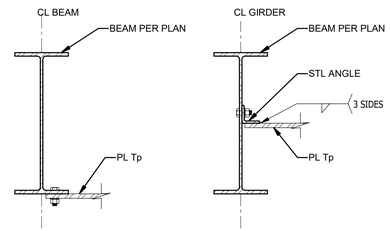
2 / S-610.00 HB2
WT HORIZONTAL BRACE AT BEAM TO BEAM
1" = 1'-0"





SECTION A-A





3 / S-610.00 HB3
HORIZONTAL BRACE TO BOTTOM OF BEAM
1" = 1'-0"

4 / S-610.00 HB4
HORIZONTAL BRACE AT MID BEAM
1" = 1'-0"

ISSUED FOR PERMIT

Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

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31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

STEEL HB TYPICAL DETAILS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

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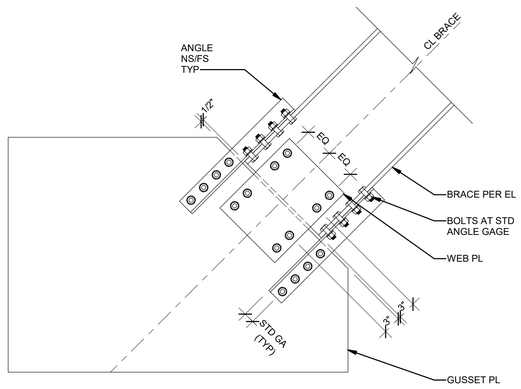
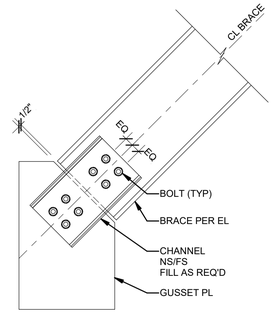
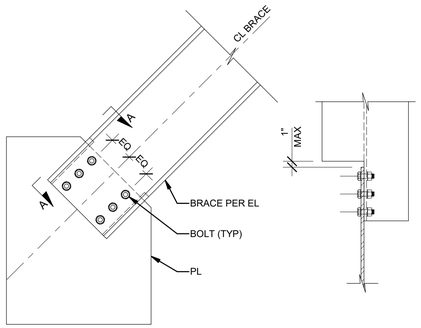


1 / S-611.00 BG1
WF VERTICAL BRACE TO GUSSET CLAW ANGLE AND WEB PLATE
1" = 1'-0"

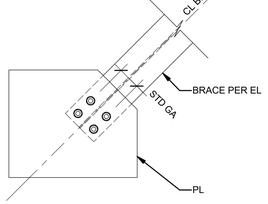


2 / S-611.00 BG2
WF VERTICAL BRACE TO GUSSET CHANNEL
1" = 1'-0"



SECTION A-A

3 / S-611.00 BG3
WF VERTICAL BRACE TO GUSSET BLOCKED FLANGE
1" = 1'-0"



4 / S-611.00 BG4
WT VERTICAL BRACE TO GUSSET
1" = 1'-0"

SHEET NOTES:

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2. 3/4" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE, UNO. STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES.
4. WITH THE EXCEPTION OF BOLTED ANGLES, THE WORKLINE FOR ALL BRACING MEMBERS SHALL BE AT THE CENTROID.

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STEEL BG TYPICAL CONNECTIONS

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LICENSED PROFESSIONAL ENGINEER

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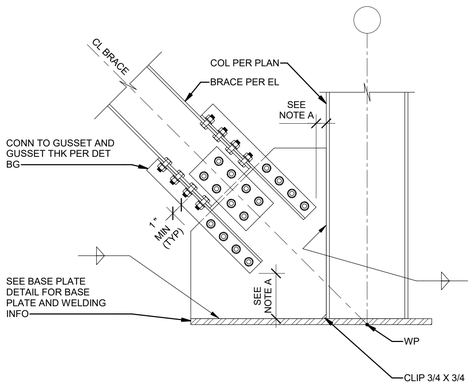
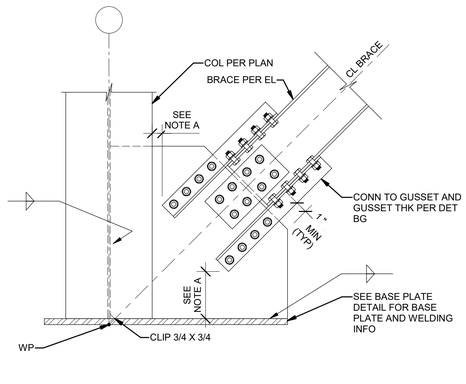


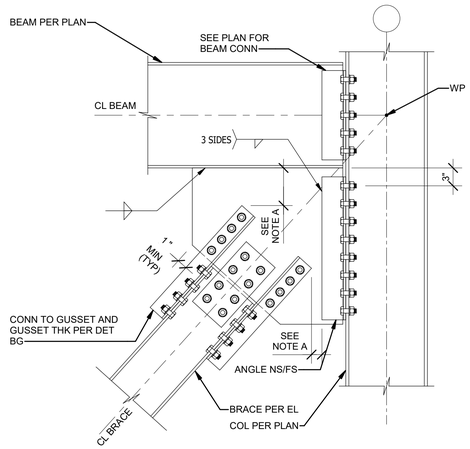
NOTE:
A. DIMENSION FROM ANGLE TO EITHER COLUMN OR BASE PLATE SHALL BE SET AT 1".

1 / S-612.00 VB1
WF VERTICAL BRACE TO BASE PLATE AT COL FLANGE
1" = 1'-0"



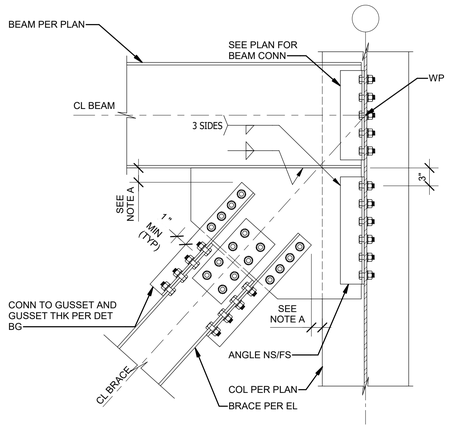
NOTE:
A. DIMENSION FROM ANGLE TO EITHER COLUMN OR BASE PLATE SHALL BE SET AT 1".

2 / S-612.00 VB2
WF VERTICAL BRACE TO BASE PLATE AT COL WEB
1" = 1'-0"



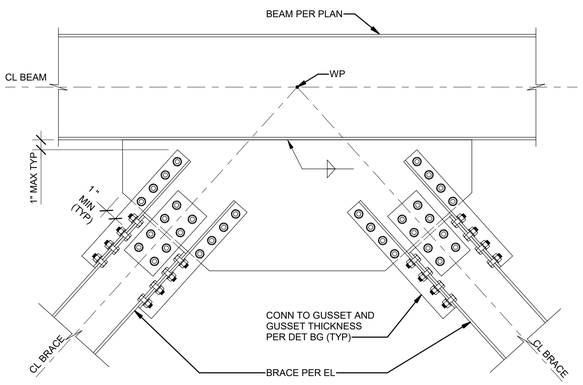
NOTE:
A. DIMENSION FROM ANGLE TO EITHER GUSSET CONN ANGLE OR BEAM SHALL BE SET AT 1".

3 / S-612.00 VB3
WF VERTICAL BRACE TO BEAM CONN AT COL FLANGE
1" = 1'-0"

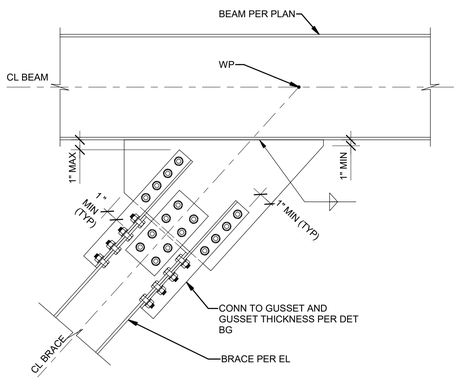


A. NOTEDIMENSION FROM ANGLE TO EITHER COLUMN OR BEAM SHALL BE SET AT 1".

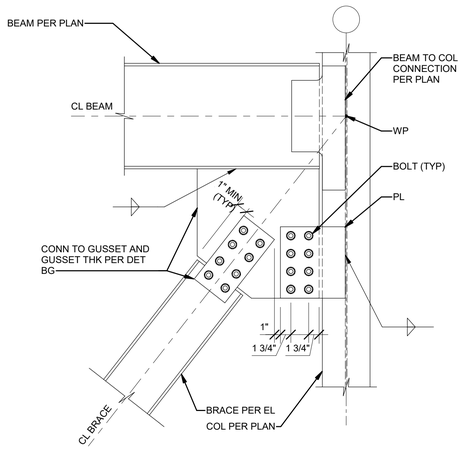
4 / S-612.00 VB4
WF VERTICAL BRACE TO BEAM CONN AT COL WEB
1" = 1'-0"



5 / S-612.00 VB5
WF VERTICAL BRACE CHEVRON
1" = 1'-0"



6 / S-612.00 VB6
WF VERTICAL BRACE TO BEAM
1" = 1'-0"



7 / S-612.00 VB7
VERTICAL BRACE TO BEAM
1" = 1'-0"

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TYPICAL VERTICAL BRACE CONNECTIONS

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DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
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CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M2-S-001.rvt	62 of 74

SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 3/4" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE, UNO. STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES.
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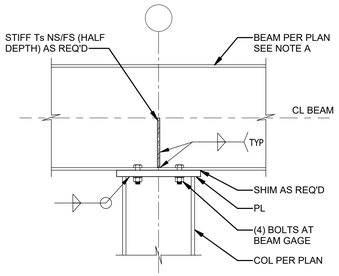
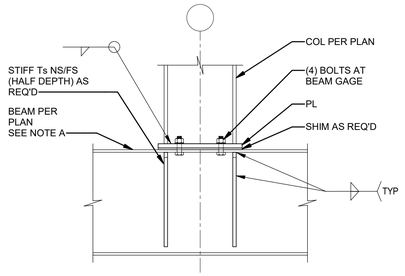


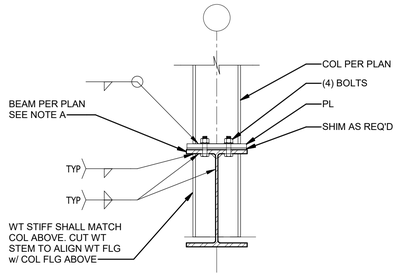
NOTE:
A. CONNECTION OF MEMBER FRAMING INTO BEAM NOT SHOWN FOR CLARITY.

1 / S-613.00 — C1 WF COLUMN TO BEAM — 1" = 1'-0"



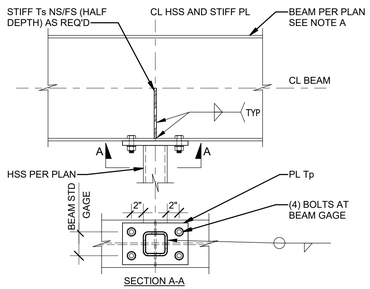
NOTE:
A. CONNECTION OF MEMBER FRAMING INTO BEAM NOT SHOWN FOR CLARITY.

2 / S-613.00 — C2 COLUMN WEB PARALLEL TO BEAM WEB — 1" = 1'-0"



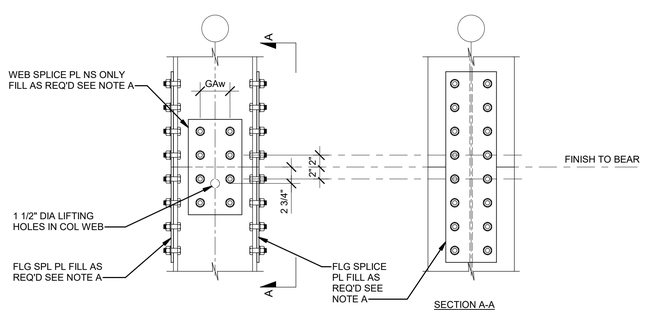
NOTE:
A. CONNECTION OF MEMBER FRAMING INTO BEAM NOT SHOWN FOR CLARITY.

3 / S-613.00 — C3 COLUMN WEB PERPENDICULAR TO BEAM WEB — 1" = 1'-0"



NOTE:
A. CONNECTION OF MEMBER FRAMING INTO BEAM NOT SHOWN FOR CLARITY

4 / S-613.00 — C4 HSS TO BEAM — 1" = 1'-0"



SECTION A-A

MIN COL SIZE	AXIAL CAPACITY (KIPS)	MAJOR AXIS SHEAR CAPACITY (KIPS)	MINOR AXIS SHEAR CAPACITY (KIPS)	MAJOR AXIS MOMENT (KIP-FT)	MINOR AXIS MOMENT (KIP-FT)
W14X61 - W14x132	180	20	20	260	20
W14X145 - W14x176	380	100	10	420	20
W14X211	680	60	10	100	100

NOTE:
A. ALL BOLTS IN THIS CONNECTION SHALL BE FULLY PRETENSIONED

5 / S-613.00 — CS1 COLUMN SPLICE DETAIL UPPER COLUMN OF SAME NOMINAL SIZE — 1" = 1'-0"

ISSUED FOR PERMIT

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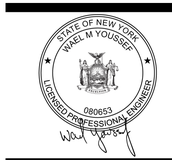

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CADD FILE N0	63 of 74

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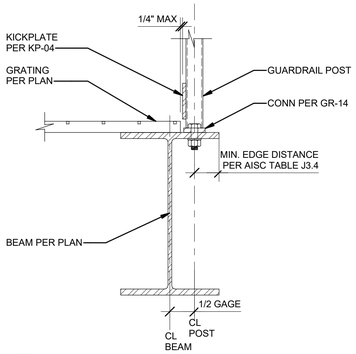
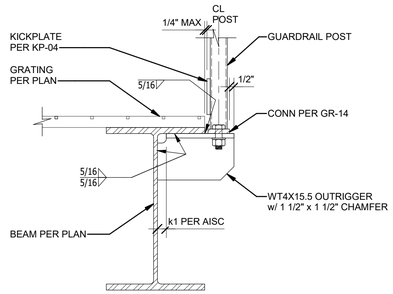
SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 7/8" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE WITH STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. CONNECTIONS ARE SCHEMATICALLY SHOWN FOR DESIGN INTENT. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES.



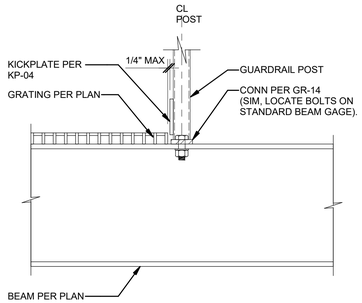
NOTE:
A. WHEN MULTIPLE BEAM GAGES EXIST ON A CONSECUTIVE RUN OF BEAMS, THE SMALLEST GAGE SHALL GOVERN THE LOCATION OF THE GUARDRAIL.

1 S-614.00 GR-01 GUARDRAIL TO BEAM FLANGE 1 1/2" = 1'-0" 0 6" 12" 24"

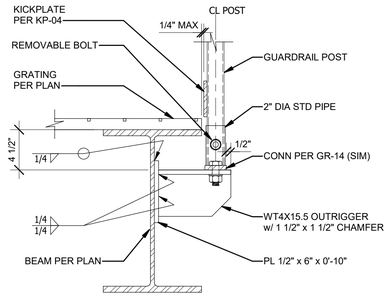


NOTE:
A. WHEN MULIPLE BEAM FLANGE WIDTHS EXIST ON A CONSECUTIVE RUN OF BEAMS, THE LARGEST FLANGE SHALL GOVERN THE LOCATION OF THE GUARDRAIL.

2 S-614.00 GR-02 GUARDRAIL TO BEAM FLANGE AT OUTRIGGER 1 1/2" = 1'-0" 0 6" 12" 24"

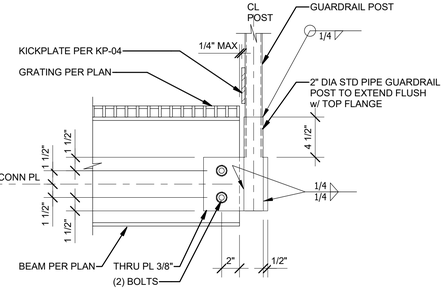


3 S-614.00 GR-03 GUARDRAIL TO PERPENDICULAR BEAM 1 1/2" = 1'-0" 0 6" 12" 24"

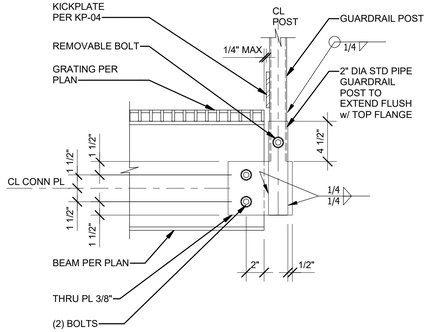


NOTE:
A. WHEN MUTIPLE BEAM FLANGE WIDTHS EXIST ON A CONSECUTIVE RUN OF BEAMS, THE LARGEST FLANGE SHALL GOVERN THE LOCATION OF THE GUARDRAIL.
B. NOT FOR USE w/ WEB LESS THAN 1/4" THICK.

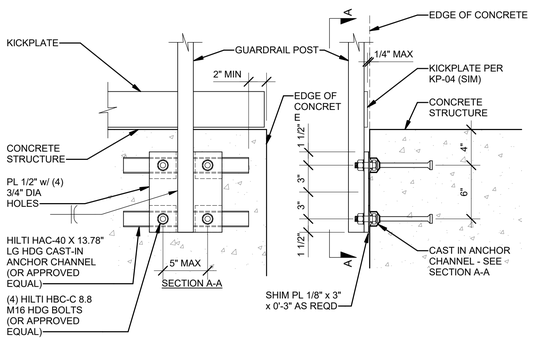
4 S-614.00 GR-04 REMOVABLE GUARDRAIL TO BEAM WEB AT OUTRIGGER 1 1/2" = 1'-0" 0 6" 12" 24"



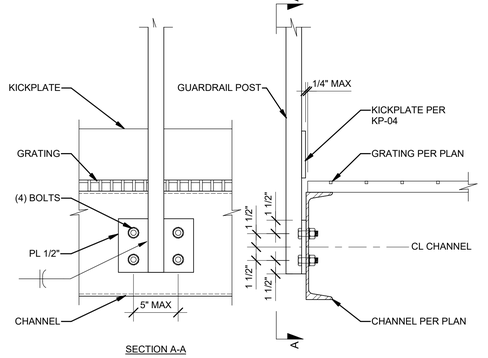
5 S-614.00 GR-05 GUARDRAIL TO BEAM WEB AT BEAM END 1 1/2" = 1'-0" 0 6" 12" 24"



6 S-614.00 GR-06 REMOVABLE GUARDRAIL TO BEAM WEB AT BEAM END 1 1/2" = 1'-0" 0 6" 12" 24"



7 S-614.00 GR-07 GUARDRAIL SIDE MOUNTED BOLTED CONNECTION AT CONCRETE 1 1/2" = 1'-0" 0 6" 12" 24"



8 S-614.00 GR-08 GUARDRAIL TO CHANNEL BACK 1 1/2" = 1'-0" 0 6" 12" 24"

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SOWINSKI SULLIVAN ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
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REV	DESCRIPTION	DRW BY	CHK BY	DATE
B	FINAL SUBMISSION	DJF	WA	12/12/2022
A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

GUARDRAIL TYPICAL CONNECTIONS

STATE OF NEW YORK
WAEL M YOUSSEF
080653
LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-614.00
CADD FILE NO Autodesk Docs://CHPE Astoria/CHA-KIE-000-XX-M2-S-001.rvt	64 of 74

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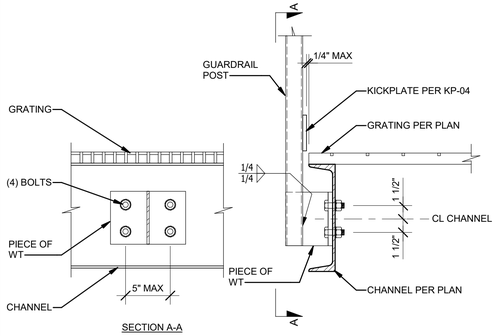
SHEET NOTES:

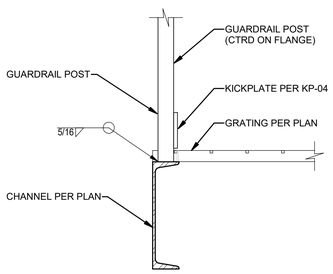
1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 7/8" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE WITH STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. CONNECTIONS ARE SCHEMATICALLY SHOWN FOR DESIGN INTENT. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES



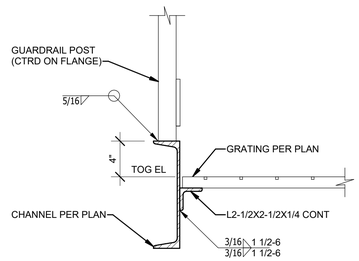
SECTION A-A

POST AND KP NOT SHOWN FOR CLARITY

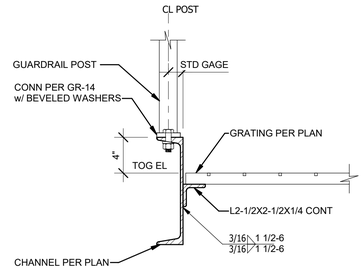
1 S-615.00 GR-09 GUARDRAIL TO CHANNEL WEB 1 1/2" = 1'-0" 0 6" 12" 24"



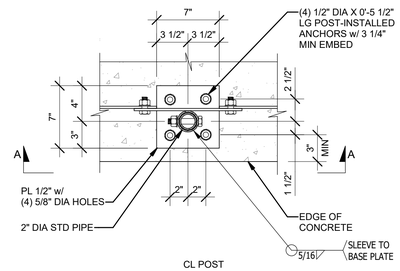
2 S-615.00 GR-10 GUARDRAIL TO CHANNEL FLANGE 1 1/2" = 1'-0" 0 6" 12" 24"

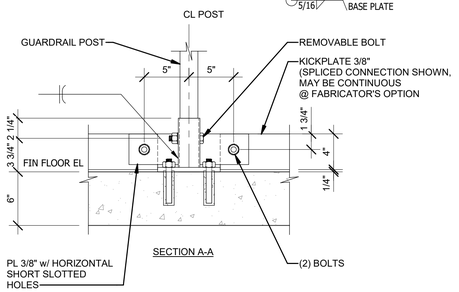


3 S-615.00 GR-11 GUARDRAIL TO CHANNEL FLANGE 1 1/2" = 1'-0" 0 6" 12" 24"

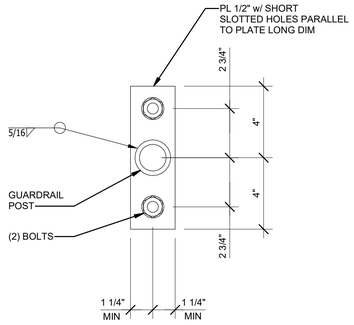


4 S-615.00 GR-12 GUARDRAIL TO CHANNEL FLANGE 1 1/2" = 1'-0" 0 6" 12" 24"

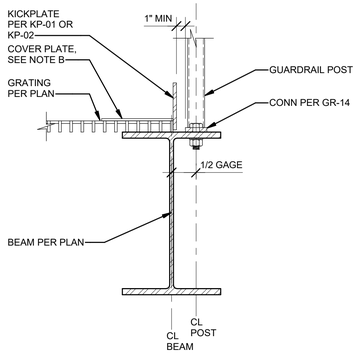




5 S-615.00 GR-13 GUARDRAIL TOP MOUNTED BOLTED CONNECTION AT BASE 1 1/2" = 1'-0" 0 6" 12" 24"



6 S-615.00 GR-14 GUARDRAIL CONNECTION DETAIL 3" = 1'-0" 3" 0 3" 9"



NOTE:
A. WHEN MULTIPLE BEAM GAGES EXIST ON A CONSECUTIVE RUN OF BEAMS, THE SMALLEST GAGE SHALL GOVERN THE LOCATION OF THE GUARDRAIL.

B. 3/16" THICK GALVANIZED STEEL COVER PLATE IS REQUIRED WHEN GRATING SPANS PARALLEL TO BEAM. COVER PLATES SHOULD EXTEND (1) BEARING BAR PAST EDGE OF BEAM FLANGE. SEAL WELD PLATE TO GRATING BARS, ALL SIDES.

7 S-615.00 GR-15 GUARDRAIL TO BEAM FLANGE 1 1/2" = 1'-0" 0 6" 12" 24"

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25 Mohawk Avenue
Sparta, NJ 07871

REV	DESCRIPTION	DRW BY	CHK BY	DATE
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A	INTERIM SUBMISSION	DJF	WA	09/13/2022

Kiewit
470 Chestnut Ridge Rd # 2,
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Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

GUARDRAIL TYPICAL CONNECTIONS

STATE OF NEW YORK WAEL M YOUSSEF 080653 LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-615.00
CADD FILE N0	65 of 74

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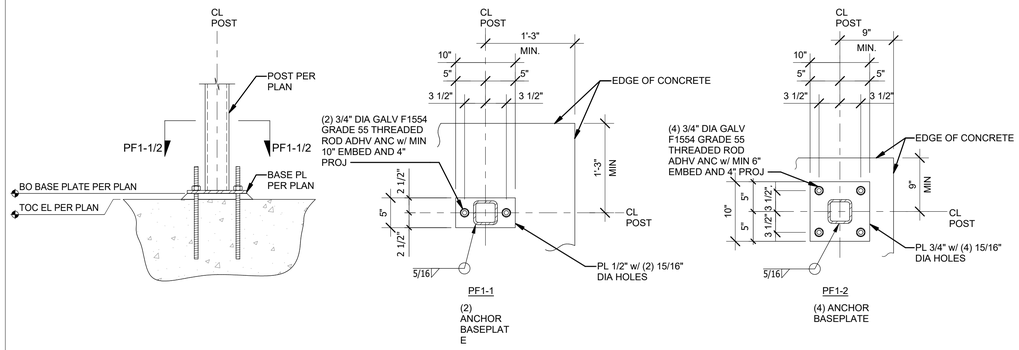
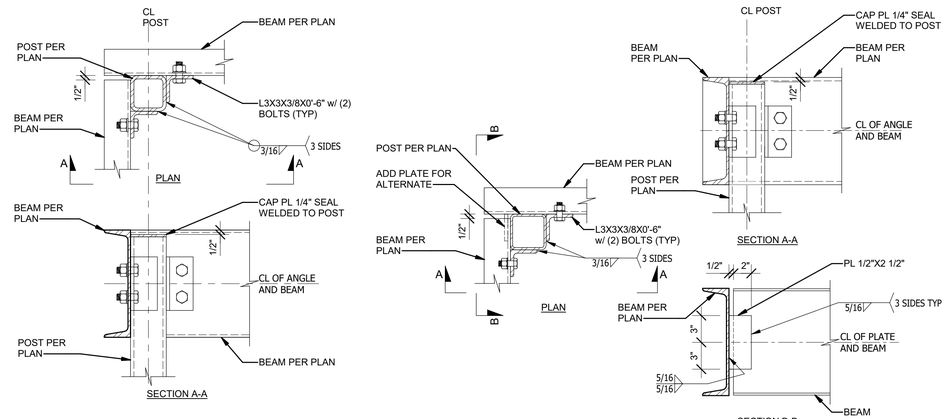
SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
2. 3/4" DIAMETER A325N BOLTS WITH 1 1/2" MINIMUM EDGE DISTANCE, UNO. STANDARD HOLES @ 3" BOLT SPACING, UNO.
3. BOLT HEAD ORIENTATION SHALL BE DETERMINED BY THE DETAILER OR ERECTOR. BOLTS SHOWN AS HEX BOLTS MAY BE TC BOLTS AS DETERMINED BY THE GENERAL NOTES.
4. WITH THE EXCEPTION OF BOLTED ANGLES, THE WORKLINE FOR ALL BRACING MEMBERS SHALL BE AT THE CENTROID.



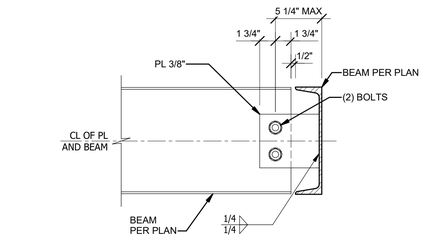
1 S-616.00 PF-01 PLATFORM ANCHOR TO CONCRETE 1" = 1'-0"



2 S-616.00 PF-02 PLATFORM TO BEAM POST 1 1/2" = 1'-0"

3 S-616.00 PF-02 - ALTERNATE PLATFORM BEAM TO POST 1 1/2" = 1'-0"

4 S-616.00 PF-03 PLATFORM BEAM TO BEAM STANDARD SHEAR PLATE 1 1/2" = 1'-0"



5 S-616.00 PF-04 PLATFORM BEAM TO BEAM EXTENDED SHEAR PLATE 1 1/2" = 1'-0"

6 S-616.00 PF-05 PLATFORM ANGLE HORIZONTAL BRACE AT BEAM TO POST 1 1/2" = 1'-0"

7 S-616.00 PF-06 PLATFORM ANGLE HORIZONTAL BRACE AT BEAM TO BEAM 1 1/2" = 1'-0"

8 S-616.00 PF-07 PLATFORM VERTICAL BRACE TO BASE PLATE 1 1/2" = 1'-0"

9 S-616.00 PF-08 PLATFORM VERTICAL BRACE TO POST 1 1/2" = 1'-0"

10 S-616.00 PF-09 PLATFORM CHEVRON VERTICAL BRACE 1 1/2" = 1'-0"

11 S-616.00 PF10 PLATFORM POST SPLICE 1 1/2" = 1'-0"

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STEEL PLATFORM TYPICAL CONNECTIONS

STATE OF NEW YORK · WAEL M YOUSSEF · 080653 · LICENSED PROFESSIONAL ENGINEER

DATE	12/12/2022
PROJECT NO	105121
DRAWING BY	D. FLYNN
CHECKED BY	W. ABBASSI
DRAWING NO	S-616.00
CADD FILE N0	66 of 74

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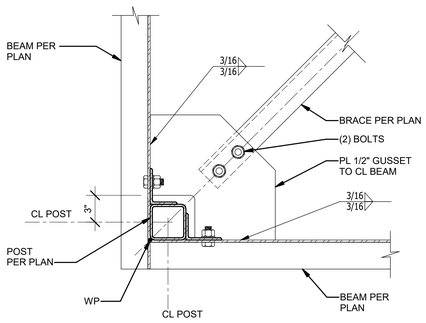
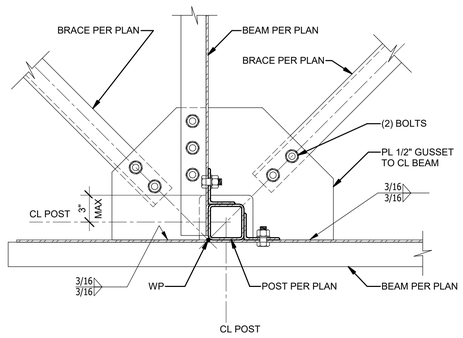


1 S-617.00 PF-11 PLATFORM ANGLE HORIZONTAL BRACE AT BEAM TO POST

1 1/2" = 1'-0" 0 6" 12" 24"



2 S-617.00 PF-12 PLATFORM ANGLE HORIZONTAL BRACE AT BEAM TO BEAM

1 1/2" = 1'-0" 0 6" 12" 24"

SHEET NOTES:

1. SEE DRAWINGS S-001.00 THRU S-006.00 FOR GENERAL NOTES, LEGEND, ABBREVIATIONS, AND COMPONENTS AND CLADDING WIND LOAD DIAGRAMS.
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STEEL PLATFORM TYPICAL CONNECTIONS

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