DULUTH INTERNATIONAL AIRPORT
NEW PASSENGER TERMINAL BUILDING

Director of Airports: Brian Ryks
4701 GRINDEN DRIVE - DULUTH INTERNATIONAL AIRPORT
DULUTH, MINNESOTA 55811

FAA AIP NO. _____
RS&H PROJ. NO. 213-1882-091

VOLUME 1 OF 2

60% DESIGN DEVELOPMENT
NOT FOR CONSTRUCTION

CIVIL CERTIFICATION
I hereby certify that the civil plans, specifications or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.
Print Name:_____
Signature:_____
Date:_____ License #_____

ARCHITECTURAL CERTIFICATION
I hereby certify that the architectural plans, specifications, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Architect under the laws of the State of Illinois.
Print Name:_____
Signature:_____
Date:_____ License #_____

STRUCTURAL CERTIFICATION
I hereby certify that the structural plans, specifications, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.
Print Name:_____
Signature:_____
Date:_____ License #_____

MECHANICAL CERTIFICATION
I hereby certify that the mechanical plans, specifications, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.
Print Name:_____
Signature:_____
Date:_____ License #_____

PLUMBING CERTIFICATION
I hereby certify that the plumbing plans, specifications, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.
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Signature:_____
Date:_____ License #_____

ELECTRICAL CERTIFICATION
I hereby certify that the electrical (power and lighting) plans, specifications, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Illinois.
Print Name:_____
Signature:_____
Date:_____ License #_____

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DRAWING LIST

GENERAL NOTE:

FOR ADA STANDARDS, PLUMBING FIXTURES' MOUNTING HEIGHTS AND CLEARANCES, SEE AX–XX.

ZONING DATA

PROJECT LOCATION:	DULUTH INTERNATIONAL AIRPORT 4701 GRINDEN DRIVE DULUTH, MINNESOTA 55811
ZONING:	––
PROPOSED USE:	AIRPORT
GROSS SITE AREA:	N.A.
TOTAL BUILDING AREA:	––
FIRST FLOOR AREA:	––
SECOND FLOOR AREA:	––
THIRD FLOOR AREA:	––
FLOOR AREA RATIO:	––
BUILDING HEIGHT:	––
OFF–STREET PARKING:	––
ON–STREET PARKING:	––
OFF–STREET LOADING AREAS:	––
APPLICABLE CODES:	––
OCCUPANCY:	––

ACCESSIBILITY NOTES

A. GENERAL REQUIREMENTS

THIS PROJECT WILL COMPLY WITH ALL IAC 400.310 – NEW CONSTRUCTION.

1. THE ENTRANCE IS ACCESSIBLE PER IAC 400.310(k).

2. ALL PASSENGER ELEVATORS PROVIDED IN A BUILDING OR FACILITY SHALL BE ACCESSIBLE, SHALL SERVE ALL LEVELS OF A BUILDING OR FACILITY, SHALL BE ON AN ACCESSIBLE ROUTE AND SHALL COMPLY WITH THE ASME A 17.1–1996.

3. ALL DOORS LEADING TO REQUIRED ACCESSIBLE ROOMS AND SPACES SHALL BE A MINIMUM OF 3'–0" WIDE, HAVE LEVER OPERATED HARDWARE (OR EQUAL), HAVE A MINIMUM OPENING FORCE OF 5 LBF, AND FULLY COMPLY WITH IAC 400.310(j).

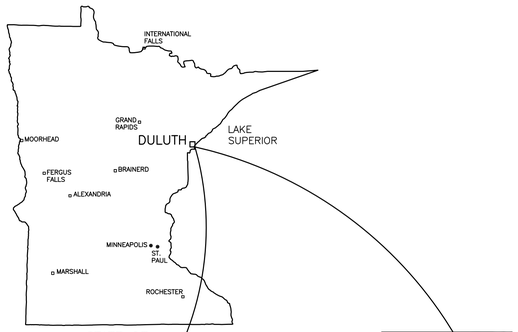
4. ALL DOORS LEADING TO HAZARDOUS ROOMS WILL COMPLY WITH THE ABOVE AND, IN ADDITION, WILL HAVE KNURLED OPERATING HARDWARE (I.E., ELECTRICAL/TELEPHONE ROOMS).

5. ALL ENVIRONMENTAL CONTROLS AND OPERATING MECHANISMS WILL COMPLY WITH IAC 400.310(r) (FRONT REACH BETWEEN 15" AND 48" AFF).

6. ALL EMERGENCY WARNING ALARMS, WHERE PROVIDED, SHALL BE BOTH AUDIBLE AND VISUAL AND COMPLY WITH IAC 400.310(s). THE VISUAL ALARMS WILL BE FLASHING TYPE WHERE THE FLASHING IS SYNCHRONIZED AND IN COMPLIANCE FOR INTENSITY AND FREQUENCY, ALL TENANT SPACES WILL BE WIRED FOR FUTURE INSTALLATION OF EMERGENCY WARNING ALARMS ON AN AS NEEDED BASIS (SEE SECURITY DRAWINGS).

7. ANY NEW REQUIRED SIGNAGE IN CONTRACT SHALL BE INSTALLED AS REQUIRED PER IAC 400.310(u).

8. TOILET ROOMS SERVING PUBLIC AREAS (I.E., LOVVIES, CONCOURSE, ETC.) WILL FULLY COMPLY WITH IAC 400.310(n).



2 SHEET LAYOUT
N.T.S.

NORTH

1 LOCATION MAP
N.T.S.

NORTH

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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PASSENGER TERMINAL

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Landscaping Consultants:
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2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
DRAWING LIST

SHEET NUMBER
G101

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets_G101 Drawing List.dwg Plotted on: 2/15/2010 10:11 AM Plotted by: lp, Mark

LIST OF ABBREVIATIONS

@	AT
ACC	ACCESSIBLE
ACOUS INSUL	ACOUSTICAL INSULATION
ACS DR	ACCESS DOOR
ACS FLR	ACCESS FLOOR
ACS PNL	ACCESS PANEL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADDL	ADDITIONAL
ADJST	ADJUSTABLE
ADJ	ADJACENT
ADPT	ADAPTABLE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
AFS	ABOVE FINISH SLAB
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
AMT	AMOUNT
AOR	AREA OF REFUGE
APPROX	APPROXIMATE
APT	APARTMENT
ARCH	ARCHITECT
ASKLR	AUTOMATIC SPRINKLER
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
ATM	AUTOMATIC TELLER MACHINE
AV	AUDIO VISUAL
BALC	BALCONY
BD	BOARD
BLDG	BUILDING
BLW	BELOW
B/	BOTTOM OF
BR	BEDROOM
BRZ	BRONZE
BSMT	BASEMENT
BTWN	BETWEEN
C TO C	CENTER TO CENTER
CBB	CEMENTITIOUS (BACKER) BOARD
CD	CONTRACT DOCUMENTS
CEM PLAS	CEMENT PLASTER
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNCL	CONCEALED
COL	COLUMN
CONC	CONCRETE
CONSTR	CONSTRUCTION
CONT	CONTINUE
CORR	CORRIDOR
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
E	EAST
EA	EACH
EC	EXPOSED CONSTRUCTION
ECS	EXPOSED CONCRETE SEALED
ECP	EXPOSED CONSTRUCTION PAINTED
EGB	EXTERIOR GYPSUM BOARD
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
ENCL	ENCLOSURE
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EPJF	EXPANDED POLYETHYLENE JOINT FILLER
EPS	EXPANDED POLYSTYRENE BOARD (INSULATION)
EQ	EQUAL
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP	EXPANSION
EXPD	EXPOSED
EXT	EXTERIOR
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FAR	FLOOR AREA RATIO
FC BRK	FACE BRICK
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF EL	FINISH FLOOR ELEVATION
FF&E	FURNITURE, FIXTURE, AND EQUIPMENT
FHC	FIRE HOSE CABINET
FIN	FINISH
FIN FLR	FINISH FLOOR
FIN GR	FINISH GRADE
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROTECTION
FR	FIRE RESISTANT
FT	FEET / FOOT
GA	GAGE
GBD	GYPSUM BOARD
GC	GENERAL CONTRACTOR
GFRC	GLASS-FIBER-REINFORCED CONCRETE
GFRG	GLASS-FIBER-REINFORCED GYPSUM
GL	GLASS
GRAN	GRANITE
GYP PLAS	GYPSUM PLASTER
HB	HOSE BIBB
HCWD	HOLLOW CORE WOOD DOOR
HDW	HARDWARE
HMD	HOLLOW METAL DOOR
HORIZ	HORIZONTAL
HPT	HIGH POINT
HR	HOUR(S)
HSKPG	HOUSEKEEPING
HT	HEIGHT
ID	INSIDE DIAMETER
IN	INCH(ES)
INCAN	INCANDESCENT
INCL	INCLUDED
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
JC	JANITOR'S CLOSET
JT	JOINT
KIT	KITCHEN
L	ANGLE
LC	LINEN CLOSET
LAM	LAMINATE
LAU	LAUNDRY
LAV	LAVATORY
LBS	POUND
LC	LAUNDRY CHUTE
LDG	LANDING
LH	LEFT HAND
LKR	LOCKER
LL	LOW LEVEL
LMST	LIMESTONE
LPT	LOW POINT
LR	LIVING ROOM
M	MEN'S
MACH	MACHINE
MAR	MARBLE
MATL	MATERIAL
MAX	MAXIMUM
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLWK	MILLWORK
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
N	NORTH
NCOMBL	NON-COMBUSTIBLE
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OF/CI	OWNER FURNISHED/CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/OWNER INSTALLED
OPNG	OPENING
OPP	OPPOSITE
PART	PARTIAL
PASS	PASSENGER
PERP	PERPENDICULAR
PLAM	PLASTIC LAMINATE
PLYWD	PLYWOOD
POL	POLISHED
PNL	PANEL
PR	PAIR
PREFAB	PREFABRICATED
PSF	POUND PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVF	POLYVINYL FLUORIDE
QT	QUARRY TILE
QTY	QUANTITY
R	RISER
RAD	RADIAN/RADIUS
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFERENCE
REINF	REINFORCE
REQD	REQUIRED
REST	RESTROOM
REV	REVISION
RH	RIGHT HAND
RM	ROOM
RO	ROUGH OPENING
S	SOUTH
SCWD	SOLID CORE WOOD DOOR
SECT	SECTION
SHT	SHEET
SIM	SIMILAR
SLNT	SEALANT
SPEC	SPECIFICATION
SST	STAINLESS STEEL
ST	STAIR
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STN	STAIN
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPEND
SVCE	SERVICE
T	TREAD
TBA-#	TOILET BATH ACCESSORIES
TBD	TO BE DETERMINED
TEL	TELEPHONE
THK	THICKNESS
T/	TOP OF
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VAR	VARIES
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VWC	VINYL WALL COVERING
W	WEST
W	WOMEN'S
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WC	WALL COVERING
WD	WOOD
WD DR	WOOD DOOR
WH	WATER HEATER
WP	WORKING POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

GENERAL NOTES

A. CODES, STANDARDS, AND PROCEDURES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF LIMESTONE TOWNSHIP CODE AND AMENDMENTS, AND ALL OTHER APPLICABLE FEDERAL,STATE, AND LOCAL LAWS AND ORDINANCES, ACCESSIBILITY CODES, STANDARDS, AND REGULATORY AGENCIES.
2. ALL REFERENCES TO CODES, SPECIFICATIONS, AND STANDARDS REFERRED TO IN THE SPECIFICATIONS AND/OR DRAWINGS SHALL MEAN THE LATEST EDITION, AMENDMENT OR REVISION OF SUCH REFERENCE IN EFFECT AS OF THE LATEST DATE OF THE CONTRACT DOCUMENTS.
3. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS, POLICIES, AND PROCEDURES

-ERS SPECIFICATIONS AND RECOMMENDATIONS, AND THE BEST ACCEPTED TRADE PRACTICES AND STANDARDS.

6. DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPES OF DETAILING REQUIRED FOR THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE DETAILED.
7. PROVIDE ALL SHOP DRAWINGS, CATALOG CUTS, SAMPLES, ETC. FOR THE NECESSARY WORK REQUIRED AND FOR ARCHITECT'S REVIEW PRIOR TO COMMENCEMENT OF THE WORK.
8. EACH CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ALL WORK WHICH DIFFERS FROM CONTRACT DOCUMENTS SO THAT ACCURATE RECORD DRAWINGS AND SPECIFICATIONS CAN BE KEPT AND PROVIDED TO THE OWNER AT PROJECT CLOSEOUT.
9. EACH CONTRACTOR SHALL VISIT THE SITE AND BE KNOWLEDGEABLE OF CONDITIONS THEREOF. FAILURE TO EXAMINE THE SITE AND DETERMINE EXISTING CONDITIONS OR NATURE OF NEW CONSTRUCTION, OR NATURE AND EXTENT OF WORK TO BE PERFORMED BY OTHER TRADES WILL NOT BE CONSIDERED A BASIS FOR GRANTING OF ADDITIONAL COMPENSATION.
10. THE CONTRACTOR SHALL INVESTIGATE, VERIFY AND BE RESPONSIBLE FOR ALL REQUIREMENTS OF THE PROJECT AND SHALL NOTIFY THE ARCHITECT OF ANY CONDITIONS CONTRARY TO THE CONSTRUCTION DOCUMENTS THAT REQUIRE MODIFICATION BEFORE PROCEEDING WITH THE WORK.
11. THE CONTRACTOR SHALL PROTECT ALL EXISTING SITE ELEMENTS FROM DAMAGE DUE TO THE CONSTRUCTION OPERATIONS, AND REPAIR OR REPLACE ANY ELEMENTS DAMAGED DURING THE PROJECT.
12. ANY UTILITY SHUT-OFFS AS REQUIRED BY THE CONTRACTOR FOR COMPLETION OF THEIR WORK SUCH AS ELECTRICAL, GAS, WATER, SEWER, ETC. MUST BE SCHEDULED WITH THE OWNER PRIOR TO COMMENCING WORK.
13. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ITEMS THAT ARE SHOWN ON ANOTHER DISCIPLINES DOCUMENTS BUT NOT ON THE TRADE CONTRACTOR'S DISCIPLINE DOCUMENTS.
14. IN ORDER TO MINIMIZE DISRUPTIONS TO AIRPORT OPERATIONS, ALL UTILITY SHUT-DOWNS AND CONNECTIONS SHALL BE SCHEDULED OF-HOURS. (FROM 11:00 PM UNTILL 5 AM) ALL PREMIUM COSTS SHALL BE INCLUDED IN THE BID.

B. DIMENSIONS

1. DO NOT SCALE THE DRAWINGS, DIMENSIONS SHALL GOVERN. LARGE SCALE DRAWINGS SHALL GOVERN OVER SMALL SCALE. WHERE A DISCREPANCY MAY EXIST BETWEEN DRAWINGS AND SPECIFICATIONS, THE MORE RESTRICTIVE OR EXPENSIVE REQUIREMENTS SHALL GOVERN.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE, AND SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES, OMISSIONS AND/OR CONFLICTS BEFORE PROCEEDING WITH THE WORK.
3. ALL PARTITIONS ARE DIMENSIONED TO THE FINISH FACE, UNLESS NOTED OTHERWISE. WHERE SPECIFIC DIMENSIONS, DETAILS AND/OR DESIGN INTENT CANNOT BE DETERMINED, NOTIFY THE ARCHITECT IN WRITING BEFORE PROCEEDING WITH ANY WORK IN QUESTION.
4. DOOR OPENINGS THAT ARE NOT DIMENSIONALLY LOCATED ARE TO BE CENTERED BETWEEN WALLS OR POSITIONED WITH ONE JAMB CASING TRIM AGAINST AN ADJACENT WALL OR COLUMN AS SHOWN ON THE PLANS AND/OR DETAILS.

C. COORDINATION

1. REFER TO THE SPECIFICATIONS AND CIVIL, LANDSCAPING, ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND ADDITIONAL CONSULTANT'S DRAWINGS FOR FULL COORDINATION OF WORK.
2. REFER TO SITE SURVEY FOR SITE INFORMATION. SITE SURVEY IS INCLUDED WITH THE DOCUMENTS FOR "INFORMATION ONLY", AND CONTRACTOR SHALL VERIFY ALL INFORMATION SHOWN.
3. THE GENERAL CONTRACTOR SHALL COORDINATE ADDITIONAL SUPPORT OR CONCEALED BLOCKING FOR INSTALLATION OF HANDRAILS, MILLWORK, WINDOW TREATMENTS, WALL PANELS, GRAB BARS, AND ALL OTHER SURFACE MOUNTED COMPONENTS.
4. THE CONTRACTOR SHALL COORDINATE AND VERIFY THE EXACT SIZE AND LOCATION OF ALL FLOOR PENETRATIONS AND OPENINGS IN WALLS AND CEILINGS WITH EACH OF THE RESPECTIVE MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS, ALL PARTITIONS SHALL BE ADEQUATELY BRACED AND OPENINGS REINFORCED. SUBMIT COORDINATED DRAWING OF ALL PENETRATIONS FOR REVIEW.
5. GENERAL CONTRACTOR TO COORDINATE ALL LIGHTING FIXTURES, ELECTRICAL DEVICES, AND SPRINKLER LOCATIONS WITH DIFFUSER AND DUCTWORK LAYOUT, AND SHALL IDENTIFY ALL POTENTIAL CONFLICTS INVOLVING ELEMENTS WITHIN THE CEILING CAVITY. ANY VARIATIONS OR CONFLICTS WITH LAYOUT OR CEILING HEIGHT SHOWN SHALL BE REVIEWED WITH THE ARCHITECT PRIOR TO INSTALLATION.
6. THE LOCATION OF MEP/FP EQUIPMENT AND DEVICES SUCH AS V.A.V. BOXES, PIPING VALVES, ETC. SHALL BE COORDINATED BY THE CONTRACTOR TO CORRESPOND TO ACCESS PANEL LOCATIONS SHOWN ON CONTRACTOR'S COORDINATION PLANS, AND IN SUCH A MANNER AS TO ALLOW READY ACCESS TO EQUIPMENT CONTROLS AND COMPONENTS WHICH REQUIRE ROUTINE SERVICING. SUBMIT ACCESS PANEL LOCATION DRAWINGS FOR REVIEW.
7. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN ADVANCE OF ANY MEP/FP DEVICES REQUIRED AS PART OF THE SPECIFIED SYSTEM WHICH ARE TO BE MOUNTED IN FINISHED SPACES AND ARE NOT LOCATED ON THE ARCHITECTURAL DRAWINGS. THE ARCHITECT WILL DETERMINE THE MOUNTING LOCATION, HEIGHT, AND DETAIL FOR ATTACHMENT.
8. ALL CONDUIT, PIPING, DUCTWORK, AND MECHANICAL SYSTEMS SHALL BE INSTALLED WITHIN OR TIGHT TO THE UNDERSIDE OF STRUCTURE WHERE FEASIBLE.
9. REFER TO MEP/FP DRAWINGS FOR EXTENT OF CONCRETE EQUIPMENT PADS. THE CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF THE CONCRETE PADS WITH THE EQUIPMENT INSTALLER.

D. INSTALLATION, GENERAL

1. PROVIDE EXPANSION AND/OR CONTROL JOINTS IN ACCORDANCE WITH SPECIFIED OR DRAWN REQUIREMENTS. IN THE ABSENCE OF SPECIFIED OR DRAWN REQUIREMENTS, PROVIDE JOINTS IN ACCORDANCE WITH ACCEPTED INDUSTRY STANDARDS. LOCATIONS SHALL BE REVIEWED AND ACCEPTED BY THE ARCHITECT PRIOR TO INSTALLATION.
2. ALL JOINTS OF ANY ELEMENT OF CONSTRUCTION WHICH IS REQUIRED TO HAVE A FIRE RESISTIVE RATING SHALL BE INSTALLED PER MANUFACTURER'S TESTED ASSEMBLIES AND SHALL PREVENT PASSAGE OF SMOKE AND FLAME.
3. ALL WOOD BLOCKING AND FRAMING USED IN WALL, FLOOR, AND CEILING CONSTRUCTION SHALL BE FIRE RETARDANT TREATED.
4. ALL OPENINGS IN FIRE-RATED FLOORS AND FIRE-RATED WALLS INCLUDING SPACES BETWEEN DUCTS, PIPES, CONDUIT, ETC. SHALL BE CLOSED OFF BY APPROVED FIRE SAFING MATERIAL TO MAINTAIN FIRE RATING CONTINUITY OF RATED FLOOR AND WALL CONSTRUCTION. ALL OPENINGS AND PENETRATIONS SHALL BE SEALED TO PREVENT PASSAGE OF SMOKE AND FLAMES IN FIRE-RATED ASSEMBLIES.
5. OMIT MANUFACTURER'S NAMES, LABELS AND DESIGNATIONS FROM EXPOSED FACES ON ALL ACCESSORIES, GLAZING, FIXTURES, ETC. EXCEPT WHERE REQUIRED TO REMAIN PER CODE REQUIREMENTS.
6. UNLESS NOTED OTHERWISE, ALL FASTENERS AND FASTENING DEVICES ARE TO BE CONCEALED AT ALL EXTERIOR AREAS AND IN ALL INTERIOR FINISHED SPACES.
7. EXTERIOR FERROUS METAL WORK AT EXTERIOR OR OTHER NON-CONDITIONED SPACES THAT ARE NOT GALVANIZED SHALL BE PAINTED.
8. ALL DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER IN ORDER TO AVOID GALVANIC ACTION. WHEN ISOLATION IS NOT POSSIBLE, INSTALL PLASTIC RUBBER/PVC IN SUFFICIENT SIZE AND DEPTH TO COVER ENLARGED DISSIMILAR MATERIAL.

E. WALL TYPES

1. SEE SHEET AXX FOR WALLS TYPES.

E. WALL TYPES

1. MULTIPLE BID PACKAGES:

This project consists of multiple construction bid packages. This package is referred to as "Bid Package D" New Terminal Building – Balance of the work as noted on these drawings. The previous Bid Packages have been issued and are not included in this scope of work are as follows:

Bid Package A	Terminal Apron
Bid Package B	Terminal Footings, Foundations and exterior ramps and stairs
Bid Package C	Structural Steel, Steel metal pan stairs and connecting handrails

Future Bid Packages will include:

Technology/MUFID's/Security Package
Building and Interior Signage Bid Package
Electrical Vault
Passenger Boarding Bridge
Terminal Demolition

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ABBREVIATIONS

SHEET NUMBER
G1-02

60% NOT FOR CONSTRUCTION

Drawing: t:\F\2131882.091 Duluth New Terminal\Cad\A\Sheets\A001 Abbreviations and General Notes.dwg Plotted on: 2/15/2010 10:12 AM Plotted by: lp, Mark

LINETYPE LEGEND

ABOVE / IN FRONT OF

BEYOND/BELOW HEAVY

BEYOND/BELOW LITE

WALL CENTERLINES

STRUCTURAL CENTERLINES

DEMOLITION

EXISTING

PROPERTY LINE

FIRE RATING - 1 HR.

FIRE RATING - 2 HR.

FIRE RATING - 3 HR.

FIRE RATING - 4 HR.

MATERIALS LEGEND

ITEM	DESIGNATION
EARTH CRUSHED ROCK GRAVEL	
EARTH UNDISTURBED	
EARTHWORK COMPACTED FILL	
SAND	
BRICK COMMON/FACE	
CMU	
CONCRETE	
GRANITE STONE	
GROUT	
LIMESTONE	
MARBLE STONE	
STONE CAST	
TERRA COTTA GLAZED	
TERRA COTTA UNGLAZED	
ALUMINUM AND OTHER METALS	
BRONZE BRASS	
STEEL	
SHEET METAL AND ALL METALS	
PARTICLEBOARD WOODWORK ARCHITECTURAL	
PLYWOOD	
WOOD BLOCKING SHIM	
WOOD FINISH	
WOOD FRAMING CONTINUOUS	
GASKET FIREPROOFING	
INSULATION LOOSE FILL	
INSULATION RIGID BOARD	
SEALANT AND BACKER ROD	
WATERPROOFING MEMBRANE	
GLASS MIRRORS	
GLASS ELEVATION MIRRORS ELEVATION	
CARPET AND PAD	
GYPSUM BOARD FINISH	
PLASTER FINISH WITH METAL LATH	
TERRAZZO FINISH	
TILE ACOUSTICAL CEILING	
WOOD FLOORING	

DOOR DESIGNATION

FIRE RATING LEGEND

A	3 HR (CLASS A)
B	90 MIN. (CLASS B)
C	60 MIN. (CLASS B)
D	45 MIN. (CLASS C)
E	20 MIN.
N	NON RATED

A01
01

FIRE RATING
DOOR NUMBER
DOOR HARDWARE SET

SYMBOLS LEGEND

ITEM	SYMBOL
DRAWING TITLE	1 DWG_LABEL_1 X" = 1'-0
ROOM NUMBER	ROOM NAME XXX
ROOM NUMBER WITH KT/BT	ROOM NAME XXX XX XXX
MATERIAL CHANGE	XX XX FLR FLR
F F & E	XXX
ELEVATION CHANGE	
DEVICE NUMBER	XX
INTERIOR ELEVATION	CLG HT XX'-XX" AFF
SPOT ELEVATION	XX'-XX"
ELEVATION REFERENCE VERTICAL	FLOOR NAME EL XX'-XX"
DOOR NUMBER	XXX XX
WINDOW/ GLAZING NUMBER	XXX
NOTE NUMBER	XX
WALL TYPE	XX
NORTH ARROW	
NORTH ARROW	
TRUE NORTH ARROW	

ITEM	SYMBOL WITHOUT SHEET DESIGNATION
PARTIAL BUILDING SECTION	1
FULL BUILDING SECTION	1 1
EXTERIOR ELEVATION	1
INTERIOR ELEVATION	1 4 1 2 3
DETAIL	1

ITEM	SYMBOL WITH SHEET DESIGNATION
PARTIAL BUILDING SECTION	1 AX-X.X
FULL BUILDING SECTION	1 AX-X.X 1 AX-X.X
EXTERIOR ELEVATION	1 AX-X.X
INTERIOR ELEVATION	1 4 AX-X.X 2 3
DETAIL	1 AX-X.X
ELEVATION DETAIL	1 AX-X.X
SECTION DETAIL	1 AX-X.X

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Landscaping Consultants:
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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

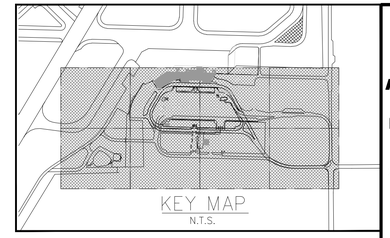
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
SYMBOLS

SHEET NUMBER
G1-03

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A002 Symbols.dwg Plotted on: 2/15/2010 10:12 AM Plotted by: lp, Mark



PHASE 1 LANDSCAPING

KEY

MEADOW
PLANTING BEDS
GRAVEL
SHADE TREE
ORNAMENTAL TREE
EVERGREEN TREE
LIGHT POLE

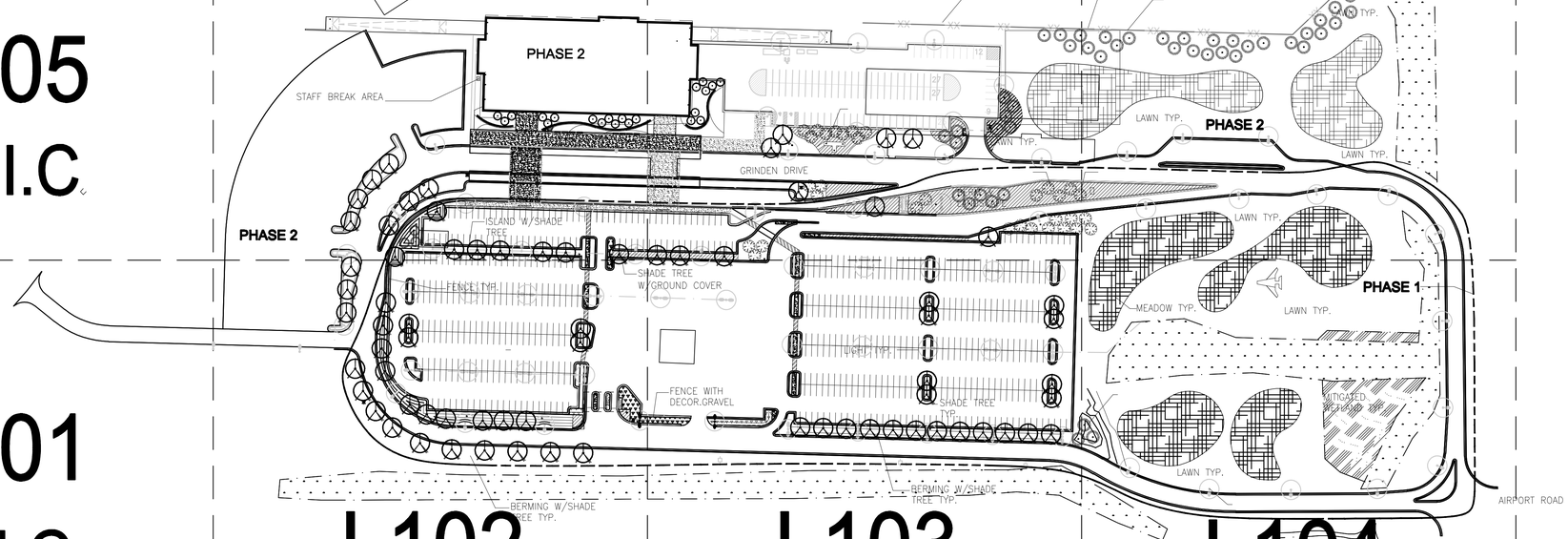
L105 N.I.C.

L101 N.I.C.

L106 L107 L108

L102 L103 L104

EXISTING TERMINAL
PHASE 2
STAFF BREAK AREA
GRINDEN DRIVE
ISLAND W/SHADE TREE
FENCE TYP.
SHADE TREE W/GROUND COVER
FENCE WITH DECOR.GRAVEL
BERMING W/SHADE TREE TYP.
CONSTRUCTION STAGING AREA
LAWN TYP.
PHASE 1
MEADOW TYP.
PLANTING BEDS
SHADE TREE TYP.
HAINES ROAD
AIRPORT ROAD



SITE PLAN

NORTH

0 100' 200'

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

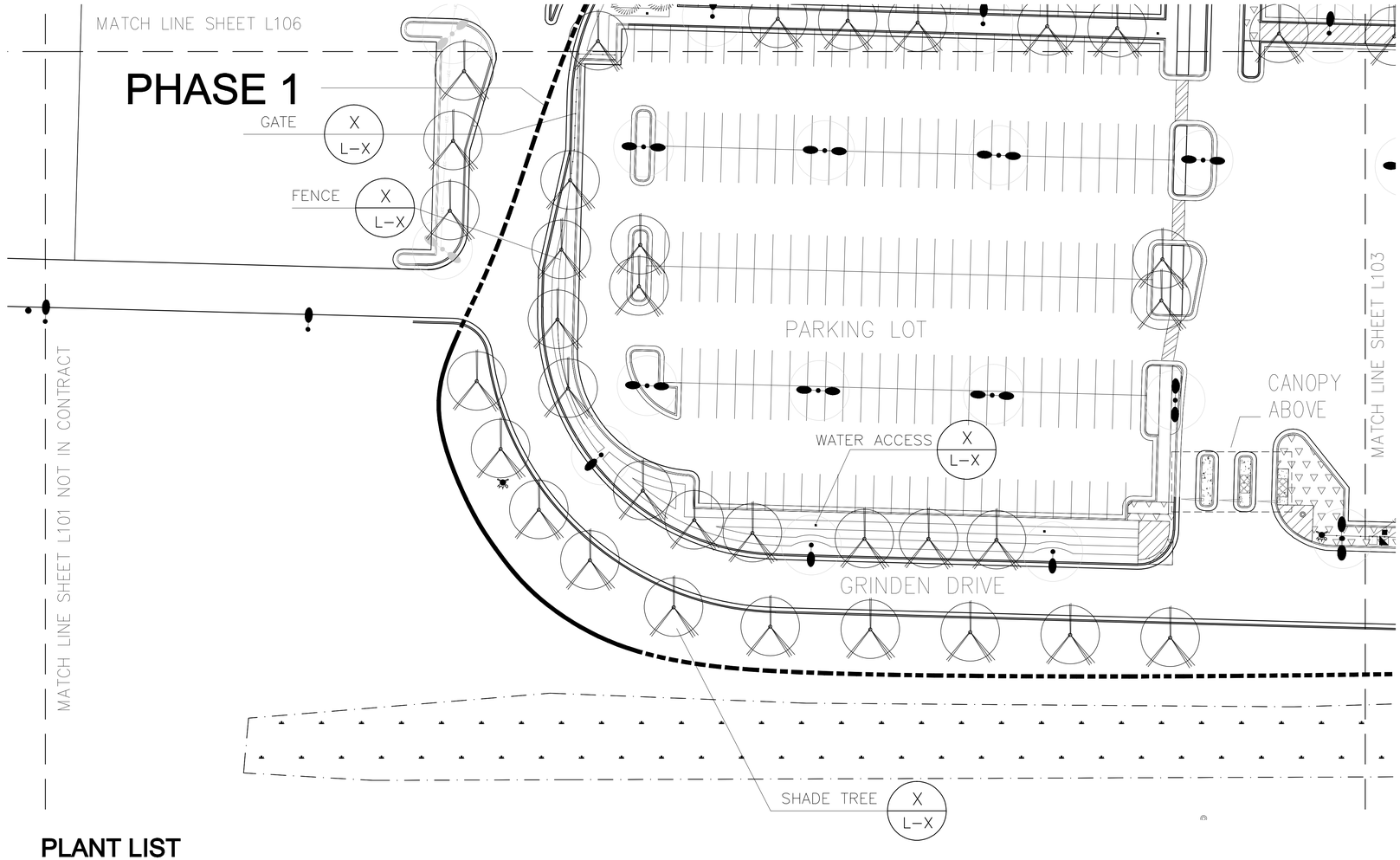
DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: SMW
DESIGNED BY: MMA

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE OVERALL PLAN

SHEET NUMBER
L100
OF

60% NOT FOR CONSTRUCTION



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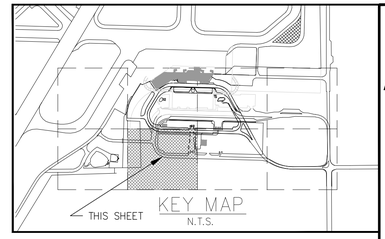

PHASE 1 LANDSCAPING

KEY

MEADOW	SHADE TREE
PLANTING BEDS	ORNAMENTAL TREE
GRAVEL	EVERGREEN TREE
	LIGHT POLE

NORTH

30' 15' 0 30'

NOTE: L101 NOT IN CONTRACT

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: SMW
DESIGNED BY: MMA

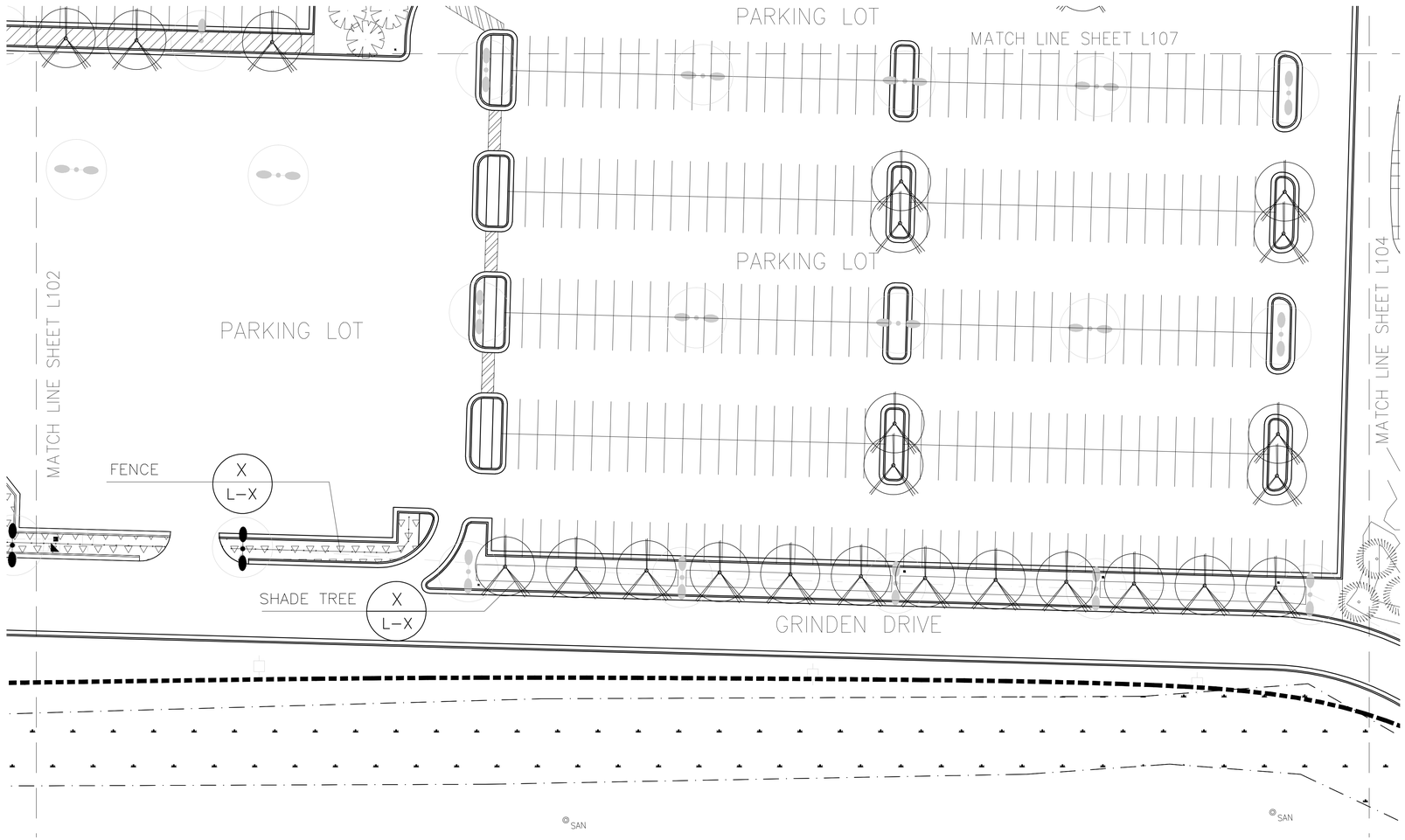
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE PLAN (AREA 2)

OF

SHEET NUMBER
L102

60% NOT FOR CONSTRUCTION



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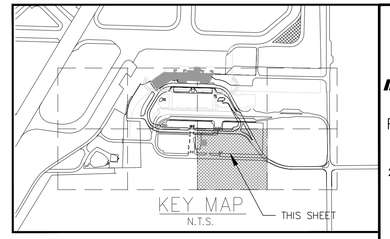

PHASE 1 LANDSCAPING

KEY

MEADOW	SHADE TREE
PLANTING BEDS	ORNAMENTAL TREE
GRAVEL	EVERGREEN TREE
	LIGHT POLE

NORTH

30' 15' 0 30'

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: SMW
DESIGNED BY: MMA

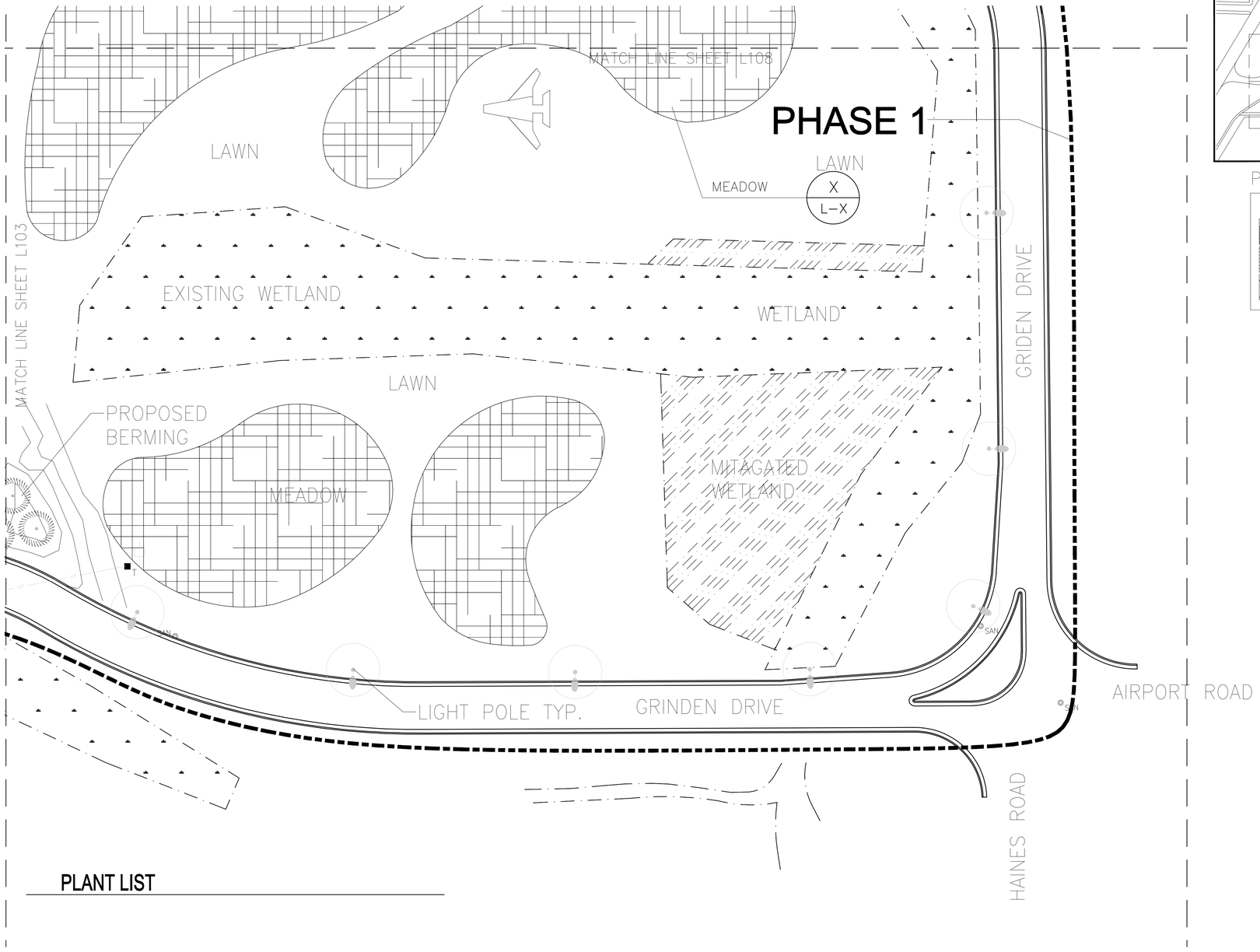
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE PLAN (AREA 3)

0 OF 0

SHEET NUMBER
L103

60% NOT FOR CONSTRUCTION



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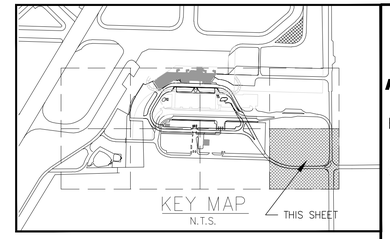

PHASE 1 LANDSCAPING

KEY

MEADOW	SHADE TREE
PLANTING BEDS	ORNAMENTAL TREE
GRAVEL	EVERGREEN TREE
	LIGHT POLE

NORTH

30' 15' 0 30'

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: JJB
DESIGNED BY: MMA

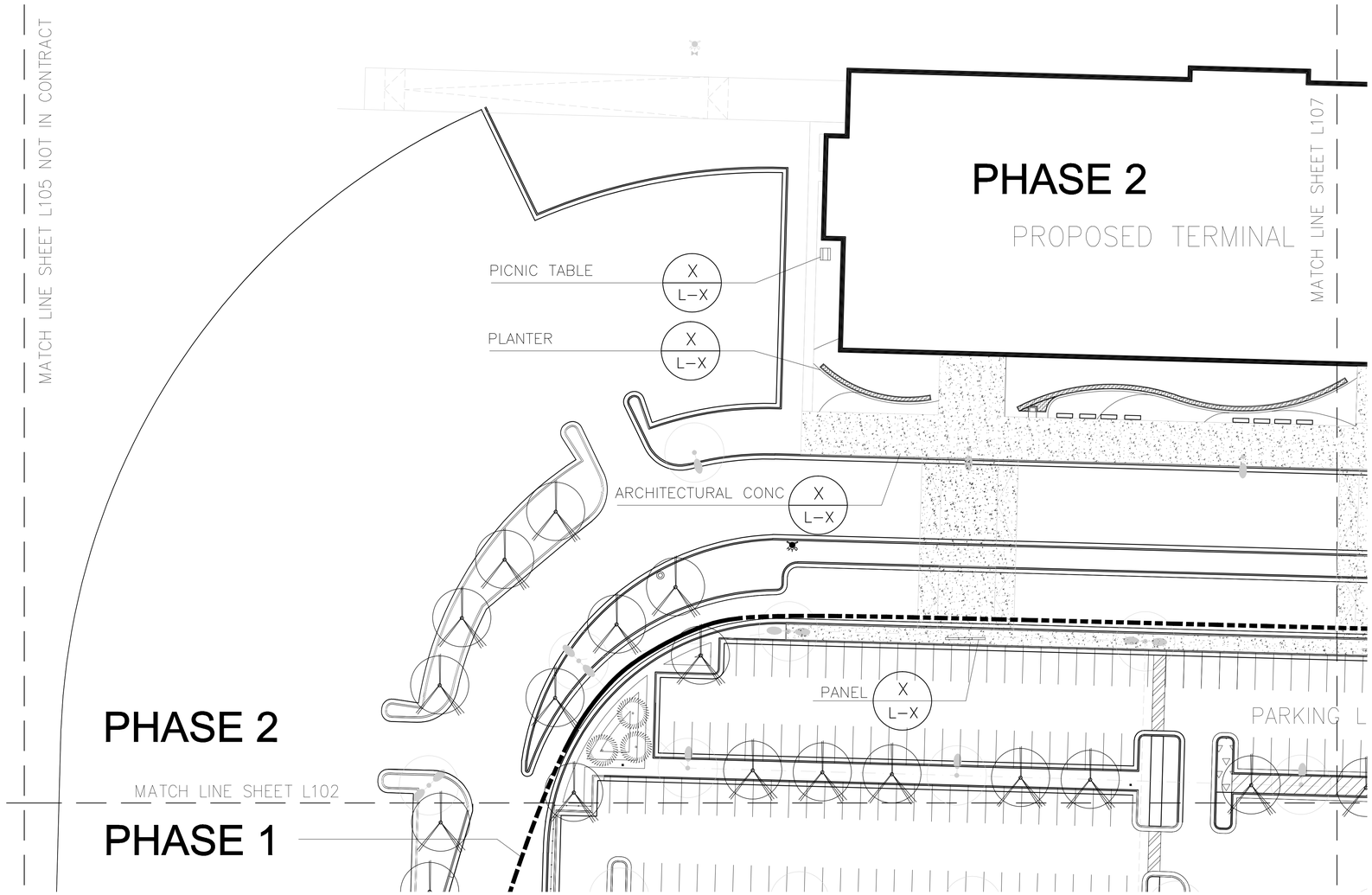
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE PLAN (AREA 4)

OF

SHEET NUMBER
L104

60% NOT FOR CONSTRUCTION



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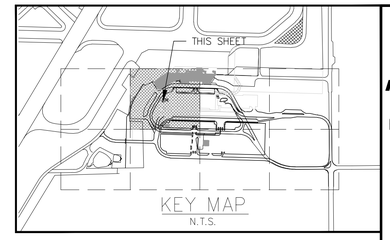

PHASE 1 LANDSCAPING

KEY

MEADOW	SHADE TREE
PLANTING BEDS	ORNAMENTAL TREE
GRAVEL	EVERGREEN TREE
	LIGHT POLE

NORTH

30' 15' 0 30'

NOTE: L105 NOT IN CONTRACT

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: SMW
DESIGNED BY: MMA

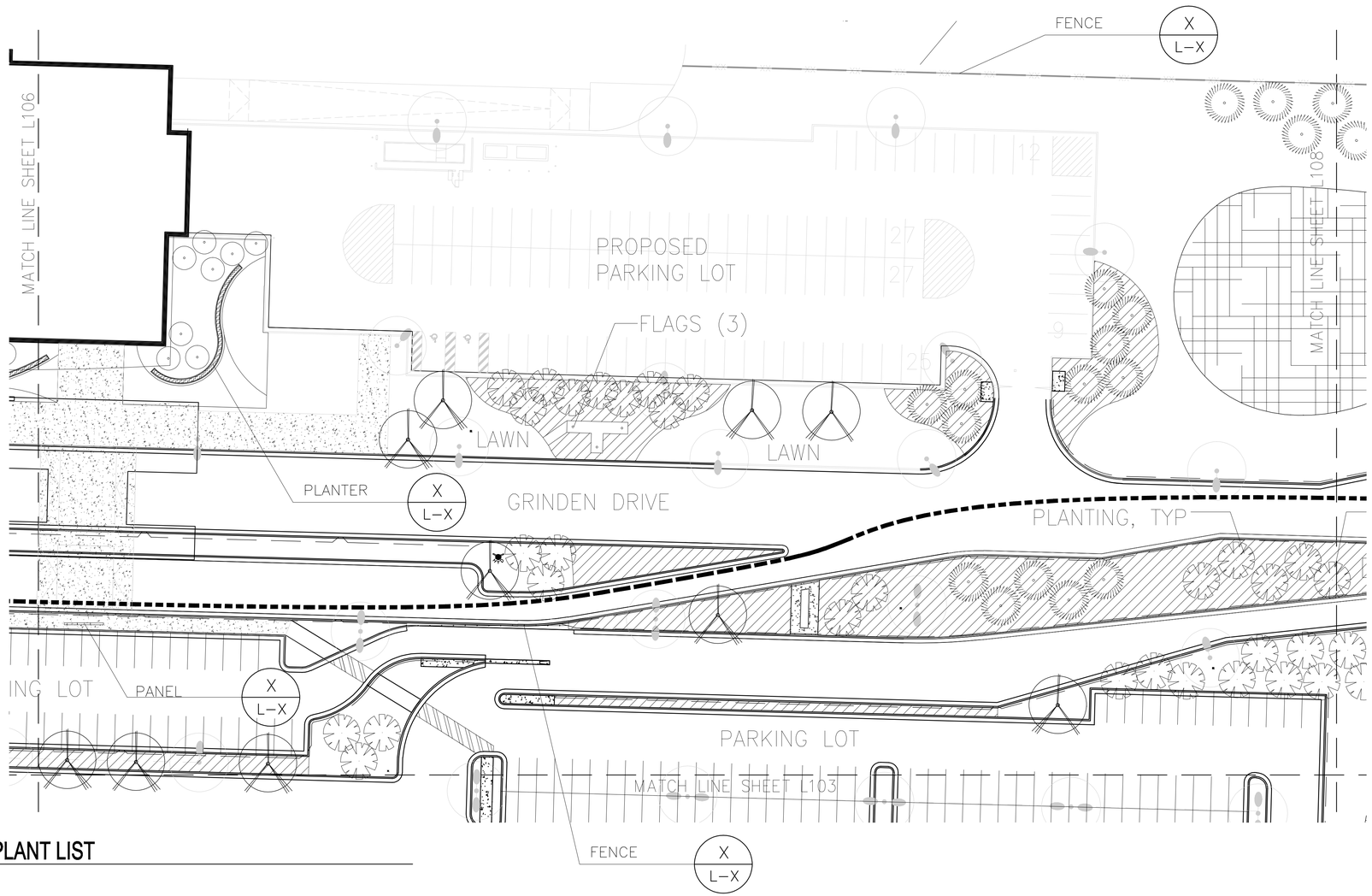
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE PLAN (AREA 6)

OF

SHEET NUMBER
L106

60% NOT FOR CONSTRUCTION



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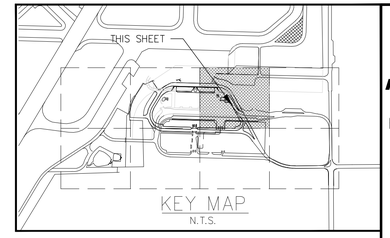

PHASE 1 LANDSCAPING

KEY

MEADOW	SHADE TREE
PLANTING BEDS	ORNAMENTAL TREE
GRAVEL	EVERGREEN TREE
	LIGHT POLE

NORTH

30' 15' 0 30'

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: SMW
DESIGNED BY: MMA

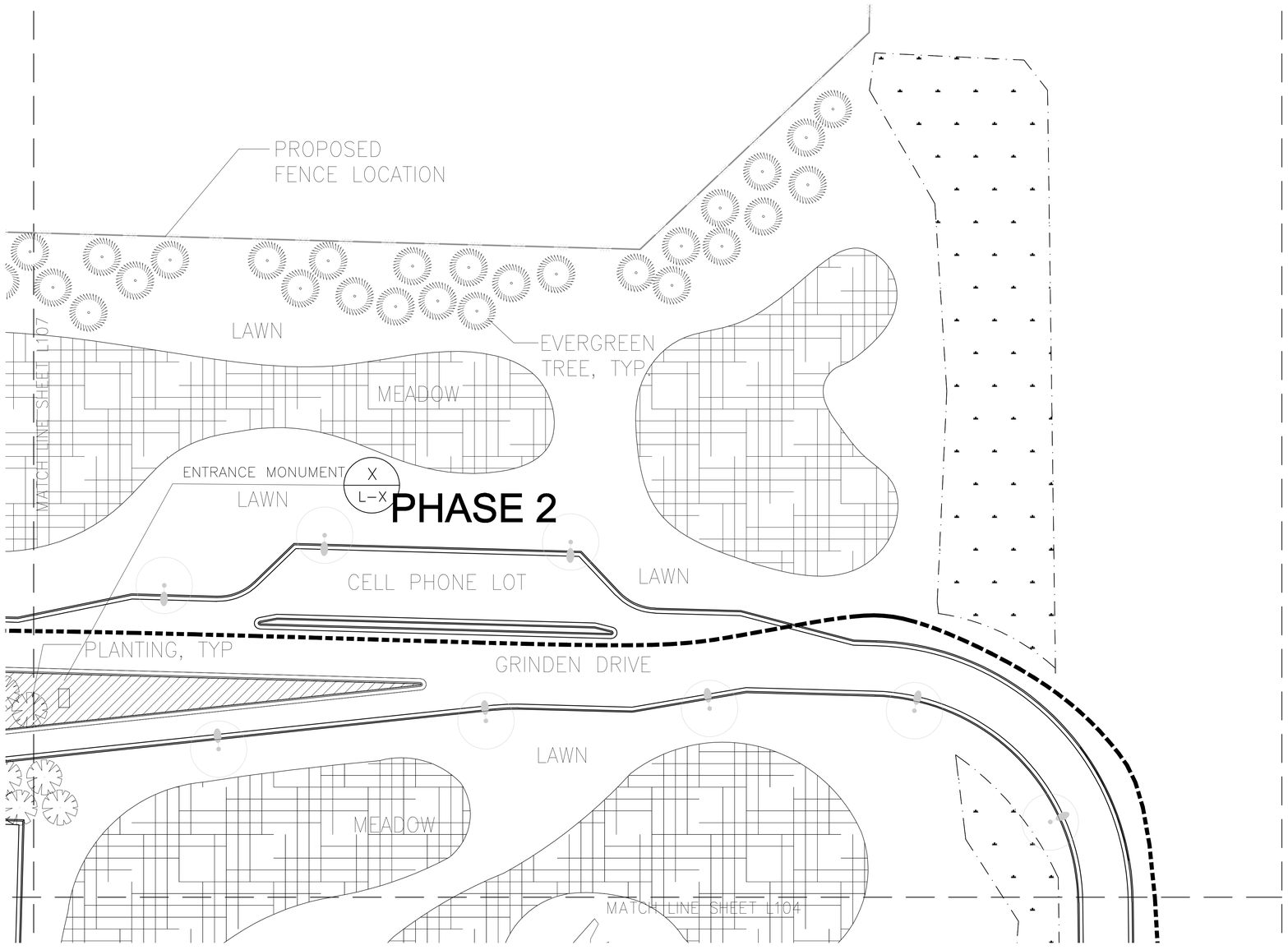
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE
PLAN
(AREA 7)

OF

SHEET NUMBER
L107
XX OF XX

60% NOT FOR CONSTRUCTION



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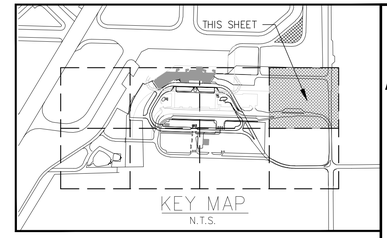

PHASE 1 LANDSCAPING

KEY

MEADOW	SHADE TREE
PLANTING BEDS	ORNAMENTAL TREE
GRAVEL	EVERGREEN TREE
	LIGHT POLE

NORTH

30' 15' 0 30'

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: SMW
DESIGNED BY: MMA

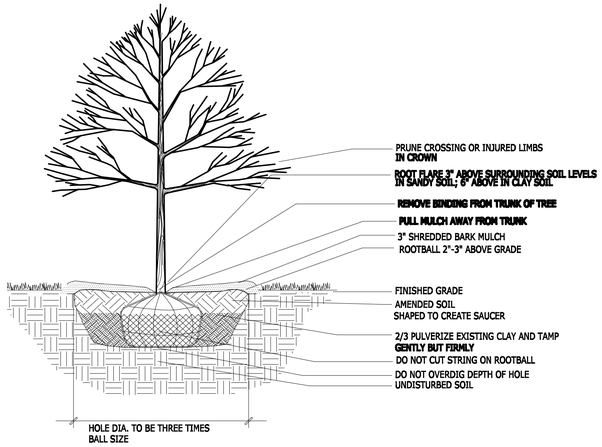
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE
PLAN
(AREA 8)

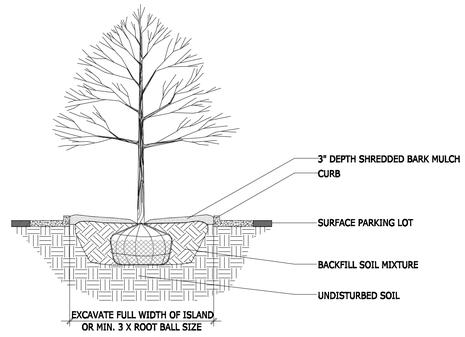
OF

SHEET NUMBER
L108

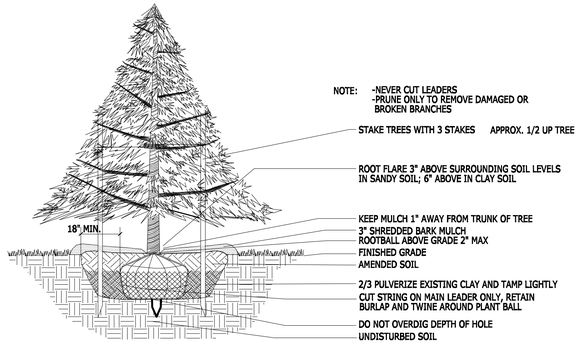
60% NOT FOR CONSTRUCTION



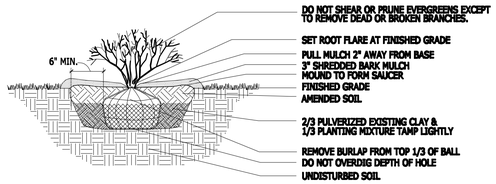
X / L109 SHADE TREE



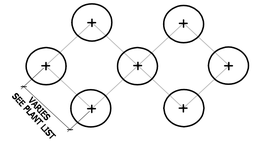
X / L109 SHADE TREE IN PARKING LOT ISLAND



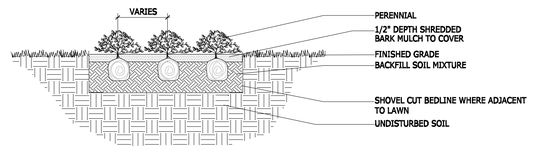
X / L109 STAKED EVERGREEN W/ STAKES
N.T.S.



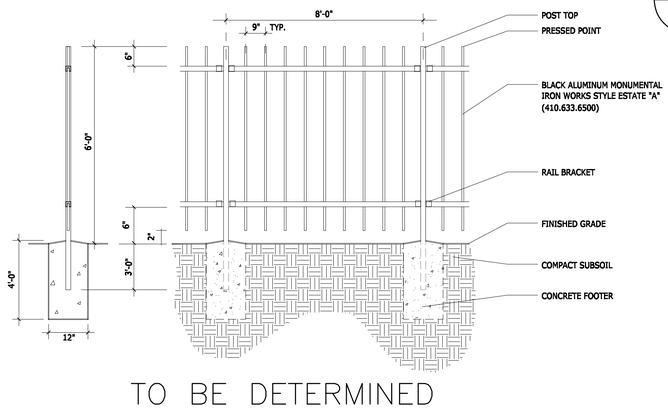
X / L109 SHRUB PLANTING



SPACING/LAYOUT PLAN

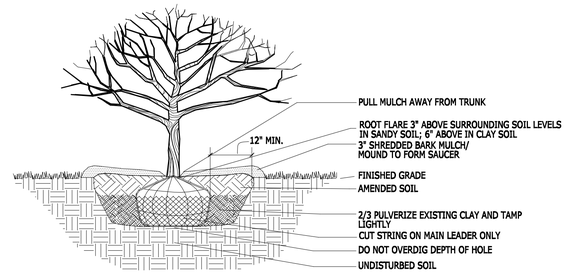


X / L109 PERENNIAL PLANTING



TO BE DETERMINED

X / L109 METAL FENCE



X / L109 ORNAMENTAL TREE

TO BE DETERMINED

X / L109 FLAG POLE
N.T.S.

TO BE DETERMINED

X / L109 PANEL
N.T.S.

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 2-12-2010
REVIEWED BY: MMA
DRAWN BY: JJB
DESIGNED BY: MMA

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE NOTES AND DETAILS

SHEET NUMBER
L109

60% NOT FOR CONSTRUCTION

TO BE DETERMINED

X / L110 PLANTER

TO BE DETERMINED

1 / L110 6' STRIP @ BUILDING

TO BE DETERMINED

X / L110 WATER ACCESS

TO BE DETERMINED

1 / L110 FENCE GATE

TO BE DETERMINED

1 / L110 STONE MONUMENT INSTALLATION

TO BE DETERMINED

1 / L110 FENCE SECTION

TO BE DETERMINED

1 / L110 ENTRANCE MONUMENT

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REVISIONS

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DRAWN BY: SMW
DESIGNED BY: MMA

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
LANDSCAPE NOTES AND DETAILS

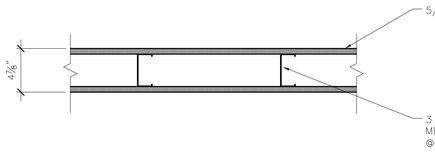
SHEET NUMBER
L110

60% NOT FOR CONSTRUCTION

MATERIALS LEGEND

- BRICK VENEER
- CONCRETE
- WOOD BLOCKING
- BATT INSULATION
- CMU
- GYPSUM BOARD

PARITITION TYPES



1 TYPICAL AT INTERIOR PARTITIONS TO 6" ABOVE CEILING UNLESS OTHERWISE NOTED.

1A SIMILAR WITH GYP. BD. 1 SIDE ONLY

1B SIMILAR WITH 6" METAL FRAMING

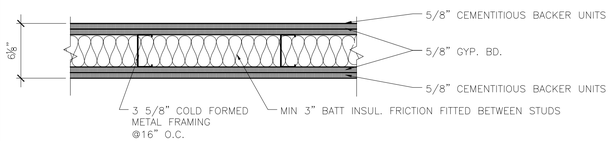
1C SIMILAR WITH 6" METAL FRAMING AND GYP. BD. 1 SIDE ONLY

1D SIMILAR WITH 8" METAL FRAMING

1E SIMILAR WITH 8" METAL FRAMING AND GYP. BD. 1 SIDE ONLY

1F SIMILAR WITH 8" METAL FRAMING AND GYP. BD. AND SOUND ATTENUATING BATT. INSUL.

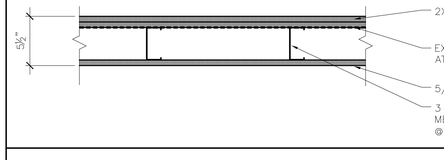
1



2 TYPICAL AT 2 HR FIRE RATED PARTITIONS TO UNDERSIDE OF STRUCTURAL DECK UNLESS OTHERWISE NOTED UL DESIGN NO. U404

2A SIMILAR WITH 8" FRAMING

2

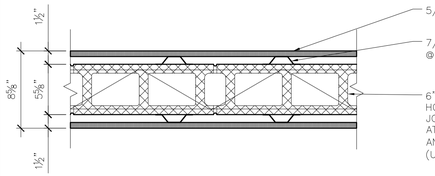


3 TYPICAL AT CBP SECURE ROOMS TO 6" ABOVE CEILING UNLESS OTHERWISE NOTED. STC RATING 50–55

3A SIMILAR WITH DOUBLE GYP. BD. AND EXPANDED METAL BOTH SIDES

NOTE: EXPANDED METAL MUST BE INSPECTED BY CPB PRIOR TO COVERING

3



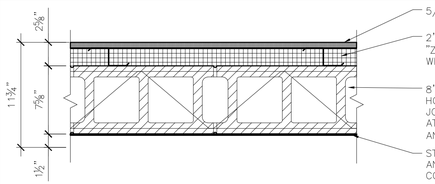
4 TYPICAL AT TOILET ROOMS TO 6" ABOVE CEILING UNLESS OTHERWISE NOTED.

4A SIMILAR WITH FURRING AND GYP. BD. ON ONE SIDE ONLY

4B SIMILAR WITH 8" CMU

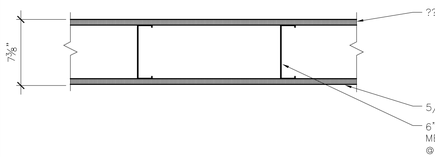
4C SIMILAR WITH 8" CMU AND FURRING AND GYP. BD. ON ONE SIDE ONLY

4



5 TYPICAL AT TUG TUNNEL WALL

5



6 TYPICAL AT CORE WALL

6

1 SITE PLAN
1" = 80'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
PARTITION TYPES

SHEET NUMBER
A003

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A003 Partition Types.dwg Plotted on: 2/15/2010 10:12 AM Plotted by: lp, Mark

EXISTING TAXIWAY

EXISTING APRON

NEW APRON

A330-200

A330-200

A330-200

NEW TERMINAL BUILDING

NEW CANOPY

ROADWAY

NEW CELL PHONE LOT UNDER CONSTRUCTION

NEW PARKING UNDER CONSTRUCTION

NEW ROADWAY UNDER CONSTRUCTION

EXISTING WETLAND

TP-1 (DLHA)

TP-52

TSA

TDF A

TB

UE

N

1 SITE PLAN
1" = 80'-0"

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DESIGNED BY: SBS/TC

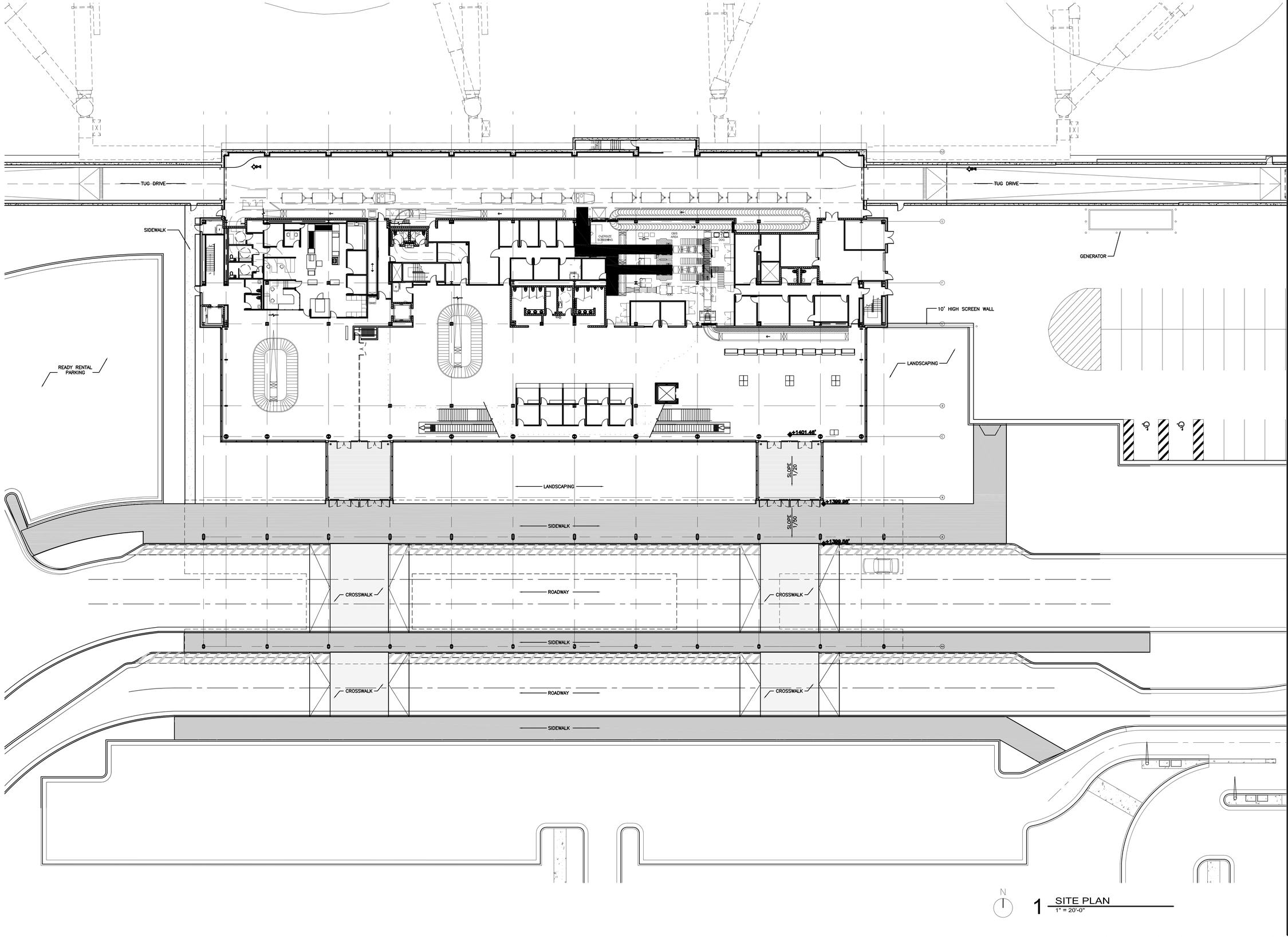
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
AS100

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\AS100 Overall Site Plan.dwg Plotted on: 2/15/2010 10:13 AM Plotted by: lp, Mark



N

1 SITE PLAN
1" = 20'-0"

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DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

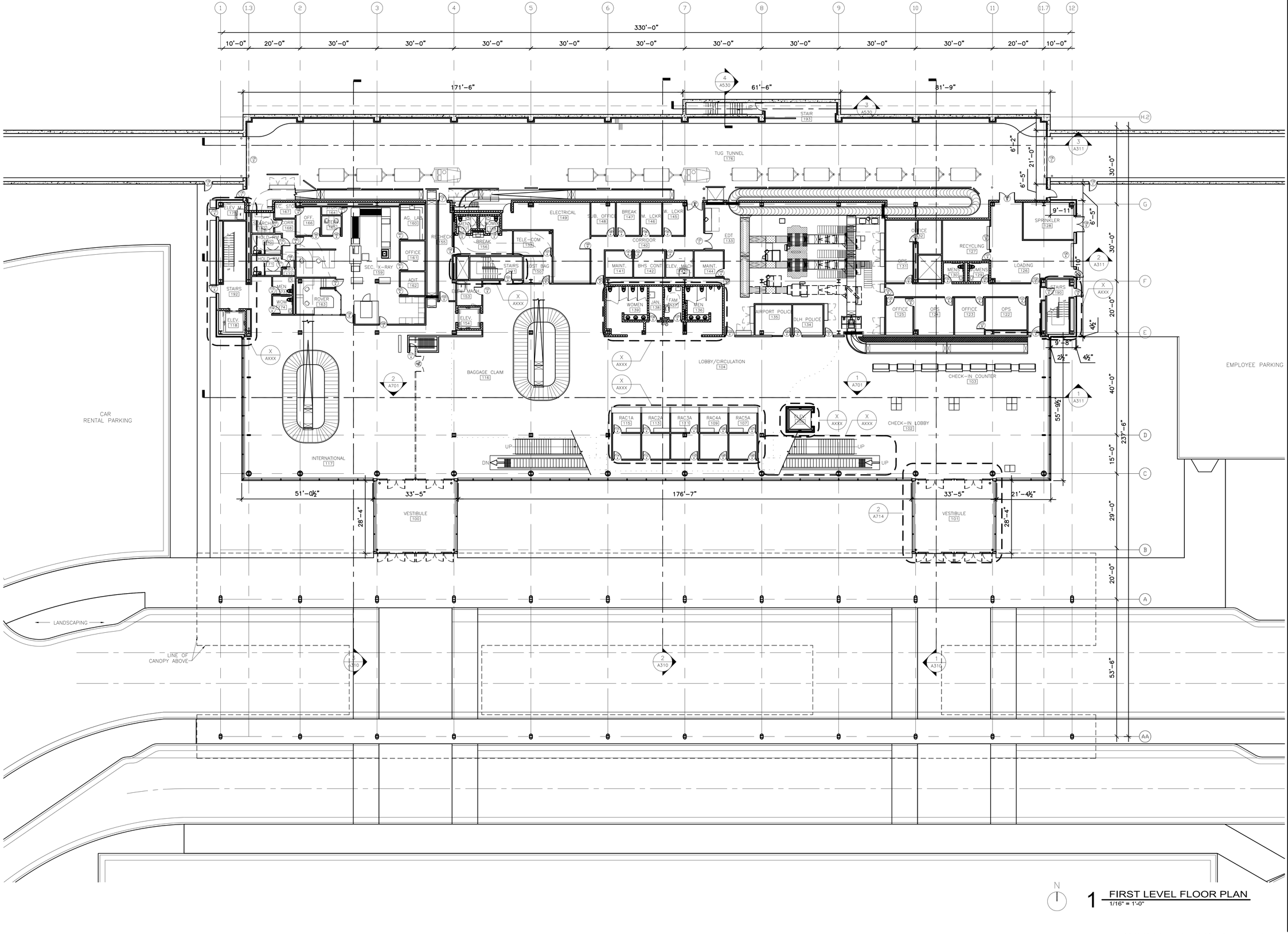
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ARCHITECTURAL SITE PLAN

SHEET NUMBER
AS101

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\AS101 Architectural Site Plan.dwg Plotted on: 2/15/2010 10:13 AM Plotted by: lp, Mark



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DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

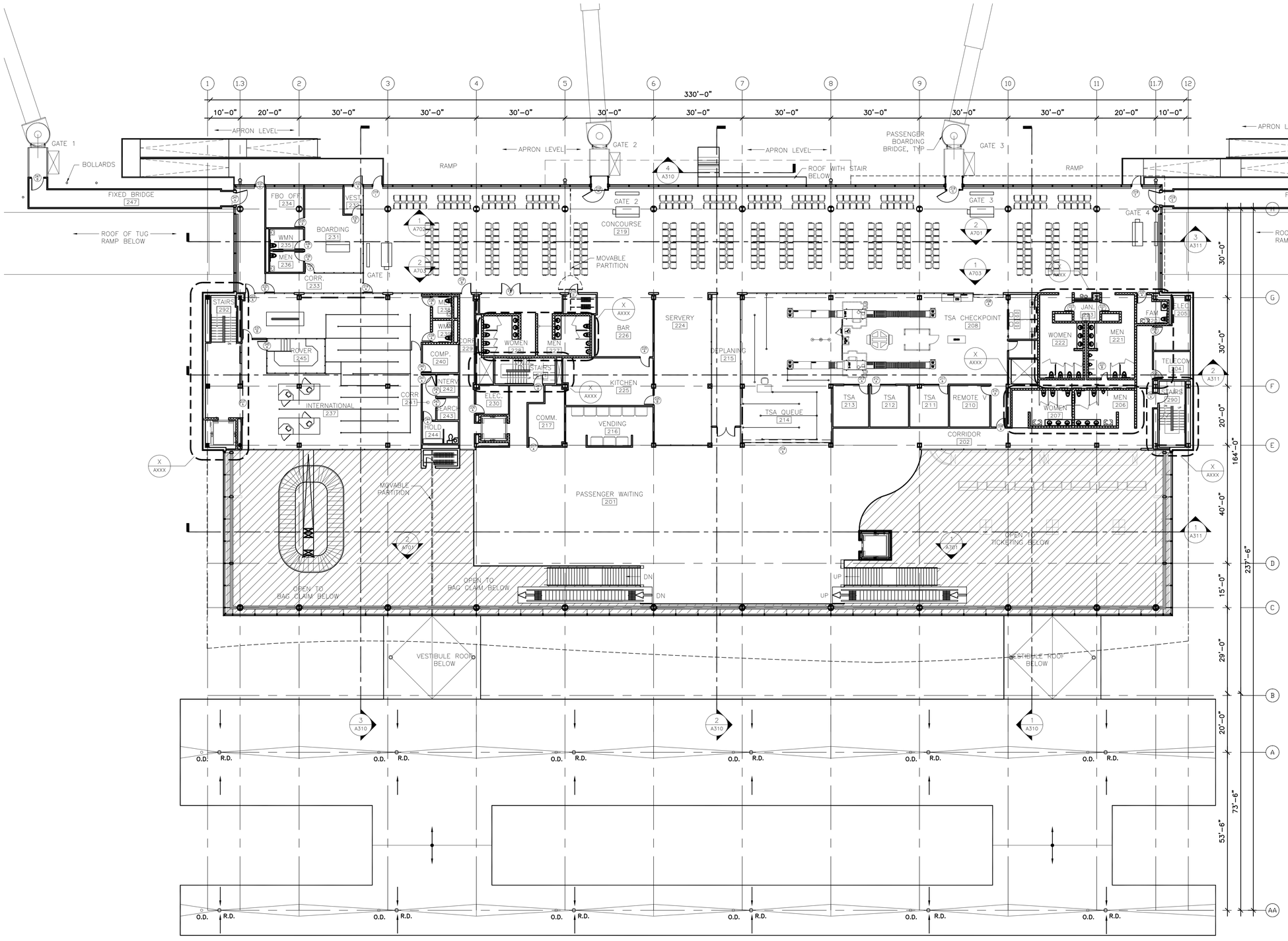
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL FIRST FLOOR PLAN

SHEET NUMBER
A101

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A101 Overall First Floor Plan.dwg Plotted on: 2/15/2010 10:14 AM Plotted by: lp, Mark



N

1 SECOND LEVEL FLOOR PLAN
1/16" = 1'-0"

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REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

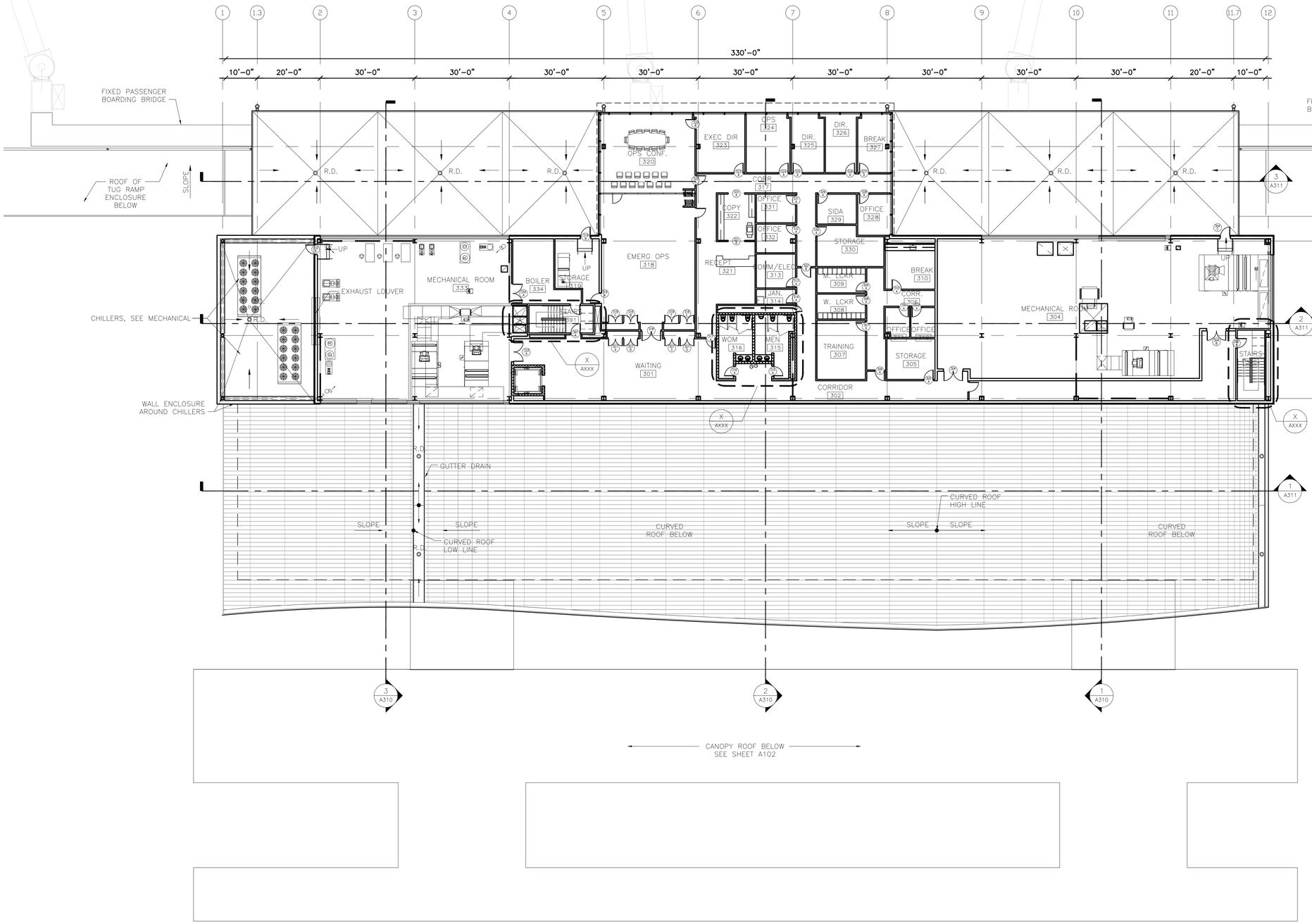
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL SECOND FLOOR PLAN

SHEET NUMBER
A102

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A102 Overall Second Floor Plan.dwg Plotted on: 2/15/2010 10:15 AM Plotted by: lp, Mark



N

1 THIRD LEVEL FLOOR PLAN
1/16" = 1'-0"

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DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

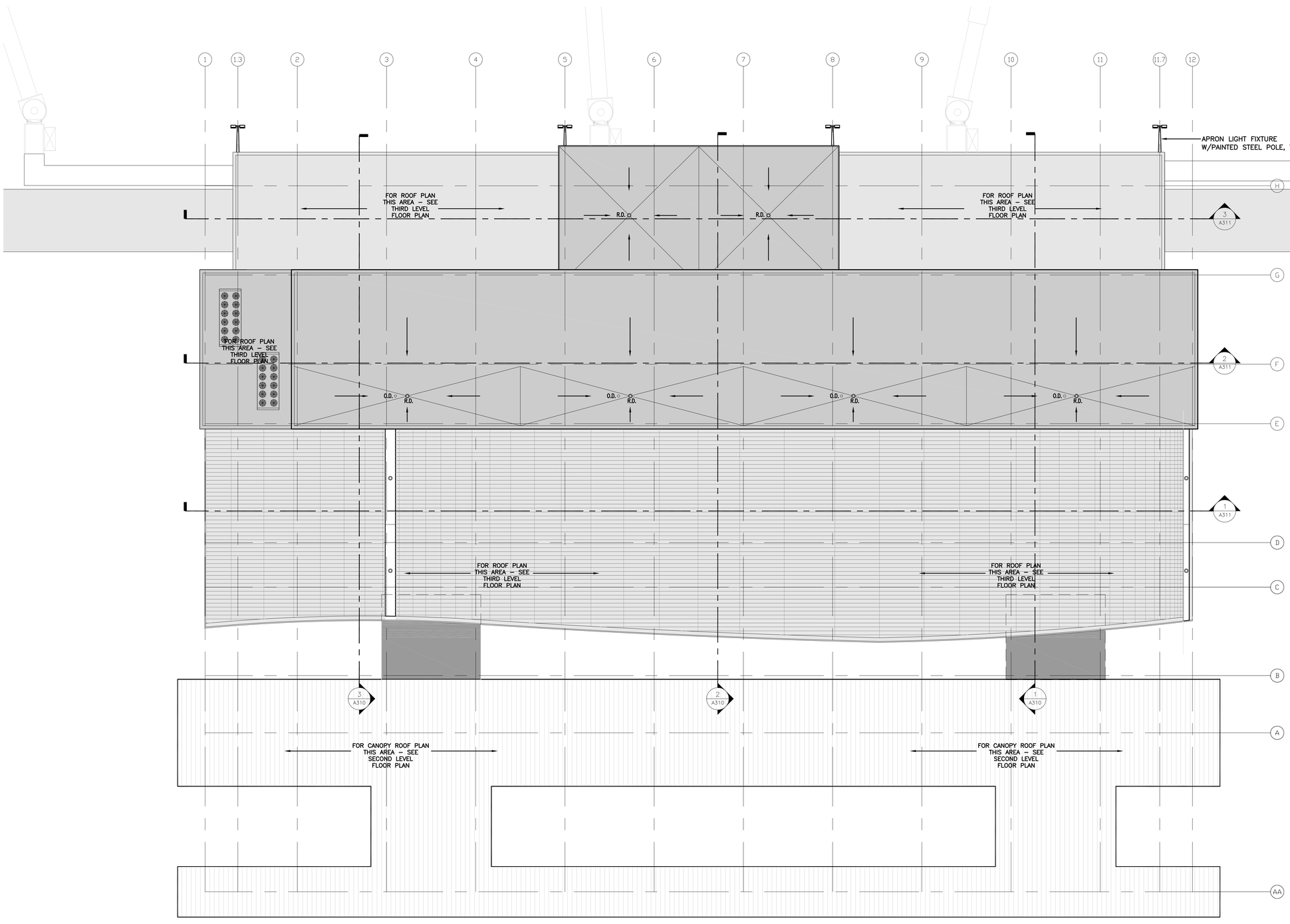
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL THIRD FLOOR PLAN

SHEET NUMBER
A103

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Termina\Cad\A\Sheets\A103 Overall Third Floor Plan.dwg Plotted on: 2/15/2010 2:20 PM Plotted by: Godzina, Marc



N

1 ROOF PLAN
1/16" = 1'-0"

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DESIGNED BY: SBS/TC

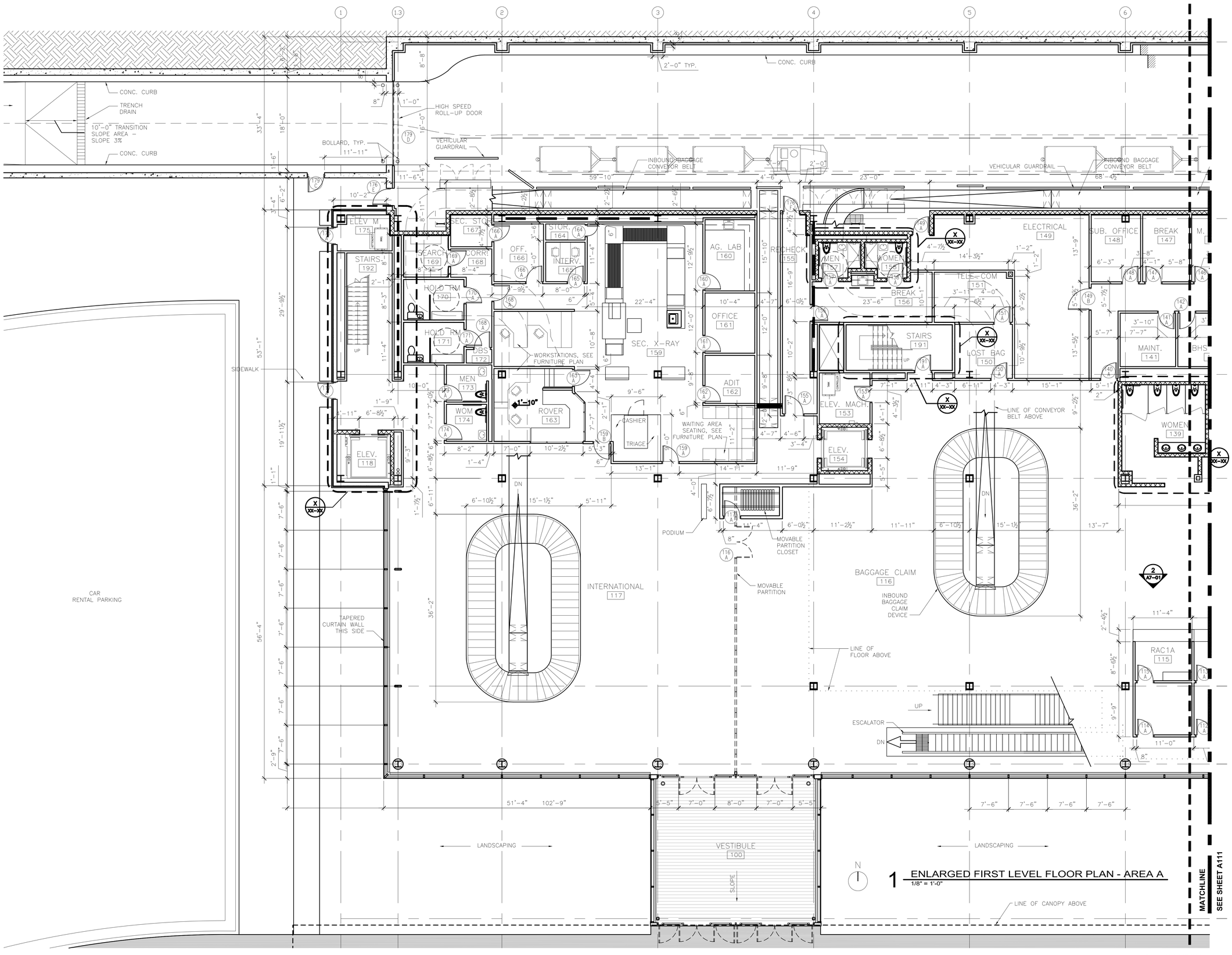
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL ROOF PLAN

SHEET NUMBER
A104

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A104 Overall Roof Plan.dwg Plotted on: 2/15/2010 10:15 AM Plotted by: lp, Mark



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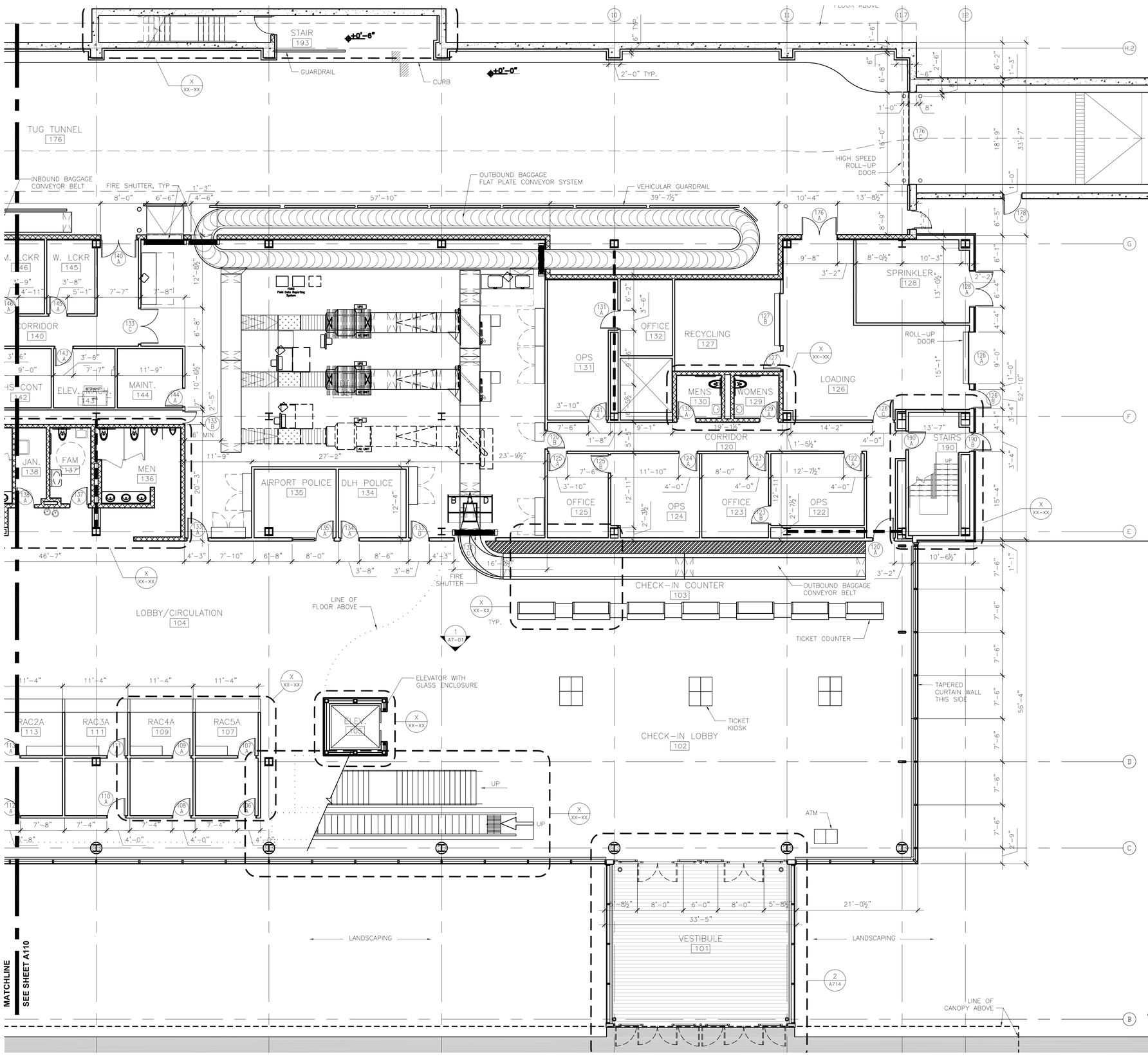
213-1882-091

SHEET TITLE
ENLARGED FIRST FLOOR PLAN AREA A

SHEET NUMBER
A110

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A110 First Floor Area A.dwg Plotted on: 2/15/2010 10:16 AM Plotted by: lp, Mark



1 ENLARGED FIRST FLOOR PLAN - AREA B
1/8" = 1'-0"

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NEW PASSENGER TERMINAL

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TEL: (218) 591-5079

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

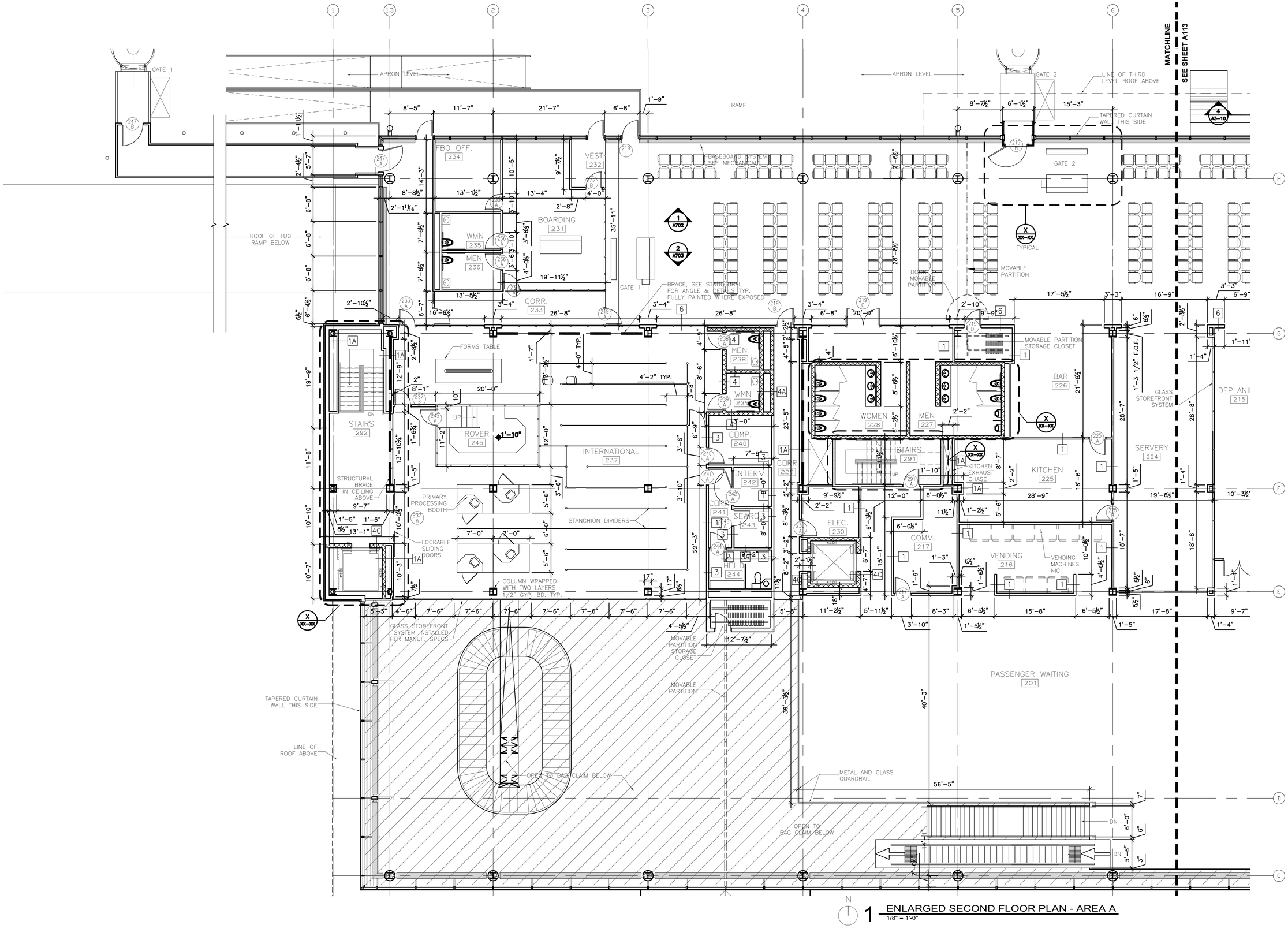
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ENLARGED FIRST FLOOR PLAN AREA B

SHEET NUMBER
A111

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A111 First Floor Area B.dwg Plotted on: 2/15/2010 10:16 AM Plotted by: lp, Mark



N

1 ENLARGED SECOND FLOOR PLAN - AREA A
1/8" = 1'-0"

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DESIGNED BY: SBS/TC

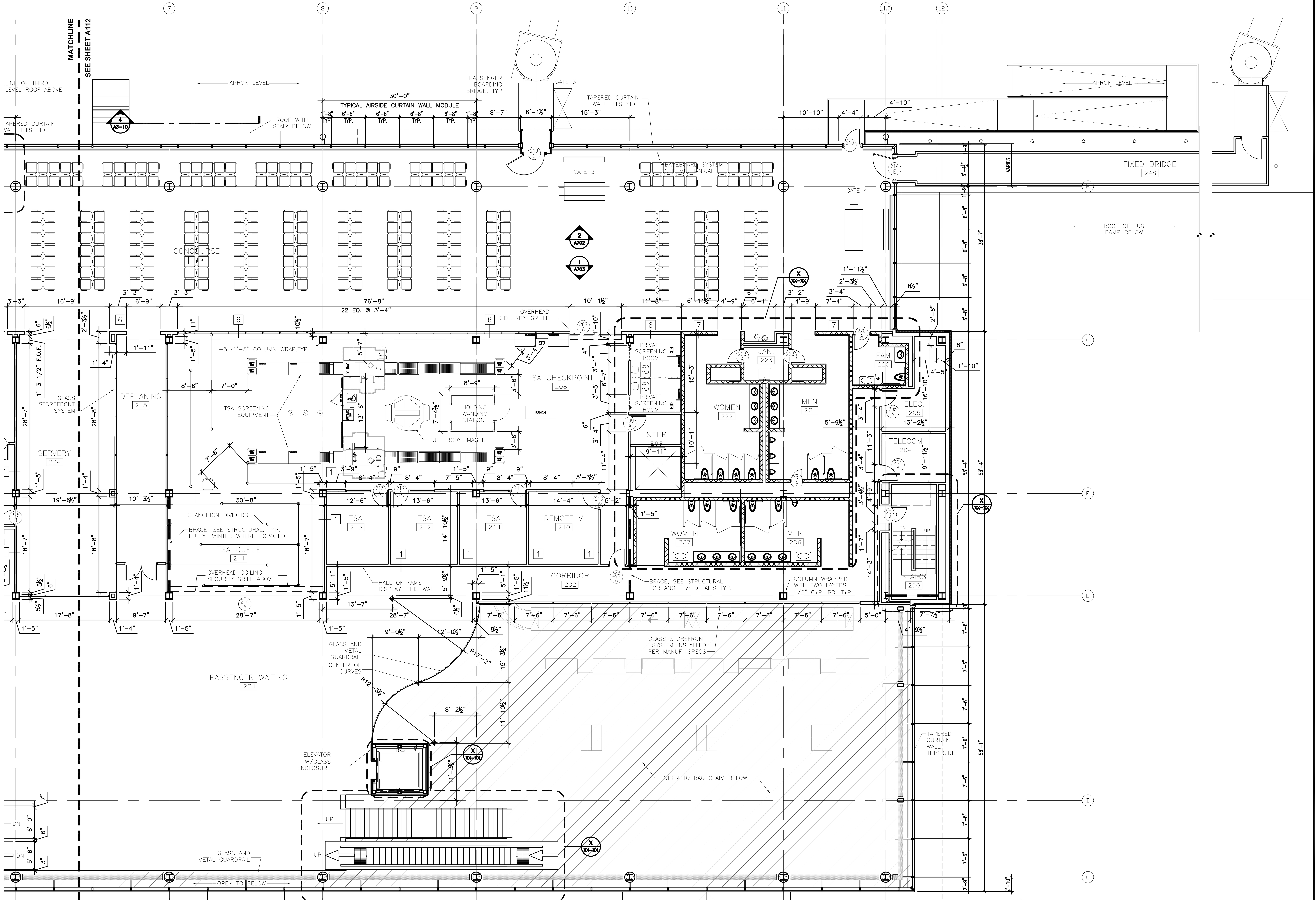
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ENLARGED SECOND FLOOR PLAN AREA A

SHEET NUMBER
A112

60% NOT FOR CONSTRUCTION

Drawing: I:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A112 Second Floor Area A.dwg Plotted on: 2/15/2010 10:17 AM Plotted by: lp, Mark


MATCHLINE
SEE SHEET A112
APRON LEVEL
TYPICAL AIRSIDE CURTAIN WALL MODULE
PASSENGER BOARDING BRIDGE, TYP
GATE 3
TAPERED CURTAIN WALL THIS SIDE
ROOF WITH STAIR BELOW
LINE OF THIRD LEVEL ROOF ABOVE
FIXED BRIDGE 248
GATE 4
ROOF OF TUG RAMP BELOW
CONCOURSE 219
TSA CHECKPOINT 208
TSA SCREENING EQUIPMENT
HOLDING WANDING STATION
FULL BODY IMAGER
OVERHEAD SECURITY GRILLE
PRIVATE SCREENING ROOM
STOR 209
JAN. 223
WOMEN 222
MEN 221
FAM 220
ELEC. 205
TELECOM 204
STAIRS 290
WOMEN 207
MEN 206
DEPLANING 215
SERVERY 224
GLASS STOREFRONT SYSTEM
TSA 213
TSA 212
TSA 211
REMOTE V 210
TSA QUEUE 214
STANCHION DIVIDERS
BRACE, SEE STRUCTURAL, TYP. FULLY PAINTED WHERE EXPOSED
OVERHEAD COILING SECURITY GRILL ABOVE
HALL OF FAME DISPLAY, THIS WALL
CORRIDOR 202
BRACE, SEE STRUCTURAL FOR ANGLE & DETAILS TYP.
COLUMN WRAPPED WITH TWO LAYERS 1/2" GYP. BD. TYP.
PASSENGER WAITING 201
GLASS AND METAL GUARDRAIL
CENTER OF CURVES
GLASS STOREFRONT SYSTEM INSTALLED PER MANUF. SPECS
ELEVATOR W/GLASS ENCLOSURE
OPEN TO BAG CLAIM BELOW
TAPERED CURTAIN WALL THIS SIDE
OPEN TO BELOW

1 ENLARGED SECOND FLOOR PLAN - AREA B
1/8" = 1'-0"

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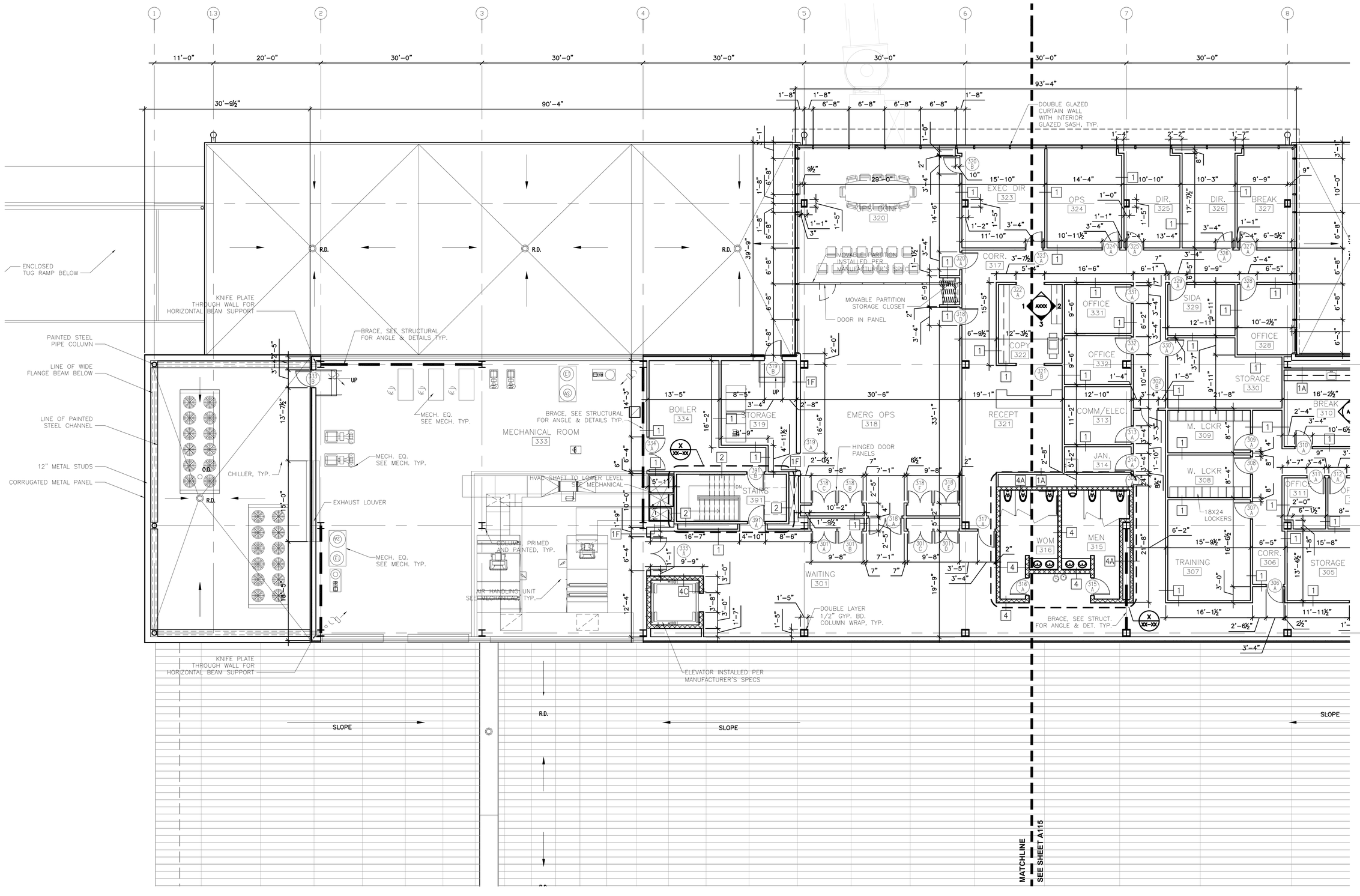
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ENLARGED SECOND FLOOR PLAN AREA B

SHEET NUMBER
A113

60% NOT FOR CONSTRUCTION



N

1 ENLARGED THIRD LEVEL FLOOR PLAN - ADMIN.
1/8" = 1'-0"

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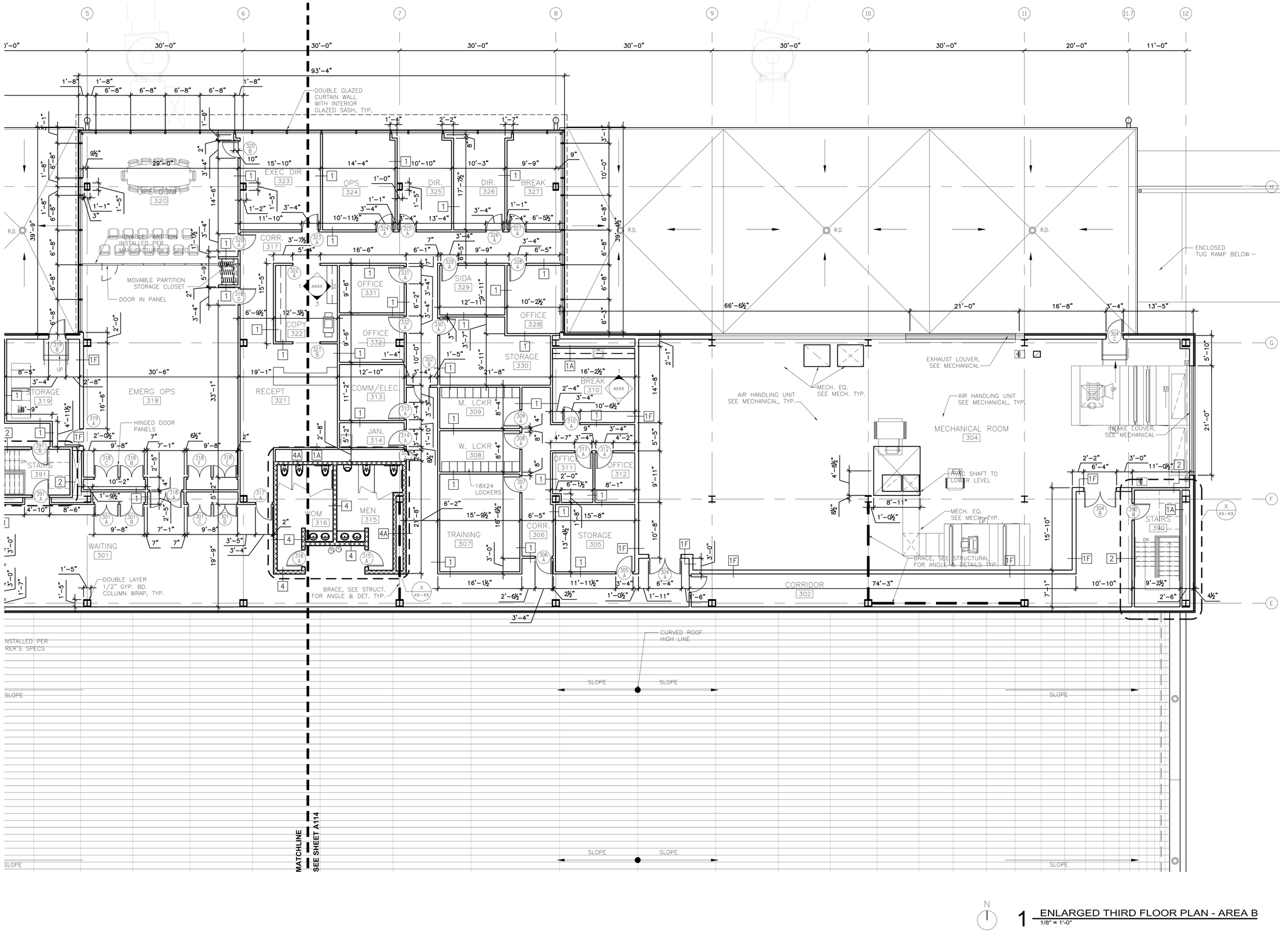
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ENLARGED THIRD FLOOR PLAN AREA A

SHEET NUMBER
A114

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A114 Third Floor Area A.dwg Plotted on: 2/15/2010 2:17 PM Plotted by: Godzina, Marc



1 ENLARGED THIRD FLOOR PLAN - AREA B
1/8" = 1'-0"

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DESIGNED BY: SBS/TC

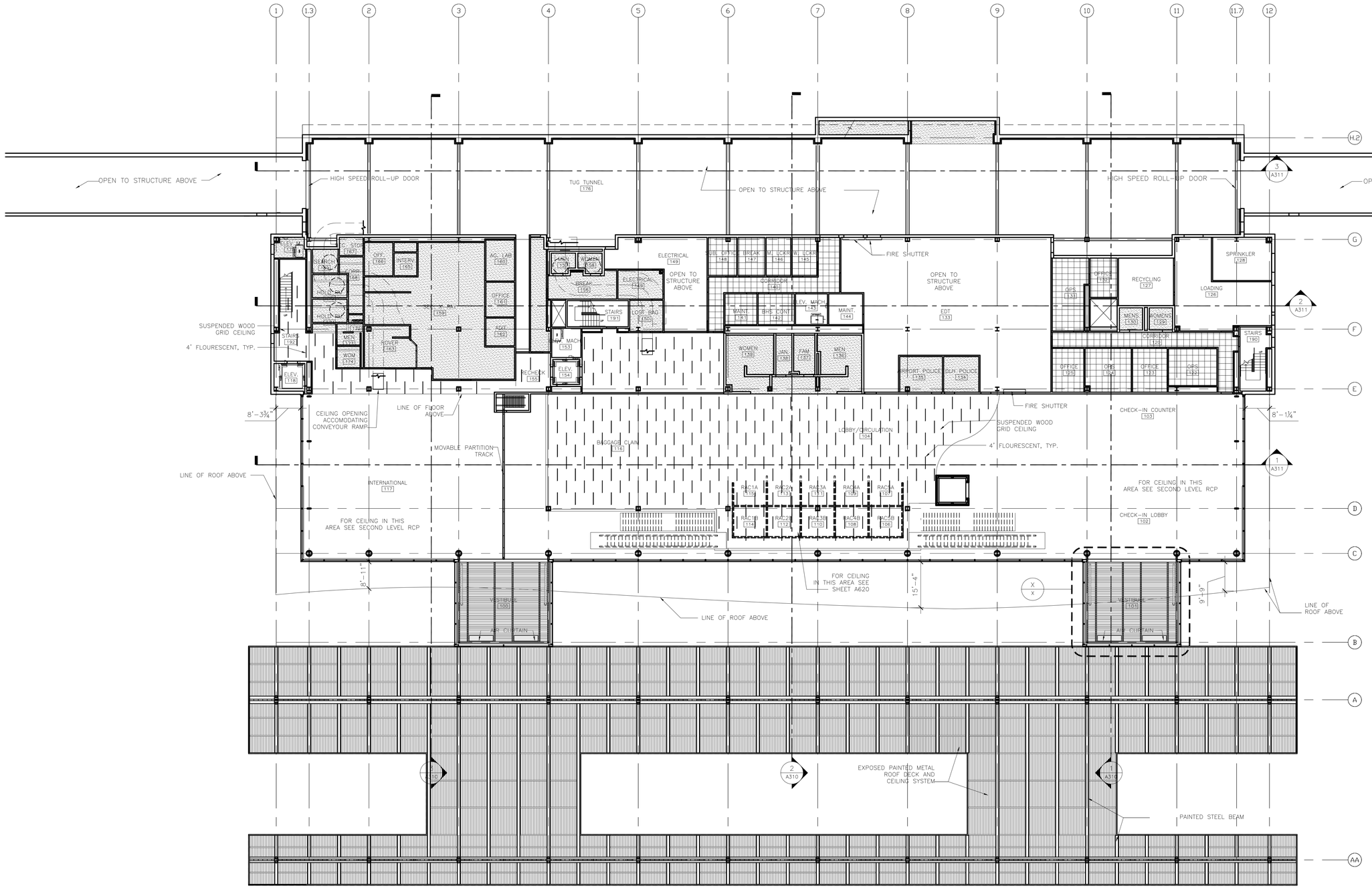
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ENLARGED THIRD FLOOR PLAN AREA B

SHEET NUMBER
A115

60% NOT FOR CONSTRUCTION

Drawing: t:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A115 Third Floor Area B.dwg Plotted on: 2/15/2010 10:18 AM Plotted by: lp, Mark



N

1 FIRST FLOOR REFLECTED CEILING PLAN
1/16" = 1'-0"

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DESIGNED BY: SBS/TC

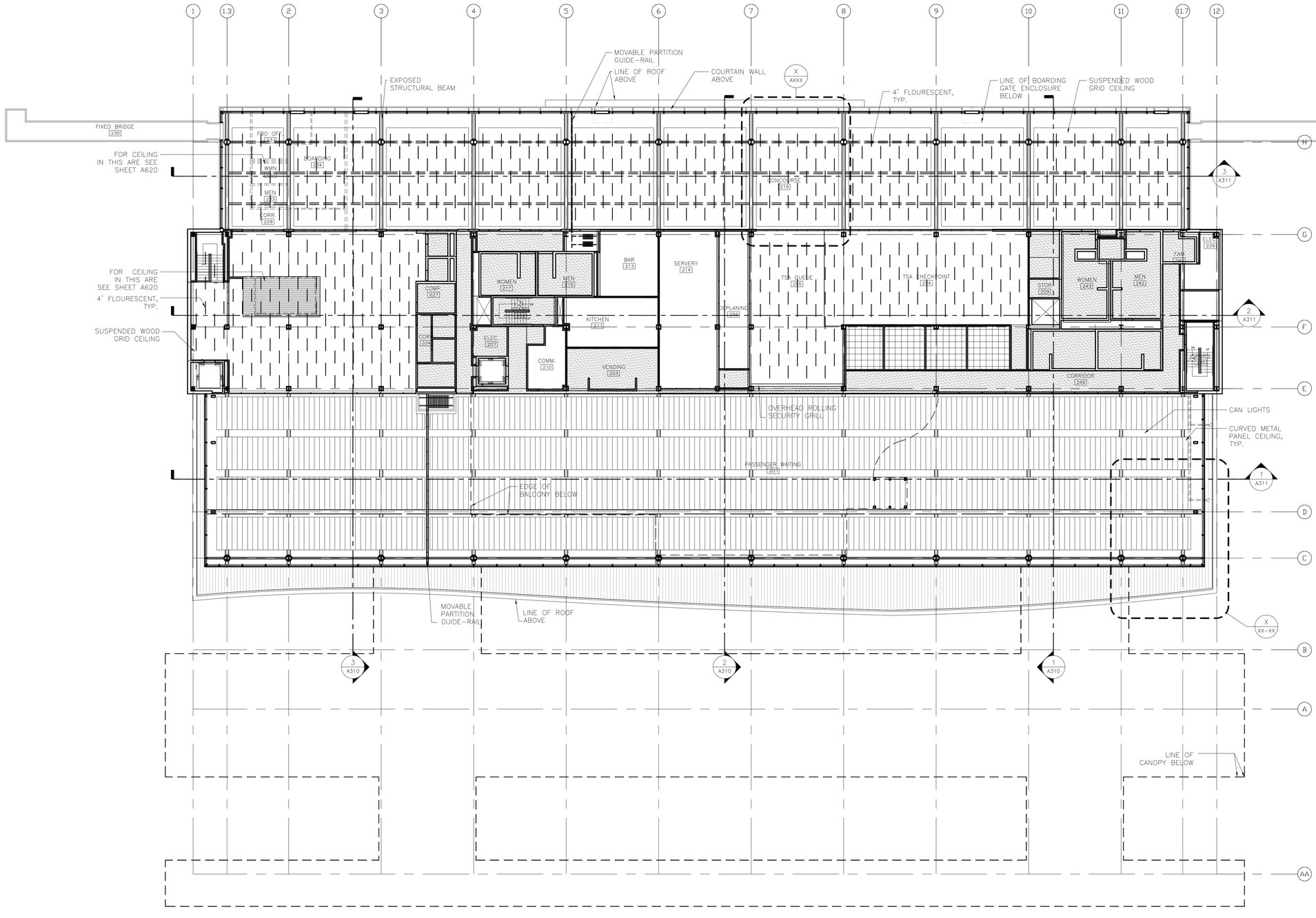
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL FIRST FLOOR RCP

SHEET NUMBER
A201

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A201 Overall First Floor RCP.dwg Plotted on: 2/15/2010 11:27 AM Plotted by: lp, Mark



N

1 SECOND LEVEL REFLECTED CEILING PLAN
1/16" = 1'-0"

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REVISIONS

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DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

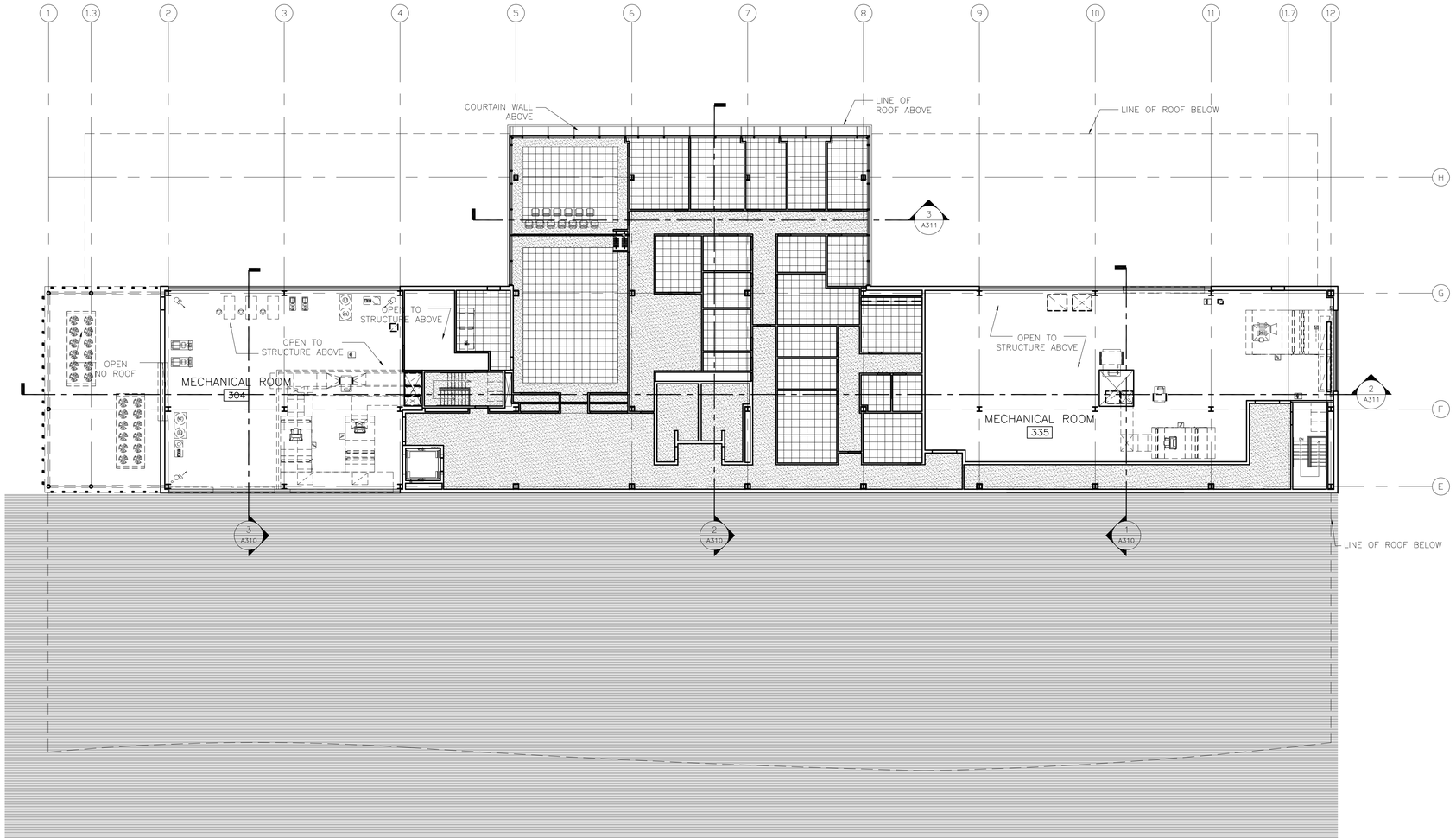
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL SECOND FLOOR RCP

SHEET NUMBER
A202

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A202 Overall Second Floor RCP.dwg Plotted on: 2/15/2010 10:56 AM Plotted by: Godzina, Marc



N

1 THIRD LEVEL REFLECTED CEILING PLAN
1/16" = 1'-0"

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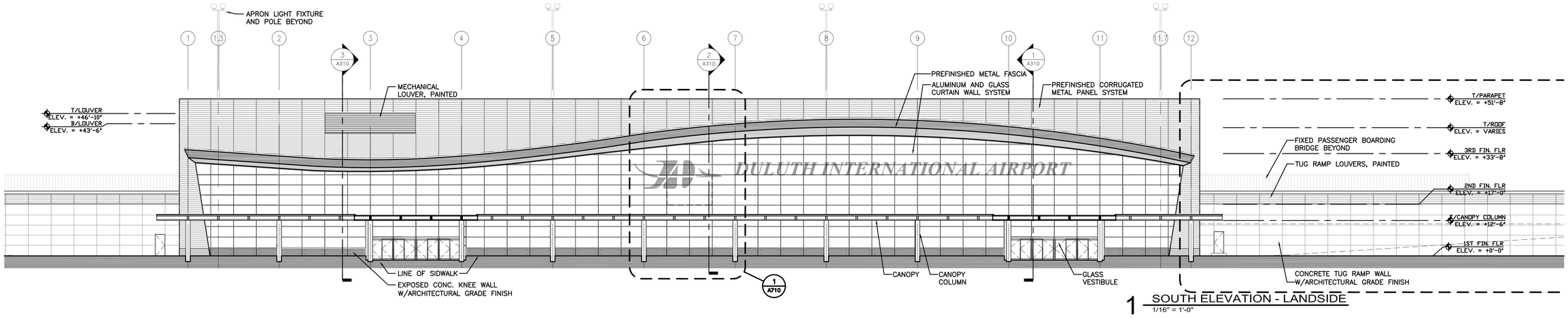
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL THIRD FLOOR RCP

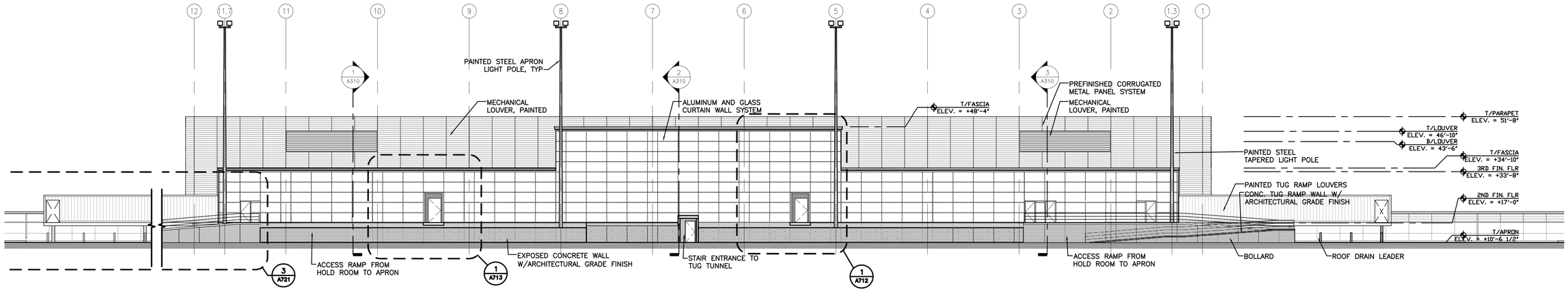
SHEET NUMBER
A203

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A203 Overall Third Floor RCP.dwg Plotted on: 2/15/2010 10:56 AM Plotted by: Godzina, Marc



1 SOUTH ELEVATION - LANDSIDE
1/16" = 1'-0"



2 NORTH ELEVATION - AIRSIDE
1/16" = 1'-0"

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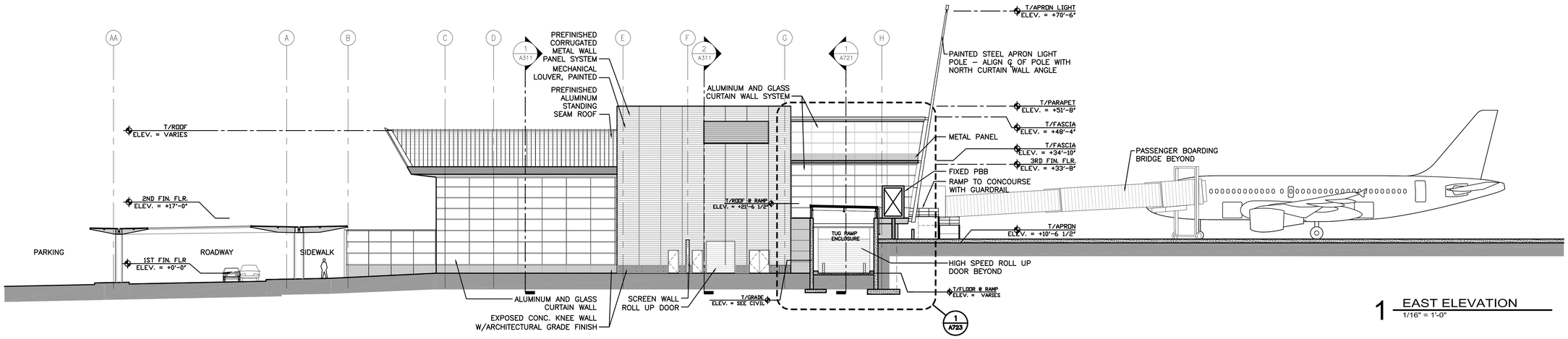
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR ELEVATIONS

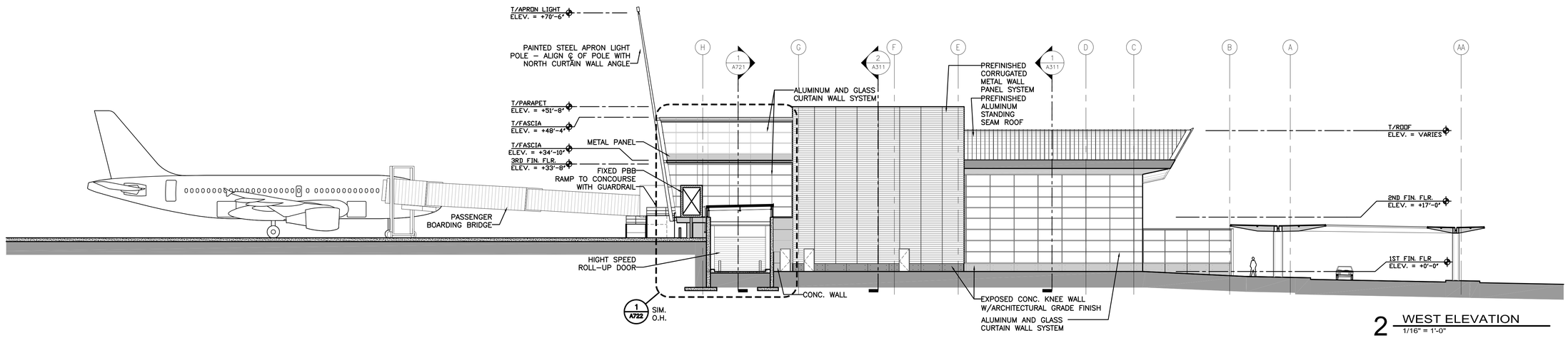
SHEET NUMBER
A301

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A301 Exterior Elevations.dwg Plotted on: 2/15/2010 10:57 AM Plotted by: Godzina, Marc



1 EAST ELEVATION
1/16" = 1'-0"



2 WEST ELEVATION
1/16" = 1'-0"

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DESIGNED BY: SBS/TC

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR ELEVATIONS

SHEET NUMBER
A302

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A302 Exterior Elevations.dwg Plotted on: 2/15/2010 10:57 AM Plotted by: Godzina, Marc

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DESIGNED BY: SBS/TC

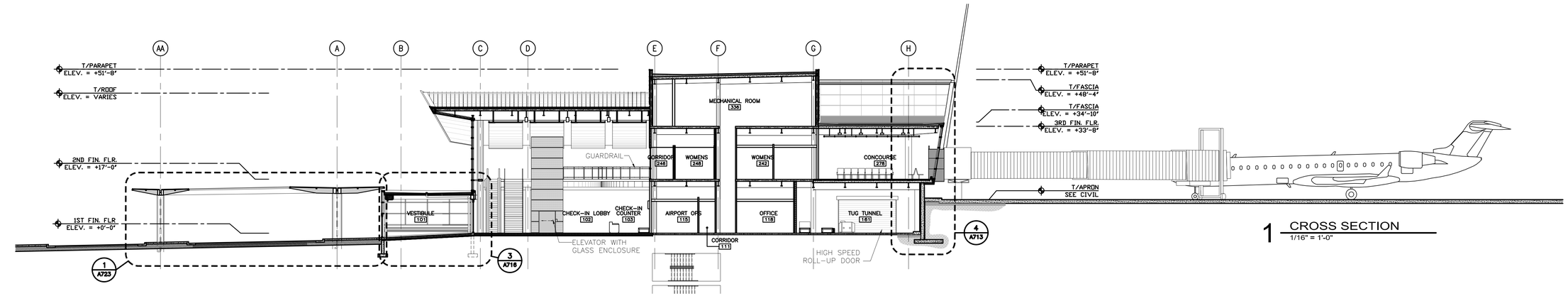
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
CANOPY ELEVATIONS

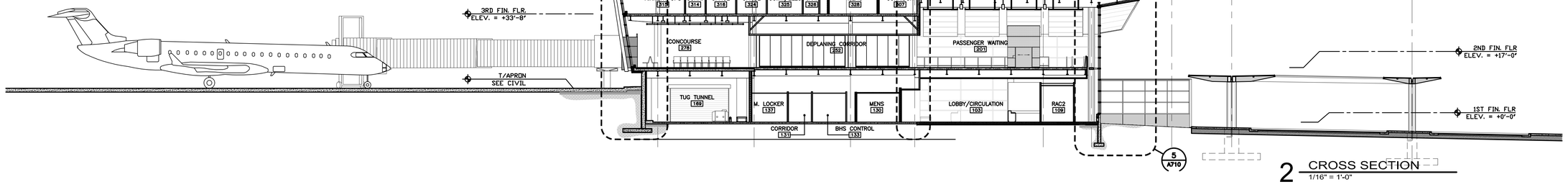
SHEET NUMBER
A303

60% NOT FOR CONSTRUCTION

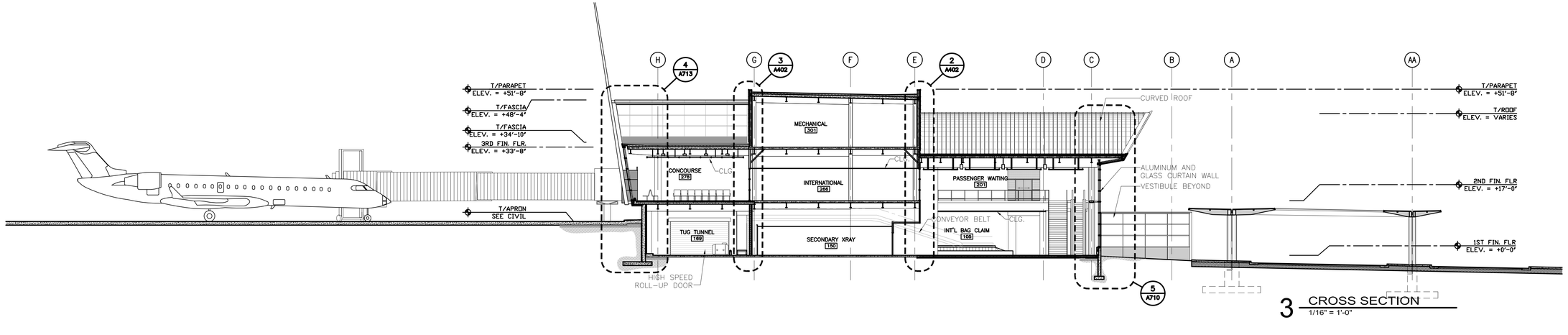
Drawing: T:\P\213188 2.091 Duluth New Terminal\Cad\A\Sheets\A303 Canopy Elevations.dwg Plotted on: 2/15/2010 10:58 AM Plotted by: Godzina, Marc



1 CROSS SECTION
1/16" = 1'-0"



2 CROSS SECTION
1/16" = 1'-0"



3 CROSS SECTION
1/16" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

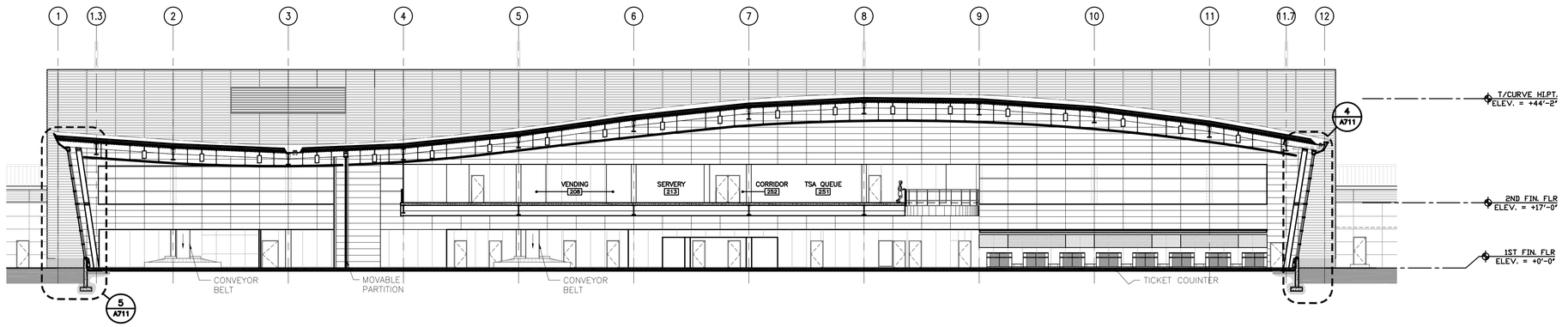
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
BUILDING SECTIONS

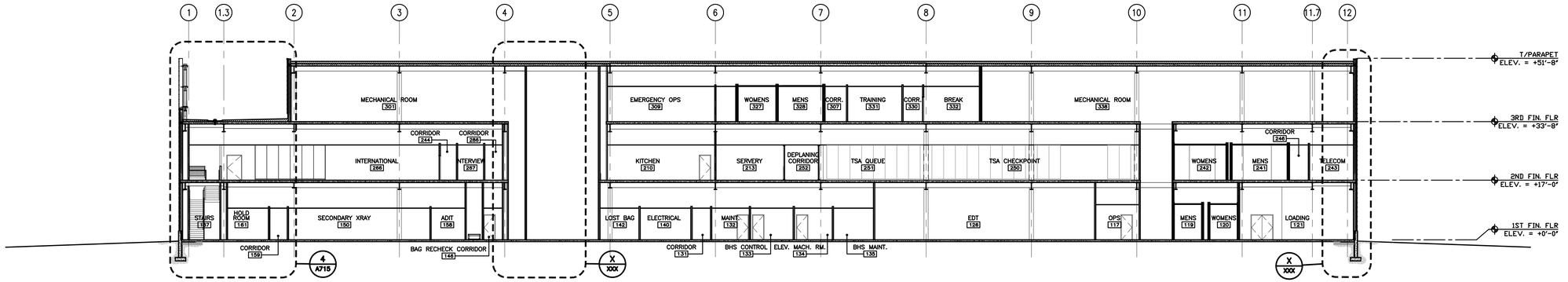
SHEET NUMBER
A310

60% NOT FOR CONSTRUCTION

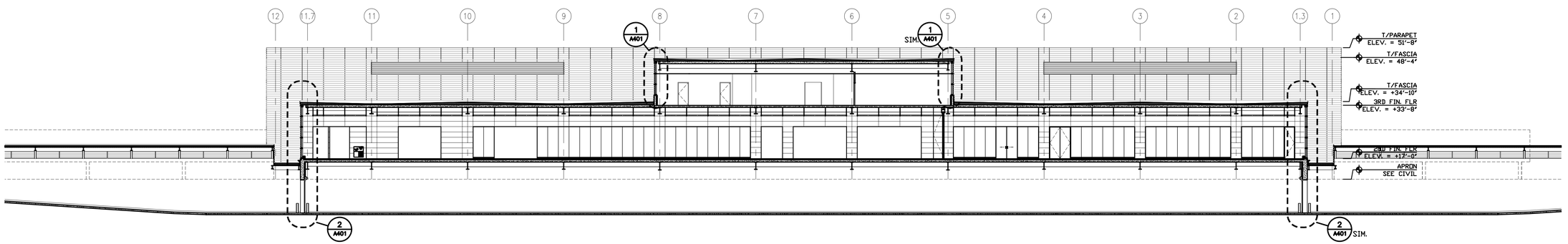
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A310 Building Sections.dwg Plotted on: 2/15/2010 10:59 AM Plotted by: Godzina, Marc



1 LONGITUDINAL SECTION
1/16" = 1'-0"



2 LONGITUDINAL SECTION
1/16" = 1'-0"



3 LONGITUDINAL SECTION
1/16" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

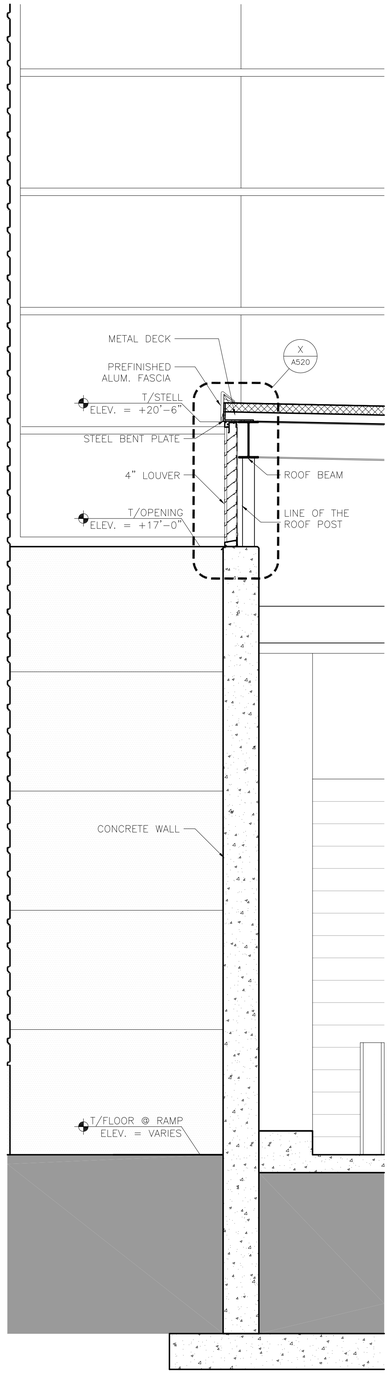
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
BUILDING SECTIONS

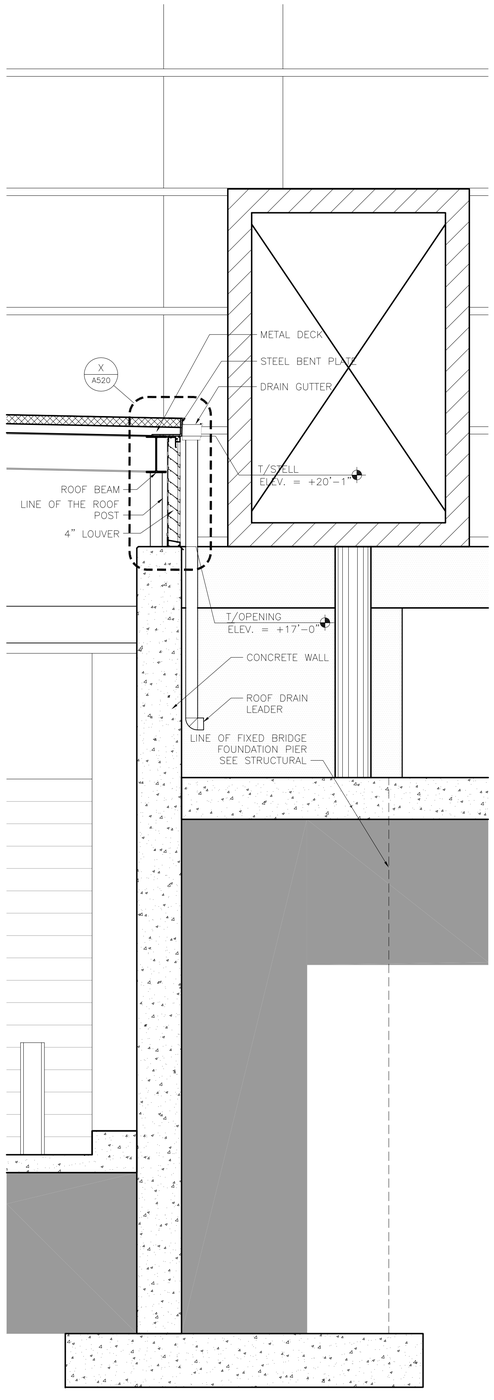
SHEET NUMBER
A311

60% NOT FOR CONSTRUCTION

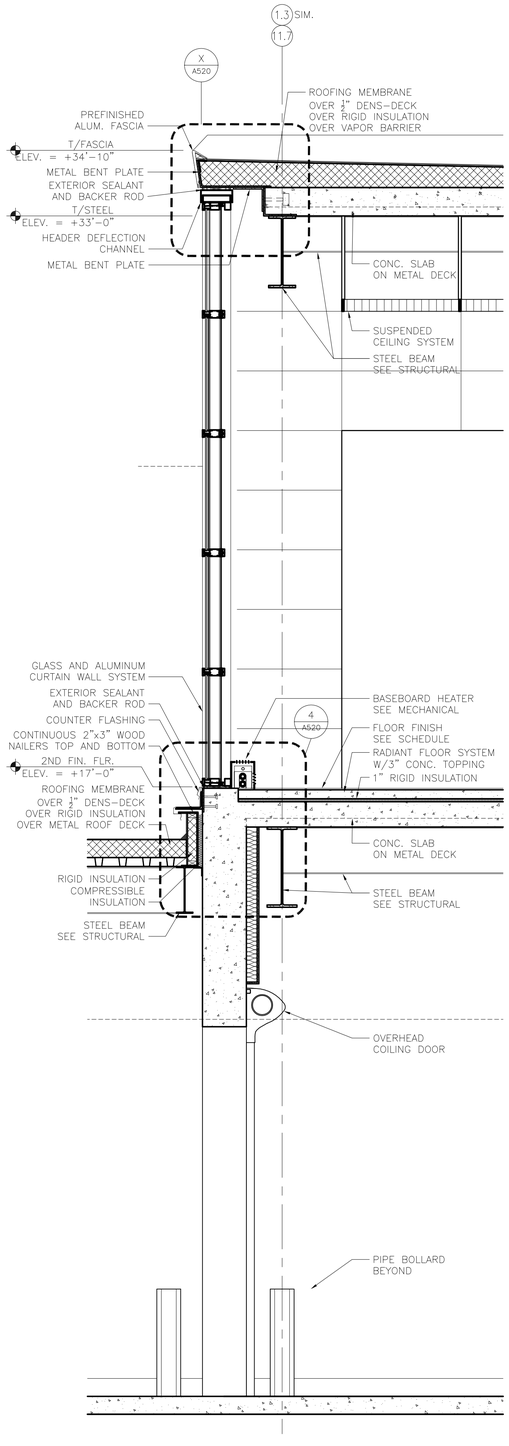
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A311 Building Sections.dwg Plotted on: 2/15/2010 11:01 AM Plotted by: Godzina, Marc



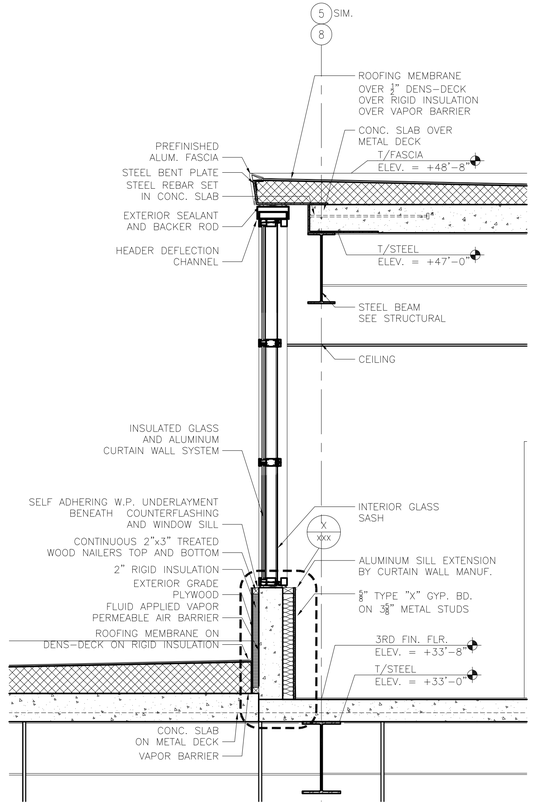
4 WALL SECTION @ TUG TUNNEL
1/2" = 1'-0"



3 WALL SECTION @ TUG TUNNEL
1/2" = 1'-0"



2 WALL SECTION @ CONCOURSE CURTAIN WALL
1/2" = 1'-0"



1 WALL SECTION @ ADMIN CURTAIN WALL
1/2" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

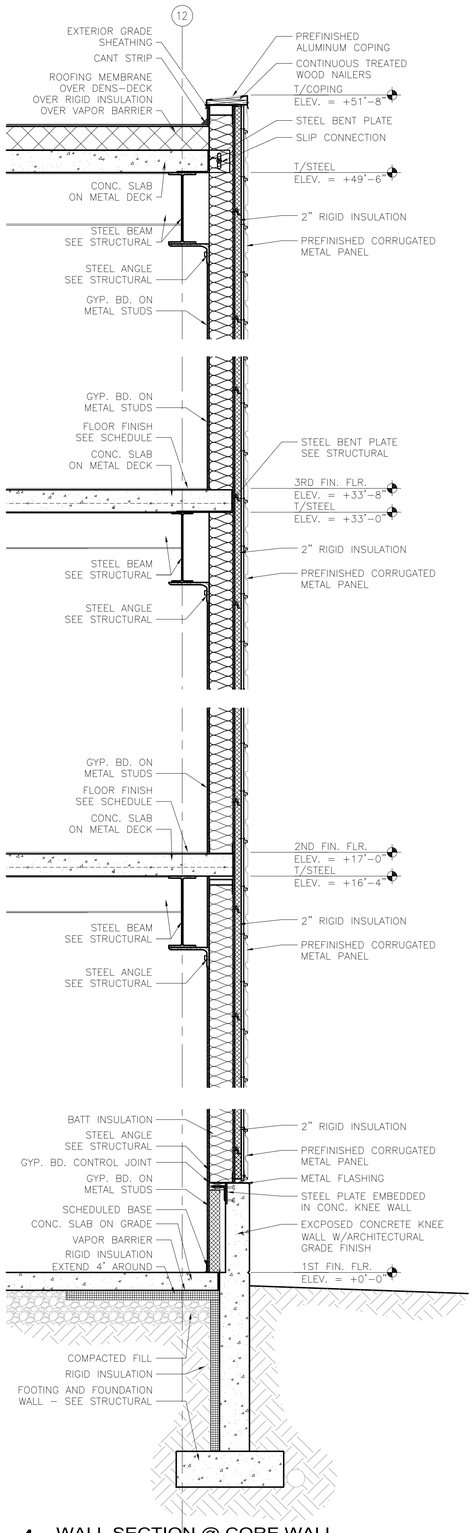
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
WALL SECTIONS

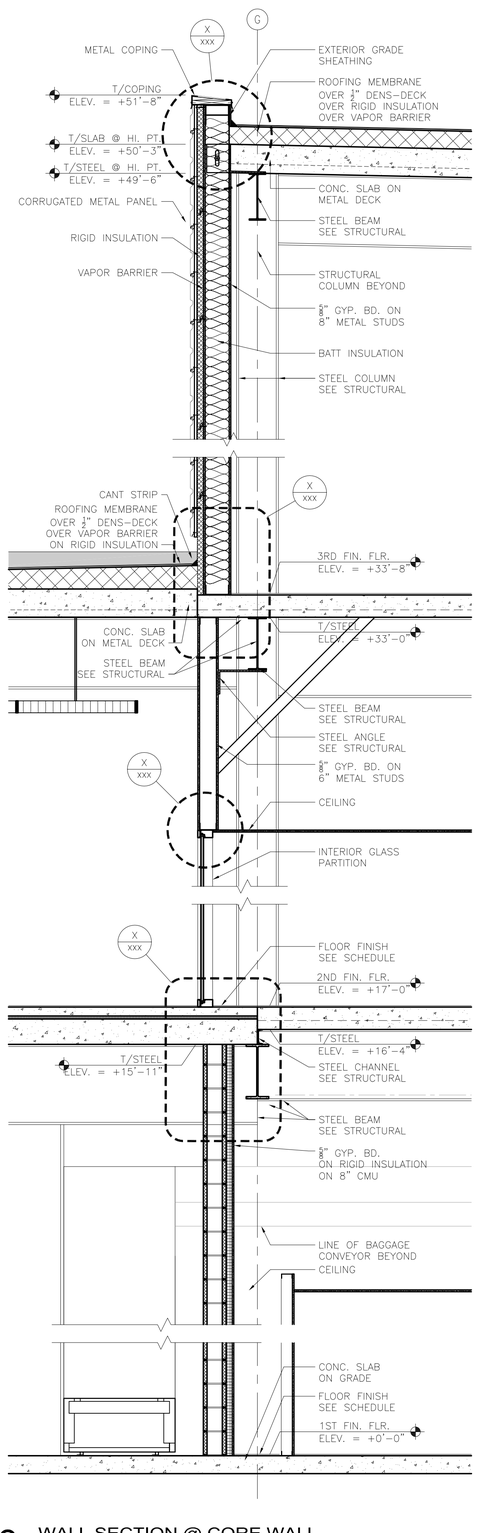
SHEET NUMBER
A401

60% NOT FOR CONSTRUCTION

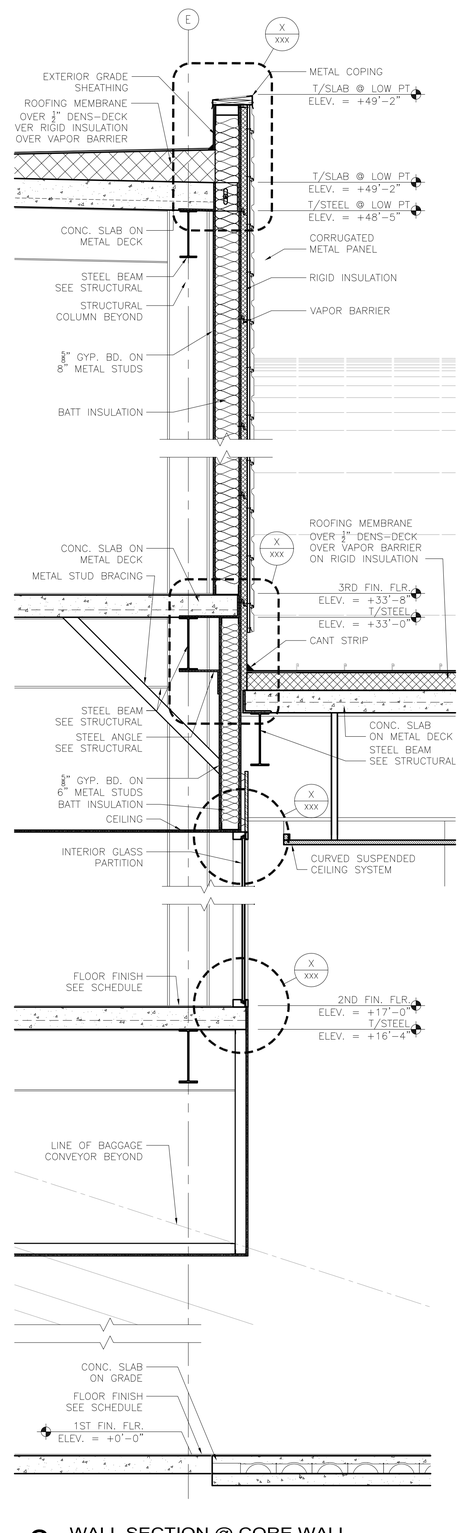
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A401 Wall Sections.dwg Plotted on: 2/15/2010 11:04 AM Plotted by: Godzina, Marc



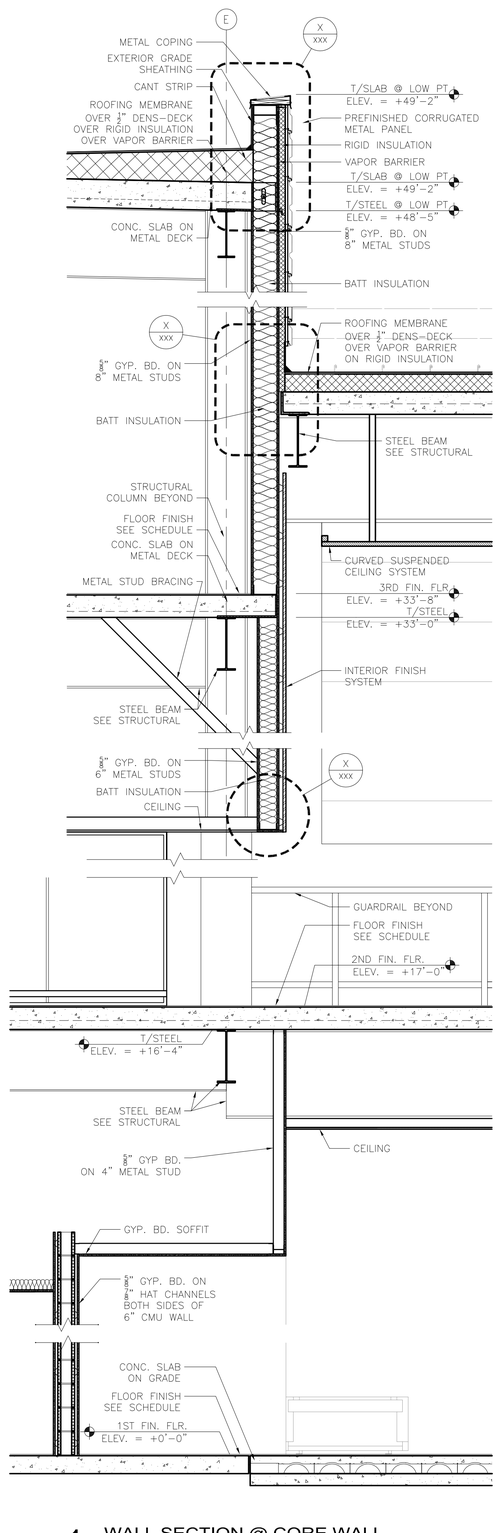
4 WALL SECTION @ CORE WALL
1/2" = 1'-0"



3 WALL SECTION @ CORE WALL
1/2" = 1'-0"



2 WALL SECTION @ CORE WALL
1/2" = 1'-0"



1 WALL SECTION @ CORE WALL
1/2" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

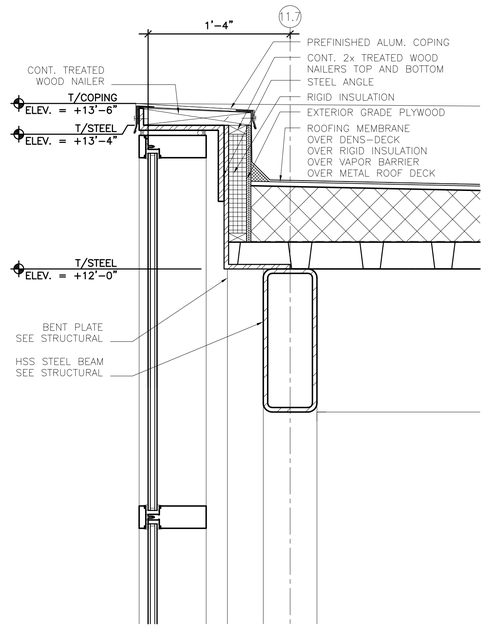
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
WALL SECTIONS

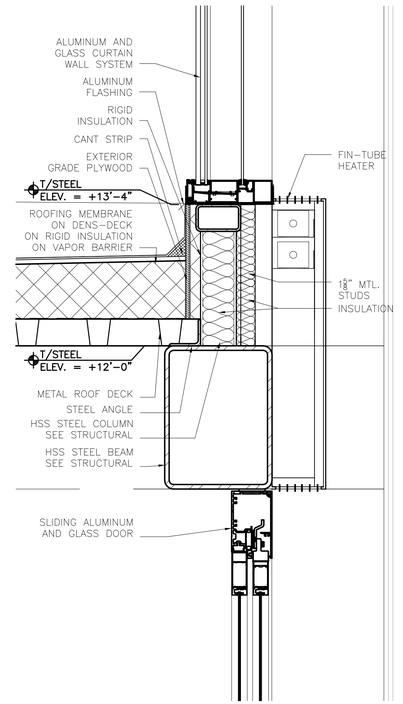
SHEET NUMBER
A402

60% NOT FOR CONSTRUCTION

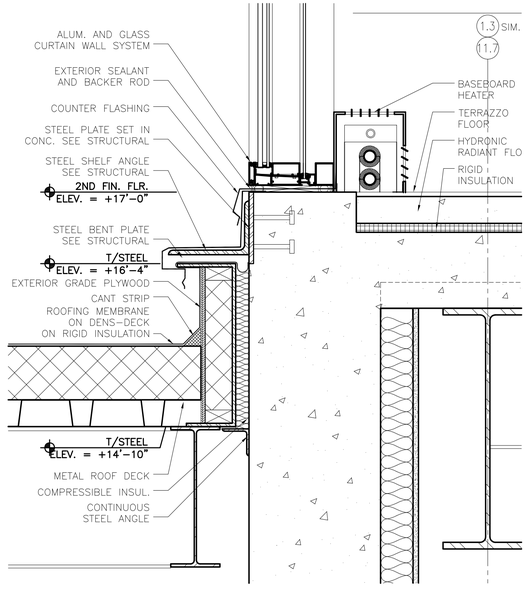
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A402 Wall Sections.dwg Plotted on: 2/15/2010 12:09 PM Plotted by: Godzina, Marc



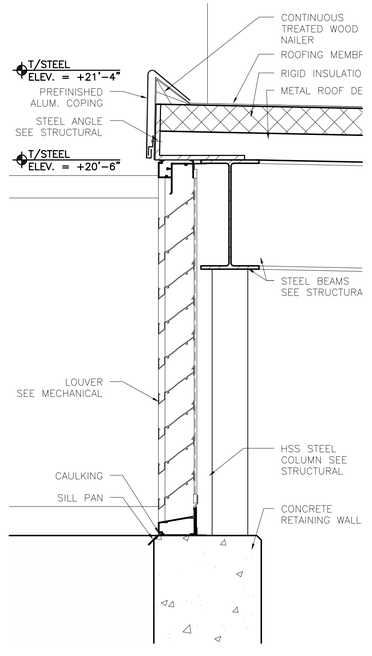
3 SECTION DETAIL @ VESTIBULE
1 1/2" = 1'-0"



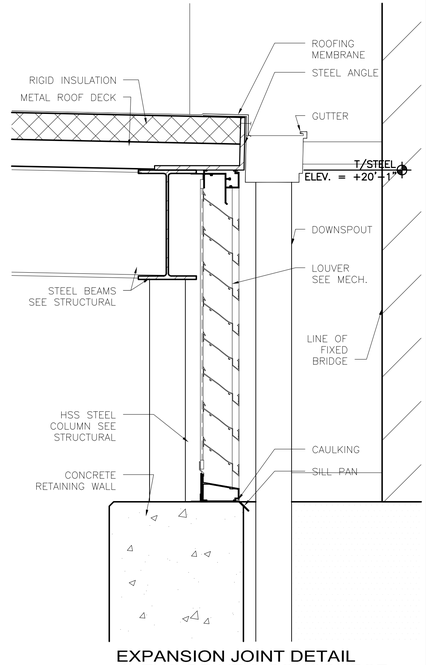
1 SECTION DETAIL @ VESTIBULE
1 1/2" = 1'-0"



5 SECTION DETAIL @ TUG RAMP
1 1/2" = 1'-0"



4 SECTION DETAIL @ TUG RAMP
1 1/2" = 1'-0"



2 EXPANSION JOINT DETAIL @ TUG DRIVE & CONCOURSE
1 1/2" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

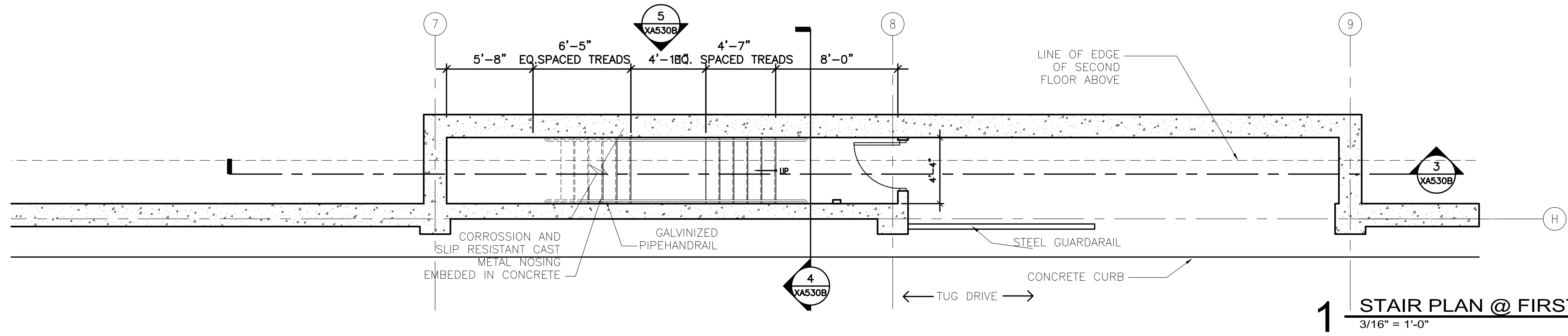
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
SECTION DETAILS

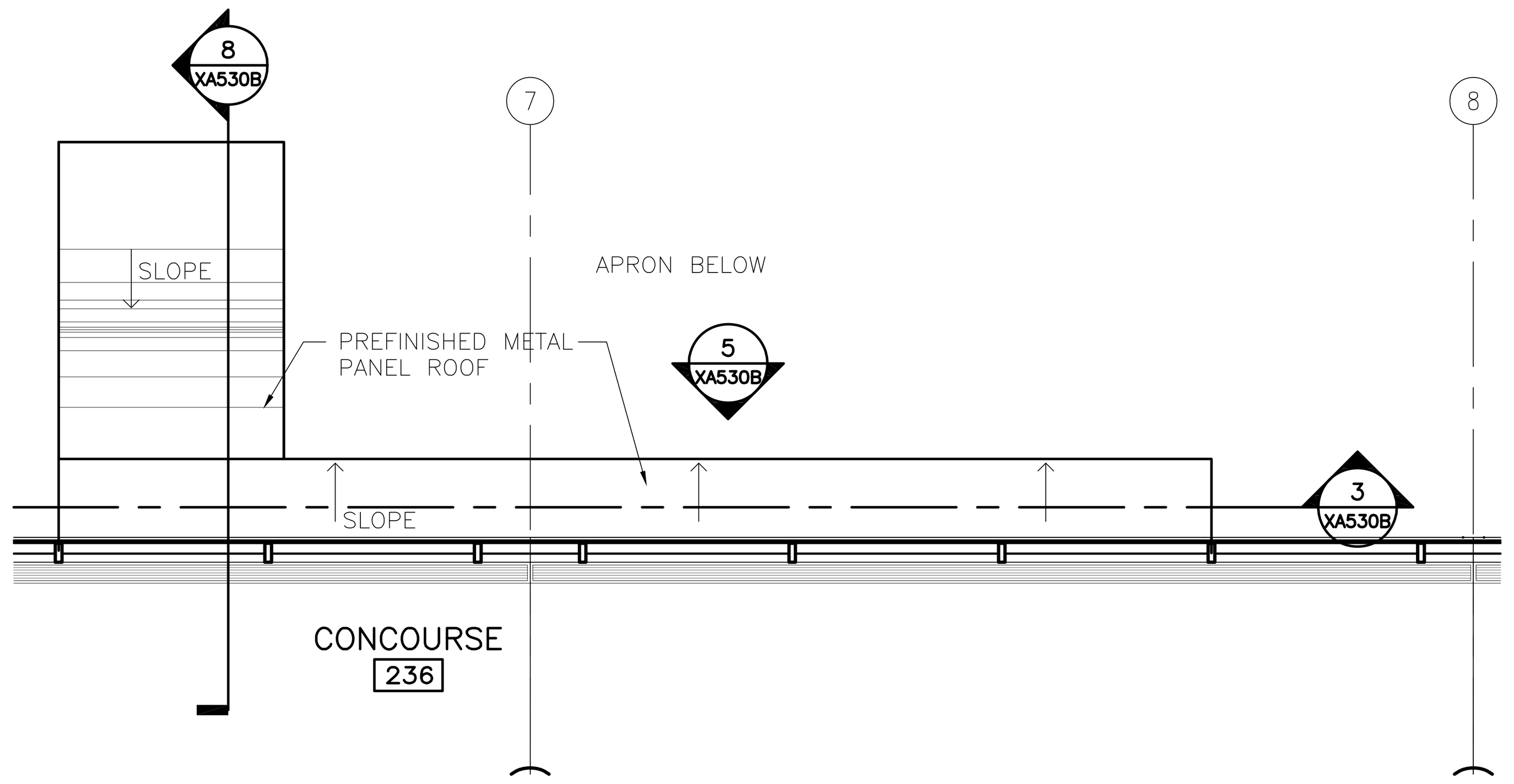
SHEET NUMBER
A520

60% NOT FOR CONSTRUCTION

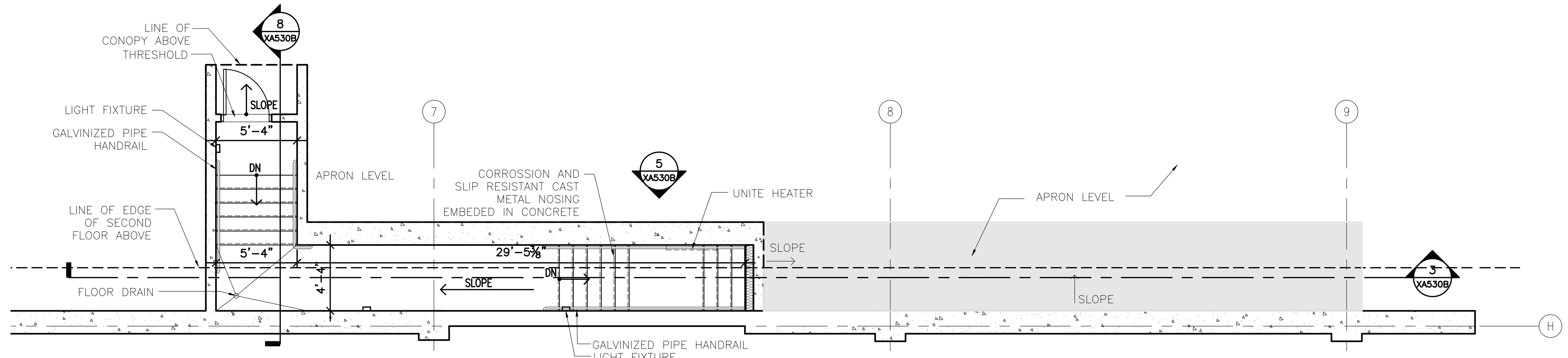
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A520 Section Details.dwg Plotted on: 2/15/2010 11:16 AM Plotted by: Godzina, Marc



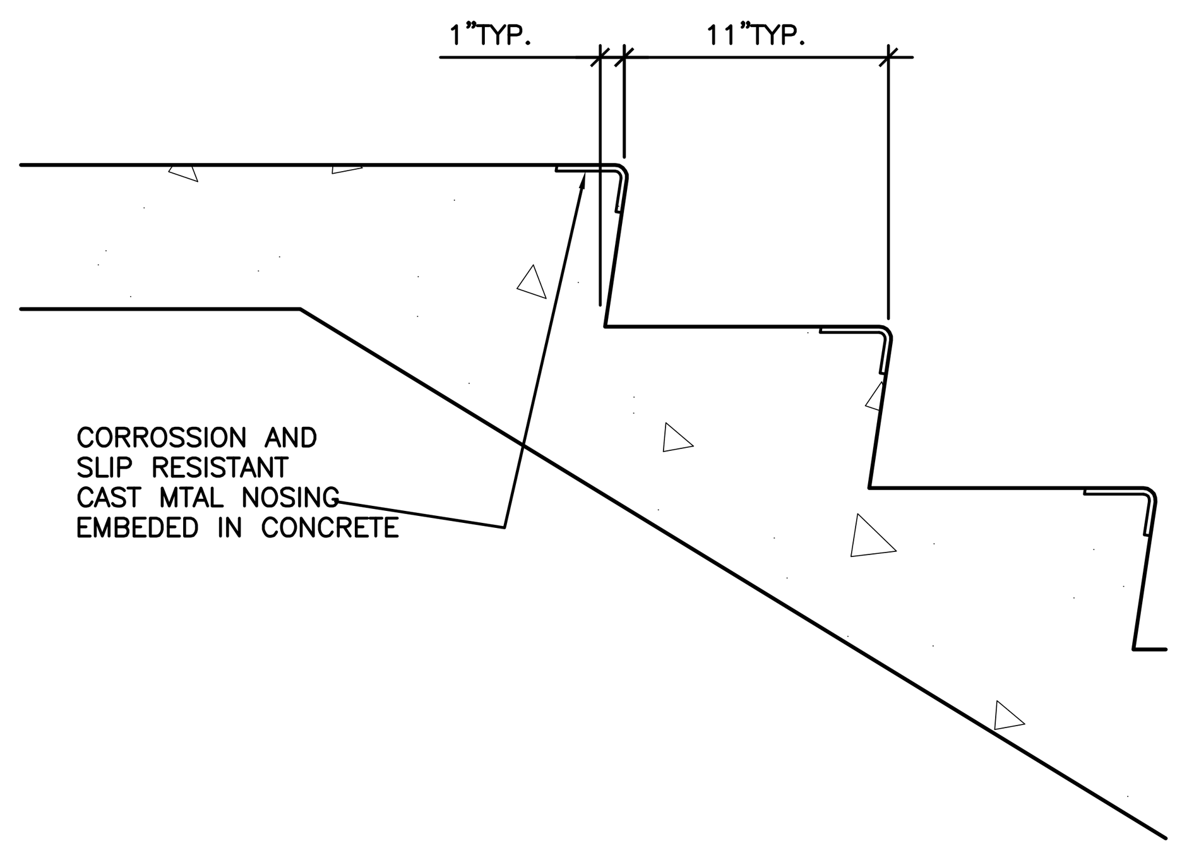
1 STAIR PLAN @ FIRST LEVEL
3/16" = 1'-0"



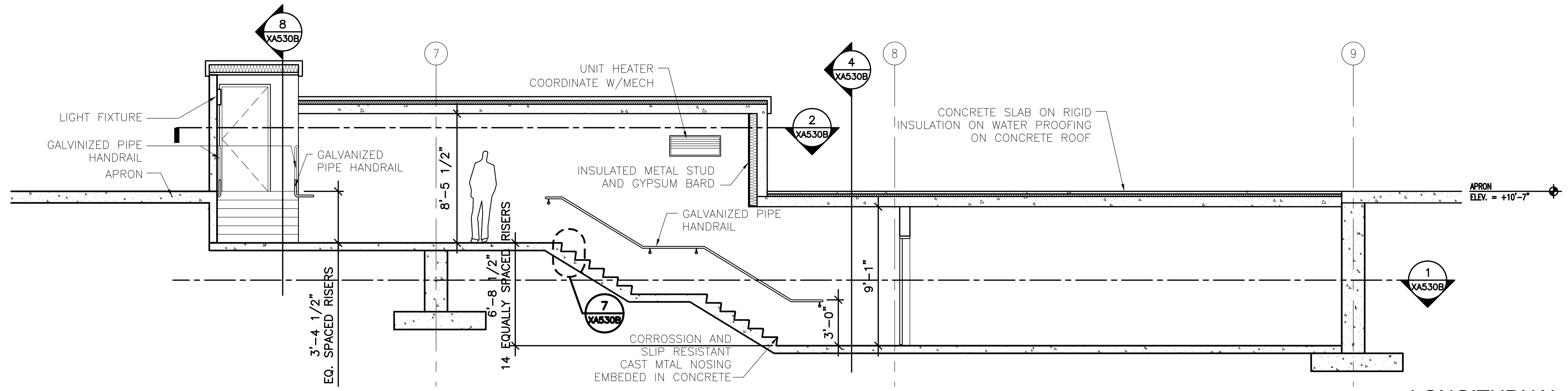
6 SECOND LEVEL PARTIAL FLOOR PLAN AND STAIR ROOF PLAN
3/16" = 1'-0"



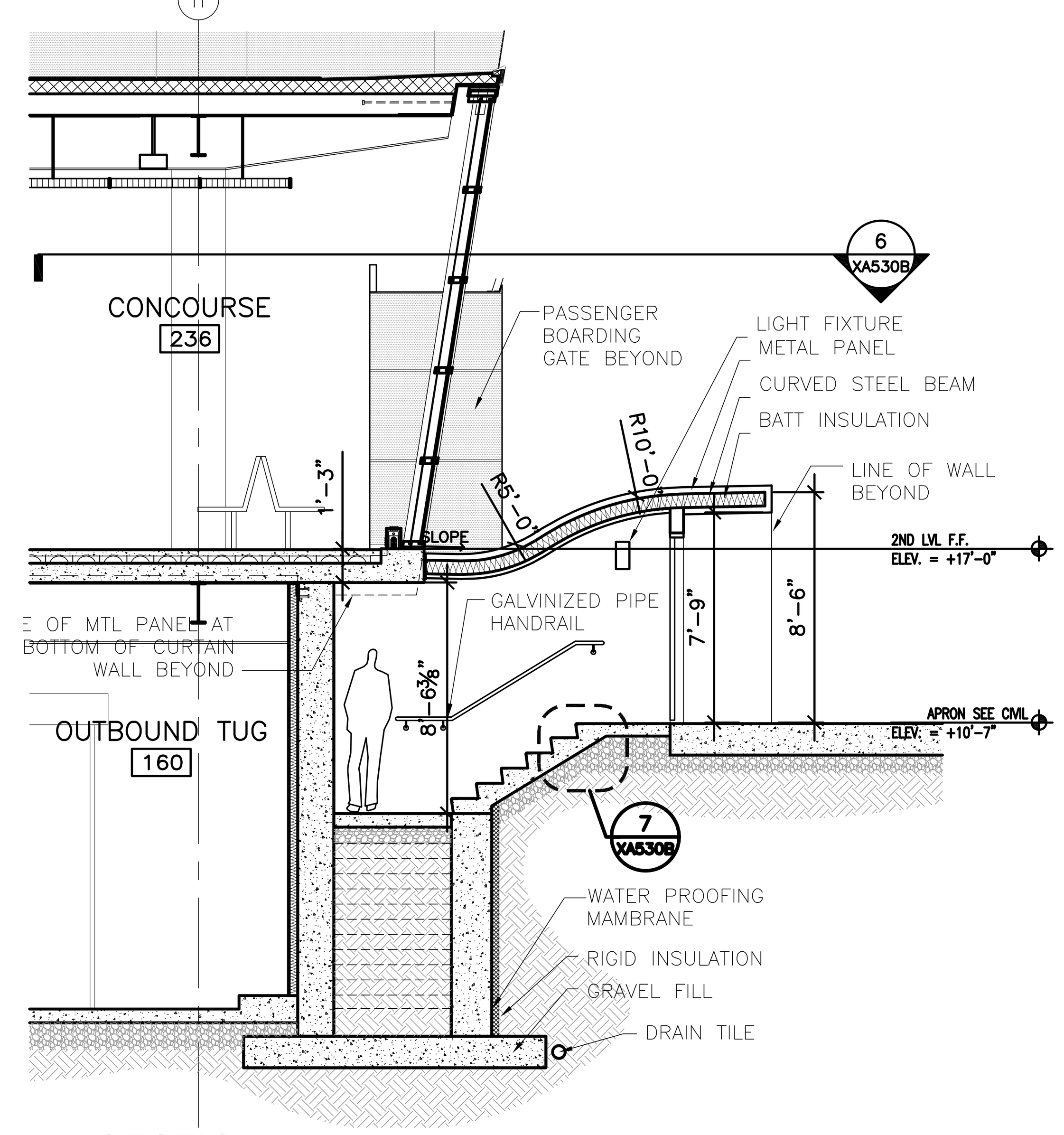
2 STAIR PLAN @ APRON LEVEL
3/16" = 1'-0"



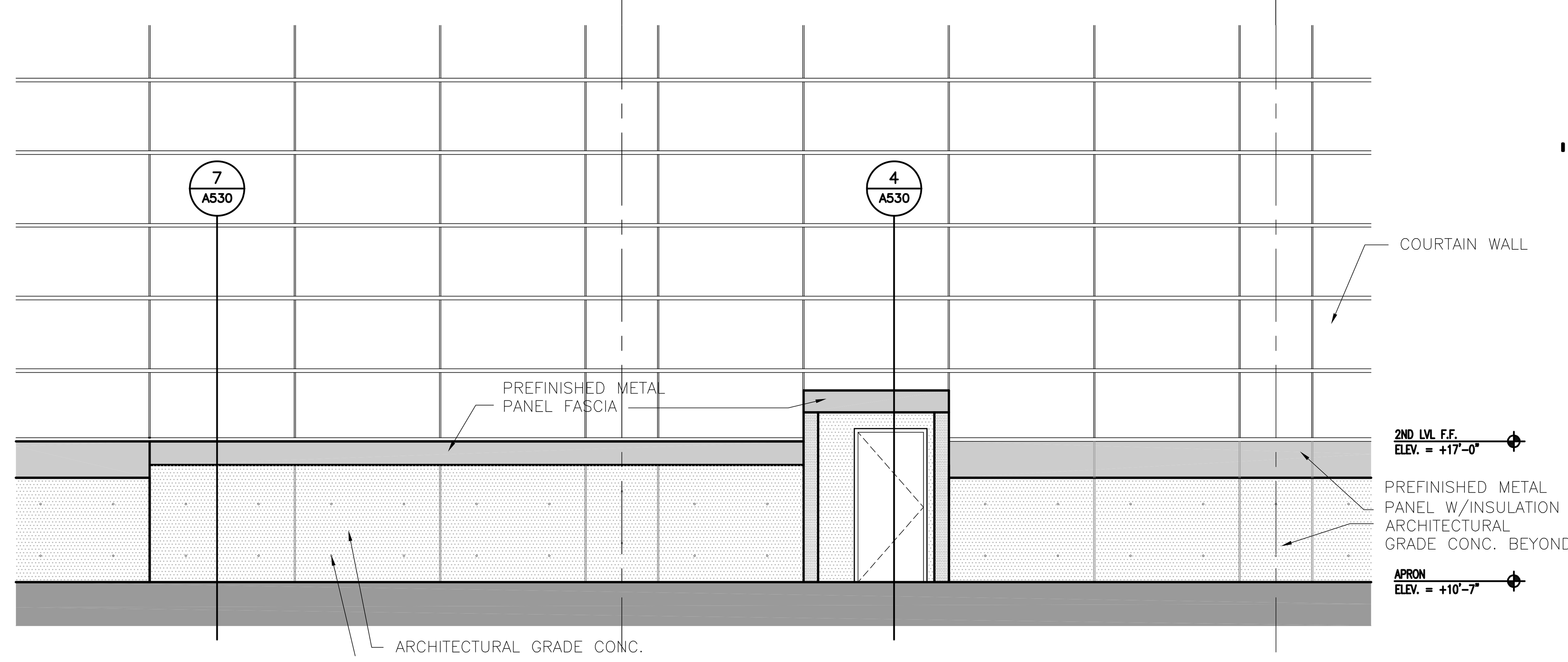
7 STAIR SECTION DETAIL
1 1/2" = 1'-0"



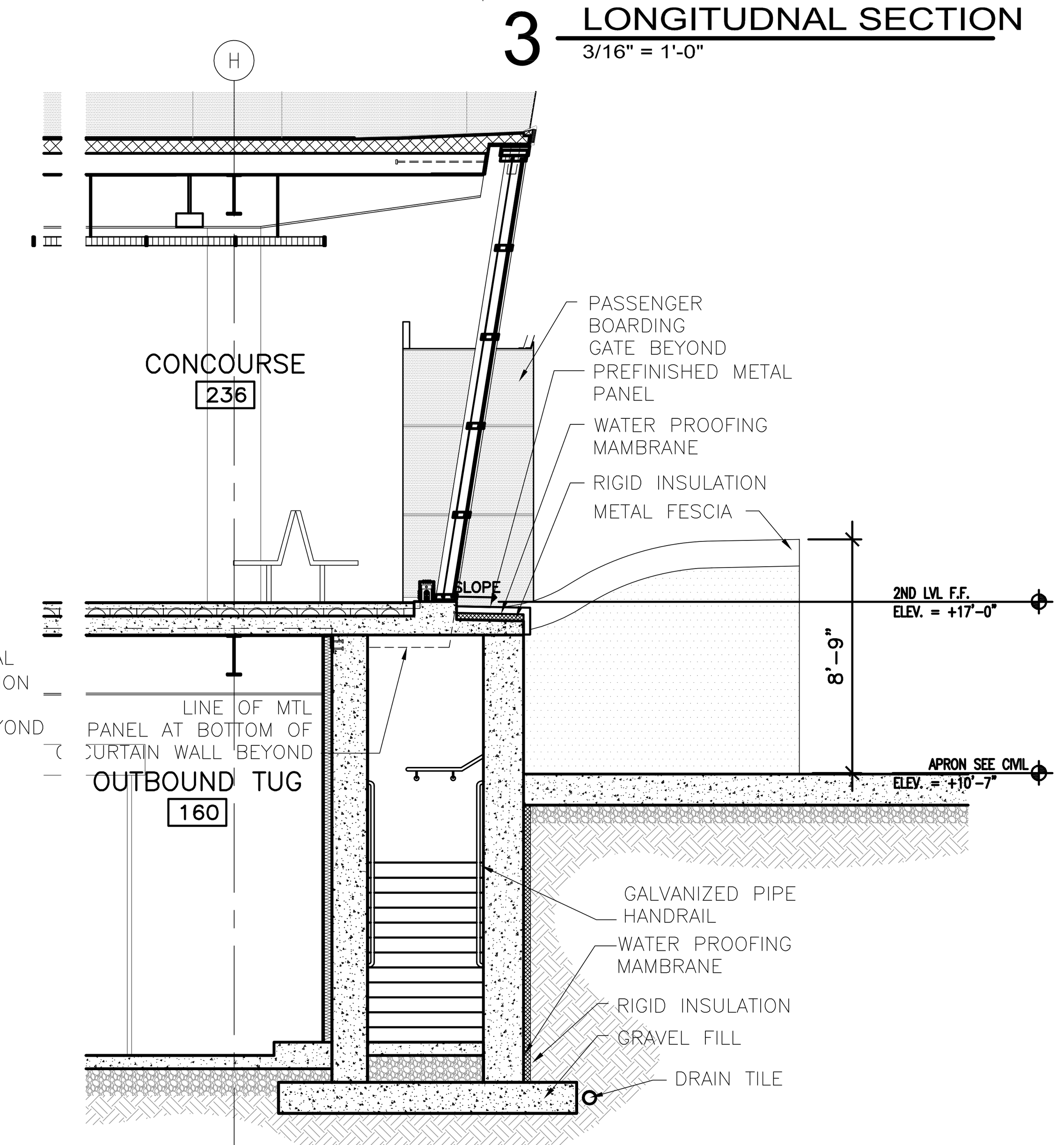
3 LONGITUDNAL SECTION
3/16" = 1'-0"



8 SECTION
3/16" = 1'-0"



5 PARTIAL NORTH ELEVATION
3/16" = 1'-0"



4 SECTION
3/16" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: XX
DRAWN BY: XX
DESIGNED BY: XX

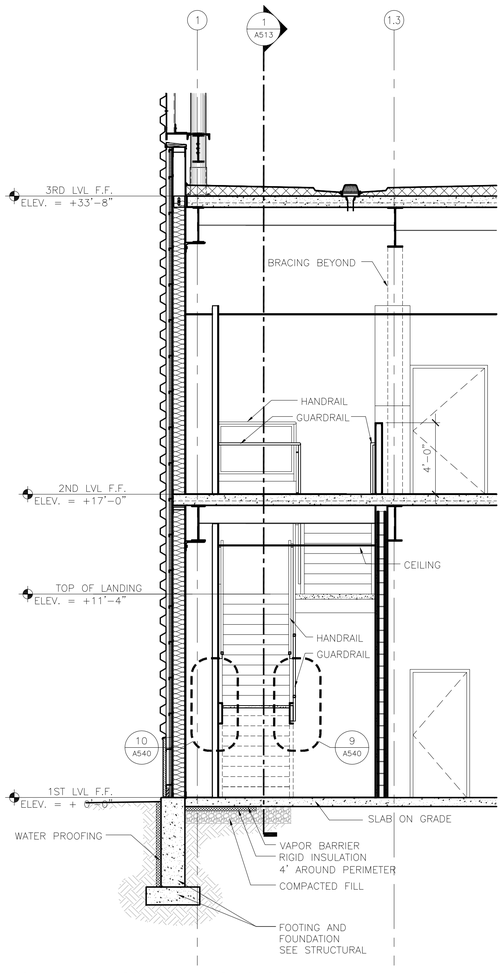
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS VERTICAL CIRCULATION

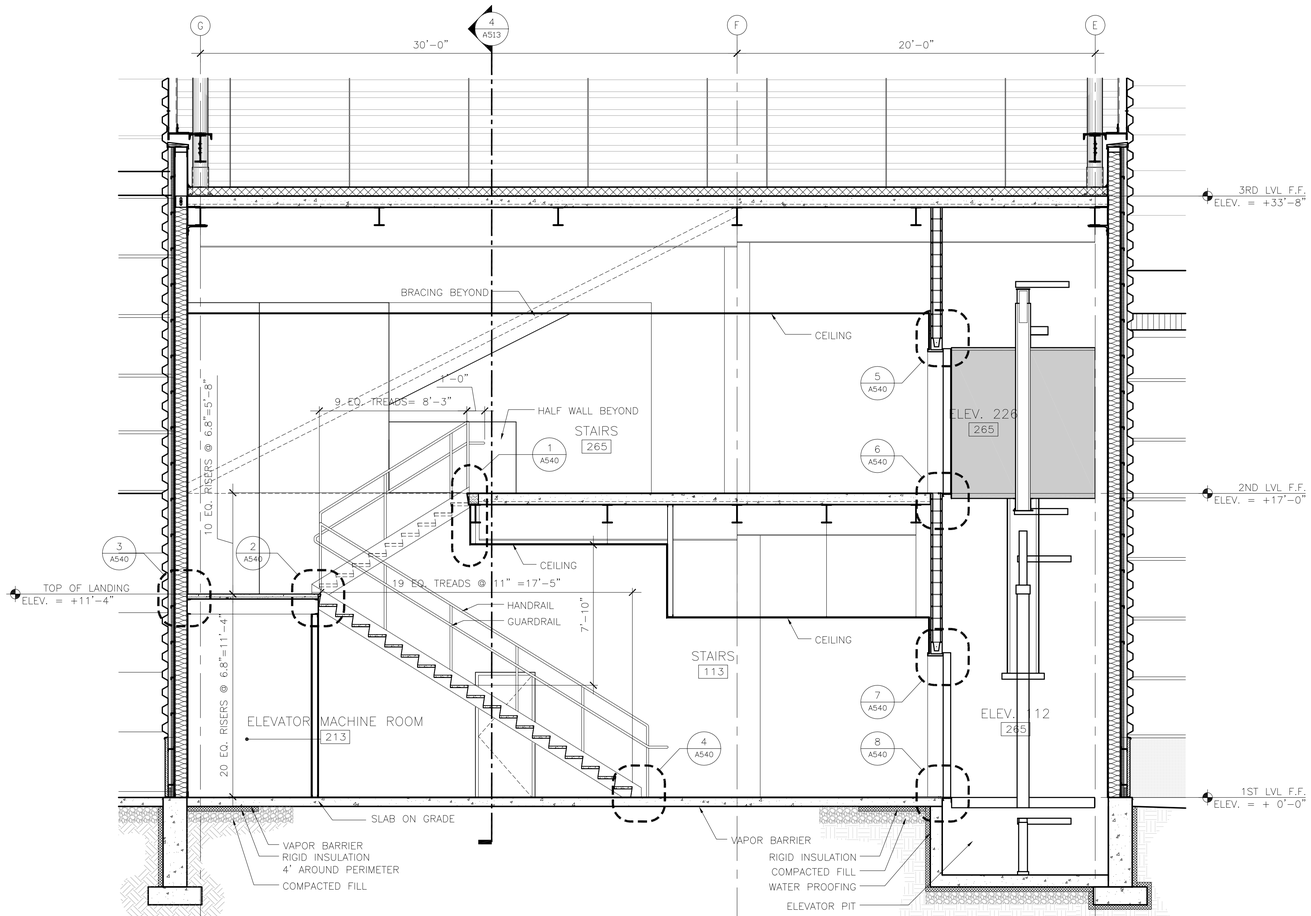
SHEET NUMBER
A530

60% NOT FOR CONSTRUCTION

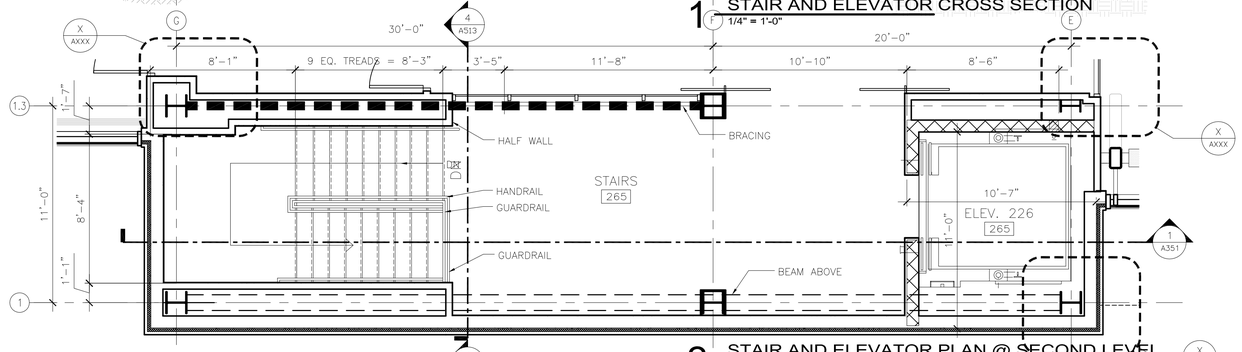
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A530 Exterior System Sheet-Vertical Circulation.dwg Plotted on: 2/15/2010 11:23 AM Plotted by: Godzina, Marc



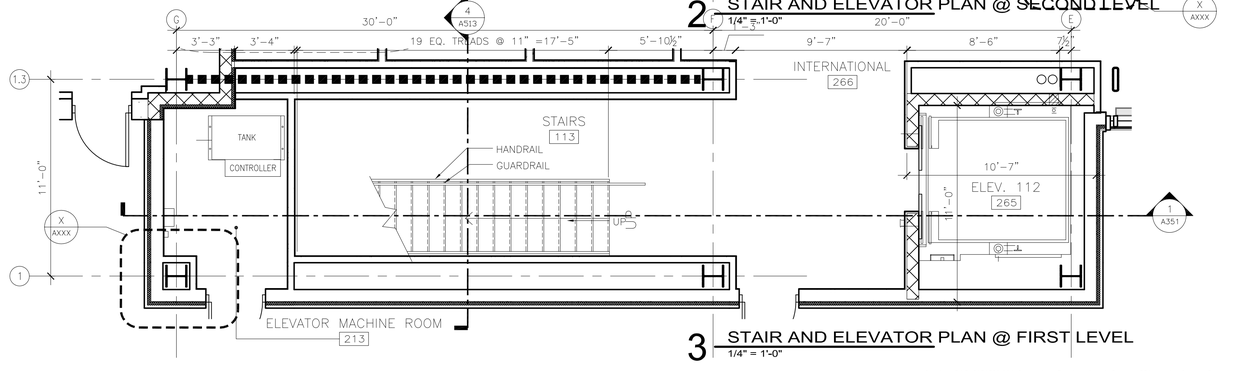
4 STAIR LONGITUDNAL SECTION
1/4" = 1'-0"



1 STAIR AND ELEVATOR CROSS SECTION
1/4" = 1'-0"



2 STAIR AND ELEVATOR PLAN @ SECOND LEVEL
1/4" = 1'-0"



3 STAIR AND ELEVATOR PLAN @ FIRST LEVEL
1/4" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: XX
DRAWN BY: XX
DESIGNED BY: XX

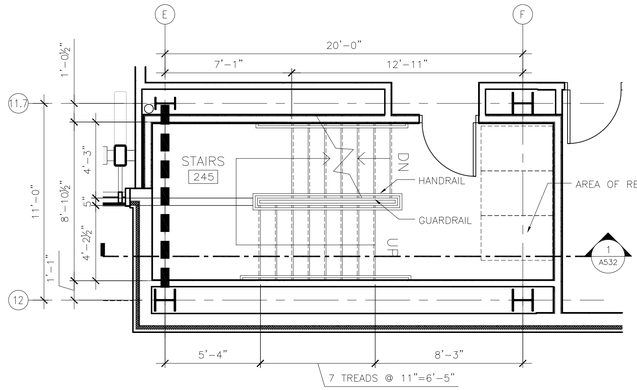
AIP PROJECT NUMBER
213-1882-091
XXX.DWG 00-00-00 12:00p

SHEET TITLE
INTERIOR SYSTEMS VERTICAL CIRCULATION

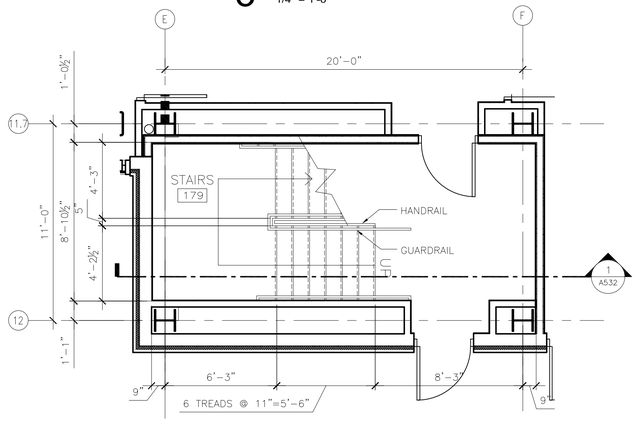
SHEET NUMBER
A531

60% NOT FOR CONSTRUCTION

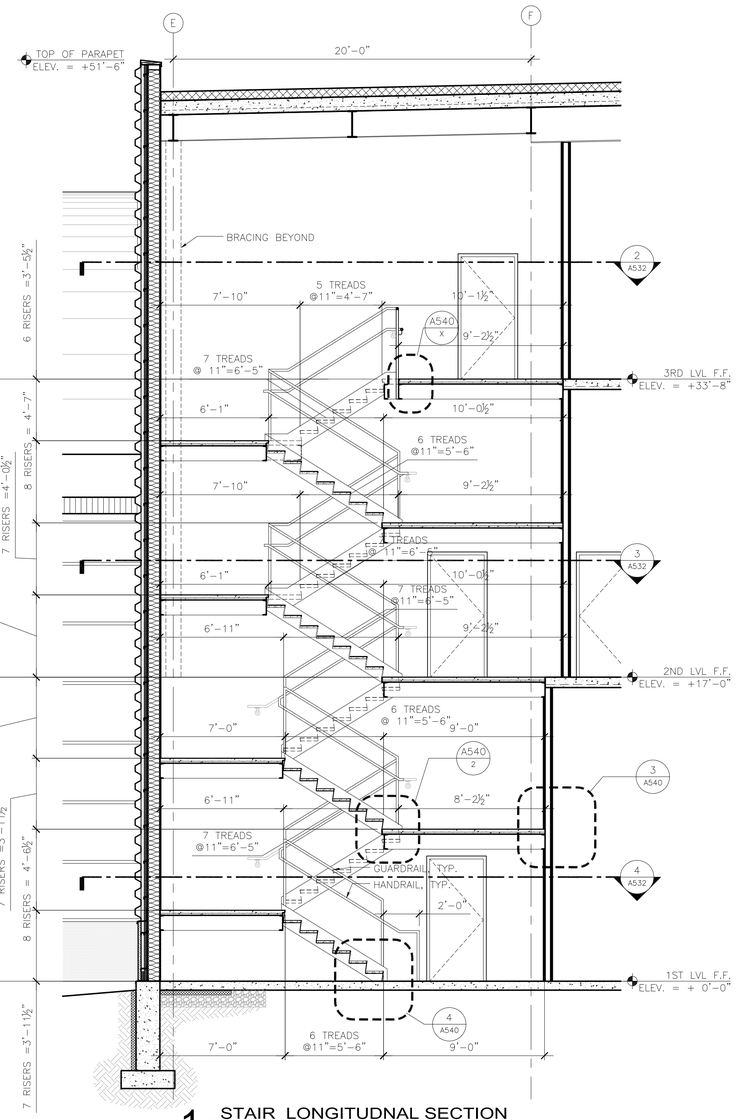
Drawing: T:\F\2131882.091 Duluth New Terminal\Cad\A\Sheets\A531 Interior System Sheet-Vertical Circulation.dwg Plotted on: 2/15/2010 11:33 AM Plotted by: Godzina, Marc



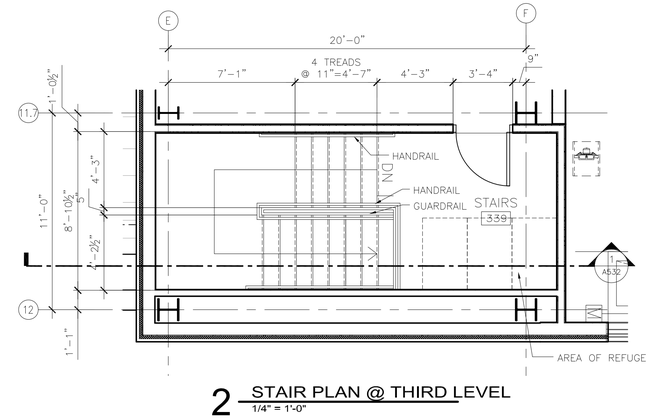
3 STAIR PLAN @ SECOND LEVEL
1/4" = 1'-0"



4 STAIR PLAN @ FIRST LEVEL
1/4" = 1'-0"



1 STAIR LONGITUDNAL SECTION
1/4" = 1'-0"



2 STAIR PLAN @ THIRD LEVEL
1/4" = 1'-0"

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AIP PROJECT NUMBER
213-1882-091
XXX.DWG 02-15-10 12:00p

SHEET TITLE

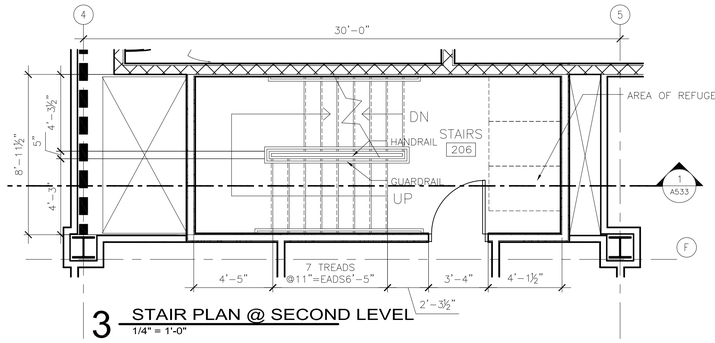
INTERIOR SYSTEMS VERTICAL CIRCULATION

SHEET NUMBER

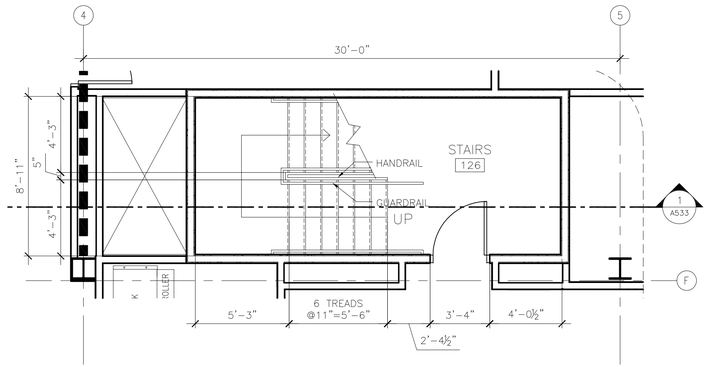
A532

60% NOT FOR CONSTRUCTION

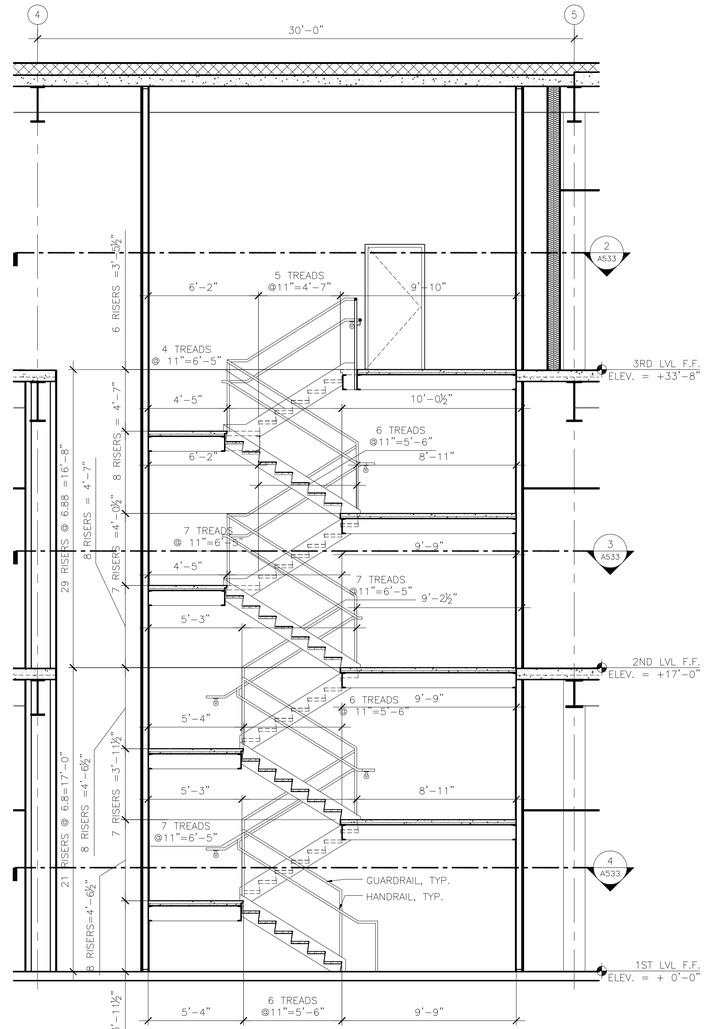
Drawing: T:\P\2131882.091 Duluth New Termina\Cad\A\Sheets\A532 Interior System Sheet-Vertical Circulation.dwg Plotted on: 2/15/2010 11:39 AM Plotted by: Godzina, Marc



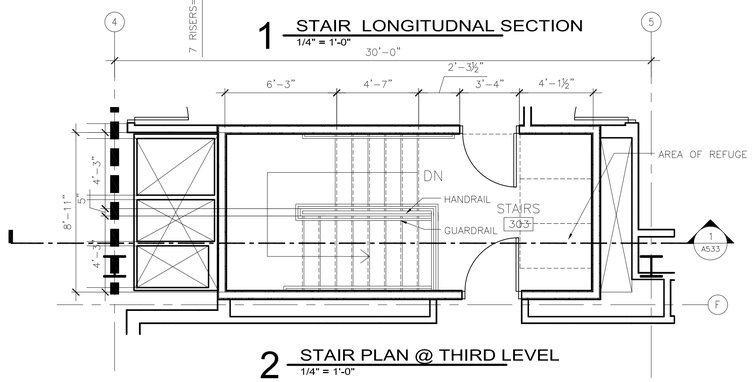
3 STAIR PLAN @ SECOND LEVEL
1/4" = 1'-0"



4 STAIR PLAN @ FIRST LEVEL
1/4" = 1'-0"



1 STAIR LONGITUDNAL SECTION
1/4" = 1'-0"



2 STAIR PLAN @ THIRD LEVEL
1/4" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: -
DRAWN BY: XX
DESIGNED BY: XX

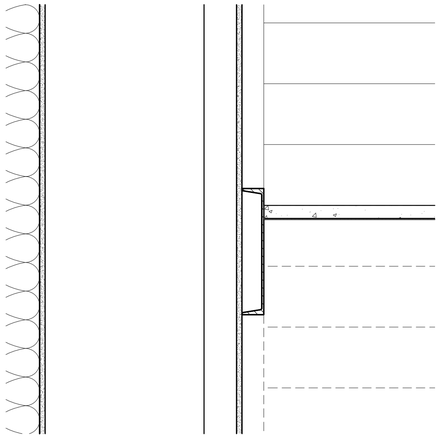
AEP PROJECT NUMBER
213-1882-091
XXX.DWG 00-00-00 12:00p

SHEET TITLE
INTERIOR SYSTEMS VERTICAL CIRCULATION
-
-

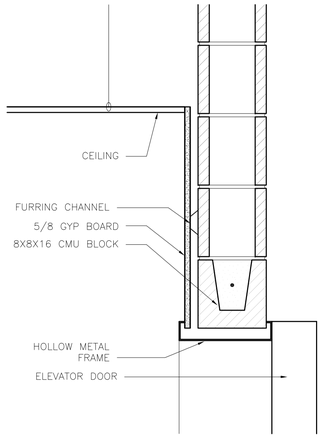
SHEET NUMBER
A533

60% NOT FOR CONSTRUCTION

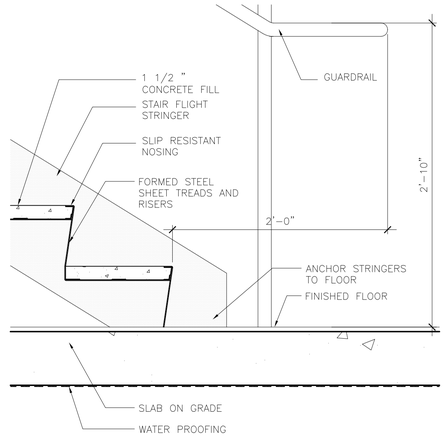
Drawing: T:\P\2131882.091 Duluth New Termina\Cad\A\Sheets\A533 Interior System Sheet-Vertical Circulation.dwg Plotted on: 2/15/2010 11:44 AM Plotted by: Godzina, Marc



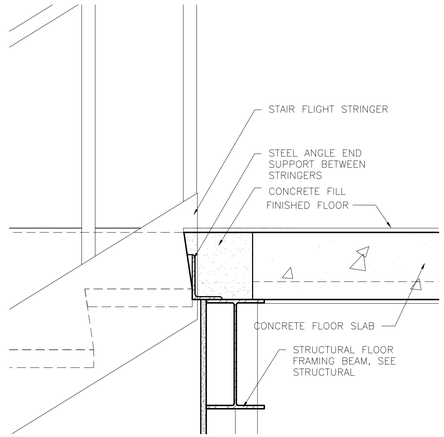
10 STRINGER TO STUD WALL DETAIL
1 1/2" = 1'-0"



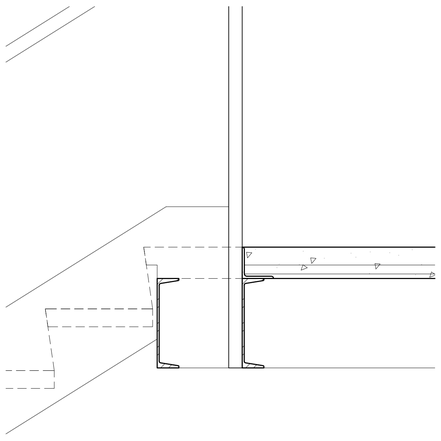
7 HEAD DETAIL @ ELEVATOR FIRST LEVEL
1 1/2" = 1'-0"



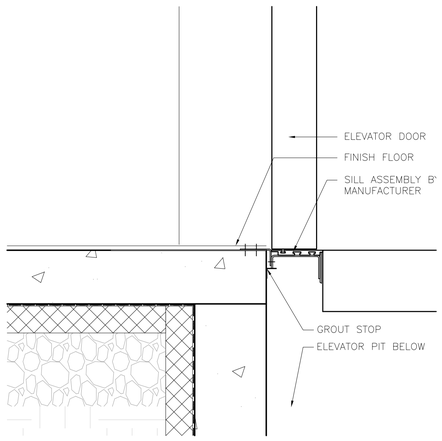
4 STAIR STRINGER @ FIRST LEVEL
1 1/2" = 1'-0"



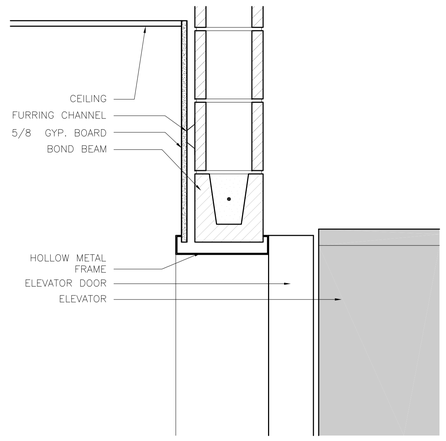
1 STAIR STRINGER @ SECOND LEVEL
1 1/2" = 1'-0"



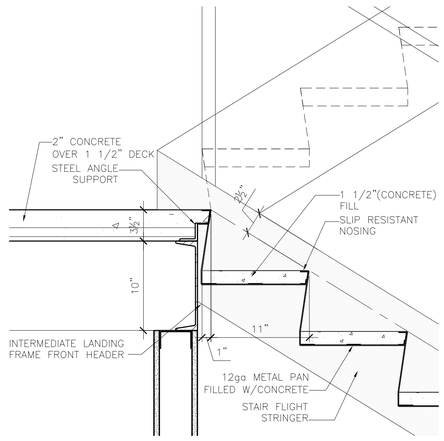
11 RAIL TERMINATION DETAIL
1 1/2" = 1'-0"



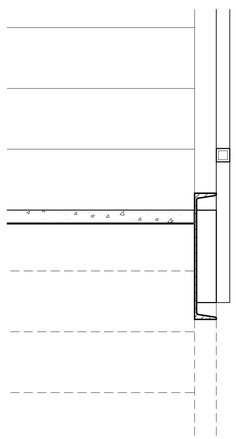
8 SILL DETAIL @ ELEVATOR FIRST LEVEL
1 1/2" = 1'-0"



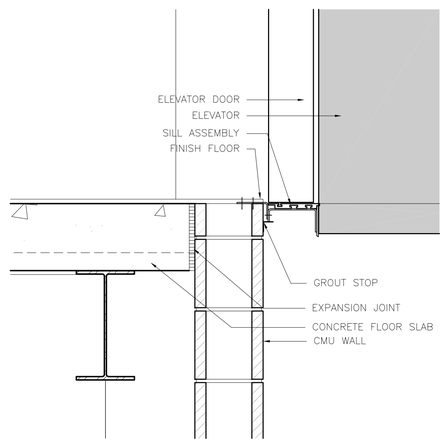
5 HEAD DETAIL @ ELEVATOR SECOND LEVEL
1 1/2" = 1'-0"



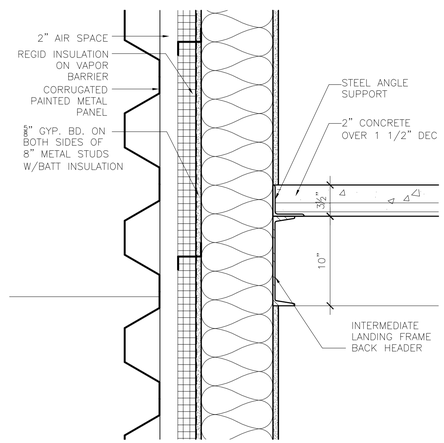
2 STAIR STRINGER TO INTERMETIATE LANDING
1 1/2" = 1'-0"



9 STRINGER TO STAIR DETAIL
1 1/2" = 1'-0"



6 SILL DETAIL @ ELEVATOR SECOND LEVEL
1 1/2" = 1'-0"



3 LANDING TO WALL DEATAIL
1 1/2" = 1'-0"

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DATE ISSUED: 02-15-10
REVIEWED BY: XX
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DESIGNED BY: XX

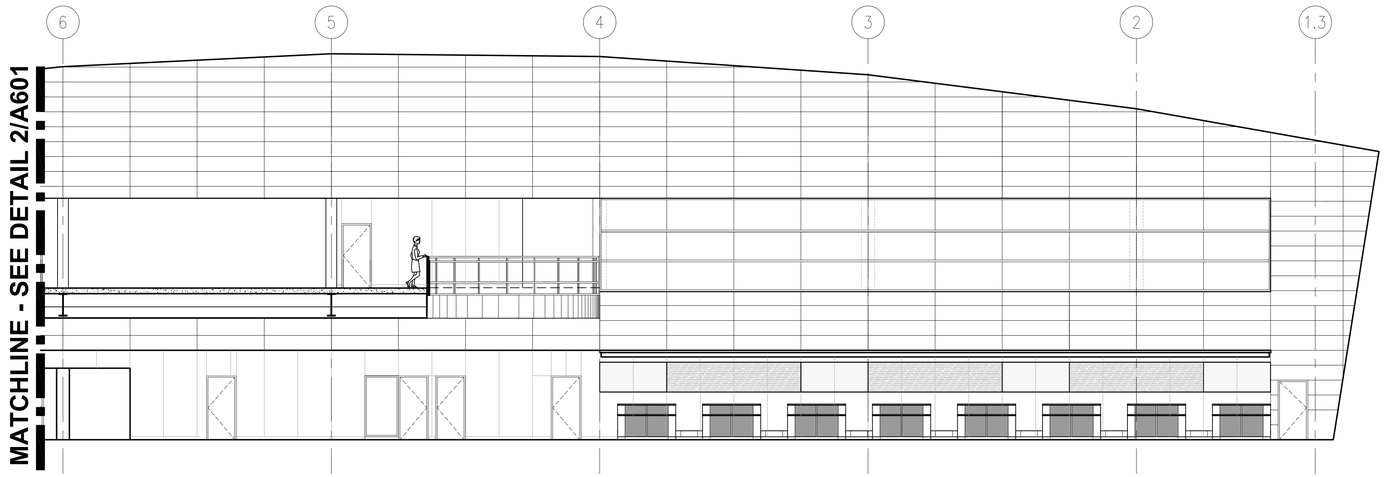
AEP PROJECT NUMBER
XXX.DWG 213-1882-091 2-15-00 12:00p

SHEET TITLE
VERTICAL CIRCULATION DETAILS

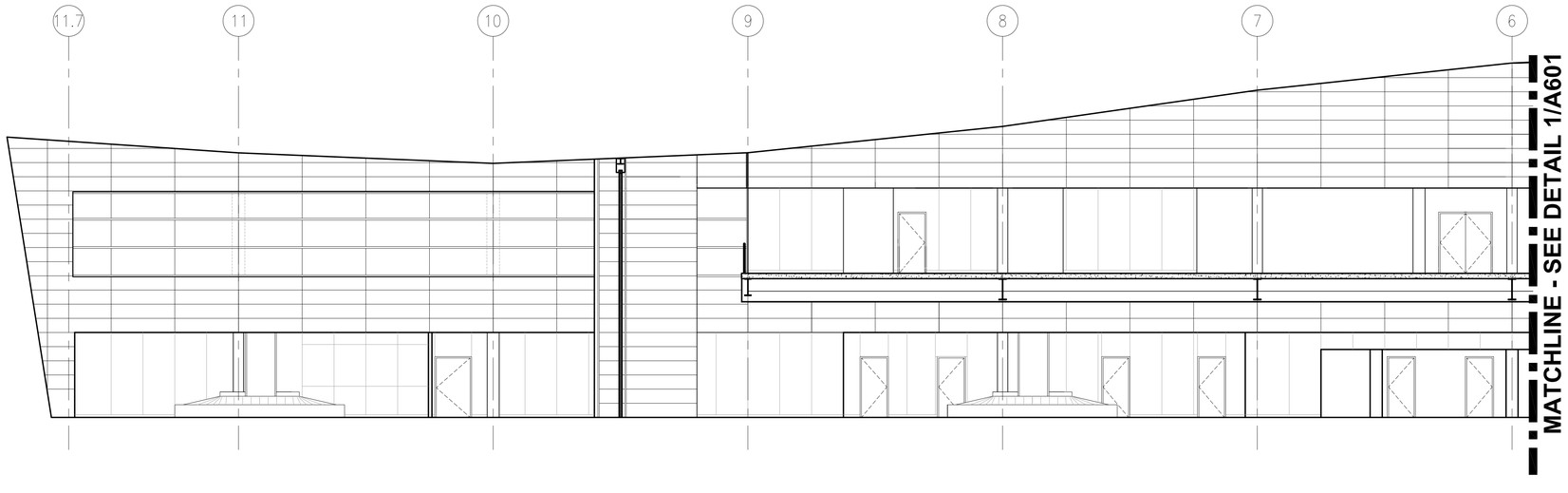
SHEET NUMBER
A540

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A540 Vertical Circulation Details.dwg Plotted on: 2/15/2010 11:45 AM Plotted by: Godzina, Marc



1 INTERIOR ELEVATION - LOBBY - NORTH
1/8" = 1'-0"



2 INTERIOR ELEVATION - LOBBY - NORTH
1/8" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

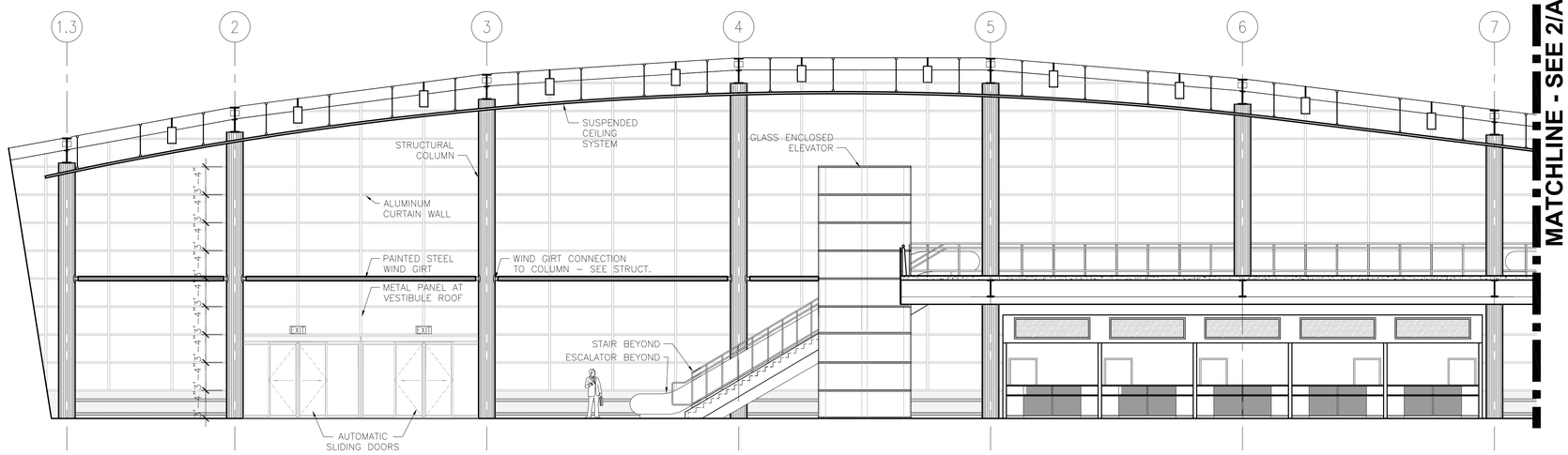
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
INTERIOR ELEVATIONS

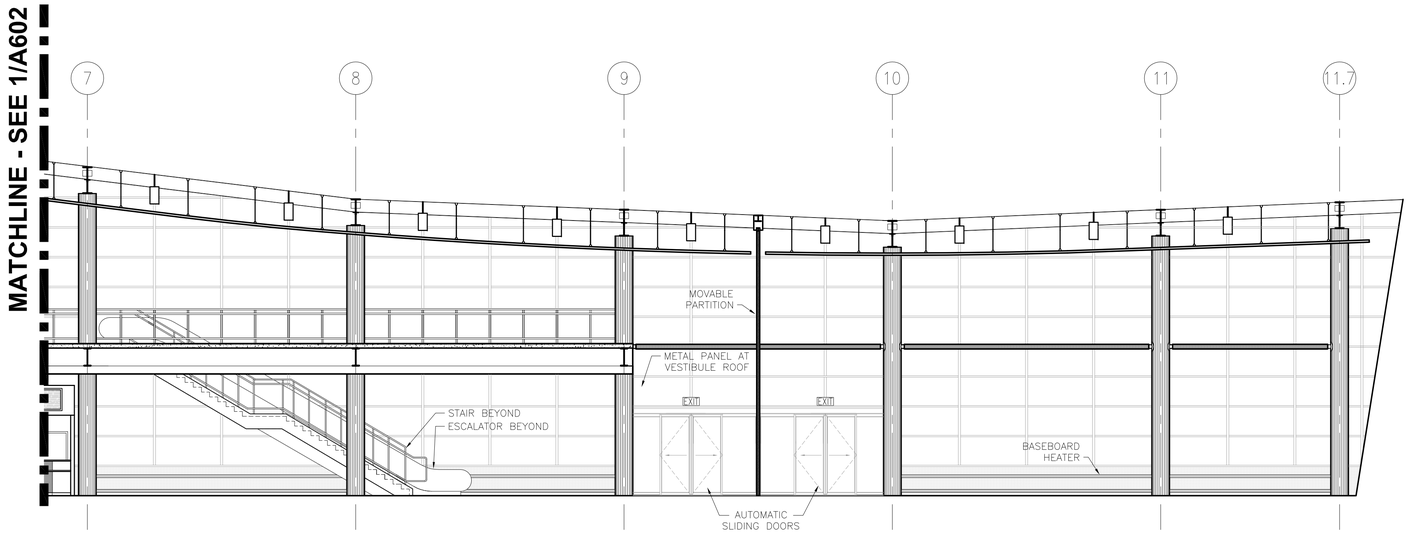
SHEET NUMBER
A601

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A601 Interior Elevations.dwg Plotted on: 2/15/2010 10:50 AMPlotted by: Kolodziej, Magdalena



1 INTERIOR ELEVATION - LOBBY NORTH
1/8" = 1'-0"



2 INTERIOR ELEVATION - LOBBY NORTH
1/8" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
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DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

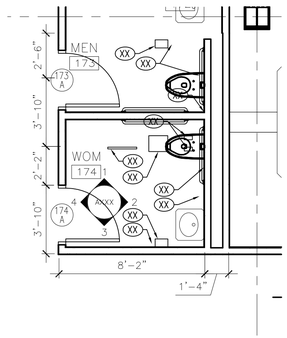
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
INTERIOR ELEVATIONS

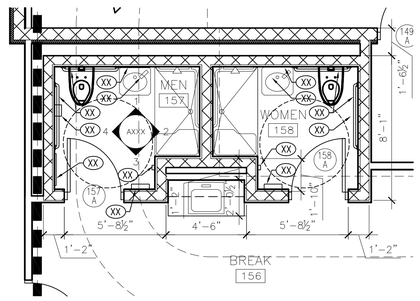
SHEET NUMBER
A602

60% NOT FOR CONSTRUCTION

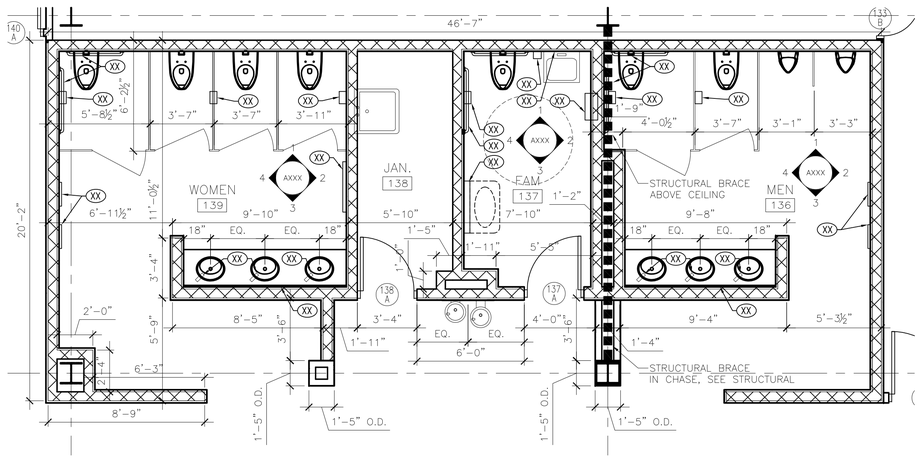
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A602 Interior Elevations.dwg Plotted on: 2/15/2010 10:50 AMPlotted by: Kolodziej, Magdalena



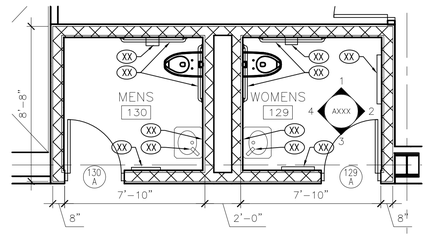
1 ENLARGED PLAN
1/4" = 1'-0"



1 ENLARGED PLAN
1/4" = 1'-0"



1 ENLARGED PLAN
1/4" = 1'-0"



1 ENLARGED PLAN
1/4" = 1'-0"

1 SITE PLAN
1" = 80'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MI
DESIGNED BY: SBS/TC

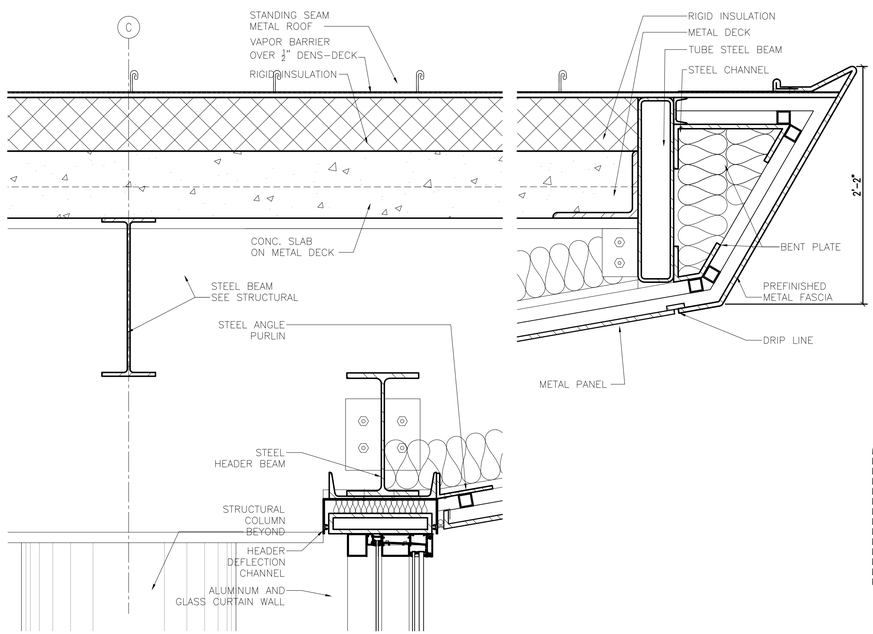
AIP PROJECT NUMBER
213-1882-091

SHEET TITLE
INTERIOR SYSTEMS RESTROOMS

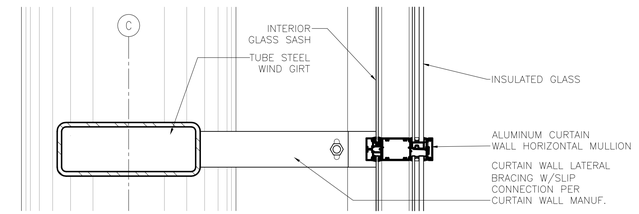
SHEET NUMBER
A610

60% NOT FOR CONSTRUCTION

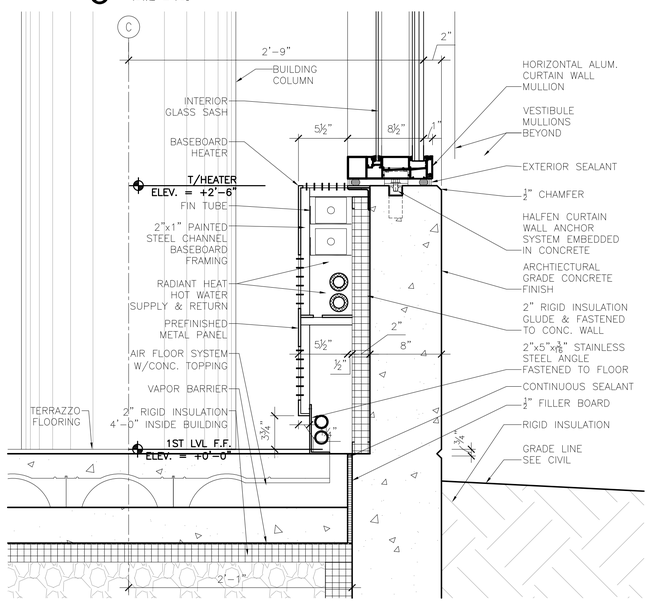
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A610 Interior System Sheet – Restrooms.dwg Plotted on: 2/15/2010 10:51 AMPlotted by: Kolodziej, Magdalena



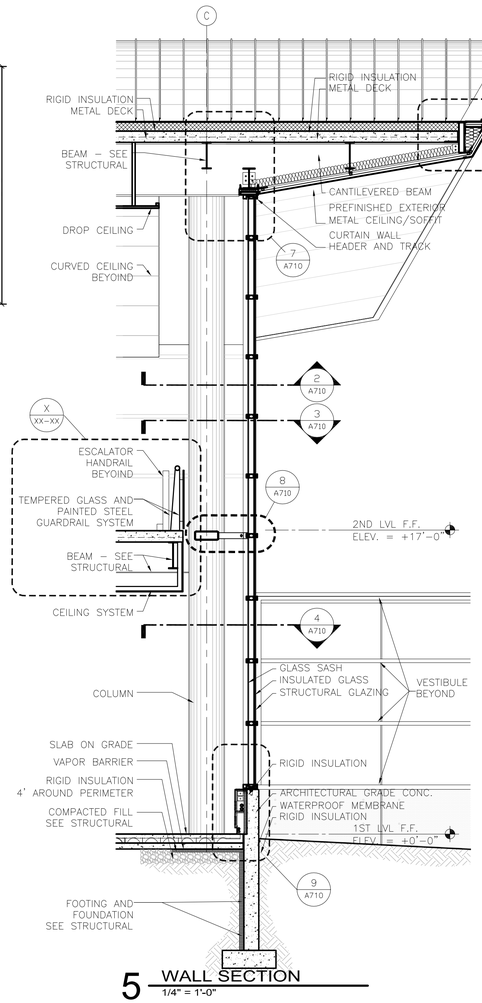
7 CURTAIN WALL HEAD DETAIL
1-1/2" = 1'-0"



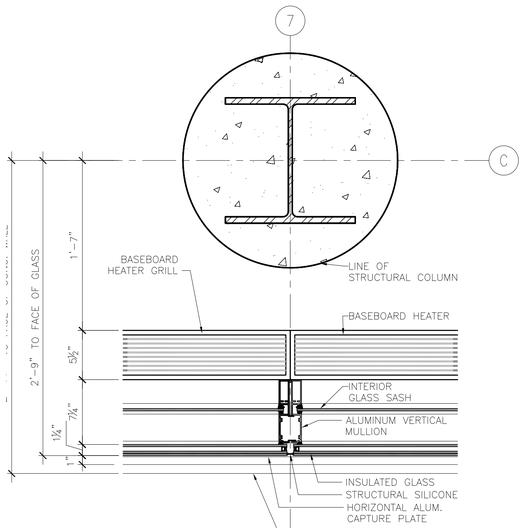
8 CURTAIN WALL HORIZONTAL DETAIL
1-1/2" = 1'-0"



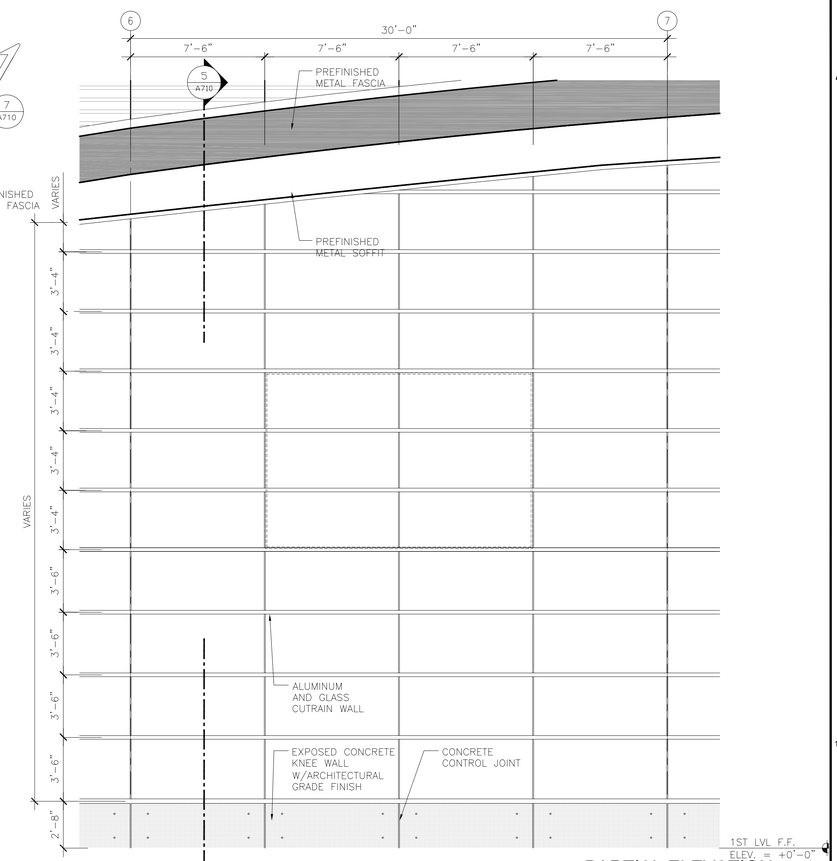
9 CURTAIN WALL SILL DETAIL
1-1/2" = 1'-0"



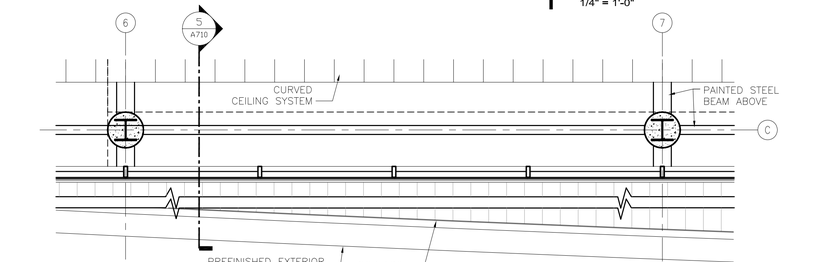
5 WALL SECTION
1/4" = 1'-0"



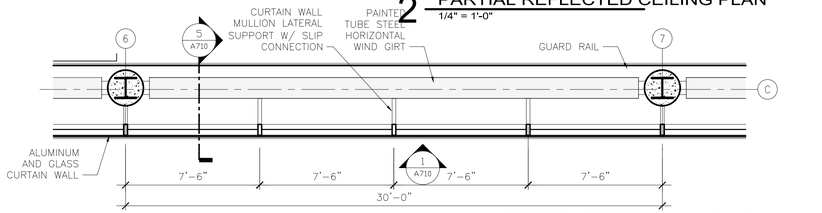
6 CURTAIN WALL PLAN DETAIL
1 1/2" = 1'-0"



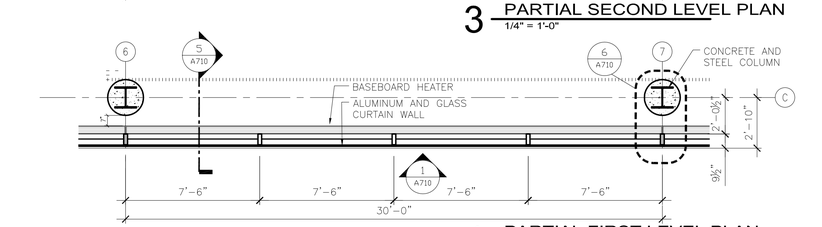
1 PARTIAL ELEVATION
1/4" = 1'-0"



2 PARTIAL REFLECTED CEILING PLAN
1/4" = 1'-0"



3 PARTIAL SECOND LEVEL PLAN
1/4" = 1'-0"



4 PARTIAL FIRST LEVEL PLAN
1/4" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

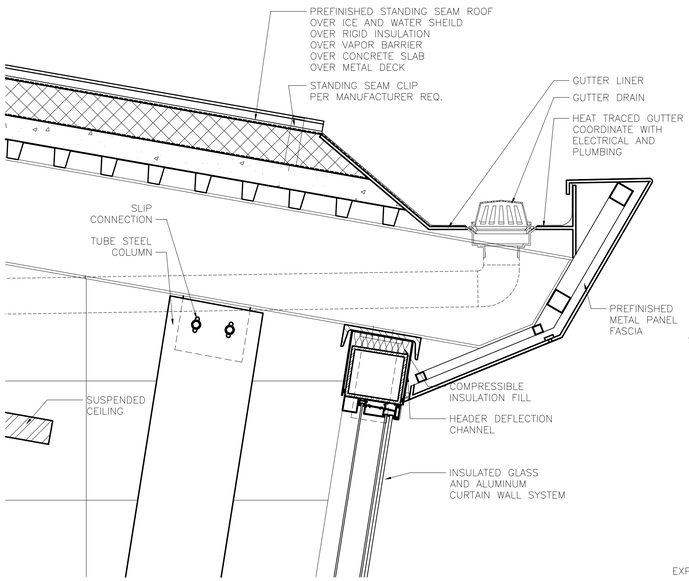
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS LANDSIDE CURTAIN WALL

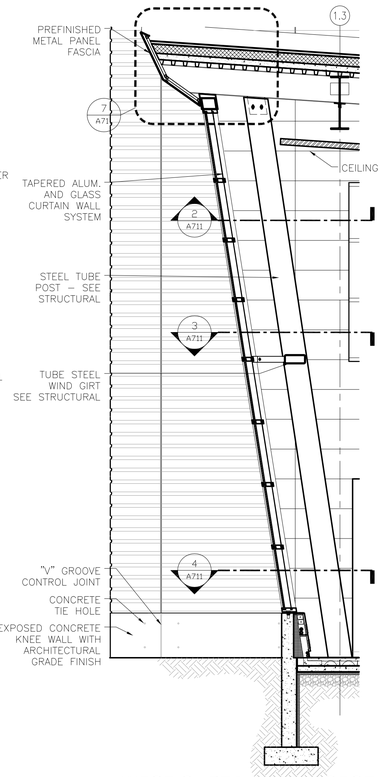
SHEET NUMBER
A710

60% NOT FOR CONSTRUCTION

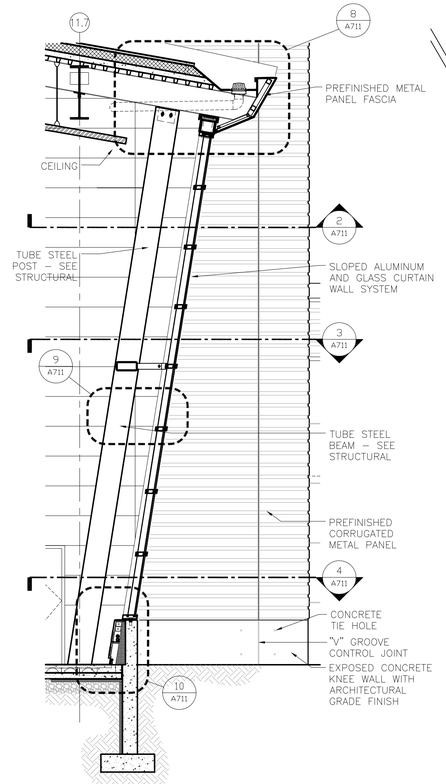
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A710 Exterior System Sheet – Landside Curtain Wall.dwg Plotted on: 2/15/2010 10:56 AMplotted by: Kolodziej, Magdalena



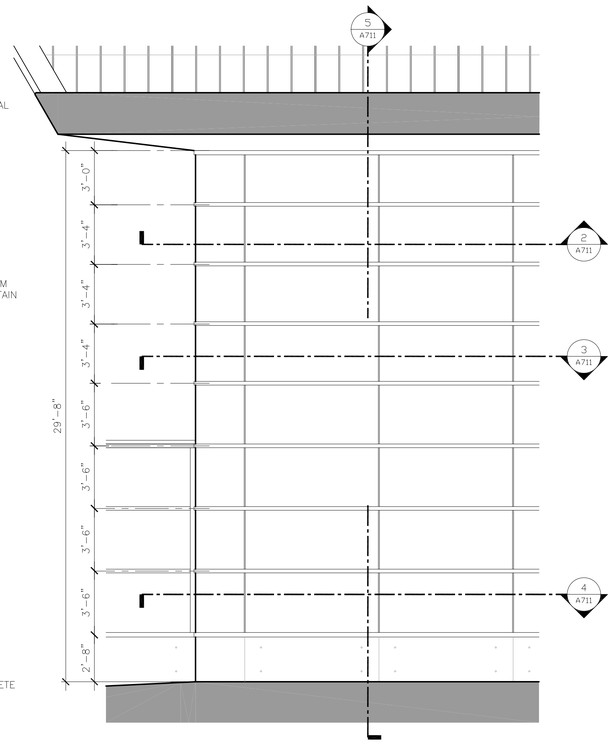
8 CURTAIN WALL HEAD DETAIL @ EAST END OF CONCOURSE
1" = 1'-0"



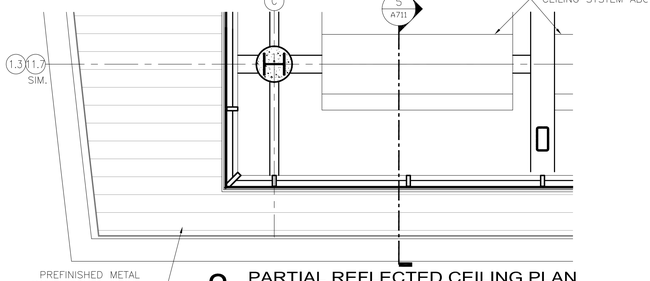
6 WEST CURTAIN WALL SECTION
1/4" = 1'-0"



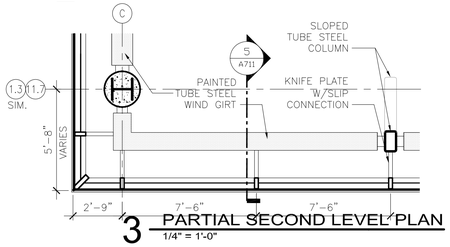
5 EAST CURTAIN WALL SECTION
1/4" = 1'-0"



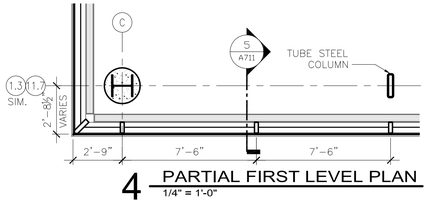
1 PARTIAL EAST ELEVATION
1/4" = 1'-0"



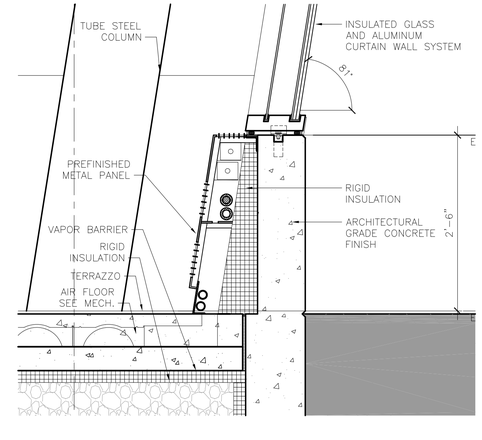
2 PARTIAL REFLECTED CEILING PLAN
1/4" = 1'-0"



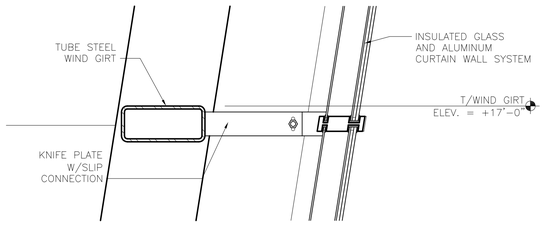
3 PARTIAL SECOND LEVEL PLAN
1/4" = 1'-0"



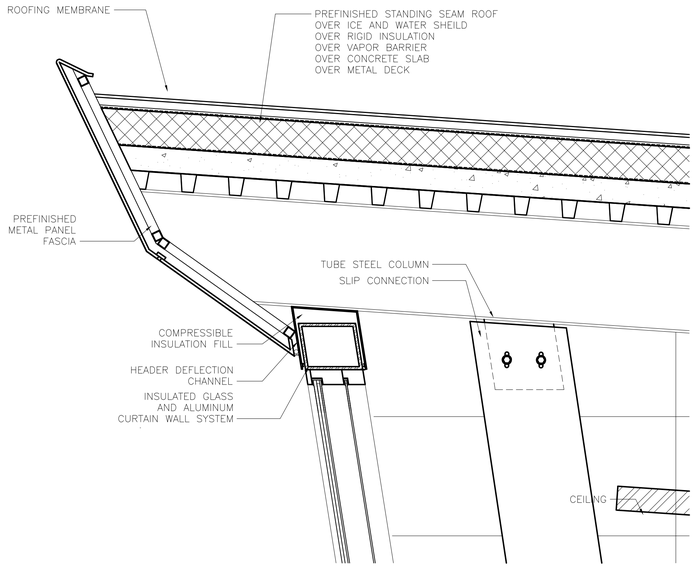
4 PARTIAL FIRST LEVEL PLAN
1/4" = 1'-0"



10 CURTAIN WALL SILL DETAIL
1" = 1'-0" WEST SIDE SIMILAR



9 CURTAIN WALL HORIZONTAL DETAIL
1" = 1'-0" WEST SIDE SIMILAR



7 CURTAIN WALL HEAD DETAIL @ WEST END OF CONCOURSE
1" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

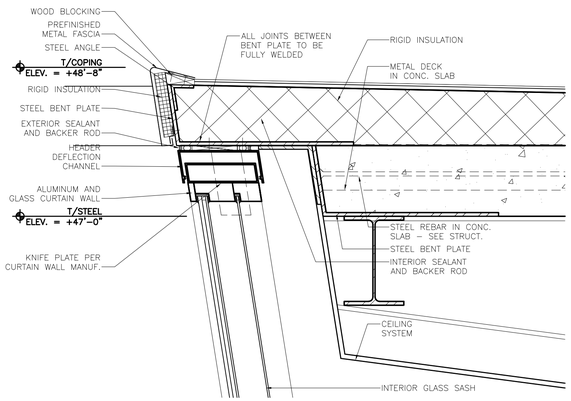
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS LANDSIDE CURTAIN WALL

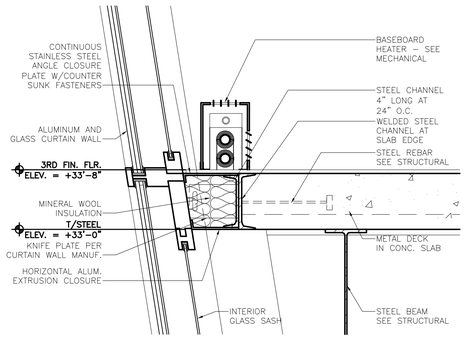
SHEET NUMBER
A711

60% NOT FOR CONSTRUCTION

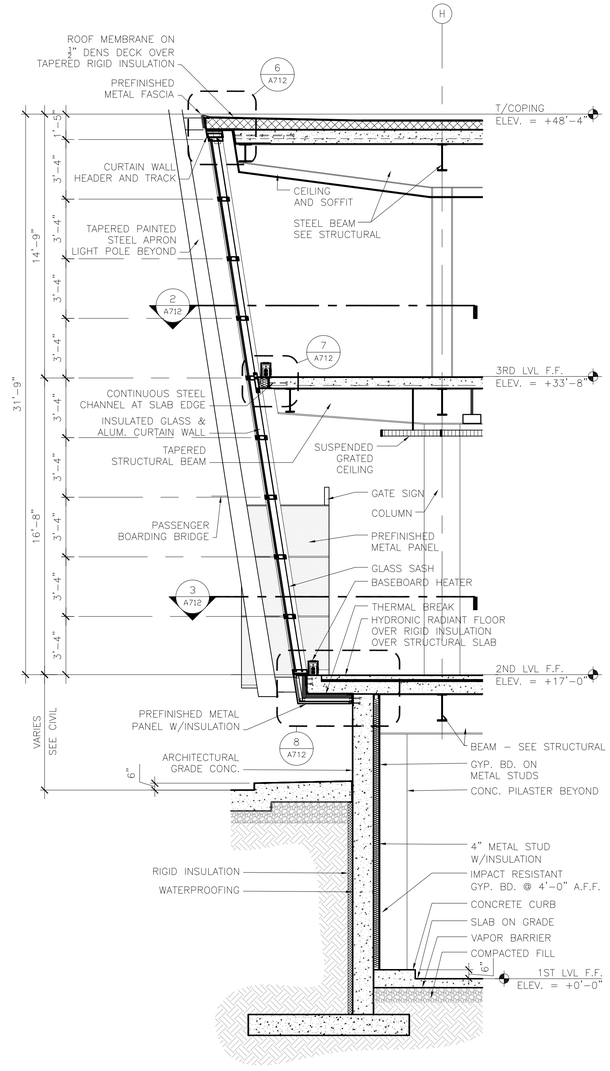
Drawing: I:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A711 Exterior System Sheet – Landside Curtain Wall.dwg Plotted on: 2/15/2010 11:01 APlotted by: Kolodziej, Magdalena



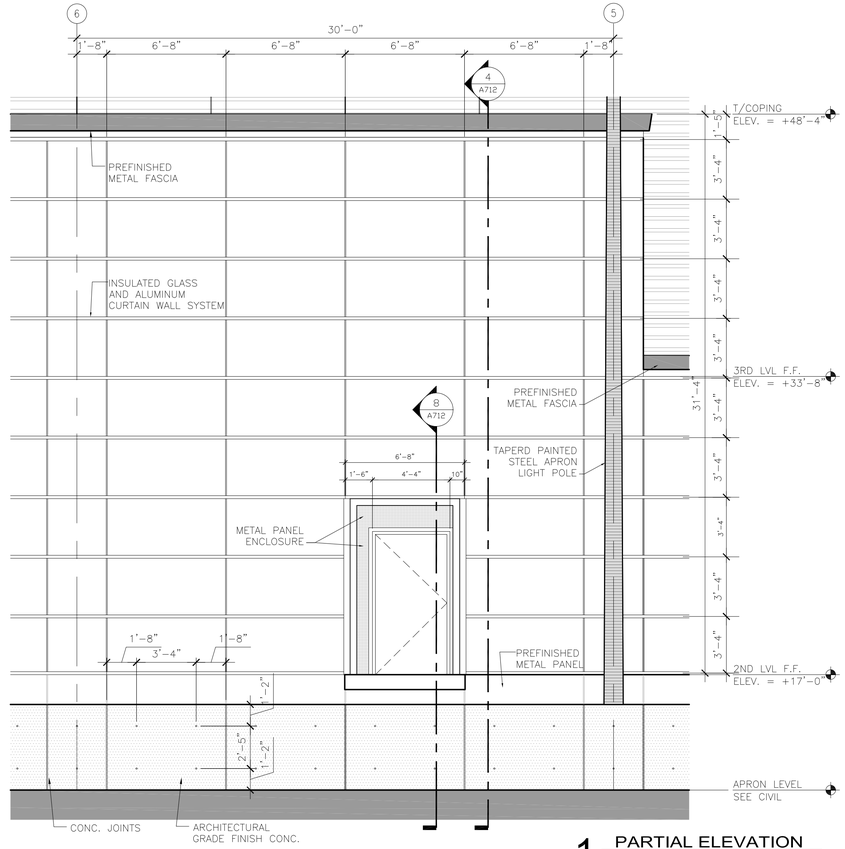
5 CURTAIN WALL HEAD DETAIL
1 1/2" = 1'-0"



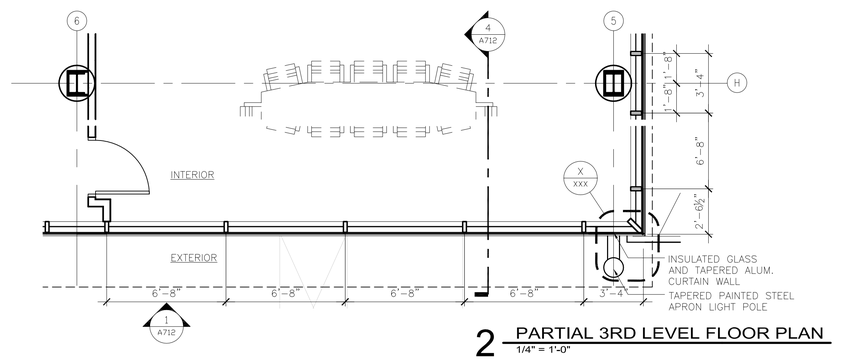
6 CURTAIN WALL HORIZONTAL MULLION DETAIL @ 2ND LEVEL
1 1/2" = 1'-0"



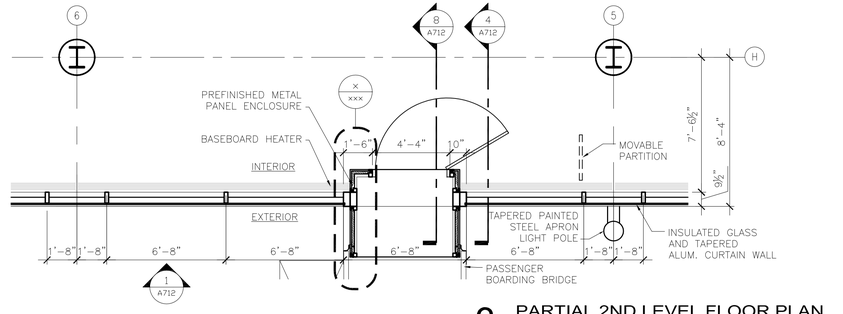
4 WALL SECTION
1/4" = 1'-0"



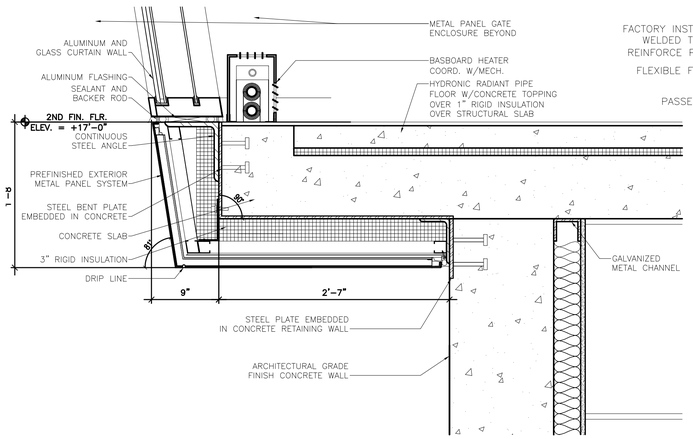
1 PARTIAL ELEVATION
1/4" = 1'-0"



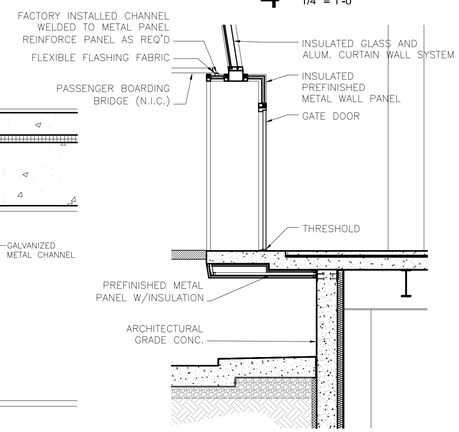
2 PARTIAL 3RD LEVEL FLOOR PLAN
1/4" = 1'-0"



3 PARTIAL 2ND LEVEL FLOOR PLAN
1/4" = 1'-0"



7 CURTAIN WALL SILL DETAIL
1 1/2" = 1'-0"



8 WALL SECTION
1/4" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

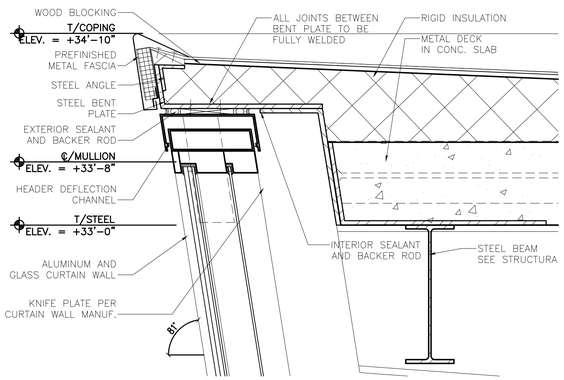
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS AIRSIDE CURTAIN WALL

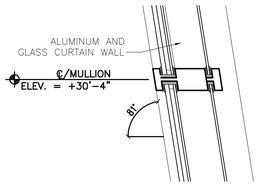
SHEET NUMBER
A712

60% NOT FOR CONSTRUCTION

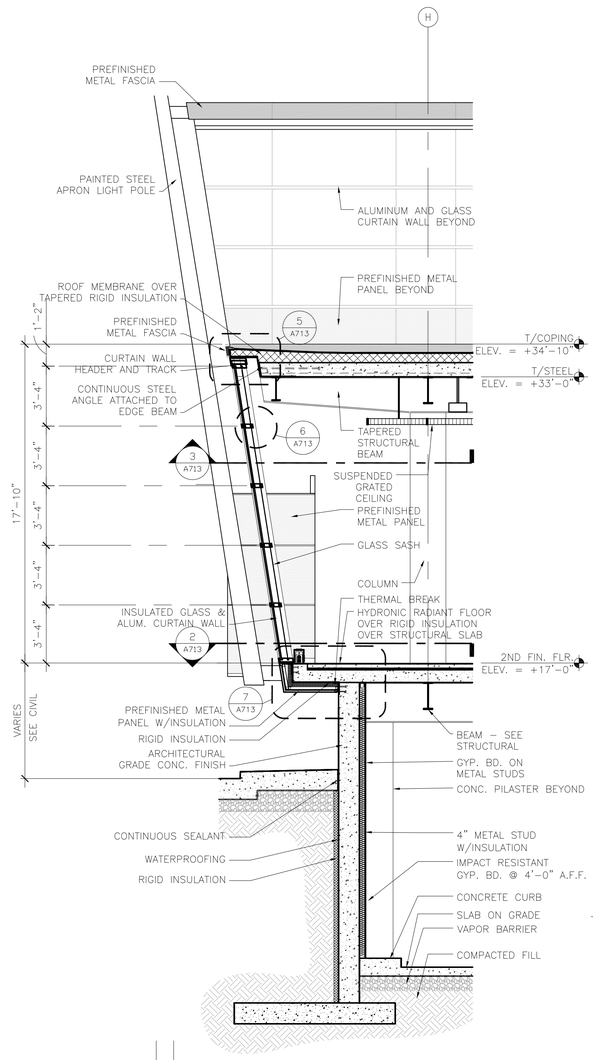
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A712 Exterior System Sheet - Airside Curtain Wall.dwg Plotted on: 2/15/2010 11:05 AMPlotted by: Kolodziej, Magdalena



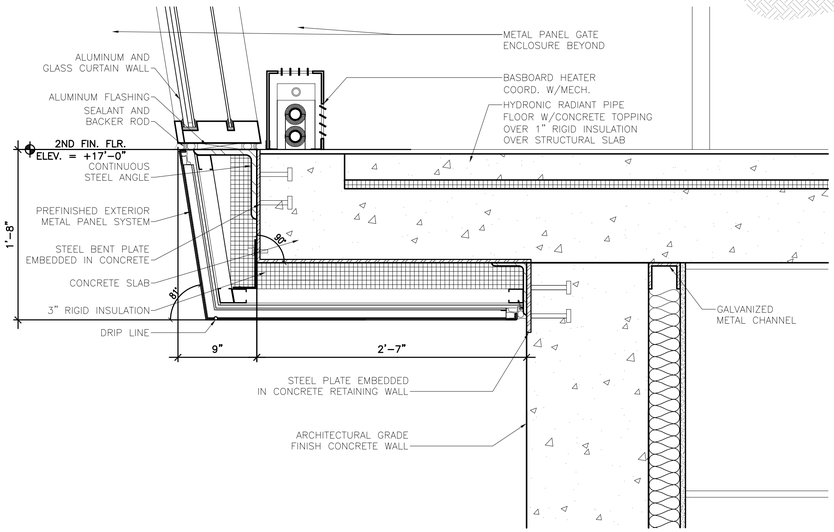
5 CURTAIN WALL HEAD DETAIL
1 1/2" = 1'-0"



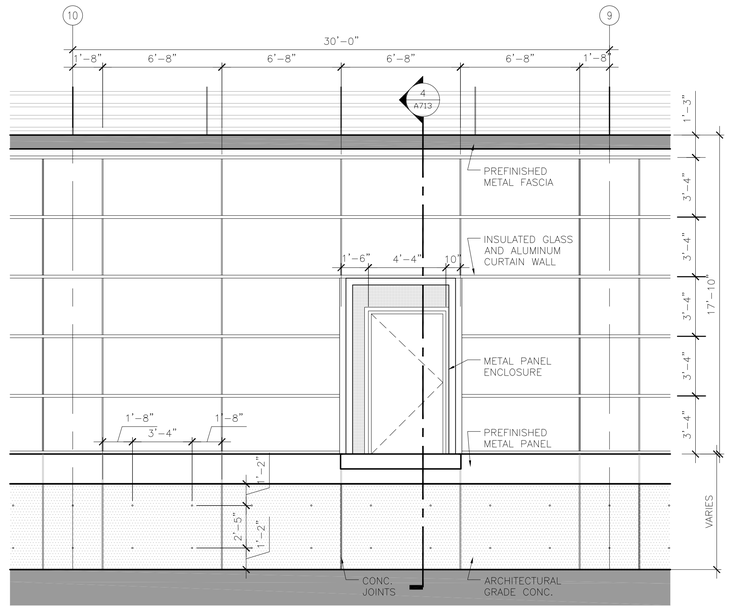
6 CURTAIN WALL MULLION DETAIL
1 1/2" = 1'-0"



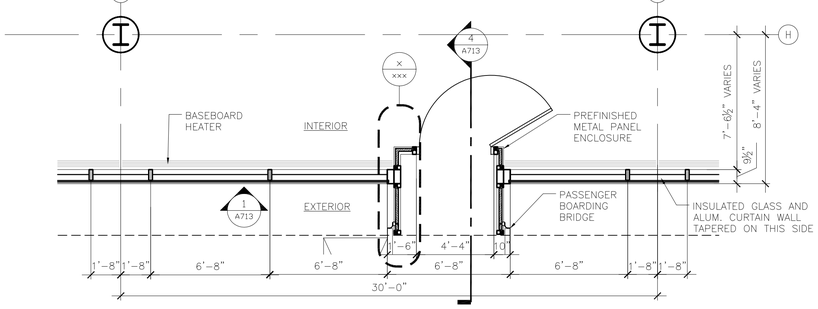
4 WALL SECTION
1/4" = 1'-0"



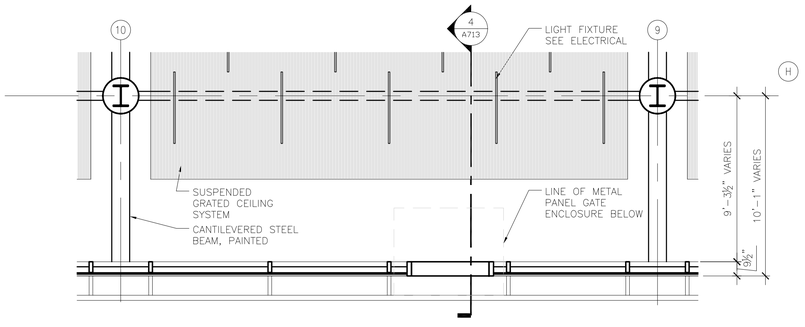
7 CURTAIN WALL SILL DETAIL
1 1/2" = 1'-0"



1 PARTIAL CONCOURSE NORTH ELEVATION
1/4" = 1'-0"



2 PARTIAL 2ND LEVEL FLOOR PLAN
1/4" = 1'-0"



3 PARTIAL REFLECTED CEILING PLAN
1/4" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

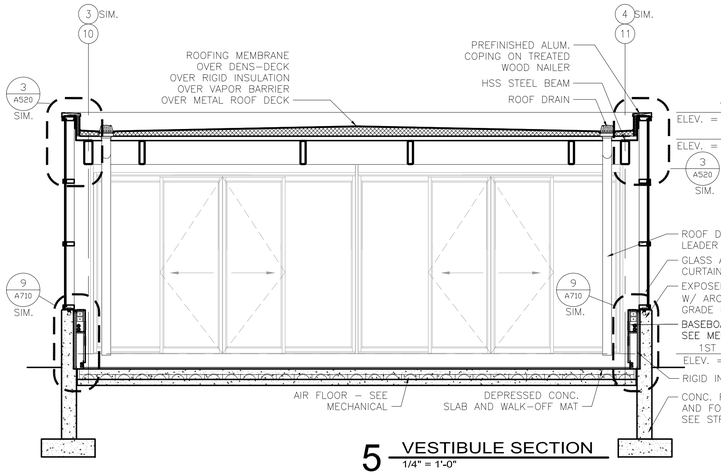
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS AIRSIDE CURTAIN WALL

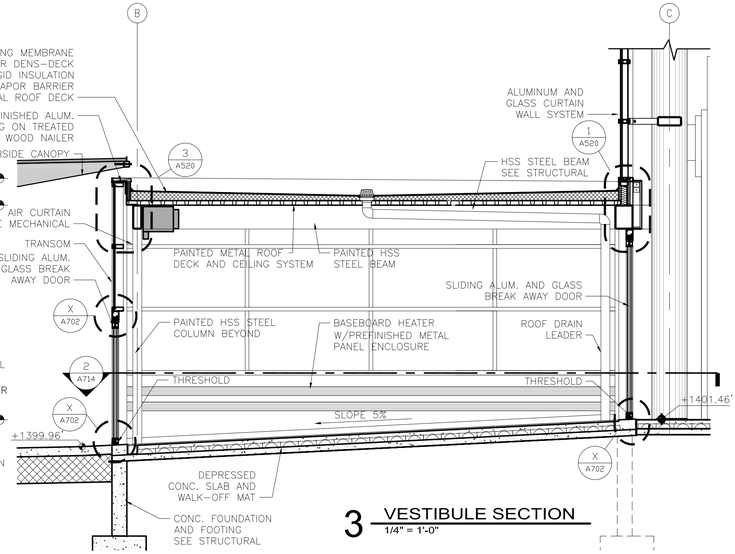
SHEET NUMBER
A713

60% NOT FOR CONSTRUCTION

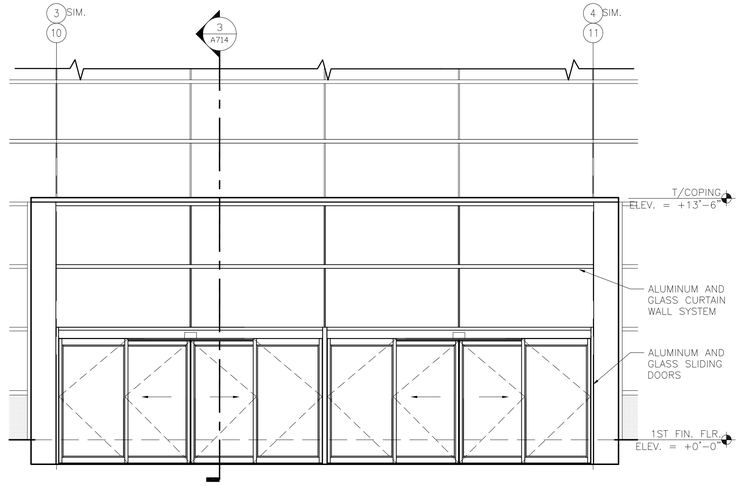
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A713 Exterior System Sheet – Airside Curtain Wall.dwg Plotted on: 2/15/2010 11:09 AMplotted by: Kolodziej, Magdalena



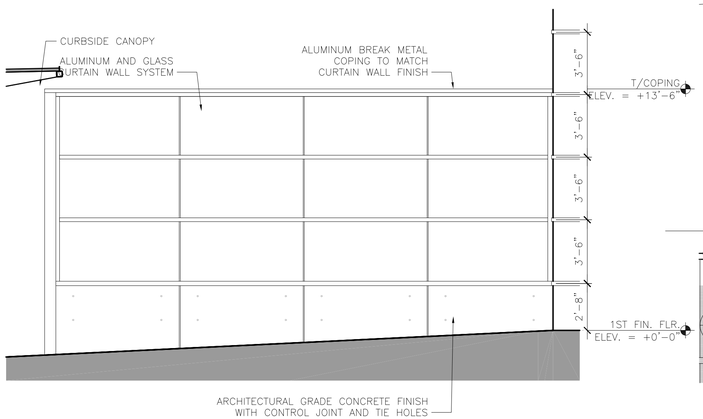
5 VESTIBULE SECTION
1/4" = 1'-0"



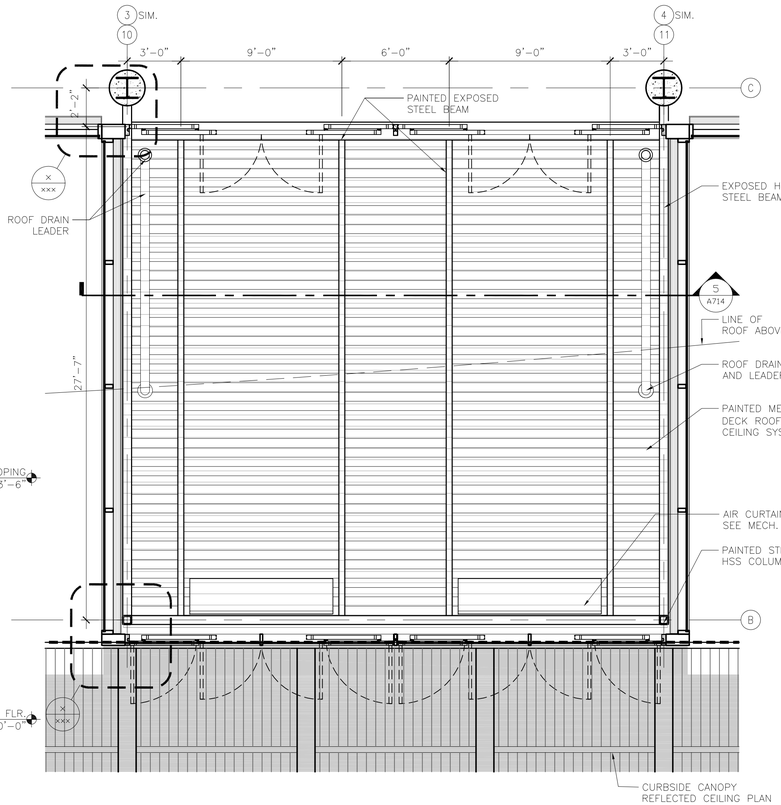
3 VESTIBULE SECTION
1/4" = 1'-0"



1 VESTIBULE SOUTH ELEVATION
1/4" = 1'-0"



6 VESTIBULE EAST ELEVATION
1/4" = 1'-0"



4 ENLARGED VESTIBULE REFLECTED CEILING PLAN
1/4" = 1'-0"

2 ENLARGED VESTIBULE FLOOR PLAN
1/4" = 1'-0"

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DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

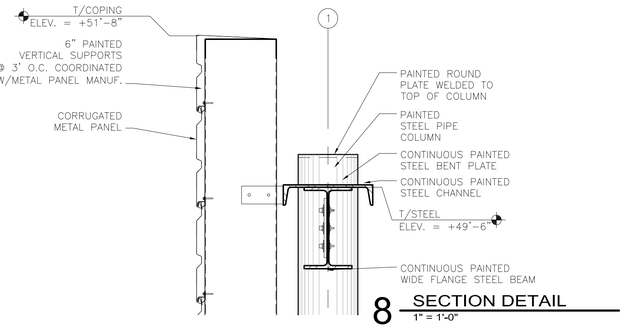
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS ENTRY VESTIBULE

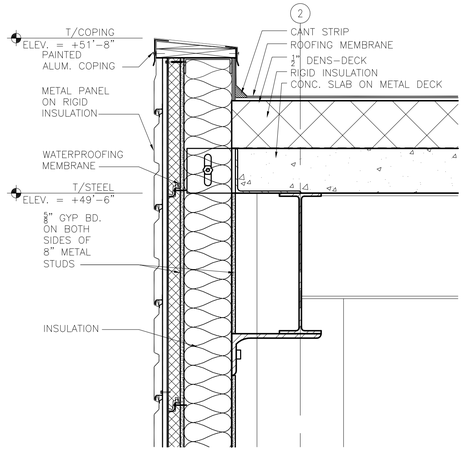
SHEET NUMBER
A714

60% NOT FOR CONSTRUCTION

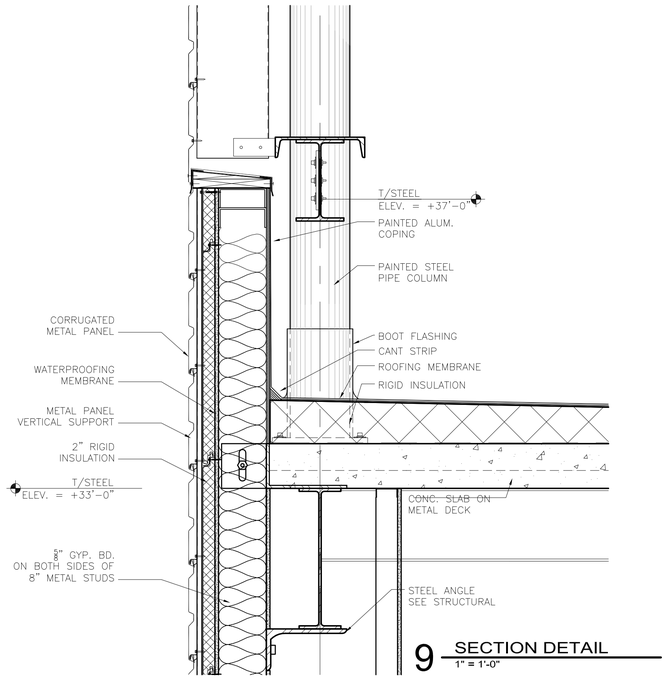
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A714 Exterior System Sheet - Entry Vestibule.dwg Plotted on: 2/15/2010 11:16 AMPlotted by: Kolodziej, Magdalena



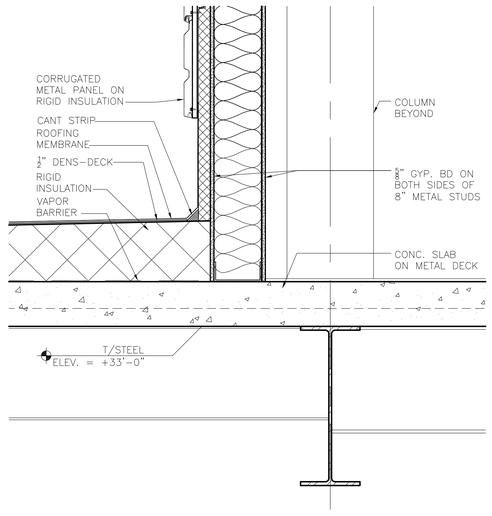
8 SECTION DETAIL
1" = 1'-0"



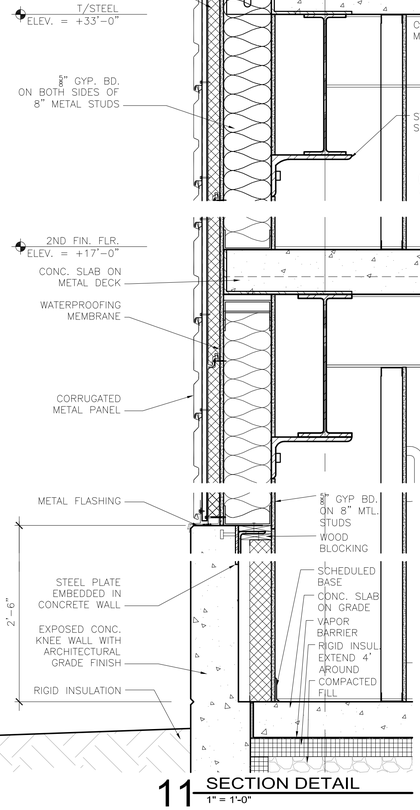
6 SECTION DETAIL
1" = 1'-0"



9 SECTION DETAIL
1" = 1'-0"

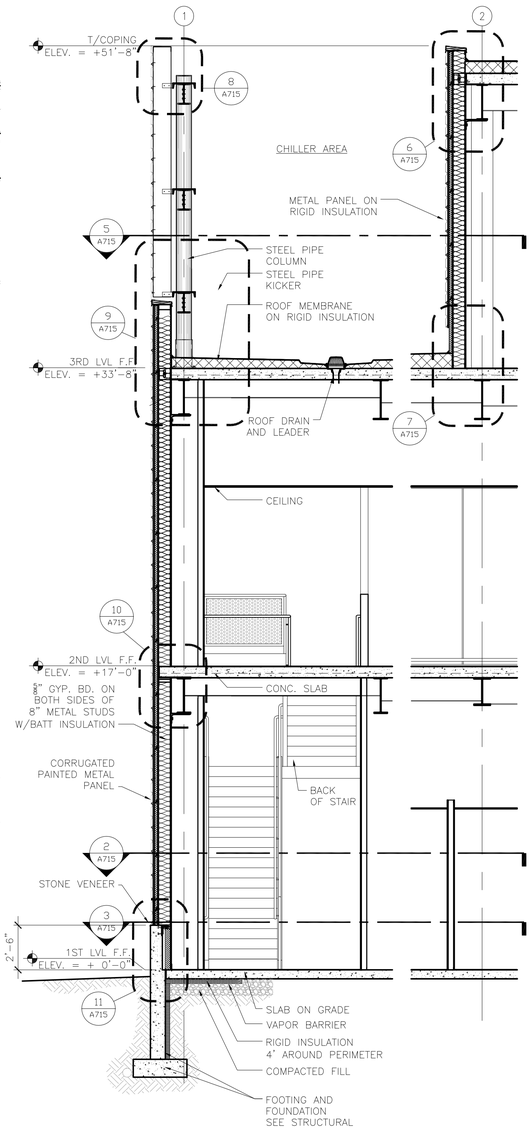


7 SECTION DETAIL
1" = 1'-0"

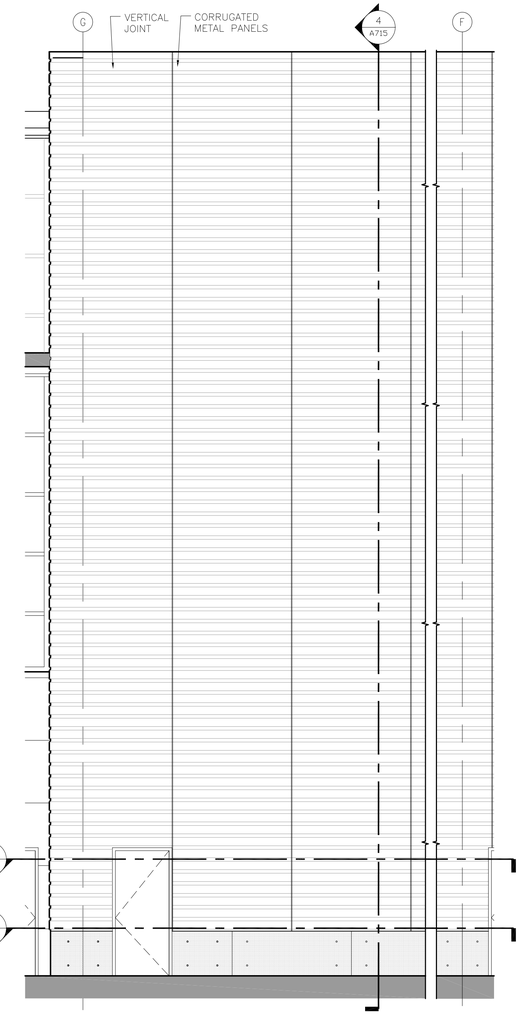


10 SECTION DETAIL
1" = 1'-0"

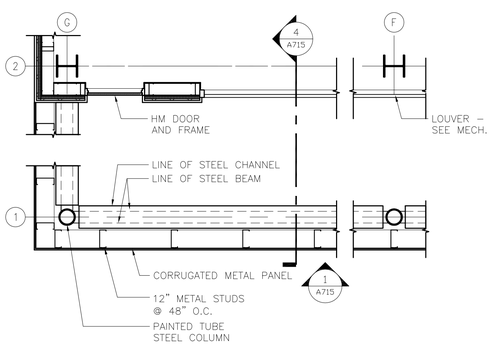
11 SECTION DETAIL
1" = 1'-0"



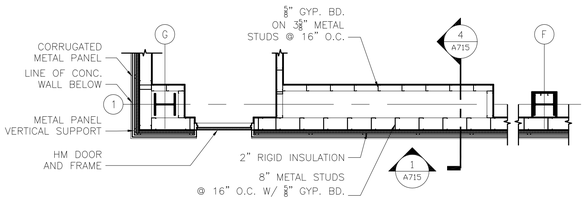
4 WALL SECTION
1/4" = 1'-0"



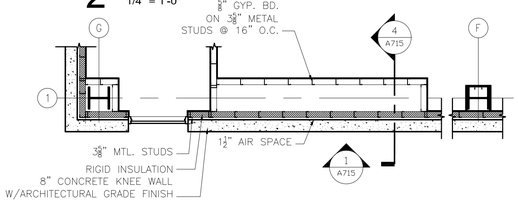
1 PARTIAL WEST ELEVATION
1/4" = 1'-0"



5 PARTIAL 3RD LEVEL FLOOR PLAN
1/4" = 1'-0"



PARTIAL 1ST LEVEL FLOOR PLAN @ CORRUGATED METAL PANEL
2 1/4" = 1'-0"



3 PARTIAL 1ST LEVEL FLOOR PLAN @ STONE
1/4" = 1'-0"

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

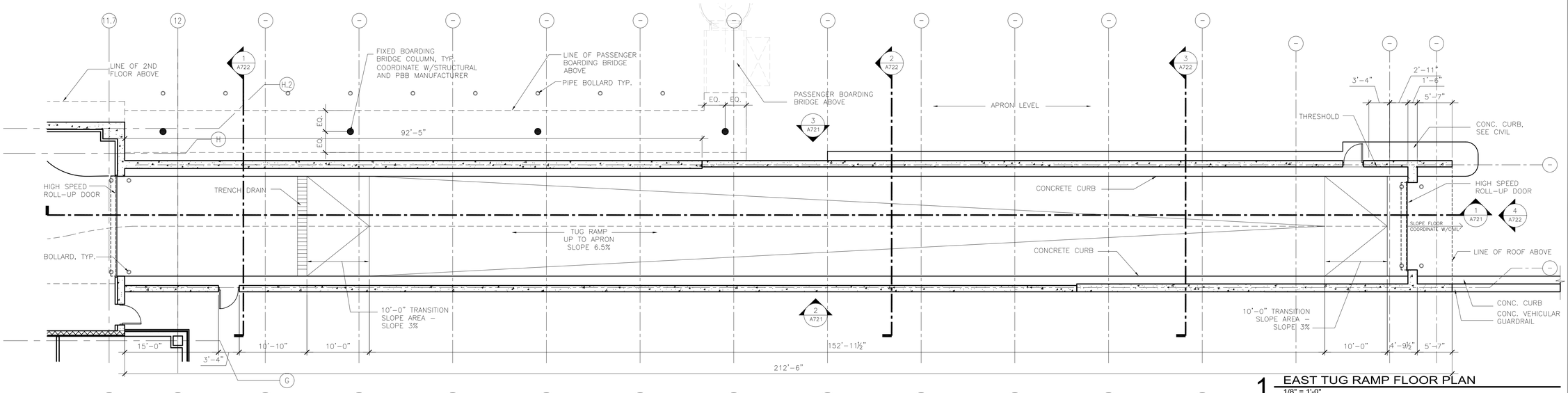
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS CORE WALL

SHEET NUMBER
A715

60% NOT FOR CONSTRUCTION

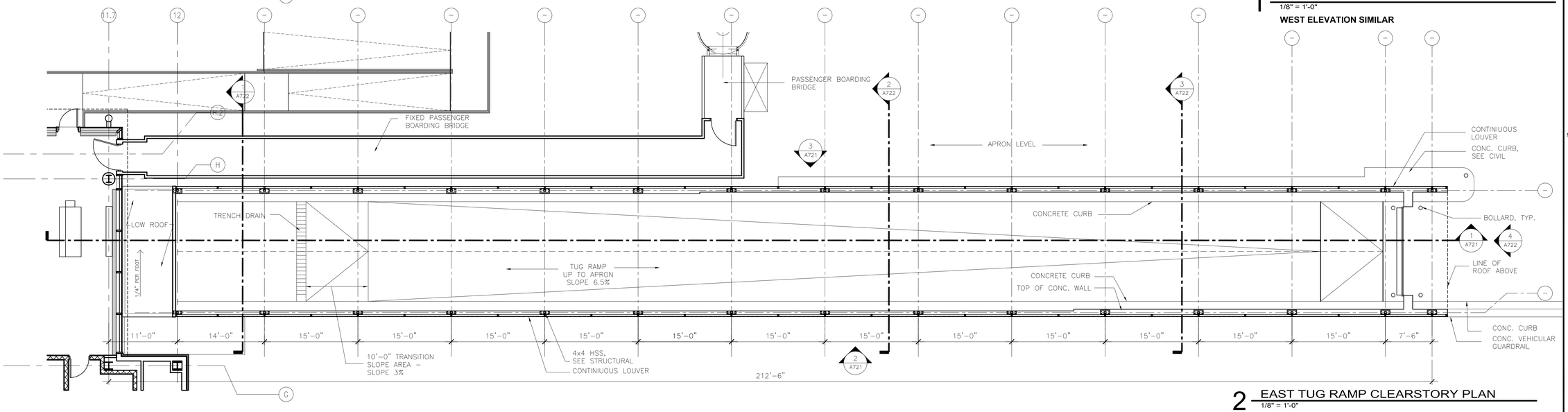
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A715 Exterior System Sheet – Core Wall.dwg Plotted on: 2/15/2010 4:40 PM Plotted by: Godzina, Marc



1 EAST TUG RAMP FLOOR PLAN

1/8" = 1'-0"

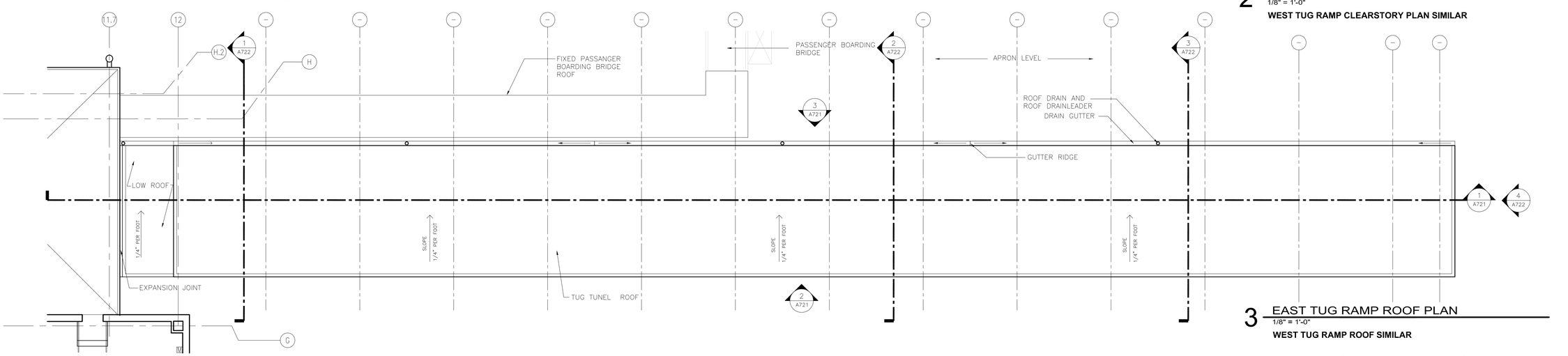
WEST ELEVATION SIMILAR



2 EAST TUG RAMP CLEARSTORY PLAN

1/8" = 1'-0"

WEST TUG RAMP CLEARSTORY PLAN SIMILAR



3 EAST TUG RAMP ROOF PLAN

1/8" = 1'-0"

WEST TUG RAMP ROOF SIMILAR

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

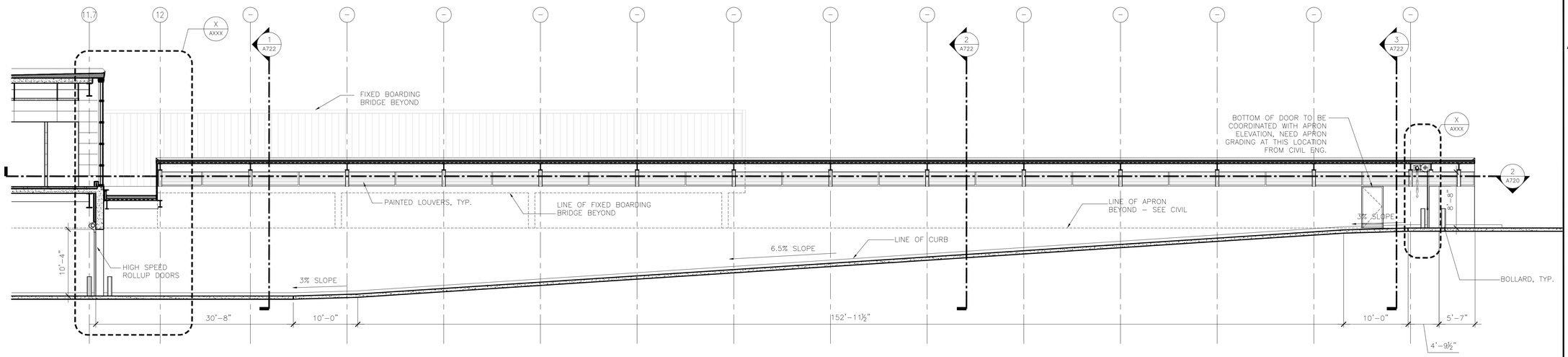
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS TUG TUNNEL

SHEET NUMBER
A720

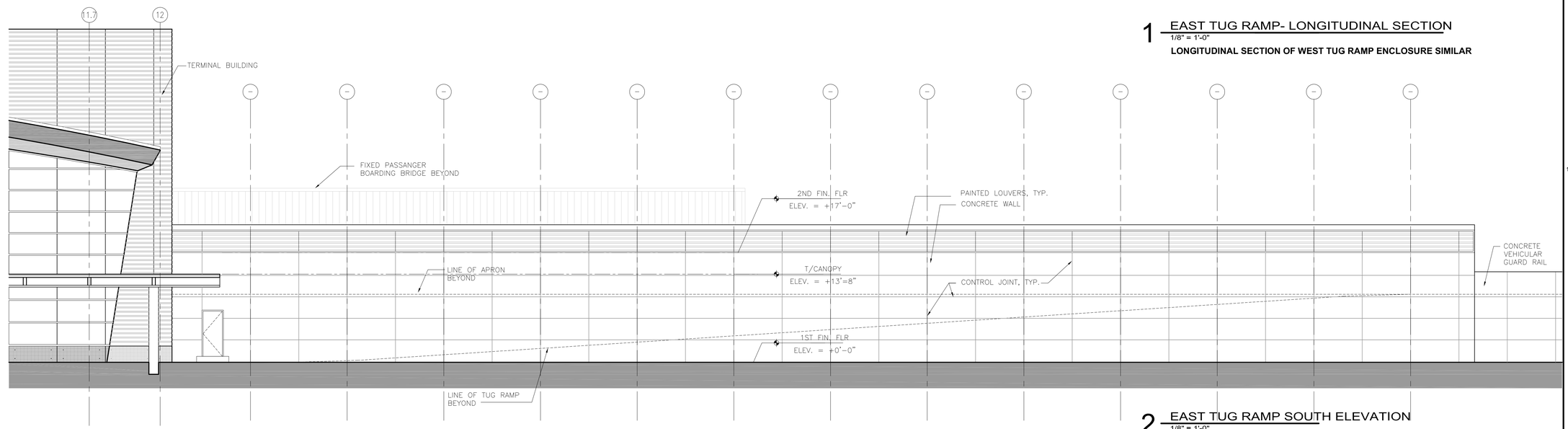
60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A720 Exterior System Sheet – Tug Tunnel.dwg Plotted on: 2/15/2010 11:24 AMplotted by: Kolodziej, Magdalena



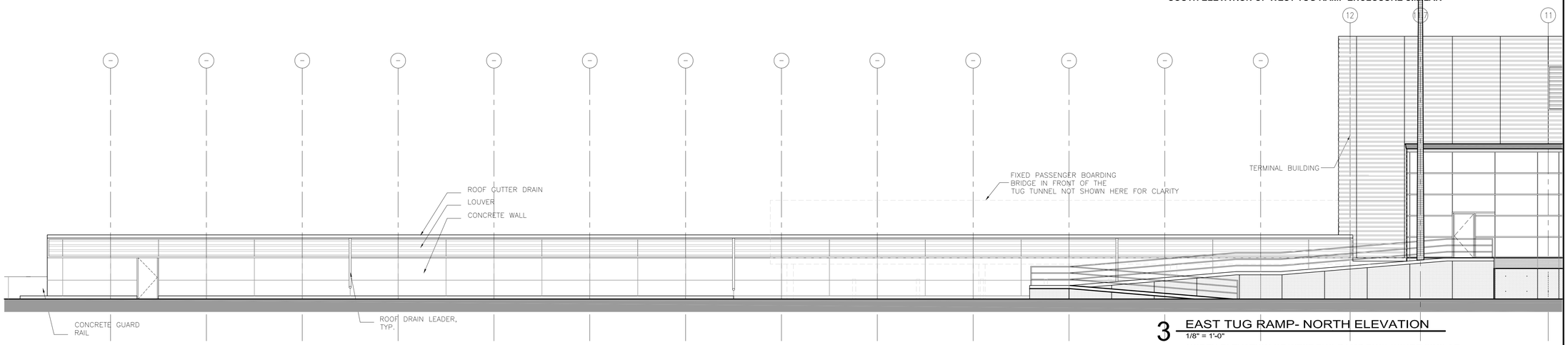
1 EAST TUG RAMP- LONGITUDINAL SECTION
1/8" = 1'-0"

LONGITUDINAL SECTION OF WEST TUG RAMP ENCLOSURE SIMILAR



2 EAST TUG RAMP SOUTH ELEVATION
1/8" = 1'-0"

SOUTH ELEVATION OF WEST TUG RAMP ENCLOSURE SIMILAR



3 EAST TUG RAMP- NORTH ELEVATION
1/8" = 1'-0"

NORTH ELEVATION OF WEST TUG RAMP ENCLOSURE SIMILAR

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

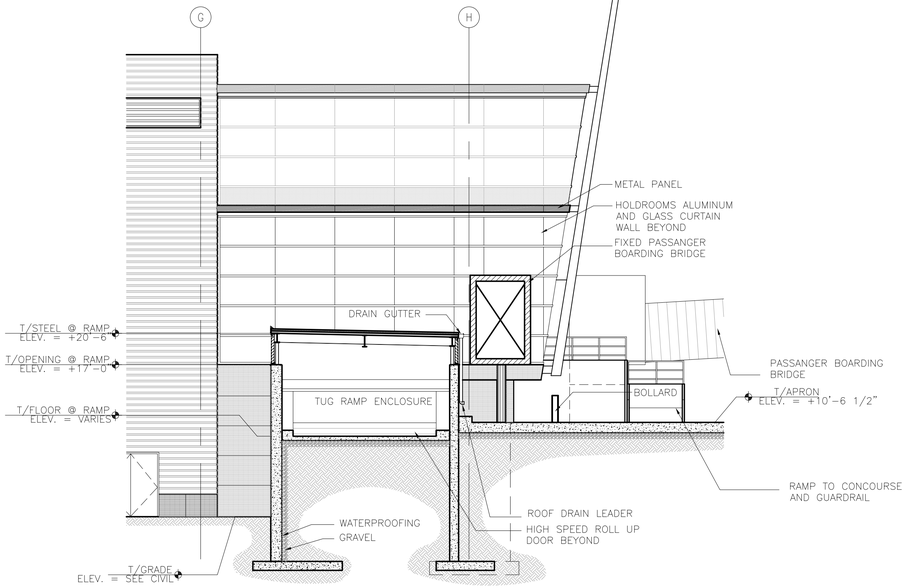
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS TUG TUNNEL

SHEET NUMBER
A721

60% NOT FOR CONSTRUCTION

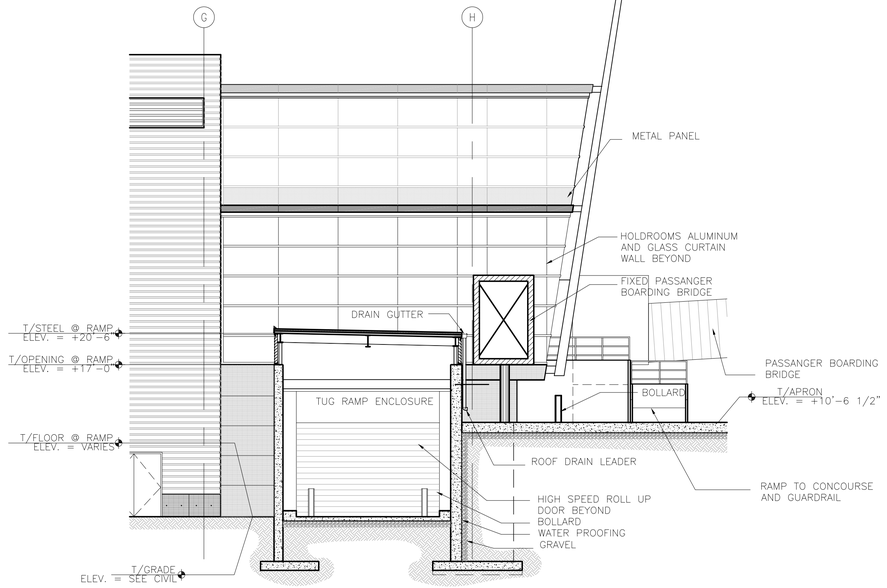
Drawing: T:\P\213188Z.091 Duluth New Terminal\Cad\A\Sheets\A721 Exterior System Sheet – Tug Tunnel.dwg Plotted on: 2/15/2010 11:25 AMplotted by: Kolodziej, Magdalena



3 EAST TUG RAMP- CROSS SECTION WITH BUILDING ELEV BEYOND

1/8" = 1'-0"

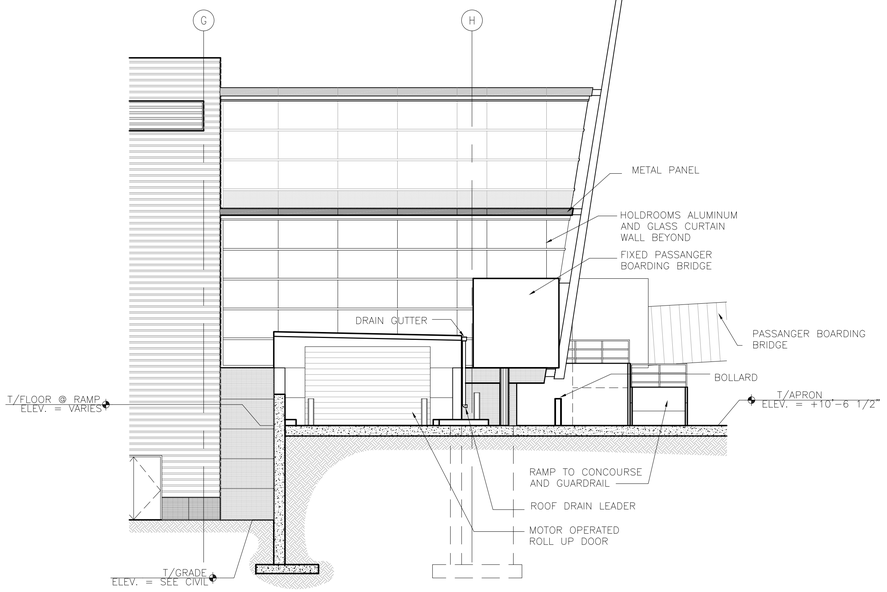
CROSS SECTION OF WEST TUG RAMP ENCLOSURE SIMILAR



1 EAST TUG RAMP- CROSS SECTION WITH BUILDING ELEV BEYOND

1/8" = 1'-0"

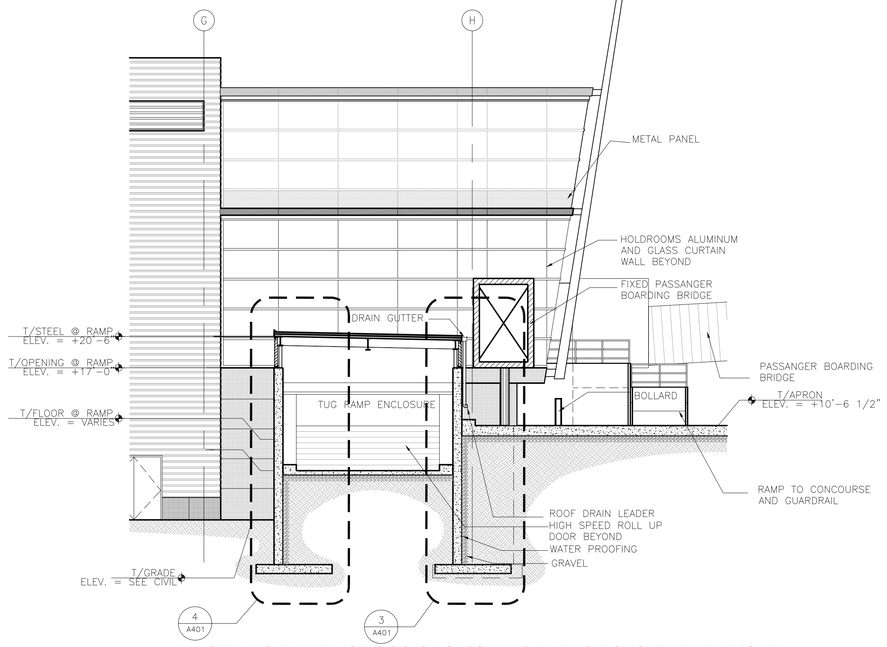
CROSS SECTION OF WEST TUG RAMP ENCLOSURE SIMILAR



4 EAST TUG RAMP ENCLOSURE- EAST ELEVATION

1/8" = 1'-0"

WEST ELEVATION OF WEST TUG RAMP ENCLOSURE SIMILAR



2 EAST TUG RAMP- CROSS SECTION WITH BUILDING ELEV BEYOND

1/8" = 1'-0"

CROSS SECTION OF WEST TUG RAMP ENCLOSURE SIMILAR

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: SBS/TC
DRAWN BY: MKG/MI
DESIGNED BY: SBS/TC

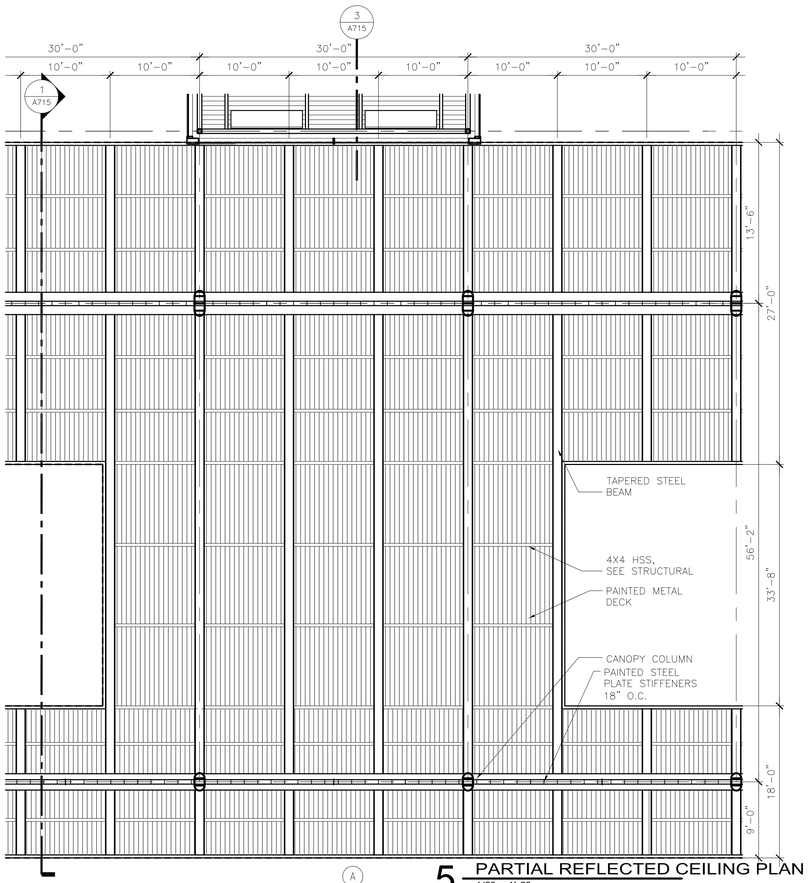
AIP PROJECT NUMBER
213-1882-091

SHEET TITLE
EXTERIOR SYSTEMS TUG TUNNEL

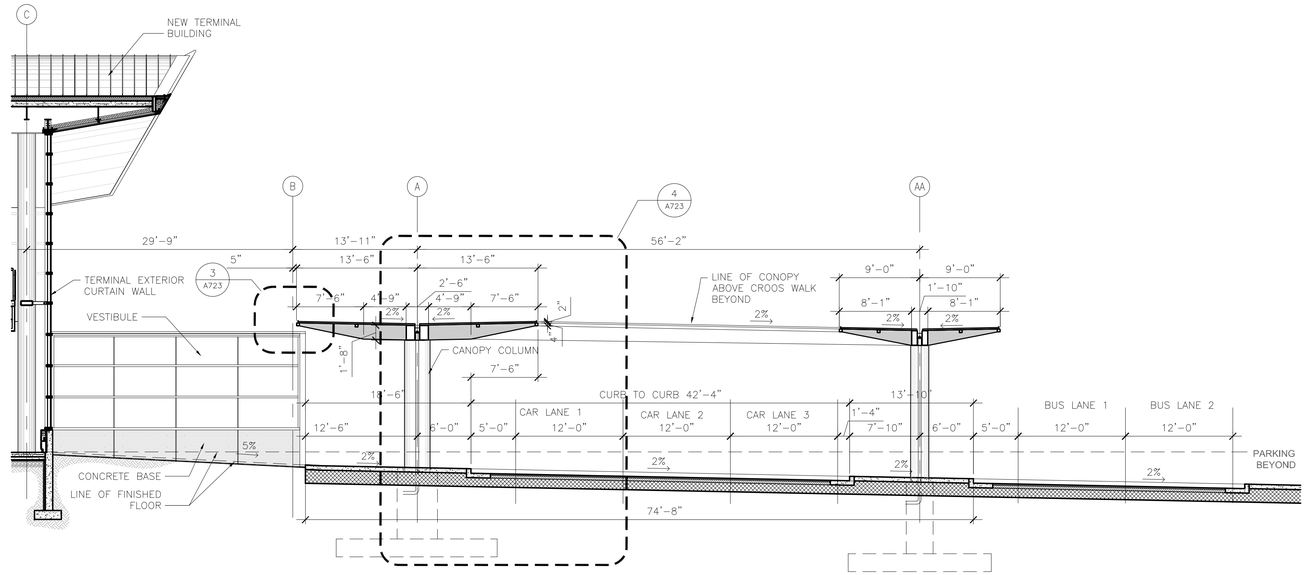
SHEET NUMBER
A722

60% NOT FOR CONSTRUCTION

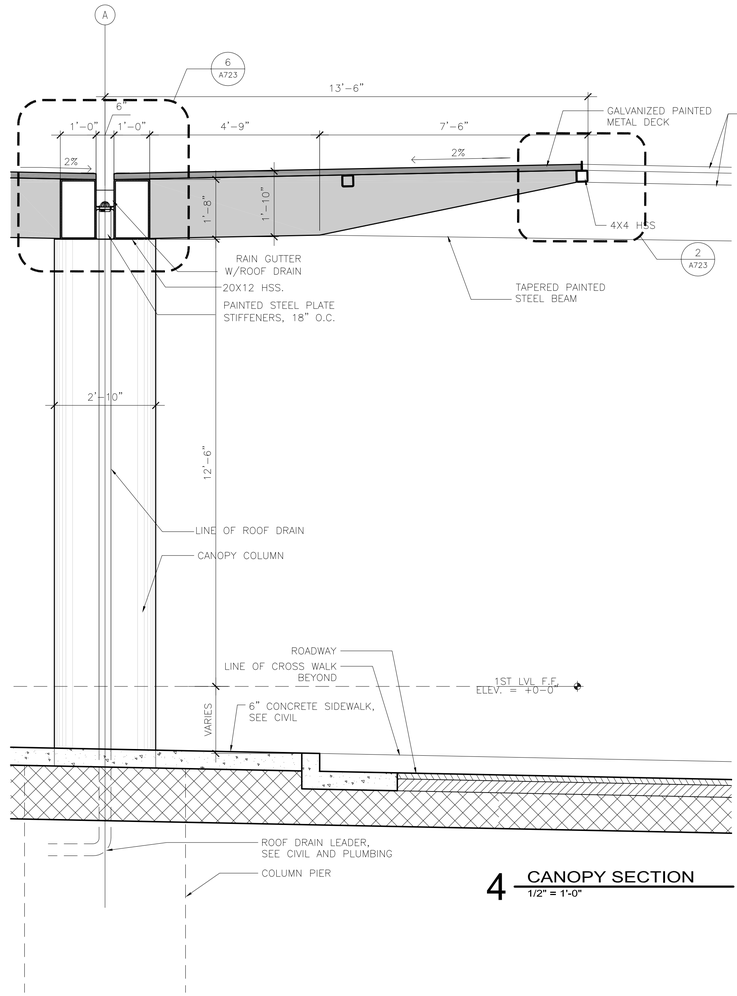
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A722 Exterior System Sheet – Tug Tunnel.dwg Plotted on: 2/15/2010 11:25 AMplotted by: Kolodziej, Magdalena



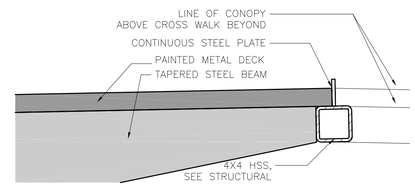
5 PARTIAL REFLECTED CEILING PLAN
1/8" = 1'-0"



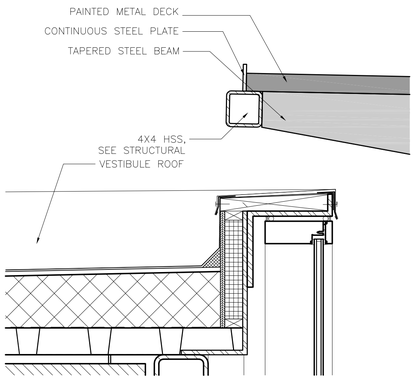
1 OVERALL CANOPY CROSS SECTION
1/8" = 1'-0"



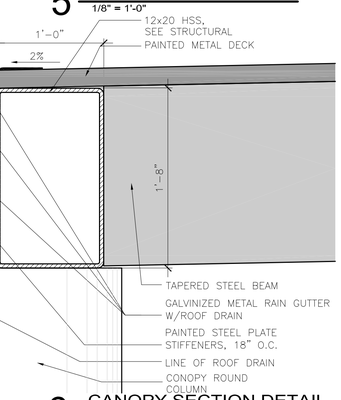
4 CANOPY SECTION
1/2" = 1'-0"



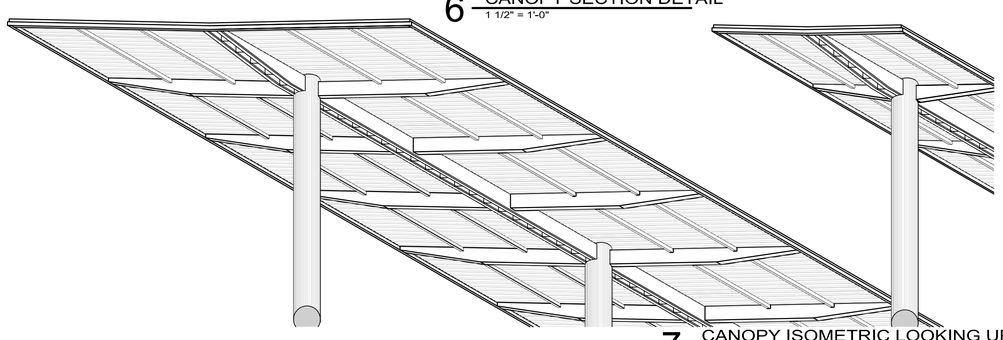
2 CANOPY SECTON DETAIL
1 1/2" = 1'-0"



3 CANOPY SECTON DETAIL @ VESTIBULE
1 1/2" = 1'-0"



6 CANOPY SECTION DETAIL
1 1/2" = 1'-0"



7 CANOPY ISOMETRIC LOOKING UP
N.T.S.

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SEAL

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY: XX
DRAWN BY: MK
DESIGNED BY: TC

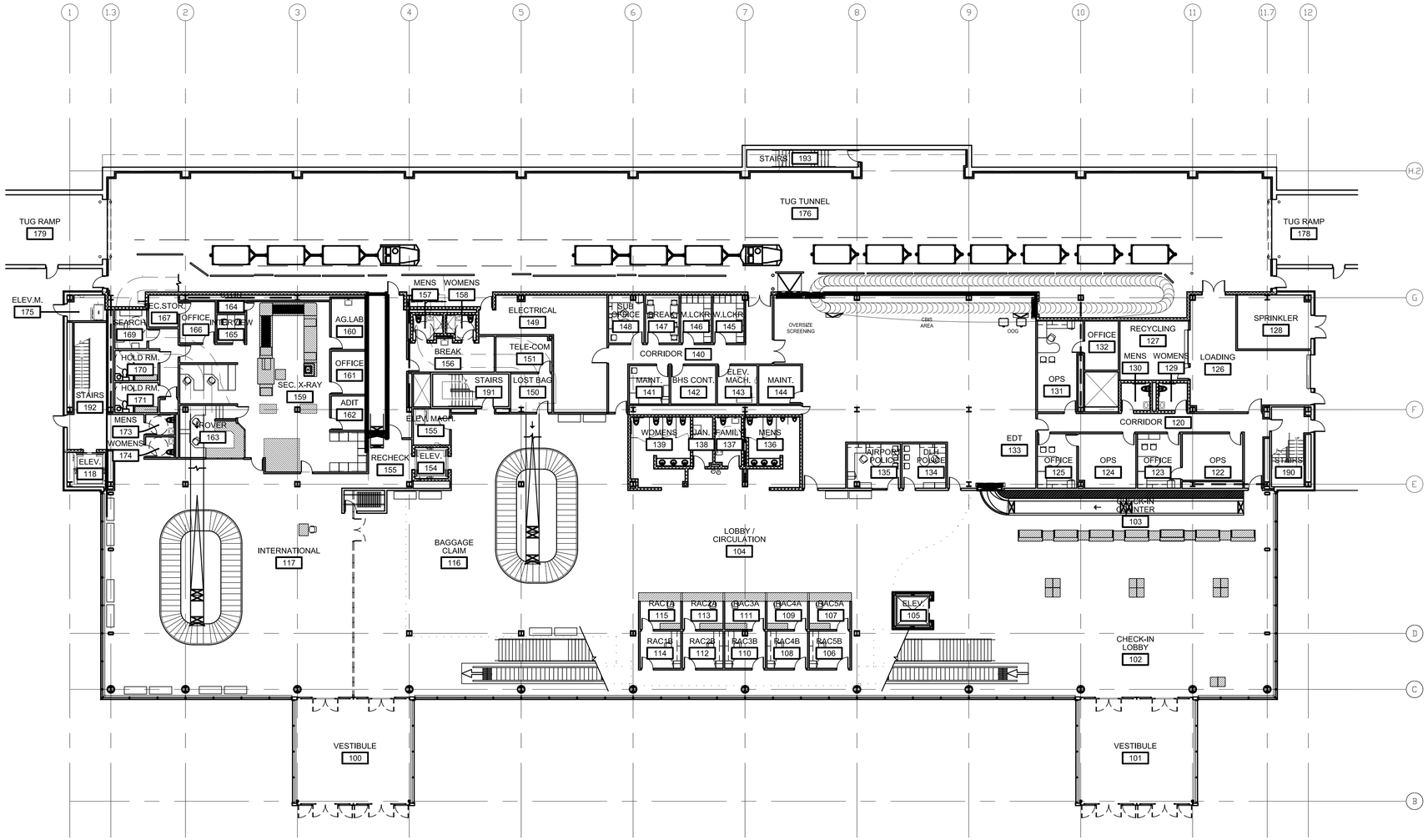
AEP PROJECT NUMBER
XXX.XXX 213-1882-091 02-15-10 12:00p

SHEET TITLE
EXTERIOR SYSTEM SHEET- CANOPY

SHEET NUMBER
A723

60% NOT FOR CONSTRUCTION

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A723 Exterior System Sheet – Canopy.dwg Plotted on: 2/15/2010 11:29 AMPlotted by: Kolodziej, Magdalena



N

1 FIRST LEVEL FURNITURE PLAN
1/16" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

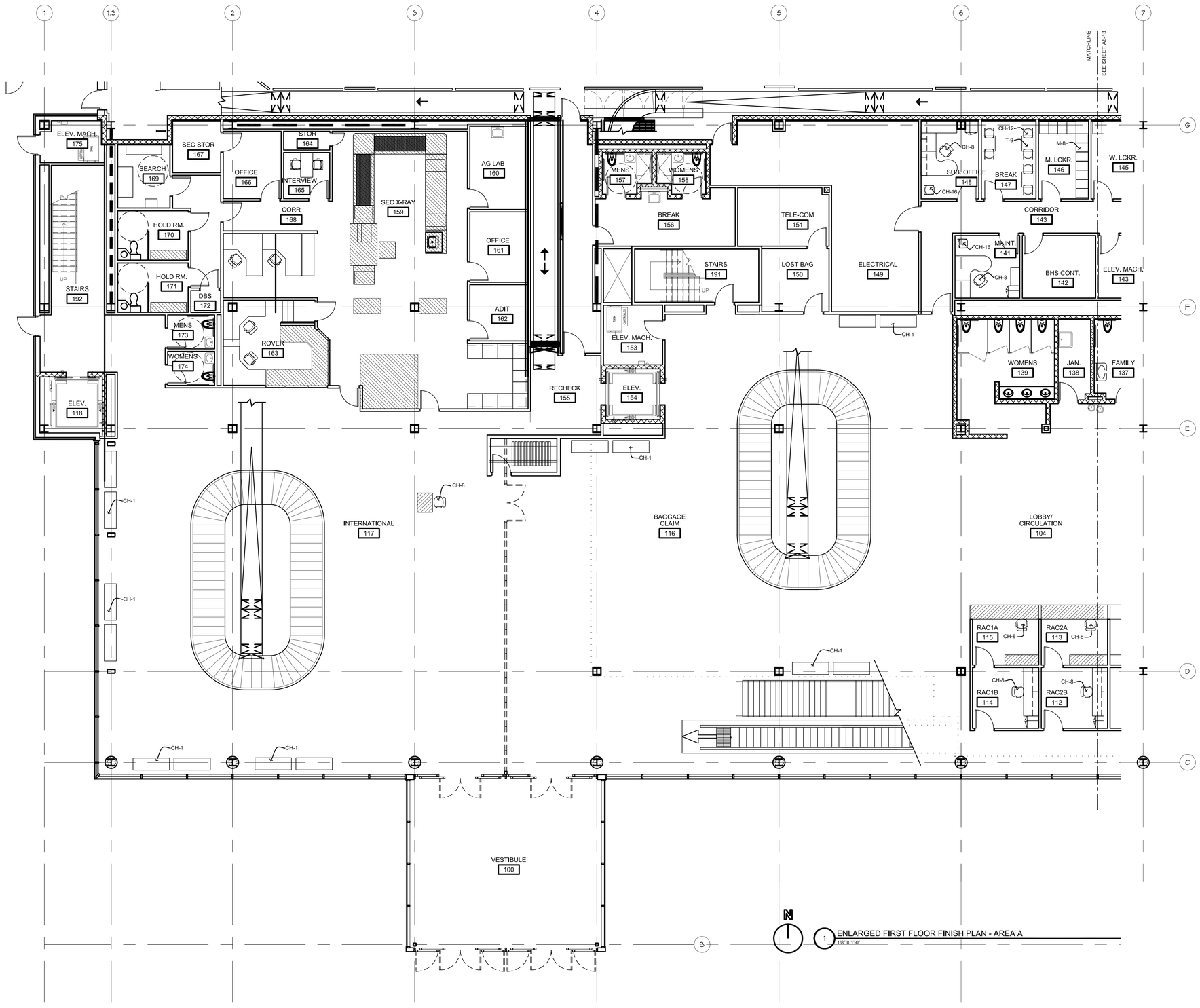
DATE ISSUED: 02-15-10
REVIEWED BY: XXX
DRAWN BY: XXX
DESIGNED BY: XXX

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
FIRST FLOOR FURNITURE PLAN

SHEET NUMBER
A8-11

60% NOT FOR CONSTRUCTION



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TEL: (218) 591-5079

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REVISIONS

NO.	DESCRIPTION	DATE

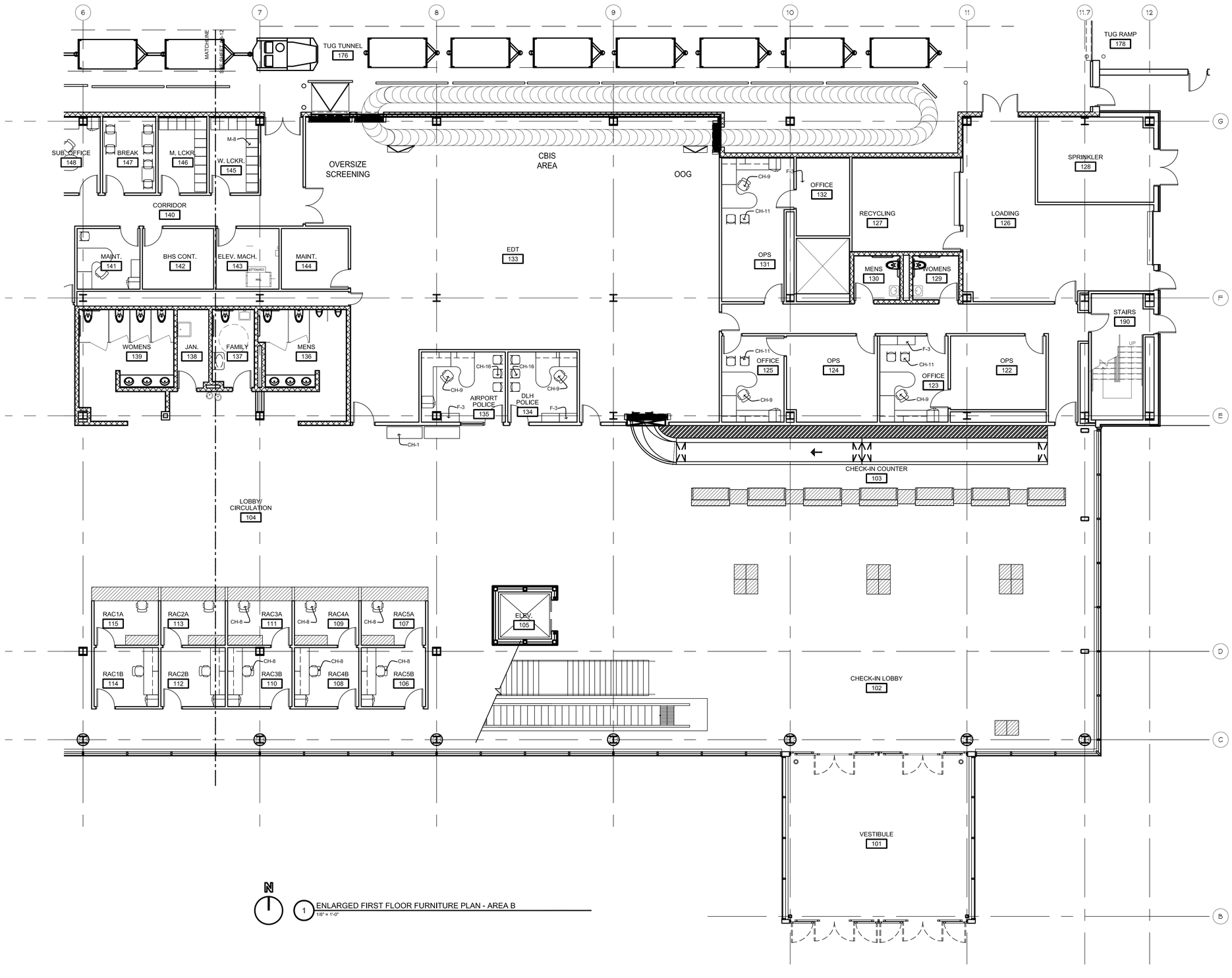
DATE ISSUED: 02-15-10
REVIEWED BY: XXX
DRAWN BY: XXX
DESIGNED BY: XXX

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
FIRST FLOOR FURNITURE PLAN AREA A

SHEET NUMBER
A8-12

60% NOT FOR CONSTRUCTION



1 ENLARGED FIRST FLOOR FURNITURE PLAN - AREA B
1/8" = 1'-0"

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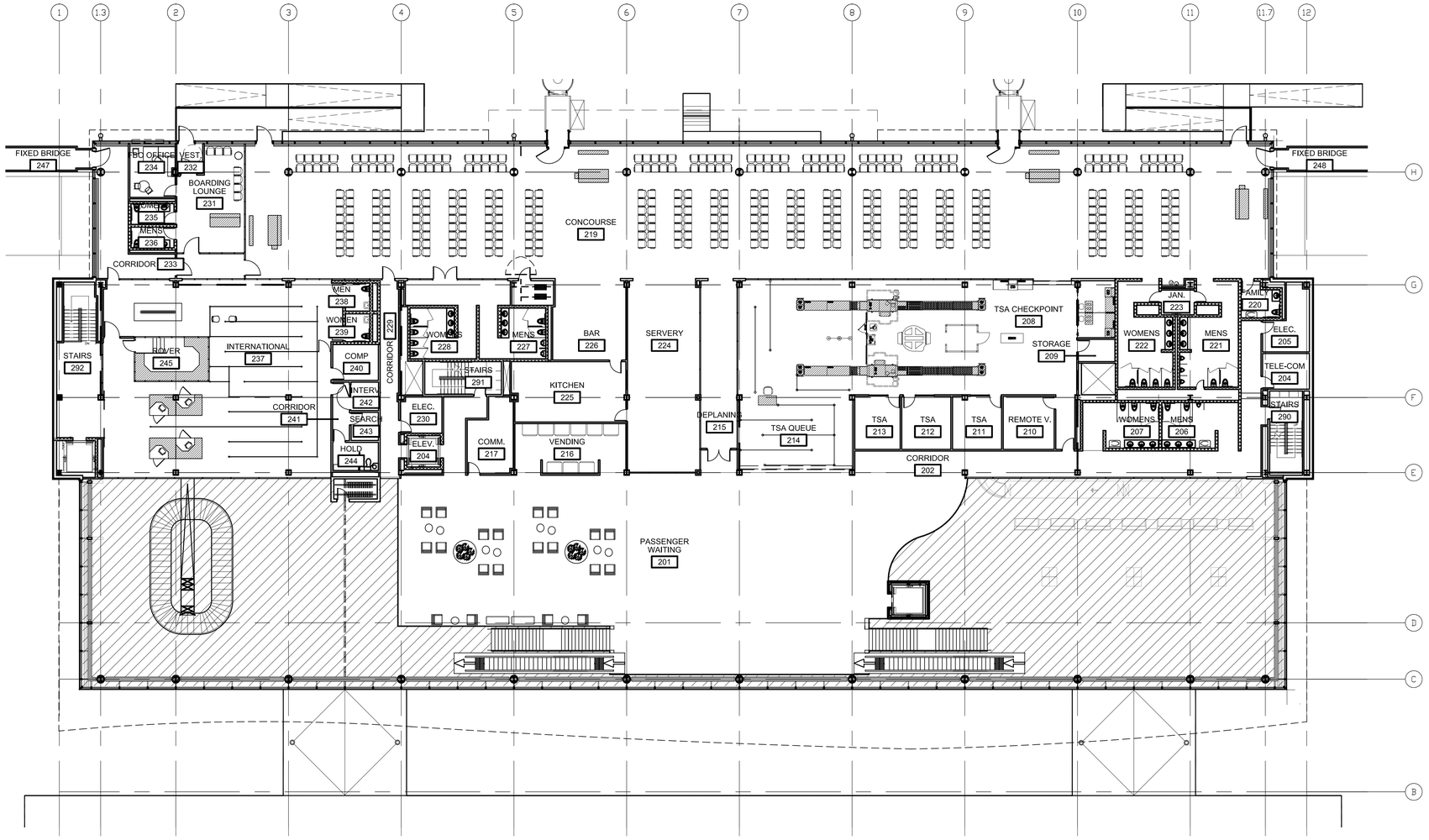
213-1882-091

SHEET TITLE
FIRST FLOOR FURNITURE PLAN AREA B

SHEET NUMBER
A8-13

60% NOT FOR CONSTRUCTION



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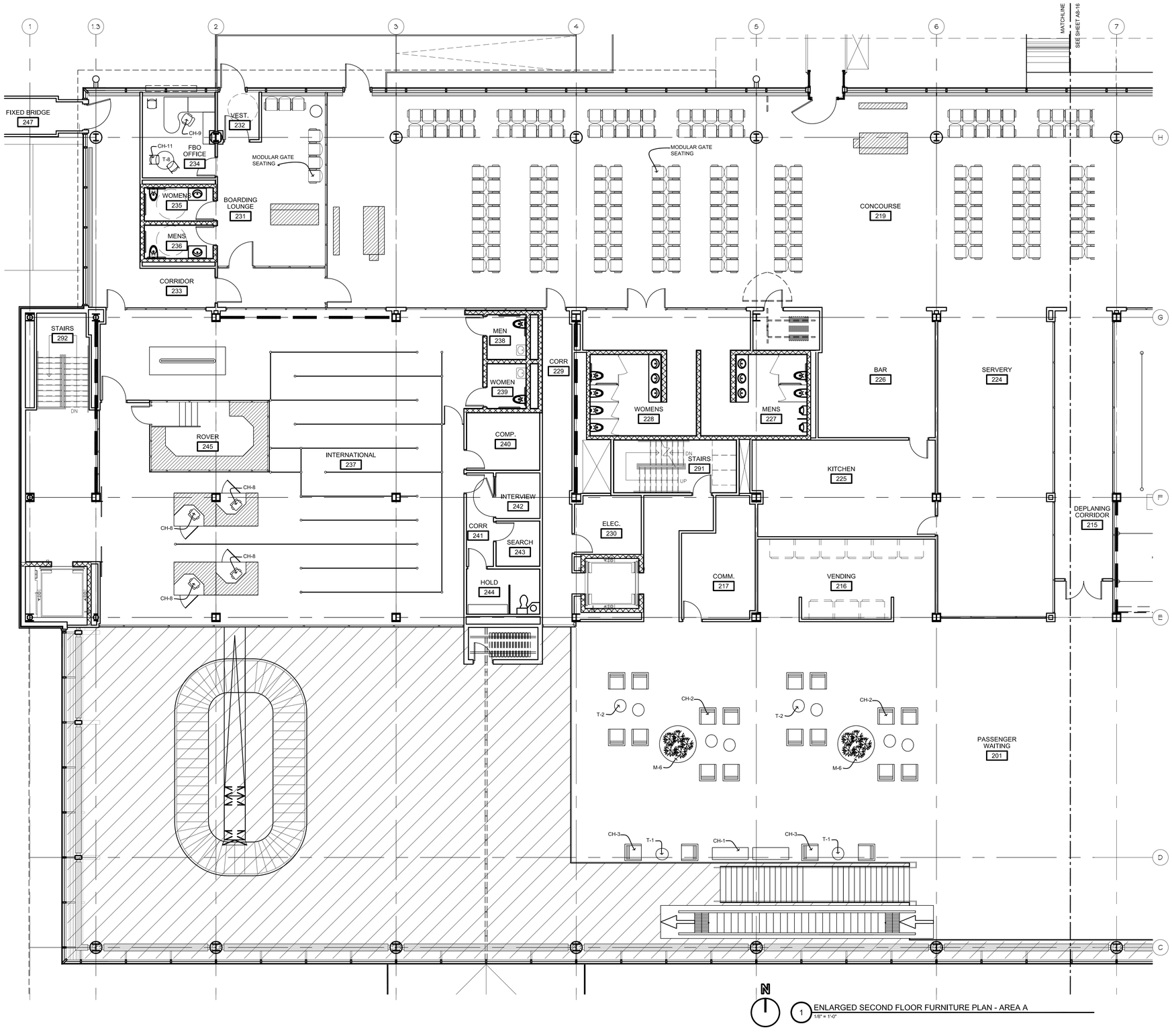
213-1882-091

SHEET TITLE
SECOND FLOOR FURNITURE PLAN

SHEET NUMBER
A8-14

60% NOT FOR CONSTRUCTION



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SHEET TITLE
SECOND FLOOR FURNITURE PLAN AREA A

SHEET NUMBER
A8-15

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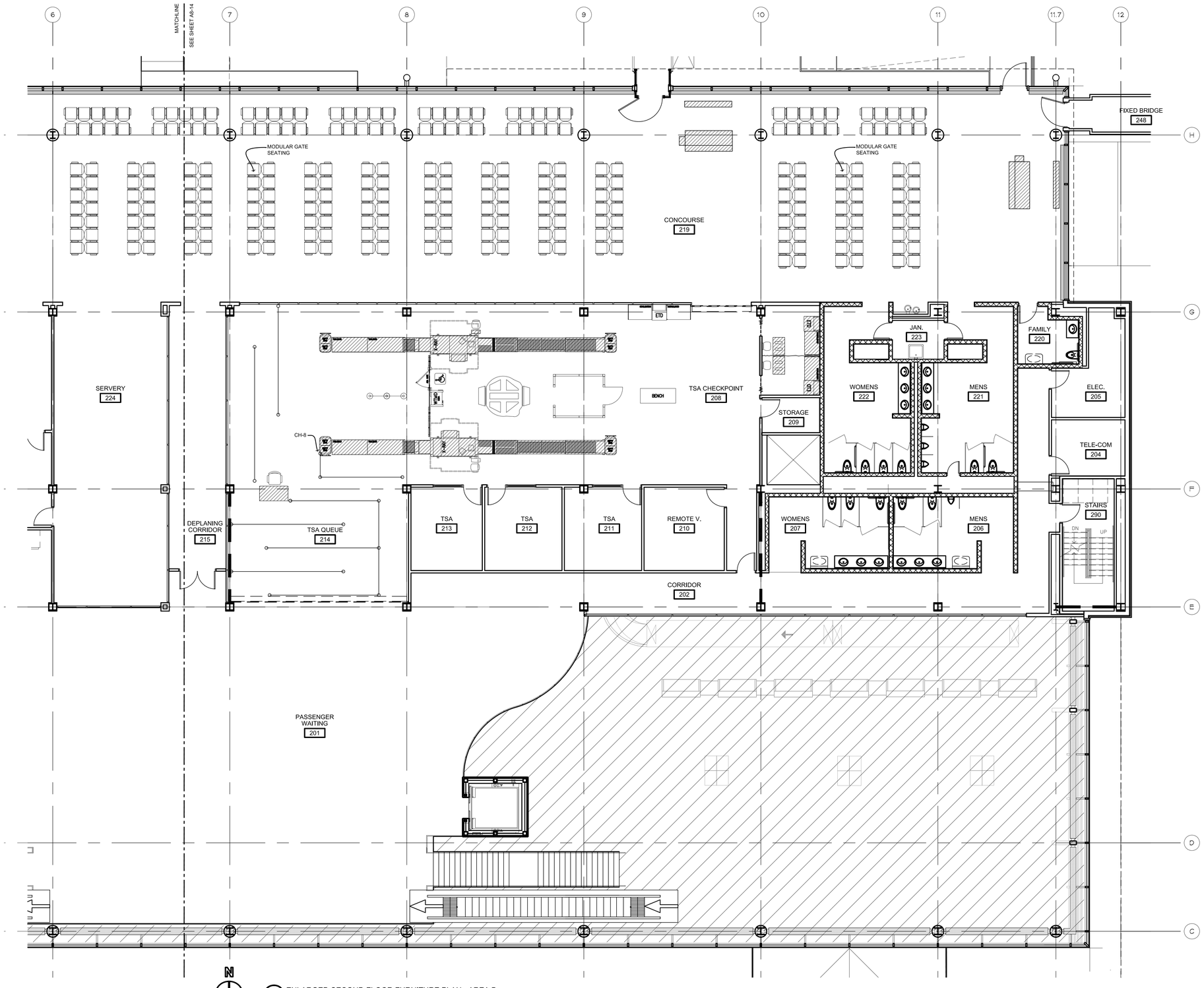

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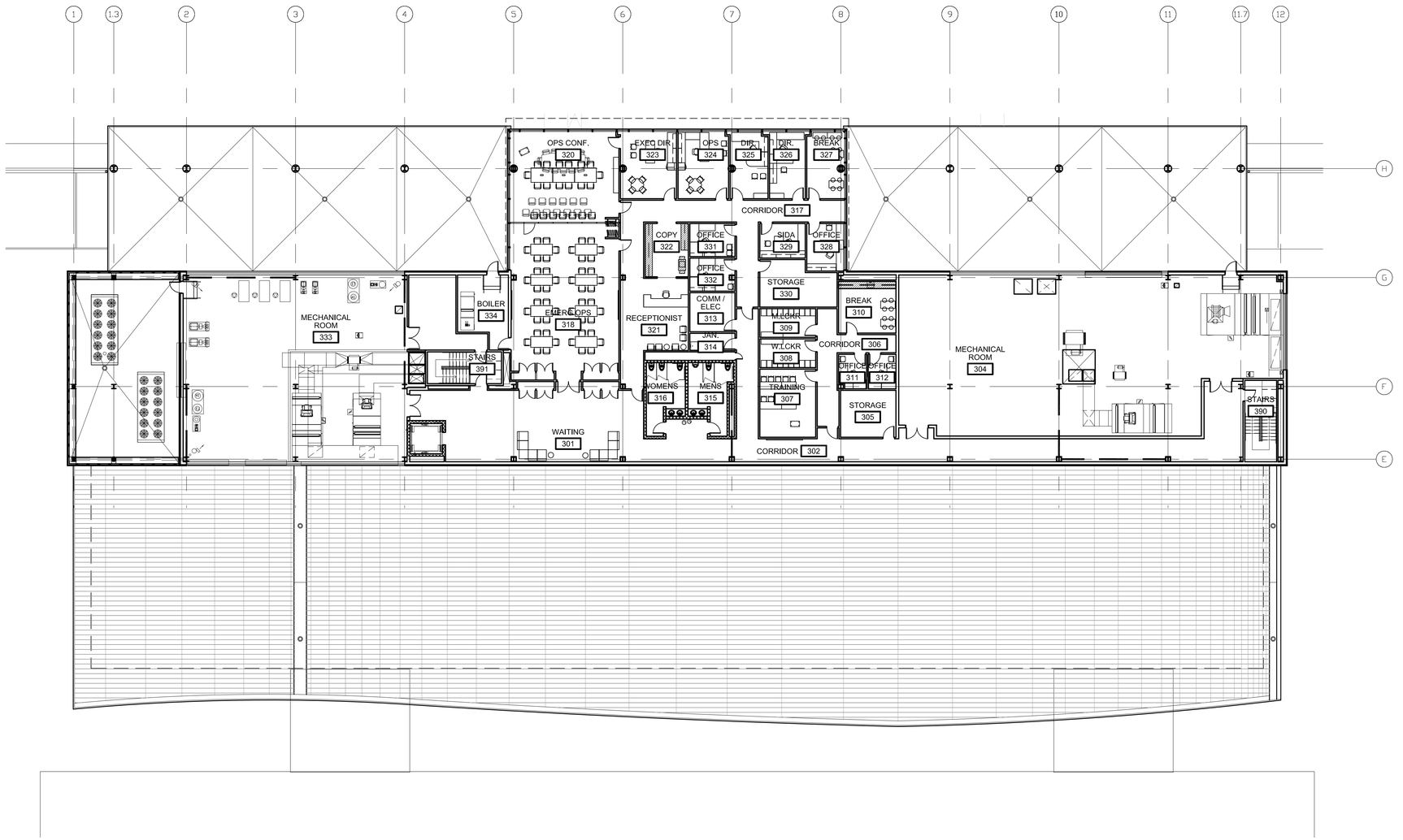
SHEET TITLE
SECOND FLOOR FURNITURE PLAN AREA B

SHEET NUMBER
A8-16

60% NOT FOR CONSTRUCTION



N

1 THIRD LEVEL FURNITURE PLAN
1/16" = 1'-0"

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SHEET TITLE
THIRD FLOOR FURNITURE PLAN

SHEET NUMBER
A8-17

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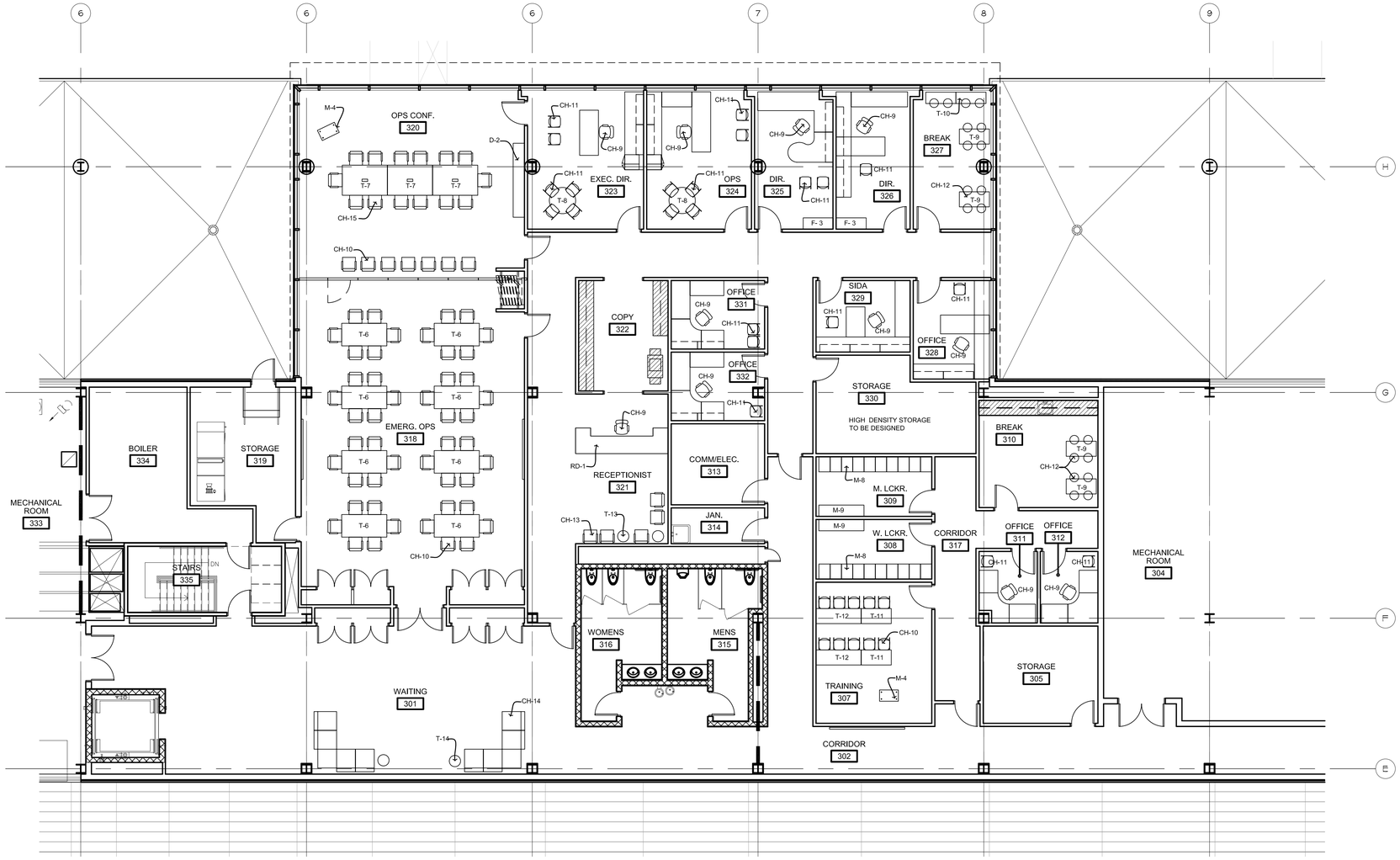

N

1 ENLARGED THIRD FLOOR FURNITURE PLAN - ADMIN.
1/8" = 1'-0"

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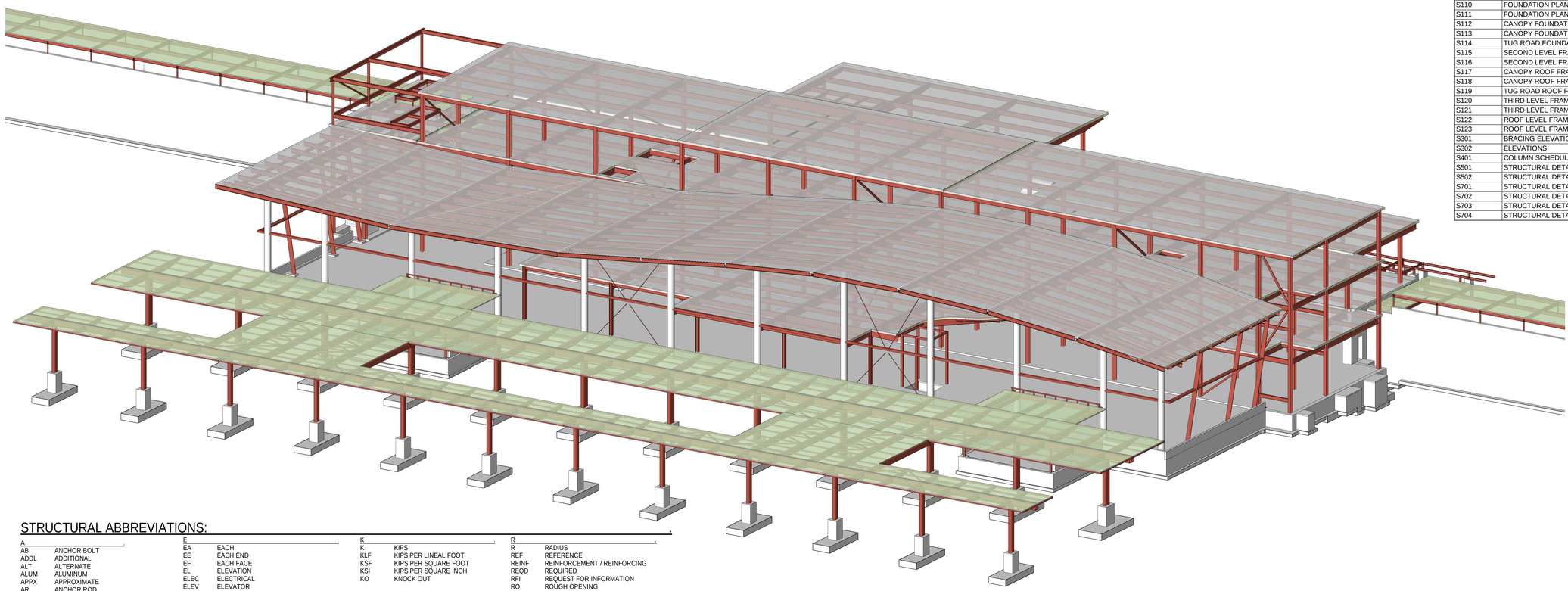
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
THIRD FLOOR FURNITURE PLAN ADMIN.

SHEET NUMBER
A8-18

60% NOT FOR CONSTRUCTION

SHEET NUMBER	SHEET NAME
S001	TITLE SHEET
S002	GENERAL STRUCTURAL NOTES
S003	GENERAL STRUCTURAL NOTES
S101	OVERALL FIRST LEVEL FLOOR PLAN
S102	OVERALL SECOND LEVEL FLOOR PLAN
S103	OVERALL THIRD LEVEL FLOOR PLAN
S104	OVERALL ROOF LEVEL PLAN
S110	FOUNDATION PLAN - AREA A
S111	FOUNDATION PLAN - AREA B
S112	CANOPY FOUNDATION PLAN - AREA A
S113	CANOPY FOUNDATION PLAN - AREA B
S114	TUG ROAD FOUNDATION PLAN
S115	SECOND LEVEL FRAMING PLAN - AREA A
S116	SECOND LEVEL FRAMING PLAN - AREA B
S117	CANOPY ROOF FRAMING PLAN - AREA A
S118	CANOPY ROOF FRAMING PLAN - AREA B
S119	TUG ROAD ROOF FRAMING PLAN
S120	THIRD LEVEL FRAMING PLAN - AREA A
S121	THIRD LEVEL FRAMING PLAN - AREA B
S122	ROOF LEVEL FRAMING PLAN - AREA A
S123	ROOF LEVEL FRAMING PLAN - AREA B
S301	BRACING ELEVATIONS
S302	ELEVATIONS
S401	COLUMN SCHEDULE AND DETAILS
S501	STRUCTURAL DETAILS
S502	STRUCTURAL DETAILS
S701	STRUCTURAL DETAILS
S702	STRUCTURAL DETAILS
S703	STRUCTURAL DETAILS
S704	STRUCTURAL DETAILS



STRUCTURAL ABBREVIATIONS:

A	
AB	ANCHOR BOLT
ADDL	ADDITIONAL
ALT	ALTERNATE
ALUM	ALUMINUM
APPX	APPROXIMATE
AR	ANCHOR ROD
ARCH	ARCHITECT
B	
BDE	BOTTOM OF DECK ELEVATION
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BOD	BOTTOM OF DECK
BOT	BOTTOM
BP	BEARING PLATE
BR	BOTTOM REINFORCING
BRDG	BRIDGING
BRG	BEARING
BTWN	BETWEEN
C	
CANTL	CANTILEVER
C/C	CENTER TO CENTER
CIP	CAST IN PLACE
CGS	CENTER OF GRAVITY STRAND
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTER LINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN(S)	CONNECTION(S)
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CTR	CENTER
D	
d	NAIL DIAMETER
db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DBE	DECK BEARING ELEVATION
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLITION
DET	DETAIL
DF	DOUGLAS FIR-LARCH
DIA	DIAMETER
DL	DEAD LOAD

E	
EA	EACH
EE	EACH END
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EJ	EXPANSION JOINT
EJBE	EXISTING JOIST BEARING ELEVATION
EMBED	EMBEDMENT
ENG	ENGINEER
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
ETBE	EXISTING TOP OF BEAM ELEVATION
ETDE	EXISTING TOP OF DECK ELEVATION
ETFE	EXISTING TOP OF FOOTING ELEVATION
ETPCE	EXISTING TOP OF PILE CAP ELEVATION
ETPE	EXISTING TOP OF PIER ELEVATION
ETSE	EXISTING TOP OF SLAB ELEVATION
ETWE	EXISTING TOP OF WALL ELEVATION
EW	EACH WAY
E-W	EAST - WEST DIRECTION
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
F	
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FLR	FLOOR
FP	FULL PENETRATION
FRMG	FRAMING
FS	FOOTING STEP
FT	FEET
FTG	FOOTING
G	
GA	GAGE/GAUGE
GALV	GALVANIZED
GB	GRADE BEAM
GC	GENERAL CONTRACTOR
GEN	GENERAL
GL	GLUE LAMINATED TIMBER
GLB	GLUE LAMINATED BEAM
GR	GRADE
GSN	GENERAL STRUCTURAL NOTES
GYP BD	GYPSUM BOARD
H	
HDR	HEADER
HK	HOOK
HORIZ	HORIZONTAL
HP	HIGH POINT
HSA	HEADED STUD ANCHOR
HS	HEADED STUD
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
I	
ID	INSIDE DIAMETER
INT	INTERIOR
ISF	INSIDE FACE
J	
JT	JOINT
JBE	JOIST BEARING ELEVATION
JST	JOIST

K	
K	KIPS
KLF	KIPS PER LINEAL FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
KO	KNOCK OUT
L	
LB(S)	POUND(S)
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LP	LOW POINT
LSL	LAMINATED STRAND LUMBER
LTL	LINTEL
LG	LIGHT GUAGE
LW	LIGHT WEIGHT
LVL	LAMINATED VENEER LUMBER
M	
MAS	MASONRY
MAX	MAXIMUM
MECH	MECHANICAL
MEP	MECHANICAL, ELECTRICAL AND PLUMBING
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
N	
NA	NOT APPLICIABLE
NF	NEAR FACE
NIC	NOT IN CONTRACT
NS	NEAR SIDE
N-S	NORTH - SOUTH DIRECTION
NTS	NOT TO SCALE
NW	NORMAL WEIGHT
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OSF	OUTSIDE FACE
OPG	OPENING
OPP	OPPOSITE
P	
PAF	POWER ACTUATED FASTENER
PC	PRECAST CONCRETE
PEN	PENETRATION
PERP	PERPENDICULAR
PL	PLATE
PLF	POUNDS PER LINEAL FOOT
PROJ	PROJECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PT	POST TENSIONED
Q	
QTY	QUANTITY

R	
R	RADIUS
REF	REFERENCE
REINF	REINFORCEMENT / REINFORCING
REQD	REQUIRED
RFI	REQUEST FOR INFORMATION
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	
SB	SOIL BORING
SC	SLIP CRITICAL
SCHED	SCHEDULE
SER	STRUCTURAL ENGINEER OF RECORD
SIM	SIMILAR
SK	SKETCH
SOG	SLAB ON GRADE
SPA	SPACES
SPEC	SPECIFICATION
SF	SQUARE FOOT
SPF	SPRUCE PINE FIR
SSK	STRUCTURAL SKETCH
STD	STANDARD
STIFF	STIFFENER
STEEL	STEEL
STRUCT	STRUCTURE / STRUCTURAL
SYM	SYMMETRICAL
SYP	SOUTHERN YELLOW PINE
T	
T/B	TOP AND BOTTOM
T/G	TOUNGE AND GROOVED
TBE	TOP OF BEAM ELEVATION
TDE	TOP OF DECK ELEVATION
TEMP	TEMPORARY
TFE	TOP OF FOOTING ELEVATION
TGBE	TOP OF GRADE BEAM ELEVATION
TJ	TRUSS JOIST
TPCE	TOP OF PILE CAP ELEVATION
TPE	TOP OF PIER ELEVATION
TR	TOP REINFORCING
TRANS	TRANSVERSE
TSE	TOP OF SLAB ELEVATION
TWE	TOP OF WALL ELEVATION
TYP	TYPICAL
U	
UNEX	UNEXCAVATED
UNO	UNLESS NOTED OTHERWISE
V	
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	
W/	WITH
W/O	WITHOUT
WD	WOOD
WF	WIDE FLANGE
WL	WIND LOAD
WP	WORK POINT
WS	WATERSTOP
WT	WEIGHT
WWF	WELDED WIRE FABRIC

LEGENDS:

GENERAL:

BF1	INDICATES BRACE FRAME MARK NUMBER
C1	INDICATES COLUMN MARK NUMBER
FD	INDICATES APPROXIMATE LOCATION OF FLOOR DRAIN
L1	INDICATES LINTEL MARK NUMBER
RD	INDICATES APPROXIMATE LOCATION OF ROOF DRAIN

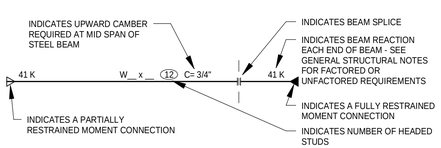
1	INDICATES KEY NOTE MARK NUMBER
SS / SS	INDICATES SLAB STEP LOCATION
	INDICATES MATCH LINE
	INDICATES LINE OF DEMOLITION
0	INDICATES NEW BUILDING GRID LINE
"LEVEL" / "ELEVATION"	ELEVATION MARKER
	SHADED AREA INDICATES EXISTING CONSTRUCTION
	INDICATES SPAN DIRECTION OF ELEMENT

FOUNDATION PLANS:

F1	INDICATES SPREAD FOOTING MARK NUMBER
P1	INDICATES PIER MARK NUMBER
WF1	INDICATES WALL FOOTING MARK NUMBER
	INDICATES APPROXIMATE LOCATION OF UTILITY PIPE PENETRATION THROUGH FOUNDATION WALL
	INDICATES APPROXIMATE LOCATION OF DRAIN TILE

FS	INDICATES FOOTING STEP LOCATION
W123	INDICATES WALL MARK NUMBER
SB1	INDICATES APPROXIMATE LOCATION OF SOIL BORING

STEEL FRAMING SYSTEM:



STEEL BEAM

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
TITLE SHEET

SHEET NUMBER
S001

60% NOT FOR CONSTRUCTION

TYPICAL NOTES:
These notes specify the requirements for the design represented in these documents. The construction and materials shall comply with all the pertinent codes and references, plans, and details, including (but not limited to) those shown in architectural, civil, mechanical and electrical drawings.

The contractor shall verify all dimensions and existing conditions in the field that affect construction prior to commencing work on the affected element or shop drawing submittals. Resolve any discrepancies with the architect prior to construction.

The contract structural drawings and specifications represent the completed structure. The contractor is responsible for bracing and shoring (without overstressing) all structural elements as necessary at any stage of construction until completion of the project. The Structural Engineer is not responsible for the contractor's means, methods, sequences or procedures of construction. Contractor shall recognize and consider effects of thermal movements of structural elements during construction period.

The contractor is solely responsible for site safety including all temporary precautionary measures and safety programs. Site observation visits by the Structural Engineer do not include review of the contractor's safety precautions.

Refer to architectural, mechanical and electrical drawings for locations, elevations, dimensions, and details of sleeves, inserts, openings, recesses, curbs, housekeeping pads, etc. that are not shown on the structural drawings and do not damage structural members.

Information shown in the structural drawings regarding existing conditions represents the current and general field conditions related to the new work, to the best of our knowledge. Report all discrepancies to the Architect for resolution prior to performing related new work.

Requests for information shall be submitted in writing and shall reference the part of the construction documents that is in question.

SPECIAL INSPECTIONS:
Contractor shall read and understand their duties in the specification and under the building code for special inspections and coordinate as necessary the owner's responsibilities.

The special inspectors shall be provided and shall only use approved shop drawings.

Special inspection reports are to be submitted immediately to the SER, Architect, and Contractor daily when inspections are performed.

The general contractor shall provide timely notice to the special inspector and sufficient time for the inspector to perform their inspection.

SHOP DRAWINGS:
All engineering design provided by others and submitted for review shall bear the certification stamp and signature of a qualified professional engineer who is licensed in the state of Minnesota.

Submit shop drawing schedule with construction schedule that includes consideration for review period. See specification for additional information.

DEFERRED SUBMITTALS:
The following items shall be issued as deferred submittals per IBC:
Steel Connections

All items issued as deferred submittals shall be issued a minimum of 30 days prior to installation and shall not be installed until their design and submittal documents have been reviewed for general conformance to the drawings by the general contractor, the engineer of record and the building official. A copy of the deferred submittal shall be forwarded to the city after the engineer of record has reviewed the documents and prior to erection of the deferred submittal items.

DESIGN CODES AND STANDARDS:
Minnesota State Building Code, MSBC 2007

2006 International Building Code, as amended and adopted by the MSBC 2007

AF & PA - NDS --05 National Design Specification for Wood Construction and Supplement

ACI 318-05 Building Code Requirements for Reinforced Concrete

ACI 530-05 Building Code Requirements for Masonry Structures, Allowable Stress Design

ACI 530.1-05 Masonry Structures

AISC 360-05 Specification for Structural Steel Buildings

AISI NAS-01 North American Specification for the design of Cold-Formed Steel Structural Members including 2004 supplement.

ASCE 7-05 Minimum design loads for buildings and other structures including supplement NO. 1 and excluding Chapter 14 and Appendix 11A.

ASCE 3-01 Structural Design of Composite Slabs

MATERIAL PROPERTIES:

Reinforcing Steel (Fy):		
Typical	60,000 psi	ATSM A615 Grade 60
Weldable	60,000 psi	ASTM A706 Grade 60

Cast-in-Place Concrete (f'c) at 28 days, UNO:

Controlled Low	1,200 psi (at 5 days)	Maximum
Strength Material (CLSM)	500 psi (at 5 days)	Minimum
Footings	5,000 psi	
Piers and Walls (non-shear)	4,000 psi	
Columns	4,000 psi	
Concrete placed over Metal Floor Deck	4,000 psi	
Slabs on Grade	4,000 psi	
Exterior Concrete	4,000 psi	
Masonry Corefill Concrete	3,000 psi	
All Concrete not otherwise noted	4,000 psi	

Concrete Masonry- Prism (f'm):

Typical Units:	2,000 psi	

Structural Steel (Fy):

Wide Flanges	50,000 psi	ASTM A992
Angles, Channels, Plates, and Bars	36,000 psi	ASTM A36
Grade B Rectangular HSS	46,000 psi	ASTM A500
Grade B Round HSS	42,000 psi	ASTM A500
Grade B Steel Pipe	35,000 psi	ASTM A53

Structural Fasteners:

Typical High-Strength Bolts	92,000 psi	ASTM A325
High-Strength Bolts as noted on plan	150,000 psi	ASTM A490
Grade 36 Anchor Rods, UNO	36,000 psi	ASTM F1554
Threaded Rods	36,000 psi	ASTM A36
Direct -Tension Indicator Washers as noted on plan		ASTM F959

Cold-formed Light Gauge Metal Framing (Fy):

Studs, Joists, Braces-16 ga. and heavier	50,000 psi	ASTM A653
Studs, Joists, Braces-18 ga. and lighter	33,000 psi	ASTM A653
Track, Channels and Accessories	33,000 psi	ASTM A653

DESIGN LOADS:
LATERAL LOADS:
Primary Frame Wind Data:

Basic Wind Speed:	90 mph
Wind Importance Factor:	1.15
Exposure:	C

Primary Seismic Data: No design required

Component Loads:
Exterior Component/Cladding: Supplier to develop based on MSBC 2007 and to indicate on shop drawings.

GRAVITY LOADS:
Roof Snow Load:

Ground Snow Load, Pg:	60 psf
Flat-Roof Snow Load, Pf:	42 psf
Snow Exposure Factor, Ce:	0.70
Snow Load Importance Factor, I:	1.1
Unbalanced/Drift Snow Load:	Refer to plan, UNO

Roof Load:

Live Load, (reducible):	20 psf
Mechanical and Electrical Equipment Units: for the units locations, sizes, and weights.	Refer to drawings,

Future Mechanical and Electrical Units:
This project is not designed for future units.

Floor Loads:

Live Load, (UNO):	100 psf
Partition:	15 psf
Hanging loads at underside of 2nd floor:	40 psf

Stairs, Corridors and Lobbies:	100 psf
Stair Tread Concentrated Load:	300 lbs
Mechanical Rooms:	125 psf

Exterior Site Surcharge Loads:

Fire Trucks:	250 psf
Sidewalk:	250 psf

Provisions For Future Expansion:
Design for additional 30' bay to east or west between grids "E" and "G".

Design for one story expansion of 3rd floor office space north of grid "G".

FOUNDATIONS:
Refer to Geotechnical report number AET #07-04216.2 by American Engineering Testing, Inc., dated October 14, 2009 and the subsequent addendum (AET project #07-04216.3) dated January 29, 2010.

The contractor shall verify the location of all existing and new underground utilities and tanks prior to beginning excavation and contact Gopher State One Call.

The minimum dimension from exterior grade to bottom of footing and foundation shall be 42" adjacent to heated areas, and 60" in unheated areas.

For underground utilities adjacent to foundations and through foundations reference drawings for detail showing step footings below utilities as required to avoid undermining of structure by utilities.

CONVENTIONAL FOOTINGS:
Footings are designed for a maximum allowable soil bearing pressure of 8000 pounds per square foot on undisturbed native soil or lean mix concrete/controlled low strength material fill. Soil bearing pressure is to be verified in the field during construction by a qualified Geotechnical Engineer.

All topsoil, fill, organic swamp deposits, and/or other unsuitable bearing material shall be removed below the footings and/or within the building area to the depths indicated in the geotechnical engineering report and extent of removal shall be field verified by the Geotechnical Engineer.

For footings that do not bear on natural undisturbed soil, extend engineered fill laterally beyond bottom edge of footing for a distance equal to the depth of engineered fill. Reference drawings for details.

Foundation and retaining walls shall be back filled with free draining fill approved by the Geotechnical Engineer. Provide drain tile required by the contract documents and verify with architect and civil engineer.

Backfill equally on both sides of foundation walls to prevent overturning or lateral wall movement, or brace as necessary.

For stepping of wall footings reference drawings for detail.

REINFORCED CONCRETE:
The detailing, fabrication and erection of all reinforcing shall be done in accordance with the latest edition of ACI-315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures and ACI-318, "Building Code Requirements for Structural Concrete."

All reinforcing bars are deformed and continuous, unless noted otherwise. Refer to drawings for reinforcing lap length schedule.

Provide suitable wire spacers, chairs, etc. for support of reinforcing steel in proper position while placing concrete. All bars shall be tied to prevent displacement while placing concrete. All chairs and slab bolsters shall be plastic or steel with plastic tips. When reinforcing steel is epoxy coated or p/t tendons are fully encapsulated, all chairs and slab bolsters shall be epoxy coated or plastic and all support bars shall be epoxy coated. Chairs are to be stable and resist tipping. Acceptable products are GTI or approved equal.

The fabricator shall submit a complete list of accessories and placing details with the shop drawings.

No horizontal construction joints shall be placed in beams, joists, or slabs, unless shown on drawings.

Locate vertical construction joints in beams and slabs at central one third of span. Refer to drawings for details. Submit proposed construction joint locations to the Structural Engineer of Record for review prior to placement of concrete. Where new concrete is placed against existing concrete, the existing concrete shall be roughened to a minimum 1/4" amplitude.

Refer to drawings and ACI 318 Chapter 6 for placement guidelines of embedded pipes, sleeves, and conduits. Conduits are not permitted in slabs 3 inches or less in thickness.

Provide a 3/4 inch chamfer for all exposed concrete corners. See Architectural drawings for details and additional requirements.

The general contractor shall notify the Special Inspector a sufficient period in advance of placing concrete to allow required inspections and testing to occur in a timely fashion.

Formwork and all shoring for flatwork shall be left in place until the concrete reaches at least 75 percent of the 28-day compressive strength. Design of shoring and reshoring is the responsibility of the contractor and shall conform to ACI 347R-88.

Concrete compressive strength testing used to determine flatwork stripping times shall be performed using one of the following methods:

Cippoc and standard cylinders cured and stored in the same conditions as the flatwork.

Maturity testing properly calibrated and conducted by an approved testing agency.

Aluminum conduit, aluminum sleeves and aluminum embeds are not permitted in concrete.

Exterior concrete to have 6% +/- 1% entrained air.
All concrete used in parking ramp slabs, beams and columns to contain corrosion inhibiting admixtures.

Calcium chloride is not permitted as a concrete additive.

Concrete Cover on Reinforcing:

Topping Slab: 3/4" clear top
Slab on Grade: Middle of slab

Footings: 3" clear bottom and sides
2" clear top
Walls: #5 and smaller 1 1/2" clear earth or weather face
#6 and greater 2" clear earth or weather face
3/4" interior face
Columns and Beams: 1 1/2" clear to ties or stirrups

CONCRETE SLABS ON GRADE:
Slabs on grade shall be place in lane fashion.

The control or construction joints shall be placed as shown on the drawings. The joints shall align with the column grids and be spaced as noted below:

Exterior slabs 24 times slab thickness, maximum;
Interior slabs 36 times slab thickness, maximum;
Interior slabs 48 times slab thickness, maximum, with carpeting

The panels formed by control or construction joints shall not be "L" shaped and a rectangular panel's aspect ratio shall not exceed 1.5.

Refer to the drawings for the typical slab on grade construction and saw cut control joint detail. Control and construction joints must be continuous and not offset.

Refer to drawings for detail of isolation diamonds or circles at columns.

Refer to drawings for reinforcing at re-entrant corners. Bend bars as necessary at obstructions.

Refer to the specification for the existence, type, and thickness of interior ground vapor retard. Locate a vapor retarder directly beneath the slab on grade on top of a 6 inch compactable granular base. Refer to the specification for requirements for the compactable granular base.

Mechanically vibrate concrete around trench drains, floor ducts, construction joint dowels, loading docks, architectural features and other embedded items.

Refer to the specification for slab on grade pre-pour meeting.

Refer to the specification for acceptable methods of curing the concrete.

Refer to flooring manufacturer's specification for levelness, flatness and curing of concrete slabs on grade to receive special architectural floor finishes.

REINFORCED MASONRY:
All masonry units are placed in running bond fashion. Corners shall have a standard bond by overlapping units.

Special shapes shall be provided for jambs, columns, pilasters, control joints, corners, and lintels.

All masonry walls shall have horizontal joint reinforcing spaced at 16" o.c. Horizontal joint reinforcing shall be truss style and fabricated with galvanized nine-gauge wire and shall include corner and intersecting wall pieces. Provide minimum 6" laps at all splices.

Vertical reinforcing shall be held in place by rebar positioners, crossties, chairs, or tying to every other layer of horizontal reinforcing steel. Refer to the detail in the drawings for vertical reinforcing bar location in a core.

Provide concrete cover of minimum 1/2" to face shell.

Refer to detail in the drawings for reinforcing bar lap lengths.

Extend vertical reinforcing from footings to 2" clear top of wall or to beam bearing. Extend vertical reinforcing into the next level of construction and lap in accordance with the lap schedule.

When typical vertical wall reinforcing is interrupted by long wall openings, provide typical vertical wall reinforcing above and below opening, and extend into horizontal bond beams. Refer to the schedule on the drawings, for masonry wall opening lintels. Refer to the detail in the drawings for masonry openings minimum jamb reinforcing.

Provide vertical reinforcing at the ends of walls and at wall intersections to match specified reinforcing. Run reinforcing full height of walls.

All masonry units shall be placed with full face shell mortar coverage on horizontal and vertical face shells. Webs shall also have full mortar coverage around all grouted cells.

Fill block core at vertical reinforcing (8" minimum length along wall) with concrete grout. Filling cores with mortar is not allowed. Vibrate in place. Rodding and puddling are not allowed.

Maximum lift height is four feet. For concrete core fill pour height up to maximum 8'-0", provide cleanouts if pour height exceeds 5'-0".

Masonry cement mortar is not allowed.

Calcium chloride or admixtures containing chloride shall not be used in mortar or grout.

For reinforced masonry bond beams, provide bent corner bars at corners and intersections that match reinforcing. Step bond beams as necessary to match roof slopes. Lap reinforcing bars per schedule.

For construction of masonry control joints refer to detail in drawings.

Unless noted otherwise on the drawings place control joints in masonry walls such that no straight run of wall exceeds 24'-0" and within 4'-0" of corners. Do not place control joints within 48 inches of a masonry opening jamb or a steel bearing plate.

Place bond beam reinforcing continuously through control joints. Do not splice bond beam reinforcing within 6'-0" of a control joint.

Provide bond beam with reinforcing at all floor lines, roof lines, and top of walls. Refer to details in the drawings.

Grout below steel bearing plate and refer to the drawings for additional information.

Refer to drawings for reinforcing schedule, top of wall bracing, thickened bearing slab and lintel schedule for non-bearing masonry walls. Refer to Architectural drawings for location and extent.

MASONRY BEAMS (HIGH-LOW BOND BEAMS):
For all masonry beams use lintel blocks.

Masonry beams are to bear 8" minimum at jambs. Extend vertical reinforcing through masonry beam bearing.

Extend horizontal reinforcing full length. Refer to detail in the drawings for stirrup configuration.

Grout masonry beams solid. Mechanically vibrate grout in place.

For brick angle supported by masonry refer to detail in the drawings.

Provide brick expansion joint vertically at the edge of the masonry opening. Stop brick angle at expansion joint. Refer to plan for wall elevation detail. Locate other brick expansion joints per architectural drawings.

LOOSE ANGLE BRICK LINTELS:
Fit lintel such that vertical leg is tight to back of brick, locate brick ties to backup at first bed joint above angle's vertical leg and provide minimum 8" support each end.

Refer to architectural drawing for locations and to drawings for size span criteria, and loading limits.

EXPANSION AND ADHESIVE ANCHORS:
Anchors in concrete or concrete masonry when not exposed to earth, weather, or corrosive environment shall be as noted below:

Expansion anchors shall be stud type with a single piece three section wedge and zinc plated in accordance with ASTM B633.

Threaded anchor rod for adhesive anchors in concrete shall be ASTM A193, Grade B7, or ASTM A36, as noted in the drawings. The adhesive used for anchors shall be a structural grade, two part epoxy or acrylic material that meets the requirement of ASTM C-881 Types I, II, IV, and V, Grade 3, Classes B and C as noted on plans.

Holes shall be drilled with a bit and cleaned using a method that complies with the manufacturer's guidelines, and specifications. Do not cut or damage reinforcing steel or P-T tendons.

Upon the request of the structural engineer the anchors shall be proof tested by the manufacturer to verify capacity of anchors that do not meet the conditions in the construction documents.

Minimum embedment depths in concrete and concrete masonry for expansion and adhesive anchors shall be as noted below:

Concrete base material:
For 1/2", 5/8", and 3/4" diameter expansion anchors provide 4 3/4"embed, UNO on plan.

For 1/2"and 5/8" diameter adhesive anchors provide 5" embed. For 3/4" diameter adhesive anchors
provide 7" embed, UNO on plan.

Grouted solid concrete masonry unit material:
For 1/2", 5/8", and 3/4" diameter expansion anchors provide 4 3/4"embed, UNO on plan.

For adhesive anchors refer to the product's ICBO Report.

Pre-approved manufacturer are as follows: HILTI, ITWR Ramset/Redhead, Powers Fasteners, and Simpson Strong-Tie. For review of alternate products, submit manufacture's product data and product's current ICBO report prior to construction.

Anchors in concrete or concrete masonry when exposed to earth, weather, or corrosive environment shall be manufactured from AISI 304/316 Stainless Steel.

STRUCTURAL STEEL:
Structural steel shall be detailed, fabricated and erected in compliance with AISC Specification for the design, fabrication, erection of structural steel for building, and Code of standard practice, and OSHA steel erection standards.

All beams and girders shall be cambered at mid-span as indicated on the structural drawings. The cambers indicated shall be present in the beam in its erected position after completion of the end connections and shall be verified prior to placing concrete. Cambering tolerances shall be (-0", +1/4"). No center point cambering allowed.

Splicing structural members where not detailed on the drawings is prohibited without prior approval of the structural engineer.

Modification of structural steel members in the field is not allowed without written approval by the structural engineer.

All composite beams using the concrete slab as a compression flange are designed for unshored construction unless noted otherwise.

Anchor rods shall be minimum 3/4" diameter or as detailed in drawings.

STRUCTURAL STEEL CONNECTIONS:
All steel connections shall be designed by the steel fabricator for the criteria indicated on the drawings unless noted or detailed otherwise. Connection design shall conform to the requirements of the AISC Specifications for the design, fabrication, erection of structural and OSHA regulations. Submit calculations certified by a Professional Engineer who is licensed in the state of Minnesota.

Non-composite beams: Unless noted otherwise, design simple beam shear connections per the AISC Manual connection tables. The required end reaction shall be based on the maximum allowable uniform load for the given span or the reactions indicated on the plans. Design connections for the reactions based on the above or for the minimum connection requirements indicated in the Connection Schedule, whichever provides the greater capacity.

Composite beams: Design simple composite beam shear connections per the AISC Manual connection tables UNO. Design connections for the reactions indicated on the plans or the minimum connection requirements indicated in the Connection Schedule, whichever provides the greater capacity.

Unless detailed otherwise, beam shop connections may be welded or bolted and field connections are to be bolted. Bolts shall be a minimum 3/4" diameter for connections specified or detailed in the drawings. The fabricator may submit an alternate connection with the calculations that is certified by a professional engineer who is licensed in the state of Minnesota.

All beam web copes must be made to a 1 inch minimum radius.

Welded connections shall be made in accordance with ANSI/AWS D1.1 Structural Welding Code using E70XX electrodes unless noted otherwise. Weld sizes not shown or controlled by the required forces shall be AWS code minimum size. Welds shall be visually inspected for compliance with the AWS code visual inspection criteria.
Welders shall be qualified in accordance with ANSI/AWS D1.1 and shall be experienced in weld in structural steel.

Full penetration welds shall be tested using NDT methods such as ultrasonic, magnetic particle or other methods referenced in the AWS code. Welds subject to NDT methods shall also have been found compliant with the AWS visual inspection criteria.

STEEL ROOF DECK:
Manufacturer shall be a current member of the Steel Deck Institute (SDI).

Detail, manufacture and install steel roof deck and accessories in accordance with the SDI specifications and codes and OSHA requirements.

Steel roof deck shall be as noted on plan.

Welding shall be in accordance with AWS D1.3. Welders shall be qualified in accordance with AWS D1.3.

Where spray-on fireproofing of the deck is required, the contractor shall verify that the deck finish is compatible with the proposed fireproofing material to ensure proper bonding of the fireproofing. Coordinate fireproofing locations and requirements with the architect.

All steel deck shall span a minimum of three spans, unless otherwise approved by the engineer. Deck ends are to be lapped over supports.

Contractor shall verify the location and extent of acoustical steel deck with the architectural drawings.

Reference drawings for detail on steel roof deck fastening requirements unless noted otherwise. Powder actuated or pneumatically driven fasteners are not allowed.

Provide reinforcement or frames for deck openings as indicated on the drawings.

COMPOSITE STEEL FLOOR DECK:
Manufacturer shall be a current member of the Steel Deck Institute (SDI).
Composite steel floor deck shall be as noted on plan.

Detail, manufacture and install composite steel floor deck and accessories in accordance with the SDI specifications, codes and OSHA steel erection standards.

Refer to drawings for composite steel floor deck fastening requirements unless noted otherwise. Powder actuated or pneumatically driven fasteners are not allowed.

Provide and install pour stops, column closures, end closures, cover plates and girder fillers and other accessories as required by the SDI unless otherwise indicated or detailed.

Where spray-on fireproofing of the deck is required, the contractor shall verify that the deck finish is compatible with the proposed fireproofing material to ensure proper bonding of the fireproofing. Coordinate fireproofing locations and requirements with the architect.

Provide reinforcement or frames for deck openings as indicated on the drawings.

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW TERMINAL DESIGN

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
GENERAL STRUCTURAL NOTES

SHEET NUMBER
S002

60% NOT FOR CONSTRUCTION

NON-COMPOSITE STEEL FLOOR DECK:
Manufacturer shall be a current member of the Steel Deck Institute (SDI).

Non-composite steel floor deck shall be as noted on plan.

Detail, manufacture and install non-composite steel floor deck and accessories in accordance with the SDI specifications and codes and OSHA steel erection standards.

Refer to drawings for non-composite steel floor deck fastening requirements. Powder actuated or pneumatically driven fasteners are not allowed.

Where spray-on fireproofing of the deck is required, the contractor shall verify that the deck finish is compatible with the proposed fireproofing material to ensure proper bonding of the material. Coordinate locations and requirements with the architect.

Provide reinforcement or frames for deck openings as indicated on the drawings.

LIGHT GAUGE METAL FRAMING:
The design and connection detailing of all light gage material including, but not limited to exterior studs, bearing studs, headers, jambs, joists, rafters and anchorage shall be by the Light Gauge Supplier. The design for systems other than bearing framing shall meet the following criteria:

Stud in exterior walls shall be minimum 600S162-43 (6"-18 gauge) studs at 16" OC.

Studs shall be cold rolled steel, galvanized, C shape, with minimum 1 5/8" flange and minimum 1/2" return. They are to be punched for utility access and galvanized to G60 coating per ASTM 525.

At all openings in exterior and bearing walls provide a minimum two studs full wall height each side of opening and a minimum one additional stud each side for lintel bearing.

Anchor bottom track to concrete or masonry with minimum 5/32" x 1 1/4" power driven fasteners at 16" OC.

Top and bottom tracks shall be cold rolled or break formed steel, galvanized U shaped and minimum 18 gauge and as noted on the drawings.

Light gauge metal framing fasteners shall be minimum #10 self-drilling sheet metal screws, 16 threads per inch, with low profile head. Provide a minimum of two screws per connection unless noted otherwise.

Fasten light gage framing to wood with minimum #10 x 1 7/8" bugle head wood screws. Pre-drill holes in metal studs. Provide a minimum of two screws per connection unless noted otherwise.

All framing components shall be squarely cut for attachment to perpendicular members. Stud ends must seat tightly into tracks for all bearing applications.

At all wall elements, provide 1 1/2"-16 gauge horizontal channel bridging to prevent stud rotation. For all axial loaded walls, space bridging at 4'-0" OC. For all non-load bearing exterior walls, space bridging at 5'-0" OC.

Wall stud deflection criteria:

For wall studs providing lateral support to masonry veneer and cementitious stucco, provide L/600.

For wall studs providing lateral support to other materials, provide L/360.

Joist and rafter deflection criteria:

Live Load Deflection is L/360.

Total Load Deflection is L/240.

An additional joist shall be provided under parallel non-load bearing partition walls.

The light gauge supplier shall submit certified shop drawings and design calculations prepared by a qualified Professional Engineer registered in the state where the project is located. See project specification manual for additional submittal requirements.

All light gauge designations are in accordance with the Steel Stud Manufacturers Association (SSMA).

Refer to architectural drawings and specification for size, minimum gage, extent, and location of interior non-bearing light gage
framing not shown on the structural drawings. Interior light gauge framing is to be designed for 5 psf lateral pressure by the
light gauge supplier.

Temporary bracing shall be furnished by the light gauge supplier and framing installer and maintained until permanent systems
providing lateral stability are in place.

Welding shall conform to the American Welding Society (AWS) "Structural Welding Code - Sheet Steel, D1.3 - Current Edition."
Welders shall be qualified in accordance with AWS D1.3 and shall be experienced in light gage welding.

All light gage material to be welded must be nominal 16 gauge or thicker.

Touch up all light gage material at welds with zinc-rich paint.

Align load bearing wall studs with floor or roof joists.

Splices in studs, joists, and headers, are not permitted, unless approved in writing by the structural engineer.

Framing components may be pre-assembled into panels prior to erecting. Prefabricated panels shall be square, with components attached in a manner that prevents racking.

SPECIAL INSPECTION SCHEDULE:

SPECIAL INSPECTIONS REQUIRED OF STRUCTURAL ELEMENTS (PER IBC 2006, CHAPTER 17):

	Continuous	Periodic	Not Req'd	See Arch.	
1. Steel *					Table 1704.3
1.1 Welding	■	■	□	□	
1.2 Details	□	■	□	□	
1.3 High-strength Bolts	□	■	□	□	
2. Concrete					Table 1704.4
2.1 Reinforcing steel including Prestressing tendons	□	■	■	□	
2.2 Bolts installed in concrete	■	□	■	□	
2.3 Required design mix	□	■	■	□	
2.4 Sampling	■	□	■	□	
2.5 Shotcrete	□	□	■	□	
2.6 Curing techniques	□	■	■	□	
2.7 Prestressed concrete forces and grouting	□	□	■	□	
2.8 Erection of precast concrete members	□	□	■	□	
2.9 Verification of IN-SITU concrete strength	□	□	■	□	
3. Masonry					
3.1 Level 1 Special Inspection *	□	□	■	□	1704.5.1, 1704.5.2, Table 1704.5.1
3.2 Level 2 Special Inspection	□	□	■	□	1704.5.3, Table 1704.5.3
4. Wood	□	□	■	□	1704.6
5. Soils	■	■	□	□	1704.7
6. Pile Foundations	□	□	■	□	1704.8
7. Pier Foundations	□	□	■	□	1704.9
8. Wall Panel and Veneers	□	□	□	■	1704.10
9. Sprayed Fire-Resistant Materials	□	□	□	■	1704.11
10. Exterior Insulation and Finish Systems (EIFS)	□	□	□	■	1704.12
11. Special Cases	□	□	□	■	1704.13
12. Smoke Control Systems	□	□	□	■	1704.14

* Please see referenced tables for exceptions.

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NEW TERMINAL DESIGN

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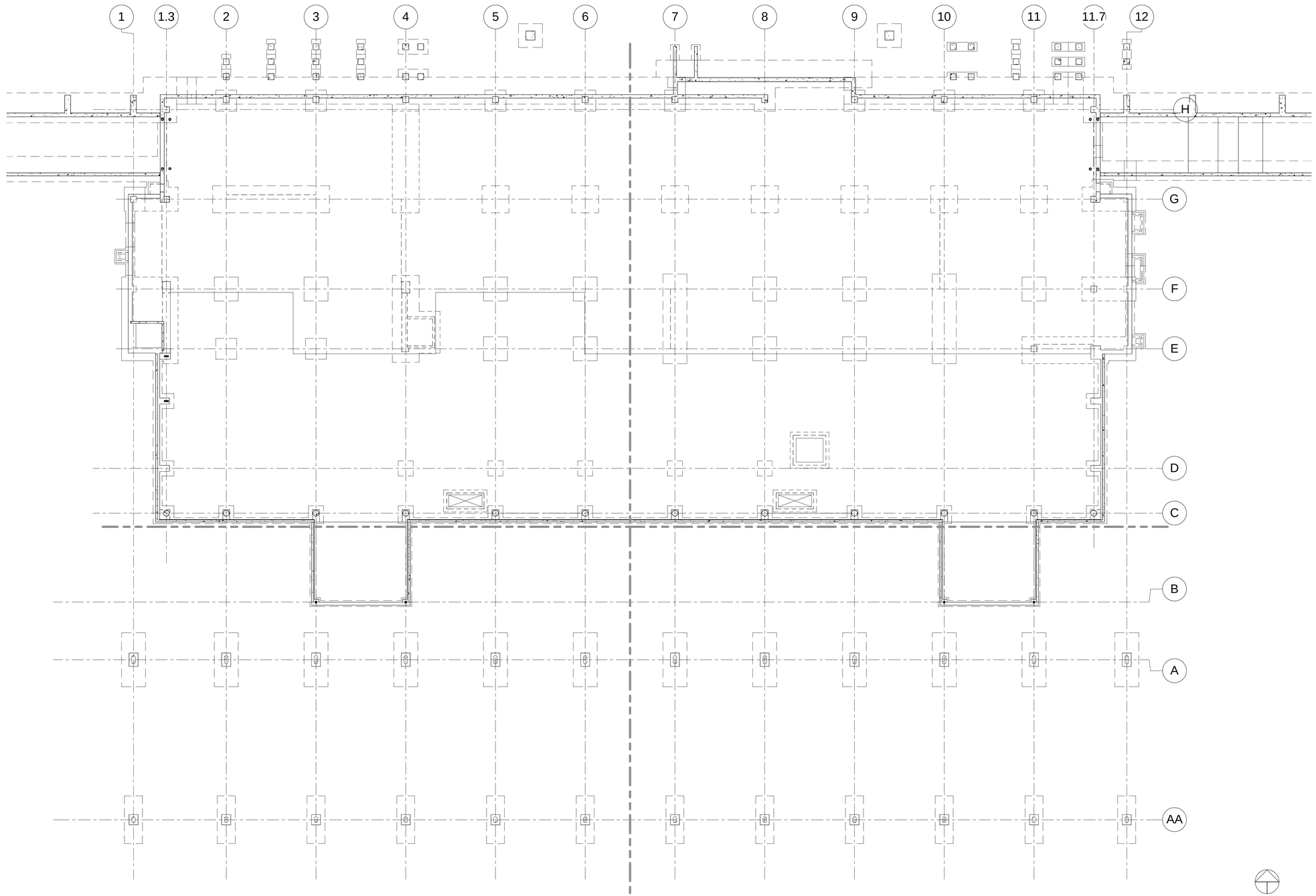
S003

60% NOT FOR CONSTRUCTION



1 OVERALL FOUNDATION PLAN
1/16" = 1'-0"

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW TERMINAL DESIGN

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TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE

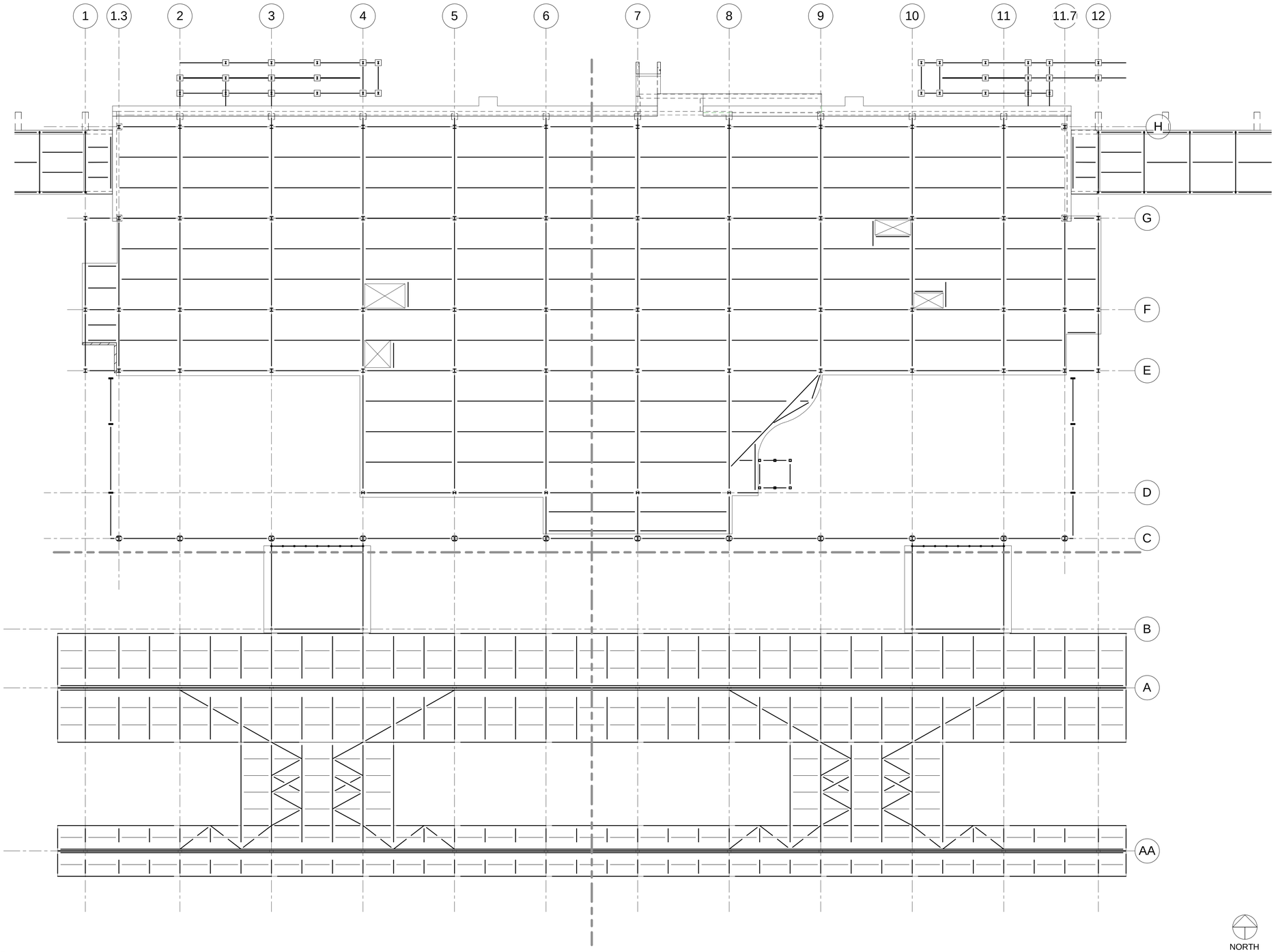
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL FIRST LEVEL FLOOR PLAN

SHEET NUMBER
S101

60% NOT FOR CONSTRUCTION



1 OVERALL SECOND LEVEL FLOOR PLAN
1/16" = 1'-0"

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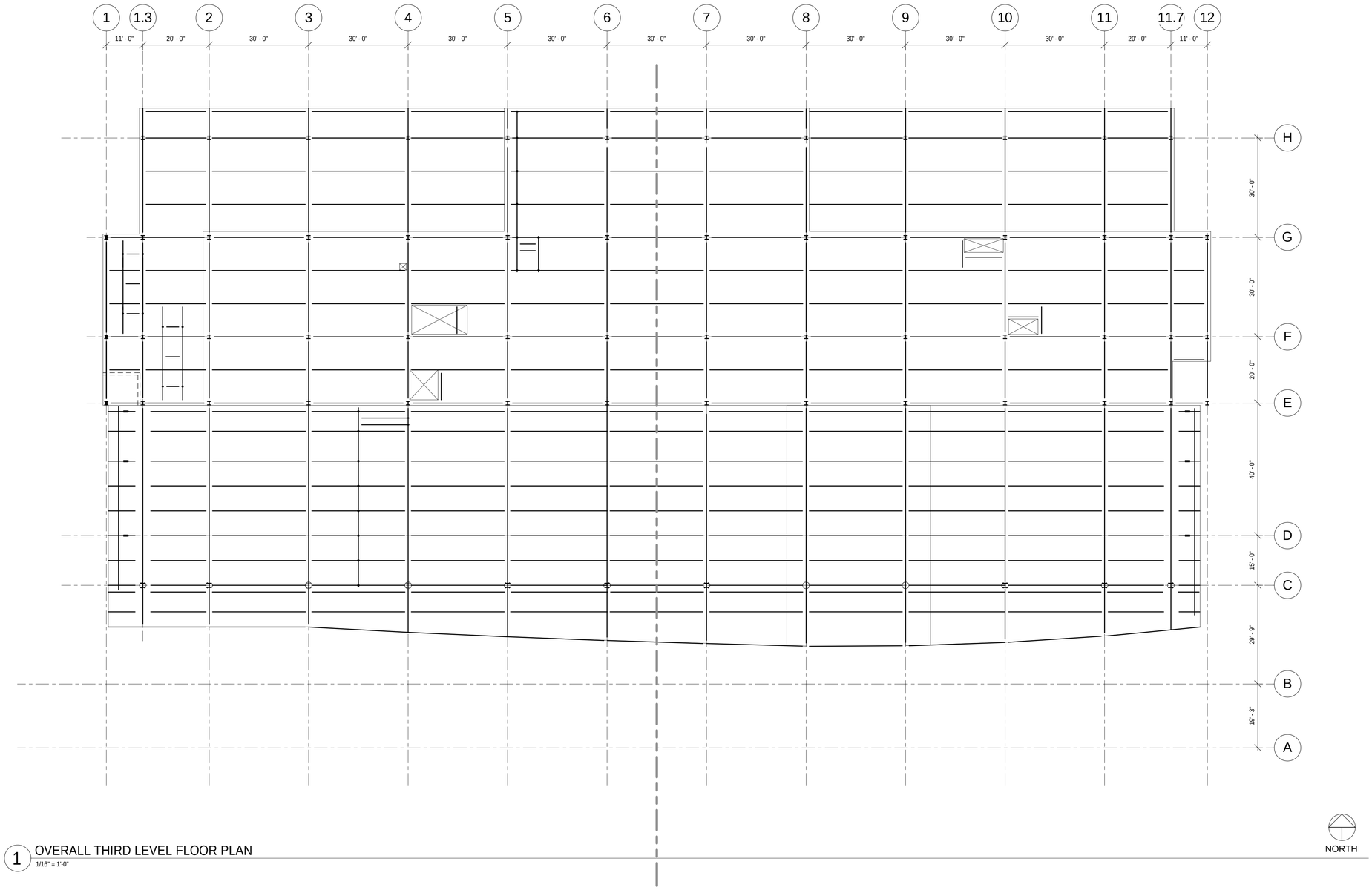
SHEET TITLE
OVERALL SECOND LEVEL FLOOR PLAN

SHEET NUMBER
S102

60% NOT FOR CONSTRUCTION



1 OVERALL THIRD LEVEL FLOOR PLAN
1/16" = 1'-0"

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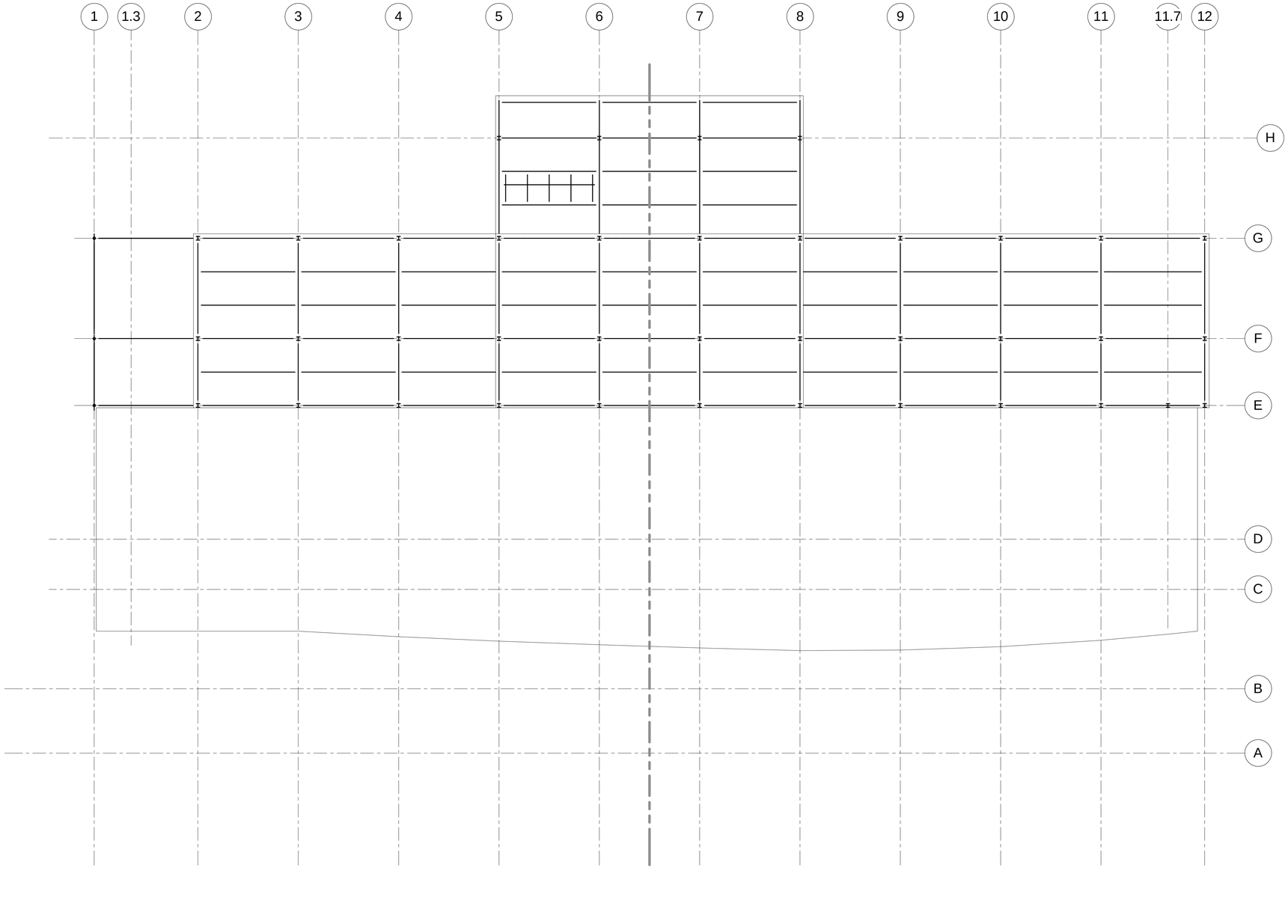
213-1882-091

SHEET TITLE
OVERALL THIRD LEVEL FLOOR PLAN

SHEET NUMBER
S103

60% NOT FOR CONSTRUCTION



1 OVERALL ROOF PLAN
1/16" = 1'-0"

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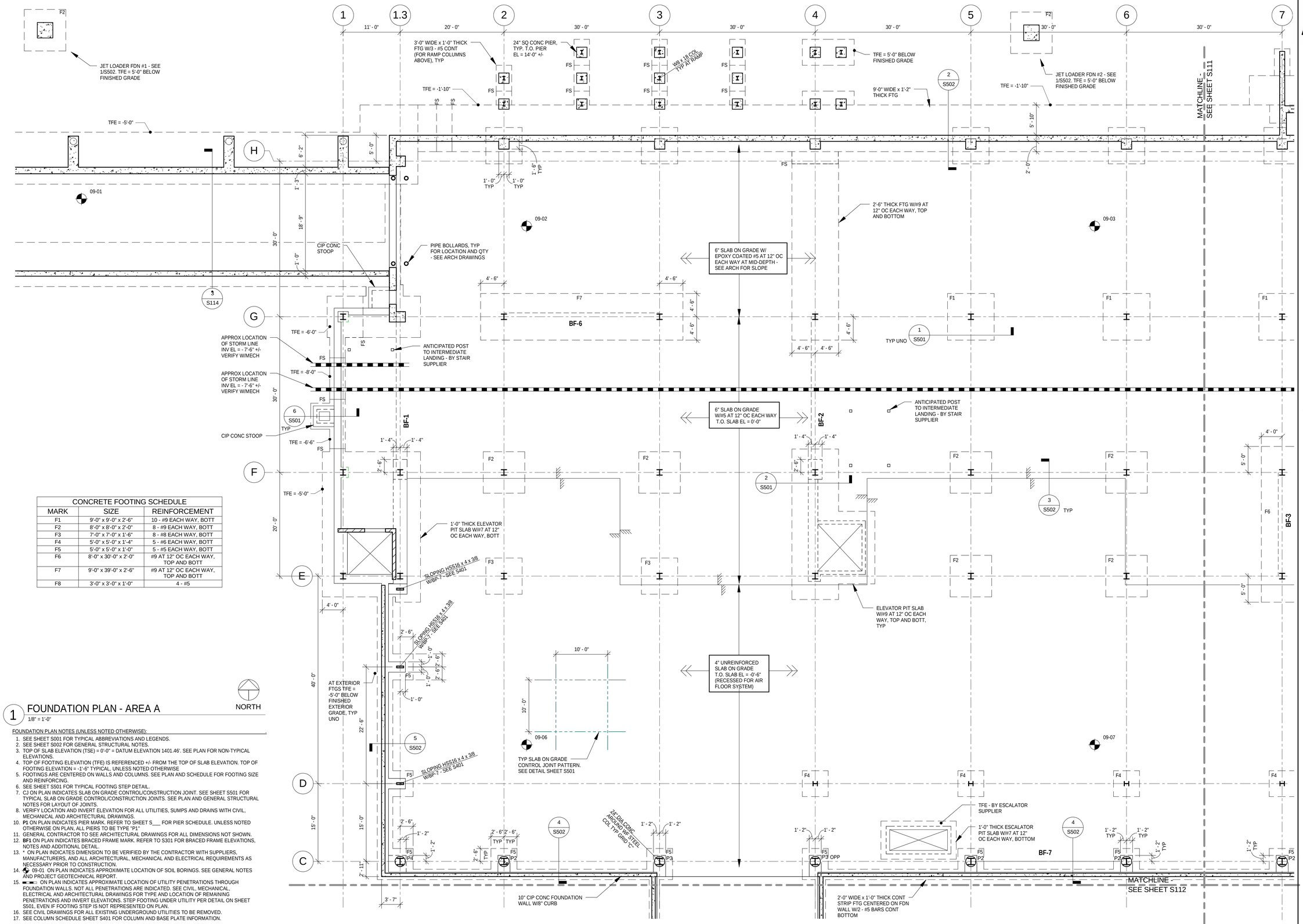
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
OVERALL ROOF LEVEL PLAN

SHEET NUMBER
S104

60% NOT FOR CONSTRUCTION



CONCRETE FOOTING SCHEDULE		
MARK	SIZE	REINFORCEMENT
F1	9'-0" x 9'-0" x 2'-6"	10 - #9 EACH WAY, BOTT
F2	8'-0" x 8'-0" x 2'-0"	8 - #9 EACH WAY, BOTT
F3	7'-0" x 7'-0" x 1'-6"	8 - #8 EACH WAY, BOTT
F4	5'-0" x 5'-0" x 1'-4"	5 - #6 EACH WAY, BOTT
F5	5'-0" x 5'-0" x 1'-0"	5 - #5 EACH WAY, BOTT
F6	8'-0" x 30'-0" x 2'-0"	#9 AT 12" OC EACH WAY, TOP AND BOTT
F7	9'-0" x 39'-0" x 2'-6"	#9 AT 12" OC EACH WAY, TOP AND BOTT
F8	3'-0" x 3'-0" x 1'-0"	4 - #5

1 FOUNDATION PLAN - AREA A

1/8" = 1'-0"

FOUNDATION PLAN NOTES (UNLESS NOTED OTHERWISE):

1. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND LEGENDS.
2. SEE SHEET S002 FOR GENERAL STRUCTURAL NOTES.
3. TOP OF SLAB ELEVATION (TSE) = 0'-0" = DATUM ELEVATION 1401.46'. SEE PLAN FOR NON-TYPICAL ELEVATIONS.
4. TOP OF FOOTING ELEVATION (TFE) IS REFERENCED +/- FROM THE TOP OF SLAB ELEVATION. TOP OF FOOTING ELEVATION = -1'-6" TYPICAL, UNLESS NOTED OTHERWISE
5. FOOTINGS ARE CENTERED ON WALLS AND COLUMNS. SEE PLAN AND SCHEDULE FOR FOOTING SIZE AND REINFORCING.
6. SEE SHEET S501 FOR TYPICAL FOOTING STEP DETAIL.
7. CJ ON PLAN INDICATES SLAB ON GRADE CONTROL/CONSTRUCTION JOINT. SEE SHEET S501 FOR TYPICAL SLAB ON GRADE CONTROL/CONSTRUCTION JOINTS. SEE PLAN AND GENERAL STRUCTURAL NOTES FOR LAYOUT OF JOINTS.
8. VERIFY LOCATION AND INVERT ELEVATION FOR ALL UTILITIES, SUMPS AND DRAINS WITH CIVIL, MECHANICAL AND ARCHITECTURAL DRAWINGS.
9. **P1** ON PLAN INDICATES PIER MARK. REFER TO SHEET S___ FOR PIER SCHEDULE. UNLESS NOTED OTHERWISE ON PLAN, ALL PIERS TO BE TYPE "P1"
10. GENERAL CONTRACTOR TO SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN.
11. **BF1** ON PLAN INDICATES BRACED FRAME MARK. REFER TO S301 FOR BRACED FRAME ELEVATIONS, NOTES AND ADDITIONAL DETAIL.
12. * ON PLAN INDICATES DIMENSION TO BE VERIFIED BY THE CONTRACTOR WITH SUPPLIERS, MANUFACTURERS, AND ALL ARCHITECTURAL, MECHANICAL AND ELECTRICAL REQUIREMENTS AS NECESSARY PRIOR TO CONSTRUCTION.
13. 09-01 ON PLAN INDICATES APPROXIMATE LOCATION OF SOIL BORINGS. SEE GENERAL NOTES AND PROJECT GEOTECHNICAL REPORT.
14. ▬▬ ON PLAN INDICATES APPROXIMATE LOCATION OF UTILITY PENETRATIONS THROUGH FOUNDATION WALLS. NOT ALL PENETRATIONS ARE INDICATED. SEE CIVIL, MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS FOR TYPE AND LOCATION OF REMAINING PENETRATIONS AND INVERT ELEVATIONS. STEP FOOTING UNDER UTILITY PER DETAIL ON SHEET S501, EVEN IF FOOTING STEP IS NOT REPRESENTED ON PLAN.
15. SEE CIVIL DRAWINGS FOR ALL EXISTING UNDERGROUND UTILITIES TO BE REMOVED.
16. SEE COLUMN SCHEDULE SHEET S401 FOR COLUMN AND BASE PLATE INFORMATION.

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REVISIONS

NO.	DESCRIPTION	DATE

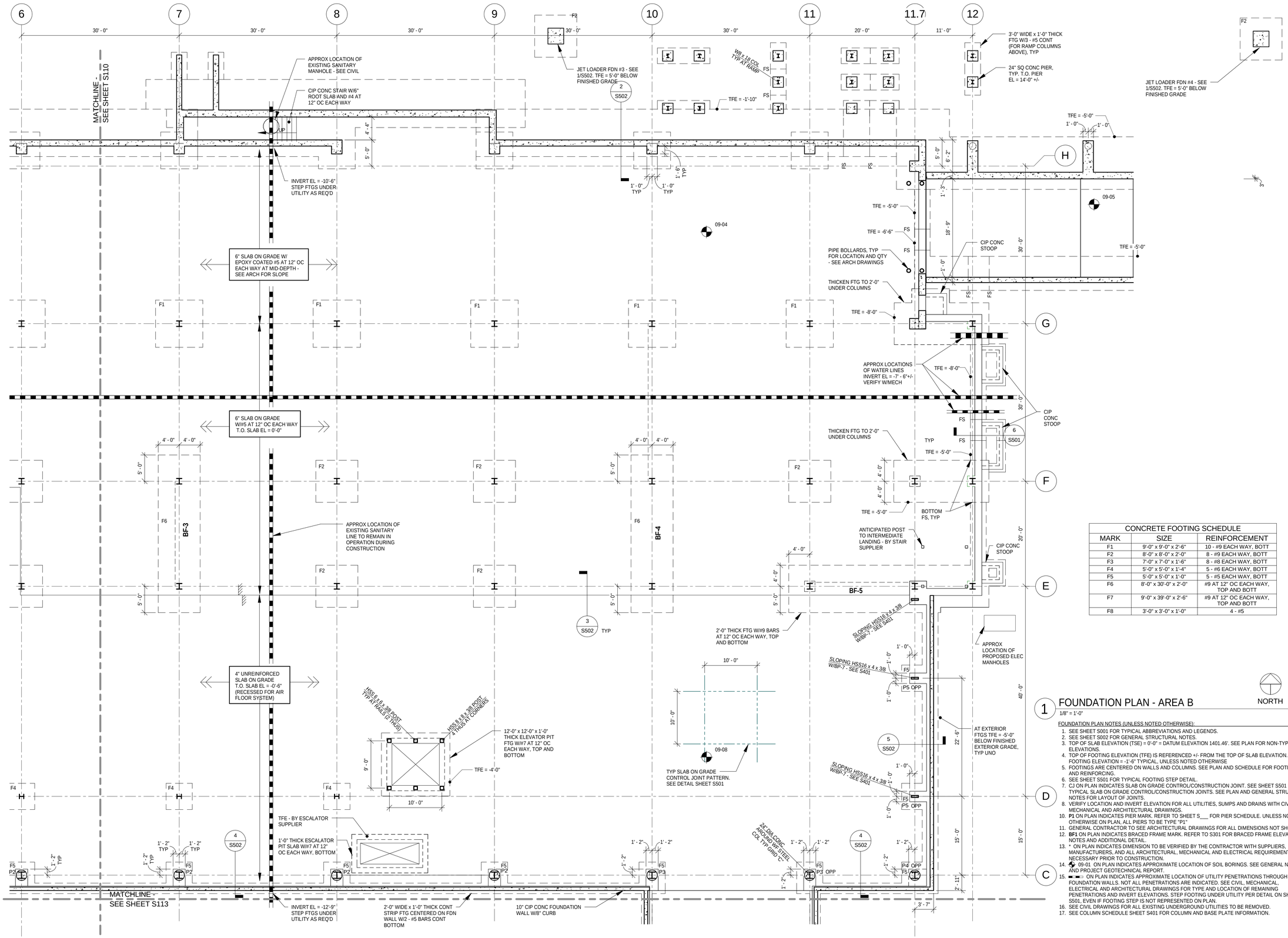
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
FOUNDATION PLAN - AREA A

SHEET NUMBER
S110

60% NOT FOR CONSTRUCTION



CONCRETE FOOTING SCHEDULE

MARK	SIZE	REINFORCEMENT
F1	9'-0" x 9'-0" x 2'-6"	10 - #9 EACH WAY, BOTT
F2	8'-0" x 8'-0" x 2'-0"	8 - #9 EACH WAY, BOTT
F3	7'-0" x 7'-0" x 1'-6"	8 - #8 EACH WAY, BOTT
F4	5'-0" x 5'-0" x 1'-4"	5 - #6 EACH WAY, BOTT
F5	5'-0" x 5'-0" x 1'-0"	5 - #5 EACH WAY, BOTT
F6	8'-0" x 30'-0" x 2'-0"	#9 AT 12" OC EACH WAY, TOP AND BOTT
F7	9'-0" x 39'-0" x 2'-6"	#9 AT 12" OC EACH WAY, TOP AND BOTT
F8	3'-0" x 3'-0" x 1'-0"	4 - #5

NORTH

1 FOUNDATION PLAN - AREA B

1/8" = 1'-0"

FOUNDATION PLAN NOTES (UNLESS NOTED OTHERWISE):

1. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND LEGENDS.
2. SEE SHEET S002 FOR GENERAL STRUCTURAL NOTES.
3. TOP OF SLAB ELEVATION (TSE) = 0'-0" = DATUM ELEVATION 1401.46'. SEE PLAN FOR NON-TYPICAL ELEVATIONS.
4. TOP OF FOOTING ELEVATION (TFE) IS REFERENCED +/- FROM THE TOP OF SLAB ELEVATION. TOP OF FOOTING ELEVATION = -1'-6" TYPICAL, UNLESS NOTED OTHERWISE
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6. SEE SHEET S501 FOR TYPICAL FOOTING STEP DETAIL.
7. CJ ON PLAN INDICATES SLAB ON GRADE CONTROL/CONSTRUCTION JOINT. SEE SHEET S501 FOR TYPICAL SLAB ON GRADE CONTROL/CONSTRUCTION JOINTS. SEE PLAN AND GENERAL STRUCTURAL NOTES FOR LAYOUT OF JOINTS.
8. VERIFY LOCATION AND INVERT ELEVATION FOR ALL UTILITIES, SUMPS AND DRAINS WITH CIVIL, MECHANICAL AND ARCHITECTURAL DRAWINGS.
9. **P1** ON PLAN INDICATES PIER MARK. REFER TO SHEET S___ FOR PIER SCHEDULE. UNLESS NOTED OTHERWISE ON PLAN, ALL PIERS TO BE TYPE "P1"
10. GENERAL CONTRACTOR TO SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN.
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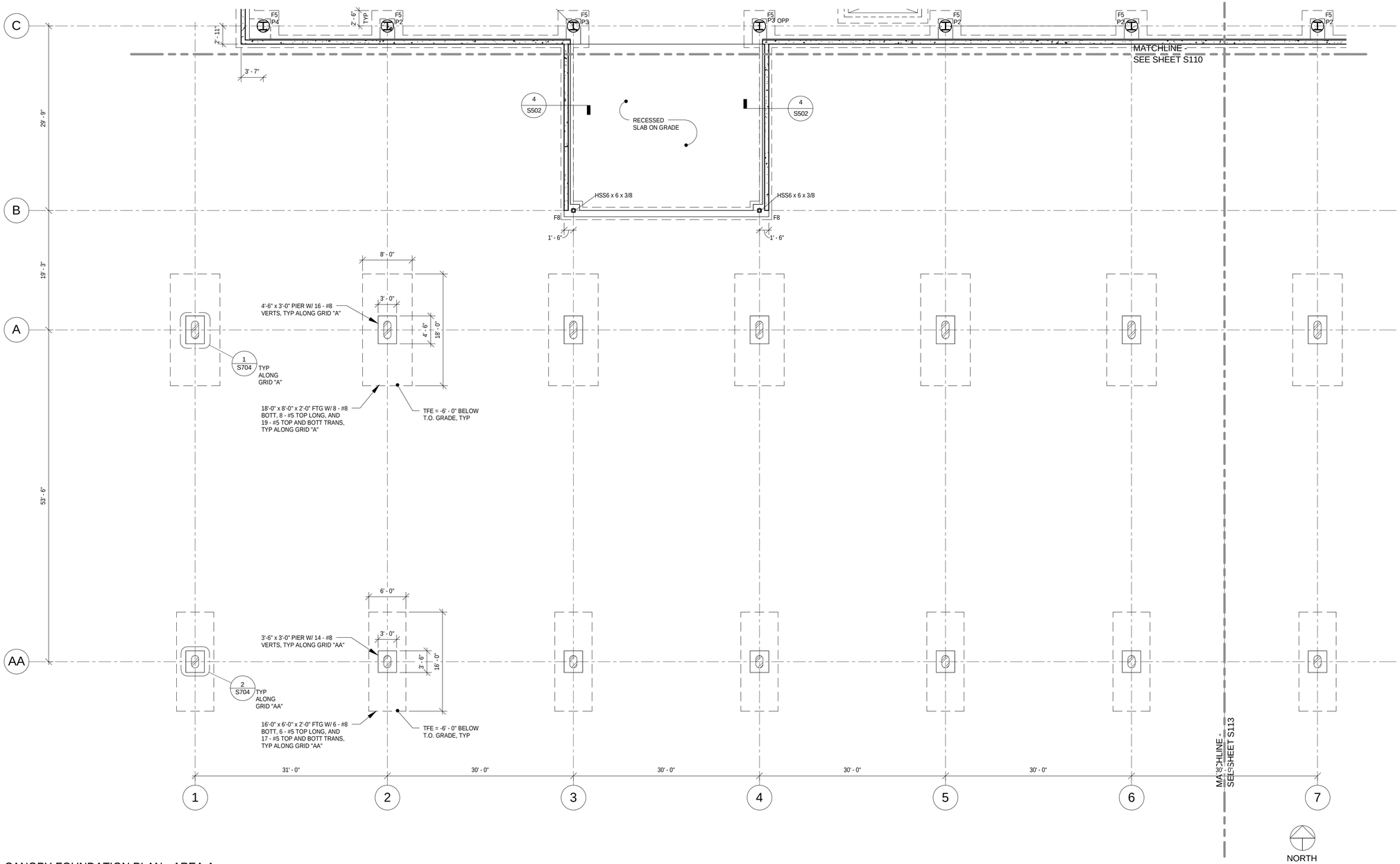
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
FOUNDATION PLAN - AREA B

SHEET NUMBER
S111

60% NOT FOR CONSTRUCTION



1 CANOPY FOUNDATION PLAN - AREA A
1/8" = 1'-0"

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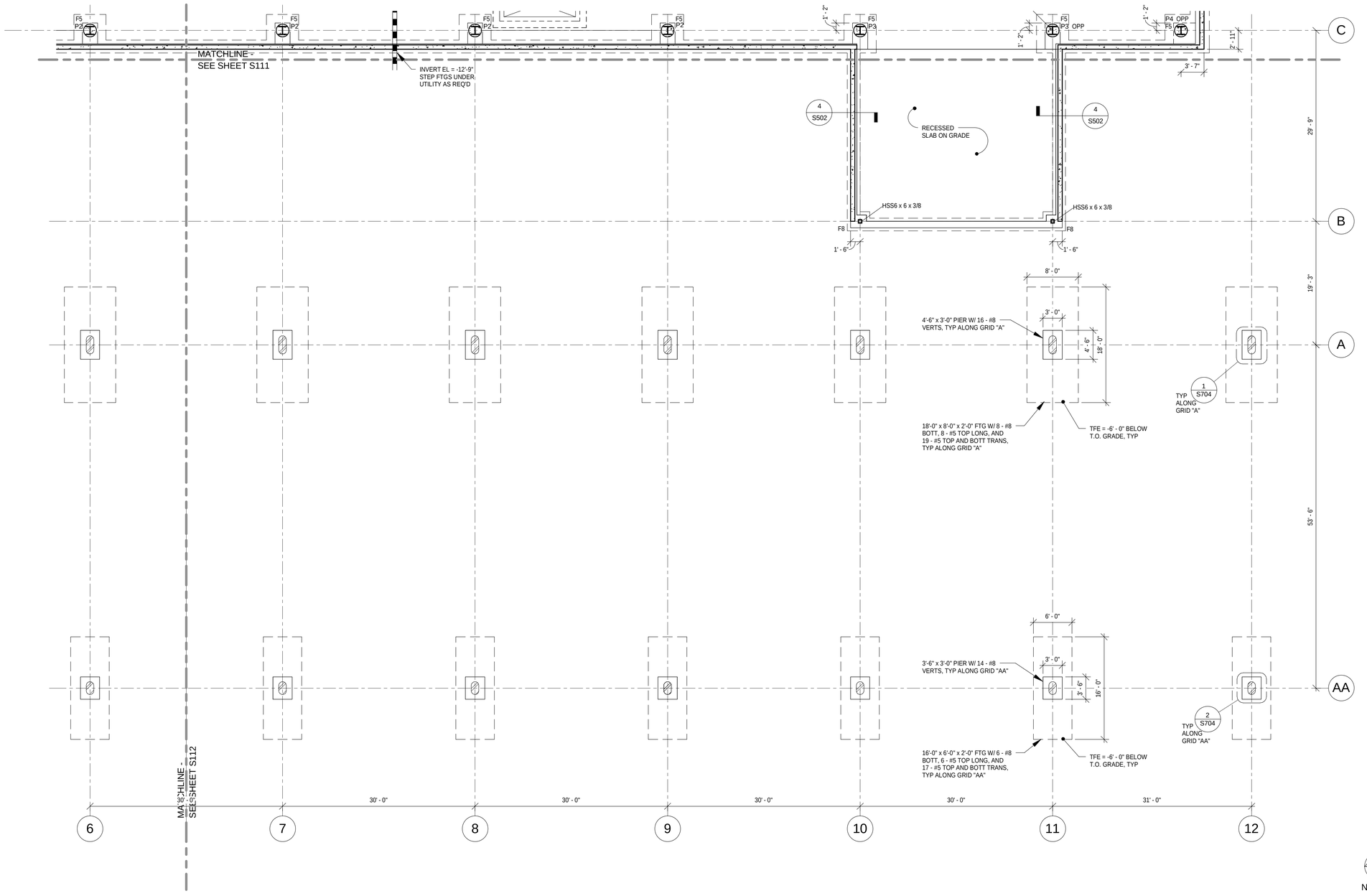
SHEET TITLE
CANOPY FOUNDATION PLAN - AREA A

SHEET NUMBER
S112

60% NOT FOR CONSTRUCTION



1 CANOPY FOUNDATION PLAN - AREA B
1/8" = 1'-0"

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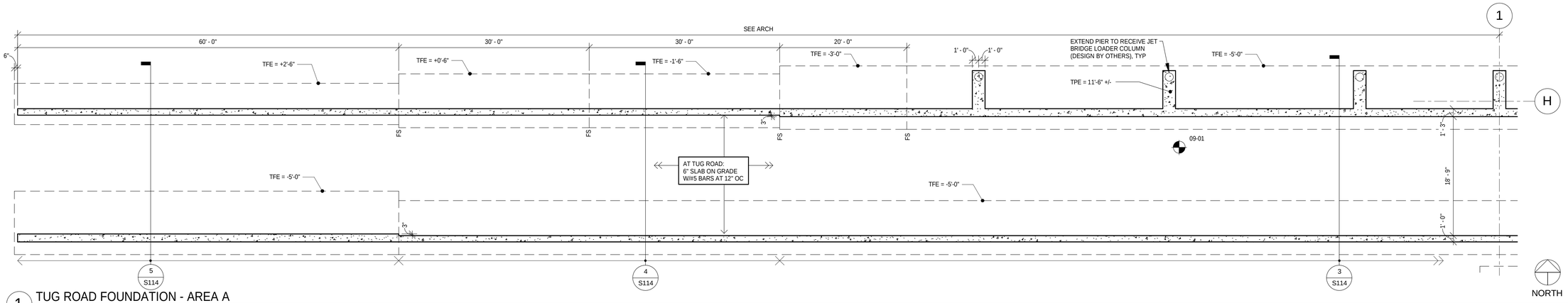
SHEET TITLE
CANOPY FOUNDATION PLAN - AREA B

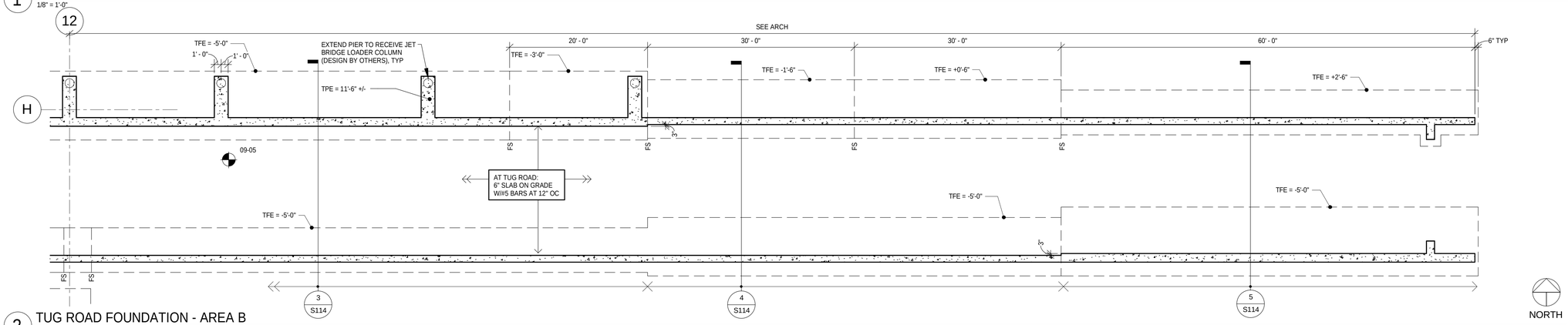
SHEET NUMBER
S113

60% NOT FOR CONSTRUCTION



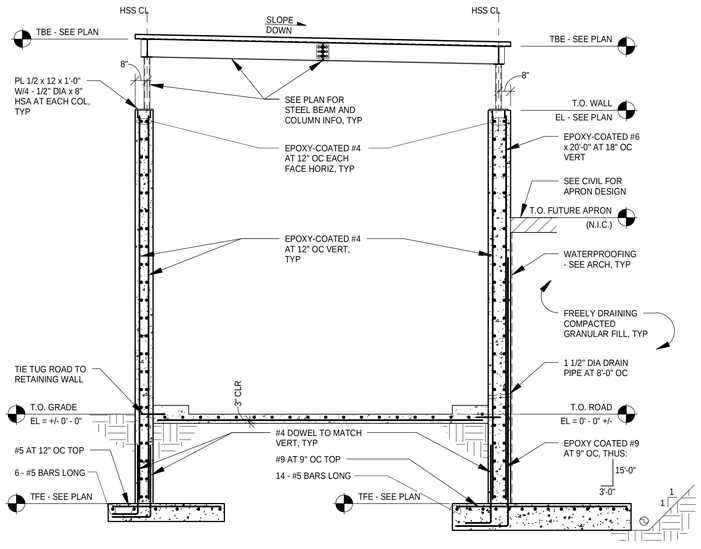
1 TUG ROAD FOUNDATION - AREA A

1/8" = 1'-0"



2 TUG ROAD FOUNDATION - AREA B

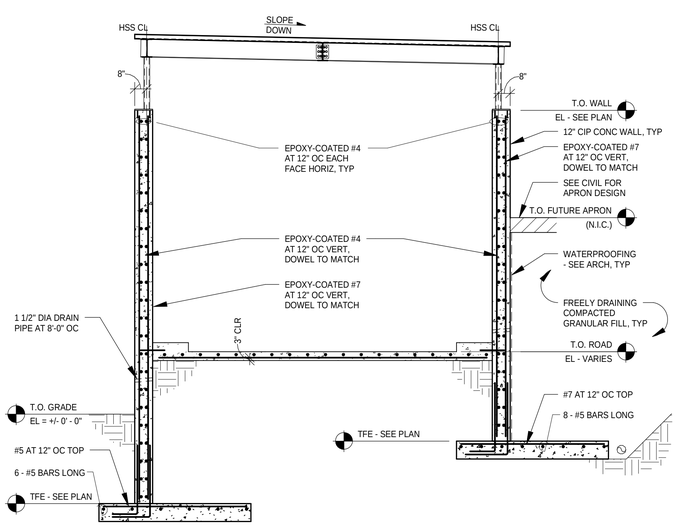
1/8" = 1'-0"



NOTES:
1. TUG ROAD AND CURB DESIGN BY CIVIL.
2. CONCRETE WALL FINISH BY ARCHITECTURAL.
3. CONTRACTOR TO ADEQUATELY SEQUENCE BACKFILLING OPERATIONS OR BRACE WALL UNTIL CONCRETE REACHES ITS 28-DAY COMPRESSIVE STRENGTH.
4. FREE-DRAINING COMPACTED GRANULAR BACKFILL TO BE AS DEFINED IN THE PROJECT GEOTECHNICAL REPORT.
5. DRAIN TILE DESIGN BY CIVIL.

3 SECTION NEAR TERMINAL (LOOKING WEST)

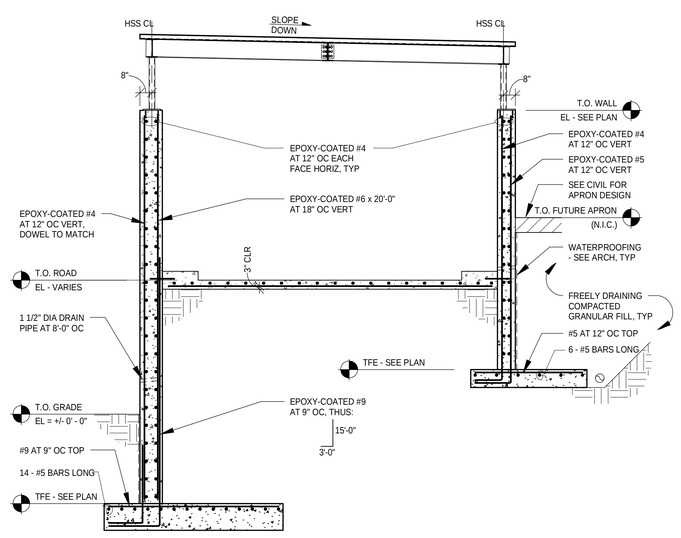
1/4" = 1'-0"



NOTES:
1. SEE 3/S114 FOR ADDITIONAL NOTES AND INFORMATION.

4 SECTION HALFWAY DOWN TUG ROAD (LOOKING WEST)

1/4" = 1'-0"



NOTES:
1. SEE 3/S114 FOR ADDITIONAL NOTES AND INFORMATION.

5 SECTION NEAR END (LOOKING WEST)

1/4" = 1'-0"

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW TERMINAL DESIGN

CONSULTANTS

Interior Architects:
SJA ARCHITECTS
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TEL: (218) 724-8578 / FAX: (218) 724-8717

Structural Engineers:
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501 Lake Avenue South, Suite 300, Duluth MN 55802
TEL: (218) 722-1056 / FAX: (218) 722-9306

M/E/P/FP Engineers:
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Baggage Handling Systems Consultants:
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101 East Ridge Office Park, Suite 103, Danbury CT 06810
TEL: (203) 792-3000 / FAX: (203) 792-4900

Landscape Consultants:
APPOLD DESIGN
2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE

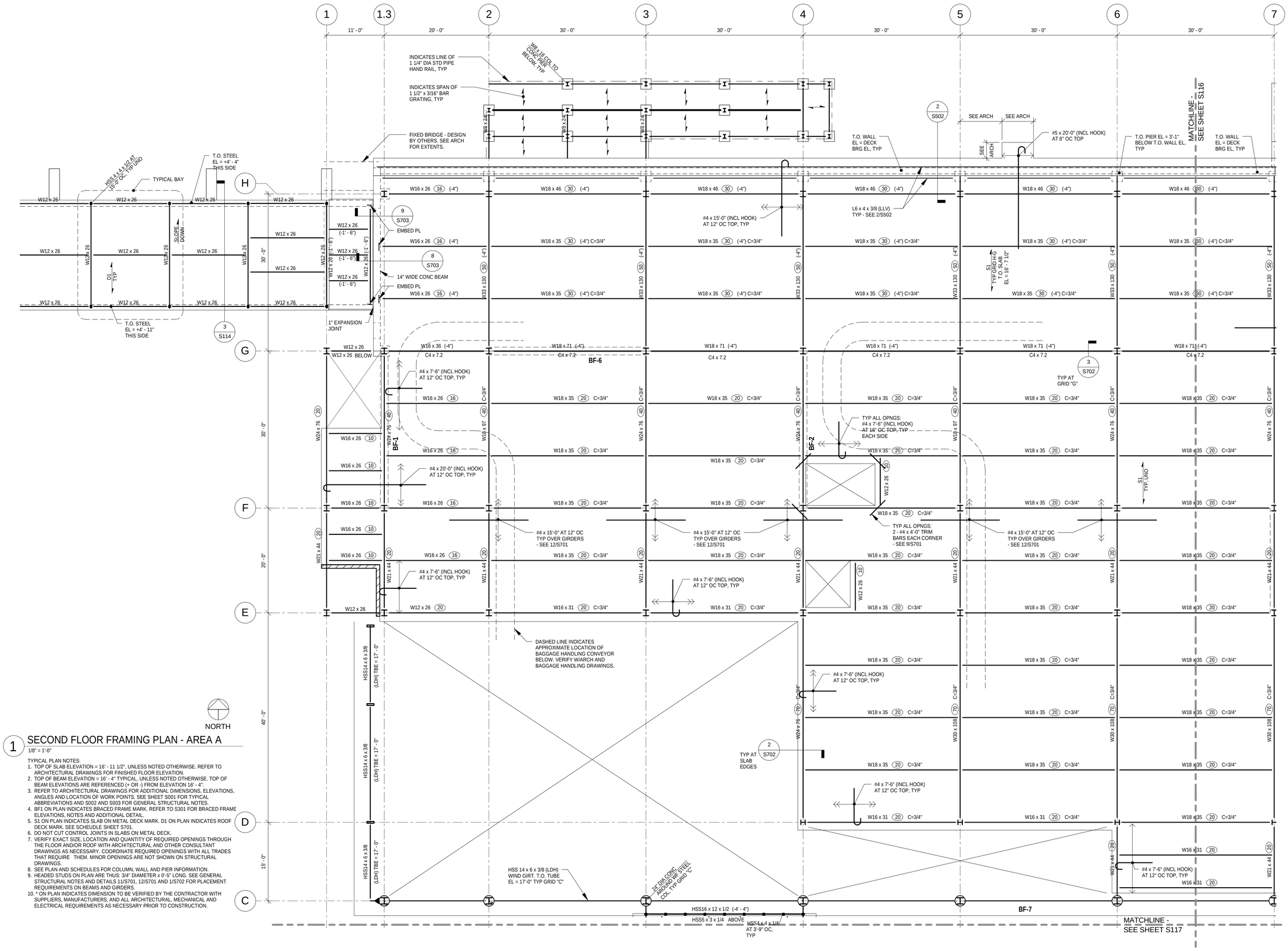
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
TUG ROAD FOUNDATION PLAN

SHEET NUMBER
S114

60% NOT FOR CONSTRUCTION



1 SECOND FLOOR FRAMING PLAN - AREA A

1/8" = 1'-0"

TYPICAL PLAN NOTES:

1. TOP OF SLAB ELEVATION = 16' - 11 1/2", UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TOP OF BEAM ELEVATION = 16' - 4" TYPICAL, UNLESS NOTED OTHERWISE. TOP OF BEAM ELEVATIONS ARE REFERENCED (+ OR -) FROM ELEVATION 16' - 4".
3. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS, ANGLES AND LOCATION OF WORK POINTS. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND S002 AND S003 FOR GENERAL STRUCTURAL NOTES.
4. BF1 ON PLAN INDICATES BRACED FRAME MARK. REFER TO S301 FOR BRACED FRAME ELEVATIONS, NOTES AND ADDITIONAL DETAIL.
5. S1 ON PLAN INDICATES SLAB ON METAL DECK MARK. D1 ON PLAN INDICATES ROOF DECK MARK. SEE SCHEUDLE SHEET S701.
6. DO NOT CUT CONTROL JOINTS IN SLABS ON METAL DECK.
7. VERIFY EXACT SIZE, LOCATION AND QUANTITY OF REQUIRED OPENINGS THROUGH THE FLOOR AND/OR ROOF WITH ARCHITECTURAL AND OTHER CONSULTANT DRAWINGS AS NECESSARY. COORDINATE REQUIRED OPENINGS WITH ALL TRADES THAT REQUIRE THEM. MINOR OPENINGS ARE NOT SHOWN ON STRUCTURAL DRAWINGS.
8. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
9. HEADED STUDS ON PLAN ARE THUS: 3/4" DIAMETER x 0'-5" LONG. SEE GENERAL STRUCTURAL NOTES AND DETAILS 11/S701, 12/S701 AND 1/S702 FOR PLACEMENT REQUIREMENTS ON BEAMS AND GIRDERS.
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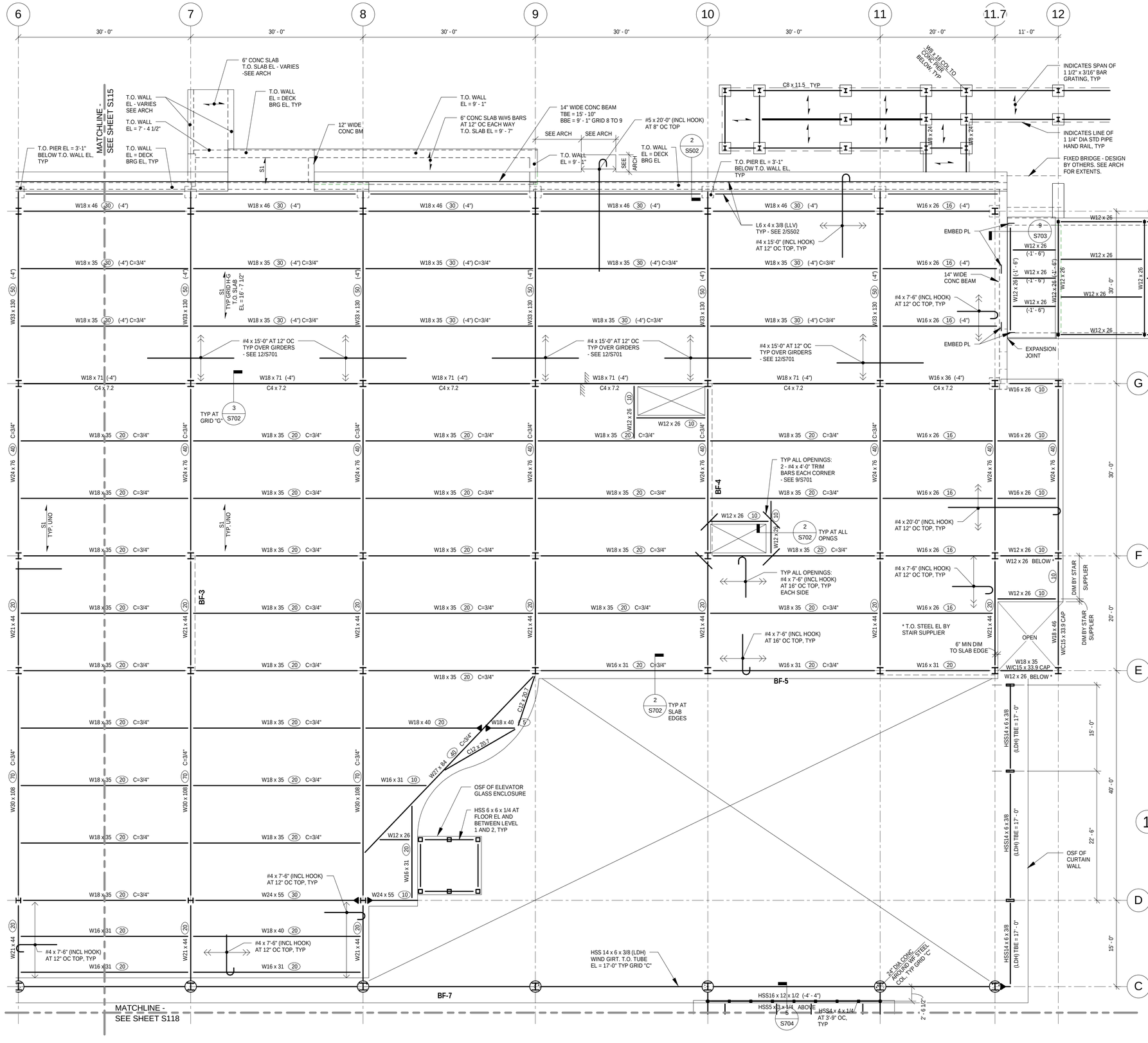
SHEET TITLE
SECOND LEVEL FRAMING PLAN - AREA A

SHEET NUMBER
S115

60% NOT FOR CONSTRUCTION



1 SECOND FLOOR FRAMING PLAN - AREA B

1/8" = 1'-0"

TYPICAL PLAN NOTES:

1. TOP OF SLAB ELEVATION = 16' - 11 1/2", UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TOP OF BEAM ELEVATION = 16' - 4" TYPICAL, UNLESS NOTED OTHERWISE. TOP OF BEAM ELEVATIONS ARE REFERENCED (+ OR -) FROM ELEVATION 16' - 4".
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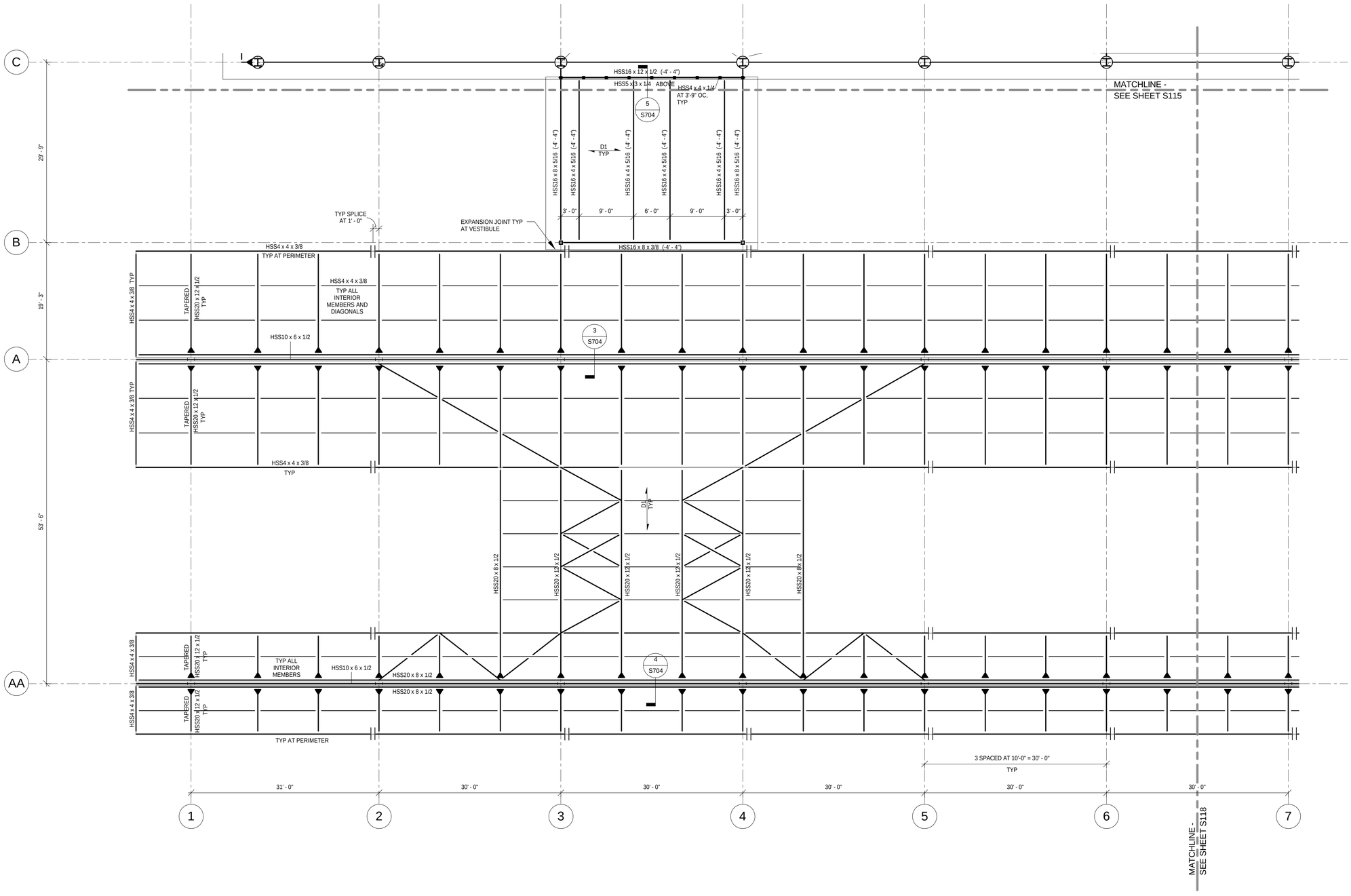
SHEET TITLE
SECOND LEVEL FRAMING PLAN - AREA B

SHEET NUMBER
S116

60% NOT FOR CONSTRUCTION



1 CANOPY ROOF PLAN - AREA A
1/8" = 1'-0"

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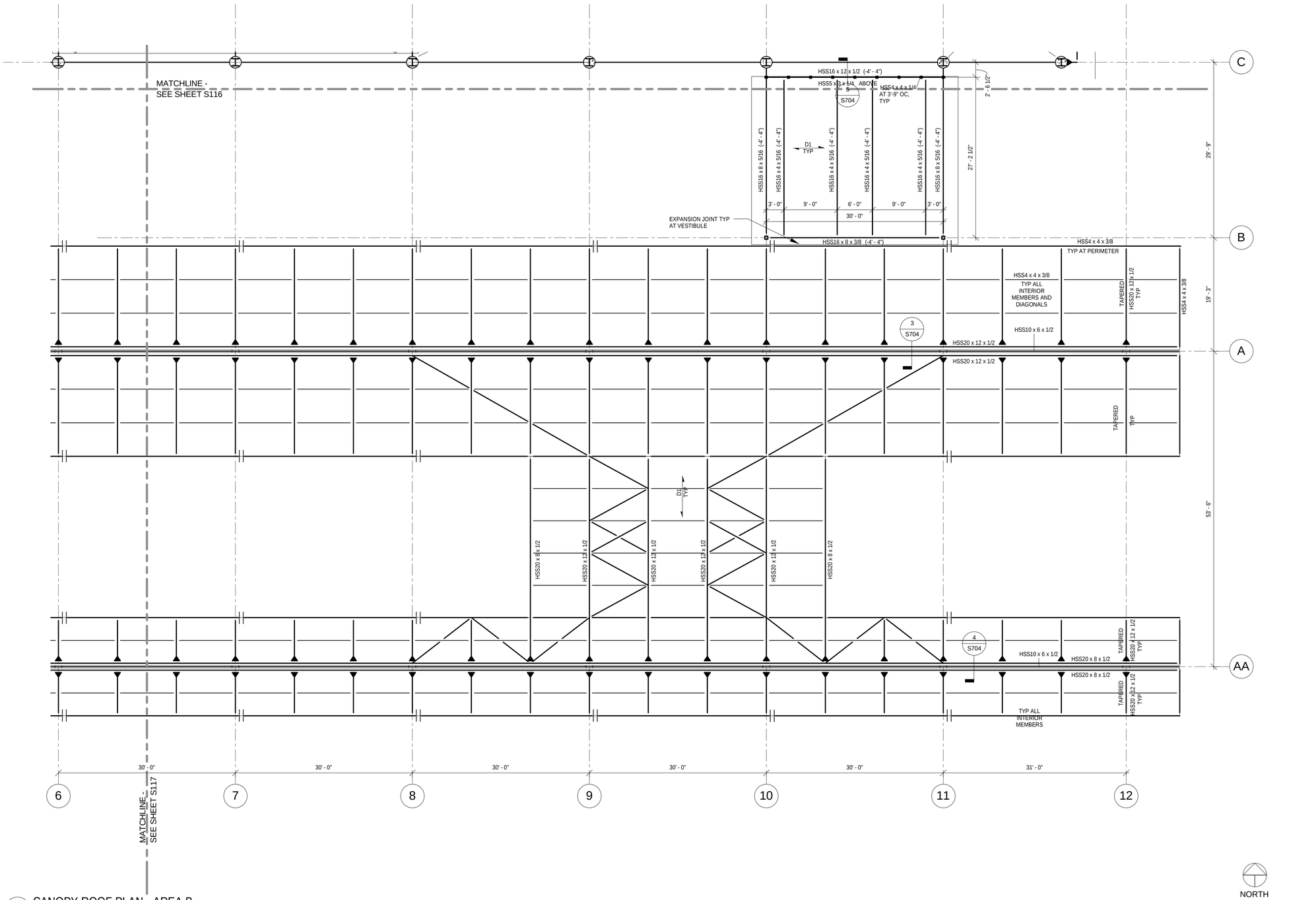
SHEET TITLE
CANOPY ROOF FRAMING PLAN - AREA A

SHEET NUMBER
S117

60% NOT FOR CONSTRUCTION



1 CANOPY ROOF PLAN - AREA B
1/8" = 1'-0"

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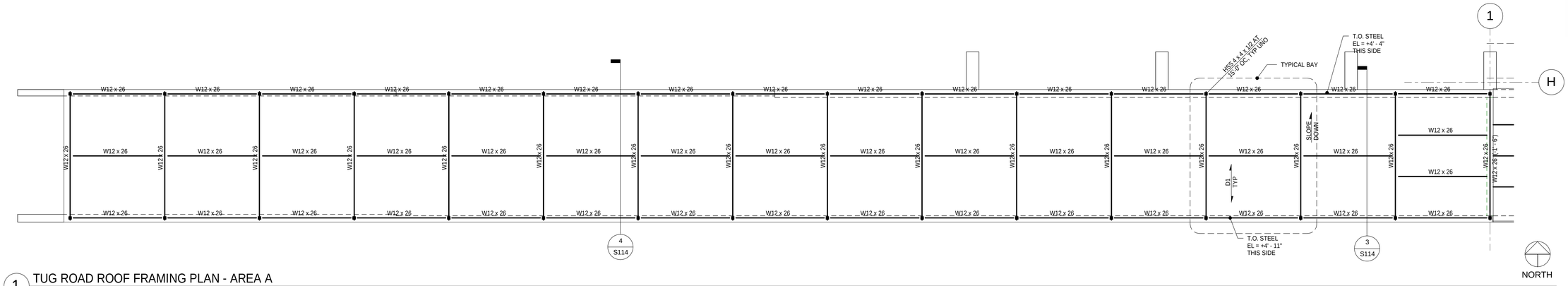
SHEET TITLE
CANOPY ROOF FRAMING PLAN - AREA B

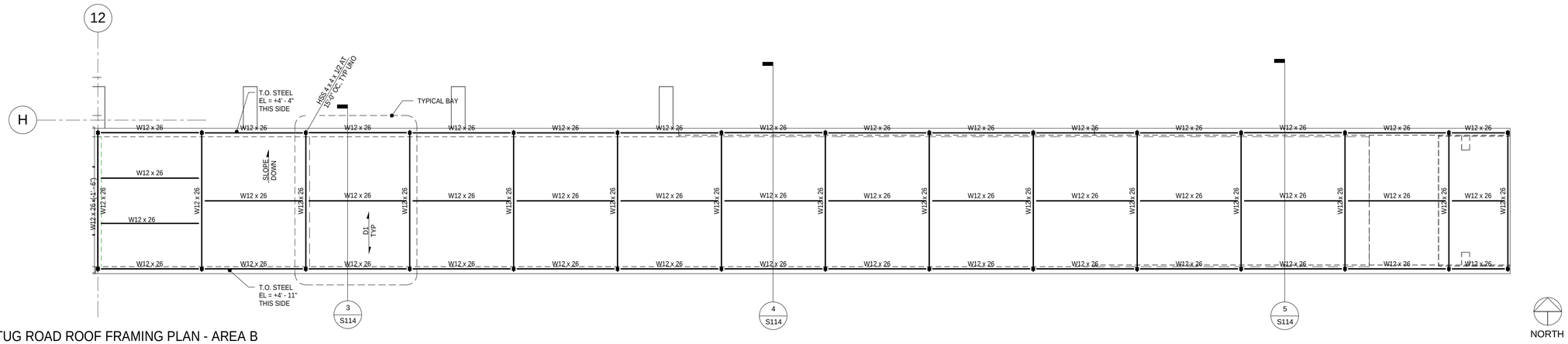
SHEET NUMBER
S118

60% NOT FOR CONSTRUCTION



1 TUG ROAD ROOF FRAMING PLAN - AREA A

1/8" = 1'-0"



2 TUG ROAD ROOF FRAMING PLAN - AREA B

1/8" = 1'-0"

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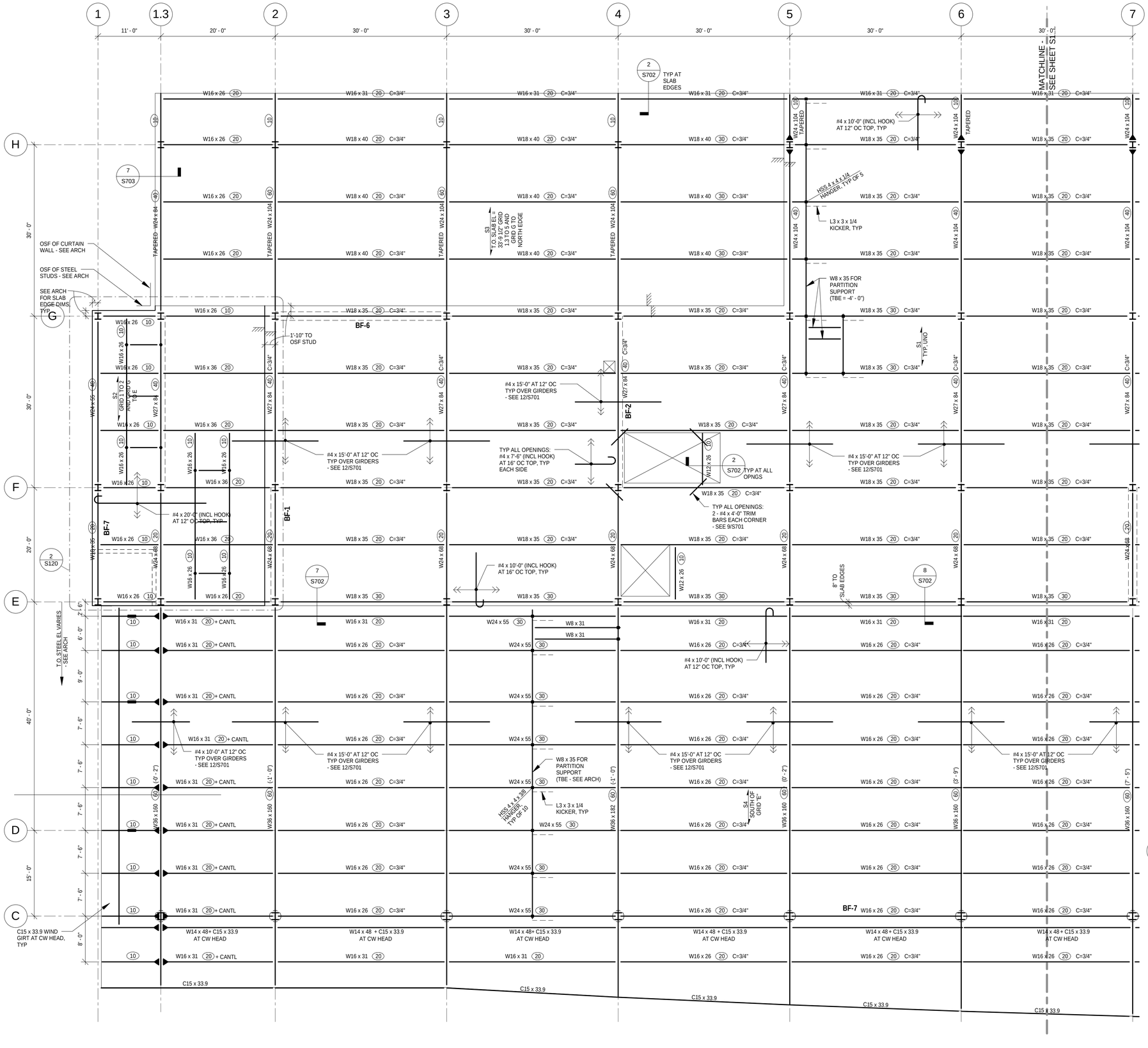
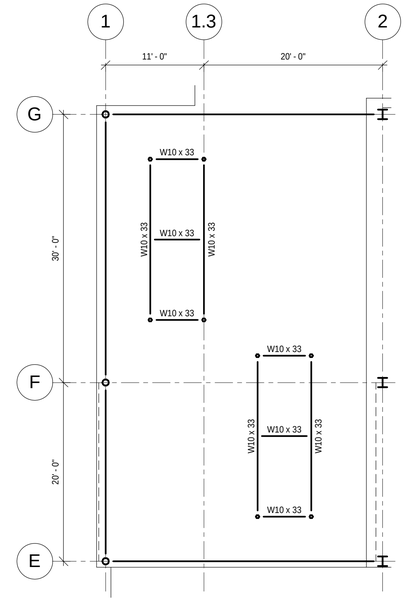
213-1882-091

SHEET TITLE
TUG ROAD ROOF FRAMING PLAN

SHEET NUMBER
S119

60% NOT FOR CONSTRUCTION





2 PARTIAL THIRD FLOOR FRAMING PLAN

1/8" = 1'-0"

NOTES:
1. TOP OF CHILLER SUPPORT BEAMS TO BE DETERMINED IN FIELD.

NORTH

1 THIRD LEVEL FRAMING PLAN - AREA A

1/8" = 1'-0"

TYPICAL PLAN NOTES:
1. TOP OF SLAB ELEVATION = 33' - 7 1/2", UNLESS NOTED OTHERWISE. REFER TO ARCHITECTURAL DRAWINGS FOR FINISHED FLOOR ELEVATION.
2. TOP OF BEAM ELEVATION = 33' - 0" TYPICAL, UNLESS NOTED OTHERWISE. TOP OF BEAM ELEVATIONS ARE REFERENCED (+ OR -) FROM ELEVATION 33' - 0".
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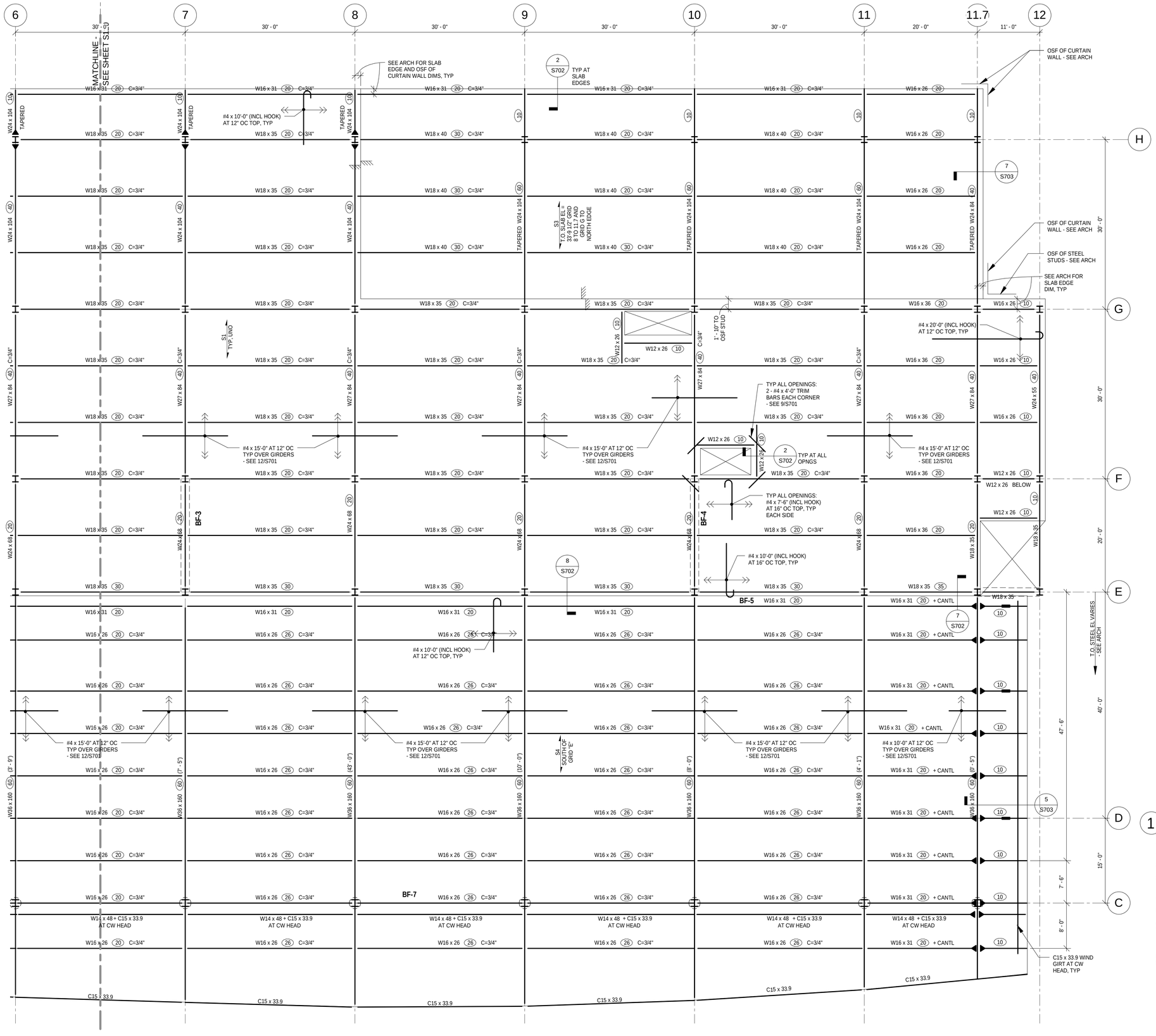
SHEET TITLE
THIRD LEVEL FRAMING PLAN - AREA A

SHEET NUMBER
S120

60% NOT FOR CONSTRUCTION



NORTH

1 THIRD LEVEL FRAMING PLAN - AREA B

1/8" = 1'-0"

TYPICAL PLAN NOTES:

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SHEET TITLE
THIRD LEVEL FRAMING PLAN - AREA B

SHEET NUMBER
S121

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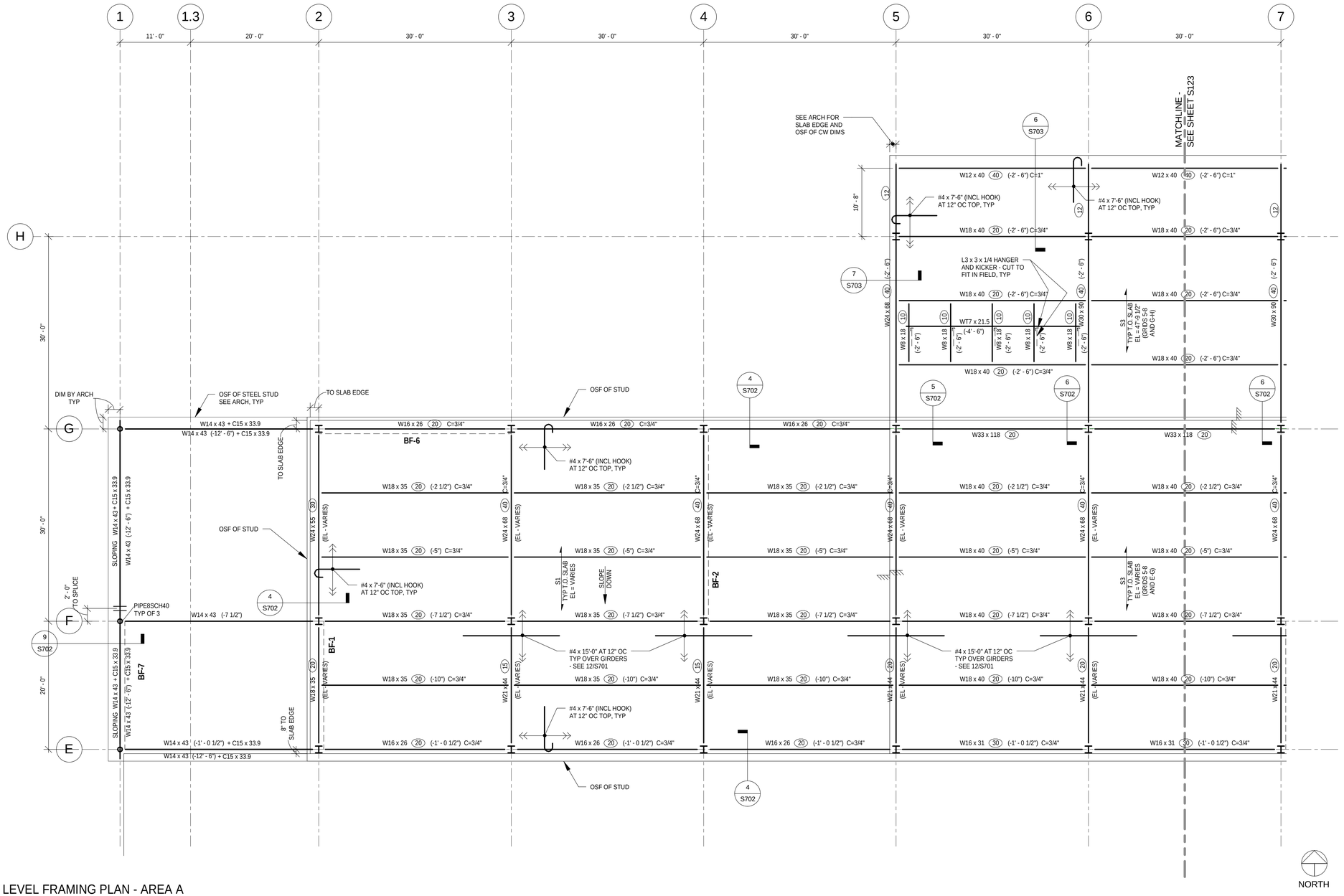

1 ROOF LEVEL FRAMING PLAN - AREA A

1/8" = 1'-0"

TYPICAL PLAN NOTES:

1. TOP OF STEEL BEAM ELEVATION IS REFERENCED (+ OR -) FROM ELEVATION 49' - 6". TOP OF STEEL BEAM = 49' - 6", UNLESS NOTED OTHERWISE.
2. TOP OF SLAB ELEVATION VARIES. SEE PLAN
3. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS, ANGLES AND LOCATION OF WORK POINTS. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND S002 AND S003 FOR GENERAL STRUCTURAL NOTES.
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Duluth, Minnesota 55811
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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW TERMINAL DESIGN

CONSULTANTS

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Landscape Consultants:
APPOLD DESIGN
2432 East First Street, Duluth MN 55812
TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE

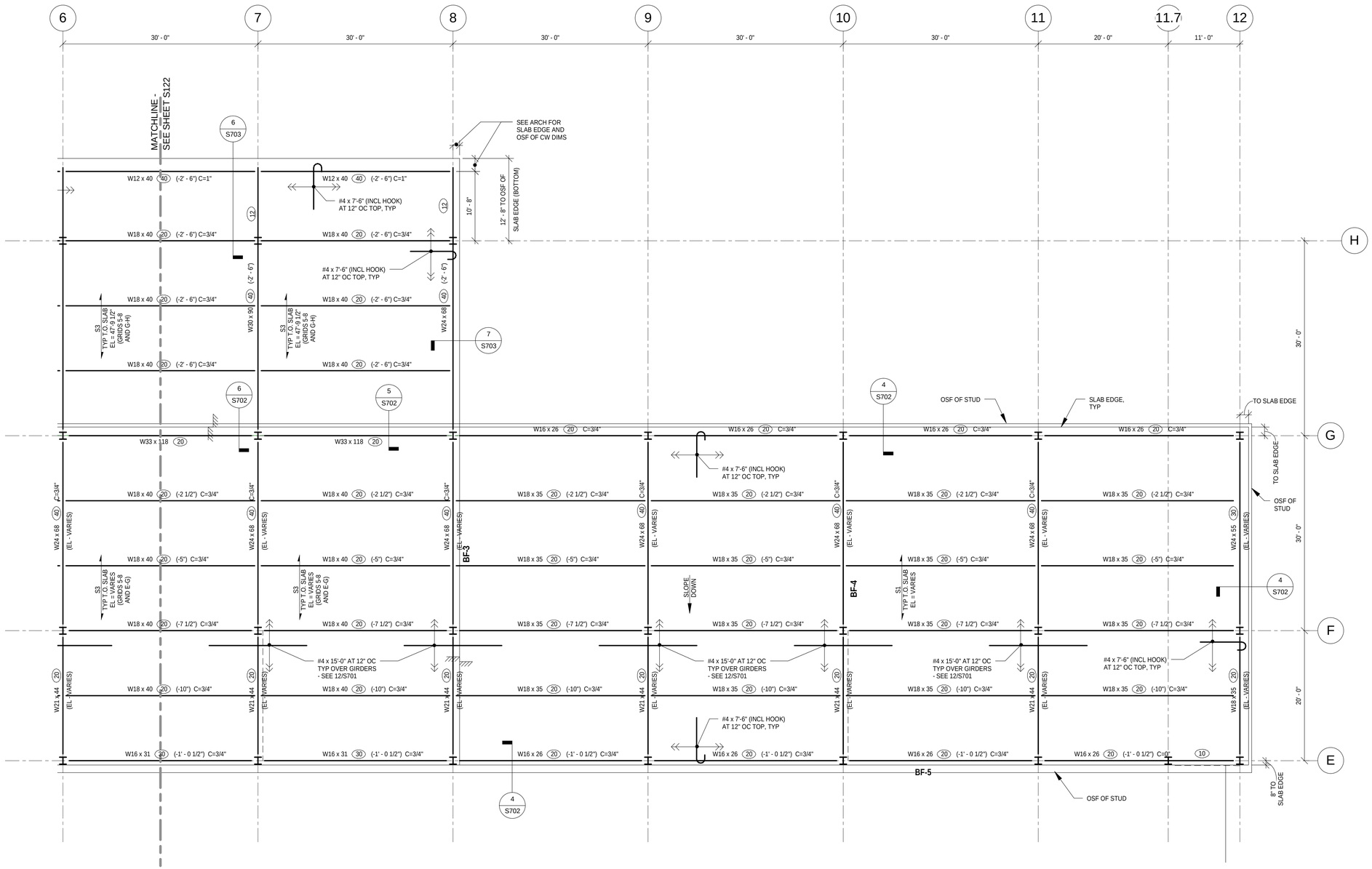
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ROOF LEVEL FRAMING PLAN - AREA A

SHEET NUMBER
S122

60% NOT FOR CONSTRUCTION



1 ROOF LEVEL FRAMING PLAN - AREA B

1/8" = 1'-0"

TYPICAL PLAN NOTES:

1. TOP OF STEEL BEAM ELEVATION IS REFERENCED (+ OR -) FROM ELEVATION 49' - 6". TOP OF STEEL BEAM = 49' - 6", UNLESS NOTED OTHERWISE.
2. TOP OF SLAB ELEVATION VARIES. SEE PLAN
3. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL DIMENSIONS, ELEVATIONS, ANGLES AND LOCATION OF WORK POINTS. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND S002 AND S003 FOR GENERAL STRUCTURAL NOTES.
4. BF1 ON PLAN INDICATES BRACED FRAME MARK. REFER TO S301 FOR BRACED FRAME ELEVATIONS, NOTES AND ADDITIONAL DETAIL.
5. S1 ON PLAN INDICATES SLAB ON METAL DECK MARK. D1 ON PLAN INDICATES ROOF DECK MARK. SEE SCHEDULE ON SHEET S701.
6. DO NOT CUT CONTROL JOINTS IN SLABS ON METAL DECK.
7. VERIFY EXACT SIZE, LOCATION AND QUANTITY OF REQUIRED OPENINGS THROUGH THE FLOOR AND/OR ROOF WITH ARCHITECTURAL AND OTHER CONSULTANT DRAWINGS AS NECESSARY. COORDINATE REQUIRED OPENINGS WITH ALL TRADES THAT REQUIRE THEM. MINOR OPENINGS ARE NOT SHOWN ON STRUCTURAL DRAWINGS.
8. SEE PLAN AND SCHEDULES FOR COLUMN, WALL AND PIER INFORMATION.
9. HEADED STUDS ON PLAN ARE THUS: 3/4" DIAMETER x 0'-5" LONG. SEE GENERAL STRUCTURAL NOTES AND DETAILS 11/S701, 12/S701 AND 1/S702 FOR PLACEMENT REQUIREMENTS ON BEAMS AND GIRDERS.
10. * ON PLAN INDICATES DIMENSION TO BE VERIFIED BY THE CONTRACTOR WITH SUPPLIERS, MANUFACTURERS, AND ALL ARCHITECTURAL, MECHANICAL AND ELECTRICAL REQUIREMENTS AS NECESSARY PRIOR TO CONSTRUCTION.

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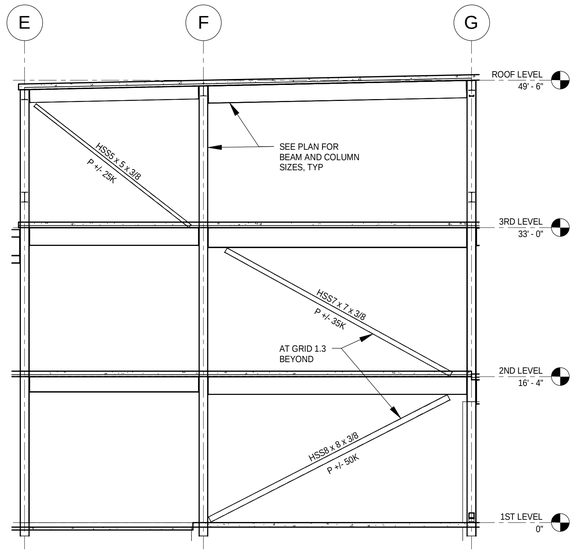
213-1882-091

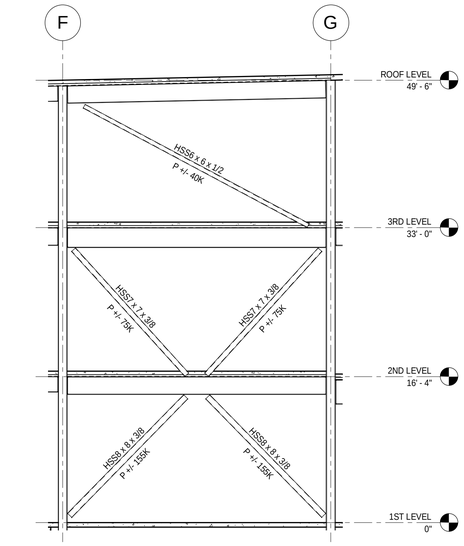
SHEET TITLE
ROOF LEVEL FRAMING PLAN - AREA B

SHEET NUMBER
S123

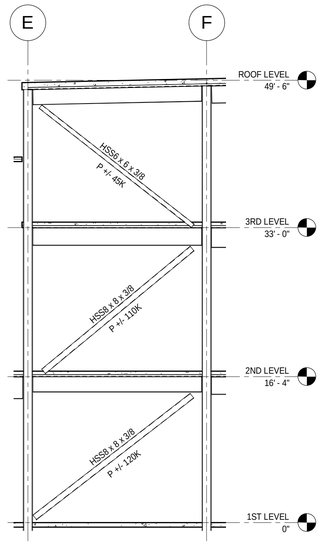
60% NOT FOR CONSTRUCTION



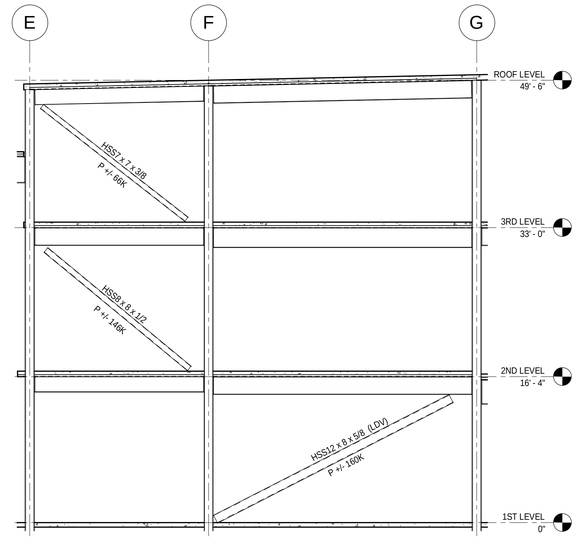
1 BF1 - BRACING AT GRID "2" AND "1.3"
1/8" = 1'-0"



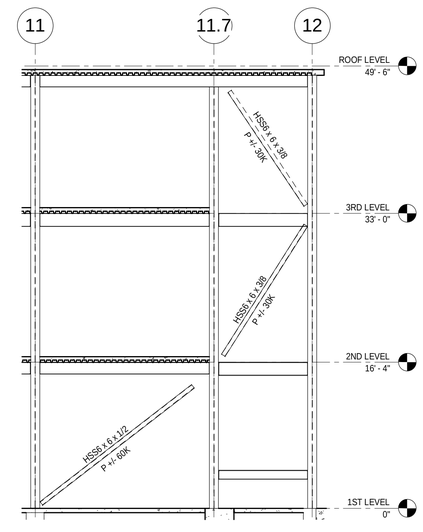
2 BF2 - BRACING AT GRID "4"
1/8" = 1'-0"



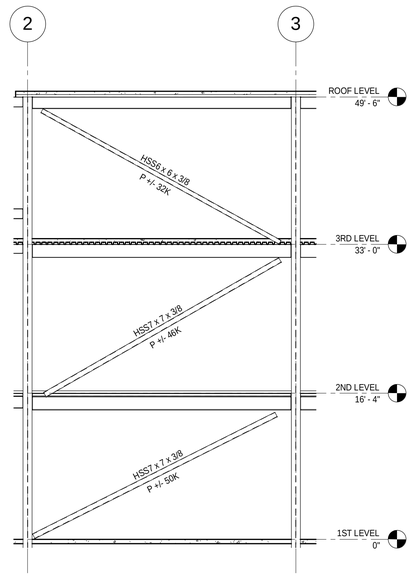
3 BF3 - BRACING AT GRID "7"
1/8" = 1'-0"



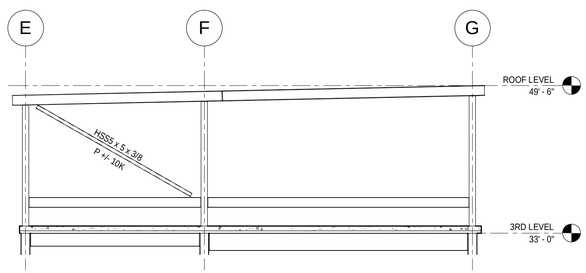
4 BF4 - BRACING AT GRID "10"
1/8" = 1'-0"



5 BF5 - BRACING AT GRID "E"
1/8" = 1'-0"

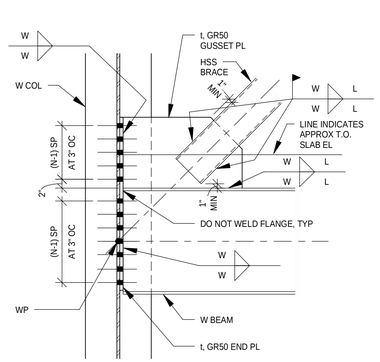


6 BF6 - BRACING AT GRID "G"
1/8" = 1'-0"



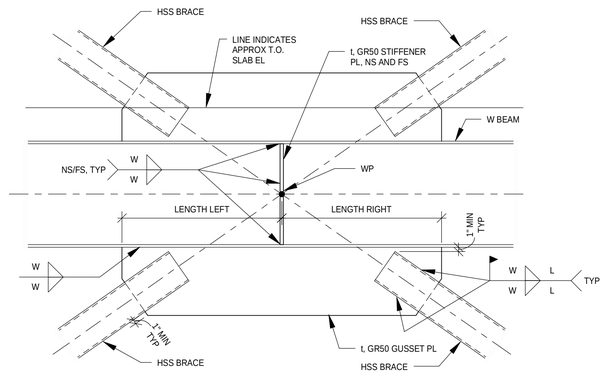
7 BF7 - BRACING AT GRID 1
1/8" = 1'-0"

GENERAL BRACED FRAME CONNECTION NOTES:
1. ALL PLATE MATERIAL USED IN CONNECTIONS: ASTM A572-50.
2. ALL ANGLE MATERIAL USED IN CONNECTIONS: ASTM A-36.
3. ALL BOLTS 3/4" DIAMETER A325N OR 1" A490N BOLTS, UNLESS NOTED OTHERWISE.
4. ALL BOLTS ARE IN STANDARD HOLES, UNLESS NOTED OTHERWISE.
5. 1 1/2" MINIMUM EDGE DISTANCE.
6. 6" MAXIMUM EDGE DISTANCE.
7. 2" MINIMUM PITCH.
8. E70XX WELDING ELECTRODES.
9. CONNECTIONS SHOWN ARE CONCEPTUAL DETAILS ONLY. WELD LENGTHS, NUMBER OR BOLTS AND PLATE SIZES WILL VARY AS REQUIRED FOR DESIGN FORCES INDICATED.
10. PROVIDE A SLOTTED ERECTION AID FOR BRACE MEMBERS.
11. DO NOT WELD BRACE TO UPPER GUSSET UNTIL AFTER COMPOSITE CONCRETE FLOORS HAVE BEEN POURED.
12. "P" INDICATES MEMBER AXIAL FORCE. "A" INDICATES AXIAL FORCE TO BE TRANSFERRED THROUGH THE CONNECTION.
13. "t" INDICATES PLATE THICKNESS TO BE DETERMINED BY FABRICATOR.



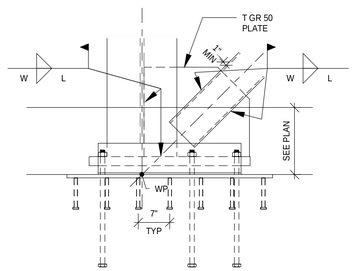
NOTES:
1. SEE GENERAL BRACED FRAME CONNECTION NOTES.

8 DETAIL
NO SCALE

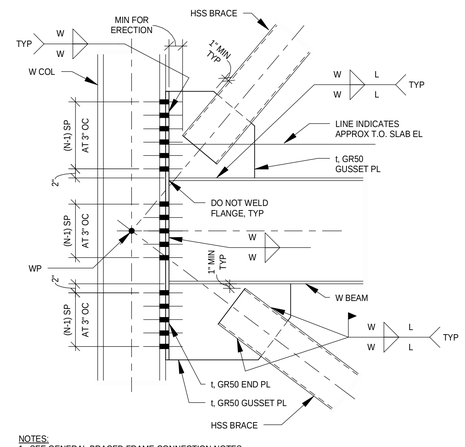


NOTES:
1. SEE GENERAL BRACED FRAME CONNECTION NOTES.

9 DETAIL
NO SCALE



10 TYPICAL FOUNDATION DETAIL AT BRACED FRAMES
NO SCALE



NOTES:
1. SEE GENERAL BRACED FRAME CONNECTION NOTES.

11 DETAIL
NO SCALE

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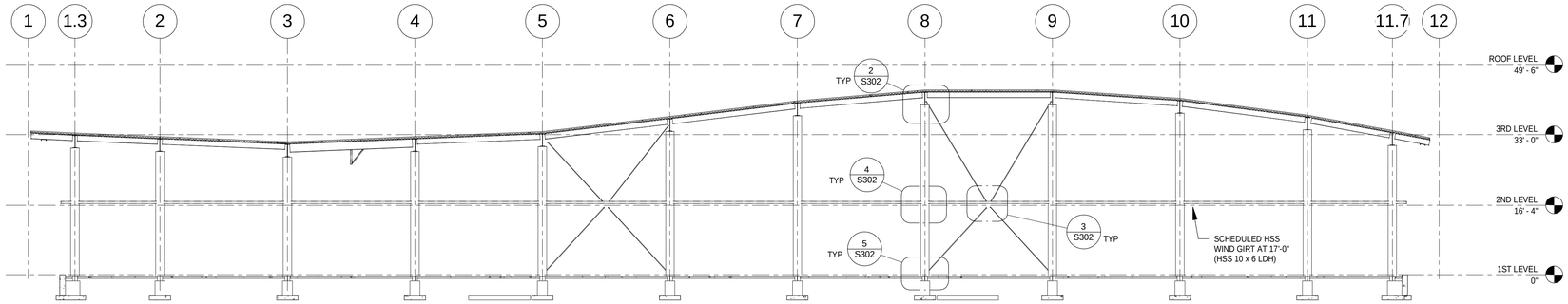
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
BRACING ELEVATIONS

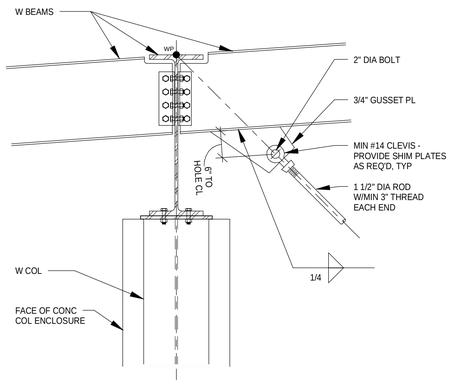
SHEET NUMBER
S301

60% NOT FOR CONSTRUCTION



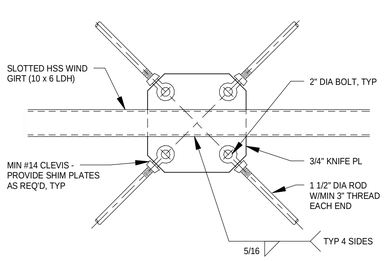
1 ELEVATION AT GRID "C"

1/16" = 1'-0"



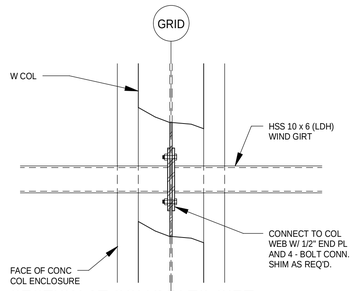
2 SECTION AT COLUMN HEAD

3/4" = 1'-0"



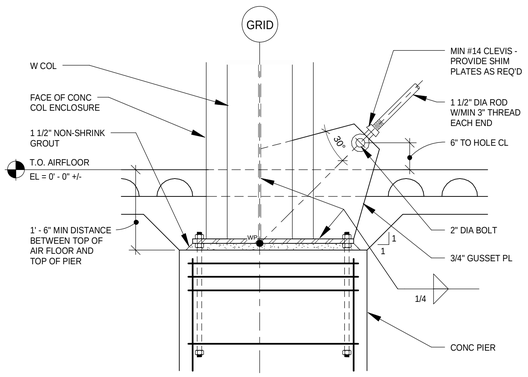
3 SECTION AT BRACING INTERSECTION

3/4" = 1'-0"



4 SECTION AT COLUMN TO GIRT CONNECTION

3/4" = 1'-0"



5 SECTION AT COLUMN BASE

3/4" = 1'-0"

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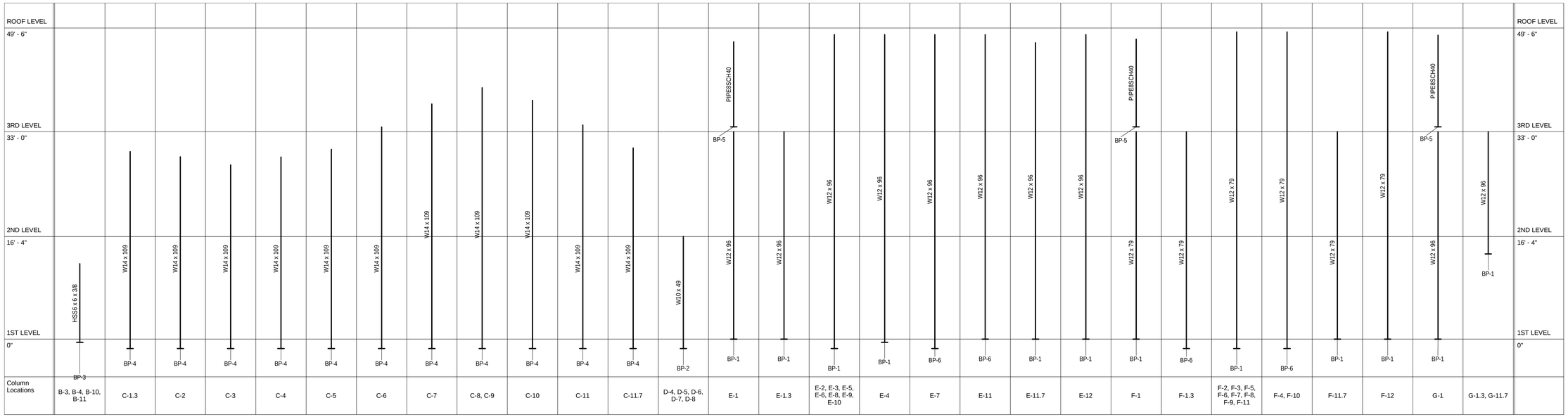
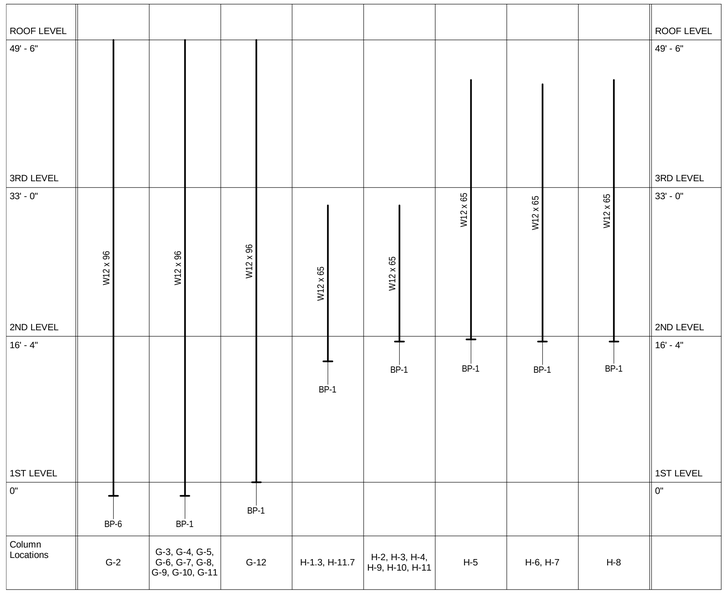
AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
ELEVATIONS

SHEET NUMBER
S302

60% NOT FOR CONSTRUCTION

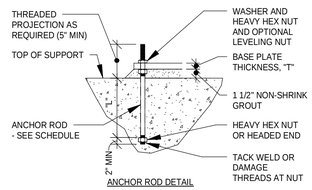




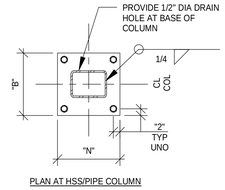
NOTES:
1. FOR BASE PLATE AND ANCHOR BOLT INFORMATION, SEE COLUMN BASE PLATE SCHEDULE THIS SHEET.
2. FOR BASE PLATES AT BRACED FRAME LOCATIONS, SEE SHEET S301 AND APPROPRIATE DETAILS.

1 STEEL COLUMN SCHEDULE

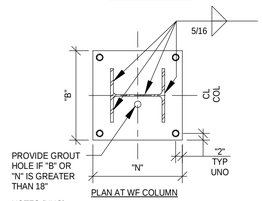
12" = 1'-0"



ANCHOR ROD DETAIL



PLAN AT HSS/PIPE COLUMN



PLAN AT WF COLUMN

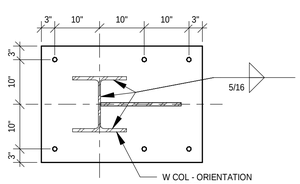
COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE

MARK	BASE PLATE SIZE (IN) "N"	"B"	"T"	ANCHOR RODS NO.	DIA (IN)	EMBED "L"	COMMENTS:
BP-1	20	20	1 3/4"	4	3/4"	0'-11"	
BP-2	14	14	1"	4	3/4"	0'-11"	
BP-3	12	12	3/4"	4	3/4"	0'-11"	
BP-4	22	22	1 1/2"	4	3/4"	0'-11"	
BP-5	12	12	3/4"	4	1/2"	0'-5"	EXP ANCHORS
BP-6	26	36	1 3/4"	6	1"	0'-18"	SEE 3/S401
BP-7	12	18	1 1/2"	4	3/4"	0'-11"	

NOTES (UNO):
1. SEE SCHEDULE FOR BASE PLATE AND ANCHOR ROD DIMENSIONS.
2. DIMENSION "N" IS PARALLEL TO WF WEB OR LONGER HSS DIMENSION.
3. ANCHOR RODS SHALL BE ASTM F1554, GRADE 36.
4. BASE PLATES SHALL BE ASTM A36.
5. MILL COLUMN BASE AND/OR BASE PLATE AS NECESSARY FOR FULL CONTACT.
6. ANCHOR RODS SHALL SET BY TEMPLATE AND NOT BE SET INTO CONCRETE AFTER CONCRETE IS CAST.
7. FOR BASE PLATES AT BRACED FRAMES, SEE SHEET S301 AND APPROPRIATE DETAILS.

2 COLUMN BASE PLATE AND ANCHOR ROD SCHEDULE

NO SCALE



3 BP-6

3/4" = 1'-0"

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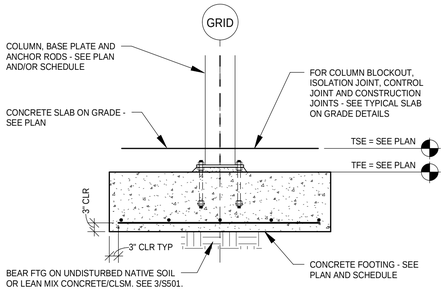
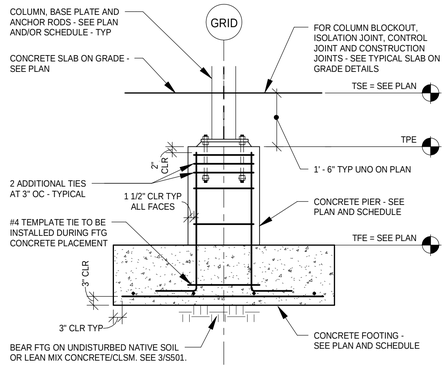
SHEET TITLE
COLUMN SCHEDULE AND DETAILS

SHEET NUMBER
S401

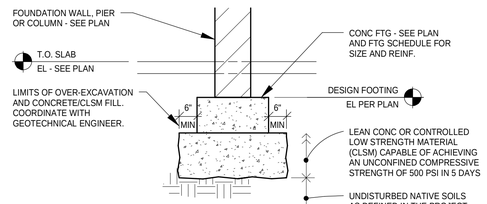
60% NOT FOR CONSTRUCTION



1 TYPICAL INTERIOR WF COLUMN FOOTING DETAIL
NO SCALE

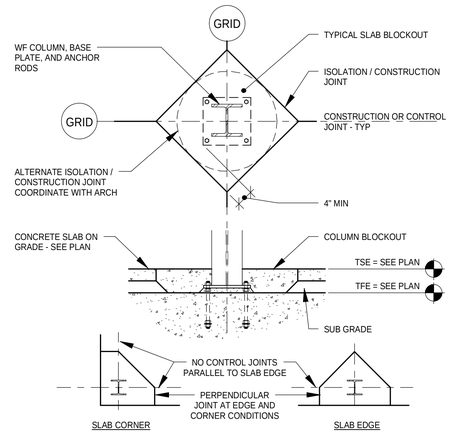


2 TYPICAL WF COLUMN, CONCRETE PIER AND FOOTING DETAIL
NO SCALE



NOTES:
1. THIS DETAIL APPLIES ONLY AT LOCATIONS WHERE THE GEOTECHNICAL ENGINEER HAS DETERMINED THAT SOILS AT THE DESIGN FOOTING ELEVATIONS ARE NOT ADEQUATE FOR FOOTING SUPPORT ACCORDING TO THE ALLOWABLE SOIL BEARING CAPACITY LISTED UNDER "DESIGN UNIT STRESS" ON SHEET S002.
2. IN LIEU OF OVER-EXCAVATING AND PLACING LEAN CONCRETE OR CLSM AS OUTLINED IN THIS DETAIL, CONTRACTOR MAY LOWER THE DESIGN FOOTING ELEVATION SUCH THAT THE FOOTING RESTS DIRECTLY ON UNDISTURBED NATIVE SOILS AS APPROVED BY THE GEOTECHNICAL ENGINEER IN THE FIELD.

3 OVER-EXCAVATION WITH LEAN CONCRETE/CLSM FILL DETAIL
NO SCALE

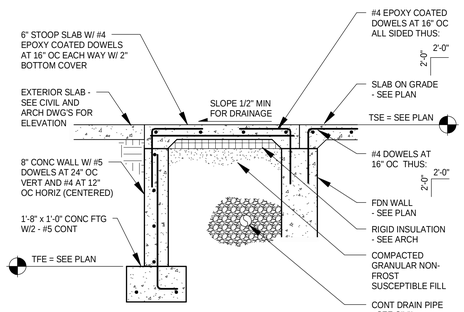


4 TYPICAL COLUMN ISOLATION JOINT
NO SCALE

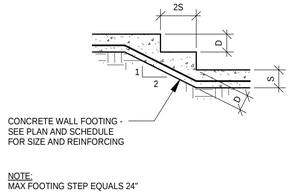
TENSION LAP SPLICE / CONCRETE / GR 60 UNCOATED REINFORCING				
STRUCTURAL ELEMENTS	FOOTINGS / SLAB-ON-GRADE / CONCRETE FILL ON METAL DECK			
CONCRETE	F'c = 4,000 PSI (NORMAL WEIGHT)			
BAR SIZE	CLASS "A" LAP		CLASS "B" LAP	
	BASIC	TOP BAR	BASIC	TOP BAR
#3	12"	14"	14"	18"
#4	15"	19"	19"	25"
#5	18"	23"	23"	30"
#6	22"	28"	28"	36"
#7	32"	42"	42"	55"
#8	42"	55"	55"	71"
#9	53"	69"	69"	90"
#10	68"	88"	88"	114"
#11	83"	108"	108"	140"

NOTES:
1. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE PLACED BELOW THEM.
2. USE CLASS "B" LAP LENGTHS - TYPICAL UNLESS NOTED OTHERWISE ON DRAWINGS.

5 BAR LAP SCHEDULE
NO SCALE

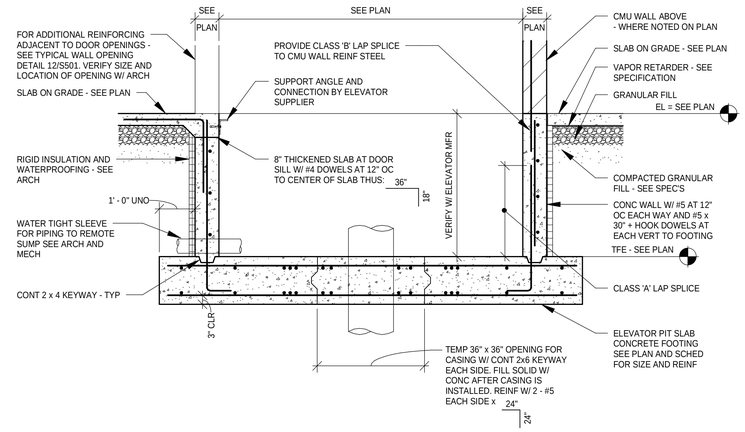


6 TYPICAL STOOP DETAIL
NO SCALE

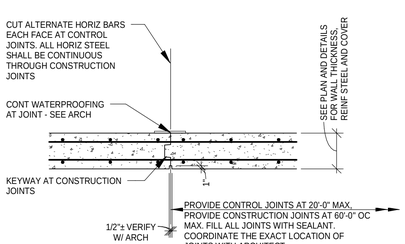


NOTE:
MAX FOOTING STEP EQUALS 24"

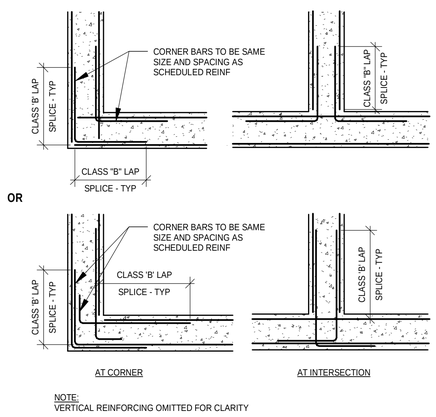
7 TYPICAL FOOTING STEP
NO SCALE



8 SECTION THRU ELEVATOR PIT
NO SCALE

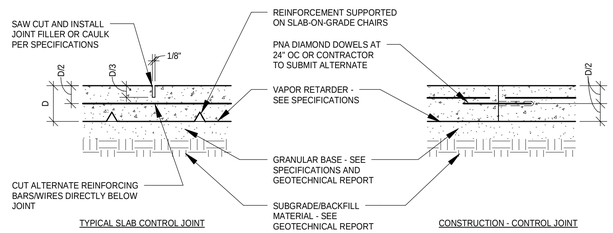


9 TYPICAL CONSTRUCTION/CONTROL JOINTS FOR CONCRETE WALLS
1/2" = 1'-0"



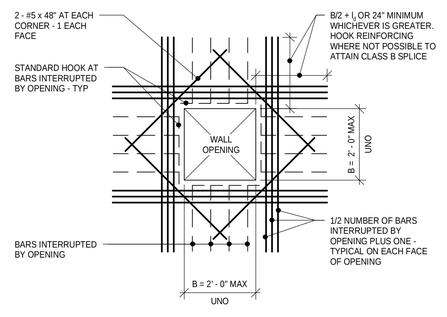
NOTE:
VERTICAL REINFORCING OMITTED FOR CLARITY

10 TYPICAL CORNER BAR PLACING DETAIL
NO SCALE



NOTES:
1. A CONSTRUCTION JOINT WHICH IS NOT INTENDED TO ALSO SERVE AS A CONTROL JOINT IS TO HAVE ALL REINFORCING EXTEND THROUGH IT AND TO HAVE NO GROOVE/SAW-CUT, UNLESS NOTED OTHERWISE.
2. IGNORE REINFORCING NOTES AT UNREINFORCED OR FIBER REINFORCED SLABS-ON-GRADE.
3. FOR EXTERIOR SLAB ON GRADE EXPOSED TO FREEZE-THAW CYCLES, CONSTRUCT A SLAB EXPANSION-CONTRACTION JOINT THE SAME EXCEPT ADD 3/8" COMPRESSIBLE MATERIAL THROUGH JOINT.

11 TYPICAL SLAB ON GRADE CONSTRUCTION DETAIL
1/2" = 1'-0"



NOTES:
1. FOR WALL OPENINGS LARGER THAN 2'-0" (FOR WALLS NOT SUBJECT TO LATERAL EARTHPRESSURE) ADD 2 - #5 EACH FACE ALL 4 SIDES OF OPENING. EXTEND BAR 24" PAST OPENING UNLESS NOTED OTHERWISE.

12 TYPICAL ADDITIONAL BAR PLACING DETAIL FOR WALL OPENING
1/2" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

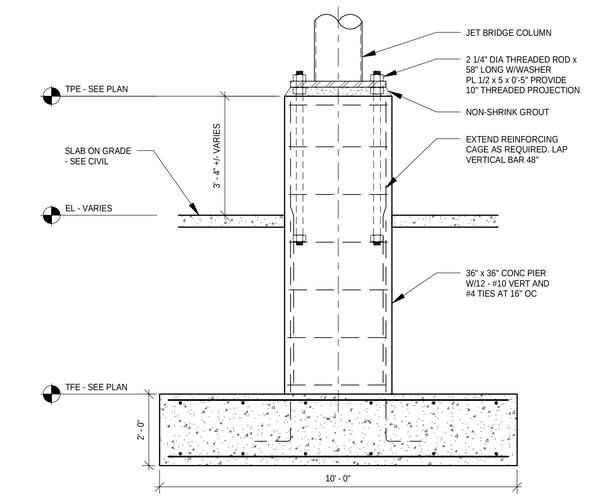
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

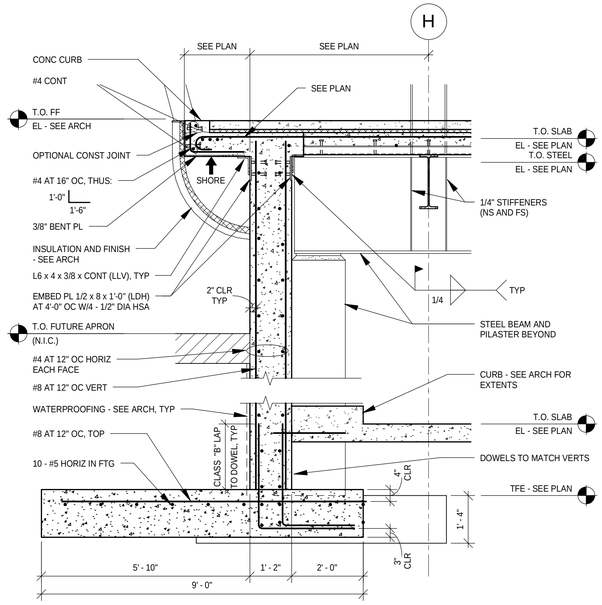
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S501

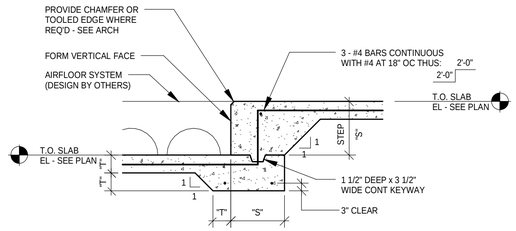
60% NOT FOR CONSTRUCTION



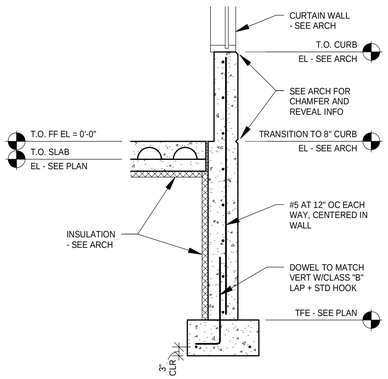
1 SECTION AT JET BRIDGE - SPREAD FOOTING
1/2" = 1'-0"



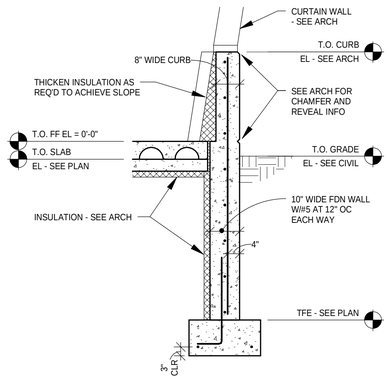
2 SECTION
1/2" = 1'-0"



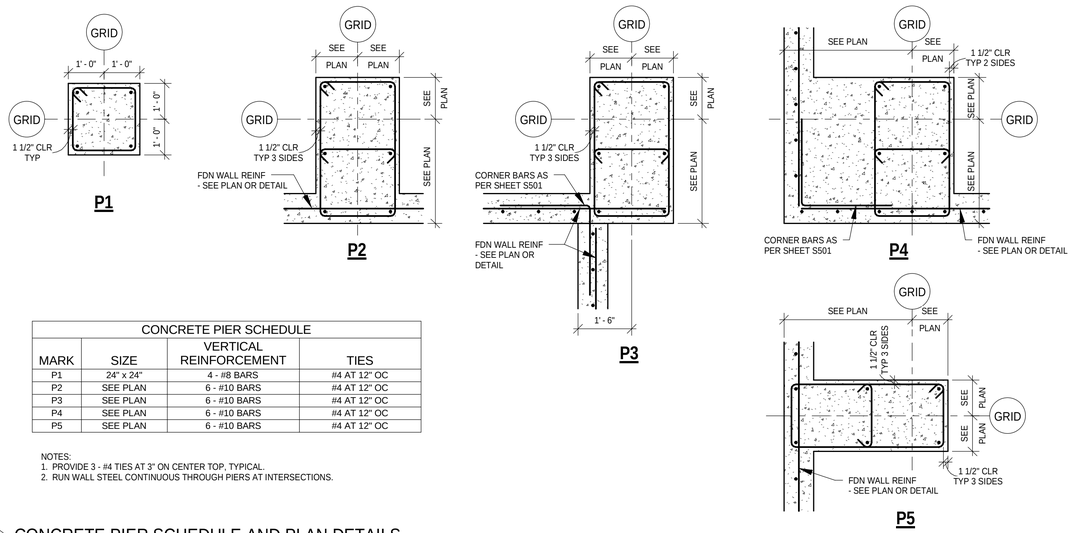
3 SLAB STEP DETAIL
3/4" = 1'-0"



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



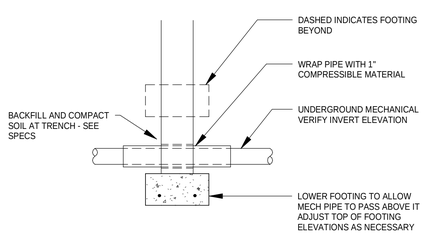
FOUNDATION WALL AT GRIDS 1.3 AND 11.7 - OPTION #2
1/2" = 1'-0"



CONCRETE PIER SCHEDULE			
MARK	SIZE	VERTICAL REINFORCEMENT	TIES
P1	24" x 24"	4 - #8 BARS	#4 AT 12" OC
P2	SEE PLAN	6 - #10 BARS	#4 AT 12" OC
P3	SEE PLAN	6 - #10 BARS	#4 AT 12" OC
P4	SEE PLAN	6 - #10 BARS	#4 AT 12" OC
P5	SEE PLAN	6 - #10 BARS	#4 AT 12" OC

NOTES:
1. PROVIDE 3 - #4 TIES AT 3" ON CENTER TOP, TYPICAL.
2. RUN WALL STEEL CONTINUOUS THROUGH PIERS AT INTERSECTIONS.

6 CONCRETE PIER SCHEDULE AND PLAN DETAILS
NO SCALE



7 TYPICAL FOUNDATION WALL PIPE SLEEVE DETAIL
NO SCALE

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DESIGNED BY: CWB

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213-1882-091

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S502

60% NOT FOR CONSTRUCTION

BEAM SHEAR CONNECTION SCHEDULE				
STEEL BEAM SIZE	SINGLE SHEAR CONNECTION FOR BEAMS SUPPORTING DECK ONLY		DOUBLE SHEAR CONNECTION FOR BEAMS SUPPORTING OTHER BEAMS	
	MIN ROWS OF BOLTS	MIN DESIGN SERVICE CAPACITY (KIPS)	MIN ROWS OF BOLTS	MIN DESIGN SERVICE CAPACITY (KIPS)
W8, W10	2	12	2	24
W12	3	23	3	46
W14	3	23	3	46
W16	4	35	4	70
W18	5	45	4	70
W21	6	55	5	90
W24	7	65	6	110
W27	7	65	6	110
W30	8	75	7	130
W33	8	75	7	130
W36	9	85	8	150
W40	9	85	8	150

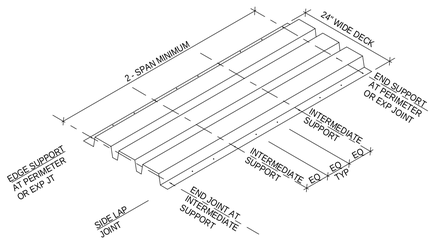
NOTES:
1. CONTRACTOR/FABRICATOR SHALL DESIGN TYPICAL SHEAR CONNECTIONS FOR THIS PROJECT. CONNECTION TYPES SHALL CONFORM TO AISC STANDARD SHEAR CONNECTIONS. SUBMIT PROPOSED CONNECTION TYPES FOR APPROVAL BEFORE STARTING SHOP DRAWINGS.
2. PROVIDE BEAM CONNECTIONS FOR END REACTIONS INDICATED ABOVE OR AS SHOWN ON PLAN OR DETAIL, WHICHEVER IS GREATER. BEAM TO BEAM CONNECTIONS MAY BE SINGLE OR DOUBLE SHEAR, AS REQUIRED TO PROVIDE THE SPECIFIED CONNECTION CAPACITY WITHIN THE AVAILABLE CONNECTION GEOMETRY. ALL BEAM TO COLUMN CONNECTIONS SHALL BE DOUBLE SHEAR.
3. ALL BOLTS SHALL BE MINIMUM 3/4" DIAMETER A325-N, UNLESS NOTED OTHERWISE.
4. SHOP CONNECTIONS MAY BE WELDED (WITH CAPACITY AS NOTED HEREIN) OR BOLTED.
5. VALUES SHOWN ASSUME 1/4" BEAM WEB THICKNESS, MINIMUM.

3 BEAM SHEAR CONNECTION SCHEDULE
1" = 1'-0"

FLOOR AND ROOF DECK SCHEDULE				
MARK	DECK TYPE	CONCRETE TOPPING THICKNESS	CONCRETE TOPPING REINFORCING	COMMENTS
S1	3" - 19 GA COMPOSITE DECK	4 1/2" NORMAL WT	STRUX 90/40 SYNTHETIC FIBER	5.0 LBS/CU YD
S2	3" - 19 GA COMPOSITE DECK	6 1/2" NORMAL WT	#5 AT 12" OC EACH WAY	1 1/2" TOP COVER
S3	3" - 19 GA COMPOSITE DECK	6 1/2" NORMAL WT	STRUX 90/40 SYNTHETIC FIBER	5.0 LBS/CU YD
S4	3" - 20 GA COMPOSITE DECK	3" NORMAL WT	STRUX 90/40 SYNTHETIC FIBER	5.0 LBS/CU YD
D1	3" - 20 GA TYPE N ROOF DECK	NA	NA	

NOTES (UNO):
1. SEE TYPICAL DETAILS FOR DECK ATTACHMENT DETAILS.
2. SEE GENERAL STRUCTURAL NOTES FOR CONCRETE STRENGTH.
3. CONCRETE TOPPING THICKNESS IS FROM TOP OF DECK TO TOP OF CONCRETE
4. SEE PLANS AND DETAILS FOR ADDITIONAL REINFORCING AND REINFORCING PLACEMENT AT CONCRETE SLABS ON METAL DECK.
5. SEE SPECIFICATIONS FOR SYNTHETIC FIBERS.
6. ALL COMPOSITE DECK IS GALVANIZED. REFER TO SPECIFICATIONS FOR ROOF DECK FINISH.

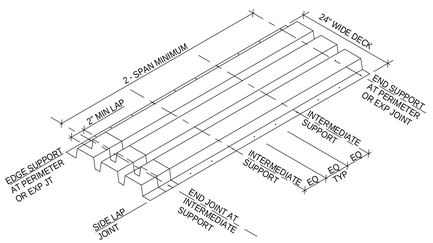
4 FLOOR AND ROOF DECK SCHEDULE
NO SCALE



DECK SUPPORT CONDITION	DECK ATTACHMENT
END SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
EDGE SUPPORT	PUDDLE WELDS AT 12" OC
INTERMEDIATE SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
END JOINT AT INT SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE, EACH SIDE
SIDE LAP JOINT	#10 TEK SCREWS OR 1 1/2" SEAM WELD AT 36" OC MAX

NOTES (UNO):
1. ALL PUDDLE (ARC-SPOT) WELDS SHALL BE 5/8" DIAMETER.
2. PROVIDE DECK ATTACHMENTS AT SPACING SHOWN UNLESS NOTED OTHERWISE ON DRAWINGS.
3. DECK SHEETS SHALL BE BUTTED AT END JOINTS. PROVIDE 2 1/2" MINIMUM BEARING. GAPS UP TO 1" ARE ACCEPTABLE AT BUTT JOINTS.
4. HEADED STUD INSTALLED THROUGH THE DECK MAY BE SUBSTITUTED FOR PUDDLE WELD.

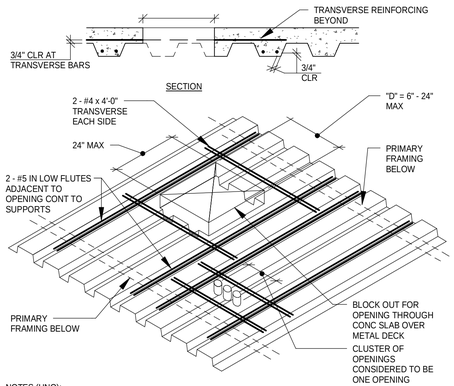
5 TYPICAL 3" COMPOSITE STEEL DECK ATTACHMENT DETAIL
NO SCALE



DECK SUPPORT CONDITION	DECK ATTACHMENT
END SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
EDGE SUPPORT	PUDDLE WELDS AT 12" OC
INTERMEDIATE SUPPORT	PUDDLE WELDS AT EACH LOW FLUTE
END LAP JOINT	PUDDLE WELDS AT EACH LOW FLUTE
SIDE LAP JOINT	#10 TEK SCREWS ___ PER SPAN

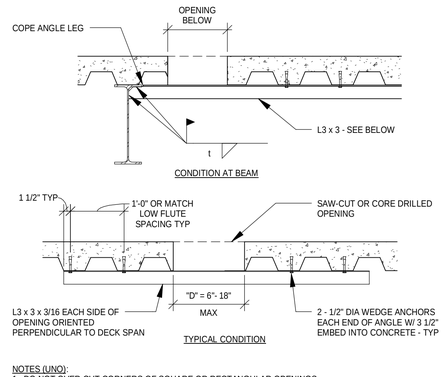
NOTES (UNO):
1. ALL PUDDLE (ARC-SPOT) WELDS SHALL BE 5/8" DIAMETER.
2. PROVIDE DECK ATTACHMENTS AT SPACING SHOWN UNLESS NOTED OTHERWISE ON DRAWINGS.
3. AT END LAP CONDITIONS, PUDDLE WELDS SHALL PROVIDE FUSION THROUGH ALL DECK LAYERS.

6 TYPICAL 3" STEEL ROOF DECK ATTACHMENT DETAIL
NO SCALE



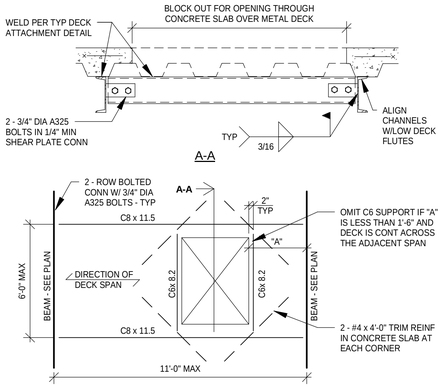
NOTES (UNO):
1. DO NOT CUT DECK AT OPENINGS UNTIL CONCRETE HAS ATTAINED ITS SPECIFIED COMPRESSIVE STRENGTH.
2. PROVIDE 2 TIMES "D" CLEAR DISTANCE BETWEEN OPENING EDGES. "D" IS LARGEST OF ADJACENT OPENING DIMENSIONS.

7 TYPICAL FRAMING AT FLOOR OPENINGS (6"-32" MAX)
NO SCALE



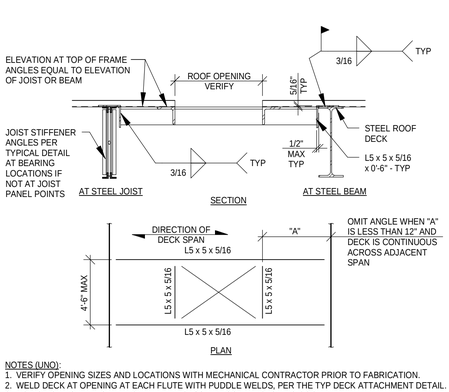
NOTES (UNO):
1. DO NOT OVER CUT CORNERS OF SQUARE OR RECTANGULAR OPENINGS.
2. CLUSTER OF OPENINGS CONSIDERED TO BE ONE OPENING. PROVIDE SUPPORT ANGLES IF OPENINGS LOCATED WITH LESS THAN TWO TIMES "D" CLEAR BETWEEN OPENING EDGES. "D" IS LARGEST OF ADJACENT OPENING DIMENSIONS.

8 TYPICAL OPENING (6"-24" MAX) THROUGH SLAB OVER METAL DECK
NO SCALE



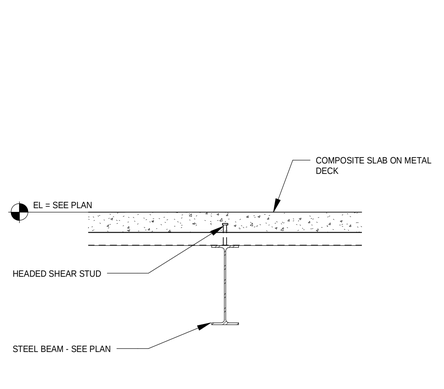
NOTES (UNO):
1. DO NOT CUT DECK AT OPENINGS UNTIL CONCRETE HAS ATTAINED ITS SPECIFIED COMPRESSIVE STRENGTH.
2. VERIFY OPENING DIMENSIONS WITH ARCHITECTURAL DRAWINGS AND MECHANICAL TRADES.

9 TYPICAL FLOOR OPENING FRAME (OVER 32")
NO SCALE



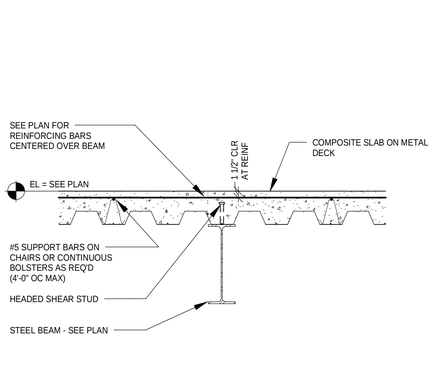
NOTES (UNO):
1. VERIFY OPENING SIZES AND LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO FABRICATION.
2. WELD DECK AT OPENING AT EACH FLUTE WITH PUDDLE WELDS, PER THE TYP DECK ATTACHMENT DETAIL.
3. DO NOT CUT OPENING IN DECK UNTIL NECESSARY, CONTRACTOR TO COORDINATE.
4. THIS ROOF OPENING FRAME IS NOT DESIGNED TO SUPPORT THE WEIGHT OF ROOF TOP MECHANICAL EQUIPMENT WEIGHING OVER 400 LBS. EQUIPMENT SHALL BE SUPPORTED ON A STRUCTURAL CURB DESIGNED BY THE SUPPLIER TO SPAN TO THE PRIMARY STRUCTURAL FRAMING.

10 TYPICAL ROOF OPENING FRAME FOR 3" DECK
NO SCALE



NOTES (UNO):
1. SEE TYPICAL DETAILS FOR DECK ATTACHMENT AND HEADED STUD INFORMATION.

11 TYPICAL SECTION AT COMPOSITE DECK PERPENDICULAR TO BEAM
NO SCALE



NOTES (UNO):
1. CUT HIGH DECK FLUTE WHEN IT OCCURS AT BEAM AND PROVIDE GIRDER FILLER DECK PIECE AS NECESSARY.
2. SEE TYPICAL DETAILS FOR DECK ATTACHMENT AND HEADED STUD INFORMATION.

12 TYPICAL SECTION AT COMPOSITE DECK PARALLEL TO BEAM
NO SCALE

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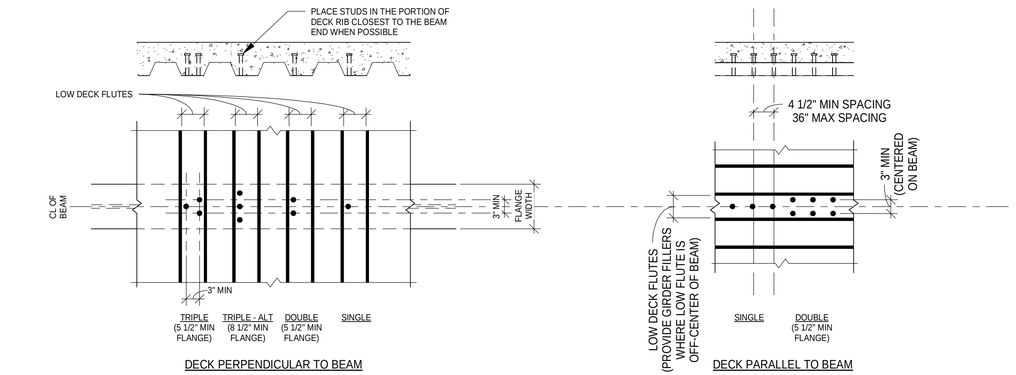
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S701

60% NOT FOR CONSTRUCTION

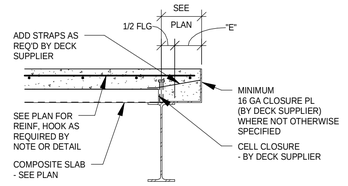


DECK PERPENDICULAR TO BEAM

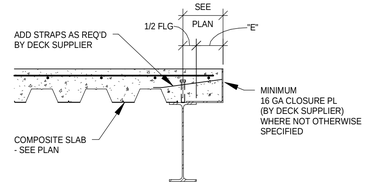
DECK PARALLEL TO BEAM

NOTES (UNO):
1. USE ONLY ONE STUD PER RIB UNTIL NUMBERS OF STUDS EXCEEDS DECK RIBS AVAILABLE. LOCATE SINGLE STUDS OVER WEB.
2. START LAYOUT OF HEADED STUDS AT EACH END OF THE BEAM AND PROCEED TOWARDS THE CENTER OF THE BEAM.
3. PROVIDE STUDS IN DOUBLE OR TRIPLE CONFIGURATION SHOWN TO MEET TOTAL NUMBER OF STUDS REQUIRED. START LAYOUT OF DOUBLE/TRIPLE STUDS AT EACH END OF BEAM. DOUBLE/TRIPLE STUD LAYOUTS SHALL ONLY BE USED FOR BEAMS WITH MINIMUM FLANGE WIDTHS SHOWN.
4. PROVIDE ADDITIONAL STUDS BEYOND NUMBER NOTED ON PLANS OR SCHEDULES TO MEET MAXIMUM STUD SPACING SHOWN.
5. HEADED STUDS SHALL BE 3/4" DIA x 5" LONG (AFTER WELDING) TYPICAL, UNLESS NOTED OTHERWISE. REMOVE ALL FERRULS PRIOR TO CONCRETE PLACEMENT.

NOTES:
1. TRIPLE STUDS NOT PERMITTED.



METAL DECK PERPENDICULAR TO BEAM

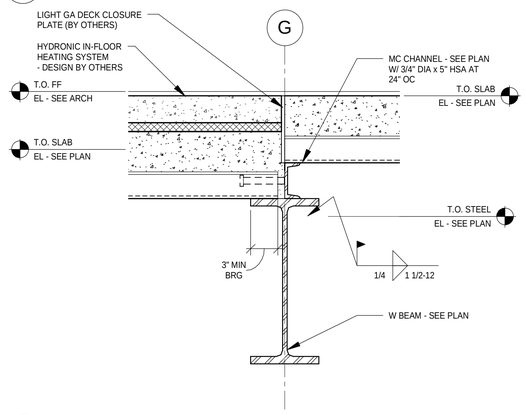


METAL DECK PARALLEL TO BEAM

NOTE:
1. FOR E GREATER THAN 6" BUT LESS THAN 12", PROVIDE 1/4" BENT PLATE WITH 3/4" DIA x 5" HEADED STUDS AT 24" OC.
2. FOR E GREATER THAN 12" BUT LESS THAN 24", PROVIDE 3/8" BENT PLATE WITH 3/4" DIA x 5" HEADED STUDS AT 24" OC AND SHORE SLAB OVERHANG AS REQUIRED UNTIL CONCRETE REACHES SPECIFIED 28 DAY COMPRESSIVE STRENGTH.

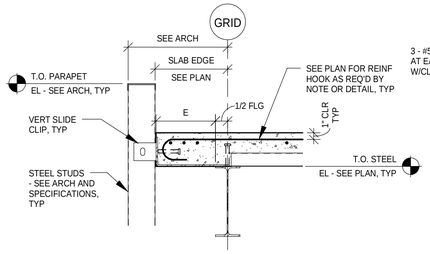
1 TYPICAL HEADED STUD PLACEMENT DETAIL

NO SCALE

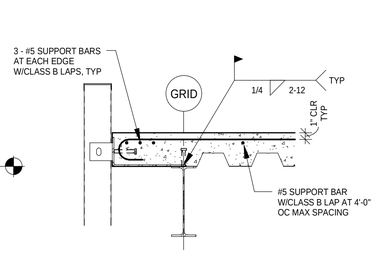


2 TYPICAL SLAB EDGE DETAILS AT FLOOR OPENINGS

NO SCALE

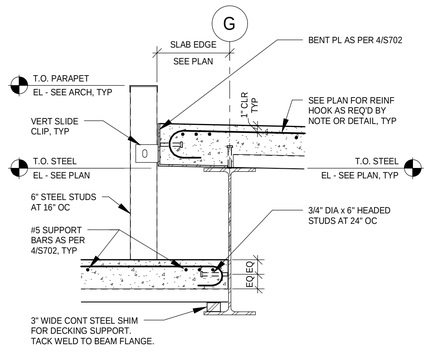


METAL DECK PERPENDICULAR TO BEAM



METAL DECK PARALLEL TO BEAM

NOTES:
1. FOR "E" LESS THAN 12", PROVIDE 1/4" BENT PLATE EDGE FORM WITH 3/4" DIA x 6" LONG HEADED STUDS AT 24" OC.
2. FOR "E" GREATER THAN 12" BUT LESS THAN 24", PROVIDE 3/8" BENT PLATE EDGE FORM WITH 3/4" DIA x 6" HEADED STUDS AT 24" OC AND SHORE SLAB OVERHANG AS REQUIRED UNTIL CONCRETE REACHES ITS 28 DAY SPECIFIED COMPRESSIVE STRENGTH.



3 SECTION

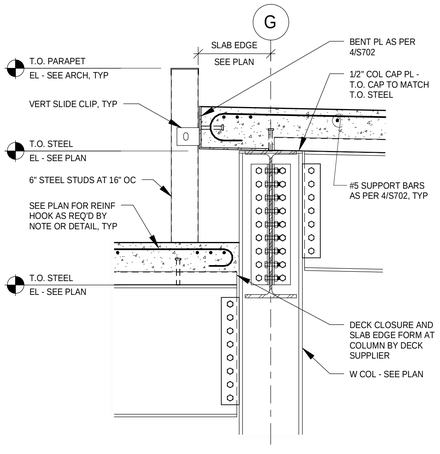
1 1/2" = 1'-0"

4 TYPICAL ROOF SLAB EDGE DETAIL

NO SCALE

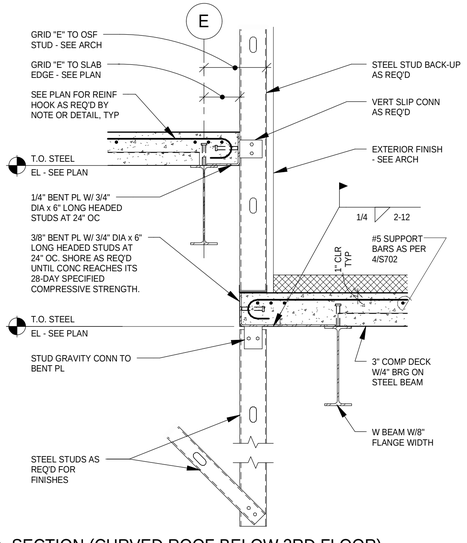
5 HIGH - LOW SLAB EDGE DETAIL

3/4" = 1'-0"



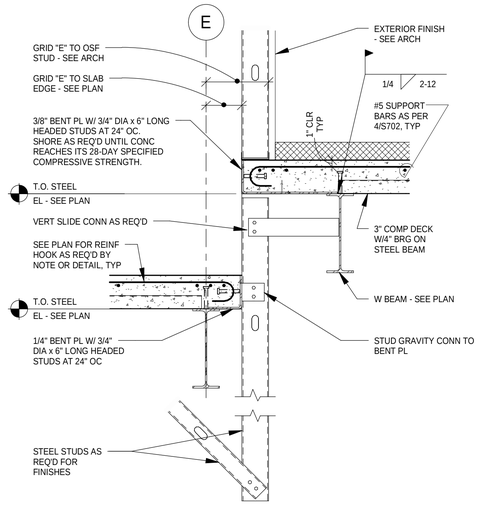
6 HIGH - LOW SECTION AT COLUMN

3/4" = 1'-0"



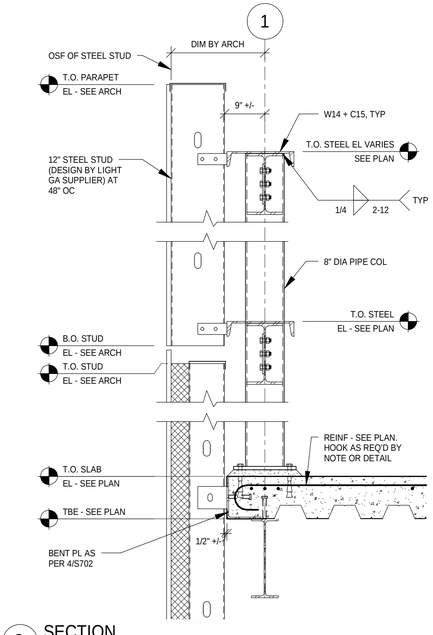
7 SECTION (CURVED ROOF BELOW 3RD FLOOR)

3/4" = 1'-0"



8 SECTION (CURVED ROOF ABOVE 3RD FLOOR)

3/4" = 1'-0"



9 SECTION

3/4" = 1'-0"

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

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TEL: (218) 591-5079

REVISIONS

NO.	DESCRIPTION	DATE

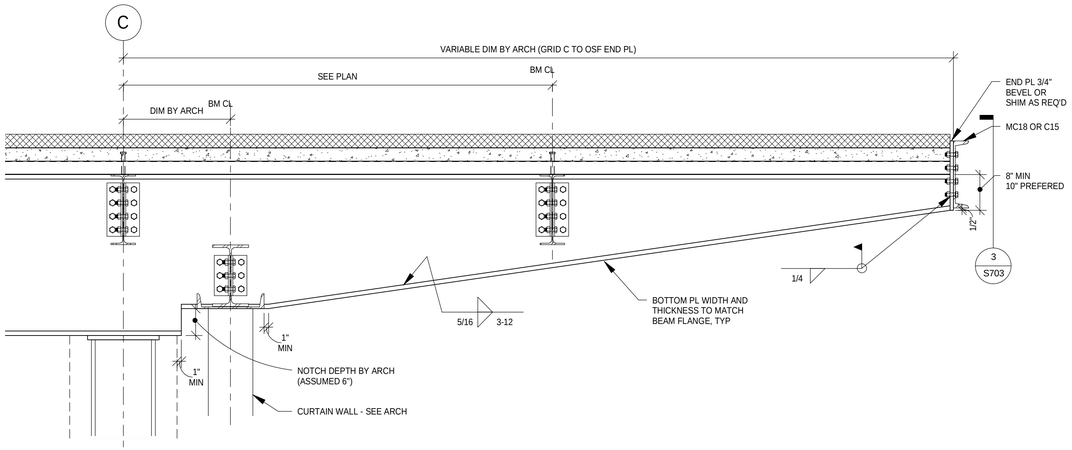
DATE ISSUED: 02-15-10
REVIEWED BY:
DRAWN BY: SJL
DESIGNED BY: CWB

AEP PROJECT NUMBER
213-1882-091

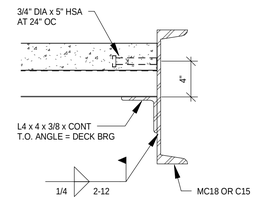
SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S702

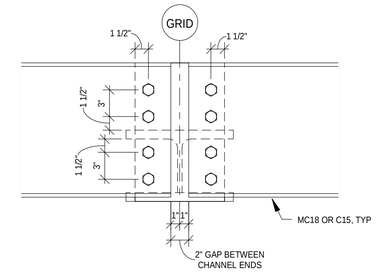
60% NOT FOR CONSTRUCTION



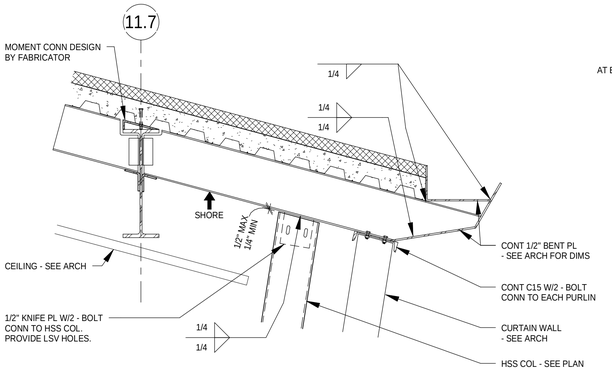
1 SECTION AT GIRDER
3/4" = 1'-0"



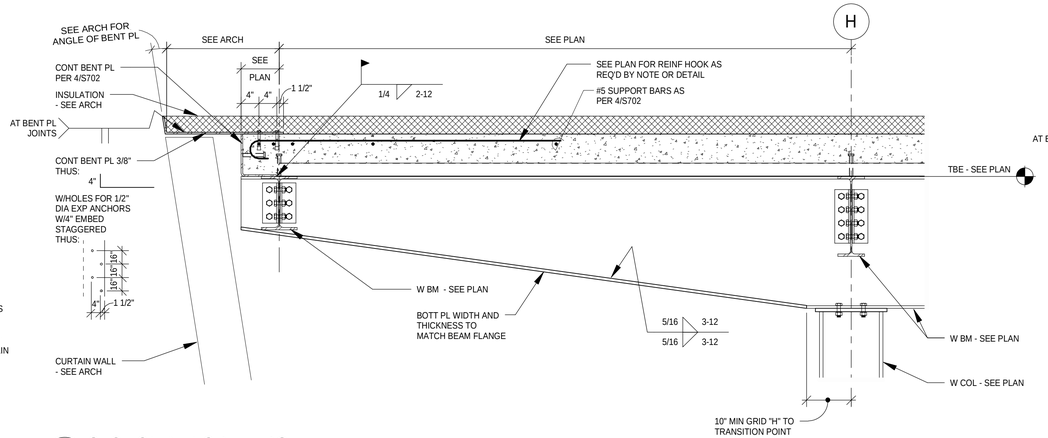
2 SECTION BETWEEN GIRDERS
1 1/2" = 1'-0"



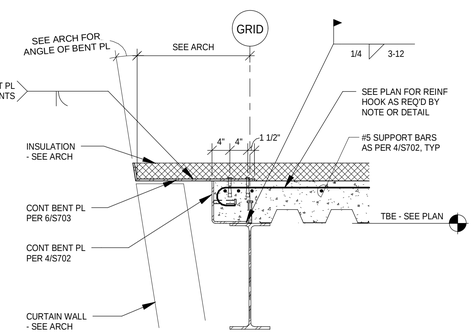
3 PARTIAL ELEVATION
1 1/2" = 1'-0"



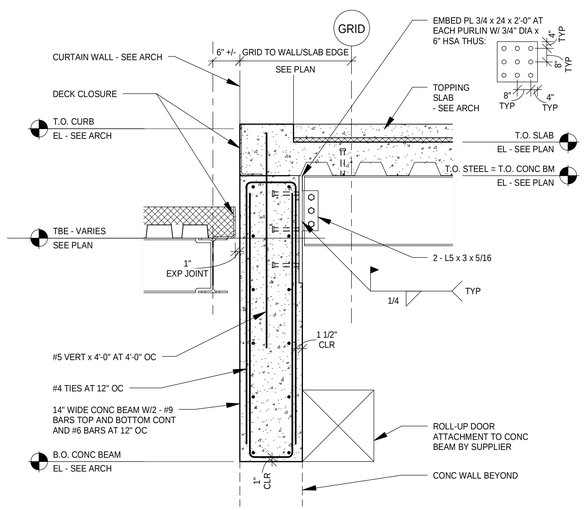
5 SECTION
1/2" = 1'-0"



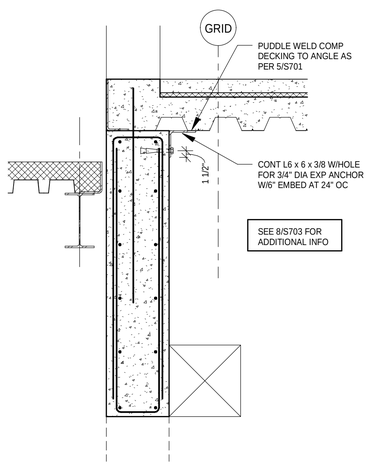
6 SECTION AT NORTH EDGE
3/4" = 1'-0"



7 SECTION
3/4" = 1'-0"



8 SECTION AT PURLIN
3/4" = 1'-0"



9 SECTION BETWEEN PURLINS
3/4" = 1'-0"

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213-1882-091

SHEET TITLE
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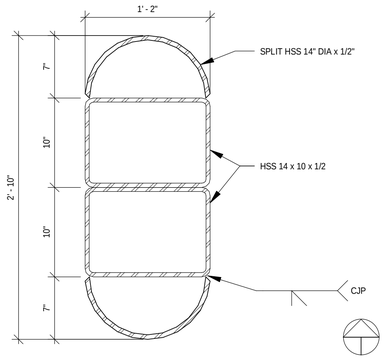
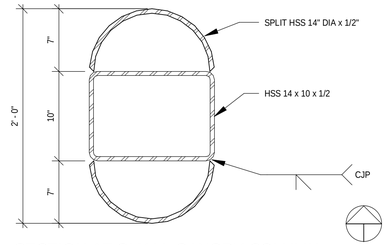
SHEET NUMBER
S703

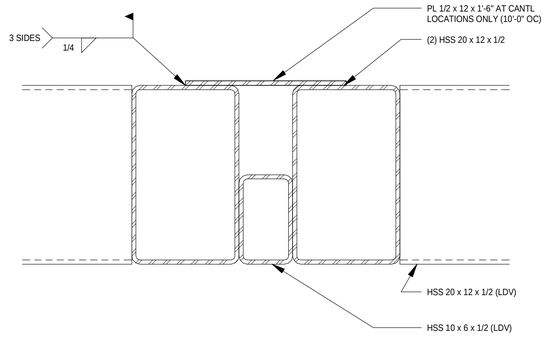
60% NOT FOR CONSTRUCTION



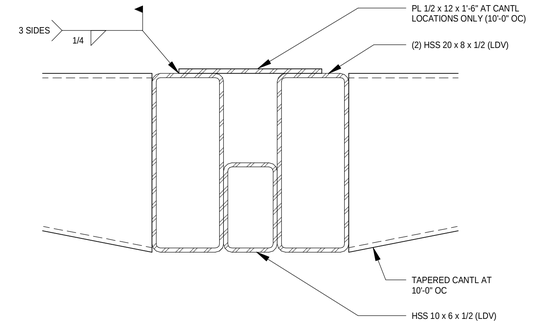
1 SECTION AT LARGE CANOPY COLUMN
1 1/2" = 1'-0"



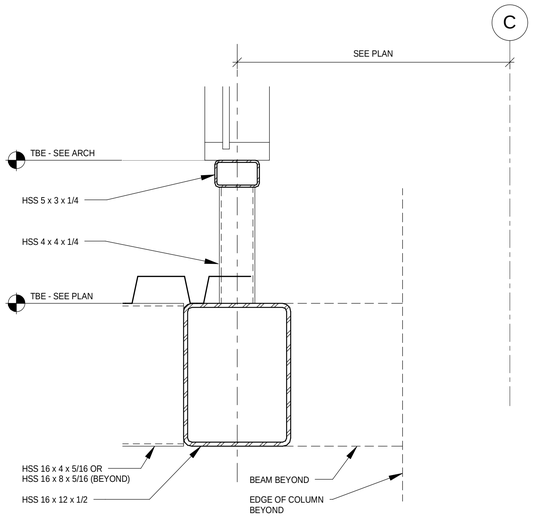
2 SECTION AT SMALL CANOPY COLUMN
1 1/2" = 1'-0"



3 SECTION AT LARGE CANOPY
1 1/2" = 1'-0"



4 SECTION AT SMALL CANOPY
1 1/2" = 1'-0"



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

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