DULUTH INTERNATIONAL AIRPORT

Director of Airports: Tom Werner
4701 GRINDEN DRIVE - DULUTH INTERNATIONAL AIRPORT
DULUTH, MINNESOTA 55811

FAA AIP No. -
RS&H PROJ. No. - 213.1882.114
CITY OF DULUTH BID No.

DULUTH AIRPORT AUTHORITY BOARD OF DIRECTORS

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BID PACKAGE 2D
NEW PARKING STRUCTURE
AND EXTERIOR WAYFINDING SIGNAGE
ISSUED FOR BID
MAY 15, 2013

KRAUS-ANDERSON® CONSTRUCTION COMPANY

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KRAUS-ANDERSON.
371 Minnesota Street
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Interior Architects:
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Landscape Architects:
ARCHITECTURAL RESOURCES
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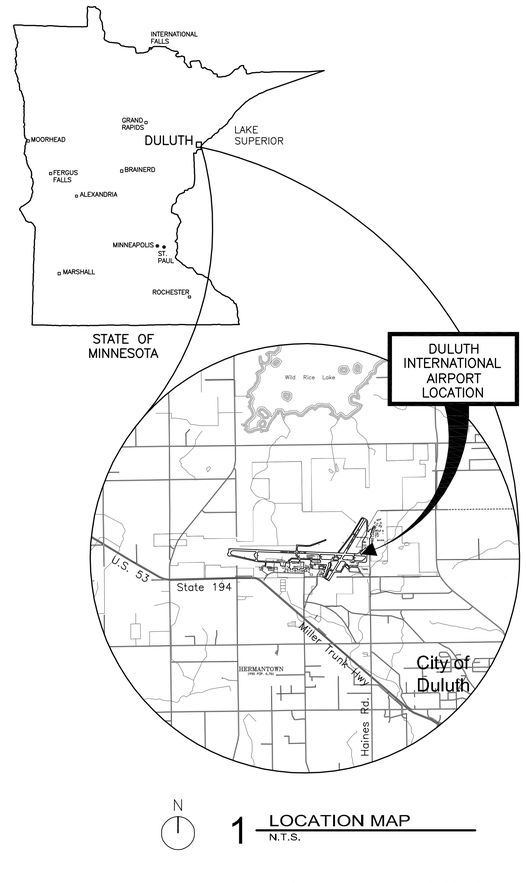
DRAWING LIST

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
A.C.T.	ACOUSTIC CEILING TILE
ADJ.	ADJACENT
A.E.S.S.	ARCH. EXPOSED STL. STRUCT.
A.H.U.	AIR HANDLER UNIT
ALT.	ALTERNATE
ALUM.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ASPH.	ASPHALT
AUTO.	AUTOMATIC
BM.	BEAM
B.M.	BENCH MARK
BLKG.	BLOCKING
BD.	BOARD
BOT.	BOTTOM
BLDG.	BUILDING
C.F.M.F.	COLD–FORMED METAL FRAMING
C.R.	CARD READER
CPT.	CARPET
CLG.	CEILING
℄ or C.L.	CENTERLINE
C.T.	CERAMIC TILE
C.I.P.	CAST IN PLACE
CL.	CLEAR
CTR.	CENTER
C.O.	CLEAN OUT
COL.	COLUMN
COMP.	COMPRESSIBLE
CONC.	CONCRETE
CONC. BLK.	CONCRETE BLOCK
CMU	CONCRETE MASONRY UNIT
CONN.	CONNECTION
CONT.	CONTINUOUS
C.J.	CONTROL JOINT
CORR.	CORRIDOR
CG–F	CORNER GUARD–FULL HEIGHT
CG–P	CORNER GUARD–PARTIAL HEIGHT
CU.	CUBIC
C.W.	CURTAINWALL
DEG.	DEGREE
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DIST.	DISTANCE
DIV.	DIVIDER
DR.	DOOR
DN.	DOWN
DWG.	DRAWING
D.F.	DRINKING FOUNTAIN
EA.	EACH
ELEC.	ELECTRICAL
E.W.C.	ELECTRICAL WATER COOLER
EL.	ELEVATION
ENCL.	ENCLOSURE
EQ.	EQUAL
EQUIP.	EQUIPMENT
EXIST.	EXISTING
EXP. JT.	EXPANSION JOINT
EXP.	EXPOSED
EXT.	EXTERIOR
FIN.	FEET
FT.	FINISH
F.E.C.	FIRE EXTINGUISHER CABINET
F.E.	FIRE EXTINGUISHER
F.H.C.	FIRE HOSE CABINET
F.H.R.	FIRE HOSE RACK
FIXT.	FIXTURE
F.I.D.	FLIGHT INFORMATION DISPLAY
FL.	FLOOR
F.D.	FLOOR DRAIN
FLUOR.	FLUORESCENT
FDN.	FOUNDATION
FR.	FRAME
FTG.	FOOTING
GA.	GAUGE
GALV.	GALVANIZED
GYP.BD.	GYPSUM BOARD
HBS	HANDLING BAGGAGE SYSTEM
HDW.	HARDWARE
HD.	HEAD
H.P.	HIGH POINT
H.P.C.	HIGH PERFORMANCE COATING
HT.	HEIGHT
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
I.D.	INCHES
IN.	INSIDE DIAMETER
INSUL.	INSULATION
INT.	INTERIOR
JAN.	JANITOR
JT.	JOINT
LAM.	LAMINATED
LAV.	LAVATORY
L.F.	LINEAR FEET
L. PT.	LOW POINT
M.O.	MASONRY OPENING
MATL.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
M.H.	MAN HOLE
MTL.	METAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MULL.	MULLION
M.U.F.I.D.	MULTIPLE USE FLIGHT INFORMATION DISPLAY
NOM.	NOMINAL
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
NO.	NUMBER
O.C.	ON CENTER
OPG.	OPENING
OPP.	OPPOSITE
OZ.	OUNCE
O.D.	OUTSIDE DIAMETER
O.A.	OVERALL
O.W.S.J.	OPEN WEB STEEL JOIST
PR.	PAIR
P.J.	PANEL JOINT
PLAS.	PLASTER
PL.	PLATE
PLMBG.	PLUMBING
PLYWD.	PLYWOOD
P.V.C.	POLYVINYLCHLORIDE
PT.	POINT
LBS.	POUNDS
PSI.	POUNDS PER SQUARE INCH
P.T.	PRESSURE TREATED
P.C.	PRECAST CONCRETE
PRPTY.	PROPERTY
QTY.	QUANTITY
Q.T.	QUARRY TILE
R.	RADIUS
RECT.	RECTANGULAR
REINF.	REINFORCEMENT
REQD.	REQUIRED
REV.	REVISION
R.H.	RIGHT HAND
R.D.	ROOF DRAIN
RM.	ROOM
SC.	SCALE
SCHED.	SCHEDULE
SECT.	SECTION
SHT.	SHEET
SIM.	SLAB ON GRADE
S.O.G.	SIMILAR
SQ. FT.	SQUARE FEET
S.S.	STAINLESS STEEL
STD.	STANDARD
STA.	STATION
STL.	STEEL
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED
SYM.	SYMBOL
TEL.	TELEPHONE
THK.	THICKNESS
T.O.	TOP OF
TSA	TRANSPORTATION SECURITY ADMINISTRATION
TYP.	TYPICAL
U.L.	UNDERWRITERS LABORATORIES
U.O.N.	UNLESS OTHERWISE NOTED
V.B.	VAPOR BARRIER
VERT.	VERTICAL
V.C.T.	VINYL COMPOSITION TILE
V.W.C.	VINYL WALL COVERING
VOL.	VOLUME
W.H.I.	WARNOCK HERSEY INTERNATIONAL
W.C.	WATER CLOSET
WT.	WEIGHT
W.W.F.	WELDED WIRE FABRIC
WD.	WOOD
W.P.	WORKING POINT
XA	EXIT SIGN



1 LOCATION MAP
N.T.S.

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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

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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 Minnesota.

Print Name: Mark Ip

Signature:

Date: 06-03-10 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

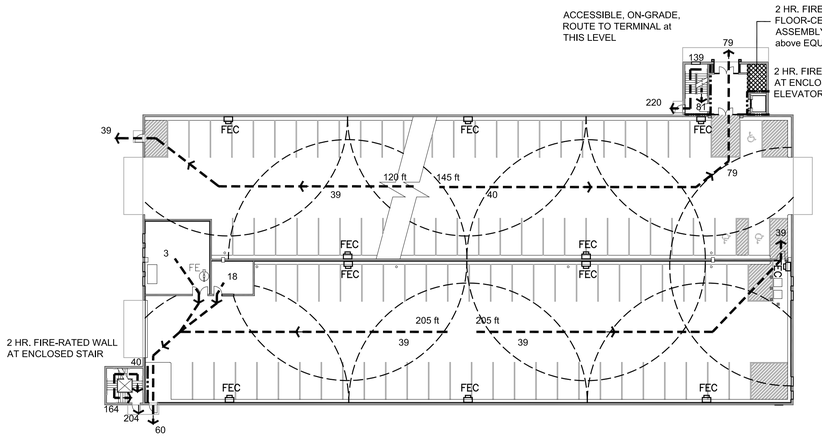
SHEET TITLE
DRAWING LIST

SHEET NUMBER
G001

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets_G101 Drawing List.dwg Plotted on: 5/17/2013 11:23 AM Plotted by: Godzino, Marc

CODE PLANS



FIRST LEVEL CODE COMPLIANCE PLAN — 34,180 GSF

1" = 30'

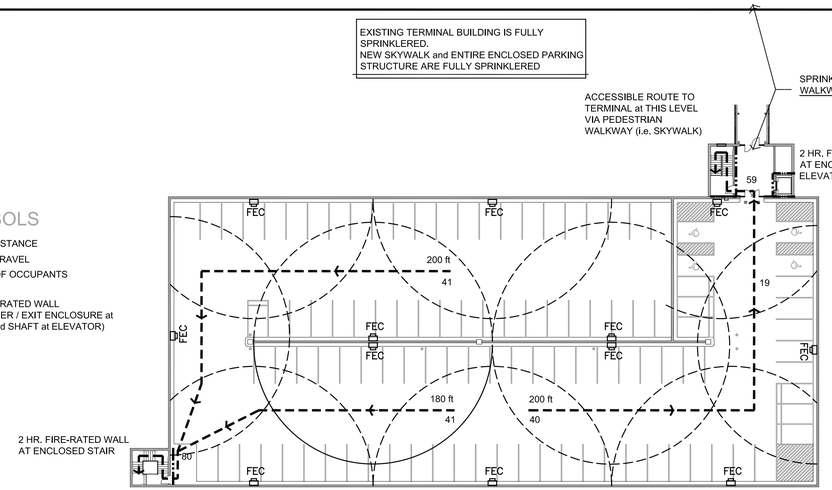
CODE PLAN SYMBOLS

200 ft — TRAVEL DISTANCE

PATH OF TRAVEL

41 — NUMBER OF OCCUPANTS

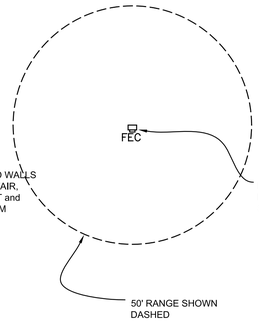
2-HR FIRE-RATED WALL (FIR-BARRIER / EXIT ENCLOSURE at STAIRS, and SHAFT at ELEVATOR)

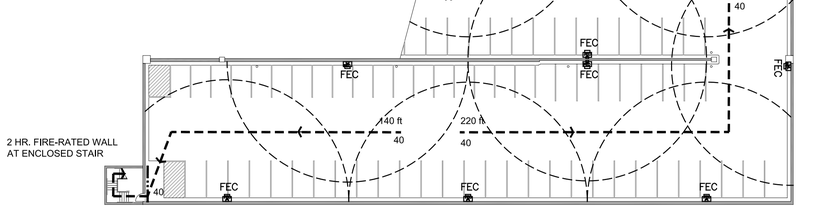


THIRD LEVEL CODE COMPLIANCE PLAN — 29,558 GSF

1" = 30'

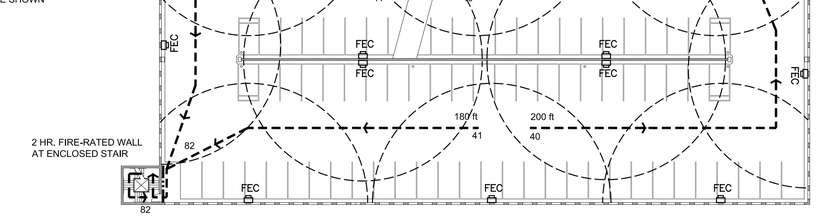
PEDESTRIAN WALKWAY SHALL NOT CONTRIBUTE TO THE BUILDING AREA OR THE NUMBER OF STORIES OR HEIGHT OF CONNECTED BUILDINGS





LOWER LEVEL CODE COMPLIANCE PLAN — 26,080 GSF

1" = 30'



SECOND LEVEL CODE COMPLIANCE PLAN — 34,182 GSF

1" = 30'

CODE ANALYSIS

PROJECT: DAA PARKING STRUCTURE
OWNER: DULUTH AIRPORT AUTHORITY
LOCATION: 4701 GRINDEN DRIVE
DULUTH, MINNESOTA 55811

2006 IBC

I. OCCUPANCY CLASSIFICATIONS

A. Parking Ramp: Low–Hazard Storage S–2
1. Mechanical Room (Accessory Occupancy)
2. Elevator Mechanical Room (Accessory Occupancy)
3. Break Room (Accessory Occupancy): A–2

II. OCCUPANCY SEPARATION REQUIREMENTS

A. Between S–2 and A–2 NR (when less than 10% of floor area)
B. Between S–2 and S–2 incidental use NR

III. CONSTRUCTION

A. Construction Type: II–B
B. Fire Resistive Requirements
1. Exterior and Interior Bearing Walls:
1 Hr. when less than 10'–0" from adjacent wall
NR (non–rated) elsewhere
Provided: All over 10'–0", walls are NR
2. Exterior Non–Bearing Walls:
1 Hr. when less than 10'–0" from adjacent wall
NR elsewhere
Provided: All over 10'–0", walls are NR
3. Structural Frame: NR
Provided: NR
4. Permanent Partitions: NR
Provided: NR

III. CONSTRUCTION (continued)

5. Shaft Enclosures: 2 Hr.
Provided: 2 Hr.
6. Floors–Ceilings / Floors: NR
Provided: NR
7. Roofs – Ceilings / Roofs: NR
Provided: NR
8. Exterior Doors and Windows: See Table 704.8.
Provided: NR

C. Fire resistive construction: Any required corridors need not be constructed of fire–resistive construction when building has sprinkler system as specified in Section 1016.1 of the IBC 2006. (none required)

D. Building is Sprinkled to conform to Section 903.2.1.2. of IBC 2006 (Group S–2 occupancy with fire area exceeding 5,000 s.f.)

IV. BUILDING AREA

A. Provided Floor Area:
1. Lower Level GSF Area: 26,080 s.f.*
2. First Level GSF Area: 34,180 s.f.
3. Second Level GSF Area: 34,182 s.f.
4. Third Level GSF Area: 29,558 s.f.
5. TOTAL GSF Area: 124,000 s.f.
* Does not count toward allowable area total.

B. Area Increase Permitted by Code:
1. Increase due to frontage: 26,000 s.f./story
2. Area increase allowed per sprinkler system: 200% for 3 story building (52,000 s.f./story)
3. Total: 104,000 s.f. X 3 stories = 312,000 s.f.

V. BUILDING HEIGHT

A. Actual 3 stories, 35'
B. Permitted with Sprinkler System 5 stories, 55'

VI. OCCUPANT LOAD TABLE

Use	Minimum of Two Means of Egress is Req'd where Number of Occ. exceeds:	Sq. Ft.	Factor	Occupant Total Load Occupant Load
Maint. Prkg.	29	15,512	200	78
Rent–A–Car	29	31,323	200	157
Prem. Prkg.	29	67,897	200	340
Mechanical	29	845	300	3
Break Room	49	262	15	18
Elec. Rm.	29	172	300	1
Elev. Mech.	29	179	300	1
Lobby Mech.	29	294	300	1
Circulation		3,372	–	–
Walls		4,144	–	–
Totals		124,000		599 TOTAL BUILDING OCCUPANTS

VII. EXITS

A. Number of Exits

	Required:	Provided:
1. Maintenance Parking	2	2
2. Rent–a–Car Parking	2	3
3. Premium Parking, Level 1	2	2
4. Premium Parking, Level 2	2	2
5. Premium Parking, Level 3	2	2
6. Mechanical Room	1	1
7. Break Room	1	1
8. Elevator Mechanical Room	1	1
9. Electrical Room	1	1
10. Lobby Mechanical Room	1	1

B. Stair Required Width, Lower Level
Required: 110 x .2 = 22"/2 = 11" (44" Clear)

C. Stair Required Width, First Level
Required: 178 x .2 = 35.6"/2 = 17.8" (44" Clear)

VII. EXITS (Continued)

D. Stair Required Width, Second Level
Required: 162 x .2 = 32.4"/2 = 16.2" (44" Clear)

E. Stair Required Width, Third Level
Required: 139 X .2 = 27.8"/2 = 13.9" (44" Clear)

F. Stair Clear Width Provided = 48" (per set of stairs)

G. Maximum travel distance permitted by 2006 IBC Table 1016.1
1. Sprinkled bldg.: 400'–0"
2. Actual: Less than 400'–0"

VIII. INTERIOR FINISHES:

A. Interior Wall and Ceiling Finish Requirements per table 803.5:
1. For sprinkled building rooms and enclosed spaces: Class C
2. Wall finishes in building are exposed concrete and paint.
3. Ceiling finishes are exposed concrete or paint.

B. Interior Floor Finish Requirements per Section 804:
1. For sprinklered building all floor finishes comprised of fibers must pass DOC FF–1 "pill test."
2. Floor finishes in building are concrete; pill test does not apply.

ENERGY CODE COMPLIANCE

IX. 2009 MINNESOTA ENERGY CODE

A. Incorporates ASHRAE Standard 90.1–2004 "Energy Standard for Buildings Except Low–Rise Residential Buildings" except as amended.

B. Climate Information:
1. Latitude: 46.83 N Longitude: 92.18 W
2. Heating design temperature: –20 degrees
3. Cooling design temperature, dry–bulb: 81
4. Cooling design temperature, wet–bulb: 67
5. Number of hours: 650

C. Project is in Climate Zone 7

D. Building Envelope Requirements for Semiheated Areas:

Element	Assembly	Insulation
1. Walls (Above–Grade), Mass	U–0.58	NR
2. Wall (Below–Grade)	C–0.085	R–10 ci
3. Floors, Mass	U–0.137	R–4.2 ci
4. Slab–on–grade Floors, Unheated	F–0.52	R–10
5. Opaque Doors, Swinging	U–0.70	
6. Vertical Glazing, 0–10% of Wall	U–1.22	SHGC=NR

E. Provided:

Element	Assembly	Insulation
1. Walls (Above–Grade), PC Light Wall	U–0.476	NR
2. Walls (Above–Grade), PC Insul.	U–0.068	R–12.5 ci
3. Wall (Below–Grade), CIP Conc.	C–0.069	R–10 ci
4. Floors, PC Slab	U–0.125	R–7.7 ci
5. Slab–on–grade Floors, Unheated	F–0.64	R–10
6. Opaque Doors, Swinging	U–0.700	
7. Vertical Glazing, 0–10% of Wall	U–1.22	SHGC=NR

F. 1323.0646 Section 6.4.6 Prohibition of Heated Commercial Parking Facilities – an enclosed structure or portion of an enclosed structure used primarily as a parking garage or ramp for three or more motor vehicles shall not be heated.

G. Building Envelope Requirements for Nonresidential Areas:

Element	Assembly	Insulation
1. Walls (Above–Grade), Mass	U–0.09	R–9.5 ci
2. Wall (Below–Grade)	C–0.085	R–10 ci
3. Floors, Mass	U–0.087	R–8.3 ci
4. Slab–on–grade Floors, Unheated	F–0.52	R–10
5. Opaque Doors, Swinging	U–0.70	
6. Vertical Glazing, 0–10% of Wall	U–1.22	SHGC=NR

H. Provided:

Element	Assembly	Insulation
1. Walls (Above–Grade), Type 'E'	U–0.064	R–12.5 ci
2. Walls (Above–Grade), Type 'F'	U–0.078	R–10 ci
3. Walls (Above–Grade), Type 'I'	U–0.080	R–10 ci
4. Walls (Above–Grade), Type 'J'	U–0.064	R–12.5 ci
5. Floors, PC Slab	U–0.125	R–7.7 ci
6. Opaque Doors, Swinging	U–0.70	
7. Vertical Glazing, 0–10% of Wall	U–1.22	SHGC=NR

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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 Minnesota.

Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

AEP PROJECT NUMBER
213–1882–114

SHEET TITLE
CODE ANALYSIS

SHEET NUMBER
G002

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\G002 Code Analysis.dwg Plotted on: 5/17/2013 11:31 AMPlotted by: Kristoffer Pederson

SUMMARY OF QUANTITIES

BID ITEM	SPEC. NUMBER	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	RECORD QUANTITY
1	P-100.3.1	MOBILIZATION	LS	1	
2	P-102.10.1	SAFETY AND SECURITY	LS	1	
3	P-104.5.1	PROJECT SURVEY AND STAKEOUT	LS	1	
4	P-106.5.1	PAVEMENT MARKING REMOVAL	SF	1000	
5	P-107.4.2	REMOVE AND DISPOSE CONCRETE SIDEWALK	SY	175	
6	P-107.4.3	REMOVE AND DISPOSE ASPHALT PAVEMENT FULL DEPTH	SY	6250	
7	P-107.4.4	REMOVE CONCRETE CURB AND GUTTER	LF	2300	
8	P-107.4.5	REMOVE STREET SIGN	EACH	24	
9	P-152.4.1	UNCLASSIFIED EXCAVATION	CY	525	
10	P-152.4.2	ROCK EXCAVATION	CY	50	
11	P-152.4.3	COMMOM BORROW	CY	50	
12	P-156.5.1	EROSION CONTROL - INLET PROTECTION	EACH	14	
13	P-620.5.1	PAVEMENT MARKING (YELLOW) WITH REFLECTIVE BEADS INCLUDING SURFACE PREPARATION	SF	100	
14	P-620.5.3	PAVEMENT MARKING (WHITE) WITH REFLECTIVE BEADS INCLUDING SURFACE PREPARATION	SF	1350	
15	P-620.5.5	HANDICAP SYMBOL PAVEMENT MARKING WITH REFLECTIVE BEADS	EACH	28	
16	P-620.5.6	PAVMENT MARKING - TURN ARROW	EACH	6	
17	MNDOT 2104.501	REMOVE SEWER PIPE (SANITARY)	LF	152	
18	MNDOT 2105.521	GRANULAR BORROW MODIFIED 7% (CV)	CY	185	
19	MNDOT 2105.604	GEOTEXTILE FABRIC TYPE V	SY	640	
20	MNDOT 2211.503	CRUSHED AGGREGATE BASE COURSE	CY	875	
21	MNDOT 2360	BITUMINOUS BASE COURSE	TON	160	
22	MNDOT 2360	BITUMINOUS SURFACE COURSE	TON	135	
23	MNDOT 2401.515	CONCRETE SIDEWALK (MIX #3A32) W/ 6" x 6" WWF, AS SPECIFIED	SY	1075	
24	MNDOT 2503.511	STORM SEWER PIPE, 10" PVC	LF	50	
25	MNDOT 2503.511	STORM SEWER PIPE, 12" HDPE	LF	60	
26	MNDOT 2503.511	STORM SEWER PIPE, 18" HDPE	LF	375	
27	MNDOT 2503.511	4 INCH PVC PIPE SEWER (SANITARY)	LF	25	
28	MNDOT 2503.511	8 INCH PVC PIPE SEWER (SANITARY)	LF	170	
29	MNDOT 2503.602	CONNECT TO EXISTING STORM SEWER	EACH	8	
30	MNDOT 2503.603	PLUG, FILL AND ABANDON PIPE	LF	130	
31	MNDOT 2504.602	6 INCH GATE VALVE AND BOX	EACH	1	
32	MNDOT 2504.603	3 INCH HDPE WATERMAIN	LF	400	
33	MNDOT 2505.602	CONNECT TO EXISTING GAS MAIN	EACH	1	
34	MNDOT 2505.603	2 INCH POLYETHYLENE GAS MAIN	LF	280	
35	MNDOT 2506.522	ADJUST FRAME RING AND CASTING	EACH	2	
36	MNDOT 2506.602	SANITARY MANHOLE	EACH	4	
37	MNDOT 2506.602	SANITARY CASTING	EACH	4	
38	MNDOT 2521.618	BRICK WALK - DRIVEWAY ENTRANCE	SF	208	
39	MNDOT 2531.501	CONCRETE CURB AND GUTTER D424	LF	240	
40	MNDOT 2531.501	CONCRETE CURB AND GUTTER B624	LF	1150	
41	MNDOT 2531.501	CONCRETE CURB AND GUTTER ZERO HEAD CURB	LF	300	
42	MNDOT 2531.618	TRUNCATED DOMES	SF	472	
43	MNDOT 2545.523	DIRECTIONAL DRILL FOR 2" GAS LINE	LF	50	
44	MNDOT 2545.523	DIRECTIONAL DRILL 2" HDPE ELECTRICAL CONDUIT	LF	280	
45	MNDOT 2550.512	QUAZITE BOX CAT. NO: PG 2436 BB36 ELECTRICAL HANDHOLE W/ PG 2436HA00 LID	EACH	3	
46	MNDOT 2550.602	LOOP DETECTOR	LS	1	
47	MNDOT 2564.537/00010	HANDICAP PARKING SIGN R7-8M	EACH	14	
48	D-705.5.1	INSTALL 6" UNDERDRAIN WITH FABRIC PIPE WRAP AND POROUS BACKFILL	LF	1455	
49	D-705.5.3	REMOVE IRRIGATION CONDUIT	LF	160	
50	D-705.5.4	REMOVE UNDERDRAIN	LF	544	
51	D-705.5.5	REMOVE SEWER PIPE (STORM), 12" - 18" DIA.	LF	650	
52	D-751.5.1	REMOVE MANHOLES OR CATCH BASINS	EACH	4	
53	D-751.5.2	INSTALL NEW MANHOLE/CATCHBASIN, TYPE G	EACH	2	
54	D-751.5.3	INSTALL NEW MANHOLE/CATCHBASIN, 4' DIA	EACH	1	
55	D-751.5.4	INSTALL NEW MANHOLE/CATCHBASIN, 7' DIA	EACH	1	
56	D-751.5.5	STORM DRAINAGE FRAME AND COVER, AS SPECIFIED	EACH	3	
57	D-751.7.6	ADJUST EXISTING STORM OR SANITARY MH CASTING	EACH	3	
58	T-904.5.1	SODDING	SY	1750	
59	T-905.5.1	TOPSOILING (FURNISHED FROM OFF THE SITE)	CY	200	
60	L-105-5.2	REMOVE EXISTING ELECTRICAL/COMMUNICATIONS CONDUIT AND CABLE	LF	1050	
61	L-105-5.3	REMOVE EXISTING ELECTRICAL/COMMUNICATIONS HANDHOLE	EACH	1	
62	L-108-5.3	2/C #8 600V THHN CABLE	LF	790	
63	L-108-5.5	1/C #4 EQUIPMENT GROUND	LF	790	
64	L-110.5.1	1-WAY, 2" SCHEDULE 80 PVC, DIRECT BURIED	LF	400	
65	SP 5.3	SALVAGE AND REINSTALL TYPE 'C' LIGHT WITH NEW FOUNDATION	EACH	5	
66	SP 6.3	SALVAGE TYPE 'C' LIGHT PROVIDE TO OWNER/DEMOLISH CONCRETE BASE	EACH	3	
67	SP 7.3	SALVAGE AND REINSTALL GATE OPERATOR W/ NEW LOOPS	EACH	1	
68	SP 8.4	TRAFFIC CONTROL ALLOWANCE	AL	1	
69	SP 9.3	PRIVATE UTILITY LOCATING SERVICE	LS	1	
70	SP 10.3	ADJUST EXISTING WATER VALVE	LS	1	
71	SP 11.3	TERMINAL BUILDING WORK	LS	1	

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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 Minnesota.

Print Name: JOHN E. HIPPCHEN

Signature: John E Hippchen

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RDRE
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

SUMMARY OF QUANTITIES

SHEET NUMBER

C002

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C002.dwg Plotted on: 5/20/2013 1:37 PM Plotted by: Erdmann, Ryan

SAFETY REQUIREMENTS

1. ALL CONTRACTOR VEHICLES SHALL DISPLAY IN FULL VIEW A FLASHING AMBER (YELLOW) DOME–TYPE LIGHT AND/OR ABOVE THE VEHICLE A 3' X 3' OR LARGER, ORANGE AND WHITE CHECKERBOARD FLAG, EACH CHECKERBOARD COLOR BEING 1–FOOT SQUARE, (SEE CONSTRUCTION SAFETY FLAG DETAIL, THIS SHEET).

2. DEBRIS, WASTE AND LOOSE MATERIAL CAPABLE OF CAUSING DAMAGE TO AIRCRAFT LANDING GEARS, PROPELLERS OR BEING INGESTED IN JET ENGINES SHALL NOT BE ALLOWED ON AIRSIDE PAVEMENTS. IF THESE MATERIALS ARE OBSERVED TO BE ON AIRSIDE PAVEMENTS, THEY WILL BE REMOVED IMMEDIATELY AND/OR CONTINUOUSLY BY THE CONTRACTOR DURING CONSTRUCTION.

3. THE CONTRACTOR IS DIRECTED TO COMPLY WITH AND ACQUAINT HIS/HER EMPLOYEES WITH THE LATEST EDITION(S) OF THE FOLLOWING SAFETY GUIDELINES, RELATED MATERIALS AND FAA ADVISORY CIRCULARS:

FAA ORDER	"SAFETY REQUIREMENT ON AIRPORTS DURING AGENCY FUNDED CONSTRUCTION AND MAINTENANCE ACTIVITIES"
150/5200–18C	"AIRPORT SAFETY–SELF INSPECTION"
150/5210–5D	"PAINTING, MARKING & LIGHTING OF VEHICLES USED ON AIRPORTS"
150/5370–2F	"OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION"

COPIES OF THESE DOCUMENTS ARE AVAILABLE BY REQUEST FROM THE ENGINEER OR AVAILABLE ONLINE WWW.FAA.GOV/REGULATIONS_POLICIES/ADVISORY_CIRCULAR

4. CONSTRUCTION DURING THE PROJECT MAY BE HALTED AT ANY TIME BY RPR, ENGINEER, AND/OR AIRPORT OPERATIONS IF IT IS DETERMINED TO BE IN THE BEST INTEREST OF AIRPORT OPERATIONS OR SAFETY. THE CONTRACTOR MAY BE DIRECTED TO REMOVE EQUIPMENT AND/OR EVACUATE THE SITE IN ORDER TO ENABLE AIRCRAFT OPERATIONS; COMMERCIAL, MILITARY OR GENERAL AVIATION NECESSARY EXTENSIONS IN CONTRACT TIME WILL BE GRANTED OR A STOP WORK ORDER WILL BE ISSUED DUE TO THESE DELAYS, HOWEVER, THERE WILL BE NO ADJUSTMENTS IN CONTRACT PRICE DUE TO THESE DELAYS.

   IN ADDITION TO THE ABOVE, THE FOLLOWING SPECIAL REQUIREMENTS WILL APPLY FOR NIGHT CONSTRUCTION:

   a. A DAILY SAFETY AND PROGRESS MEETING SHALL BE HELD BETWEEN THE ENGINEER AND THE CONTRACTOR'S SUPERINTENDENT TO DISCUSS REQUIREMENTS FOR THE NEXT NIGHTTIME WORK PERIOD.

   b. THE CONTRACTOR SHALL PREPARE A SAFETY PLAN SPECIFIC TO NIGHTTIME CONSTRUCTION OPERATIONS, AS WELL AS A CONTINGENCY PLAN TO ADDRESS CASES OF ABNORMAL FAILURES OR UNEXPECTED DISASTERS USING APPENDIX 3 OF AC 150/5370–2E AS A GUIDE.

5. THE CONTRACTOR SHALL INSTALL ALL REQUIRED BARRICADES AT DESIGNATED PLAN LOCATIONS, HAVE ALL ACCESS GATES GUARDED AND LOCKABLE, HAVE ALL EQUIPMENT EITHER FLAGGED OR FITTED WITH FLASHING YELLOW DOME–TYPE LIGHTS ON TOP OF THE VEHICLES. ALL THESE ITEMS SHALL CONSIST OF THE SAFETY AND SECURITY SYSTEM. THE CONTRACTOR SHALL INSTALL THE COMPONENTS OF THE SYSTEM AT THE APPROPRIATE TIMES AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL INSPECT EVERY ASPECT OF THE SAFETY AND SECURITY SYSTEM ON AT LEAST A DAILY BASIS AND ENSURE ALL COMPONENTS ARE FUNCTIONING PROPERLY. THE RESIDENT PROJECT REPRESENTATIVE (RPR) SHALL ALSO DAILY INSPECT THE SYSTEM AND IF ANY DEFICIENCIES ARE NOTED, THE CONTRACTOR SHALL HAVE THAT DAY'S PRORATED SAFETY AND SECURITY COST DEDUCTED FROM THE CONTRACTOR'S EARNINGS. THE SYSTEM ELEMENTS TO BE INSPECTED AND DEFICIENCIES NOTED ARE AS FOLLOWS:

   *BARRICADES SET PROPERLY AND ALL FLASHING WARNING LIGHTS OPERATING PROPERLY.
   *ALL CONTRACTOR PERSONNEL AND EQUIPMENT ACCESS GATES MANNED AND SECURITY PROCEDURES IN PLACE.
   *ALL EQUIPMENT FLAGGED OR OUTFITTED WITH FLASHING YELLOW DOME–TYPE LIGHTS.
   *CONTRACTOR USE OF UNAUTHORIZED AIRPORT ACCESS GATES CHECKED.

   ANY OF THE ABOVE SAFETY AND SECURITY ITEMS FOUND TO BE DEFICIENT AT THE BEGINNING OF THE DAY BY THE RPR AND/OR AIRPORT OPERATIONS STAFF WILL RESULT IN THAT DAY'S PRORATED SAFETY AND SECURITY BID ITEM LOST AND BEING DEDUCTED PERMANENTLY FROM THE CONTRACTOR'S EARNINGS. THE CONTRACTOR SHALL MAKE A CONCERTED EFFORT TO ENSURE ALL SAFETY AND SECURITY ITEMS ARE IN PROPER WORKING ORDER EACH DAY DUE TO THE HEIGHTENED SECURITY STATUS OF THE AIRPORT AND THE CONSIDERABLE LIABILITY ASSOCIATED WITH THE SAFETY AND SECURITY WORK.

6. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO ENSURE THE SAFETY OF THE TRAVELING PUBLIC AS WELL AS HIS OWN EQUIPMENT AND PERSONNEL. SPECIAL CONSIDERATIONS SHOULD BE GIVEN TO FLIGHT SCHEDULES. THE CONTRACTOR SHALL OBEY ALL INSTRUCTIONS AS TO ROUTES TO BE TAKEN BY EQUIPMENT TRAVELING WITHIN THE AIRPORT AREA AND KEEP SUCH VEHICLES AND EQUIPMENT MARKED WITH THE SPECIFIED AIRPORT SAFETY FLAGS. THE CONTRACTOR SHALL MAKE HIS OWN ESTIMATE OF ALL DIFFICULTIES TO BE ENCOUNTERED. EQUIPMENT NOT ACTUALLY IN OPERATION SHALL BE KEPT CLEAR OF LANDING AREAS. PERSONNEL SHALL NOT ENTER AREAS OF THE AIRPORT WHERE AIRCRAFT ARE OPERATING WITHOUT SPECIFIC PERMISSION.

7. THE CONTRACTOR SHALL TAKE ALL STEPS TO PROTECT THE EXISTING UNDERGROUND CABLES AND COMMERCIAL, AIRPORT AUTHORITY AND MILITARY UTILITIES DURING CONSTRUCTION TO ASSURE CONTINUOUS OPERATION OF LIGHTS AND NAVIGATIONAL AIDS WHEN NEEDED.

8. MATERIALS STORED OR STOCKPILED ON THE AIRPORT SHALL BE SO PLACED AND THE WORK SHALL, AT ALL TIMES, BE SO CONDUCTED AS TO CAUSE NO GREATER OBSTRUCTION TO THE TRAVELING PUBLIC THAN IS CONSIDERED NECESSARY BY THE ENGINEER.

9. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL NECESSARY BARRICADES, SIGNS, DANGER SIGNALS AND LIGHTS FOR THE PROTECTION OF THE WORK AND THE SAFETY OF THE TRAVELING PUBLIC IN ACCORDANCE WITH THE SPECIFICATIONS (AC 150/5370–2E).

10. THE CONTRACTOR SHALL HAVE PERSONNEL ON CALL 24 HOURS PER DAY FOR EMERGENCY MAINTENANCE OF HAZARD LIGHTING AND BARRICADES.

11. THE AIRPORT DIRECTOR, WORKING THROUGH THE ENGINEER, SHALL, AT ALL TIMES, HAVE COMPLETE JURISDICTION OVER THE SAFETY OF ALL OPERATIONS DURING THE WORK. WHERE EVER THE SAFETY OF THE TRAVELING PUBLIC IS CONCERNED, THE DECISIONS OF THE AIRPORT DIRECTOR OR HIS DESIGNATED REPRESENTATIVE, SHALL BE FINAL AS TO METHODS, PROCEDURES AND MEASURES USED.

12. THE CONTRACTOR SHALL CONTACT THE MINNESOTA AIRWAY FACILITIES SECTOR POINT OF CONTACT (POC) (ANDY GOMEZ AT 218–727–2826) TO PROVIDE FIELD LOCATIONS OF EXISTING FACILITY CABLES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAND DIGGING TO LOCATE FACILITY CABLING, AND PROTECTION OF THOSE CABLES THROUGHOUT THE PROJECT.

13. THE CONTRACTOR SHALL CONFINE HIS PERSONNEL, EQUIPMENT, OPERATIONS AND TRAVEL TO THE AREA WITHIN THE DEFINED WORK LIMITS SHOWN ON THE PLANS.

14. THE CONTRACTOR SHALL INFORM ALL CONSTRUCTION PERSONNEL AS TO THE PROPER ROUTES, SPEEDS AND PROCEDURES FOR TRANSPORTING EQUIPMENT AND MATERIALS TO THE CONSTRUCTION SITE. ON A DAILY BASIS AND MORE OFTEN IF NECESSARY ALL PERSONNEL SHALL BE ADVISED OF ANY CHANGES IN AIRPORT OPERATIONS THAT MAY FURTHER RESTRICT HIS MOVEMENT.

15. ACCESS OR HAUL ROUTES SHALL BE EXISTING ROADWAYS TO THE EXTENT THAT THEY ARE AVAILABLE. THE CONTRACTOR SHALL CORRECT ANY DAMAGE TO THE ROADS USED AND SHALL RESTORE THOSE ROADS TO THE SAME OR BETTER CONDITION AS THEY EXISTED PRIOR TO THE START OF WORK. THE CONTRACTOR MAY ESTABLISH ADDITIONAL HAUL OR ACCESS ROUTES AT HIS OWN EXPENSE AND RESPONSIBILITY IF APPROVED BY THE SPONSOR. UPON COMPLETION OF THE WORK, ANY ADDITIONAL ROADS SHALL EITHER BE LEFT OR GRADED AS DIRECTED SO THAT THEY DO NOT IMPEDE THE EXISTING DRAINAGE OR ACCESS ROUTES.

16. MEASURES SHALL BE ADOPTED TO PREVENT POTENTIAL POLLUTANTS FROM ENTERING ANY DRAINAGE SYSTEM OR WATERWAY. MATERIALS AND DEBRIS SHALL NOT BE STORED IN THE WORK AREA IN A MANNER THAT WOULD ALLOW THEM TO ENTER THE DRAINAGE SYSTEM AS A RESULT OF SPILLAGE, NATURAL RUNOFF OR FLOODING. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY NOTIFY THE SPONSOR SHOULD THERE BY A SPILLAGE OF MATERIAL WHICH MIGHT CONTAMINATE THE DRAINAGE SYSTEM. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND CLEAR UP SUCH SPILLAGE IN A MANNER ACCEPTABLE TO THE SPONSOR. MATERIAL SHALL BE SECURED SO THAT IT WILL NOT BE BLOWN BY THE WIND ONTO THE AIRFIELD SURFACES.

17. SPECIAL ATTENTION TO DUST CONTROL WILL BE REQUIRED WHEN EARTHWORK OR HAULING OPERATIONS ARE IN PROGRESS OR WHEN WIND AND WEATHER CONDITIONS CAUSE EXCESSIVE BLOWING OF DUST. IN THIS REGARD, THE CONTRACTOR SHALL APPLY WATER OR CALCIUM CHLORIDE SOLUTION TO THE AFFECTED SITES AS DIRECTED.

18. VEHICLES WITHIN THE SECURITY FENCE SHALL BE VISIBLY IDENTIFIABLE AS CONTRACTOR VEHICLES WHICH HAVE BEEN PROPERLY CLEARED FOR ENTRY (LOGO AND FLAGS ON AUTHORIZED EQUIPMENT AND VEHICLES WOULD BE ACCEPTABLE.)

19. CONSTRUCTION EQUIPMENT SHALL HAVE A MAXIMUM HEIGHT OF TWENTY–FIVE (25) FEET.

20. THE CONTRACTOR SHALL SUBMIT A SAFETY AND SECURITY PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL BY THE AIRPORT AUTHORITY PRIOR TO CONSTRUCTION COMMENCING.

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING UTILITY LINES AND HAND DIGGING TO LOCATE FAA CABLING AND SHALL PROVIDE ADEQUATE PROVISIONS TO PROTECT ALL FAA CABLES EXPOSED DURING THE PROPOSED WORK. THE SPONSOR/CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE AIRWAY FACILITY SMO AT THE PROJECT PRECONSTRUCTION MEETING SHOULD CABLE RELOCATION BE NECESSARY.

22. ANY DAMAGE TO FAA CABLES, UNDERGROUND CABLES/UTILITIES, ACCESS ROADS, OR TO FAA FACILITIES DURING THE CONSTRUCTION WILL REQUIRE THE CONTRACTOR TO REPLACE THE DAMAGED CABLES, ACCESS ROAD, OR FAA FACILITIES TO THE AF SMO'S REQUIREMENTS, AND AT THE CONTRACTORS' EXPENSE.

23. IF ANY FAA POWER, CONTROL, OR SIGNAL CABLES ARE DAMAGED, THE SPONSOR/CONTRACTOR SHALL REPLACE THE CABLE IN ITS ENTIRETY. THE SPLICING OF CABLES IS NOT AN ACCEPTABLE FORM OF REPAIR.

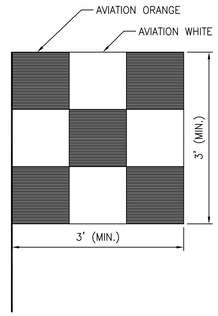
24. PAVEMENT RUBBLE AND EXCAVATION WASTE MATERIAL REMOVED FROM THE CONSTRUCTION AREA SHALL BE DISPOSED OF OFF THE AIRPORT PROPERTY. NO MATERIAL SHALL BE WASTED ON THE AIRPORT SITE UNLESS APPROVED BY THE AIRPORT. WASTE AND DISPOSAL AREAS SHALL BE SEEDED AND RESTORED IN A SMOOTH, GRADED AND DRAINABLE CONDITION. BORROW ARES, IF REQUIRED, SHALL BE LOCATED AS SHOWN ON THE PLANS AND SHALL ALSO BE RESTORED IN A SMOOTH GRADED AND DRAINABLE CONDITION.

25. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN AND PAY FOR ALL APPLICABLE PERMITS, IF ANY, FOR CONSTRUCTION.

26. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE, FROM THE SITE, ALL SURPLUS MATERIAL AND EQUIPMENT BELONGING TO HIS/HER, OR SUBCONTRACTORS FORCES AND RESTORE THE SITE TO THE SATISFACTION OF THE ENGINEER/AIRPORT.

27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL DAMAGE TO AIRPORT PROPERTY CAUSED BY HIS/HER FORCES AND HIS/HER SUBCONTRACTOR'S FORCES.

NOTE: SAFETY FLAG SHALL BE PROMINENTLY DISPLAYED ON ALL CONSTRUCTION EQUIPMENT. (SEE NOTE 1 UNDER SAFETY)



CONSTRUCTION SAFETY FLAG

N.T.S.

SECURITY REQUIREMENTS

1. GENERAL INTENT: IT IS INTENDED THAT THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE AIRPORT SECURITY PLAN AND WITH THE SECURITY REQUIREMENTS SPECIFIED HEREIN BY AIRPORT OPERATIONS. THE CONTRACTOR SHALL DESIGNATE TO THE ENGINEER AND AIRPORT OPERATIONS, IN WRITING, THE NAME OF HIS "CONTRACTOR SECURITY AND SAFETY OFFICER (CSSO)." THE CSSO SHALL REPRESENT THE CONTRACTOR ON THE SECURITY REQUIREMENTS FOR THE CONTRACT.

2. CONTRACTOR PERSONNEL SECURITY ORIENTATION: THE CSSO SHALL BE RESPONSIBLE FOR BRIEFING ALL CONTRACTOR PERSONNEL ON SECURITY REQUIREMENTS. ALL NEW CONTRACTOR EMPLOYEES SHALL BE BRIEFED ON SECURITY REQUIREMENTS PRIOR TO WORKING IN THE CONSTRUCTION AREA. THE AIRPORT SHALL BRIEF AND/OR TRAIN CONSTRUCTION RELATED VEHICLE EQUIPMENT DRIVERS ON OPERATIONS WITHIN AN AIRPORT/AIRCRAFT ENVIRONMENT. AIRPORT MANAGEMENT SHOULD PROVIDE PRINTED MATERIAL TO EACH VEHICLE OPERATOR THAT DEPICTS HAUL ROUTES, PROHIBITED MOVEMENT AREAS, AND DESCRIBES THE CONSEQUENCES FOR NON–COMPLIANCE WITH ESTABLISHED PROCEDURES. THE AIRPORT HAS IMPLEMENTED A ZERO TOLERANCE APPROACH TO DRIVING VIOLATIONS.

3. ACCESS TO THE SITE: CONTRACTOR'S ACCESS TO THE SITE SHALL BE AS SHOWN ON THE PLANS. NO OTHER ACCESS POINTS SHALL BE ALLOWED UNLESS APPROVED BY AIRPORT OPERATIONS. ALL CONTRACTOR TRAFFIC AUTHORIZED TO ENTER THE SITE SHALL BE EXPERIENCED IN THE ROUTE OR GUIDED BY CONTRACTOR PERSONNEL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL TO AND FROM THE VARIOUS CONSTRUCTION AREAS ON THE SITE, AND FOR THE OPERATION AND SECURITY OF THE ACCESS GATE TO THE SITE. A CONTRACTOR'S FLAGMAN OR TRAFFIC CONTROL PERSON SHALL MONITOR AND COORDINATE ALL CONTRACTOR TRAFFIC AT THE ACCESS GATE WITH SECURITY. THE CONTRACTOR SHALL NOT PERMIT ANY UNAUTHORIZED CONSTRUCTION PERSONNEL OR TRAFFIC ON THE SITE. ACCESS GATES TO THE SITE SHALL BE LOCKED AND SECURED AT ALL TIMES WHEN NOT ATTENDED BY THE CONTRACTOR. IF THE CONTRACTOR CHOOSES TO LEAVE ANY ACCESS GATE OPEN, IT SHALL BE ATTENDED BY CONTRACTOR PERSONNEL WHO ARE FAMILIAR WITH THE REQUIREMENTS OF THE AIRPORT OPERATIONS SECURITY PROGRAM. THE CONTRACTOR IS RESPONSIBLE FOR THE IMMEDIATE CLEANUP OF ANY DEBRIS DEPOSITED ALONG THE ACCESS ROUTE AS A RESULT OF HIS CONSTRUCTION TRAFFIC. DIRECTIONAL SIGNING FROM THE ACCESS GATE ALONG THE DELIVERY ROUTE TO THE STORAGE AREA, PLANT SITE OR WORK SITE SHALL BE AS DIRECTED BY AIRPORT OPERATIONS.

4. MATERIALS DELIVERY TO THE SITE: ALL CONTRACTOR'S MATERIAL ORDERS FOR DELIVERY TO THE WORK SITE WILL USE AS A DELIVERY ADDRESS, THE STREET NAME ASSIGNED TO THE ACCESS POINT AT THE CONTRACTOR'S STAGING SITE AT THE AIRPORT. THE NAME "DULUTH INTERNATIONAL AIRPORT" SHALL NOT BE USED IN THE DELIVERY ADDRESS AT ANY TIME. THIS WILL PRECLUDE DELIVERY TRUCKS FROM ENTERING INTO THE TERMINAL COMPLEX, OR TAKING SHORT CUTS THROUGH THE PERIMETER GATES AND ENTERING INTO AIRCRAFT OPERATIONS AREAS INAPPROPRIATELY.

5. CONSTRUCTION AREA LIMITS: THE LIMITS OF CONSTRUCTION, MATERIAL STORAGE AREAS, PLANT SITE, EQUIPMENT STORAGE AREA, PARKING AREA AND OTHER AREAS DEFINED AS REQUIRED FOR THE CONTRACTOR'S EXCLUSIVE USE DURING CONSTRUCTION SHALL BE MARKED BY THE CONTRACTOR. THE CONTRACTOR SHALL ERECT AND MAINTAIN AROUND THE PERIMETER OF THESE AREAS SUITABLE FENCING, MARKING AND/OR WARNING DEVICES VISIBLE FOR DAY/NIGHT USE. TEMPORARY BARRICADES, FLAGGING AND FLASHING WARNING LIGHTS WILL BE REQUIRED AT CRITICAL ACCESS POINTS. TYPE OF MARKING AND WARNING DEVICES SHALL BE APPROVED BY AIRPORT OPERATIONS.

6. IDENTIFICATION––PERSONNEL: ALL EMPLOYEES, AGENTS, VENDORS, INVITEES, ETC. OF THE CONTRACTOR OR SUBCONTRACTORS REQUIRING ACCESS TO THE AIRCRAFT OPERATIONS AREA (AOA) SHALL, IN ACCORDANCE WITH THE AIRPORT OPERATIONS SECURITY PROGRAM, BE REQUIRED TO DISPLAY AIRPORT ISSUED IDENTIFICATION OR BE UNDER ESCORT BY PROPERLY BADGED PERSONNEL. THESE BADGES WILL BE IDENTIFIED NUMERICALLY AND ISSUED TO INDIVIDUAL EMPLOYEES WITH A PERMANENT RECORD MAINTAINED ON EACH INDIVIDUAL TO WHOM A BADGE IS ISSUED. AT THE COMPLETION OF THE CONTRACT ALL BADGES WILL BE RETURNED TO THE AIRPORT AND A CHARGE OF $50 PER BADGE WILL BE ASSESSED FOR ALL BADGES NOT RETURNED. IN ADDITION, A $20 NON–REFUNDABLE PROCESSING FEE WILL BE REQUIRED FOR EACH BADGE. THIS FEE WILL BE PAID BEFORE BADGE IS ISSUED. NO BADGE WILL BE ISSUED TO ANY PERSON UNTIL A REVIEW OF REQUIRED PAPERWORK BY AIRPORT SECURITY AND ALL REQUIREMENTS ARE MET. PAPERWORK SHALL BE SUBMITTED A MINIMUM OF 24 HOURS BEFORE ISSUANCE OF BADGE. IDENTIFIABLE HARD HATS OR OTHER IDENTIFICATION SHALL ALSO BE WORN AT ALL TIMES IF REQUIRED BY AIRPORT OPERATIONS. THE CONTRACTOR AND ITS STAFF IS RESPONSIBLE FOR ATTENDING TRAINING AND COMPLETING SECURITY BADGE APPLICATIONS, WHICH WILL INCLUDE AIR/GROUND RADIO, TAXIWAY AND AIRPORT FAMILIARIZATION. ESTIMATED TIME FOR COMPLETION IS 2 HOURS.

7. IDENTIFICATION––VEHICLES: THE CONTRACTOR, THROUGH THE CSSO, SHALL ESTABLISH AND MAINTAIN A LIST OF CONTRACTOR AND SUBCONTRACTOR VEHICLES AUTHORIZED TO OPERATE ON THE SITE AND SHALL ISSUE A PERMIT TO EACH VEHICLE TO BE MADE AVAILABLE UPON DEMAND BY AIRPORT OPERATIONS THE RPR OR ANY AIRPORT REPRESENTATIVES. A BLOCK OF VEHICLE PERMITS SHALL BE ISSUED BY AIRPORT OPERATIONS TO THE CONTRACTOR AND AT THE COMPLETION OF THE CONTRACT ALL PERMITS WILL BE RETURNED TO THE AIRPORT AND A CHARGE OF $25 PER PERMIT WILL BE ASSESSED FOR ALL PERMITS NOT RETURNED. CONTRACTOR EMPLOYEE VEHICLES SHALL BE RESTRICTED TO THE CONTRACTOR'S EMPLOYEE PARKING AREA AND ARE NOT ALLOWED ON THE AOA AT ANY TIME.

8. FINES: PAYMENT OF ALL FINES ASSESSED TO DULUTH INTERNATIONAL AIRPORT DUE TO VIOLATIONS BY THE CONTRACTOR OF FAA/TSA SECURITY OR SAFETY REQUIREMENTS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DEDUCTED FROM MONIES DUE THE CONTRACTOR.

   A. IF THE RESTRICTED AREA GATE IS FOUND TO BE OPEN OR UNLOCKED AND UNATTENDED, AIRPORT SECURITY POLICE AND/OR TSA MAY ISSUE THE CONTRACTOR A CITATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COURT COSTS IMPOSED FINES. IN ADDITION, A CHARGE OF UP TO $10,000.00 MAY BE LEVIED BY THE DULUTH AIRPORT AUTHORITY AND/OR TSA FOR EACH VIOLATION SO DOCUMENTED AND UPON THE REQUEST FOR FINAL PAYMENT THE TOTAL OF ANY SUCH CHARGES WILL BE DEDUCTED FROM MONIES DUE THE CONTRACTOR.

   B. IN THE EVENT THE CONTRACTOR DEVIATES FROM THE IDENTIFIED CONSTRUCTION LIMITS AND/OR DESIGNATED HAUL ROUTES ONTO AN ACTIVE RUNWAY OR TAXIWAY THE CONTRACTOR WILL BE FINED $1,000 PER OCCURRENCE WHICH WILL BE DEDUCTED FROM THE FINAL CONTRACT AMOUNT DUE THE CONTRACTOR.

9. A MINIMUM OF 48 HOURS IN ADVANCE OF ANY EXCAVATION OR BORINGS, THE CONTRACTOR SHALL CONTACT THE FOLLOWING LOCAL CABLE OWNERS TO VERIFY ALL UNDERGROUND CABLE LOCATIONS IN THE VICINITY OF THE PROPOSED WORK:

CABLE OWNER	CONTACT PERSON	PHONE NUMBER
FEDERAL AVIATION ADMINISTRATION	ANDY GOMEZ	218–727–2826
Mn AIR NATIONAL GUARD	WORK CONTROL	218–723–7292
DULUTH AIRPORT AUTHORITY	PAUL SINNOTT	218–727–6522
OTHERS	GOPHER STATE ONE–CALL	800–252–1166

10. RESPONSIBILITY FOR TEMPORARY LIGHTING AND MARKING

    THE CONTRACTOR WILL BE RESPONSIBLE FOR FURNISHING AND MAINTAINING THE NECESSARY BARRICADES AND HAZARD LIGHTING AS REQUIRED BY THE SPECIFICATIONS TO MARK CONSTRUCTION AREAS, HAZARDS, ETC. REFLECTORIZED ORANGE PLASTIC BARRELS WITH ATTACHED FLASHING RED LIGHTS FOR NIGHT USE ARE THE PREFERRED TYPE OF BARRICADE FOR USE ON THE AIRPORT.

11. CONSTRUCTION ACTIVITY IN THE VICINITY OF NAVIGATIONAL AIDS

    48 HOURS PRIOR TO THE PRE CONSTRUCTION CONFERENCE AND/OR CONSTRUCTION START, THE CONTRACTOR SHALL CONTACT THE LOCAL AIRWAY FACILITIES MANAGER AT (218) 727–2826. HE OR HIS REPRESENTATIVE WILL MEET WITH THE CONTRACTOR TO IDENTIFY FAA FACILITIES AND FAA CABLES.

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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

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Landscape Architects:
ARCHITECTURAL RESOURCES
126 East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

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 Minnesota.

Print Name: JOHN E. HIPPCHEN

Signature: John E Hippchen

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

SAFETY AND SECURITY NOTES AND DETAILS

SHEET NUMBER

C003

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C003.dwg Plotted on: 5/16/2013 1:27 PM Plotted by: Erdmann, Ryan

GENERAL NOTES

1. SAFETY AND SECURITY – SAFETY AND SECURITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE COORDINATED WITH DULUTH INTERNATIONAL AIRPORT AND THE ENGINEER (SEE SPECIAL PROVISION SPECIFICATIONS).

2. EXISTING UTILITY INFORMATION SHOWN ON THE PLANS CONCERNING THE TYPE, SIZE AND LOCATION WERE COMPILED BASED ON THE BEST AVAILABLE UTILITY RECORDS TO THE ENGINEER. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION PRIOR TO CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOWER AND/OR PROTECT ALL EXISTING UTILITIES IN PLACE UNLESS NOTED OR SPECIFIED OTHERWISE INCIDENTAL TO THIS PROJECT. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL FIELD VERIFY AND SOFT DIG TO IDENTIFY ACTUAL LOCATION AND DEPTH PRIOR TO REMOVAL AND EXCAVATION FOR ALL UTILITIES BOTH WET AND DRY.

3. CONTRACTOR UTILITIES – THE CONTRACTOR'S STAGING AREA IS SHOWN ON SHEET C005. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL UTILITIES AND HOOKUPS (SEE SPECIAL PROVISIONS). THE CONTRACTOR WILL BE REQUIRED TO COORDINATE WITH THE CITY ENGINEERING DEPARTMENT AND DULUTH INTERNATIONAL AIRPORT ON THE PRECISE LOCATION AND LIMITS OF THE STAGING AREA, AS WELL AS ANY SPECIAL REQUIREMENTS FOR FENCING, SECURITY BADGING AND ACCESSES.

4. HAUL ROUTES – THE LOCATION OF HAUL ROUTES ON THE AIRPORT SHALL BE AS SHOWN ON THE PLANS AND APPROVED BY THE CITY OF DULUTH AND THE DULUTH INTERNATIONAL AIRPORT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE OFF-SITE HAUL ROUTES WITH THE PARTY HAVING JURISDICTION OVER THE AFFECTED ROUTE. ON-SITE HAUL ROUTES WILL BE MAINTAINED BY THE CONTRACTOR AND SHALL BE RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF USE AS A HAUL ROUTE. FENCING, DRAINAGE, GRADING, AND ANY OTHER WORK NECESSARY TO CONSTRUCT HAUL ROUTES ON THE AIRPORT IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE APPROVED BY THE ENGINEER PRIOR TO WORK.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL DULUTH INTERNATIONAL AIRPORT PROPERTY AND SHALL PROTECT CAREFULLY FROM DAMAGE OR DISTURBANCE ALL LAND MONUMENTS AND PROPERTY MARKERS. IF DAMAGE OR INJURY TO PROPERTY DOES OCCUR DURING THE WORK, THE CONTRACTOR SHALL RESTORE AT HIS/HER OWN EXPENSE SUCH PROPERTY TO A CONDITION EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE.

6. EXCESS SOIL PLACEMENT SHALL BE OFF-SITE IN A CITY APPROVED LOCATION AND SHALL ADHERE TO ALL LOCAL LAWS AND REGULATIONS. COSTS ASSOCIATED WITH THE PLACEMENT AT THIS LOCATION SHALL BE INCLUDED IN THE COST OF REMOVAL. THE CONTRACTOR SHALL PROVIDE THE RESIDENT ENGINEER AND DULUTH INTERNATIONAL AIRPORT WITH DOCUMENTATION OF THE QUANTITY OF PLACEMENT, LOCATION AND CITY/LOCAL GOVERNMENT ACCEPTANCE.

7. ANY REMOVAL OF EQUIPMENT (TICKET DISPENSERS, PARKING LOT GATES, AND TOLL BOOTHS) ARE TO REMAIN THE PROPERTY OF DULUTH INTERNATIONAL AIRPORT UNLESS INDICATED OTHERWISE.

8. THE CONTRACTOR SHALL NOT ENTER INTO ANY PAVED OR UNPAVED AREA OUTSIDE OF THE LIMITS OF CONSTRUCTION WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

9. THE CONTRACTOR SHALL REPAIR DAMAGE TO HAUL ROUTES ON AND OFF AIRPORT PROPERTY UPON COMPLETION OF THIS PROJECT. (INCIDENTAL TO THIS PROJECT).

10. CONTRACTOR SHALL SUBMIT A PLAN (PRIOR TO CONSTRUCTION) FOR CONSTRUCTION OF EACH PHASE. THIS PLAN SHALL SHOW SUFFICIENT REMOVAL OF AC TO PLACE REQUIRED CONCRETE/ASPHALT FOR EACH PHASE. IT SHALL ALSO SHOW WHAT STEPS WILL BE TAKEN WHEN VEHICLES/EQUIPMENT ARE REQUIRED TO BE TURNED AROUND AND HAVE PASSED THE AREA OF PAVING. IT WILL ALSO SHOW WHERE EQUIPMENT IS TO BE STORED IN EACH PHASE.

11. SHOULD ANY ITEM IN THESE PLANS CONFLICT WITH THE TECHNICAL SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

12. THE CONTRACTOR SHALL BE GIVEN A SPECIFIC NUMBER OF CALENDAR DAYS TO PERFORM THE WORK AND IF THE CONTRACTOR DOES NOT COMPLETE THE CONSTRUCTION WITHIN THAT TIME FRAME, LIQUIDATED DAMAGES WILL BE ASSESSED UNLESS THE CONTRACTOR CAN SHOW JUST CAUSE FOR ANY DELAYS. IF THE ENGINEER, OR AIRPORT MANAGEMENT FEELS THAT CONSTRUCTION IS PROCEEDING AT TOO SLOW A PACE, THE ENGINEER SHALL NOTIFY THE CONTRACTOR IN WRITING AND THE CONTRACTOR SHALL BE REQUIRED TO RESPOND IN WRITING JUSTIFYING THE IDENTIFIED DELAYS AND/OR LACK OF ADEQUATE EQUIPMENT. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE JUSTIFICATION FOR WAIVING OF ANY LIQUIDATED DAMAGES CHARGED TO THE CONTRACTOR.

13. THE CONTRACTOR SHALL, AT ALL TIMES, COORDINATE HIS EFFORTS WITH THE ENGINEER. IF ANY PROBLEMS ARISE DURING THE CONSTRUCTION SEQUENCING, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER TO HELP RESOLVE SAID PROBLEMS PRIOR TO CONTINUING THE WORK.

14. THE CONTRACTOR SHALL PERFORM ALL FINAL CLEANUP WORK PRIOR TO A FINAL INSPECTION. THE CONTRACTOR SHALL ALSO CONTINUOUSLY CLEAN UP DURING EACH PHASE OF THE PROJECT.

15. THE CONTRACTOR SHALL BE REQUIRED TO SUBMIT HIS RECOMMENDED FIELD OPERATIONS AREAS FOR STORAGE OF EQUIPMENT, SUPPLIES AND FIELD OFFICES TO THE ENGINEER AND AIRPORT MANAGER AT THE PRECONSTRUCTION CONFERENCE FOR REVIEW, COMMENTS AND/OR APPROVAL. ANY AREAS RECOMMENDED FOR STORAGE OF EQUIPMENT OVERNIGHT, FOR STORAGE OF FUELING FACILITIES, MATERIALS AND OFFICES SHALL BE APPROVED BY THE AIRPORT MANAGEMENT AND ENGINEER PRIOR TO MOBILIZATION OF ANY EQUIPMENT OR FIELD OFFICES AND CERTIFIED BY THE CONTRACTOR THAT THE FACILITIES MEET ALL APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.

16. ANY AREAS UTILIZED AS FIELD OPERATIONS AREAS SHALL BE MAINTAINED AT ALL TIMES IN A CLEAN AND ENVIRONMENTALLY SAFE CONDITION. IF THE CONTRACTOR MUST UTILIZE AGGREGATE BASE MATERIALS TO PROVIDE A STABLE SURFACE FOR EQUIPMENT STORAGE, THEN ANY MATERIALS UTILIZED WILL BE REMOVED AT THE END OF THE PROJECT AND DISPOSED OF AT A LOCATION ACCEPTABLE TO THE OWNER. A STABLE BASE EXTENDING FROM EXISTING PAVEMENT, NOT SCHEDULED FOR RECONSTRUCTION, TO THE FIELD OFFICES SHALL BE PROVIDED FOR CLEAN ACCESS.

17. APPROPRIATE EROSION CONTROL MEASURES SHALL BE ACCOMPLISHED PRIOR TO BEGINNING THE RESPECTIVE PHASE. REMOVAL OF TEMPORARY EROSION CONTROL SHALL BE ACCOMPLISHED BY THE CONTRACTOR EITHER AT THE COMPLETION OF THE ASSOCIATED PHASE OR THEREAFTER AS DIRECTED BY THE RPR.

18. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE MULTIPLE CREWS AND WORK EXTENDED HOURS TO ACCOMPLISH AND COMPLETE THE WORK WITHIN THE ALLOTTED TIME.

19. PERMITS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN AND PAY FOR ALL APPLICABLE PERMITS FOR CONSTRUCTION AND EQUIPMENT.

20. COORDINATION OF CONSTRUCTION ACTIVITIES: THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONSTANT COORDINATION BETWEEN THE SUBCONTRACTORS AND THE ENGINEER. ALL CONSTRUCTION ACTIVITIES PLANNED BY THE CONTRACTOR SHALL BE REVIEWED AND APPROVED BY THE ENGINEER AND AIRPORT OPERATIONS REPRESENTATIVES.

21. STAGING AREAS: ALL STAGING AND VEHICLE PARKING AREAS SHALL BE FINALIZED BY AIRPORT MANAGEMENT, AT THE PRE-CONSTRUCTION MEETING.

LEGEND

- 2/C #6 THHN 600V, 1/C #4 GRD. IN CONDUIT
- 4/C #8 THHN 600V, 1/C #4 GRD. IN CONDUIT
- 2/C #8 THHN 600V, 1/C #4 GRD. IN CONDUIT
- UED — PROPOSED CONDUIT DUCTS
- OHE — PROPOSED OVERHEAD ELECT.
- OE — EXISTING OVERHEAD ELECT.
- EXISTING POWER POLE
- PROPOSED POWER POLE
- PROPOSED ELECT. MANHOLE
- PROPOSED LIGHT POLES
- T — PROPOSED PHONE PEDESTAL
- PROPOSED COMM MANHOLE
- UE — EXISTING UNDERGROUND ELECT.
- E — EXISTING –PRIVATE– ELECT.
- EXISTING LIGHT & POLE
- UT — PROPOSED PHONE CABLES
- UT — EXISTING PHONE CABLES
- UTV — EXISTING CATV CABLES
- FO — EXISTING FIBER OPTIC CABLE
- EXISTING PARKING GATE
- EXISTING ELECT. MANHOLE
- W — PROPOSED WATERMAIN
- W — EXISTING WATERMAIN
- S — EXISTING SANITARY
- SAN — PROPOSED SANITARY
- SAN — EXISTING SANITARY MANHOLE
- PROPOSED SANITARY MANHOLE
- UG — EXISTING GAS LINE
- GAS — PROPOSED GAS LINE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- PROPOSED WATER VALVE
- WV — EXISTING WATER VALVE
- PROPOSED STORM PIPE
- PROPOSED EDGE DRAINS
- EXISTING STORM PIPE
- PROPOSED CONSTRUCTION BARRICADE

GRADING AND EROSION CONTROL LEGEND

- 1399 — PROPOSED MAJOR CONTOUR (1')
- 1399.5 — PROPOSED MINOR CONTOUR (0.5')
- 1270 — EXISTING MAJOR CONTOUR (1')
- 1268 — EXISTING MINOR CONTOUR (0.5')
- PROPOSED GRADING LIMITS
- INLET PROTECTION

DEMOLITION

- EXISTING BITUMINOUS PAVEMENT REMOVAL
- EXISTING CONCRETE PAVEMENT REMOVAL
- EXISTING CURB REMOVAL
- SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)
- REMOVE PARKING SIGN
- REMOVE EXISTING STORM MANHOLE/CATCHBASIN
- REMOVE EXISTING SANITARY MANHOLE
- R — R — REMOVE EXISTING STORM SEWER
- S — REMOVE EXISTING SANITARY
- REMOVE EXISTING UNDERDRAIN
- EXISTING BITUMINOUS PAVEMENT REMOVAL
- E — REMOVE EXISTING ELECTRICAL CONDUIT & CABLES
- UT — REMOVE EXISTING PHONE CONDUIT & CABLES
- E — REMOVE EXISTING ELECTRICAL CABLES ONLY & ABANDON CONDUIT
- UT — REMOVE EXISTING PHONE CABLES ONLY & ABANDON CONDUIT
- REMOVE LIGHT POLE
- REMOVE ELECTRICAL/COMM HANDHOLE

ABBREVIATIONS

AB	AGGREGATE BASE COURSE
AC	ADVISORY CIRCULAR OR ASPHALTIC CONCRETE
APPROX	APPROXIMATE
ARFF	AIRCRAFT RESCUE FIRE FIGHTING
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATCT	AIR TRAFFIC CONTROL TOWER
BC	BEGIN CURVE
BVC	BEGIN VERTICAL CURVE
CFS	CUBIC FEET PER SECOND
CTB	CEMENT TREATED BASE
CY	CUBIC YARDS
DAA	DULUTH AIRPORT AUTHORITY
DIA	DIAMETER
E	EASTING, ELECTRICAL OR EAST
EA	EACH
EC	END CURVE
EL	ELEVATION
EVC	END VERTICAL CURVE
EXIST	EXISTING
FAA	FEDERAL AVIATION ADMINISTRATION
FH	FIRE HYDRANT
FL	FLOWLINE
G	GAS
GA	GAUGE
GAL	GALLON
HP	HIGH POINT
HORZ	HORIZONTAL
ILS	INSTRUMENT LANDING SYSTEM
KV	KILOVOLT
LF	LINEAR FEET
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
N	NORTHING OR NORTH
NAVD	NORTH AMERICAN VERTICAL DATUM
NO	NUMBER
NOTAM	NOTICE TO AIRMEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PAPI	PRECISION APPROACH PATH INDICATOR
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
RGRCP	RUBBER GASKET REINFORCED CONCRETE PIPE
R	RADIUS
RT	RIGHT
R/W	RUNWAY
ROW	RIGHT-OF-WAY
RWY	RUNWAY
S	SLOPE OR SOUTH
SF	SEMI-FLUSH OR SQUARE FEET
STA	STATION
STD	STANDARD
SY	SQUARE YARDS
TWY	TAXIWAY
T/W	TAXIWAY
TYP	TYPICAL
VASI	VISUAL APPROACH SLOPE INDICATOR
VERT	VERTICAL
W	WEST OR WATER

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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 Minnesota.

Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
GENERAL CONSTRUCTION NOTES, LEGEND, AND ABBREVIATIONS

SHEET NUMBER
C004

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C004.dwg Plotted on: 5/16/2013 3:19 PM Plotted by: Erdmann, Ryan

CONTRACT LAYOUT PLAN NOTES

1.) PROJECT DESCRIPTION: THIS CONTRACT INCLUDES THE CONSTRUCTION FOR THE NEW FOUR LEVEL PARKING STRUCTURE AS WELL AS CONNECTION TO THE NEW REPLACEMENT TERMINAL DEVELOPMENT AT DULUTH INTERNATIONAL AIRPORT. SEVERAL OTHER PHASES OF CONSTRUCTION ARE BEING BID SEPARATELY, SOME OF WHICH WILL OVERLAP THE WORK AREAS AND THE CONSTRUCTION LIMITS OF THIS CONTRACT. FOR CLARITY, PORTIONS OF THE FUTURE WORK NOT INCLUDED IN THIS CONTRACT ARE ILLUSTRATED FOR INFORMATIONAL PURPOSES ONLY.

2.) SCOPE OF WORK: THE SCOPE OF WORK FOR THIS CONSTRUCTION SPECIFICALLY INCLUDES, BUT IS NOT LIMITED TO, ROADWAY DEMOLITION; SITE CLEARING AND GRUBBING; EXCAVATION AND EMBANKMENT WITHIN LIMITS OF GRADING SHOWN ON PLANS; INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROL DEVICES; CONSTRUCTION OF SITE DRAINAGE COMPONENTS INCLUDING, INLETS, MANHOLES AND CULVERTS, CONSTRUCTION OF ASPHALT ROADWAYS AND PARKING LOTS; SITE ELECTRICAL; SITE UTILITIES THAT SHALL INCLUDE SANITARY PIPE & SANITARY MANHOLES, WATERLINES, VALVES AND HYDRANTS, AND GAS LINES.

3.) HAUL ROUTES; LOCATION OF HAUL ROUTES SHALL BE SPECIFIED ON THE PLANS OR AS APPROVED BY ENGINEER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE OFF-SITE HAUL ROUTES (STATE HIGHWAYS, COUNTY ROADS, OR CITY STREETS) WITH APPROPRIATE AGENCY.

4.) HAUL ROUTES SHALL BE MAINTAINED BY THE CONTRACTOR AND SHALL BE RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF CONSTRUCTION.

5.) CONTRACTOR MUST AT ALL TIMES BE AWARE THAT THIS SITE IS AN ACTIVE AIRPORT TERMINAL, CONTRACTOR SHALL NOT BLOCK TRAFFIC TO TERMINAL OR EXISTING PARKING AREAS DURING CONSTRUCTION. SEE PHASING PLAN FOR OFF-PEAK CONSTRUCTION TIMES AND PHASING OF CONSTRUCTION.

6.) CONTRACTOR SHALL KEEP PUBLIC SAFE BY BARRICADING OR FENCING OF EXCAVATIONS AND CONSTRUCTION ACTIVITIES FROM TERMINAL TRAFFIC AND PEDESTRIAN TRAFFIC.

7.) CONTRACTOR SHALL MAINTAIN ACCESS ACROSS CURBS WITH RAMPS (BITUMINOUS, WOOD, OR OTHER ENGINEER APPROVED MATERIAL) TO THE NEW TERMINAL AT ALL TIMES.

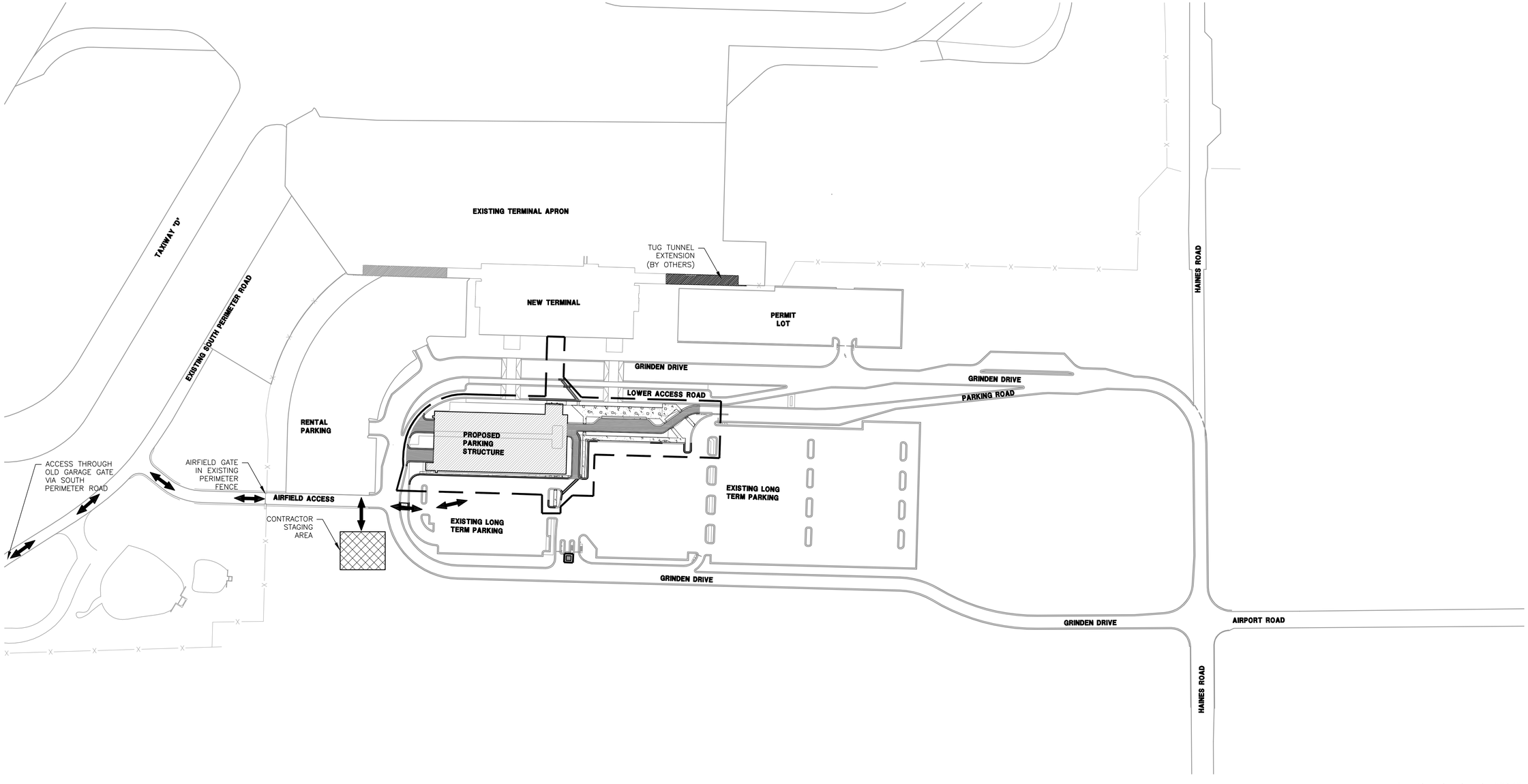
8.) GATE GUARDS WILL BE PROVIDED BY THE CONSTRUCTION MANAGER. SCHEDULING OF GUARDS SHALL BE COORDINATED BETWEEN THE CONTRACTOR AND THE CONSTRUCTION MANAGER. ALL VEHICLES SHALL BE SUBJECT TO INSPECTION PER THE DULUTH AIRPORT AUTHORITY SECURITY PROCEDURES.

LEGEND

- PROPOSED CONTRACTOR STAGING AREA
- PROPOSED BITUMINOUS ROAD OR PARKING
- PROPOSED CONCRETE SIDEWALK
- CONTRACTOR HAUL ROUTE
- PROJECT LIMITS

NORTH

0 100' 200'



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Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RDRE
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
CONTRACT LAYOUT PLAN & CONTRACT NOTES

SHEET NUMBER
C005

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C005.dwg Plotted on: 5/16/2013 2:29 PM Plotted by: Erdmann, Ryan

HORIZONTAL AND VERTICAL CONTROL POINTS

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
SORRELL	N:452429.927	E:2854336.447	1400.01	SORRELL IS AN NGS MONUMENT CONSISTING OF A ¾ INCH DIAMETER ALUMINUM ROD DRIVEN TO REFUSAL WITH A STANDARD MNDOT CONTROL MARK REMOVABLE DISK SET.
CP-51	N:452503.3840	E:2854771.0310	1403.5720	CP-51 IS A 24" #5 REBAR SET FLUSH WITH GROUND, IS 30' SOUTH OF GRINDEN DRIVE ON TOP OF HILL ACROSS FROM LONG TERM PARKING AND 20' WEST OF TOLL BOOTH BUILDING LINE.
CP-54	N:453158.7960	E:2855600.7680	1409.9660	CP-54 IS A 24" #5 REBAR SET FLUSH WITH GROUND, IS 12' SOUTH OF SECURITY FENCE AND 10' EAST OF FIELD ACCESS RD. OFF OF THE NORTH SIDE OF THE EMPLOYEE PARKING ACCESS RD AT JOG IN FENCE.
CP-55	N:452196.8330	E:2856288.0920	1375.4790	CP-55 IS A 24" #5 REBAR SET FLUSH WITH GROUND, 2" SOUTH OF CURB RETURN AT THE SE QUADRANT OF HAINES RD. AND AIRPORT RD. INTERSECTION.
CP-68	N:453139.0790	E:2856206.3810	1381.9770	CP-68 IS A 24" #5 REBAR SET 0.1' BELOW GROUND, 6' EAST OF GUARDRAIL AT THE NW QUADRANT OF HAINES RD. AND THE CARGO RD. NOW THE EMPLOYEE PARKING RD. INTERSECTION.
CP-69	N:452523.4520	E:2855954.1440	1377.7660	CP-69 IS A 24" #5 REBAR SET FLUSH WITH GROUND ON THE SOUTH SIDE OF THE F-4 AIRCRAFT DISPLAY, IT IS 15' SOUTH OF THE TIP OF THE SOUTHERLY WING.

NOTES:
1. THE SORRELL CONTROL POINT INFORMATION WAS TAKEN DIRECTLY FROM THE NGS/NOAA WEBSITE (2011).
2. CP- 51 TO CP-69 CONTROL POINT INFORMATION PROVIDED BY RLK-INCORPORATED DATE: 03-09-2009. THESE CONTROL POINTS MAY HAVE BEEN DISTURBED DURING THE CONSTRUCTION OF PREVIOUS PHASES.
3. THE POINTS LISTED ARE FOR THE CONTRACTORS CONVENIENCE. THE CONTRACTOR REMAINS RESPONSIBLE FOR THE ESTABLISHMENT OF CONTROL, AS WELL AS CONDUCTING A LEVEL LOOP UTILIZING THE SORREL CONTROL POINT AND THE NEW TERMINAL BUILDING FINISH FLOOR ELEVATIONS. ALL WORK SHALL BE CONSIDERED INCIDENTAL TO THE SURVEY AND STAKEOUT BID ITEM.

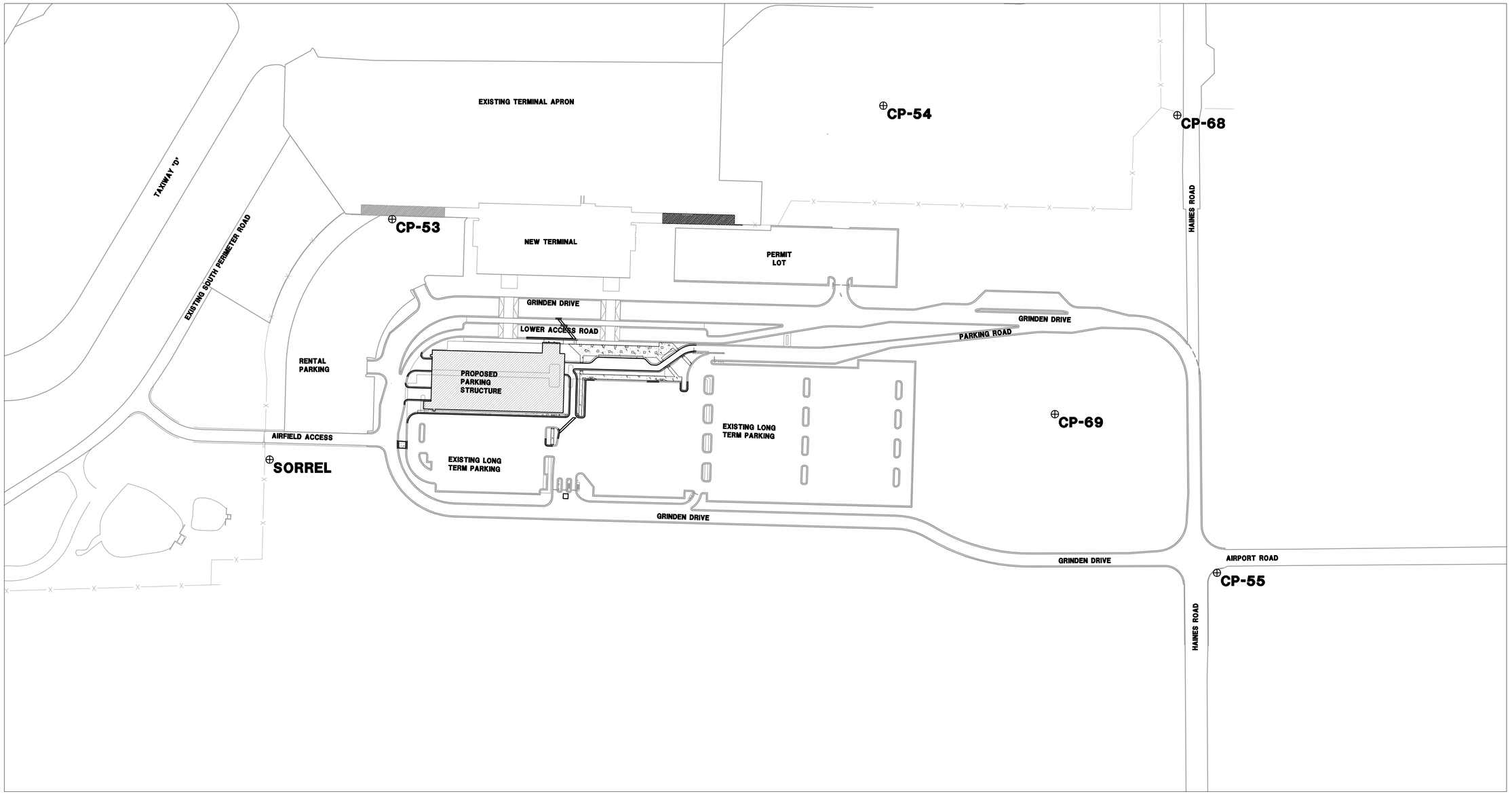
LEGEND

⊕ CP-01 CONTROL POINT LOCATION

NOTE:
ALL NORTHINGS, EASTINGS AND ELEVATIONS LABELED ON THESE PLANS ARE IN:
MINNESOTA STATE PLANE NORTH (1996), UNLESS STATED
VERTICAL DATUM IS NAVD 88
HORIZONTAL DATUM IS NAD83

NORTH

0 100' 200'



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Signature: John E Hippchen

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RDRE
DESIGNED BY: JEH

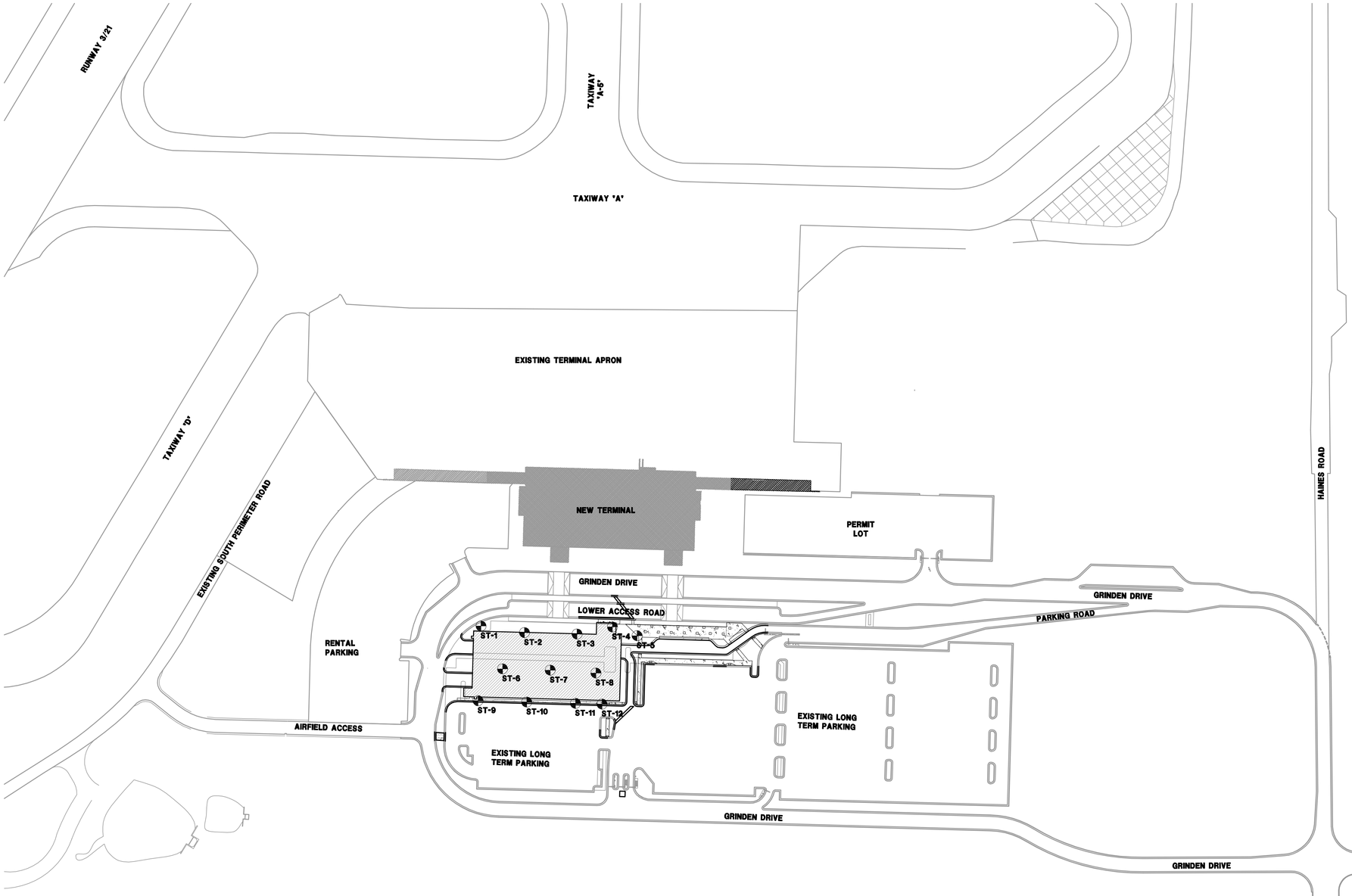
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
HORIZONTAL AND VERTICAL CONTROL PLAN

SHEET NUMBER
C006

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C006.dwg Plotted on: 5/16/2013 2:42 PM Plotted by: Erdmann, Ryan



LEGEND

ST-1 BORING LOCATION

NOTE: SEE SOIL BORING INFORMATIONAL DATA SHEETS IN SPECIFICATIONS

NORTH

0 100' 200'

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REVISIONS

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DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
GEOTECHNICAL BORING LAYOUT AND INFORMATION

SHEET NUMBER
C007

ISSUED FOR BID

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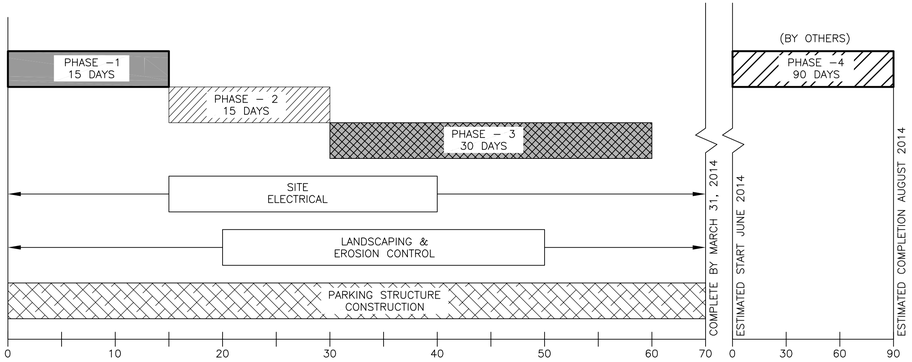
PHASING NOTES

1. THE CONTRACTOR SHALL SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN PRIOR TO CONSTRUCTION. THE TRAFFIC CONTROL PLAN SHALL COMPLY WITH PART 6 OF THE MINNESOTA MANUAL OF UTCD. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY TRAFFIC CONTROL SIGNAGE, WHICH SHALL BE REMOVED AFTER CONSTRUCTION. VEHICLE ACCESS TO TERMINAL, EMPLOYEE PARKING LOT, AND RENTAL PARKING LOT SHALL BE MAINTAINED AT ALL TIMES.
2. THE CONTRACTOR SHALL COMPLETE ALL PAVING OPERATIONS PRIOR TO OCTOBER 15, 2013.
3. PRIOR TO STARTING ANY WORK THAT WILL IMPACT UTILITIES OR ACCESS TO THE TERMINAL AND PARKING LOT AREAS, THE CONTRACTOR WILL COORDINATE THE WORK SCHEDULE WITH THE ENGINEER. ANY OUTAGES OF UTILITIES SHALL BE SCHEDULED 48 HOUR IN ADVANCE IN WRITING TO ENGINEER AND OWNER/TENATS.
4. DEMOBILIZATION AND SITE RESTORATION SHALL BE TO THE SATISFACTION OF THE OWNER PRIOR TO FINAL RELEASE OF PAYMENT..
5. THE PARKING STRUCTURE BUILDING CONSTRUCTION SHALL BE COMPLETE BY MARCH 31, 2013.



SCHEMATIC PHASING SCHEDULE

PHASING NOTES

PHASE 1
ITEMS OF WORK IN PHASE INCLUDE (NOT LIMITED TO):
- CONTRACTOR MOBILIZATIONS
- SHOP DRAWING SUBMITTALS

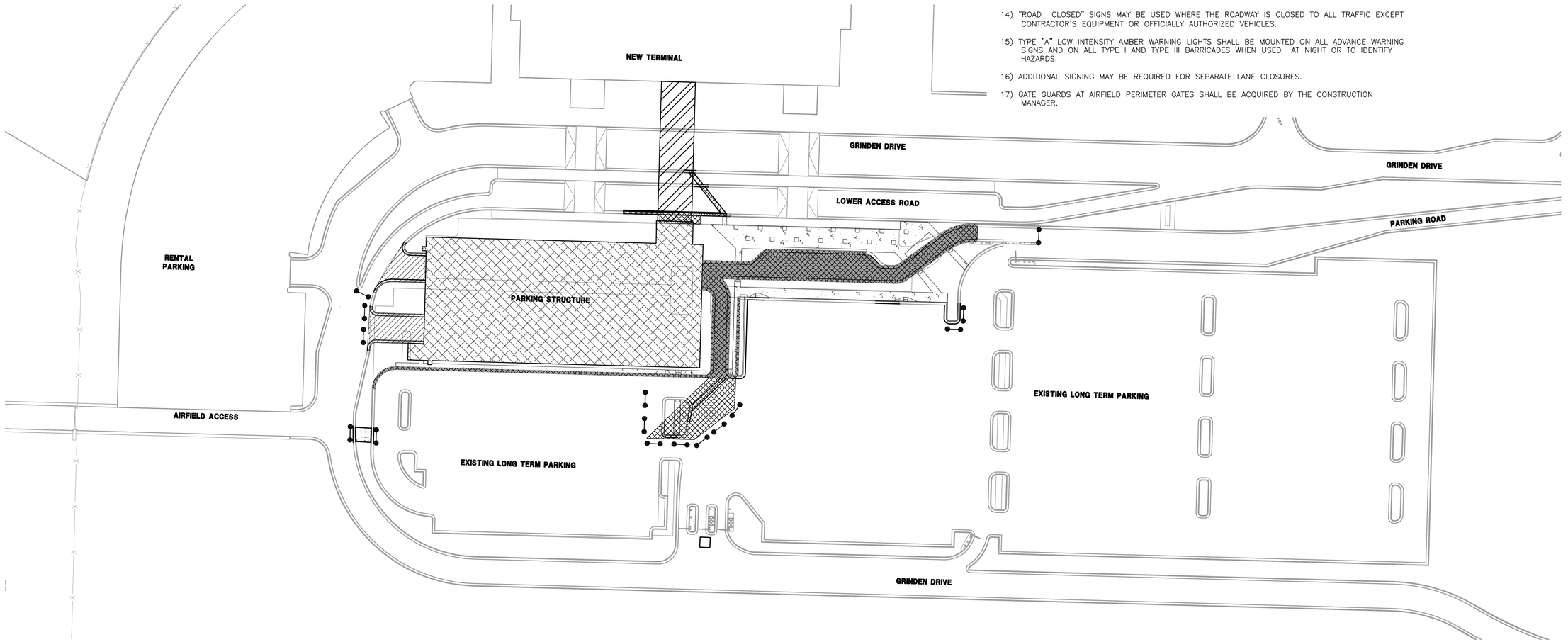
PHASE 2
ITEMS OF WORK IN PHASE INCLUDE (NOT LIMITED TO):
- DEMOLITION
- TOPSOIL STRIPPING
- ELECTRICAL REMOVAL
- DRAINAGE REMOVAL
- SANITARY REMOVAL
- LIGHT POLE MODIFICATIONS

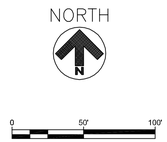
PHASE 3
ITEMS OF WORK IN PHASE INCLUDE (NOT LIMITED TO):
- ELECTRICAL MODIFICATIONS
- DRAINAGE MODIFICATIONS
- SANITARY MODIFICATIONS
- CONSTRUCTION OF ACCESS ROADS

PHASE 4
ITEMS OF WORK IN PHASE INCLUDE (BY OTHERS):
- SKYWALK CONSTRUCTION/INSTALLATION

TRAFFIC CONTROL NOTES

1) THE CONTRACTOR IS REQUIRED TO SUBMIT A DETAILED TRAFFIC CONTROL PLAN FOR EACH PHASE OF CONSTRUCTION PRIOR TO STARTING CONSTRUCTION FOR THAT PHASE.
2) TRAFFIC FLOW TO EXISTING TERMINAL AND PARKING SHALL BE MAINTAINED AT ALL TIMES. OFF PEAK HOURS AT AIRPORT ARE MIDNIGHT TO 5:00 AM.
3) THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THEIR SUBMITTED AND APPROVED TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
4) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS"--FEBRUARY 2011 W/(UPDATES).
5) FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
6) THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES WILL DEPEND UPON THE SEQUENCE OF THE CONTRACTORS OPERATION.
7) THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH MNMUTCD.
8) IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS PHASING PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
9) ALL TRAFFIC CONTROL DEVICES, INCLUDING SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION, SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
10) "ROAD WORK AHEAD" SIGNS SHALL BE MOUNTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CONSTRUCTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.
11) "ROAD CLOSED AHEAD" SIGNS SHALL BE ERECTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CLOSURE.
12) "ROAD CLOSED TO THRU TRAFFIC" SIGNS SHALL BE INSTALLED ON TYPE III BARRICADES AND SHALL BE LOCATED AT A POINT IN THE STREET AS TO PERMIT LOCAL TRAFFIC USE BUT EFFECTIVELY DISCOURAGE THRU TRAFFIC USE.
13) WHEN A "ROAD CLOSED TO THRU TRAFFIC" SIGN IS USED, THE "STOP" OR "YIELD" SIGN AT THAT INTERSECTION SHALL BE LEFT IN PLACE OR MOVED TO A SUITABLE LOCATION WHERE THE DRIVER CAN STILL SEE THE SIGN.
14) "ROAD CLOSED" SIGNS MAY BE USED WHERE THE ROADWAY IS CLOSED TO ALL TRAFFIC EXCEPT CONTRACTOR'S EQUIPMENT OR OFFICIALLY AUTHORIZED VEHICLES.
15) TYPE "A" LOW INTENSITY AMBER WARNING LIGHTS SHALL BE MOUNTED ON ALL ADVANCE WARNING SIGNS AND ON ALL TYPE I AND TYPE III BARRICADES WHEN USED AT NIGHT OR TO IDENTIFY HAZARDS.
16) ADDITIONAL SIGNING MAY BE REQUIRED FOR SEPARATE LANE CLOSURES.
17) GATE GUARDS AT AIRFIELD PERIMETER GATES SHALL BE ACQUIRED BY THE CONSTRUCTION MANAGER.





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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 Minnesota.

Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

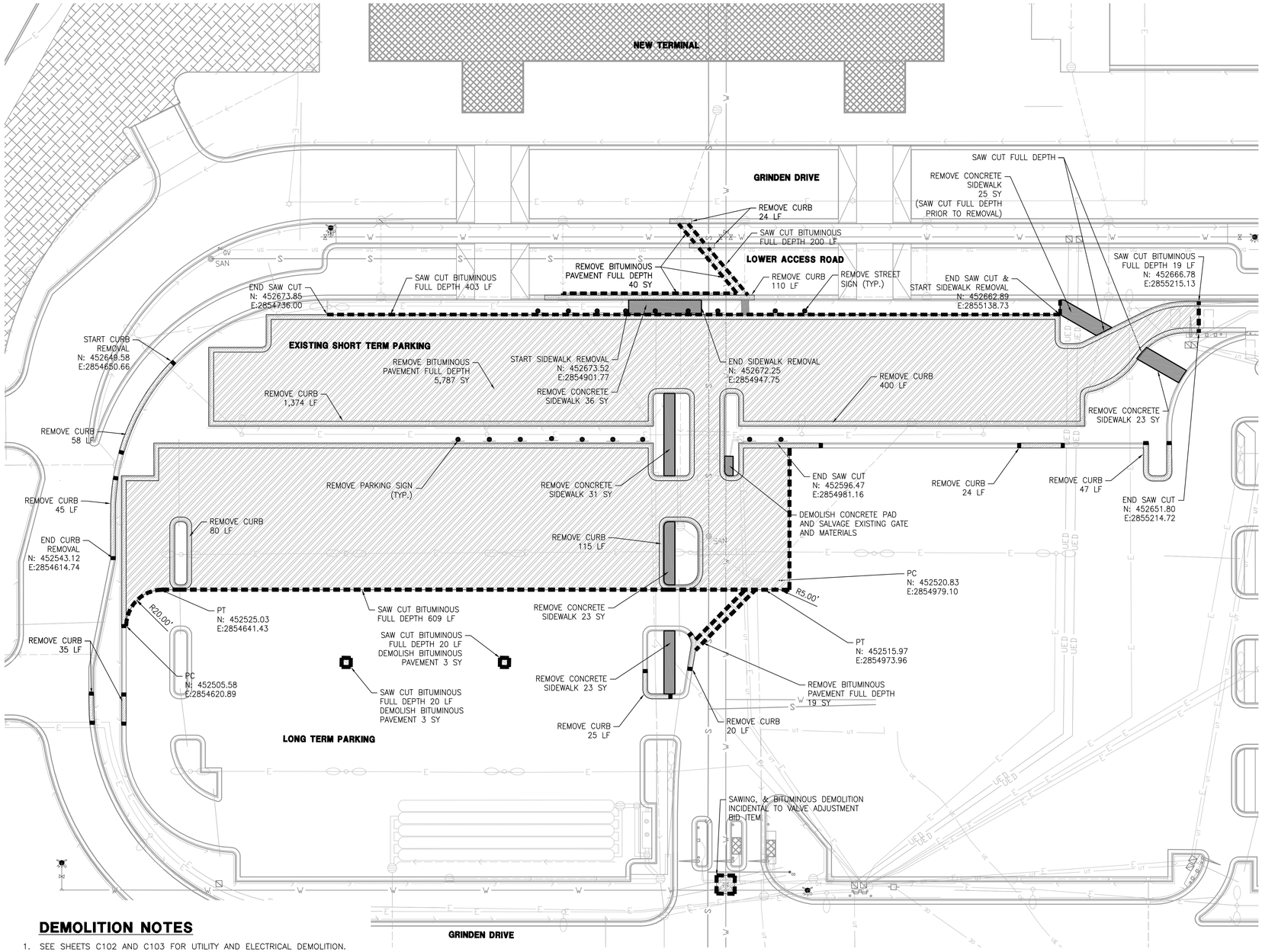
OVERALL PHASING PLAN

SHEET NUMBER

C008

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C008.dwg Plotted on: 5/16/2013 3:13 PM Plotted by: Erdmann, Ryan



DEMOLITION LEGEND

- EXISTING BITUMINOUS PAVEMENT REMOVAL
- EXISTING CONCRETE PAVEMENT REMOVAL
- EXISTING CURB REMOVAL
- SAWCUT BITUMINOUS PAVEMENT (FULL DEPTH)

DEMOLITION NOTES

1. SEE SHEETS C102 AND C103 FOR UTILITY AND ELECTRICAL DEMOLITION.
2. THE DEMOLITION OF STRUCTURES SHALL INCLUDE THE COMPLETE REMOVAL AND DISPOSAL OF THEIR CONTENTS, FOUNDATIONS. ANY UNFILLED EXCAVATION OR OTHER HAZARD LEFT UNATTENDED DURING PERIODS OF INACTIVITY SHALL BE PROPERLY FENCED OR PROTECTED BY THE CONTRACTOR. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE STRUCTURE DEMOLITION. ALL UTILITIES, ELECTRICAL DUCTS/CABLES SHALL BE REMOVED AND/OR CAPPED TO THE SATISFACTION OF THE ENGINEER AND IN ACCORDANCE WITH ALL STATE PROVISIONS AND LOCAL REGULATIONS. THE REMOVAL OF ANY ITEM(S) OR OBJECT(S) LOCATED WITHIN THE LIMITS SHOWN FOR WHICH A SPECIFIC PAY ITEM IS NOT CONTAINED IN THE BID PROPOSAL SHALL BE INCIDENTAL TO THE ASSOCIATED BUILDING DEMOLITION.
3. ALL REFUSE SHALL BE CLEARED FROM THE PROJECT SITE TO THE SATISFACTION OF THE ENGINEER. THE LOCAL CONTRACTOR SHALL DISPOSE OF REFUSE OFFSITE IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS.
4. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN THE NECESSARY LOCAL PERMITS THAT ARE REQUIRED.
5. THE AIRPORT RESERVES THE RIGHT TO REMOVE AND SAVE ANY SALVAGEABLE MATERIALS.
6. THE CONTRACTOR SHALL TAKE NECESSARY MEASURES TO PREVENT UNDERMINING OF EXISTING PAVEMENT SECTIONS.
6. PAVEMENT TO BE REMOVED THAT IS ADJACENT TO PAVEMENT TO REMAIN SHALL BE SAWCUT TO STRAIGHT (UNLESS STATED), NEAT, PLUMB LINES PRIOR TO REMOVAL.
7. MATCHLINES ARE THE LIMIT OF WORK FOR CONTRACT QUANTITIES SHOWN ON EACH SHEET.
8. THERE ARE EXISTING UNDERGROUND ELECTRICAL AND COMMUNICATIONS CABLES IN THE PROJECT WORK AREAS. THE ENGINEER HAS MADE EVERY EFFORT TO SHOW THEIR APPROXIMATE LOCATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE EVERY CABLE LOCATED, FLAGGED AND IDENTIFIED PRIOR TO CONSTRUCTION. ANY DAMAGE DONE TO FLAGGED OR OTHERWISE LOCATED CABLES SHALL BE REPLACED AT THE CONTRACTORS EXPENSE. LOCATION OF EXISTING UTILITIES MAY BE DONE BY CALLING GOPHER STATE ONE CALL 1-800-252-1166 TO NOTIFY LOCAL UTILITIES. THIS IS REQUIRED BY LAW.
9. ALL EXISTING AIRPORT SIGNAGE BE SALVAGED AND REUSED OR TURNED OVER TO THE OWNER.
10. ALL DEMOLITION IS TO BE PHASED TO MAINTAIN TRAFFIC FLOW TO AND FROM THE EXISTING TERMINAL BUILDING. SEE SHEET C008.
11. ALL CURB AND GUTTER SHALL BE SAWCUT BEFORE REMOVAL.
11. WHEN A PORTION OF THE SEWER PIPE THAT IS SHOWN TO BE REMOVED, IS IN PAVEMENT THAT WILL NOT BE DEMOLISHED/REMOVED, THE PIPE SHALL BE CUT AT THE DEMO LIMITS, FILLED WITH CEMENT GROUT AND CAPPED. ALL WORK TO COMPLETE THIS TASK, SHALL BE PAID UNDER ITEM MNDOT 2503.603 "PLUG, FILL AND ABANDON PIPE".
12. UNLESS STRUCTURES/HANDHOLES ARE TO BE REMOVED, CONTRACTOR SHALL PROTECT EXISTING STRUCTURES/HANDHOLES AT ALL TIMES.
13. SAWCUTTING SHALL BE COMPLETED IN ACCORDANCE WITH "P-109 SAWCUTTING" SPECIFICATION AND SHALL BE INCIDENTAL TO PAVEMENT, SIDEWALK OR CURB AND GUTTER REMOVAL PAY ITEMS.

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Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

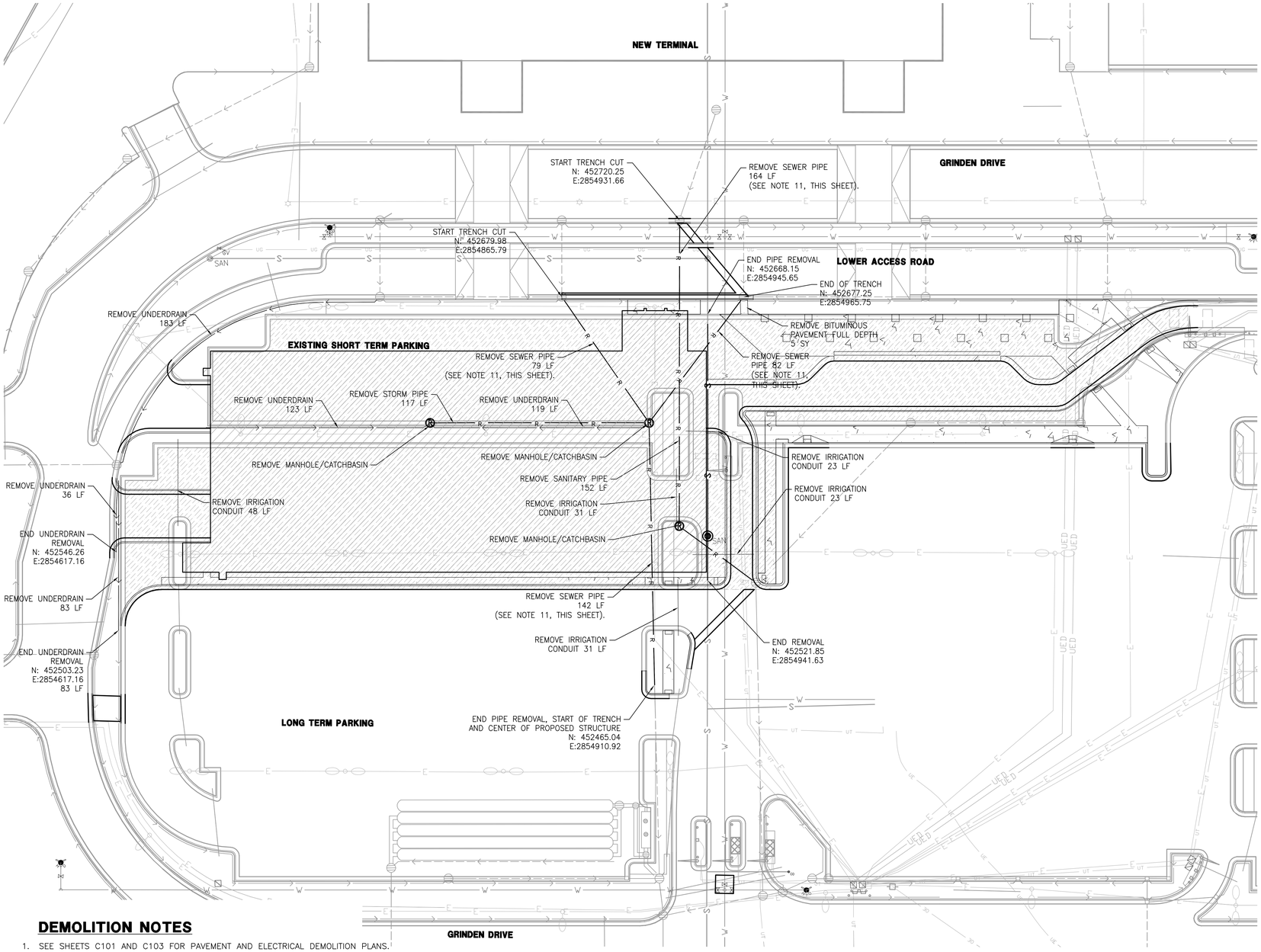
PAVEMENT DEMOLITION PLAN

SHEET NUMBER

C101

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C101.dwg Plotted on: 5/20/2013 9:51 AM Plotted by: Erdmann, Ryan



NORTH

0 30' 60'

DEMOLITION LEGEND

- REMOVE PARKING SIGN
- REMOVE EXISTING STORM MANHOLE/CATCHBASIN
- REMOVE EXISTING SANITARY MANHOLE
- REMOVE EXISTING STORM SEWER
- REMOVE EXISTING SANITARY
- REMOVE EXISTING UNDERDRAIN
- EXISTING BITUMINOUS PAVEMENT REMOVAL

NOTE:

CONTRACTOR TO VERIFY UNDERDRAIN AND IRRIGATION CONDUIT DEMOLITION WITH THE ENGINEER PRIOR TO DEMOLITION.

DEMOLITION NOTES

1. SEE SHEETS C101 AND C103 FOR PAVEMENT AND ELECTRICAL DEMOLITION PLANS.
2. THE DEMOLITION OF STRUCTURES SHALL INCLUDE THE COMPLETE REMOVAL AND DISPOSAL OF THEIR CONTENTS, FOUNDATIONS. ANY UNFILLED EXCAVATION OR OTHER HAZARD LEFT UNATTENDED DURING PERIODS OF INACTIVITY SHALL BE PROPERLY FENCED OR PROTECTED BY THE CONTRACTOR. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE STRUCTURE DEMOLITION. ALL UTILITIES, ELECTRICAL DUCTS/CABLES SHALL BE REMOVED AND/OR CAPPED TO THE SATISFACTION OF THE ENGINEER AND IN ACCORDANCE WITH ALL STATE PROVISIONS AND LOCAL REGULATIONS. THE REMOVAL OF ANY ITEM(S) OR OBJECT(S) LOCATED WITHIN THE LIMITS SHOWN FOR WHICH A SPECIFIC PAY ITEM IS NOT CONTAINED IN THE BID PROPOSAL SHALL BE INCIDENTAL TO THE ASSOCIATED BUILDING DEMOLITION.
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13. SAWCUTTING SHALL BE COMPLETED IN ACCORDANCE WITH "P-109 SAWCUTTING" SPECIFICATION AND SHALL BE INCIDENTAL TO PAVEMENT, SIDEWALK OR CURB AND GUTTER REMOVAL PAY ITEMS.
14. ALL UTILITIES TO THE TERMINAL BUILDING MUST BE MAINTAINED AT ALL TIMES. ANY INTERRUPTION OR POSSIBLE INTERRUPTION IN SERVICE MUST BE COORDINATED WITH THE OWNER, ENGINEER, AND CONSTRUCTION MANAGER. INTERRUPTIONS TO SERVICES SHALL BE CONDUCTED DURING OFF PEAK HOURS (12 AM TO 5 AM).

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Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

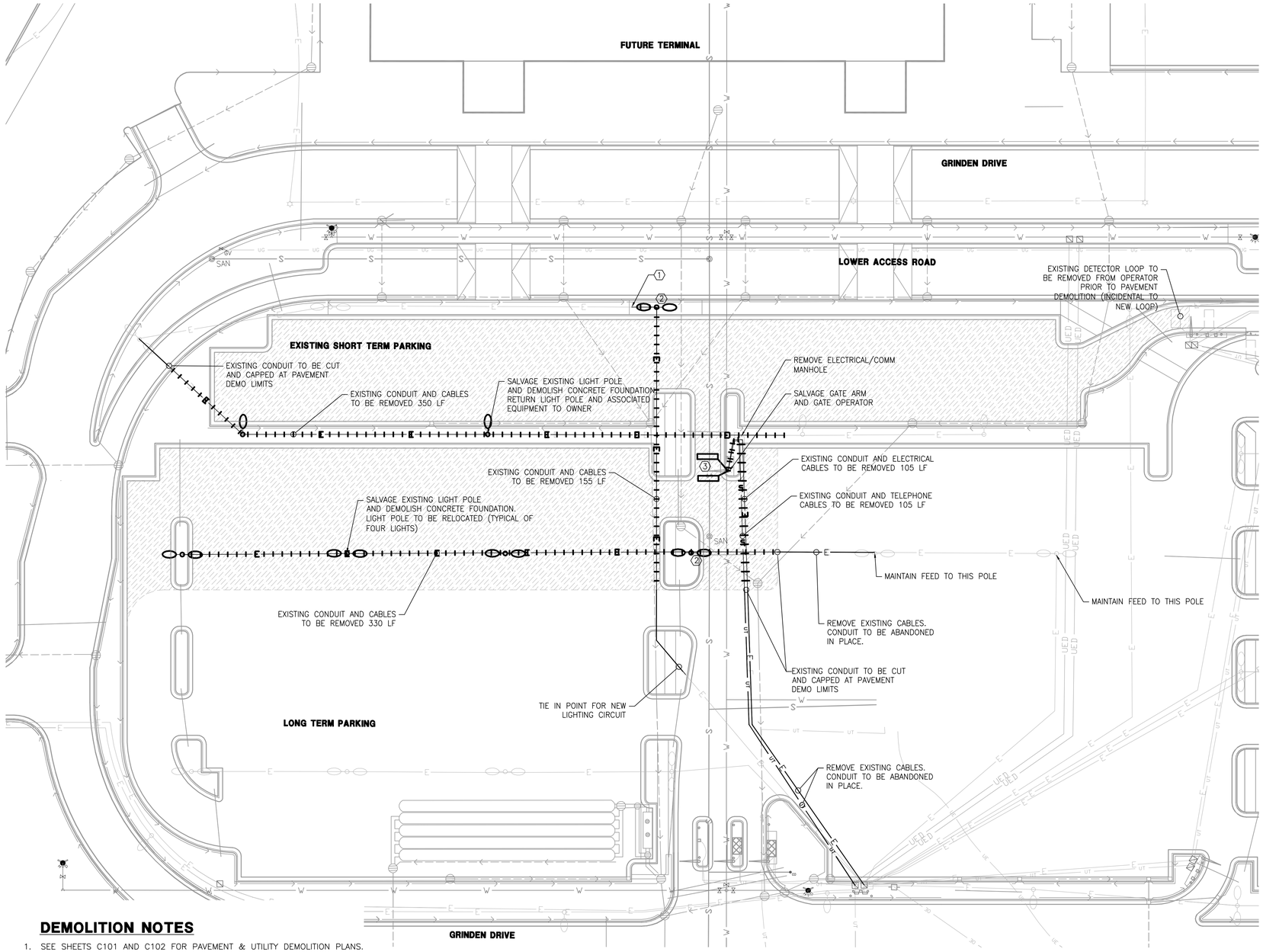
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
UTILITIES DEMOLITION PLAN

SHEET NUMBER
C102

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C102.dwg Plotted on: 5/20/2013 9:56 AM Plotted by: Erdmann, Ryan



NORTH

0 30' 60'

DEMOLITION LEGEND

- REMOVE EXISTING ELECTRICAL CONDUIT & CABLES
- REMOVE EXISTING PHONE CONDUIT & CABLES
- REMOVE EXISTING ELECTRICAL CABLES ONLY & ABANDON CONDUIT
- REMOVE EXISTING PHONE CABLES ONLY & ABANDON CONDUIT
- REMOVE LIGHT POLE
- REMOVE ELECTRICAL/COMM HANDHOLE

WORK ITEM DESCRIPTION NOTES

1. REMOVE CABLE & CONDUIT 10' FROM LIGHT POLE FOR INSTALLATION OF NEW HANDHOLE. SEE SHEET E101 FOR MORE INFORMATION.
2. DISCONNECT FEED TO POLE AT SOURCE & REMOVE CABLES.
3. DISCONNECT FEED TO GATE AT SOURCE & REMOVE LOOP DETECTOR. SALVAGE EXISTING GATE AND MATERIALS AND RETURN TO OWNER.

DEMOLITION NOTES

1. SEE SHEETS C101 AND C102 FOR PAVEMENT & UTILITY DEMOLITION PLANS.
2. THE DEMOLITION OF STRUCTURES SHALL INCLUDE THE COMPLETE REMOVAL AND DISPOSAL OF THEIR CONTENTS, FOUNDATIONS. ANY UNFILLED EXCAVATION OR OTHER HAZARD LEFT UNATTENDED DURING PERIODS OF INACTIVITY SHALL BE PROPERLY FENCED OR PROTECTED BY THE CONTRACTOR. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE STRUCTURE DEMOLITION. ALL UTILITIES, ELECTRICAL DUCTS/CABLES SHALL BE REMOVED AND/OR CAPPED TO THE SATISFACTION OF THE ENGINEER AND IN ACCORDANCE WITH ALL STATE PROVISIONS AND LOCAL REGULATIONS. THE REMOVAL OF ANY ITEM(S) OR OBJECT(S) LOCATED WITHIN THE LIMITS SHOWN FOR WHICH A SPECIFIC PAY ITEM IS NOT CONTAINED IN THE BID PROPOSAL SHALL BE INCIDENTAL TO THE ASSOCIATED BUILDING DEMOLITION.
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8. ALL EXISTING AIRPORT SIGNAGE BE SALVAGED AND REUSED OR TURNED OVER TO THE OWNER.
9. ALL DEMOLITION IS TO BE PHASED TO MAINTAIN TRAFFIC FLOW TO AND FROM THE EXISTING TERMINAL BUILDING.
10. UNLESS STRUCTURES/HANDHOLES ARE TO BE REMOVED, CONTRACTOR SHALL PROTECT EXISTING STRUCTURES/HANDHOLES AT ALL TIMES.

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

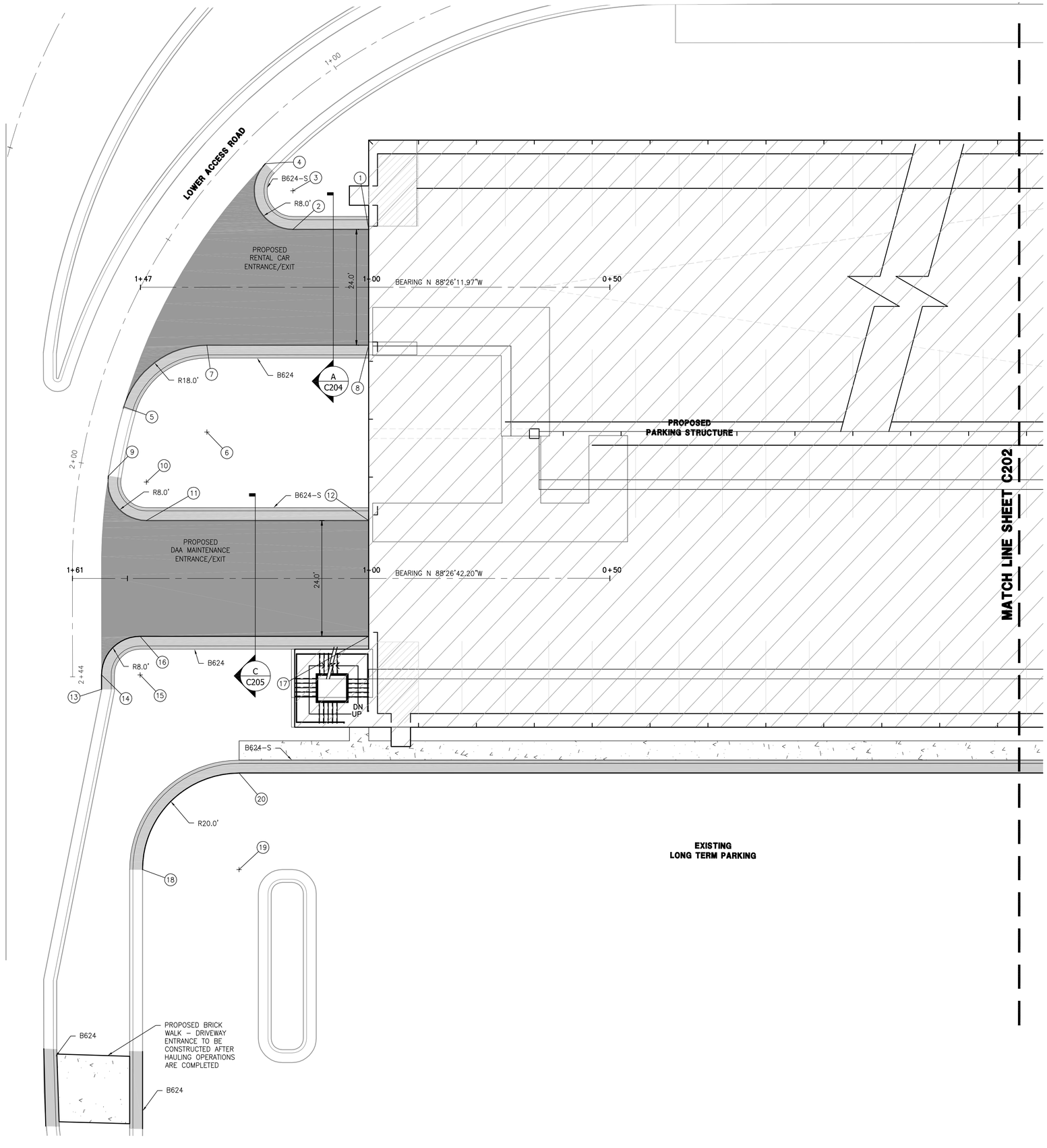
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ELECTRICAL DEMOLITION PLAN

SHEET NUMBER
C103

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C103.dwg Plotted on: 5/16/2013 4:35 PM Plotted by: Erdmann, Ryan



NORTH

0 10' 20'

GEOMETRY DATA TABLE - THIS SHEET

POINT NUMBER	DESCRIPTION	NORTHING	EASTING
1	CORNER	452636.9286	2854671.3707
2	PT	452637.3576	2854655.6517
3	CURVE CNTR	452645.3546	2854655.8700
4	PC	452651.1056	2854650.3088
5	PT	452601.5547	2854619.6054
6	CURVE CNTR	452595.8597	2854636.6830
7	PC	452613.8530	2854637.1740
8	CORNER	452612.9373	2854670.7159
9	PC	452587.2768	2854616.0289
10	CURVE CNTR	452585.8441	2854623.8692
11	PT	452577.8764	2854623.6668
12	CORNER	452576.6106	2854669.7243
13	CORNER	452543.1577	2854613.4041
14	PT	452546.1379	2854613.4839
15	CURVE CNTR	452545.9240	2854621.4810
16	PC	452553.9210	2854621.6981
17	CORNER	452552.6346	2854669.0873
18	PC	452505.5740	2854620.8862
19	CURVE CNTR	452505.0288	2854640.8774
20	PT	452525.0236	2854641.4236

GEOMETRY NOTES

1. CONSTRUCTION SURVEY AND STAKEOUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. NORTHINGS AND EASTINGS GIVEN IN PROJECT ARE IN MINNESOTA STATE PLANE NORTH COORDINATES, SEE SHEET C006 FOR HORIZONTAL AND VERTICAL CONTROL.
3. SEE TYPICAL PAVEMENT SECTION AND DETAILS SHEETS C204-207. PAVING IN THIS CONTRACT CONSISTS OF THE PROPOSED EMPLOYEE RENTAL CAR ACCESS ROAD, PROPOSED DAA MAINTENANCE ACCESS ROAD, PROPOSED PREMIUM PARKING ACCESS ROAD AND PAVING OF THE LONG TERM PARKING LOTS.
4. ALL CURB AND GUTTERS ARE CALL OUT BY TYPE THAT SHALL BE PLACED (SEE CURB AND GUTTER DETAILS ON SHEET C207 & C208).
5. PROVIDE TYPICAL HANDICAP ACCESS RAMPS AREAS COMPLETE WITH TRUNCATED DOMES AT ALL CROSSWALKS AREAS.

CURB AND GUTTER

CURB AND GUTTER CATCH = B624 (STANDARD)
CURB AND GUTTER SPILL = B624-S
MOUNTABLE CURB AND GUTTER = D424
HANDICAP ACCESS RAMP AREA = HARA

NOTE:
PATCH FOR PROPOSED LIGHTING RELOCATION NOT SHOWN BUT TO BE INCLUDED IN THE PAVING PLAN. SEE SHEET C101 FOR THE LOCATION.

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Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

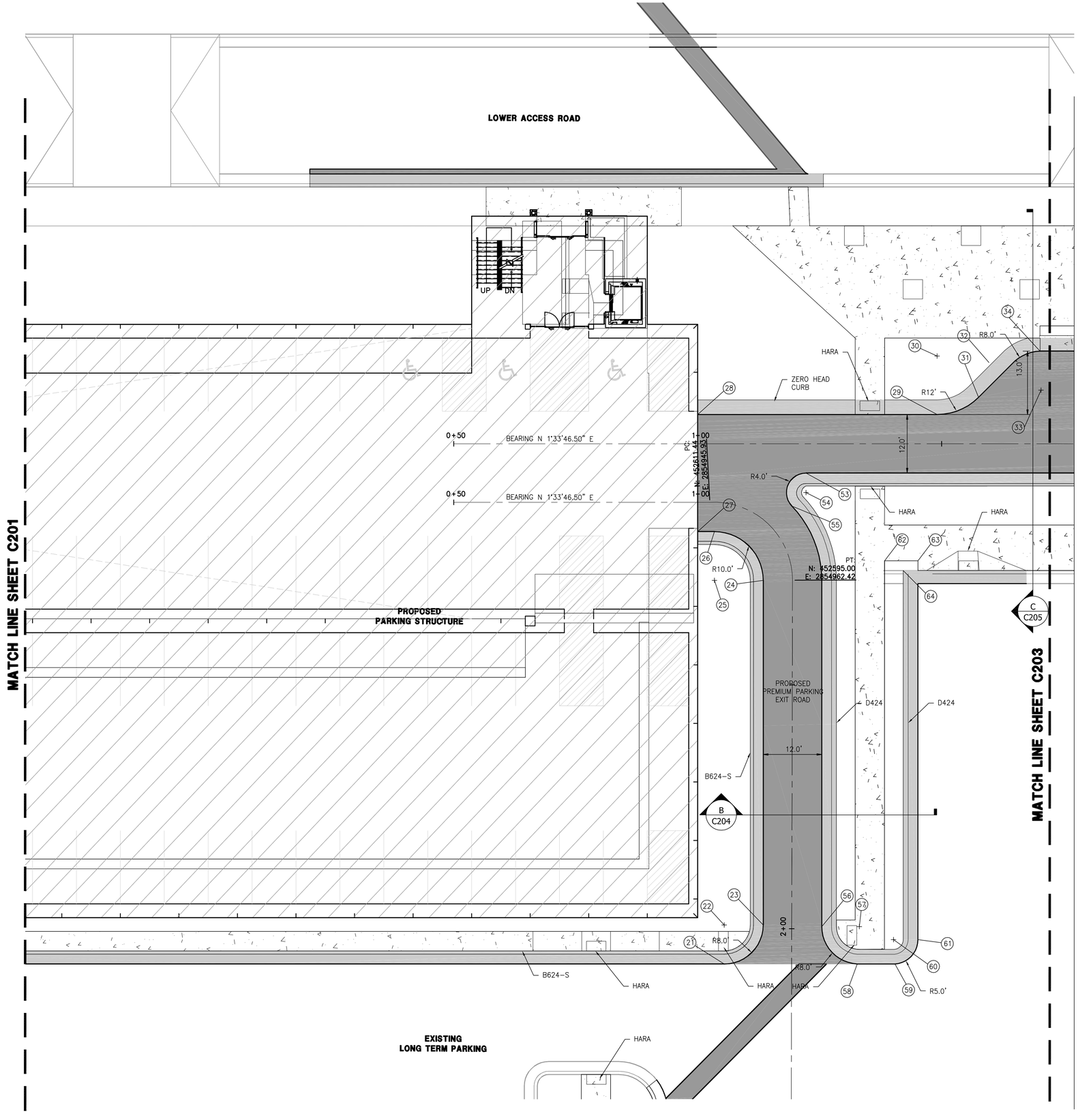
GEOMETRY PLAN (SHEET 1 OF 3)

SHEET NUMBER

C201

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C201.dwg Plotted on: 5/16/2013 7:42 PM Plotted by: Erdmann, Ryan



GEOMETRY DATA TABLE - THIS SHEET

POINT NUMBER	DESCRIPTION	NORTHING	EASTING
21	PT	452516.7177	2854946.2760
22	CURVE_CNTR	452524.7148	2854946.4939
23	PC	452524.4965	2854954.4909
24	PT	452595.1364	2854956.4188
25	CURVE_CNTR	452595.4092	2854946.4226
26	PC	452605.4055	2854946.6954
27	CORNER	452605.4985	2854943.2813
28	CORNER	452629.4897	2854943.9362
29	PT	452628.3203	2854992.9940
30	CURVE_CNTR	452640.1603	2854993.2970
31	PC	452631.4467	2855001.5477
32	PT	452638.5146	2855003.8837
33	CURVE_CNTR	452632.5805	2855014.3806
34	PC	452640.5831	2855014.3959
53	PC	452616.8892	2854965.7773
54	CURVE_CNTR	452612.8907	2854965.6682
55	PT	452610.2012	2854962.7074
56	PC	452523.8247	2854966.4770
57	CURVE_CNTR	452523.6389	2854974.1664
58	PT	452515.9741	2854973.5235
59	PC	452515.7688	2854981.2562
60	CURVE_CNTR	452520.7661	2854981.0930
61	PT	452520.6305	2854986.0911
62	CORNER	452598.4480	2854981.3654
63	CORNER	452598.2723	2854988.2101
64	CORNER	452596.3553	2854985.1567

GEOMETRY NOTES

1. CONSTRUCTION SURVEY AND STAKEOUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. NORTHINGS AND EASTINGS GIVEN IN PROJECT ARE IN MINNESOTA STATE PLANE NORTH COORDINATES, SEE SHEET C006 FOR HORIZONTAL AND VERTICAL CONTROL.
3. SEE TYPICAL PAVEMENT SECTION AND DETAILS SHEETS C204-207. PAVING IN THIS CONTRACT CONSISTS OF THE PROPOSED EMPLOYEE RENTAL CAR ACCESS ROAD, PROPOSED DAA MAINTENANCE ACCESS ROAD, PROPOSED PREMIUM PARKING ACCESS ROAD AND PAVING OF THE LONG TERM PARKING LOTS.
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CURB AND GUTTER

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CURB AND GUTTER SPILL = B624-S
MOUNTABLE CURB AND GUTTER = D424
HANDICAP ACCESS RAMP AREA = HARA
ZERO HEAD CURB

NOTE:
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Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

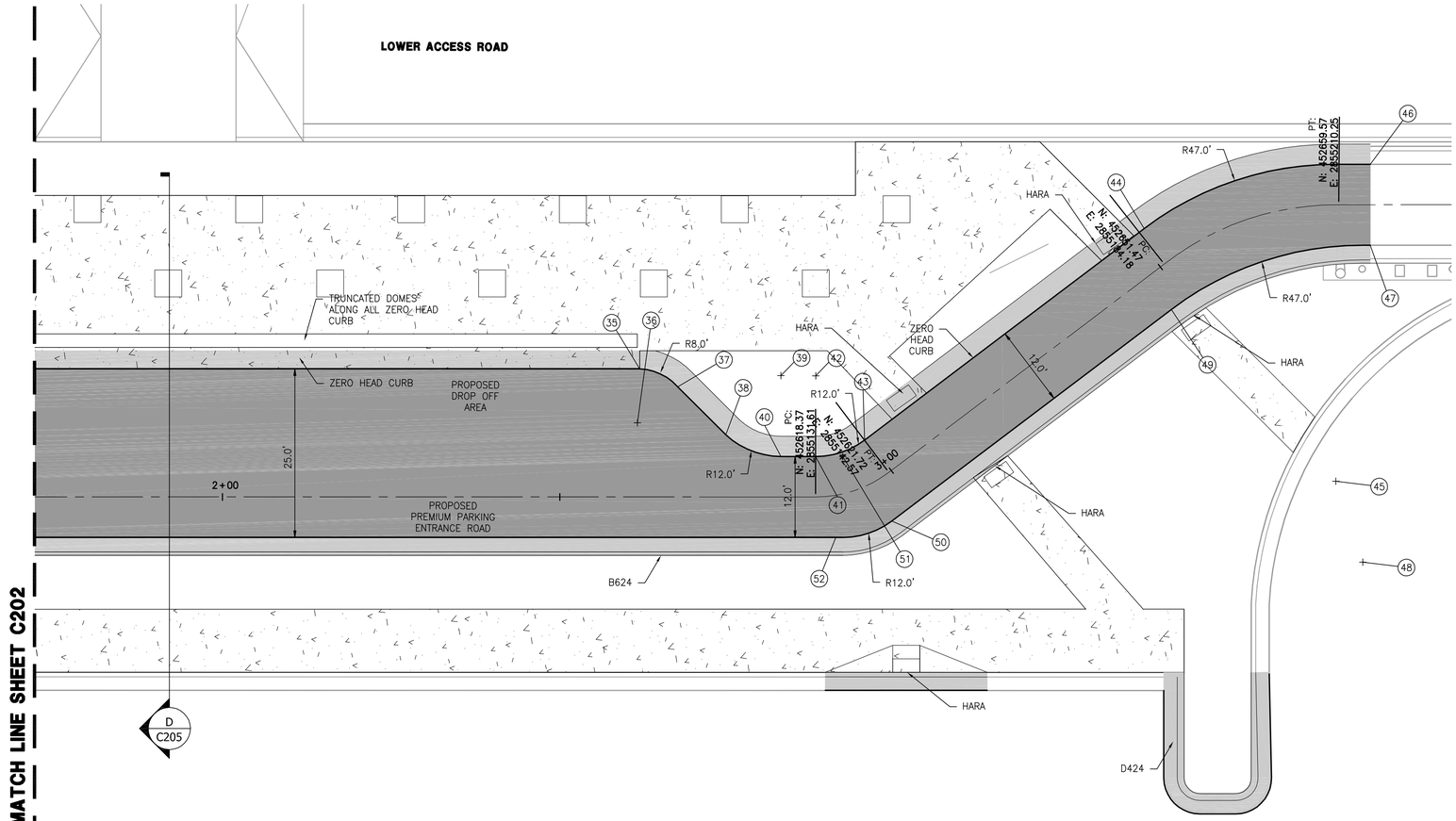
GEOMETRY PLAN (SHEET 2 OF 3)

SHEET NUMBER

C202

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C202.dwg Plotted on: 5/16/2013 7:24 PM Plotted by: Erdmann, Ryan



EXISTING
LONG TERM PARKING

NORTH

0 10' 20'

GEOMETRY DATA TABLE - THIS SHEET

POINT NUMBER	DESCRIPTION	NORTHING	EASTING
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36	CURVE CENTR	452630.0828	2855105.5084
37	PT	452635.2608	2855111.6343
38	PC	452627.9558	2855118.5513
39	CURVE CENTR	452636.5118	2855126.9652
40	PT	452624.5169	2855126.6154
41	PC	452624.3643	2855131.7713
42	CURVE CENTR	452636.3311	2855132.1057
43	PT	452626.5986	2855139.0785
44	PC	452656.8373	2855181.3663
45	CURVE CENTR	452618.6060	2855208.7043
46	PT	452665.4492	2855215.0925
47	PT	452653.4537	2855214.7652
48	CURVE CENTR	452606.5006	2855212.4034
49	PC	452644.7314	2855185.0646
50	PT	452614.4933	2855142.7796
51	CURVE CENTR	452624.2544	2855135.7995
52	PC	452612.2873	2855134.4283

GEOMETRY NOTES

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CURB AND GUTTER

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MOUNTABLE CURB AND GUTTER = D424
HANDICAP ACCESS RAMP AREA = HARA
ZERO HEAD CURB

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
GEOMETRY PLAN (SHEET 3 OF 3)

SHEET NUMBER
C203

ISSUED FOR BID

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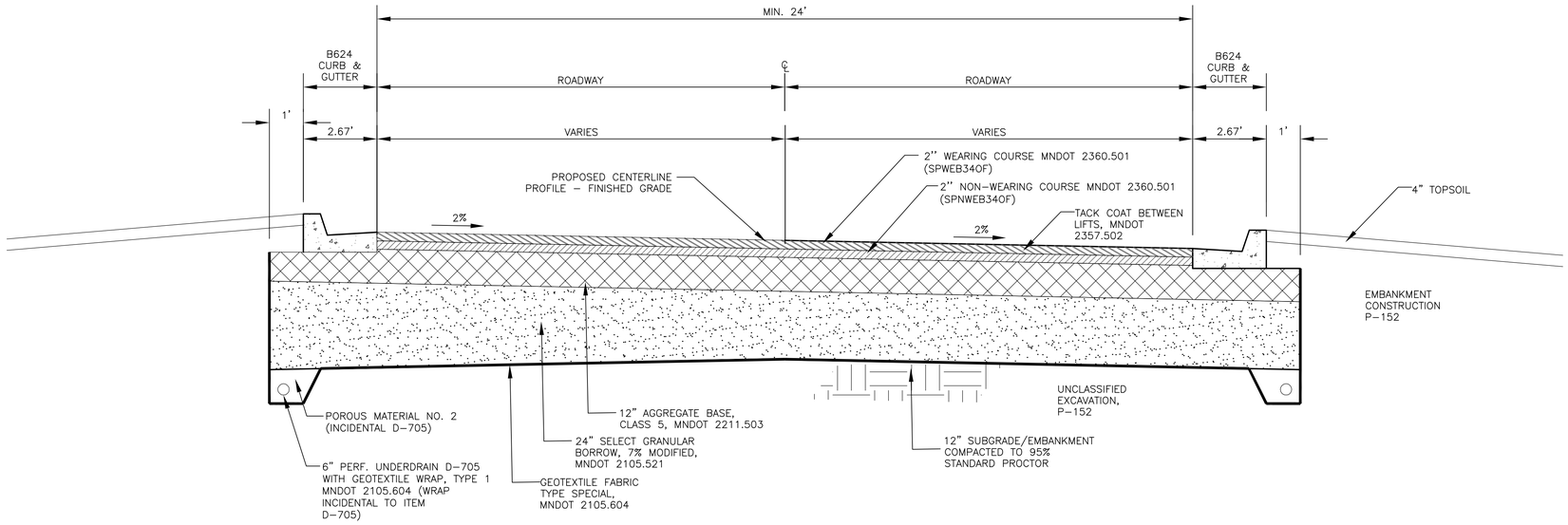
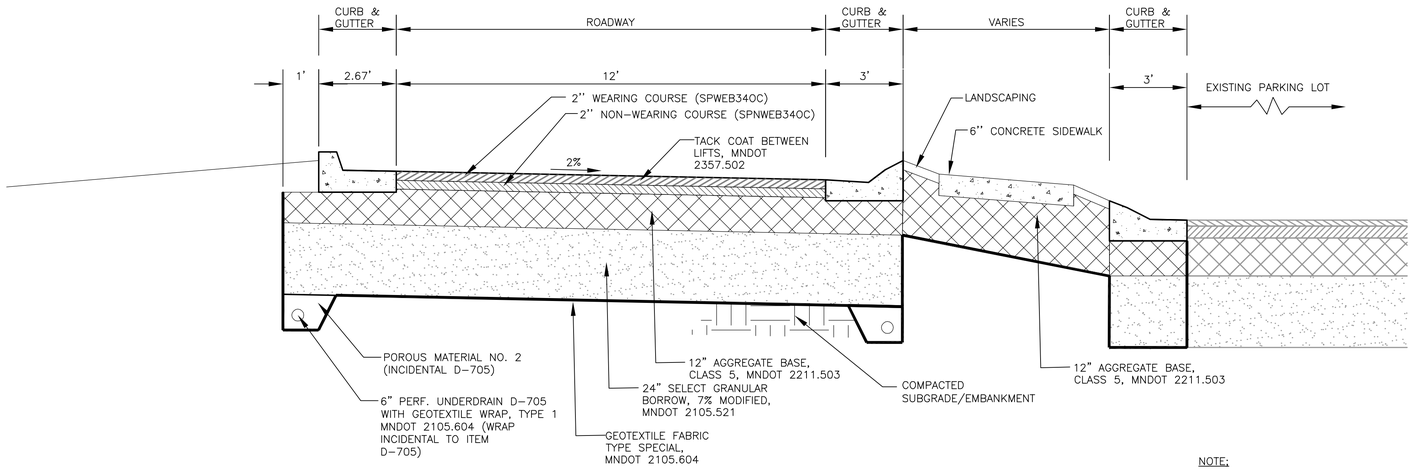


PROPOSED TYPICAL SECTION 'A'
PROPOSED RENTAL CAR ENTRANCE/EXIT

N.T.S.



PROPOSED TYPICAL SECTION 'B'
PREMIUM PARKING EXIT ROAD

N.T.S.

NOTE:

1. ALL SIDEWALK/CURB AND GUTTER JOINTS TO BE INSTALLED WITH ½" EXPANSION JOINT WITH NON–EXTRUDING PREMOLDED COMPRESSIBLE MATERIAL TO BOTTOM OF SIDEWALK SEAL JOINT WITH DOW 890SL ½" DEEP. INCIDENTAL TO SIDEWALK BID ITEM.
2. ADJUSTMENTS TO MEET DESIGN ELEVATIONS SHALL BE MADE WITH CLASS 5 AGGREGATE BASE.
3. GRANULAR MATERIAL THAT IS SALVAGED MAY BE USED IN THE PROPOSED SECTION PROVIDING IT MEETS THE GRADATION AND REQUIREMENTS OF THE RESPECTIVE ITEM.

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NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
TYPICAL PAVEMENT SECTIONS (SHEET 1 OF 2)

SHEET NUMBER
C204

ISSUED FOR BID

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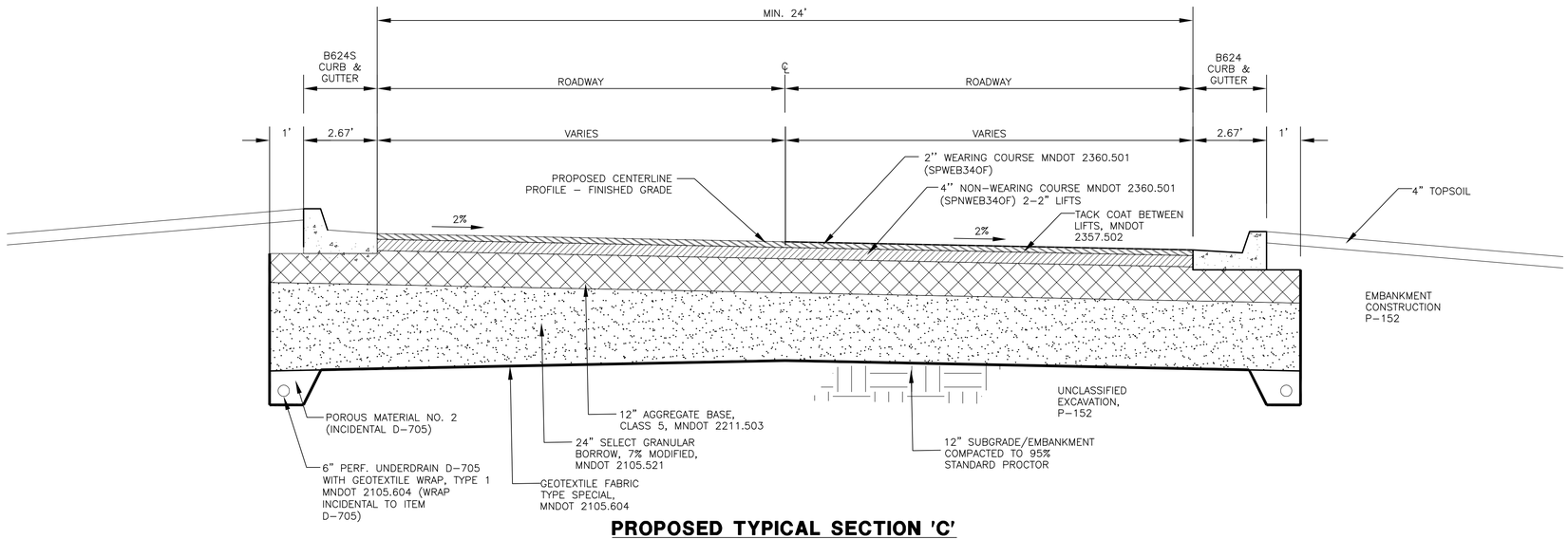
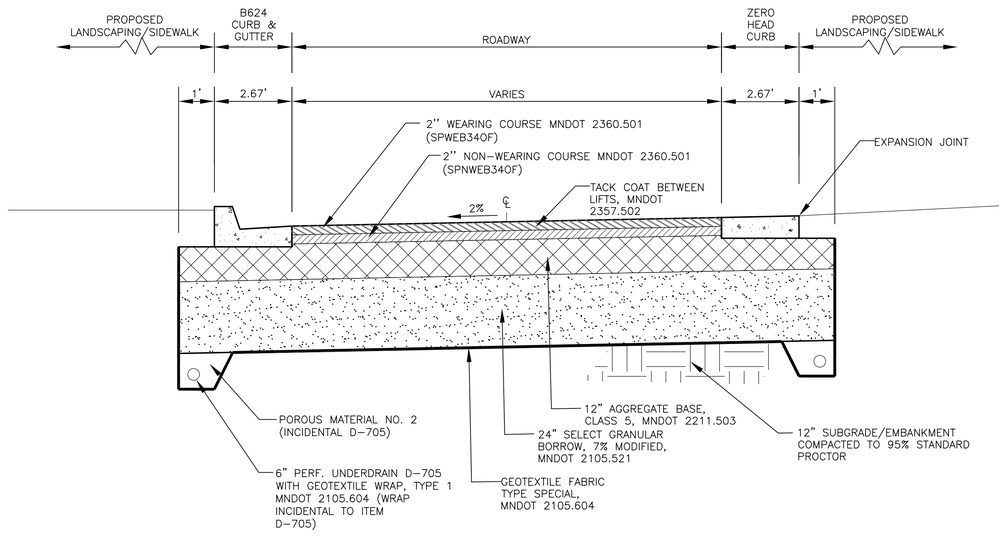


PROPOSED TYPICAL SECTION 'C'
DAA MAINTENANCE ENTRANCE/EXIT

N.T.S.



PROPOSED TYPICAL SECTION 'D'
PREMIUM PARKING ENTRANCE ROAD

N.T.S.

NOTE:

1. ALL SIDEWALK/CURB AND GUTTER JOINTS TO BE INSTALLED WITH ½" EXPANSION JOINT WITH NON–EXTRUDING PREMOLDED COMPRESSIBLE MATERIAL TO BOTTOM OF SIDEWALK SEAL JOINT WITH DOW 890SL ½" DEEP. INCIDENTAL TO SIDEWALK BID ITEM.
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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
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DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
TYPICAL PAVEMENT SECTIONS (SHEET 2 OF 2)

SHEET NUMBER
C205

ISSUED FOR BID

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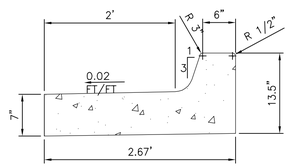
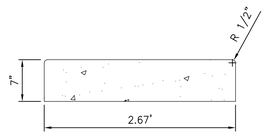


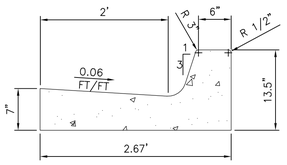
DESIGN B624 - SPILL: CURB AND GUTTER DETAIL

N.T.S.



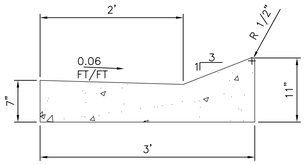
ZERO HEAD CURB - DETAIL

N.T.S.



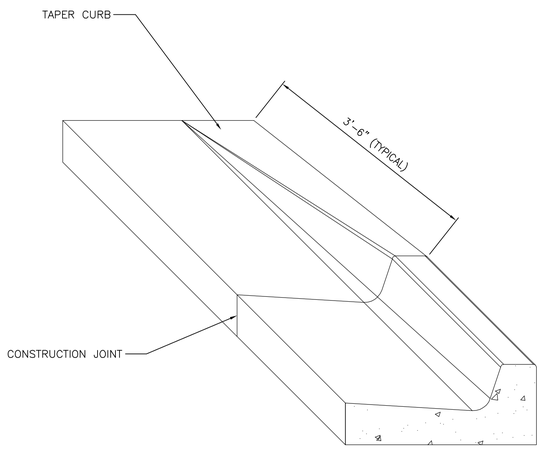
DESIGN B624 - NORMAL: CURB AND GUTTER DETAIL

N.T.S.



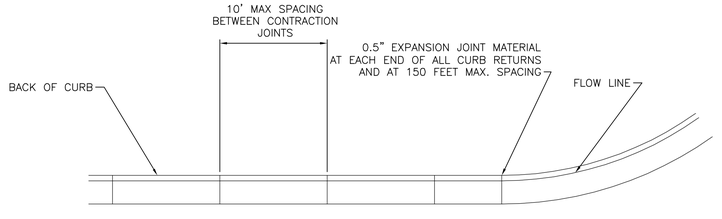
DESIGN D424 - NORMAL: CURB AND GUTTER DETAIL

N.T.S.



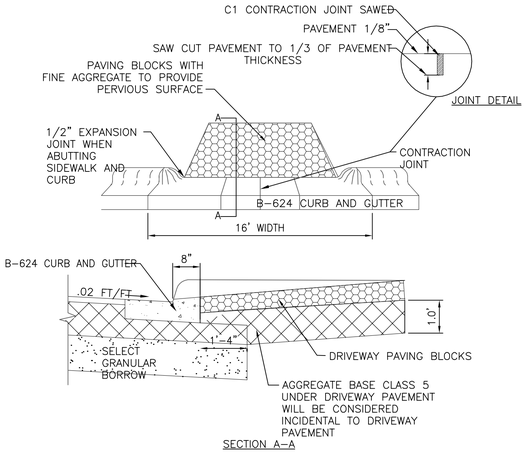
DETAIL OF CURB AND GUTTER TERMINATION

N.T.S.



CURB AND GUTTER LAYOUT DETAIL

N.T.S.



SECTION A-A

NOTE: THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF. NOTE: STATE OF MIN. STANDARD PLATE 7035L NOTE 5 SHALL NOT APPLY.

DRIVEWAY ENTRANCE

N.T.S.

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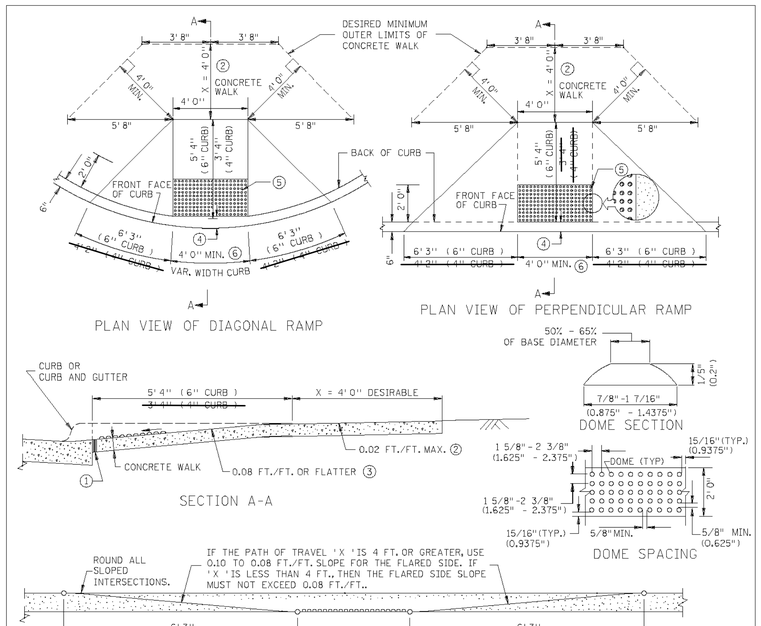
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
TYPICAL CURB AND GUTTER DETAILS (SHEET 1 OF 2)

SHEET NUMBER
C206

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C206.dwg Plotted on: 5/16/2013 7:30 PM Plotted by: Erdmann, Ryan



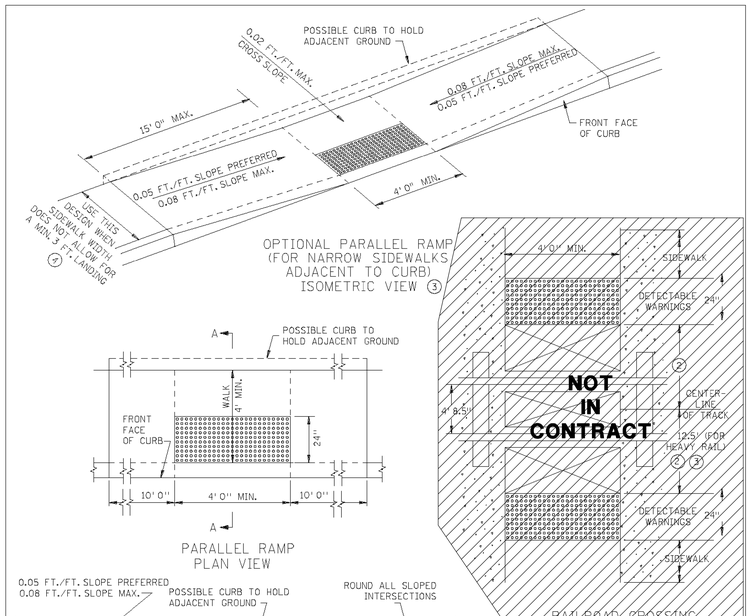
NOTES:

TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA), ALL STATE AND LOCAL AGENCIES ARE REQUIRED TO COMPLY WITH THIS STANDARD PLATE.

THE CURB AND CURB TRANSITION ON THE RAMP WILL BE PAID FOR AS LINEAR FEET OF CONCRETE CURB OR CONCRETE CURB AND GUTTER. THE RAMP AREA WILL BE PAID FOR AS CONCRETE WALK EXCLUDING THE TRUNCATED DOME AREA WHICH WILL BE PAID FOR AS TRUNCATED DOMES BY THE SQUARE FOOT. BIKE TRAILS SHALL HAVE TRUNCATED DOMES ACROSS THE ENTIRE WIDTH OF TRAIL WHEN THE TRAIL CROSSES A ROAD. DOMES ARE NOT TO BE USED ON SIDEWALKS OR TRAILS WHEN CROSSING ALLEYS OR DRIVEWAYS.

1. 1/2 INCH PREFORMED JOINT FILLER MATERIAL, AASHTO M 213.
2. WHEN POSSIBLE, PROVIDE A CLEAR PATH OF TRAVEL 4' 0" WIDE BEHIND THE PEDESTRIAN RAMP. A RELATIVELY FLAT 4' X 4' LANDING WILL ALLOW WHEELCHAIRS TO NAVIGATE AROUND THE PEDESTRIAN RAMP. NO SIGNALS, SIGNS, CABINETS, OR OTHER OBSTRUCTIONS ARE ALLOWED IN THE RAMP OR PATH OF TRAVEL.
3. WHEN A MEDIAN IS NOT WIDE ENOUGH FOR TWO PEDESTRIAN RAMPS AND A 48" LANDING BETWEEN THEM, THE PEDESTRIAN CROSSING SHALL BE CUT THROUGH THE MEDIAN AT STREET LEVEL.
4. PLACE THE DETECTABLE WARNINGS (TRUNCATED DOMES) AT THE BACK OF CURB. WHEN THE DETECTABLE WARNING SYSTEM IS A PRECAST MATERIAL, THE CURB SHALL BE HAND FORMED TO FILL THE GAP.
5. ADA REQUIRED TRUNCATED DOME AREA SHALL BE 2' 0" MIN. IN DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH (3' 0" OR 4' 0" TYP.) OF THE CURB RAMP. THIS 2' 0" BY 3' 0" OR 4' 0" WIDTH (TYP.) TRUNCATED DOME AREA SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKING SURFACE. THE ENTIRE TRUNCATED DOME AREA SHALL BE A LIGHT (GRAY OR BUFF TYPICALLY) COLOR WHEN THE ADJACENT SIDEWALK IS A DARK COLOR. THE ENTIRE TRUNCATED DOME AREA SHALL BE A DARK COLOR (RED OR DARK GRAY TYPICALLY) WHEN THE ADJACENT SIDEWALK IS A LIGHT GRAY CEMENT COLOR.
6. 4' 0" MIN. FOR NEW CONSTRUCTION. 3' 0" ALLOWED TO STAY IN PLACE FOR RETROFIT PROJECTS. IN SITUATIONS WHERE THE CURB CUT WIDTH EXCEEDS 4' 0", THE DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH.

APPROVED FEB. 20, 2004	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE	STANDARD PLATE NO.
STATE DESIGN ENGINEER	PEDESTRIAN CURB RAMP FOR THE HANDICAPPED	2521 2531	7036F
		REVISION DATE 4-14-2004	1 OF 2



THESE ARE OPTIONAL PEDESTRIAN SIDEWALK ACCESS DETAILS THAT ARE NOT REQUIRED BY CURRENT ADA REGULATIONS

NOTES:

1. 1/2 INCH PREFORMED JOINT FILLER MATERIAL, AASHTO M 213.
2. WHEN THERE IS A GATE ARM, THE EDGE OF THE DETECTABLE WARNING SHALL BE 17"-19" FROM THE FACE OF THE GATE ARM. WHEN THERE IS NO GATE, THE EDGE OF THE DETECTABLE WARNING SHALL BE 12.5 FT. (HEAVY RAIL) OR 8 FT. (LRT) FROM THE CENTERLINE OF THE NEAREST TRACK.
3. ALL RAIL IN STATE IS HEAVY RAIL WITH THE EXCEPTION OF THE LRT IN MINNEAPOLIS.
4. THE REASON FOR USING THIS VARIATION INSTEAD OF THE OFFICIAL DESIGN ON SH. 1 SHALL BE DOCUMENTED. IF A LARGE AMOUNT OF WATER IS EXPECTED FROM THE ADJACENT PROPERTY, THE DESIGNER SHOULD PLAN ACCORDINGLY.

APPROVED FEB. 20, 2004	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE	STANDARD PLATE NO.
STATE DESIGN ENGINEER	PEDESTRIAN CURB RAMP OPTIONS FOR THE HANDICAPPED	2521 2531	7036F 2 OF 2

HANDICAP ACCESS RAMP AREA (HARA) DETAILS

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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 Minnesota.

Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
TYPICAL CURB AND GUTTER DETAILS (SHEET 2 OF 2)

SHEET NUMBER
C207

ISSUED FOR BID

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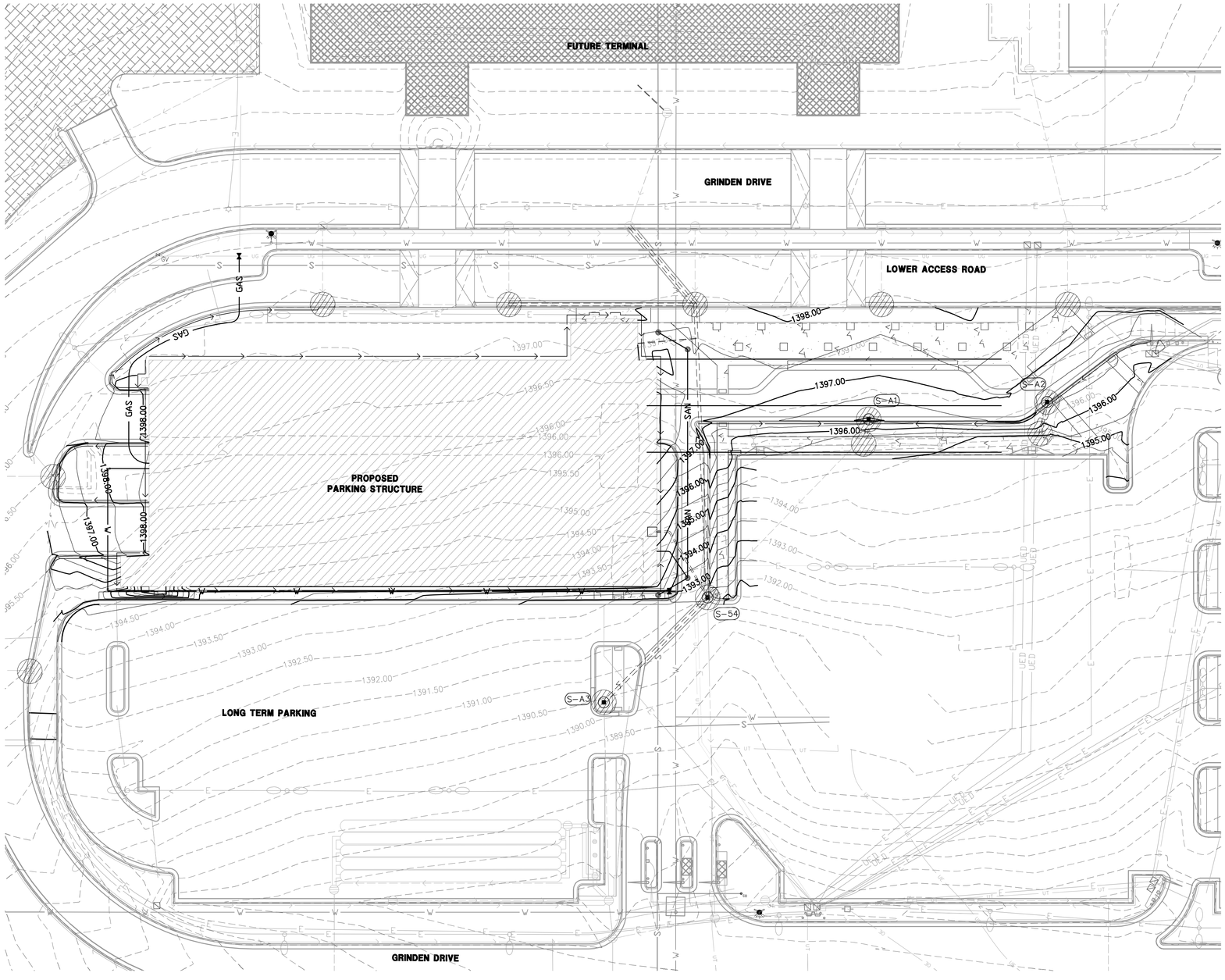

NORTH

0 30' 60'

LEGEND

- PROPOSED CP HDPE PIPE
- PROPOSED 4" PERF. PVC PIPE UNDERDRAIN
- PROPOSED STORM STRUCTURE
- PROPOSED SANITARY MANHOLE
- SAN — PROPOSED SANITARY
- S-A3 — STRUCTURE NUMBER
- GAS GAS — PROPOSED GAS LINE
- W — PROPOSED WATER LINE
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- INLET PROTECTION

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AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
PROPOSED DRAINAGE AND UTILITY PLAN

SHEET NUMBER
C400

ISSUED FOR BID

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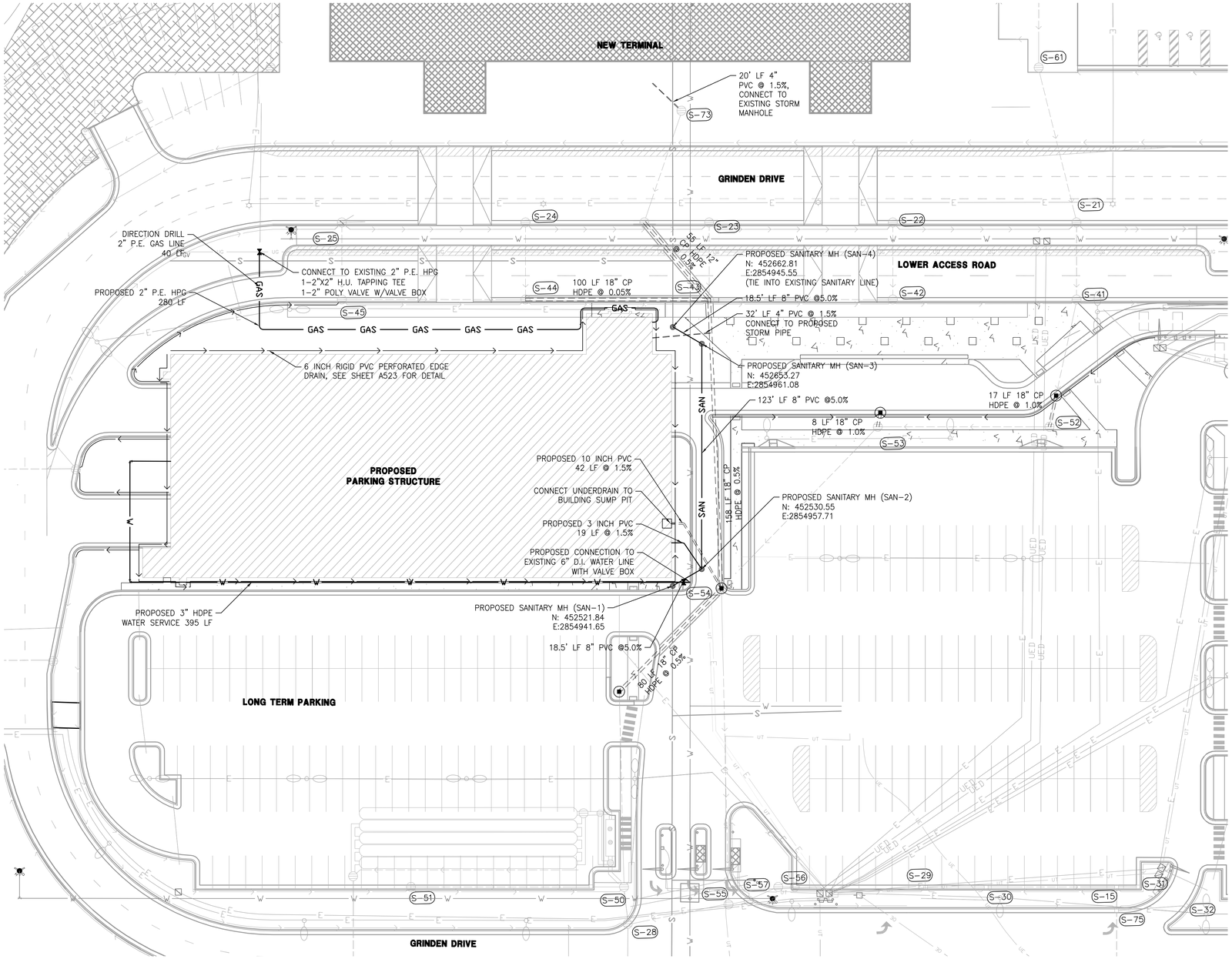

LEGEND

- PROPOSED CP HDPE PIPE
- PROPOSED 4" PERF. PVC PIPE UNDERDRAIN
- PROPOSED STORM STRUCTURE
- PROPOSED SANITARY MANHOLE
- SAN — PROPOSED SANITARY
- S-A3 — STRUCTURE NUMBER
- GAS — GAS — PROPOSED GAS LINE
- W — PROPOSED WATER LINE

NOTES:

1. CONTRACTOR MUST VERIFY PROPOSED GAS LINE LOCATION AND CROSSING BEFORE CONDUCTING WORK.

SANITARY MH (SAN-1)	SANITARY MH (SAN-2)	SANITARY MH (SAN-3)	SANITARY MH (SAN-4)
MNDOT 2506.602 CASTING: SAN-1	MNDOT 2506.602 CASTING: SAN-1	MNDOT 2506.602 CASTING: SAN-1	MNDOT 2506.602 CASTING: SAN-1
RIM ELEV. 1393.34 INV. NE: 1378.26 INV. S: 1377.96	RIM ELEV. 1393.31 INV. N: 1379.29 INV. W: 1385.31 INV. SW: 1379.19	RIM ELEV. 1397.45 INV. NW: 1385.54 INV. S: 1385.44	RIM ELEV. 1397.60 INV. N: 1386.56 INV. SE: 1386.46

EXISTING STORM MH (S-74)	EXISTING STORM MH (S-44)	EXISTING STORM MH (S-43)	EXISTING STORM MH (S-52)	EXISTING STORM MH (S-53)	PROPOSED STORM MH (S-54)	EXISTING STORM MH (S-73)	STORM MH (S-A1)	STORM MH (S-A2)	STORM MH (S-A3)
STRUCTURE TYPE 48-4020	STRUCTURE TYPE 48-4020	STRUCTURE TYPE 48-4020	STRUCTURE TYPE 48-4020 EXIST. CASTING: STRM-3 PROP. CASTING: STRM-1	STRUCTURE TYPE F EXIST. CASTING: STRM-3 PROP. CASTING: STRM-1	STRUCTURE TYPE 84-4020 EXIST. CASTING: STRM-3	STRUCTURE 48-4020 EXIST. CASTING: STRM-1	STRUCTURE TYPE G PROP. CASTING: STRM-3	STRUCTURE TYPE G PROP. CASTING: STRM-3	STRUCTURE TYPE 48-4020 PROP. CASTING: STRM-1
RIM ELEV. 1398.26 INV. N: 1387.55 INV. SE: 1387.45	EXIST. RIM ELEV. 1397.23 PROP. RIM ELEV. 1397.23 INV. N: 1391.73 INV. W: 1391.13 INV. E: 1391.03	EXIST. RIM ELEV. 1397.23 PROP. RIM ELEV. 1397.23 INV. NW: 1387.18 INV. W: 1390.53 INV. S: 1387.08	EXIST. RIM ELEV. 1395.87 PROP. RIM ELEV. 1396.20 INV. NE: 1390.58 INV. W: 1390.48	EXIST. RIM ELEV. 1396.04 PROP. RIM ELEV. 1395.50 INV. E: 1388.60 INV. SW: 1388.50	EXIST. RIM ELEV. 1391.51 PROP. RIM ELEV. 1392.40 INV. N: 1386.29 INV. SW: 1386.19 INV. W: 1386.29	RIM ELEV. 1400.02 INV. S: 1387.87 INV. NW: 1388.17	RIM ELEV. 1395.91 INV. S: 1388.68	RIM ELEV. 1396.15 INV. NE: 1390.85 INV. SW: 1390.75	RIM ELEV. 1390.50 INV. NE: 1385.79 INV. S: 1385.55

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DRAWN BY: RS
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
PROPOSED DRAINAGE AND UTILITY PLAN

SHEET NUMBER
C401

ISSUED FOR BID

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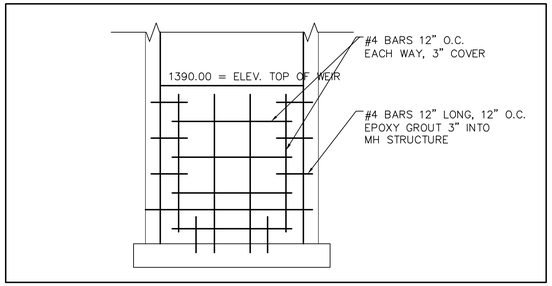
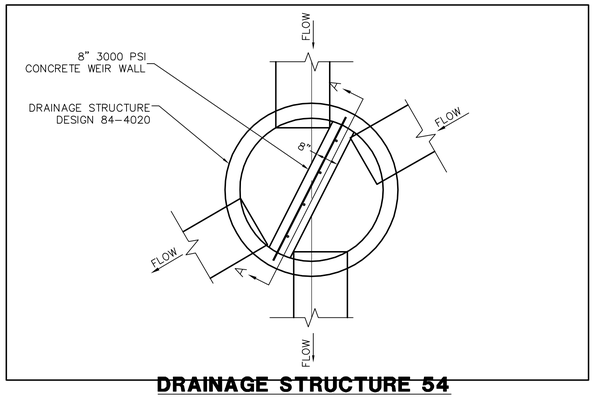


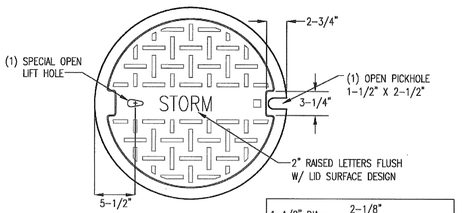
DRAINAGE STRUCTURE 54 A-A
N.T.S.



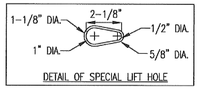
DRAINAGE STRUCTURE 54
N.T.S.

WGT. 298 LBS		MATL. GRAY IRON CLASS 35B
WGT. 122 LBS	TOT.WGT. 420 LBS.	SPEC. ASTM A-48-74

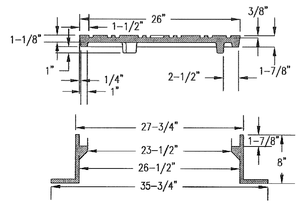
NOTE: SUITABLE FOR HS25 WHEEL LOADS



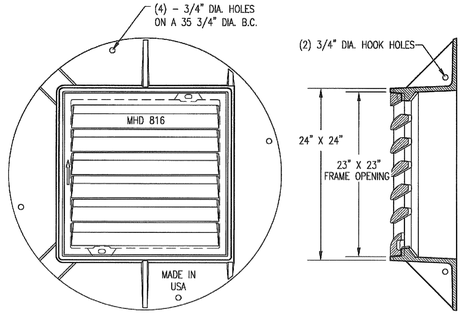
NOTE: T/CAST SHALL BE .03' BELOW FINISHED PAVEMENT SURFACE.

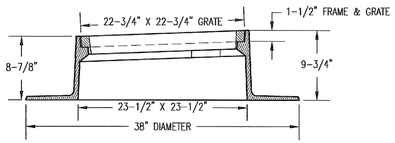


DETAIL OF SPECIAL LIFT HOLE



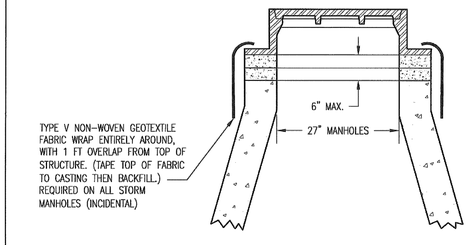
STORM MANHOLE CASTING		STRM-1
REVIEWED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



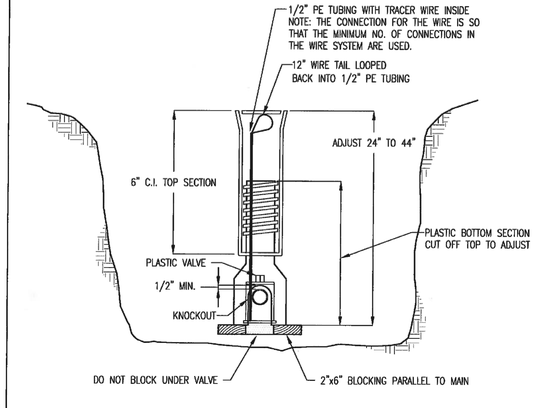


NOTES:
1. COMPONENT NO'S: TOP FRAME 5005, GRATE 816 (STD PLATE 41548).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME 262#, GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

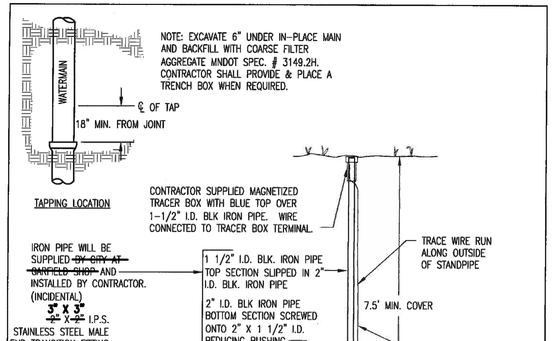
CATCH BASIN/CURB BOX CASTINGS		STRM-3
REVIEWED/APPROVED 2/1/11	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



FABRIC WRAPPED MANHOLE		STRM-5
REVIEWED/APPROVED 2/1/11	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



PE VALVE BOX SETTING		G-5
REVIEWED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. THE NUMBER OF CONNECTIONS MUST BE KEPT TO A MINIMUM. ANY SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT OR COMPRESSION TYPE CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTORS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

3"-2" HDPE WATER MAIN CONNECTION TO DI OR CI		W-7
REVISED/APPROVED 12/17/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

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DATE ISSUED: 05/15/2013
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DRAWN BY: RDRE
DESIGNED BY: JEH

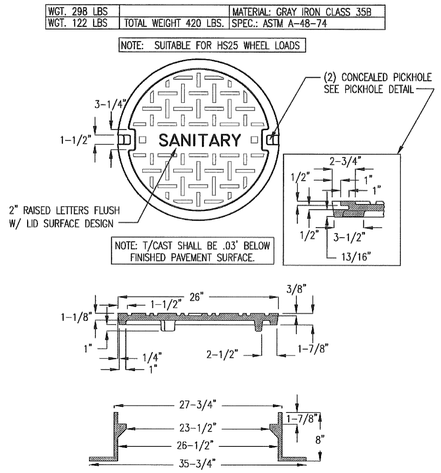
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
DRAINAGE AND UTILITY DETAILS SHEET 1 OF 2

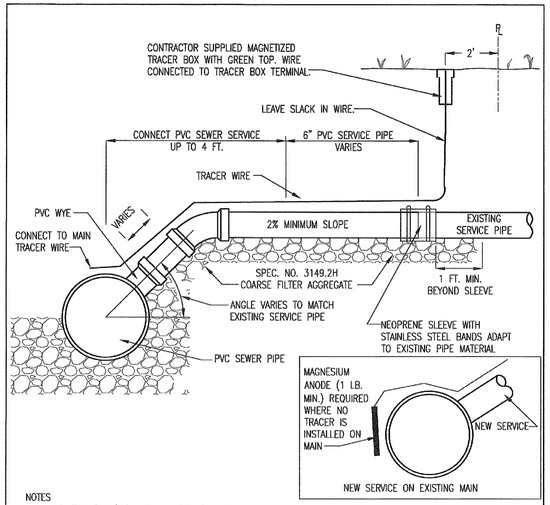
SHEET NUMBER
C402

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C402.dwg Plotted on: 5/16/2013 8:03 PM Plotted by: Erdmann, Ryan

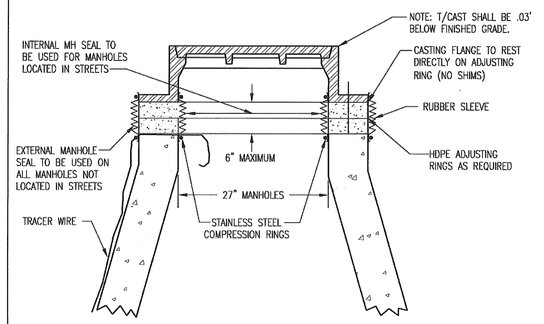


SANITARY CASTING DETAIL		SAN-1
REVIEWED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



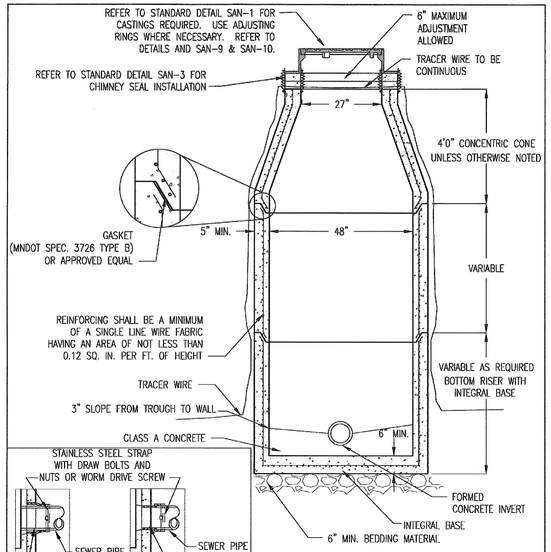
NOTES
1. BID ITEM FOR PVC WYE INCLUDES FURNISHING AND INSTALLING WYE IN SEWER MAIN.
2. CONNECT SANITARY SERVICE INCLUDES UP TO 4.0' OF PVC HOUSE SERVICE PIPE AND ALL FITTINGS
3. 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
4. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SANITARY SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT OR COMPRESSION TYPE CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

TYPICAL SEWER SERVICE CONNECTION		SAN-2
REVISED/APPROVED 2/1/10	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



NOTE:
1. ALL SEALS SHALL EXTEND FROM THE CASTING TO THE CONE
2. TRACER WIRE REQUIRED ON ALL SANITARY SEWER MAINS

SANITARY MANHOLE SEAL		SAN-3
REVISED/APPROVED 3/11/09	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE



1. MANHOLE FLEXIBILE SLEEVES SHALL BE NPC KOR-N-SEAL 1 OR PRESS SEAL PSX DIRECT DRIVE
2. ALL PIPE SLEEVES MUST BE WATER TIGHT

NOTES
1. SANITARY MANHOLES SHALL NOT HAVE STEPS.
2. ALL SANITARY MANHOLES SHALL BE VACUUM TESTED.
3. ALL SANITARY MANHOLES SHALL BE WATERTIGHT. ANY OBSERVABLE WATER SEEPAGE THROUGH THE END OF THE WARRANTY PERIOD SHALL BE CAUSE TO REJECT MANHOLES.
4. AN INSIDE DROP IS REQUIRED PER DETAIL SAN-4 ANYTIME THE DROP IS GREATER THAN 2.0'.

PRECAST MECHANICAL JOINT SEWER MANHOLE		SAN-11
REVIEWED/APPROVED 2/1/11	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

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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 Minnesota.

Print Name: JOHN E. HIPPCHEN

Signature:

Date: 05/15/2013 Reg. No.: 22088

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JEH
DRAWN BY: RDRE
DESIGNED BY: JEH

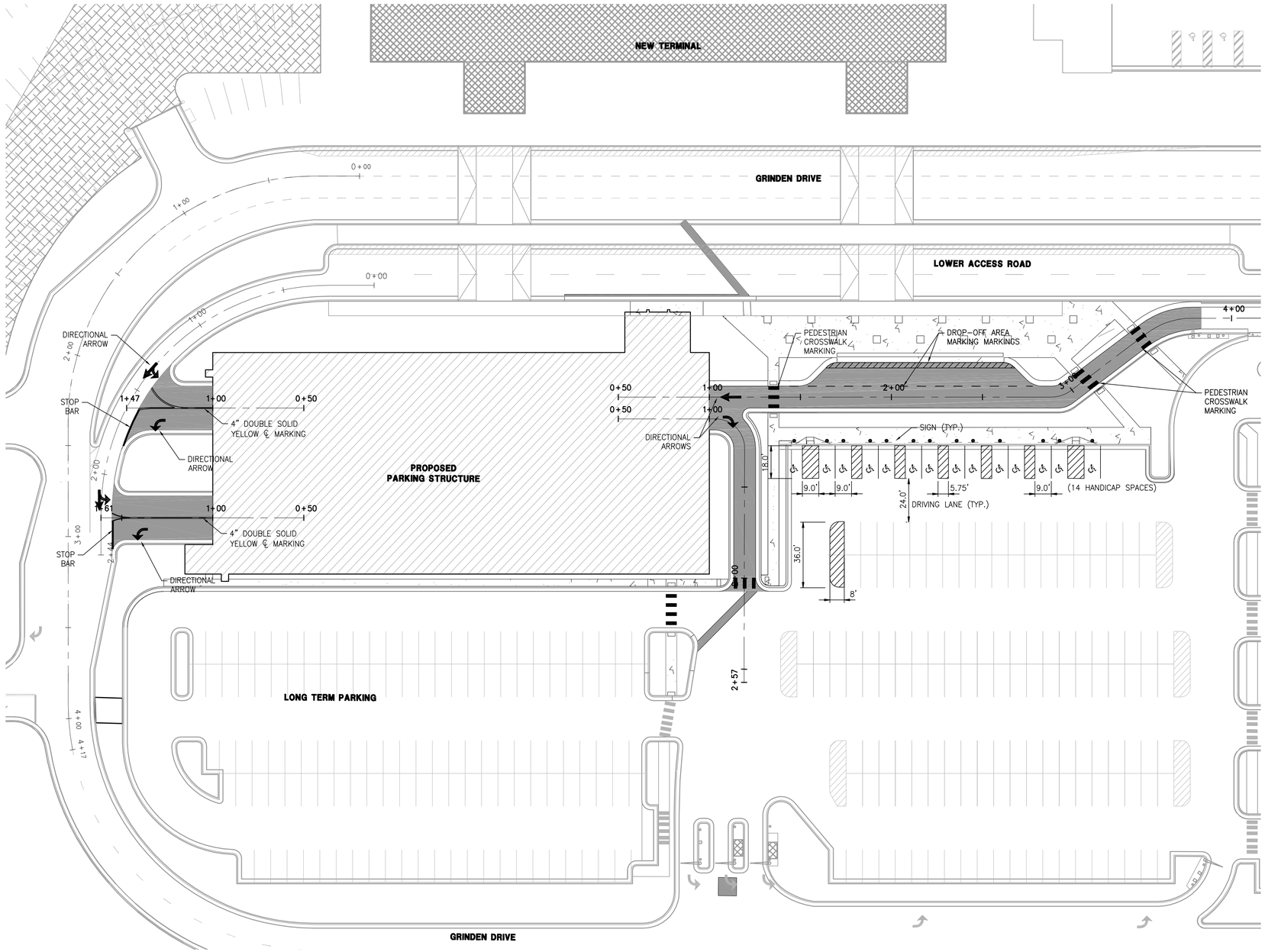
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
DRAINAGE AND UTILITY DETAILS SHEET 2 OF 2

SHEET NUMBER
C403

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C403.dwg Plotted on: 5/16/2013 8:09 PM Plotted by: Erdmann, Ryan



NORTH

0 30' 60'

LEGEND

- PEDESTRIAN CROSSWALK PAVEMENT MARKINGS
- 4" WIDE PAVEMENT MARKINGS
- DIRECTIONAL ARROW
- STOP BAR PAVEMENT MARKING
- SIGN COMPLETE W/ POST – TYPE AS NOTED

NOTE:

1. REFER TO SHEET C602 FOR PAVEMENT MARKING & SIGNAGE DETAILS
2. EXISTING PAVEMENT MARKINGS TO BE REMOVED WHERE PROPOSED MARKINGS CONFLICT (300 SY, THE REST OF THE PLAN QUANTITY IS FOR TEMPORARY HANDICAP MARKINGS DURING CONSTRUCTION).

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

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Interior Architects:
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DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
PAVEMENT MARKING AND SIGNAGE PLAN

SHEET NUMBER
C601

ISSUED FOR BID

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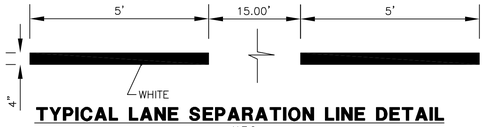
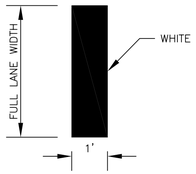
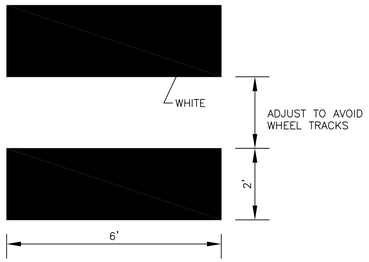


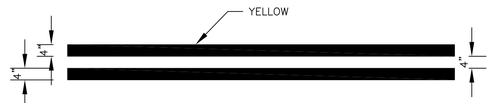
TYPICAL LANE SEPARATION LINE DETAIL
N.T.S.



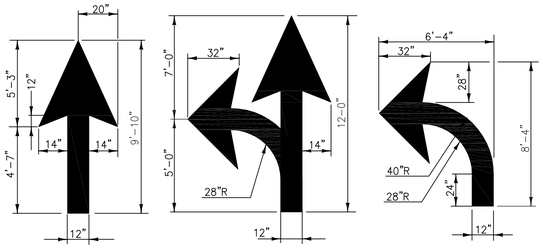
TYPICAL STOP LINE PAVEMENT MARKING DETAIL
N.T.S.



TYPICAL PEDESTRIAN CROSSWALK MARKING DETAIL
N.T.S.

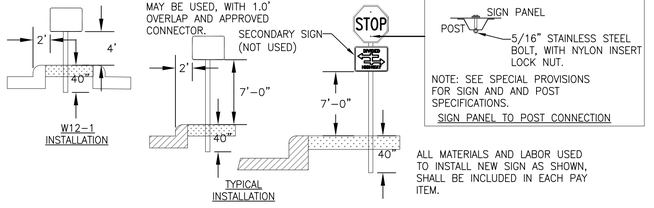


TYPICAL DOUBLE YELLOW PAVEMENT MARKING DETAIL
N.T.S.



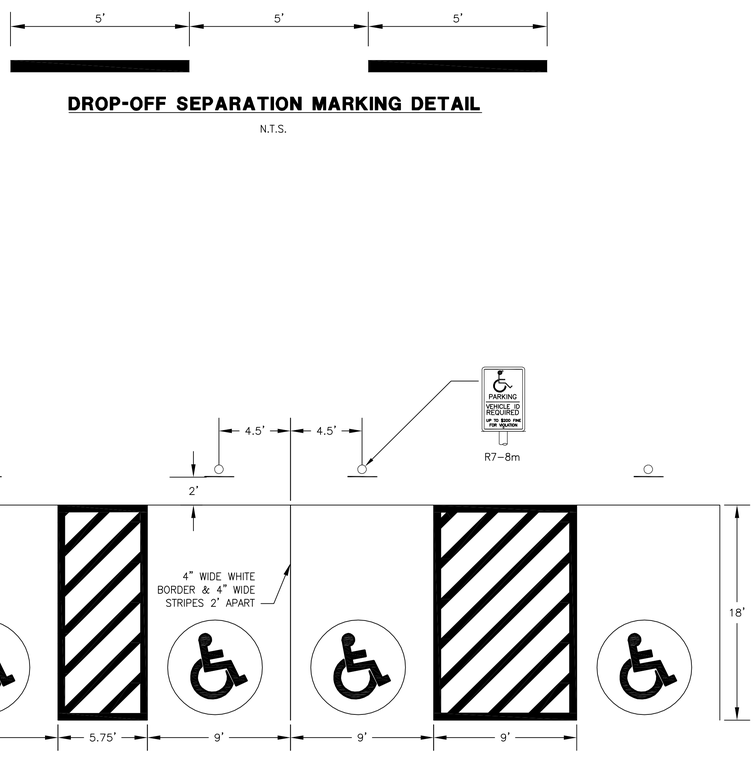
NOTE:
ALL PAVEMENT MARKINGS SHALL BE PAINTED TRAFFIC WHITE.

DIRECTIONAL ARROW PAVEMENT MARKING DETAILS
N.T.S.

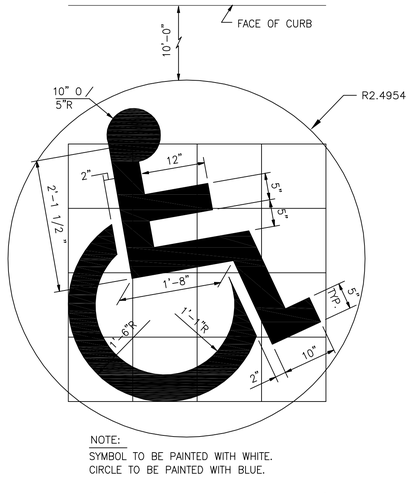


ALL MATERIALS AND LABOR USED TO INSTALL NEW SIGN AS SHOWN, SHALL BE INCLUDED IN EACH PAY ITEM.

SIGN INSTALLATION DETAIL
N.T.S.

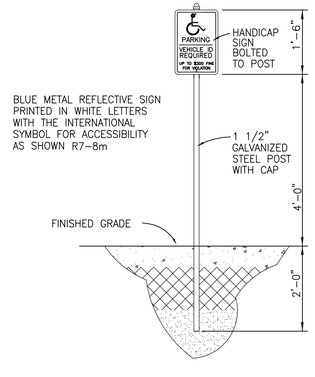


TYPICAL HANDICAP PARKING SPACE DETAIL
N.T.S.



NOTE:
SYMBOL TO BE PAINTED WITH WHITE.
CIRCLE TO BE PAINTED WITH BLUE.

TYPICAL PAVEMENT MARKING FOR HANDICAPPED SYMBOL
N.T.S.



TYPICAL HANDICAP PARKING SIGN
N.T.S.

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Print Name: JOHN E. HIPPCHEN

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
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DRAWN BY: RS
DESIGNED BY: JEH

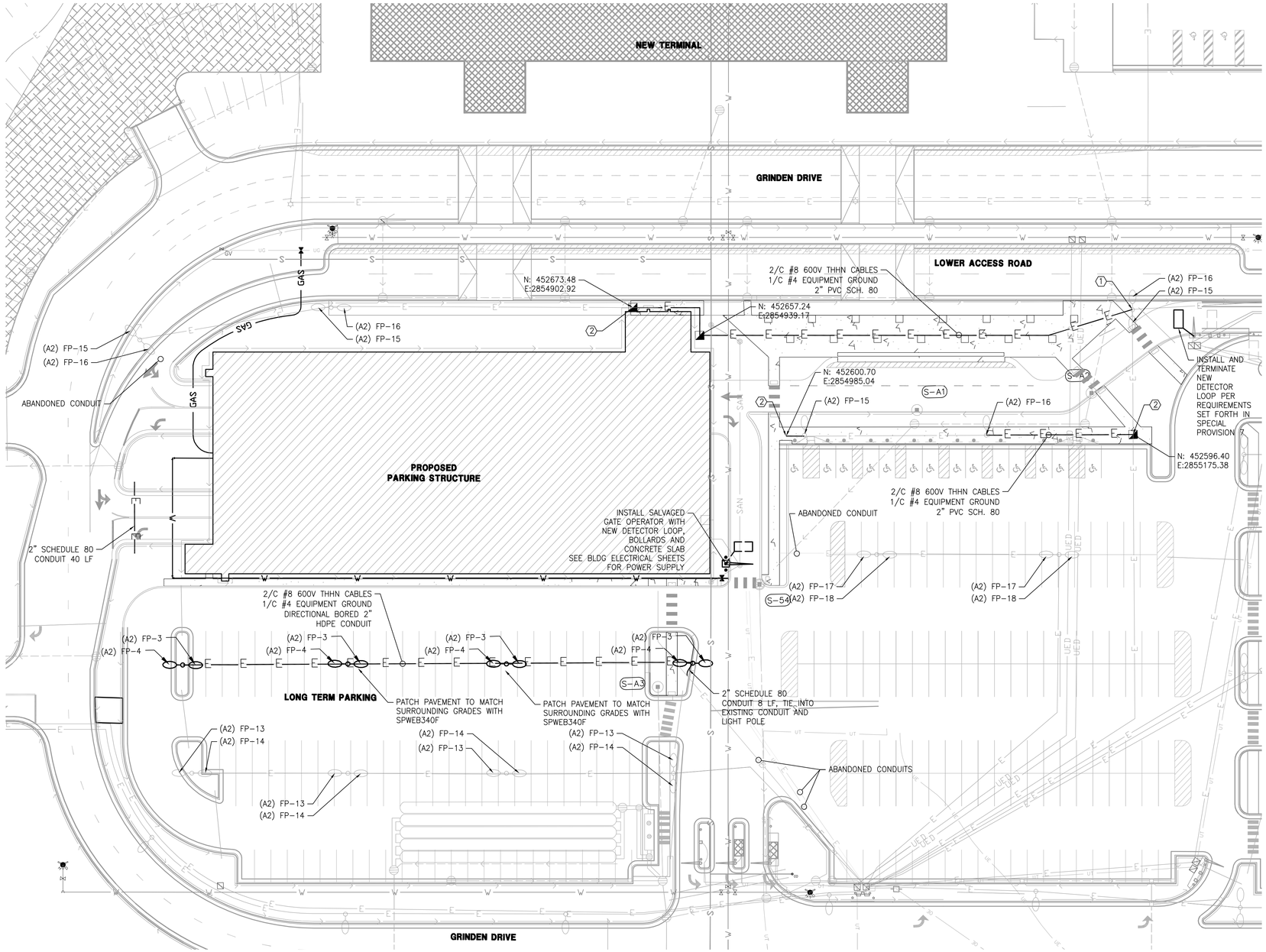
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
PAVEMENT MARKING & SIGNAGE DETAILS

SHEET NUMBER
C602

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\C602.dwg Plotted on: 5/16/2013 8:15 PM Plotted by: Erdmann, Ryan



LEGEND

- EXISTING ELECTRICAL
- EXISTING LIGHT POLE(S)
- PROPOSED ELECTRICAL HANDHOLE
- PROPOSED ELECTRICAL CABLE & CONDUIT
- STORM MANHOLE
- STORM PIPE
- WATER LINE
- SANITARY LINE
- GAS LINE

WORK ITEM DESCRIPTION NOTES

1. SPLICE CIRCUITS AND CONNECT TO EXISTING SOURCE AND POLE AS SHOWN.
2. INSTALL NEW HANDHOLE. DISCONNECT WIRE AT POLE TO BE REMOVED AND PULL BACK TO HANDHOLE. SEAL ENDS AND COIL WIRE IN HANDHOLE.

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AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

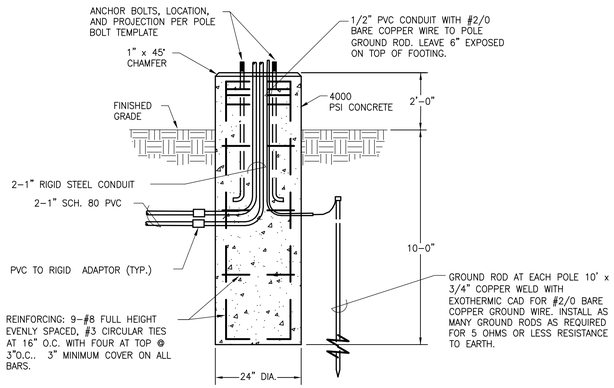
SITE ELECTRICAL PLAN

SHEET NUMBER

CE101

ISSUED FOR BID

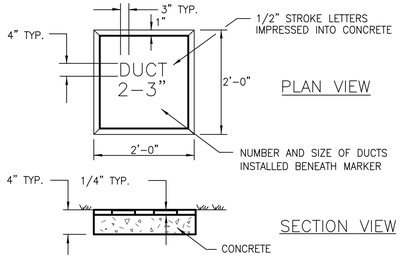
Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\E101.dwg Plotted on: 5/16/2013 8:27 PM Plotted by: Erdmann, Ryan



1 30' LIGHT POLE FOUNDATION DETAIL
N.T.S.

LIGHTING FIXTURE SCHEDULE NOTES:

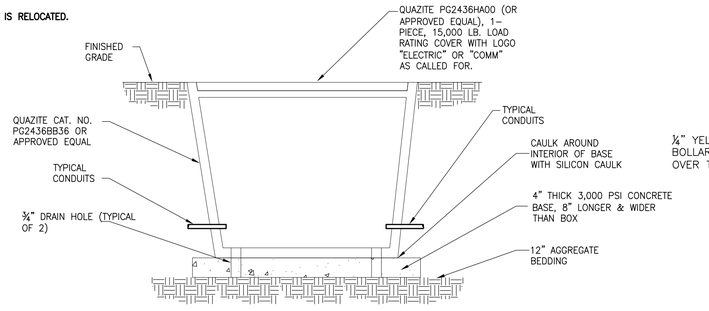
1. PROVIDE ANCHOR BOLTS. DIAMETER AND LENGTH AS REQUIRED TO MEET EPA (90 MPH) WIND REQUIREMENTS.
2. BUSEMAN HEBAA FUSEHOLDERS/FUSES, OR APPROVED EQUAL, SHALL BE PROVIDED AND INSTALLED IN THE BASE OF EACH LIGHT POLE THAT IS RELOCATED.



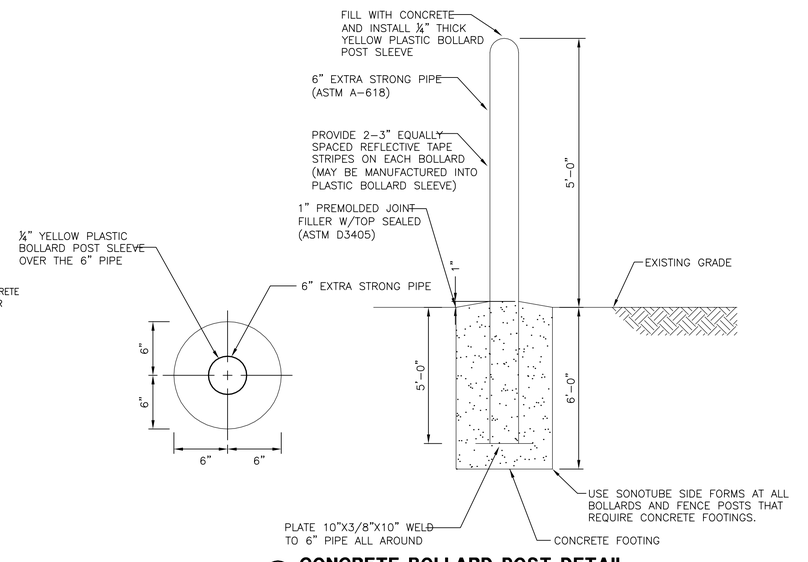
NOTES:

1. CONTRACTOR SHALL INSTALL NEW DUCT MARKERS WITH APPROPRIATE INFORMATION 5' OFF EDGE AND ON BOTH SIDES OF PAVEMENT WHEN EXISTING DUCT IS DISCOVERED OR NEW DUCT IS INSTALLED UNDER PAVEMENT.
2. EDGE EXPOSED CONCRETE WITH A "1/4" RADIUS TOOL.
3. ALL WORK INCEDENTAL TO CONDUIT.

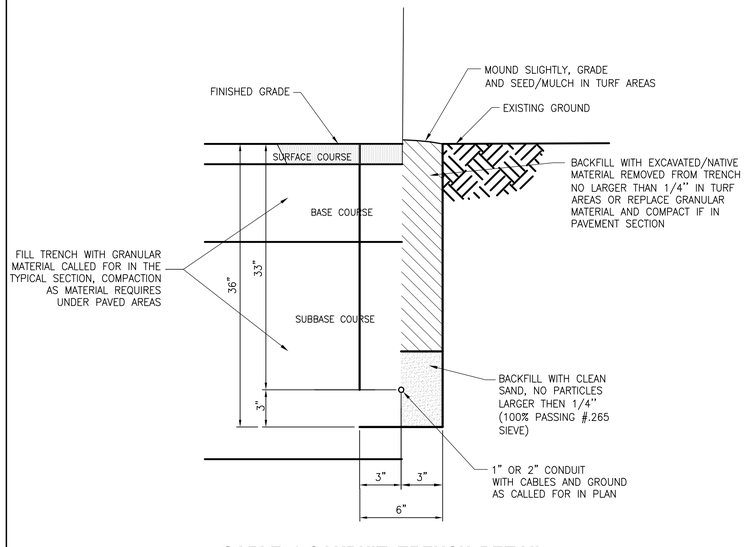
2 DUCT MARKER DETAIL IN TURF
N.T.S.



3 ELECTRICAL HANDHOLE (IN TURF) DETAIL
N.T.S.



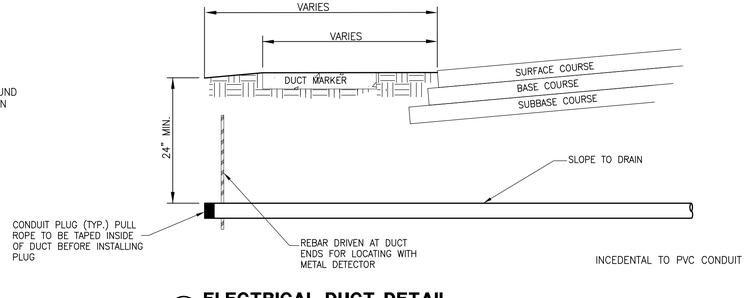
4 CONCRETE BOLLARD POST DETAIL
N.T.S.



5 CABLE / CONDUIT TRENCH DETAIL
N.T.S.

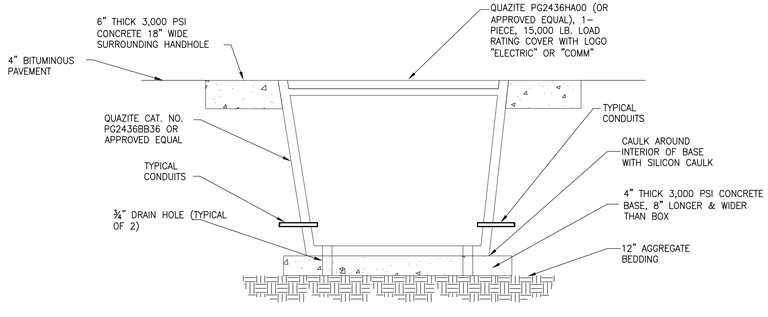
NTS

NOTE:
FOR MULTIPLE CABLE CONDUIT TRENCHES, CONDUITS SHALL BE SEPARATED 2" MIN WIDEN TRENCH ACCORDINGLY.



INCEDENTAL TO PVC CONDUIT

6 ELECTRICAL DUCT DETAIL
N.T.S.



7 ELECTRICAL HANDHOLE (IN PAVEMENT) DETAIL
N.T.S.

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Signature:

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DATE ISSUED: 05/15/2013
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DRAWN BY: RDRE
DESIGNED BY: JEH

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ELECTRICAL NOTES AND DETAILS

SHEET NUMBER
CE110

ISSUED FOR BID

Drawing: C:\pw_work\rsh_pw\pw_user\dms51386\E110.dwg Plotted on: 5/16/2013 8:36 PM Plotted by: Erdmann, Ryan

SITE PLANTING NOTES:

1. EXISTING SITE INFORMATION PROVIDED BY REYNOLDS, SMITH AND HILLS, INC., 4525 AIRPORT APPROACH ROAD, SUITE A, DULUTH, MN, (218) 722-1227. VERIFY EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT IMMEDIATELY.
2. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES, PRIVATE & PUBLIC, BEFORE COMMENCING WORK. USE (GOPHER STATE ONE CALL 1-800-252-1166) FOR LOCATION OF PUBLIC UTILITIES. CONTRACTOR TO COORDINATE PRIVATE UTILITIES WITH OWNER. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.
3. REFER TO CIVIL PLANS FOR SWPPP & STORM WATER BMP'S
4. ALL PLANTING BED EDGER TO BE ALUMINUM EDGER AS SPECIFIED.
5. SOD DISTURBED AREAS AS NECESSARY.
6. ALL PLANTING BEDS TO RECEIVE 4" DEPTH SHREDDED CYPRESS MULCH OVER LANDSCAPE FABRIC AS SPECIFIED

KEYED NOTES - PLANTING PLAN

1. ALUMINUM PLANTING EDGER AS SPECIFIED (TYP)
2. TACONITE SCREENINGS (2 1/2" DEPTH) (TYP) PER DETAIL 4/L101
3. SOD & 4" TOPSOIL (TYP)
4. TREE GRATE (TYP) 15 REQUIRED, INSTALLED PER MANUFACTURER RECOMENDATIONS
5. 18" HEIGHT BERM
6. FUTURE LIGHT LOCATION (BY OTHERS) (TYP)

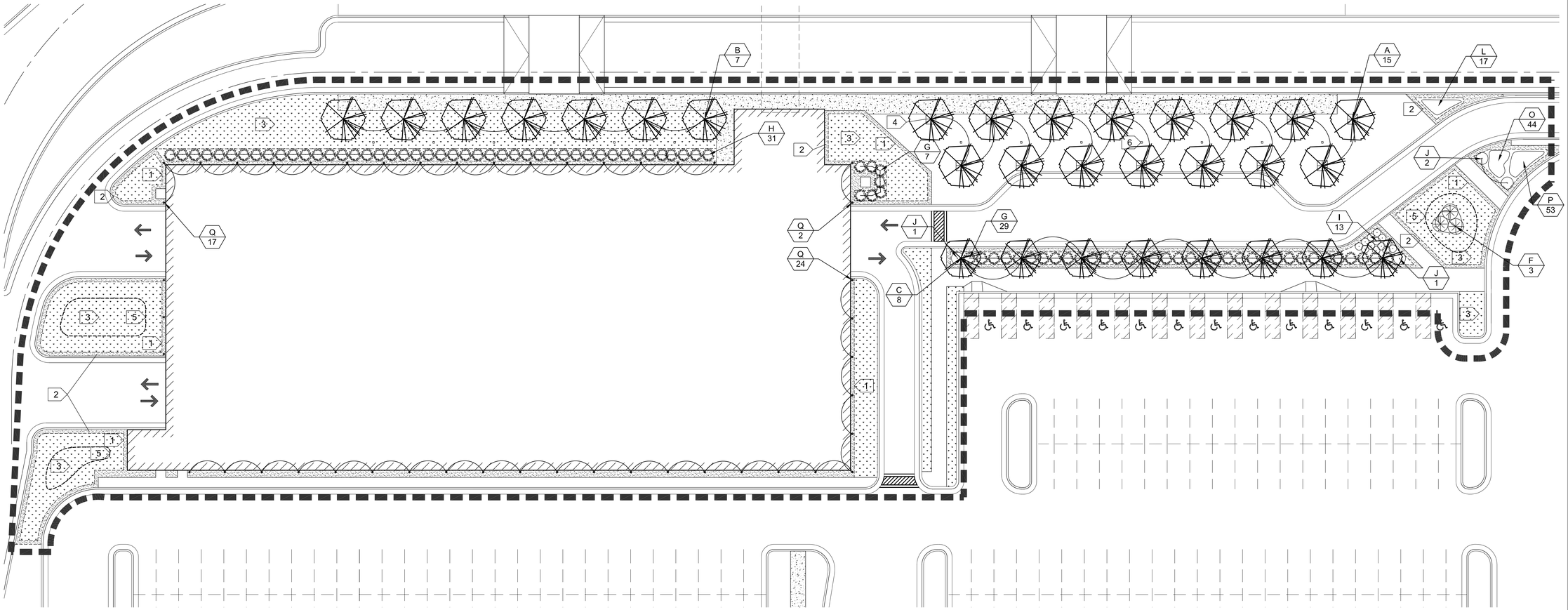
PLANTING LEGEND

- DECIDUOUS OVERSTORY TREE
- CONIFEROUS TREE
- DECIDUOUS ORNAMENTAL TREE
- DECIDUOUS SHRUB
- CONIFEROUS SHRUB
- SOD
- ALUMINUM EDGING
- TACONITE SCREENING W/ EDGING & WEED BARRIER FABRIC
- PROJECT LIMITS
- EXISTING CONCRETE WALK

PLANTING SCHEDULE - PARKING GARAGE

KEY	QTY	COMMON NAME - *Scientific name*	SIZE	ROOT	COMMENTS
A	15	IMPERIAL HONEYLOCUST - *Gleditsia triacanthas var. inermis 'Impcole'*	3" CAL	B&B	SPACE AS SHOWN
B	7	AUTUMN BLAZE MAPLE - *Acer x freemani 'Autumn Blaze'*	3" CAL	B&B	SPACE AS SHOWN
C	8	BOULEVARD LINDEN - *Tilia americana 'Boulevard'*	3" CAL	B&B	SPACE AS SHOWN
D	N/A	BLACK HILLS SPRUCE - *Picea glauca densata*	6' HT	B&B	SPACE AS SHOWN
E	N/A	JAPANESE TREE LILAC-CLUMP - *Syringa reticulata 'Ivory Silk'*	6' HT	B&B	3 STEM CLUMPS
F	3	NINEBARK - *Physocarpus opulifolius*	#5	CONT	SPACE 4'-0" O.C.
G	36	SEA GREEN JUNIPER - *Juniperus chinensis 'Sea Green'*	#5	CONT	SPACE 5'-0" O.C.
H	31	DARK GREEN SPREADING YEW - *Taxus x media ' Dark Green'*	#5	CONT	SPACE 5'-0" O.C.
I	13	DWARF HONEYSUCKLE - *Dievilla lonicera*	#2	CONT	SPACE 2'-0" O.C.
J	4	PRINCE OF WALES JUNIPER - *Juniperus horizontalis ' Prince of Wales'*	#2	CONT	SPACE 5'-0" O.C.
K	N/A	LITTLE BLUE STEM - *Schizachyrium scoparium*	#1	CONT	SPACE 24" O.C.
L	17	KARL FOERSTER REED GRASS - *Calamagrostis x acutiflora 'Karl Foerster'*	#1	CONT	SPACE 24" O.C.
M	N/A	PRAIRIE DROPSEED - *Sporobolus heterolepis*	#1	CONT	SPACE 30" O.C.
N	N/A	LADY'S MANTLE - *Alchemilla mollis*	4"	POT	SPACE 18" O.C.
O	44	PEARLY EVERLASTING - *Anaphalis margaritacea*	4"	POT	SPACE 10" O.C.
P	53	PRAIRIE SMOKE - *Geum triflorum*	4"	POT	SPACE 10" O.C.
Q	43	BOSTON IVY - *Parthenocissus tricuspidata*	#1	CONT	SPACE AS SHOWN

* QUANTITIES PROVIDED AS CONVENIENCE TO CONTRACTOR. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO VERIFY PLAN QUANTITIES AND NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES.



PLANTING PLAN

0 10' 20' 40'
SCALE

1 L100

NORTH

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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 Landscape Architect under the laws of the State of Minnesota.

Print Name: JAMES M. SHOBERG

Signature:

Date: 5/15/13 Reg. No.: 45577

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JMS
DRAWN BY: TTP
DESIGNED BY: JMS

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

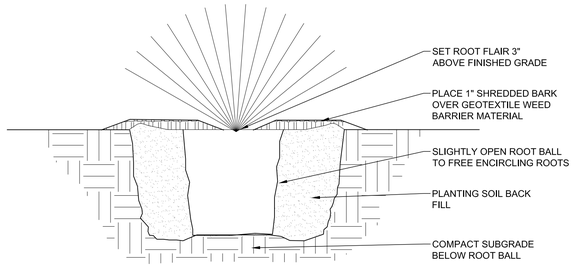
PARKING GARAGE PLANTING PLAN

SHEET NUMBER

L100

ISSUED FOR BID

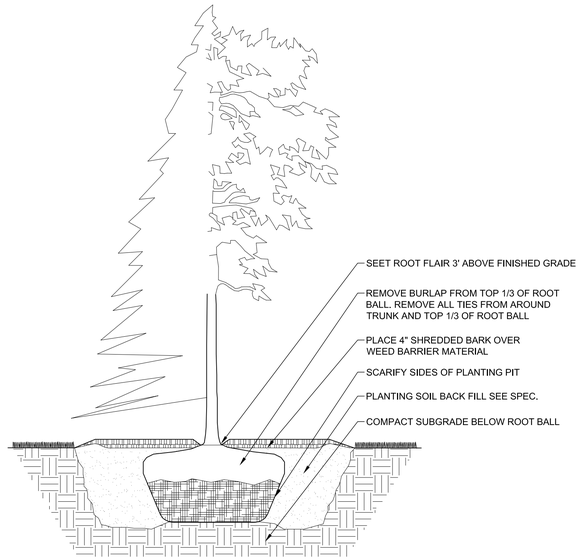
Drawing: M:\2012\12-077\LA\SW_2.1.dwg Plotted on: 5/7/2013 2:39 PM Plotted by: Trent



SHRUB PLANTING DETAIL

1 / L101

SCALE: 3/4" = 1' - 0"

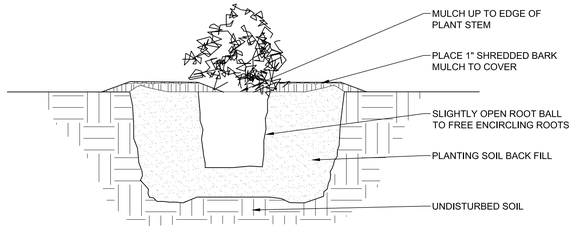


TREE PLANTING DETAIL

2 / L101

0 2' 4' 8'

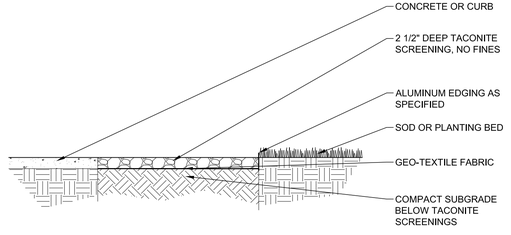
SCALE



PERENNIAL, ORNAMENTAL GRASS, VINE PLANTING DETAIL

3 / L101

SCALE: 3/4" = 1' - 0"



TACONITE SCREENING

4 / L101

SCALE: NTS

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Duluth, Minnesota 55811
218-722-1227 Fax: 218-722-1052

DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT
DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

CONSULTANTS

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

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

Landscape Architects:
ARCHITECTURAL RESOURCES
126 East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

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 Landscape Architect under the laws of the State of Minnesota.

Print Name: JAMES M. SHOBERG

Signature:

Date: 05/15/13 Reg. No.: 45577

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: JMS
DRAWN BY: TTP
DESIGNED BY: JMS

AEP PROJECT NUMBER

213-1882-114

SHEET TITLE

DETAILS

SHEET NUMBER

L101

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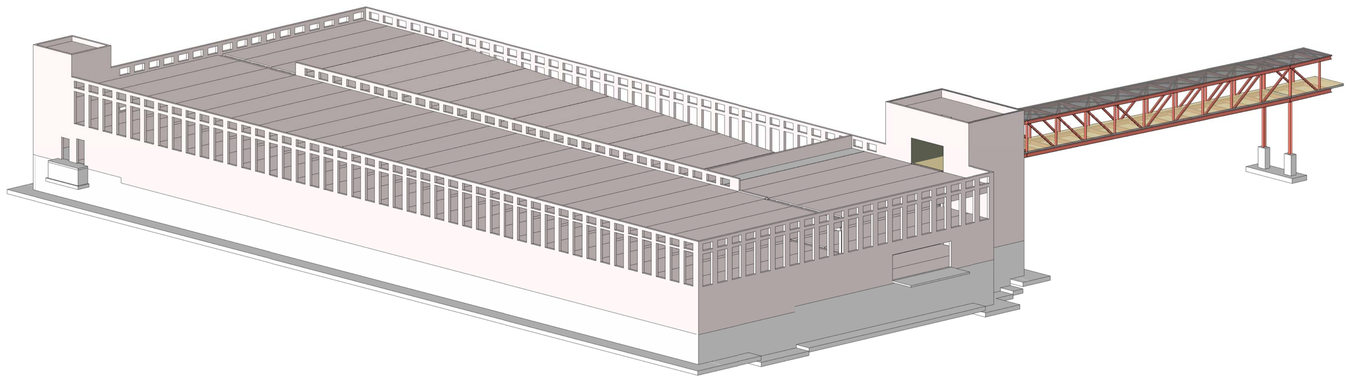

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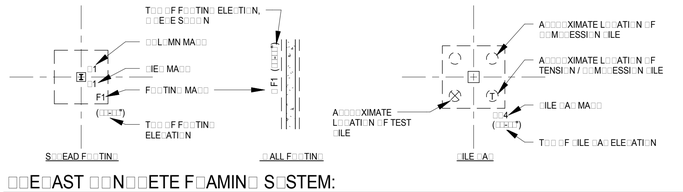

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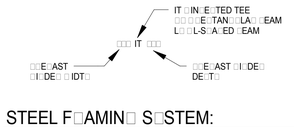

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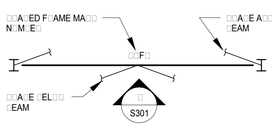

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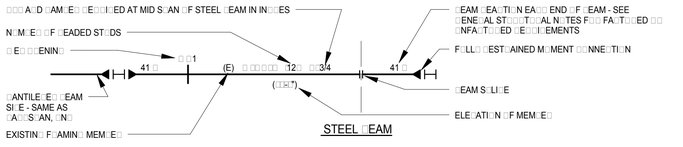

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4525 Airport Approach □d, Ste A
Duluth, Minnesota 55811
218-722-1227 FAX 218-722-1052
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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

CONSULTANTS

Interior Architects:
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Structural Engineers:
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501 La□e A□enue South, Suite 300, Duluth MN 55802
TEL: (218) 722-105□ / FAX: (218) 722-□30□

Landscape Architects:
ARCHITECTURAL RESOURCES
12□ East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

I here□□certi□□that this plan, speci□ication, or report □as prepared □□□□ e or under □□ direct super□ision and that I a□ a dul□ licensed □ro□essional Engineer under the la□s o□the State o□Minnesota□

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213-1882-114

SHEET TITLE
TITLE SHEET

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ISSUED FOR BID

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 where the project is located.

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

SPECIAL INSPECTION SCHEDULE:

SPECIAL INSPECTIONS REQUIRED OF STRUCTURAL ELEMENTS (REF. IBC 200□, 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.□ Curing techniques	□	■	□	□	
2.7 Prestressed concrete forces and grouting	□	□	■	□	
2.8 Erection of precast concrete members	□	■	□	□	
2.□ 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.□
5. Soils	□	■	□	□	1704.7
□. Pile Foundations	□	□	■	□	1704.8
7. Pier Foundations	□	□	■	□	1704.□
8. Wall Panel and Veneers	□	□	□	■	1704.10
□. 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.

DEFERRED SUBMITTALS:

The following items shall be issued as deferred submittals per IBC:
Precast Concrete
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

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

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 3□0-05 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 (all reinforcing and accessories shall be epoxy coated)	□0,000 psi	ATSM A□15 Grade □0
Weldable	□0,000 psi	ASTM A70□ Grade □0

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

Controlled Low Strength Material (CLSM)	1,200 psi Maximum 50 psi Minimum
Footings	4,000 psi
Concrete for Underpinning	3,000 psi
Piers, Walls, Slabs and Beams	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 A□□2
Angles, Channels, Plates, and Bars	3□,000 psi	ASTM A3□
Grade □ Rectangular HSS	4□,000 psi	ASTM A500
Grade □ Round HSS	42,000 psi	ASTM A500
Grade □ Steel Pipe	35,000 psi	ASTM A53

MATERIAL PROPERTIES (Cont):

Structural Fasteners:

Typical High-Strength Bolts	□2,000 psi	ASTM A325
High-Strength Bolts as noted on plan	150,000 psi	ASTM A4□0
Grade 3□ Anchor Rods, UNO	3□,000 psi	ASTM F1554
Threaded Rods	3□,000 psi	ASTM A3□
Anchor Rods, Grade 55 as noted on plan	55,000 psi	ASTM F1554
Anchor Rods Grade 105 as noted on plan	105,000 psi	ASTM F1554
Direct -Tension Indicator Washers as noted on plan		ASTM F□5□

Cold-Formed Light Gauge Metal Framing (Fy):

Studs, Joists, Braces-1□ ga and heavier	50,000 psi	ASTM A□53
Studs, Joists, Braces-18 ga and lighter	33,000 psi	ASTM A□53
Track, Channels and Accessories	33,000 psi	ASTM A□53

DESIGN LOADS:

LATERAL LOADS:

Primary Frame Wind Data:

Basic Wind Speed:	□0 mph
Wind Importance Factor:	1.0
Exposure:	□

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:	□0 psf
Flat-Roof Snow Load, Pf:	42 psf
Snow Exposure Factor, Ce:	1.0
Snow Load Importance Factor, I:	1.0
Unbalanced/Drift Snow Load:	Refer to plan, UNO

Stairs, Corridors and Lobbies:	100 psf
Stair Tread Concentrated Load:	300 lbs
Mechanical Rooms:	125 psf
Mechanical Room Hanging Loads:	40 psf

Supported Parking Loads:

Parking Deck, Covered (non-reducible):	40 psf
Parking Deck, Uncovered (non-reducible):	
Drive Lanes	42 psf
Parking Stall:	82 psf
Vehicle Impact at 18" AFF:	□000 lbs
Parking Concentrated Load:	2000 lbs

Exterior Site Surcharge Loads:

Fire Trucks:	250 psf
Sidewalk:	250 psf

FOUNDATIONS:

Refer to Geotechnical report number DL-12-023□0 prepared by Braun Intertec, dated □/28/2012.

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 □0" adjacent to heated areas, and 72" in unheated areas unless frost protection is provided by insulation.

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 minimum allowable soil bearing pressure of 4000 pounds per square foot. It shall be the owner's responsibility to retain a Geotechnical Engineer to verify that this value may be achieved at the bottom of footing elevation without damaging, differential settlement.

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.

All excavations shall be observed by a qualified Geotechnical Engineer to verify removal of all unsuitable material, and confirm the proper preparation of bearing conditions. Rock excavation for individual footings is not expected. Blasting is not permitted.

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 backfilled 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 MTI 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 □ 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.

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

Exterior concrete to have □□ +/- 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:	upper third of slab

Concrete covers are intended to meet the requirements of the IBC 2000 section 71□ prescriptive fire protection.

Footings and Caissons:	3" clear bottom and sides 2" clear top
Walls:	#5 and smaller 1 1/2" clear earth or weather face #□ and greater 2" clear earth or weather face 3/4" interior face
Columns and Beams:	1 1/2" clear to ties or stirrups
Joists:	1" clear top 3/4" clear bottom and sides
Slabs:	1" clear top 3/4" clear bottom carbonate aggregate 1" clear bottom siliceous aggregate

PRECAST CONCRETE - STRUCTURAL:

Comply with MNL-11□ and /or MNL-117 of the Precast Concrete Institute, ACI- 318, and Recommendations for Concrete Members Prestressed with Unbonded Tendons by ACI-ASCE Joint Committee 423.

Precast, prestressed members shall be design for in place loads, including superimposed loads shown on the drawings.

Prestressing strands shall conform to the ASTM - A41□, Standard Specification for Steel Strand, Uncoated Seven-Wire for Prestressed Concrete (including supplements) Grade 250K or 270K.

Precast manufacturer is to design, provide calculations, and furnish steel headers for openings as necessary or as shown on the drawings. Refer to the architectural drawings for fire protection requirements for the steel headers.

The welders for steel connections in precast shall be certified in accordance with AWS D1.1.

Refer to Architectural drawings for fire rating requirements. All members, planks and beams, shall be designed for unrestrained conditions.

Provide dovetail masonry anchor slots in precast, prestressed concrete members when used as back-up for masonry veneer. Refer to Architectural drawings.

The precast manufacturer shall submit for review certified shop drawings and design calculations prepared by a qualified Professional Engineer who is registered in the state where the project occurs.

Precast elements used as a diaphragm system shall be designed to resist all lateral forces as noted on the documents. The precast manufacturer shall be responsible for the complete design of the precast components and all connections necessary to provide a fully functional diaphragm.

Precast wall elements used as part of the lateral load resisting system shall be designed to resist all diaphragm reactions. The precast manufacturer shall be responsible for the complete design of the elements and all connections necessary to support in plane and out of plane forces.

Wall panels and connections to roof and floor structure shall be designed for lateral loads required by the referenced building code as well as the loads shown on plan. Where no load is shown parallel to the wall panels, design for a minimum in-plane load of 50 plf over the entire wall length. Anchorage of each wall panel to the structure at each level shall include a minimum design load of 200 pounds per linear foot perpendicular to the plane of the wall. (REFER ACI 1□.5.1.2)

CONCRETE SLABS ON GRADE:

The control or construction joints shall be placed as shown on the drawings. The joints shall be spaced at 12'-0" on center each direction.

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 □ 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 1□" 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 □" 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 □'-0" of a control joint.

Provide bond beam with reinforcing at all floor lines, mid-height between 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 (BLOCK-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 back up 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 B□33.

Threaded anchor rod for adhesive anchors in concrete shall be ASTM A1□3, Grade B7, or ASTM A3□, 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, I□, and □, Grade 3, Classes □ and □ 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 ICC□ Report.

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

Anchors in concrete or concrete masonry when exposed to earth, weather, or corrosive environment shall be manufactured from AISI 304/31□ 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 where the project is located.

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 where the project is located.

All beam 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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Landscape Architects:
ARCHITECTURAL RESOURCES
12□ East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

I hereby certify that this plan, specification, 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 Minnesota.

Print Name: Paul A. Johnson

Signature: Paul A. Johnson

Date: 05-15-13 Reg. No.: 2037□

REVISIONS

NO.	DESCRIPTION	DATE

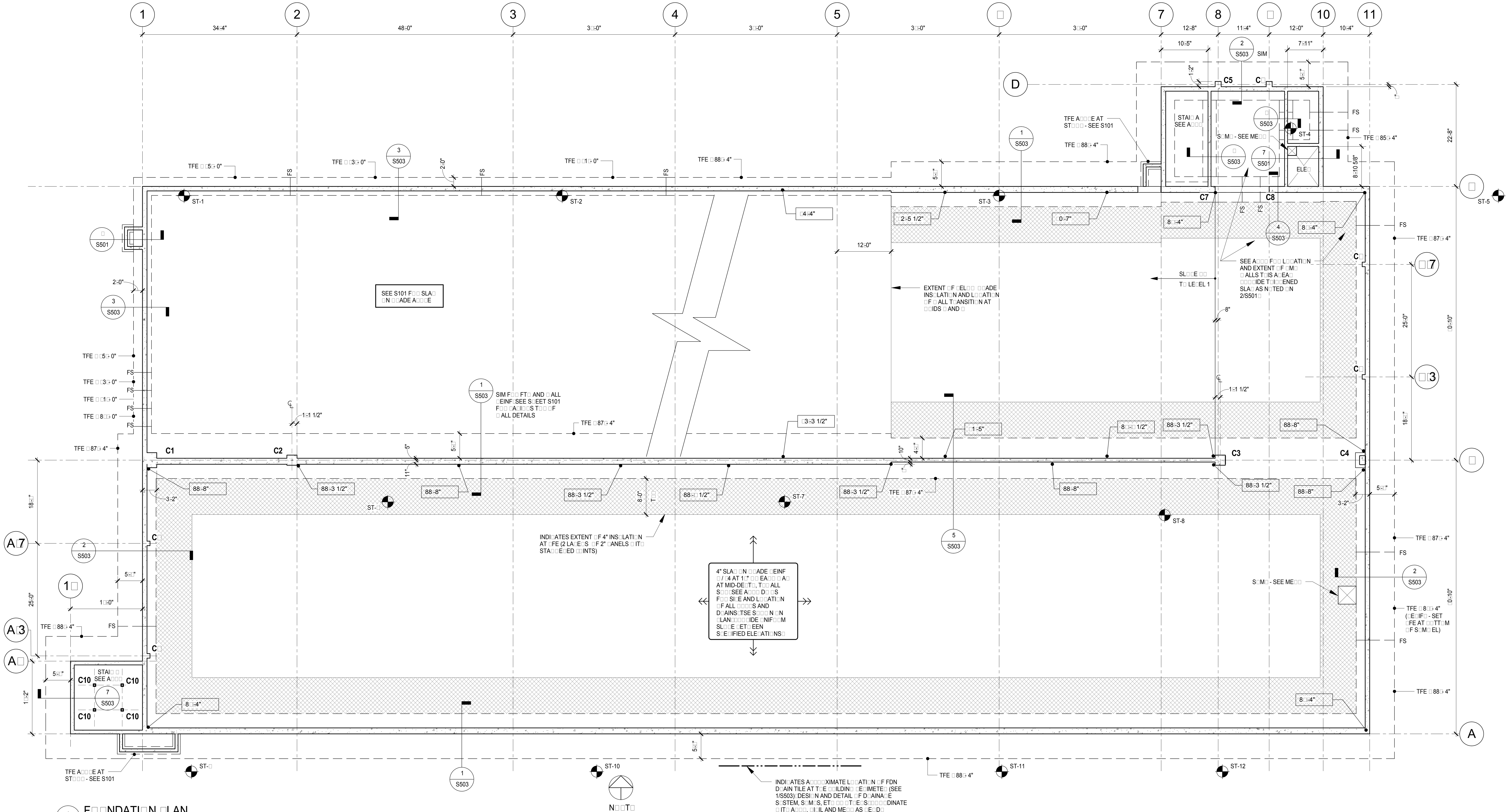
DATE ISSUED:	05/15/2013
REVIEWED BY:	□A□
DRAWN BY:	S□L
DESIGNED BY:	MDN / □A□

AE PROJECT NUMBER
213-1882-114

SHEET TITLE
GENERAL STRUCTURAL NOTES

SHEET NUMBER
S002

ISSUED FOR BID



1 FOUNDATION PLAN

3/32" = 1'-0"

PLAN NOTES (UNLESS NOTED OTHERWISE):

1. SEE SHEET S001 FOR TYPICAL ABBREVIATIONS AND LEGENDS.
2. SEE SHEET S002 FOR GENERAL STRUCTURAL NOTES.
3. DATUM ELEVATION 13[illegible]8.1 = 100'-0". SEE CIVIL, ARCHITECTURAL DRAWINGS.
4. SEE PLAN FOR TOP OF FOOTING ELEVATION (TFE), NOTED THUS: TFE 88'-4".
5. SEE PLAN FOR TOP OF SLAB ELEVATION (TSE) AND TOP OF P/C DOUBLE TEE OR P/C PLANK ELEVATION, NOTED THUS: 100'-0"
6. SEE SHEET S401 FOR COLUMN SCHEDULE, REINFORCING STEEL LAP SCHEDULES, CMU REINFORCING SCHEDULE, STEEL BEAM CONNECTION SCHEDULE, ETC.
7. VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS AND SLOPE WITH ARCHITECTURAL. SEE ARCHITECTURAL FOR SIZE, LOCATION AND EXTENT OF ALL DEPRESSIONS.
8. FD ON PLAN INDICATES APPROXIMATE LOCATION OF FLOOR DRAIN. VERIFY WITH ARCHITECTURAL AND MECHANICAL.
9. ST-1 ON PLAN INDICATES APPROXIMATE LOCATION OF SOIL BORING. SEE PROJECT GEOTECHNICAL REPORT AND GENERAL STRUCTURAL NOTES.
10. SEE SHEET S501 FOR TYPICAL DETAILS NOT CUT ON PLAN INCLUDING TYPICAL FOOTING STEP, TYPICAL SLAB ON GRADE CONTROL/CONSTRUCTION JOINTS, TYPICAL WALL CONTROL/CONSTRUCTION JOINTS, UTILITY PENETRATIONS, ETC.
11. VERIFY AND COORDINATE LOCATION, QUANTITY AND ELEVATION OF ALL UTILITIES, SUMPS, DRAINS, ETC. WITH CIVIL, MECHANICAL, ELECTRICAL AND ARCHITECTURAL DRAWINGS. THE APPROXIMATE LOCATION OF UTILITY PENETRATIONS THROUGH FOUNDATIONS SHOWN ON STRUCTURAL DRAWINGS IS FOR CONVENIENCE ONLY AND MAY NOT BE COMPLETE.
12. SHORING OF FOUNDATIONS AT THE EXISTING AIRPORT TERMINAL ARE SHOWN ON S104.
13. ALL REINFORCING STEEL EXCEPT THAT CONTAINED ENTIRELY WITHIN FOOTINGS AND PLACED NORTH OF GRID ? SHALL BE EPOXY COATED.

INDICATES APPROXIMATE LOCATION OF FDN DRAIN TILE AT THE BUILDING PERIMETER (SEE 1/S503). DESIGN AND DETAIL OF DRAINAGE SYSTEM, SUMPS, ETC. BY OTHERS. COORDINATE WITH ARCH., CIVIL AND MECH AS REQ'D.

TFE ABOVE AT STOOP - SEE S101

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I hereby certify that this plan, specification, 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 Minnesota.

Print Name: Paul A. Johnson

Signature:

Date: 05-15-13 Reg. No. 2037?

REVISIONS

NO	DESCRIPTION	DATE

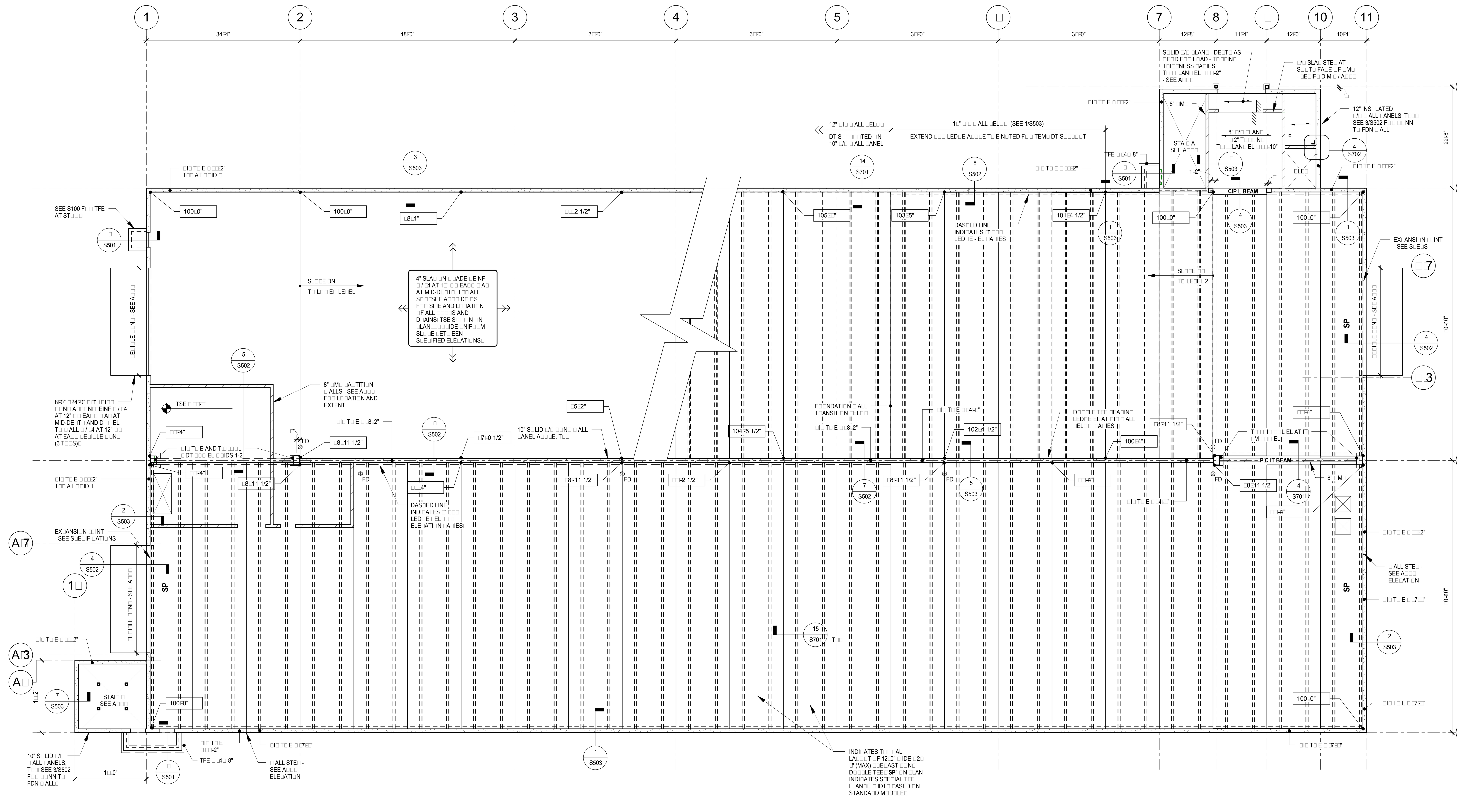
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AE PROJECT NUMBER
213-1882-114

SHEET TITLE
FOUNDATION PLAN

SHEET NUMBER
S100

ISSUED FOR BID



1 FI□ST LE□EL F□AMIN□ □LAN

3/32" □1'-0"

□LAN N□TES:

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3□ SEE S101A, S102A, S103A F□□ L□AD MA□S S□□□ IN□ □□A□IT□ AND LATE□AL DESI□N L□ADS F□□ □/□ ELEMENTS AND S□STEMS□

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□rint Na□e: □aul A□□ohnson

Signature: Paul A Johnson

Date: 05-15-13 □eg□No□ 2037□

□E□ISI□NS

N□	DES□□I□TI□N	DATE

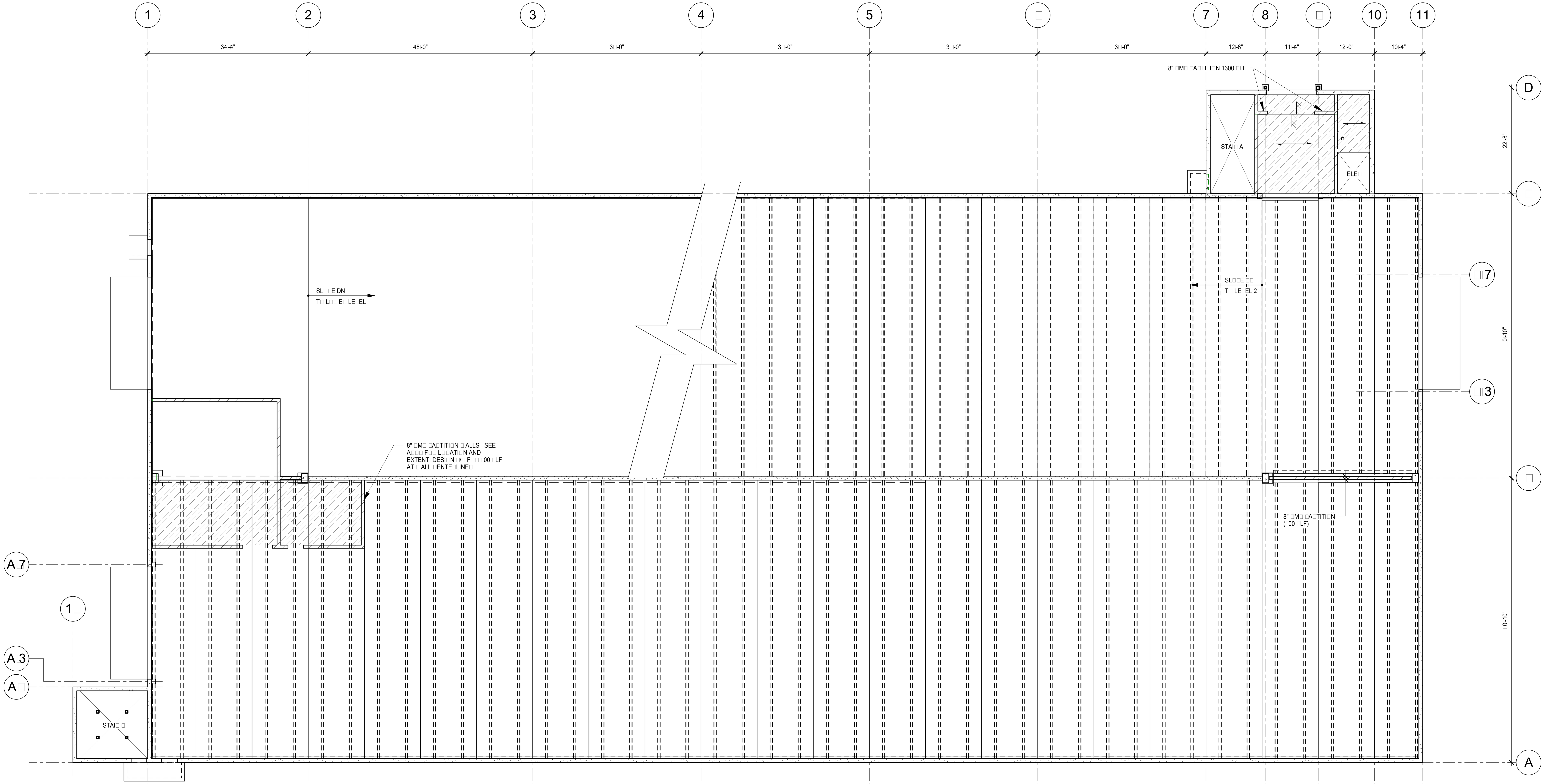
DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

AE□ □□□□E□T N□M□E□
213-1882-114

SHEET TITLE
FIRST LEVEL FRAMING PLAN

SHEET NUMBER
S101

ISSUED FOR BID



1 FI□ST LE□EL - L□AD MA□
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N□TES:

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	82	10
	40	10
	100	30

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□rint Na□e: □aul A□□ohnson

Signature: [signature]

Date: 05-15-13 □eg□No□ 2037□

□E□ISI□NS

N□□	DES□□I□TI□N	DATE

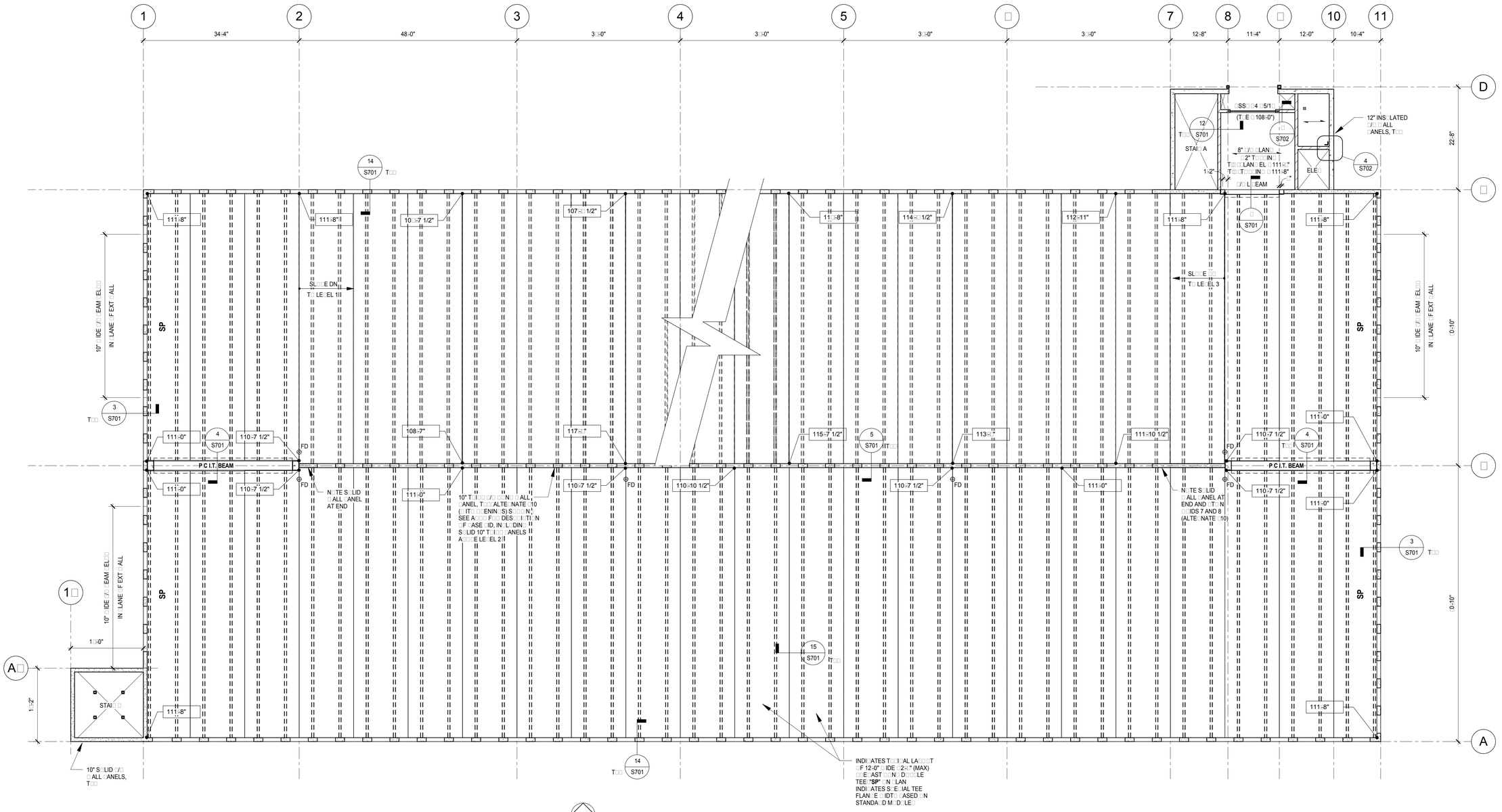
DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

AE□ □□□□E□T N□M□E□
213-1882-114

SHEET TITLE
FIRST LEVEL LOAD MAP

SHEET NUMBER
S101A

ISSUED FOR BID



1 SECOND LEVEL FRAMING PLAN

3/32" = 1'-0"

PLAN NOTES:

1. SEE SHEET S100 FOR TYPICAL PLAN NOTES.
2. SEE S101A, S102A, S103A FOR LOAD MASS SCHEDULE IN ADDITION AND LATERAL DESIGN LOADS FOR @ ELEMENTS AND SYSTEMS.

NOTE

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I hereby certify that this plan, specification, 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 Minnesota.

Print Name: Paul A Johnson

Signature: Paul A Johnson

Date: 05-15-13 Reg. No. 20370

REVISIONS

NO.	DESCRIPTION	DATE

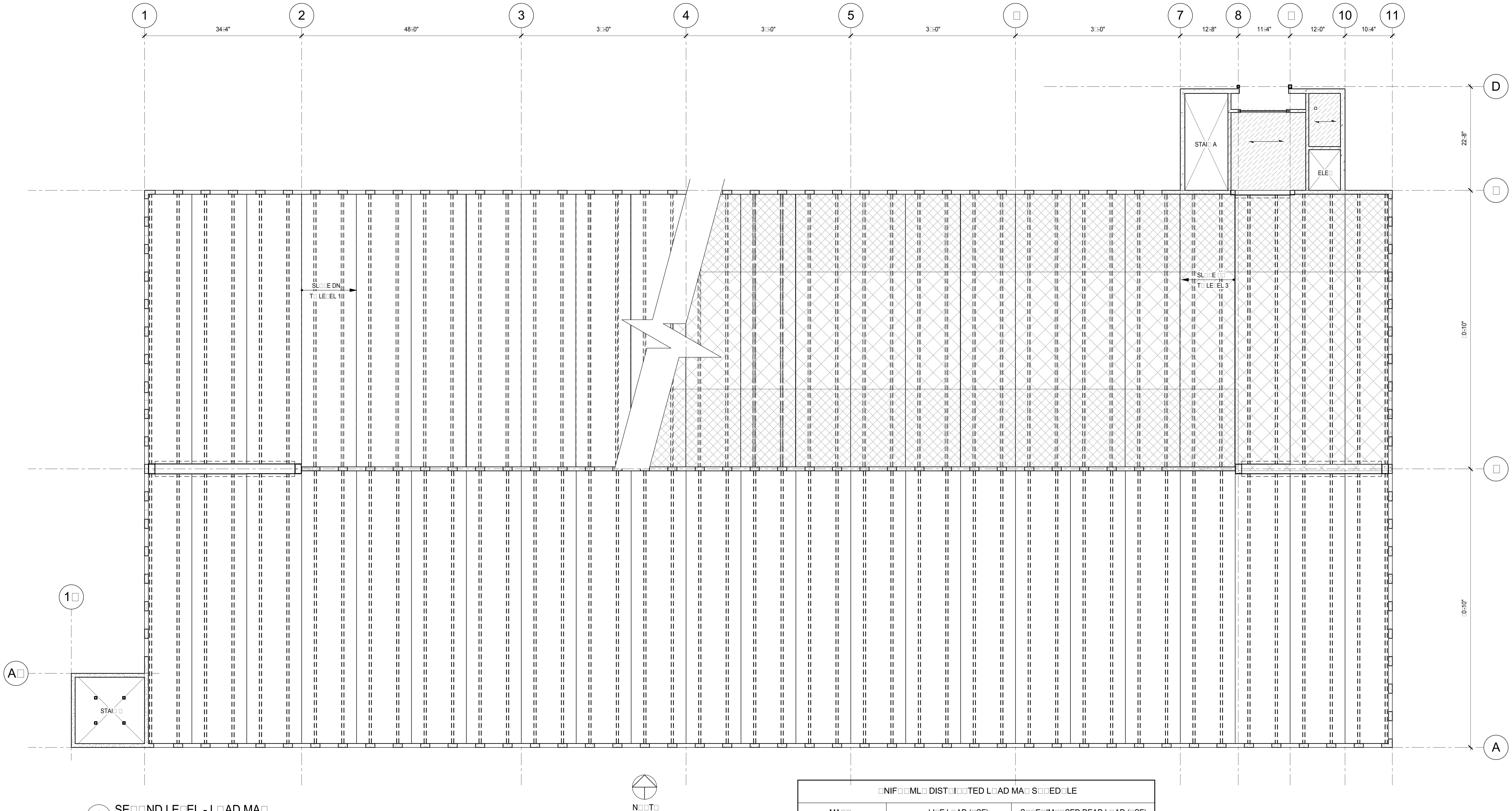
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SAL
DESIGNED BY: MDN / PAJ

AE PROJECT NUMBER
213-1882-114

SHEET TITLE
SECOND LEVEL FRAMING PLAN

SHEET NUMBER
S102

ISSUED FOR BID



1 SE□□ND LE□EL - L□AD MA□

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N□TES:

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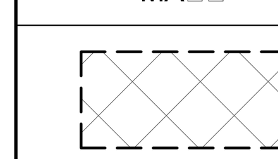
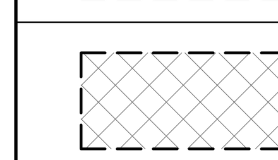
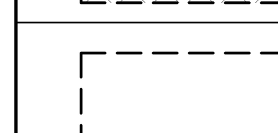
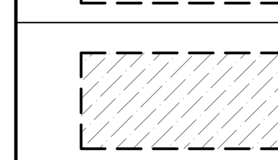
	42	10
	82	10
	40	10
	100	30

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□rint Na□e: □aul A□□ohnson

Signature: [signature]

Date: 05-15-13 □eg□No□: 2037□

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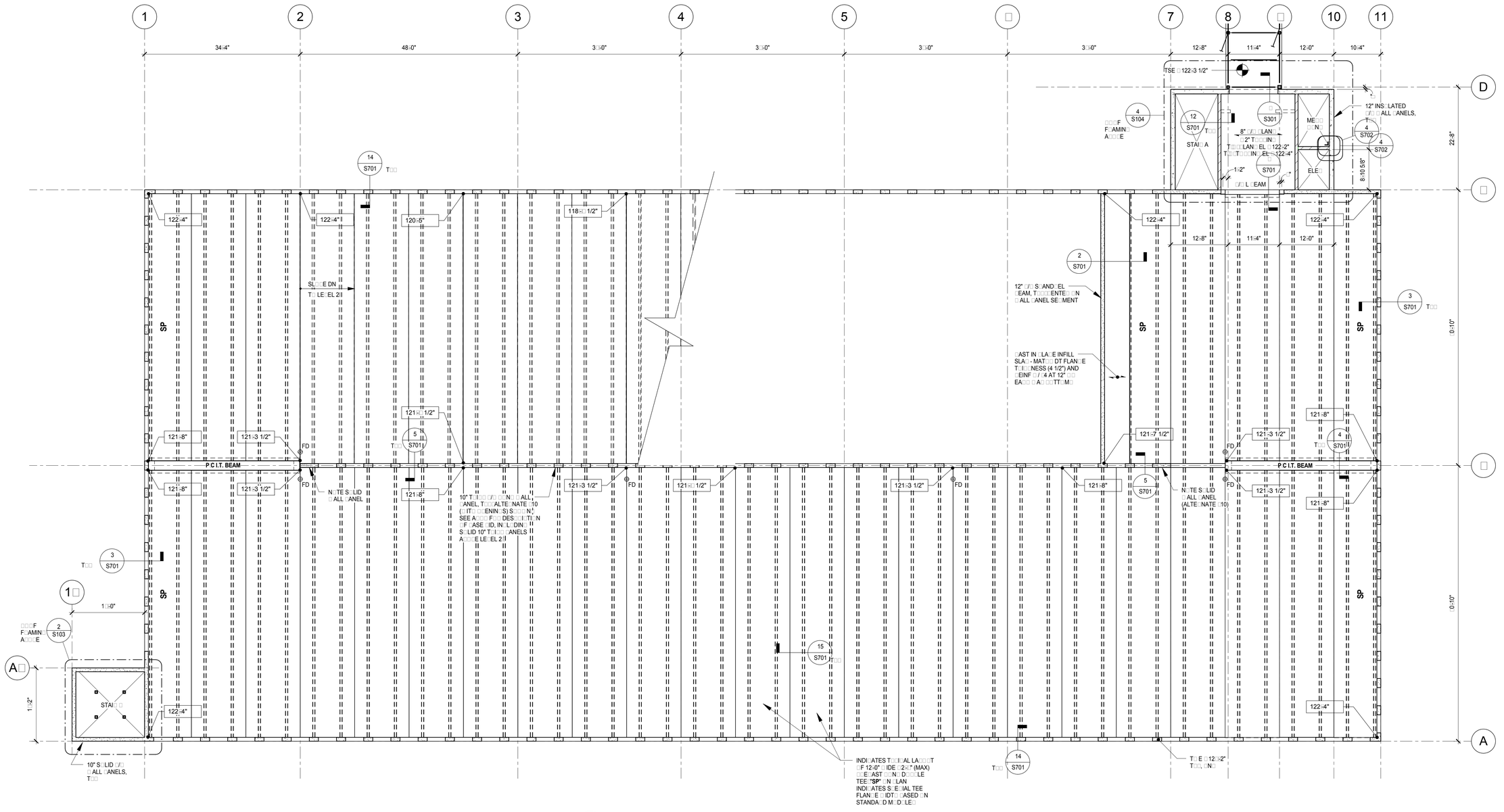
DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

AE□ □□□□E□T N□M□E□
213-1882-114

SHEET TITLE
SECOND LEVEL LOAD MAP

SHEET NUMBER
S102A

ISSUED FOR BID



1 T□I□D LE□EL F□AMIN□ □LAN

3/32" □1'-0"

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□LAN N□TES:

1□ SEE S□EET S100 F□□ T□□I□AL □LAN N□TES□

2□ SEE S101A, S102A, S103A F□□ L□AD MA□S S□□□ IN□ □□A□IT□ AND LATE□AL DESI□N L□ADS F□□ □/□ ELEMENTS AND S□STEMS□

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3/32" □1'-0"

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□rint Na□e: □aul A□ohnson

Signature: Paul A Johnson

Date: 05-15-13 □eg□No□ 2037□

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DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

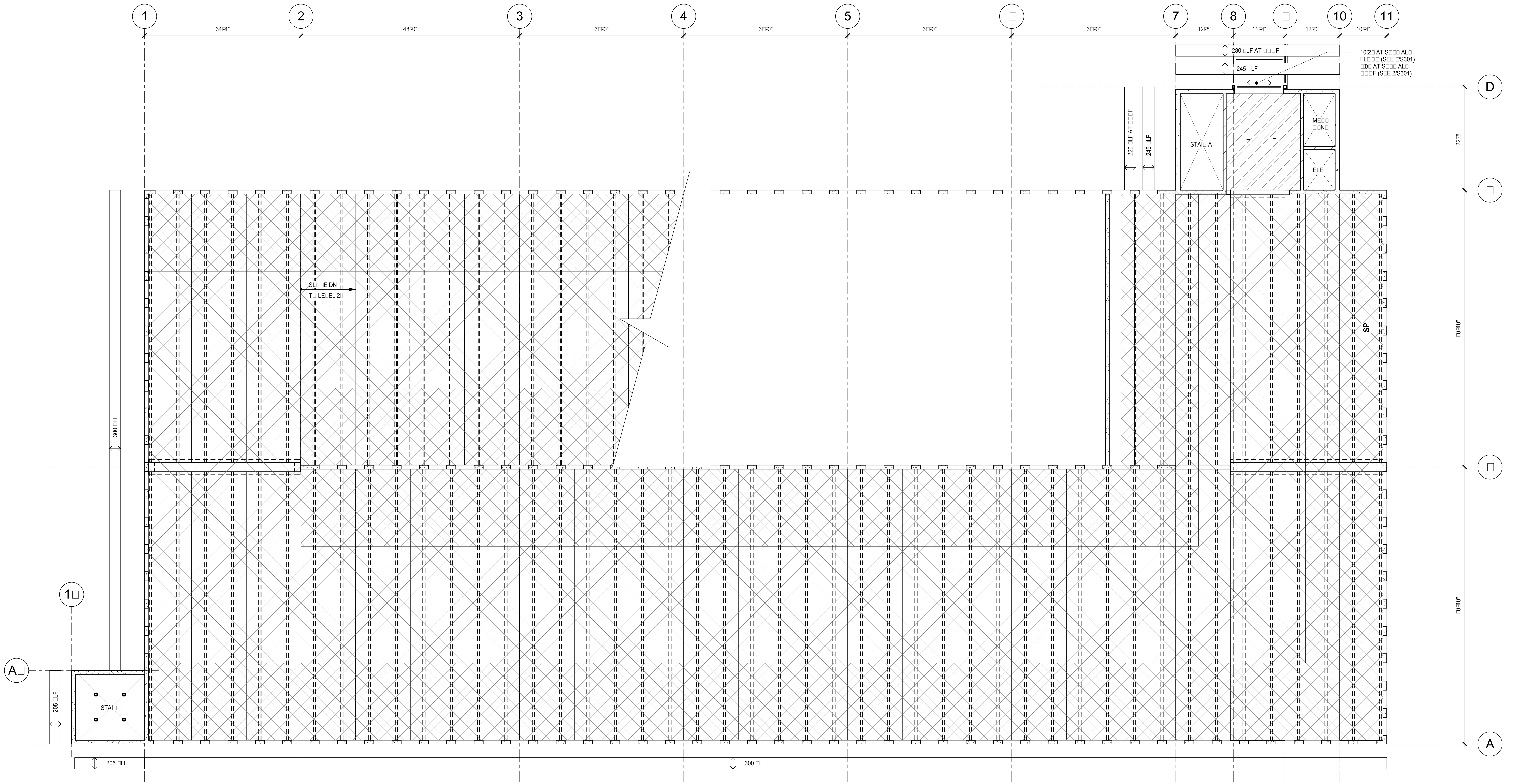
AE□ □□□□E□T N□M□E□

213-1882-114

SHEET TITLE
THIRD LEVEL FRAMING PLAN

SHEET NUMBER
S103

ISSUED FOR BID



1 T□I□D LE□EL - L□AD MA□
3/32" □ 1□0"

N□TES:
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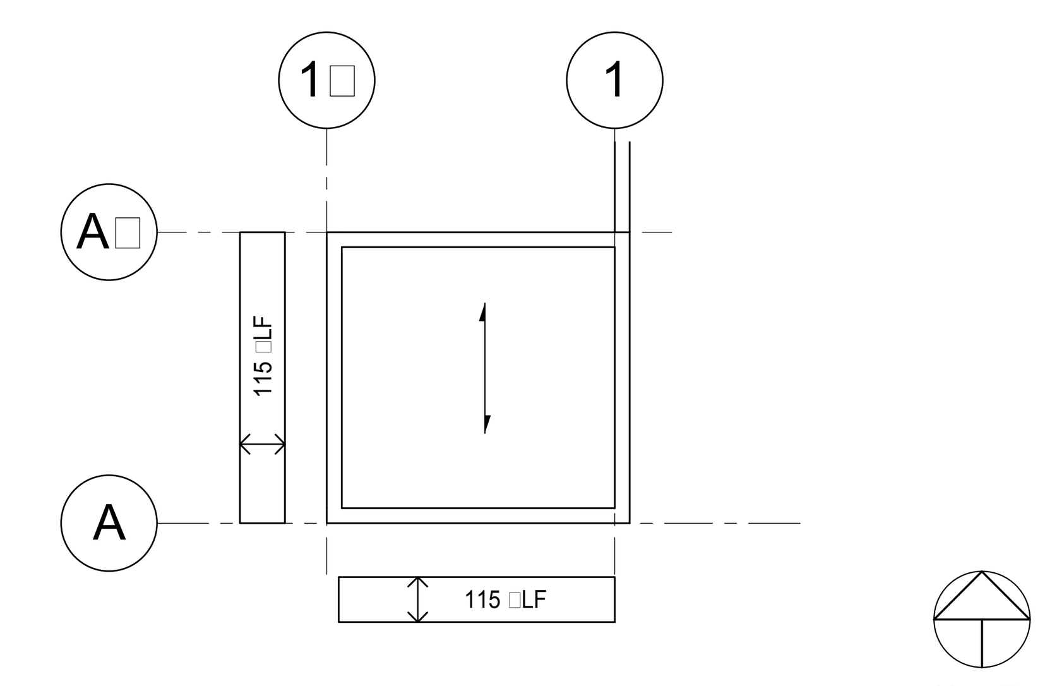

2 STAI□ □ □□□F L□AD MA□
3/32" □ 1□0"

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□rint Na□e: □aul A□□ohnson

Signature:

Date: 05-15-13 □eg□No□ 2037□

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N□	DES□□I□TI□N	DATE

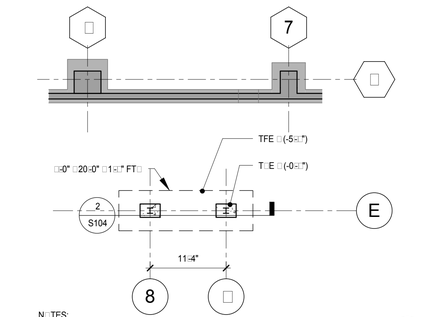
DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

AE□ □□□□E□T N□M□E□
213-1882-114

SHEET TITLE
THIRD LEVEL LOAD MAP

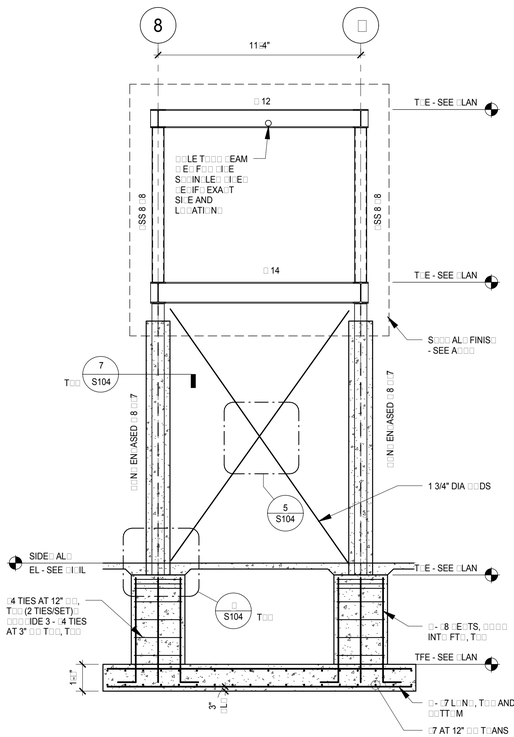
SHEET NUMBER
S103A

ISSUED FOR BID



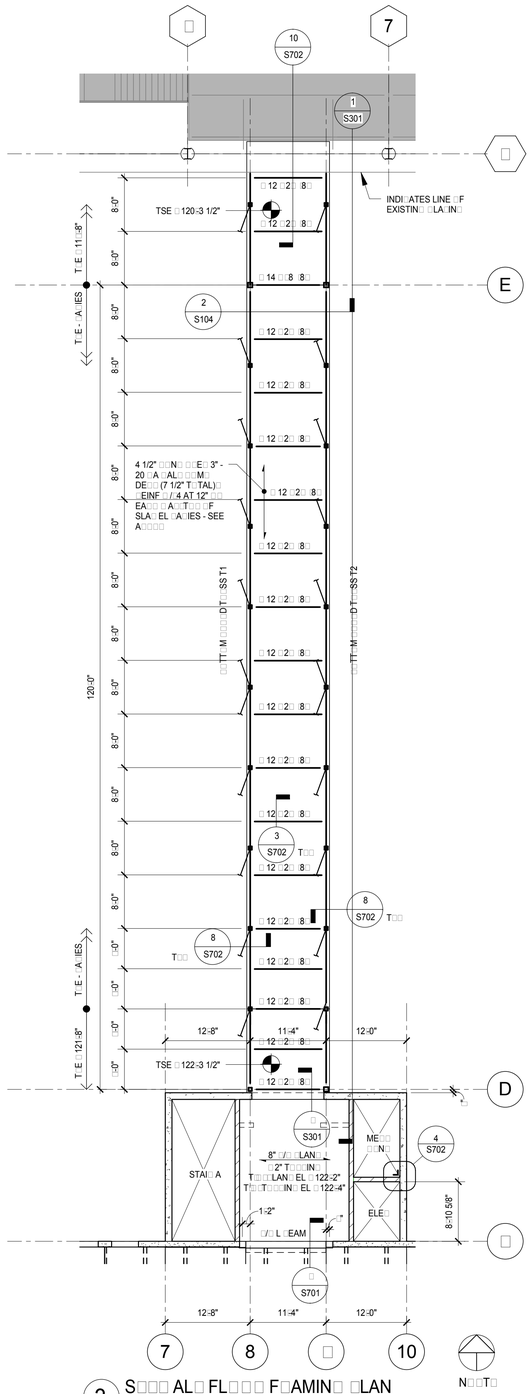
1 S□□□ AL□ F□□NDATI□N □LAN

3/32" □1□-0"



2 S□□□ AL□ □□A□E F□AME ELE□ATI□N

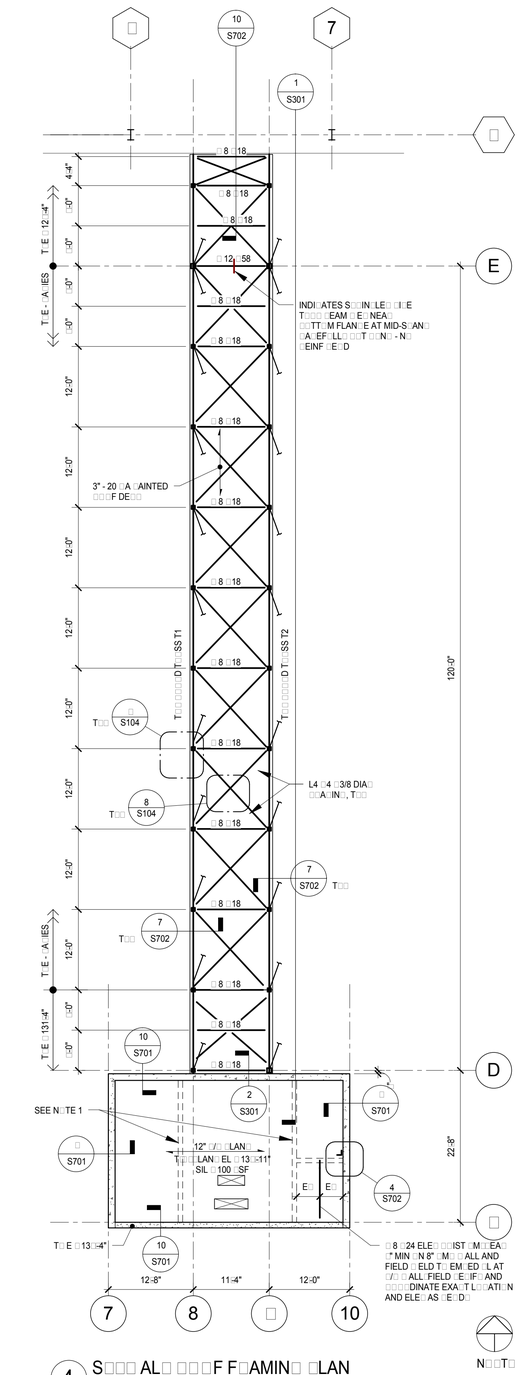
1/4" □1□-0"



3 S□□□ AL□ FL□□□ F□AMIN□ □LAN

3/32" □1□-0"

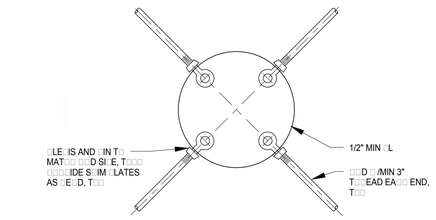
N□TES:
1□SEE S□EET S103 F□□ F□AMIN□ S□MB□L□ □F □□ID AND T□□□AL N□TES□
2□T□□□ □F STEEL ELE□ATI□N □A□IES□SEE 1/S301 F□□ T□□SS ELE□ATI□N AND DETAILS□
3□8 □E□N □LAN INDI□ATES □□ANTIT□□ F 3/4" DIAMETE□ □5" L□N□ (AFTE□ □ ELDIN□) □EADED ST□DS□ SEE 3/S702 AND □ENE□AL ST□□□T□□AL N□TES□



4 S□□□ AL□ □□□F F□AMIN□ □LAN

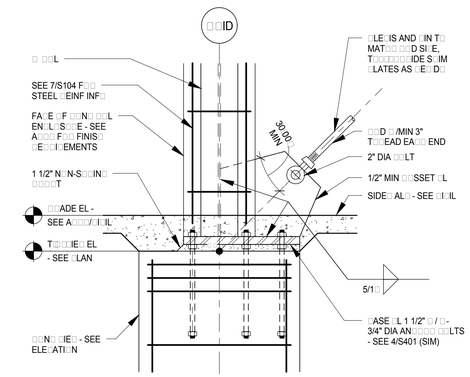
3/32" □1□-0"

N□TES:
1□ 8" □M□T□IS □LAN A□E N□N-□EA□IN□ SEE □/S702 (SIM) F□□ □□NNE□TI□N T□ □NDE□SIDE □F 12" □LAN□□
2□ SEE 11/S701 F□□ □□ENIN□ DETAIL T□□□□□□ □LAN□□



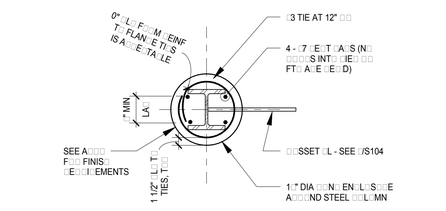
5 SE□TI□N AT □□A□IN□ INTE□SE□TI□N

3/4" □1-0"



SE□TI□N AT □□L□MN □ASE

3/4" □1-0"



N□TES:
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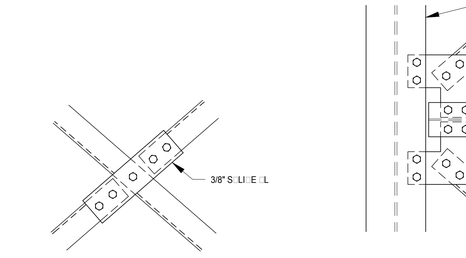
7 □□N□□ETE EN□ASED □ IDE FLAN□E □□L□MN

3/4" □1□-0"



8 T□□I□AL □□A□E □□NNE□TI□N

1" □1-0"

T□□I□AL □□A□E □□NNE□TI□N

1" □1-0"

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□rint Na□e: □aul A□ohnson

Signature: Paul A Johnson

Date: 05-15-13 □eg□No□ 2037□

□E□ISI□NS

N□□	DES□□□□TI□N	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

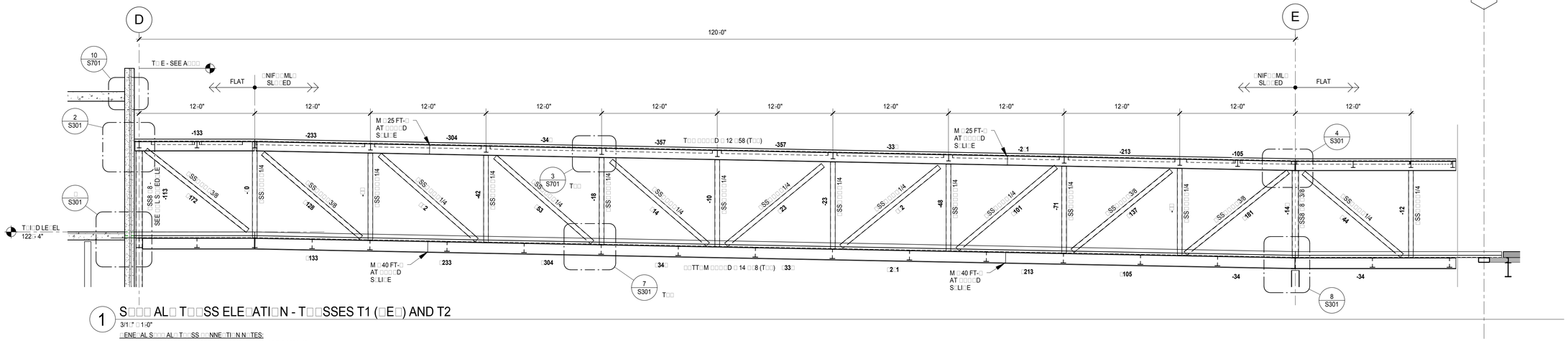
AE□ □□□E□T N□M□E□

213-1882-114

SHEET TITLE
SKYWALK FLOOR AND ROOF FRAMING PLANS

SHEET NUMBER
S104

ISSUED FOR BID



1 S□□□ AL□ T□□SS ELE□ATI□N - T□□SSES T1 (□E□) AND T2

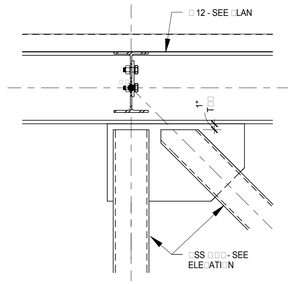
3/1□" □1-0"

□ENE□AL S□□□AL□ T□□SS □□NNE□TI□N N□TES:

1. □ ALL □LATE MATE□IAL □SED IN □□NNE□TI□NS: ASTM A572-50□
2. □ ALL AN□LE MATE□IAL □SED IN □□NNE□TI□NS: ASTM A-3□□
3. □ MINIM□M □□ELD □5/1□" FILLET, E 0□□ ELDIN□ ELE□□□DES□
4. □ □□NNE□TI□NS S□□□ N A□E □□N□E□T□AL LEN□T□ □F □ELDS AND SI□E □F □LATES □□ILL □A□□ AS □E□□□LED F□□ DESI□N F□□□ES INDI□ATED□
5. □ T□□SS □E□ MEM□E□ □□NNE□TI□NS S□ALL □E DESI□NED F□□ A MINIM□M 50□□ □F T□E MEM□E□ □□□SS TENSI□N □□A□A□IT□□
6. □□ MEM□E□ F□□ □ES INDI□ATED IN □I□S □□ A□E □□□□IN□ (□NFA□T□□ED)□□□M□ESSI□N F□□□ES N□TED (-), TENSI□N F□□□ES N□TED (□)□
7. □ □□□□IDE 1 1/2" (0, -1/4") □AM□E□ AT MID□□INT □F 120-0" S□AN□
8. □ □□NT□A□T□□□ T□ S□□MIT □□□□□SED □□□□D S□LI□E L□□ATI□N AND DETAILS F□□ □E□IE□ □SEE T□□ SS ELE□ATI□N F□□□ □E□□MMENDED S□LI□E L□□ATI□NS□

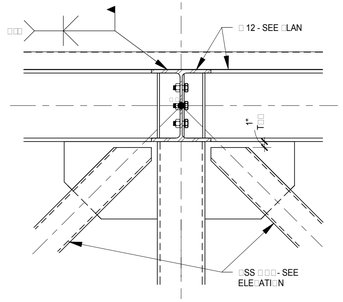
2 SE□TI□N

1" □1-0"



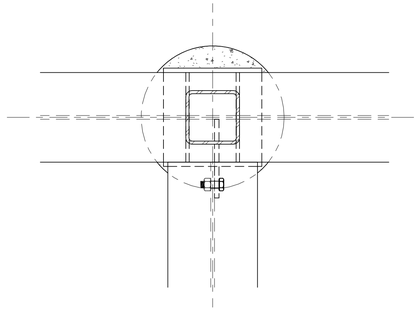
3 T□□I□AL DETAIL

1" □1-0"



4 DETAIL

1" □1-0"



5 □LAN DETAIL

1 1/2" □1-0"

□ SE□TI□N

1" □1-0"

7 T□□I□AL DETAIL

1" □1-0"

8 DETAIL

1" □1-0"

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□rint Na□□e: □aul A□ohnson

Signature:

Date: 05-15-13 □eg□No□ 2037□

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DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

AE□ □□□□E□T N□M□E□

213-1882-114

SHEET TITLE
TRUSS ELEVATION AND DETAILS

SHEET NUMBER
S301

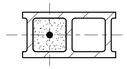
ISSUED FOR BID

CONCRETE REINFORCING BAR LAP SPLICE SCHEDULE								
BAR SIZE	f'c = 3,000 PSI		f'c = 4,000 PSI		f'c = 5,000 PSI		f'c ≥ 6,000 PSI	
	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B	CLASS A	CLASS B
#3	18"	22"	16"	20"	14"	18"	12"	16"
#4	22"	30"	20"	26"	18"	22"	16"	20"
#5	28"	36"	24"	32"	22"	28"	20"	26"
#6	34"	44"	30"	38"	26"	34"	24"	32"
#7	48"	64"	42"	54"	38"	50"	34"	44"
#8	56"	72"	48"	62"	44"	56"	40"	52"
#9	62"	82"	54"	70"	48"	64"	44"	58"
#10	70"	92"	62"	80"	54"	70"	50"	64"
#11	78"	102"	68"	88"	60"	78"	56"	72"

NOTES:
1. REINFORCING BAR LAP SPLICE SCHEDULE APPLIES TO UNCOATED, GRADE 60 REINFORCING BARS IN NORMAL WEIGHT CONCRETE.
2. PROVIDE CLASS A LAP UNLESS NOTED OTHERWISE.
3. FOR EPOXY COATED BAR, MULTIPLY THE ABOVE LENGTHS BY 1.5.
4. FOR LIGHT WEIGHT CONCRETE, MULTIPLY THE ABOVE LENGTHS BY 1.3.
5. MAXIMUM SPACING OF BARS BEING LAPPED IS ONE FIFTH THE LAP SPLICE LENGTH, NOT TO EXCEED 6".

1 REINFORCING BAR LAP SPLICE SCHEDULE
NO SCALE

CMU REINFORCING BAR LAP SPLICE SCHEDULE: f'm = 2000 PSI		
BAR SIZE	6" CMU	8" CMU
#3	14"	14"
#4	21"	18"
#5	32"	22"
#6	-	38"
#7	-	52"
#8	-	-



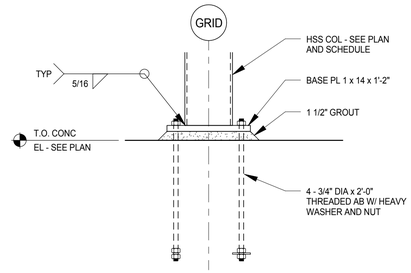
NOTES:
1. REINFORCING BAR DEVELOPMENT LENGTH SCHEDULE APPLIES TO UNCOATED, GRADE 60 REINFORCING BARS IN ASTM C 90 HOLLOW UNITS.
2. FOR EPOXY COATED BAR, MULTIPLY THE ABOVE LENGTHS BY 1.5.
3. MAXIMUM SPACING OF BARS BEING LAPPED IS ONE FIFTH THE LAP SPLICE LENGTH, NOT TO EXCEED 8".
4. REINFORCING BARS SHALL BE LAPPED IN THE SAME CMU CELL.
5. ALL BARS MUST BE PLACED IN FULLY GROUTED CELLS OR BOND BEAMS.

2 CMU REINFORCING BAR LAP SPLICE SCHEDULE
NO SCALE

BEAM SHEAR CONNECTION SCHEDULE			
BEAM SIZE	MINIMUM ROWS OF BOLTS	MINIMUM DESIGN [SERVICE CAPACITY] (KIPS)	COMMENTS
W8	2	8	
W10	2	8	
W12	3	16	
W14	3	16	
W16	3	26	
W18	4	26	

NOTES:
1. CONTRACTOR/FABRICATOR SHALL DESIGN CONNECTIONS FOR THIS PROJECT. CONNECTION TYPES SHALL CONFORM TO AISC STANDARD SHEAR CONNECTIONS.
2. BEAM SHEAR REACTIONS SHOWN ON PLAN TAKE PRECEDENCE OVER THE SHEAR REACTIONS AND BOLT REQUIREMENTS SHOWN IN THIS SCHEDULE.
3. ALL BOLTS SHALL BE 3/4" DIA A325-N (MINIMUM) UNLESS NOTED OTHERWISE ON DRAWINGS.
4. SHOP CONNECTIONS MAY BE WELDED OR BOLTED.

3 TYPICAL BEAM SHEAR CONNECTION SCHEDULE
NO SCALE

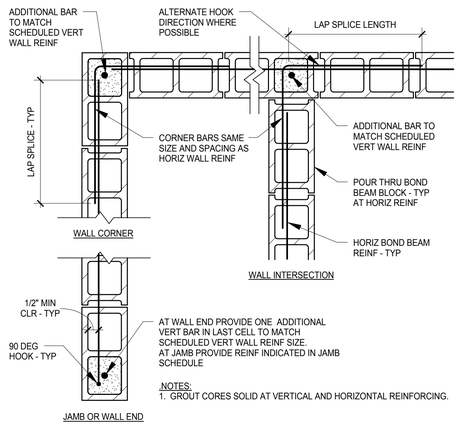


4 BASE PLATE DETAIL
1" = 1'-0"

5 COLUMN SCHEDULE
NO SCALE

CAST IN PLACE AND PRECAST COLUMN SCHEDULE								
COLUMN MARK	C1	C2	C3	C4	C5, C6	C7, C8	C9	C10
NEAREST COLUMN GRID	B-1	B-2	B-8	B-11	D-8, D-11	C-8, C-11	A.3-1, A.7-1, B.3-11, B.7-11	4 THUS AT SW STAIR TOWER
LEVEL 3								
LEVEL 2	16 x 24 P/C W/ HAUNCHES (IT BEAM AND DT)	16 x 24 P/C W/ HAUNCH (IT BEAM ONLY)	16 x 24 P/C W/ HAUNCH (IT BEAM ONLY)	16 x 24 P/C W/ HAUNCHES (IT BEAM AND DT)	HSS 8 x 8 x 3/8	16 x 16 P/C W/ HAUNCHES	COORD T.O. COL W/ STAIR FRAMING	HSS 6 x 6 x 1/4
LEVEL 1	2 S502 TYP				4 S401		4 S502	4 S401 SIM
TFE	38 x 40 CIP COL	27 x 27 CIP COL	27 x 27 CIP COL	38 x 40 CIP COL	16 x 26 CIP COL	16 x 16 CIP COL WITHIN 16" CIP WALL	20 x 12 CIP COL WITHIN 12" CIP WALL	
CIP COLUMN DETAIL								
	8 - #9 VERT #4 TIES AT 12" OC 3 TIES/SET	8 - #9 VERT #4 TIES AT 12" OC 3 TIES/SET	8 - #9 VERT #4 TIES AT 12" OC 3 TIES/SET	8 - #9 VERT #4 TIES AT 12" OC 3 TIES/SET	4 - #9 VERT #4 TIES AT 12" OC	4 - #6 VERT #4 TIES AT 12" OC	6 - #6 VERT #4 TIES AT 12" OC	
DOWELS TO FOUNDATION	8 - #7 W/ HOOK	8 - #7 W/ HOOK	8 - #7 W/ HOOK	8 - #7 W/ HOOK	4 - #7 W/ HOOK	4 - #5 W/ HOOK	6 - #5 W/ HOOK	
REMARKS	TIES MAY BE FABRICATED AND PLACED FOR 38 x 38 COL			TIES MAY BE FABRICATED AND PLACED FOR 38 x 38 COL			EXTEND WALL REINF CONT THRU COL	BASE PL 3/4 x 12 x 1'-0" W/ 4 - 3/4" DIA AB

NOTES:
1. REFER TO PLAN FOR TOP OF FOOTING ELEVATION AND TOP OF COLUMN ELEVATIONS.
2. REFER TO GENERAL NOTES FOR CONCRETE STRENGTH AND CONCRETE COVER INFORMATION.
3. PRECAST COLUMN BASE PL AND ANCHOR BOLT DESIGN BY P/C SUPPLIER, TYPICAL.
4. REFER TO PLAN AND DETAILS FOR BEAM BEARING ELEVATIONS AND ORIENTATION OF HAUNCHES.
5. ALL CAST IN PLACE COLUMNS BELOW LEVEL 1 SHALL BE INTEGRAL WITH ADJACENT FOUNDATION WALLS.
6. CONCRETE COVER TO TIES SHALL BE 1 1/2" (OR GREATER WHERE NOTED), TYPICAL.
7. PROVIDE CROSS TIES AS INDICATED.

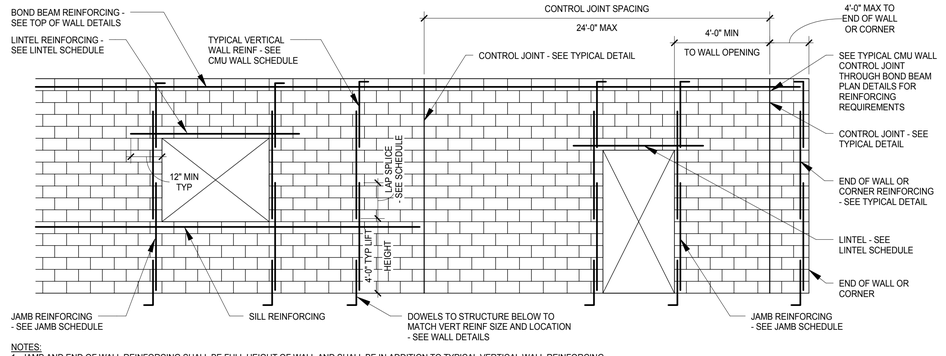


6 TYPICAL CMU WALL REINFORCING PLAN DETAILS
NO SCALE

CMU WALL REINFORCING SCHEDULE										
NOMINAL CMU WALL THICKNESS	REINFORCING									
	VERTICAL FIELD	WALL OPENING SIZE								
		≤ 4'-0"		≤ 8'-0"		≤ 12'-0"		≤ 16'-0"		COMMENTS
		LINTEL	JAMB	LINTEL	JAMB	LINTEL	JAMB	LINTEL	JAMB	
6"	#4 AT 48" OC	8" HIGH 1 - #4	8" WIDE 1 - #4	8" HIGH 1 - #6	8" WIDE 1 - #6	16" HIGH 1 - #4	16" WIDE 4 - #4	24" DEEP 1 - #5	24" WIDE 3 - #6	
8" (NON-LOAD BRG)	#5 AT 32" OC	8" HIGH 2 - #5	8" WIDE 1 - #5	8" HIGH 2 - #5	8" WIDE 1 - #5	16" DEEP 2 - #5	8" WIDE 2 - #5	24" DEEP 2 - #5	16" WIDE 4 - #5	PARTITIONS WITHIN THE PARKING AREA
8" (LOAD BRG)	#5 AT 16" OC	8" HIGH 2 - #5	8" WIDE 2 - #5	8" HIGH 2 - #5	8" WIDE 2 - #5	16" DEEP 2 - #5	16" WIDE 2 - #5	24" DEEP 2 - #5	16" WIDE 2 - #5	VERTICAL CIRCULATION TOWER

NOTES:
1. WALL HEIGHT INDICATES MAXIMUM ALLOWABLE VERTICAL CLEAR DISTANCE BETWEEN POINTS OF CONTINUOUS LATERAL WALL SUPPORT.
2. VERTICAL REINFORCEMENT SHALL BE LOCATED IN THE CENTER OF THE WALL.
3. CMU LINTELS SHALL BE GROUTED SOLID WITH A MINIMUM OF 2" BOTTOM COVER TO REINFORCING.
4. PROVIDE 8" BEARING ON JAMBS AT EACH END OF CMU LINTELS.
5. JAMB REINFORCING SPECIFIED SHALL BE EVENLY DISTRIBUTED ALONG THE JAMB WIDTH. AT LOCATIONS WITH 2 BARS PER CELL, BARS SHALL BE PLACED PER CASE 2 OF THE CMU REINFORCING BAR LAP SPLICE SCHEDULE.
6. SEE ARCH FOR LOCATIONS AND SIZES OF INTERIOR NON-LOAD BEARING CMU WALLS.
7. SEE TYPICAL CMU WALL DETAILS FOR ADDITIONAL INFORMATION.

7 CMU WALL REINFORCING SCHEDULE
NO SCALE



NOTES:
1. JAMB AND END OF WALL REINFORCING SHALL BE FULL HEIGHT OF WALL AND SHALL BE IN ADDITION TO TYPICAL VERTICAL WALL REINFORCING.
2. PROVIDE CONTROL JOINTS TO MEET SPACING REQUIREMENTS SHOWN AND AT LOCATIONS WHERE CHANGES IN WALL HEIGHT OCCUR, AND WHERE MOVEMENT JOINTS IN THE FLOOR ABOVE AND/OR BELOW OCCUR.
3. SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINT LOCATIONS AT NON-LOAD BEARING WALLS NOT SHOWN ON STRUCTURAL DRAWINGS.
4. SEE ARCHITECTURAL DRAWINGS FOR WALL OPENINGS NOT SHOWN ON STRUCTURAL DRAWINGS.
5. PROVIDE CLEANOUT AT BOTTOM COURSE FOR GROUT PORES GREATER THAN 5'-0" HIGH.
6. SILL REINFORCING SHALL BE LADDER JOINT REINFORCING IN THE FIRST OR SECOND MORTAR JOINT BELOW THE SILL OR A REINFORCED BOND BEAM. SILL REINFORCING SHALL EXTEND BETWEEN CONTROL JOINTS.
7. SEE CMU WALL REINFORCING SCHEDULE FOR LINTEL AND JAMB REINFORCING REQUIRED.

8 TYPICAL CMU WALL REINFORCING SCHEMATIC
NO SCALE

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

CONSULTANTS

Interior Architects:
TKDA ARCHITECTS
11 E Superior Street Suite 340, Duluth MN 55802
TEL: (218) 724-8578 / FAX: (218) 724-8717

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

Landscape Architects:
ARCHITECTURAL RESOURCES
126 East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

I hereby certify that this plan, specification, 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 Minnesota.

Print Name: Paul A. Johnson

Signature:

Date: 05-15-13 Reg. No.: 20379

REVISIONS

NO.	DESCRIPTION	DATE

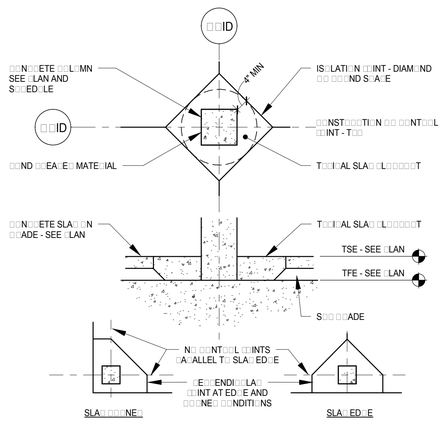
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SCHEDULES

SHEET NUMBER
S401

ISSUED FOR BID



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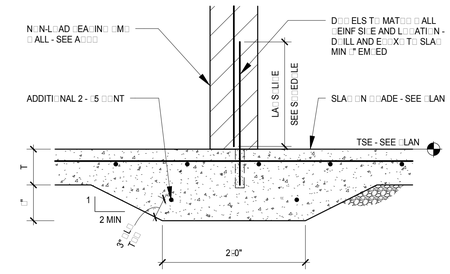

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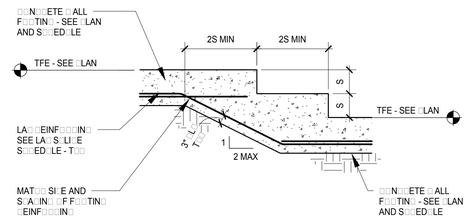

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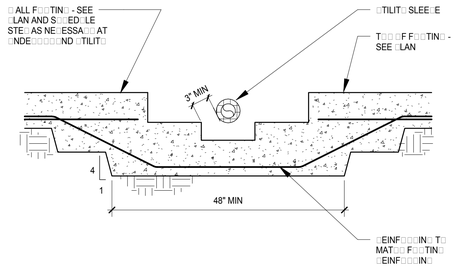

N□TES:
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2. □□TILIT□ SLEE□E DIAMETE□ T□□□E 2" □□EATE□ T□AN □TILIT□ □I□E □□TSIDE DIAMETE□□□□□□IDE 1"
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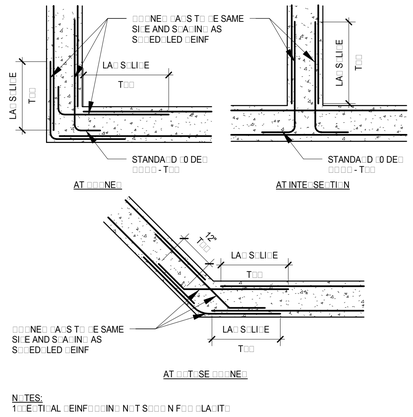

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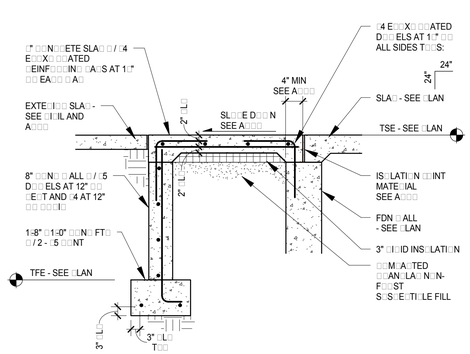

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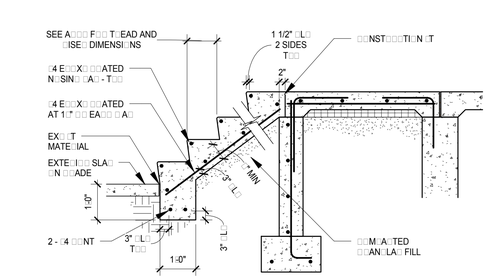

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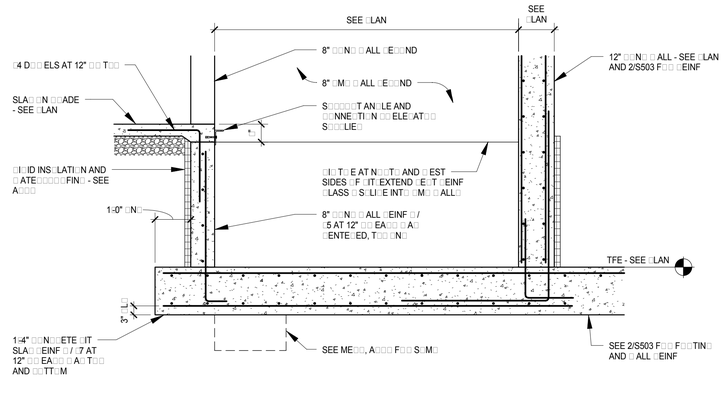

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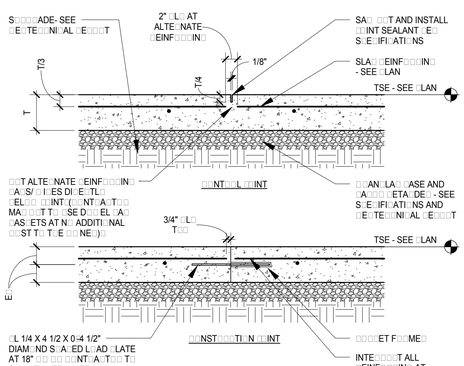

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□rint Na□e: □aul A□ohnson

Signature: Paul A Johnson

Date: 05-15-13 □eg□No□ 2037□

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DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

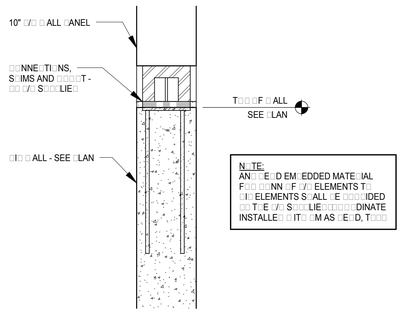
AE□ □□□E□T N□M□E□

213-1882-114

SHEET TITLE
STRUCTURAL FOUNDATION DETAILS

SHEET NUMBER
S501

ISSUED FOR BID



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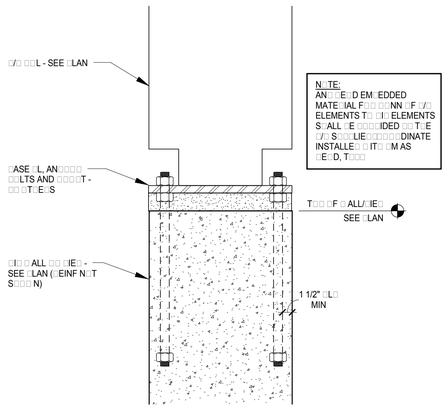

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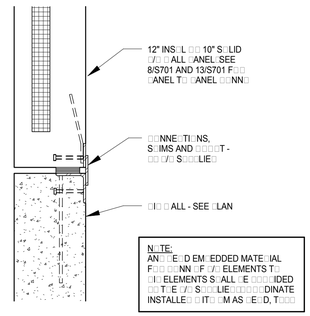

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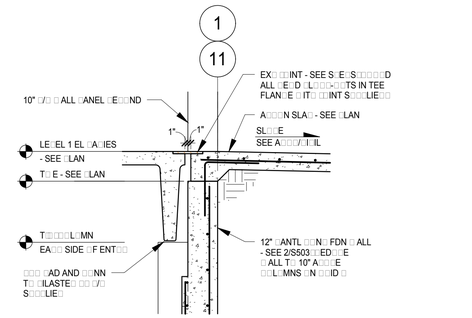

4 SE□TI□N

1/2" □1-0"

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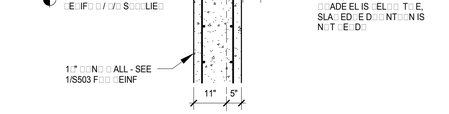
1/2" □1-0"



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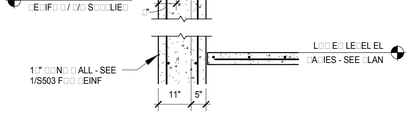

7 SE□TI□N

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LE□EL 1 EL □A□IES - SEE □LAN
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□rint Na□e: □aul A□ohnson

Signature:

Date: 05-15-13 □eg□No□ 2037□

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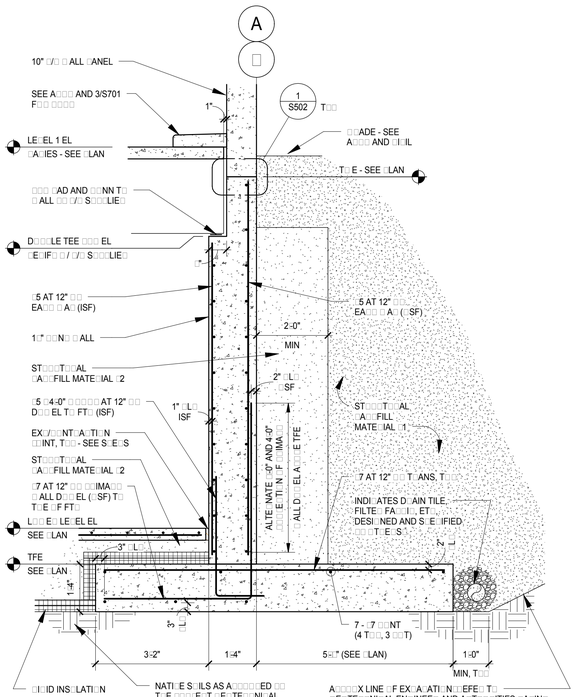
213-1882-114

SHEET TITLE
STRUCTURAL FOUNDATION DETAILS

SHEET NUMBER
S502

ISSUED FOR BID



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□rint Na□e: □aul A□ohnson

Signature:

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SHEET TITLE
STRUCTURAL FOUNDATION DETAILS

SHEET NUMBER
S503

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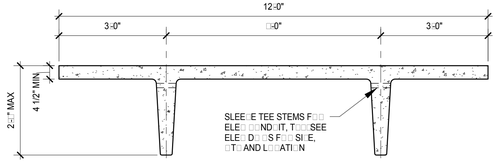

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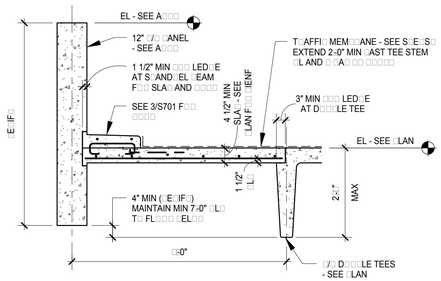

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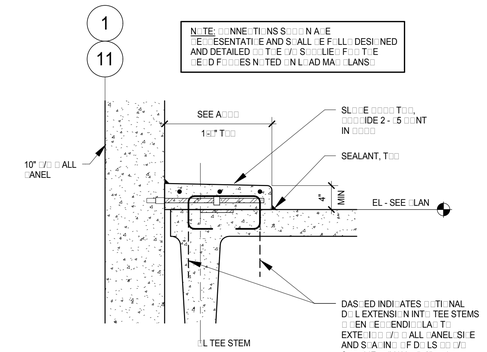

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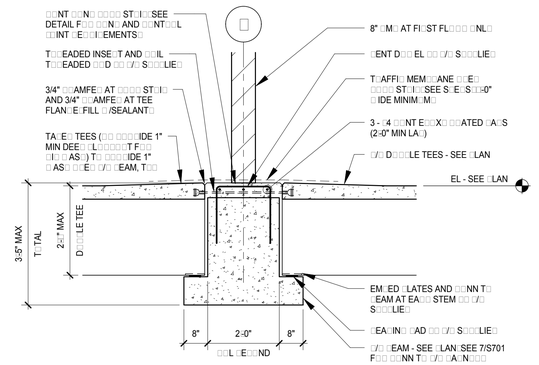

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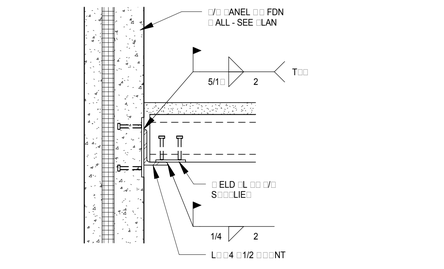
1/2" □ 1'-0"



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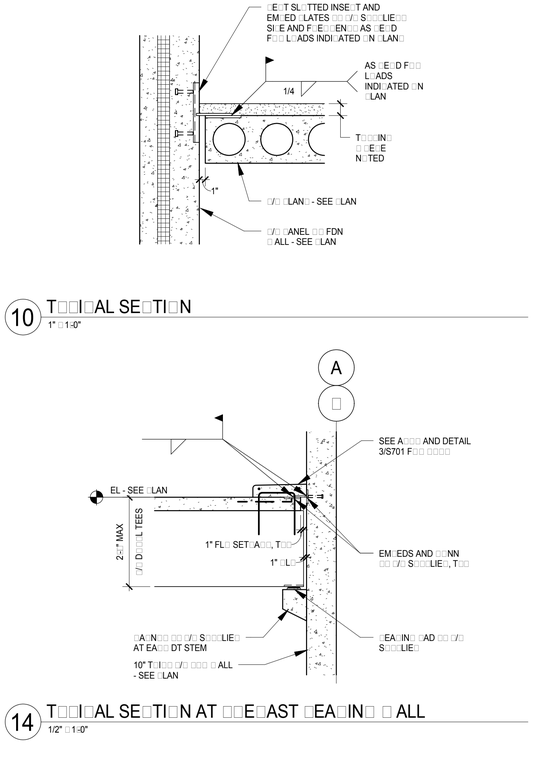

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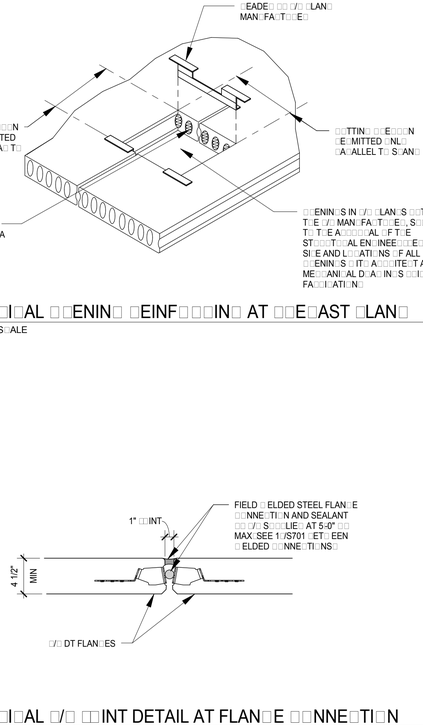
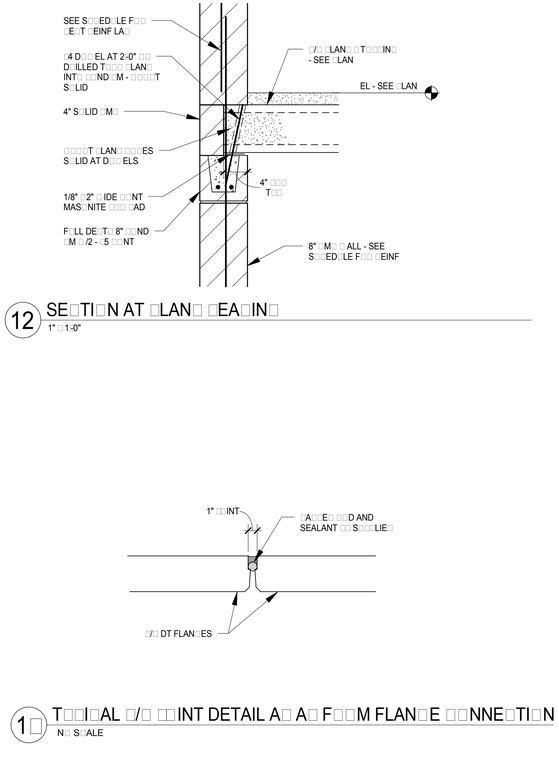


7 □EAM T□ SIN□LE □A□N□□ □□L□MN DETAIL

N□ S□ALE



8 T□□I□AL □□□NE□ DETAIL

N□ S□ALE

T□□I□AL SE□TI□N

1" □ 1'-0"

10 T□□I□AL SE□TI□N

1" □ 1'-0"

11 T□□I□AL □□ENIN□ □EINF□□□IN□ AT □□E□AST □LAN□

N□ S□ALE

12 SE□TI□N AT □LAN□ □EA□IN□

1" □ 1'-0"

13 □ ALL □ANEL □□NNE□TI□N

N□ S□ALE

14 T□□I□AL SE□TI□N AT □□E□AST □EA□IN□ □ ALL

1/2" □ 1'-0"

15 T□□I□AL □/□ □□INT DETAIL AT FLAN□E □□NNE□TI□N

N□ S□ALE

1□ T□□I□AL □/□ □□INT DETAIL A□ A□ F□□M FLAN□E □□NNE□TI□N

N□ S□ALE

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

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Landscape Architects:
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12□ East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

I here□□certi□□that this plan, speci□ication, or report □as prepared □□□□e or under □□ direct super□ision and that I a□ a dul□ licensed □ro□essional Engineer under the la□s o□the State o□Minnesota□

□rint Na□□e: □aul A□ohnson

Signature: Paul A Johnson

Date: 05-15-13 □eg□No□ 2037□

□E□ISI□NS

N□□	DES□□□TI□N	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: □A□
DRAWN BY: S□L
DESIGNED BY: MDN / □A□

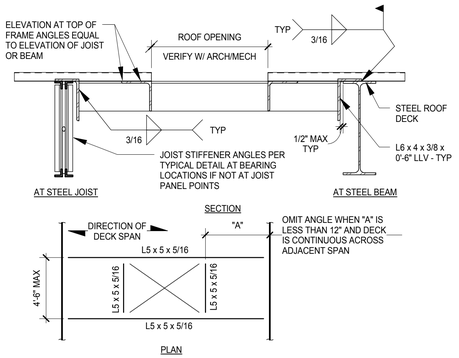
AE□ □□□□E□T N□M□E□

213-1882-114

SHEET TITLE
STRUCTURAL FRAMING DETAILS

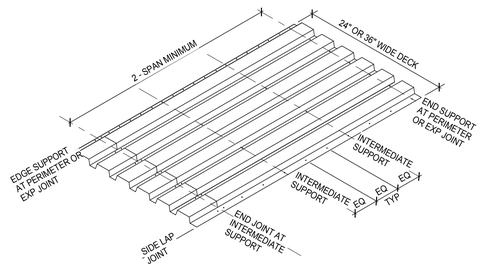
SHEET NUMBER
S701

ISSUED FOR BID



NOTES:
1. VERIFY OPENING SIZES AND LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO FABRICATION.
2. WELD DECK AT OPENING AT EACH FLUTE WITH PUDDLE WELDS PER TYPICAL DECK ATTACHMENT DETAILS.
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.

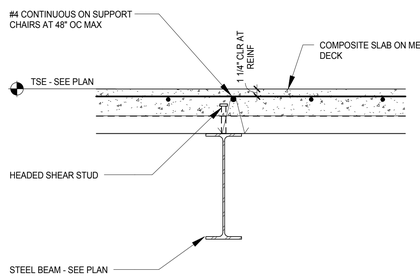
1 TYPICAL 3" ROOF DECK OPENING DETAIL (≤ 4'-6")
NO SCALE



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

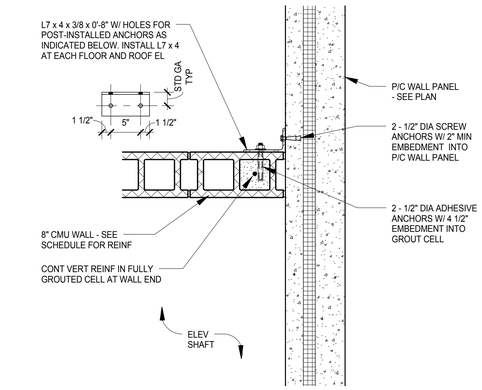
NOTES:
1. ALL PUDDLE (ARC-SPOT) WELDS SHALL BE 5/8" DIAMETER.
2. PROVIDE DECK ATTACHMENTS AT SPACING SHOWN UNLESS NOTED OTHERWISE ON DRAWINGS.
3. DECK SHEETS SHALL BE BUTTED AT END JOINTS. PROVIDE 1 1/2" MINIMUM BEARING.
4. HEADED STUD INSTALLED THROUGH THE DECK MAY BE SUBSTITUTED FOR PUDDLE WELD.

2 TYPICAL COMPOSITE FLOOR DECK ATTACHMENT DETAIL
NO SCALE

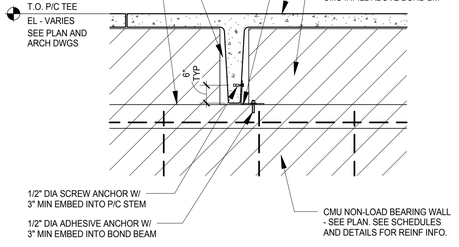


NOTES:
1. SEE TYPICAL DETAILS FOR DECK ATTACHMENT AND HEADED STUD INFORMATION.

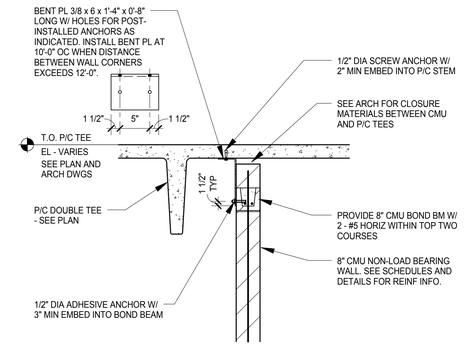
3 TYPICAL COMPOSITE FLOOR DECK PERPENDICULAR TO BEAM DETAIL
NO SCALE



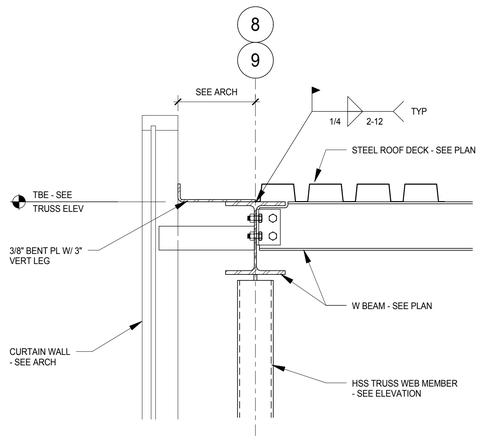
4 PLAN DETAIL
1" = 1'-0"



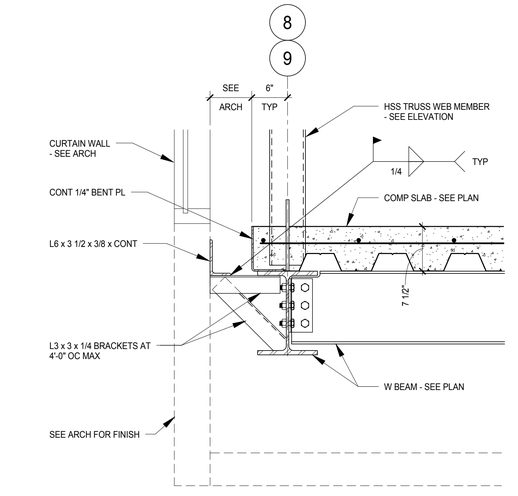
5 SECTION - TOP OF CMU WALL PERPENDICULAR TO P/C TEES
NO SCALE



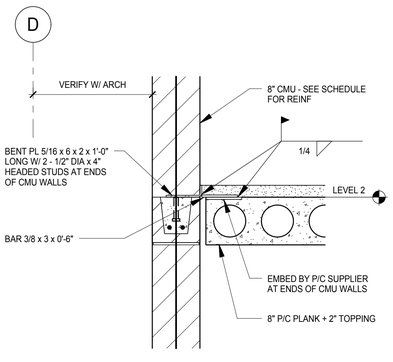
6 SECTION - TOP OF CMU WALL PARALLEL TO P/C TEES
NO SCALE



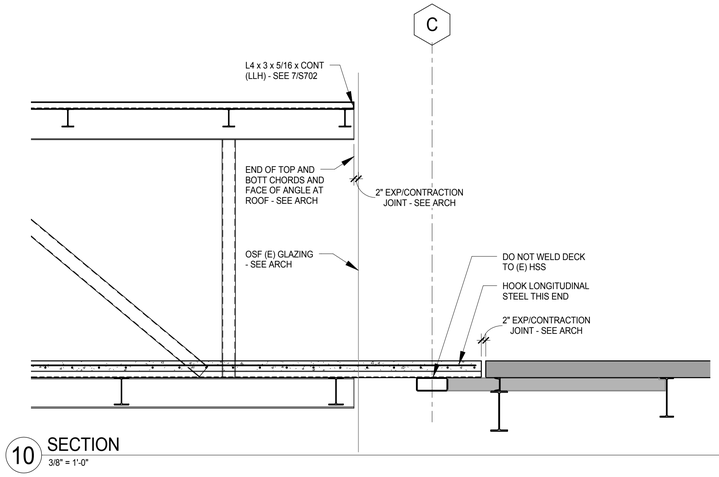
7 SECTION
1" = 1'-0"



8 SECTION
1" = 1'-0"



9 SECTION
1" = 1'-0"



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

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Landscape Architects:
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126 East Superior Street, Duluth MN 55802
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I hereby certify that this plan, specification, 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 Minnesota.

Print Name: Paul A. Johnson

Signature:

Date: 05-15-13 Reg. No.: 20379

REVISIONS

NO.	DESCRIPTION	DATE

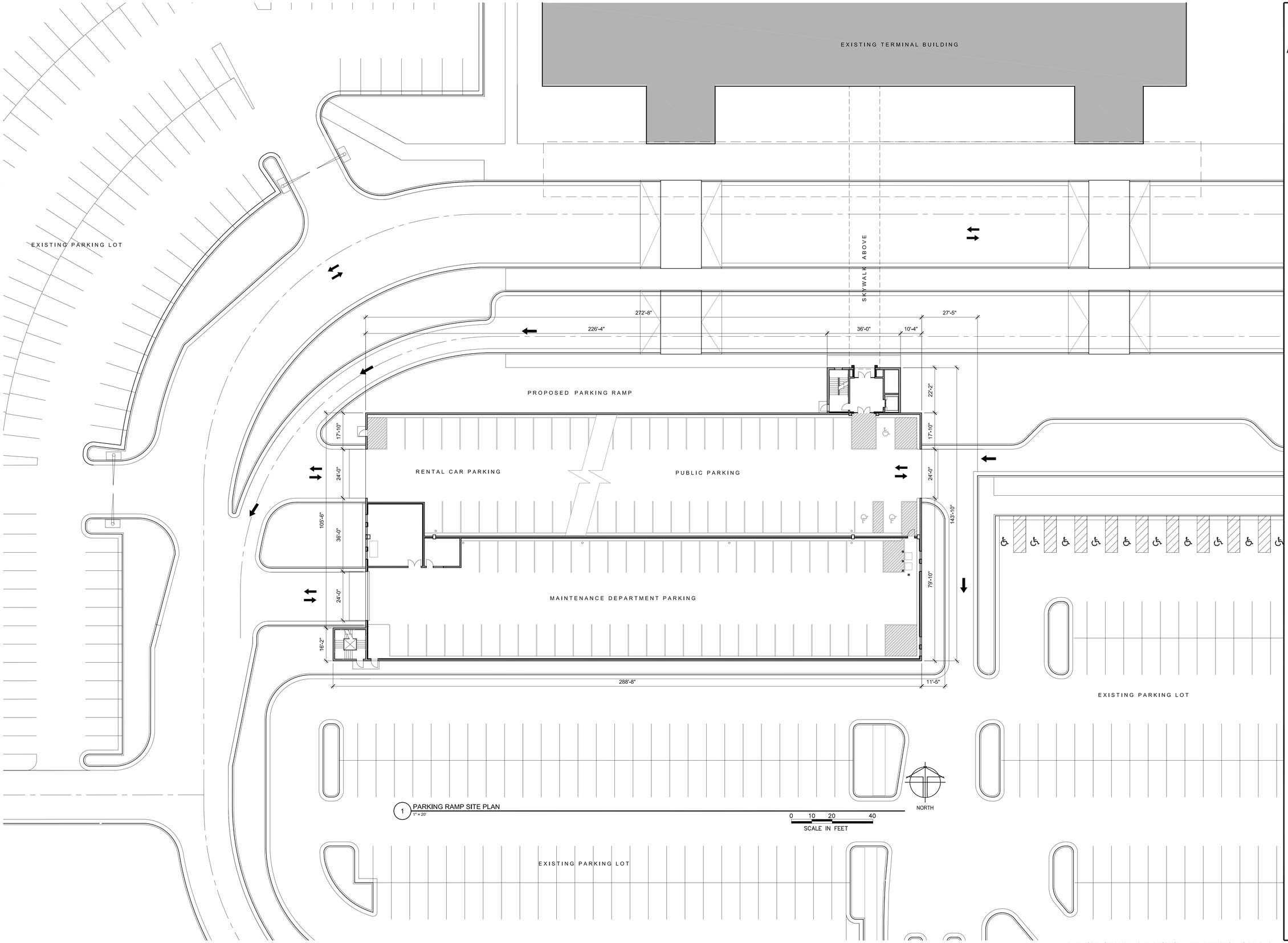
DATE ISSUED: 05/15/2013
REVIEWED BY: PAJ
DRAWN BY: SJL
DESIGNED BY: MDN / PAJ

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
STRUCTURAL FRAMING DETAILS

SHEET NUMBER
S702

ISSUED FOR BID



1 PARKING RAMP SITE PLAN
1" = 20'

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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 Minnesota.

Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

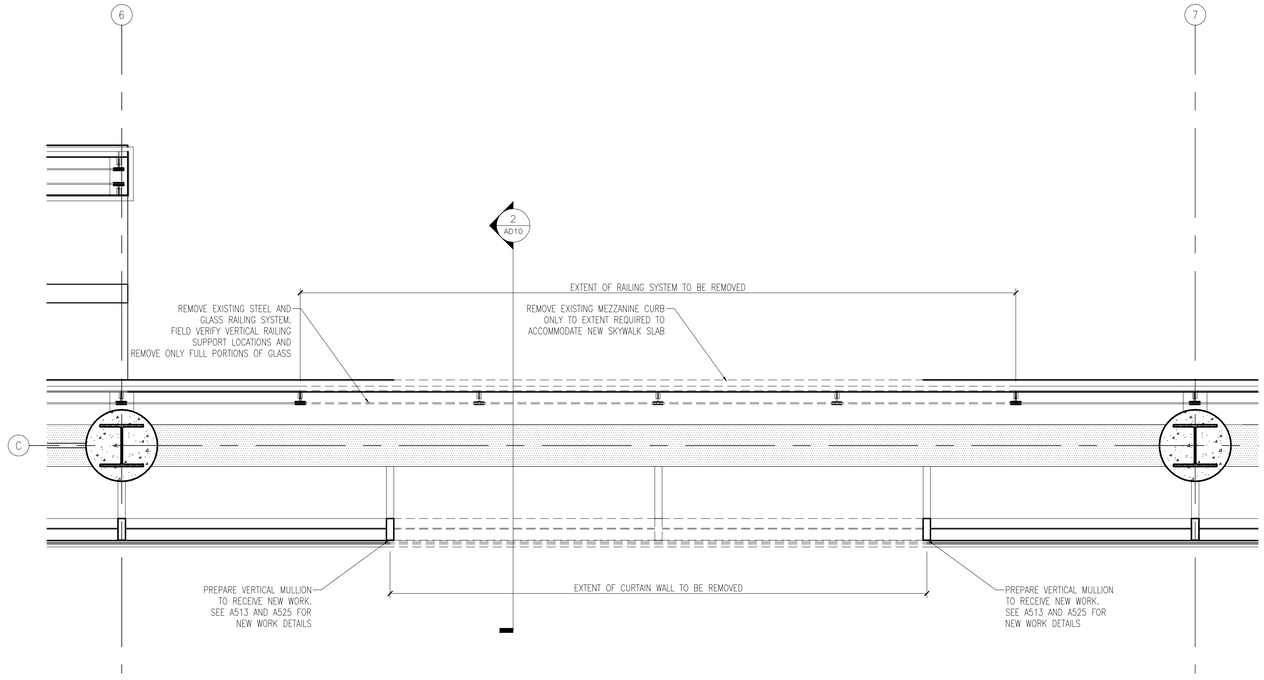
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SITE PLAN

SHEET NUMBER
A000

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\AS-01 Site Plan.dwg Plotted on: 5/17/2013 11:32 AMPlotted by: Kristoffer Pederson



1 TERMINAL DEMO PLAN
1/2" = 1'-0"

PROJECT GENERAL DEMOLITION NOTES:

1. PROVIDE ALL DEMOLITION WORK SHOWN ON THE DRAWINGS AND ALL RELATED AND INCIDENTAL DEMOLITION WORK AS REQUIRED TO COMPLETE ALL NEW CONSTRUCTION WORK.

2. REMOVE ENTIRE WALL ASSEMBLIES INDICATED TO BE DEMOLISHED, INCLUDING CONCEALED ELEMENTS WITHIN PARTITIONS AND ABOVE-CEILING CONSTRUCTION CONDITIONS.

3. FIELD VERIFY ALL EXISTING CONDITIONS, PRIOR TO THE START OF DEMOLITION OPERATIONS. BRING ANY DISCREPANCIES WHICH MAY SIGNIFICANTLY AFFECT DEMOLITION OR NEW CONSTRUCTION WORK TO THE ATTENTION OF THE ARCHITECT FOR REVIEW.

4. PROTECT EXISTING CONSTRUCTION TO REMAIN AS REQUIRED TO PREVENT DAMAGE FROM DEMOLITION AND/OR CONSTRUCTION OPERATIONS. CONDUCT DEMOLITION OPERATIONS SO AS TO MINIMIZE THE DEVELOPMENT AND SPREAD OF DUST.

5. REMOVE DEMOLITION MATERIALS PROMPTLY AND DISPOSE OF LEGALLY OFF SITE.

6. DO NOT ALTER THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING OR ITS ASSEMBLIES UNLESS SPECIFICALLY NOTED OTHERWISE.

7. UPON REMOVAL OF FINISH MATERIALS INDICATED OR REQUIRED, PREPARE SUBSTRATE TO RECEIVE NEW FINISH. REPAIR ANY EXISTING DAMAGE, OR DAMAGE ARISING FROM DEMOLITION OPERATIONS, TO MATCH EXISTING.

8. PATCH AND REPAIR ALL DAMAGE ARISING FROM DEMOLITION OPERATIONS TO FLOOR, WALL AND CEILING SURFACES, AS REQUIRED TO MATCH EXISTING. PATCH ALL SPALLED CONCRETE CAUSED BY PARTITION REMOVAL. REMOVE ANY EXTRANEOUS MATERIAL AND PATCH ANY DEPRESSIONS IN EXISTING SURFACES TO REMAIN.

9. PROVIDE AND MAINTAIN DUST PROOF BARRIERS AS REQUIRED TO SEPARATE DEMOLITION AREA FROM THE REST OF THE BUILDING. PROVIDE AND MAINTAIN TEMPORARY FILTERS AS REQUIRED TO PREVENT THE SPREAD OF DUST THROUGH THE BUILDING VIA THE RETURN AIR SYSTEM. UPON COMPLETION OF DEMOLITION OPERATIONS, REMOVE BARRIERS AND REPAIR ANY DAMAGE CAUSED BY THEIR INSTALLATION OR PRESENCE TO "LIKE NEW" CONDITION.

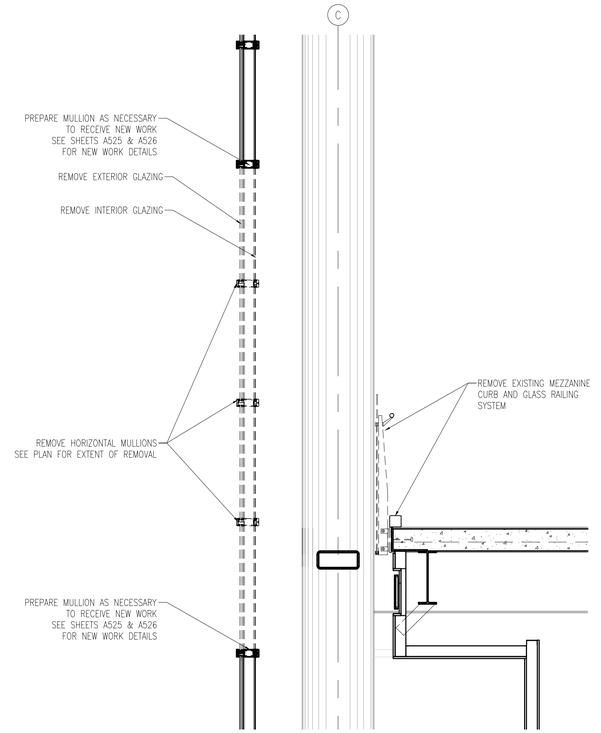
10. MAINTAIN EXIT ACCESS WAYS, AND KEEP FULLY SEPARATE FROM CONSTRUCTION AREA, AT ALL TIMES.

11. PATCH AND REPAIR ALL OPENINGS IN AND/OR PENETRATIONS THROUGH EXISTING FIRE RATED ASSEMBLIES.

12. AT UNEVEN AREAS AND DEPRESSIONS IN EXISTING CONCRETE FLOOR CONSTRUCTION, PROVIDE CEMENTATIOUS UNDERLAYMENT AS REQUIRED TO PROVIDE SUITABLE BASE CONDITION FOR NEW FINISHES AND NEW CONSTRUCTION.

13. MINIMIZE NOISE FROM DEMOLITION OPERATIONS.

14. REMOVE ALL MISCELLANEOUS ACCESSORIES AS NECESSARY TO FACILITATE INSTALLATION OF NEW FINISHES.



2 TERMINAL DEMO PARTIAL SECTION
1/2" = 1'-0"

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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 Minnesota.

Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

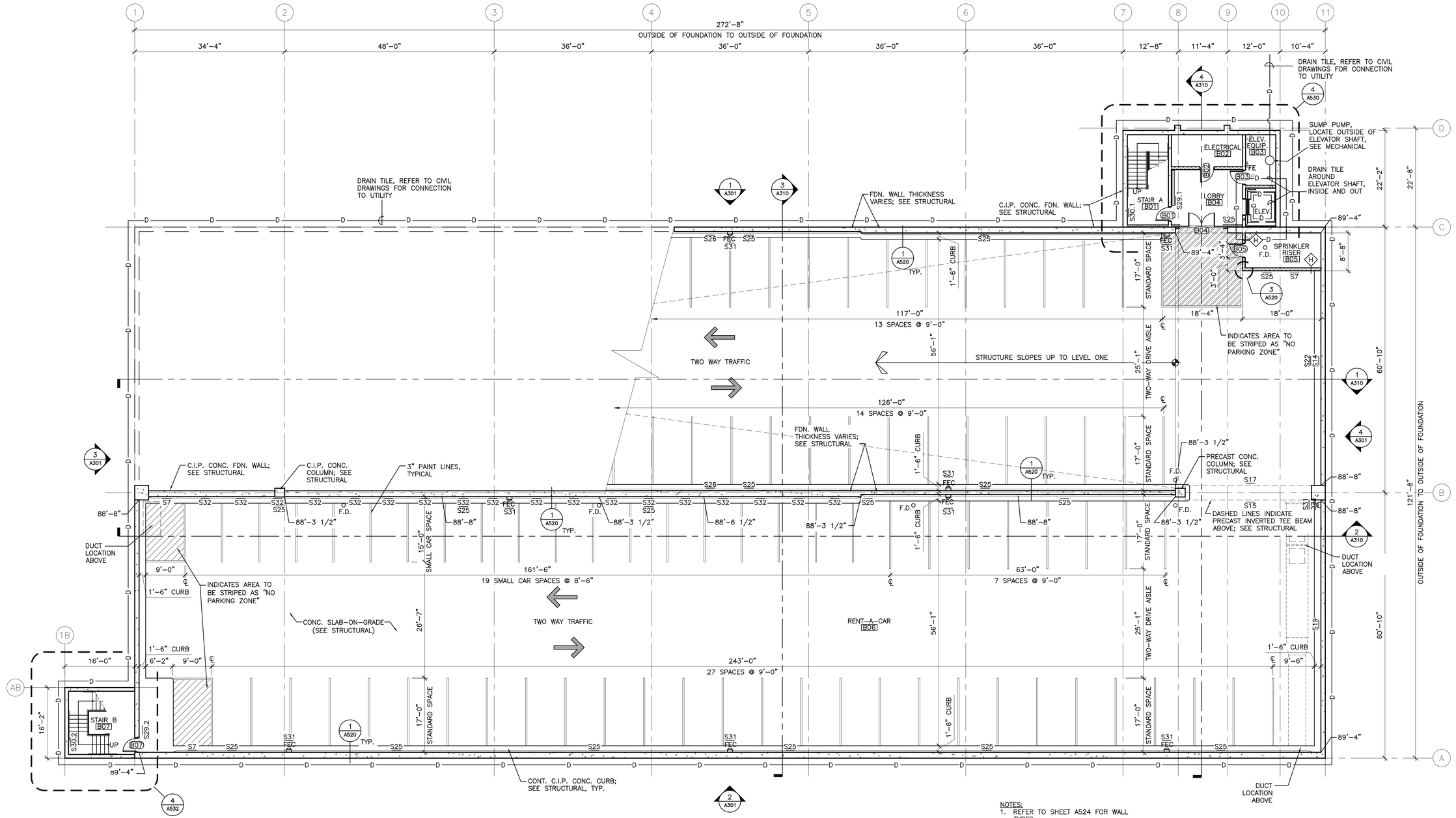
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
TERMINAL DEMOLITION NOTES AND DETAILS

SHEET NUMBER
AD10

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\AD10 Terminal Demo Notes and Details.dwg Plotted on: 5/16/2013 6:48 PM Plotted by: Godzina, Marc



NOTES:

1. REFER TO SHEET A524 FOR WALL TYPES
2. S## and S## INDICATES SIGNAGE, SEE SHEET A710 AND A711 FOR SCHEDULE AND DETAILS FOR MOUNTING.
3. GUARDRAIL DETAIL (1/A520) IS TO BE APPLIED CONTINUOUSLY ALONG ALL WALLS THAT ARE LOCATED PERPENDICULAR TO PARKING LOCATIONS

PREMIUM PUBLIC PARKING	RENT A CAR	ACCESSIBLE	DAA MAINT.	TOTAL
—	82	—	—	82

N

1 LOWER LEVEL FLOOR PLAN

3/32" = 1'-0"

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

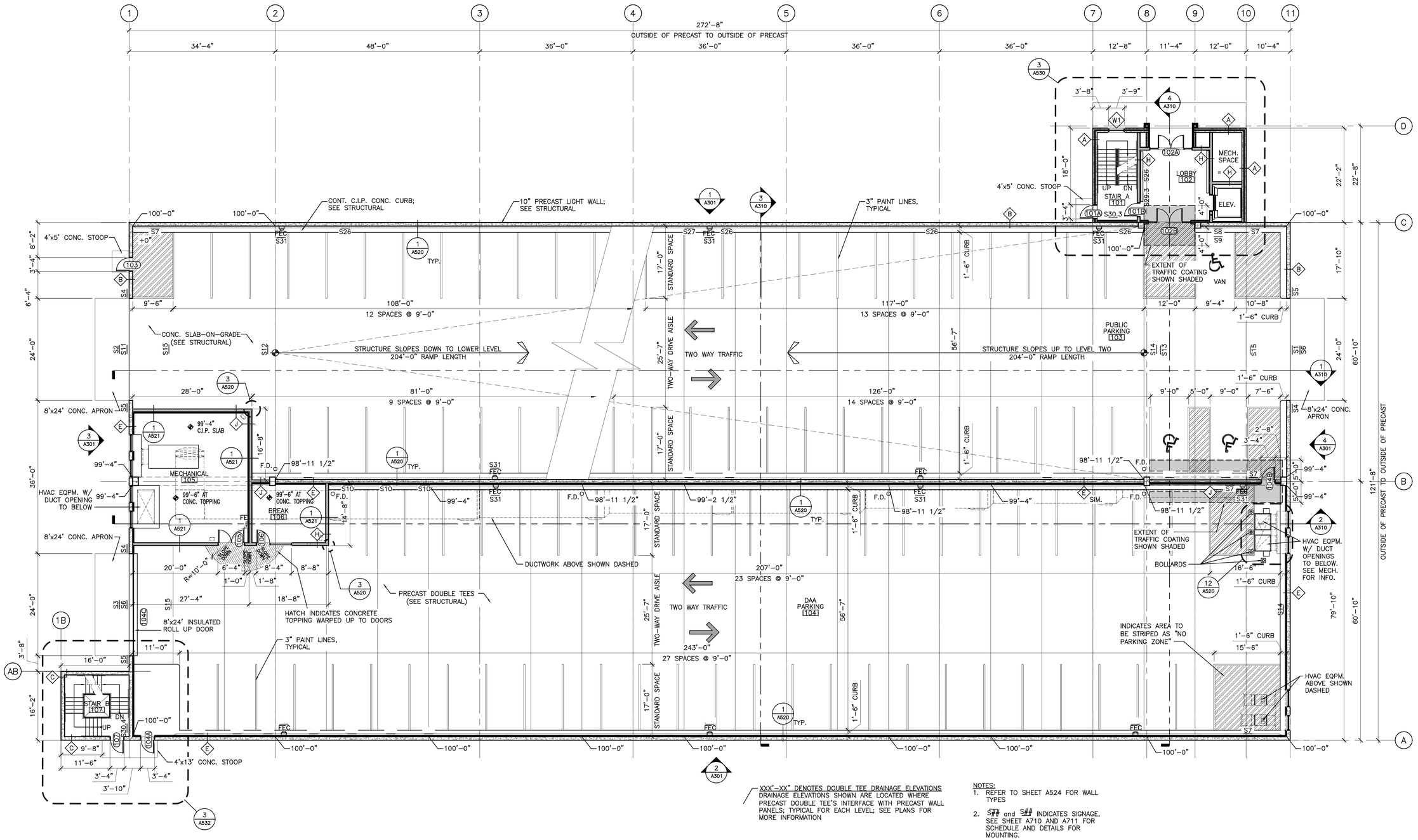
AEP PROJECT NUMBER
213–1882–114

SHEET TITLE
LOWER LEVEL FLOOR PLAN

SHEET NUMBER
A100

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\DD\120910 Downloads\Sheets\A100 Lower Level Floor Plan.dwg Plotted on: 5/17/2013 10:57 AMPlotted by: Kristoffer Pederson



XXX'-XX" DENOTES DOUBLE TEE DRAINAGE ELEVATIONS
DRAINAGE ELEVATIONS SHOWN ARE LOCATED WHERE PRECAST DOUBLE TEE'S INTERFACE WITH PRECAST WALL PANELS; TYPICAL FOR EACH LEVEL; SEE PLANS FOR MORE INFORMATION

NOTES:
1. REFER TO SHEET A524 FOR WALL TYPES
2. S## and S## INDICATES SIGNAGE, SEE SHEET A710 AND A711 FOR SCHEDULE AND DETAILS FOR MOUNTING.
3. GUARDRAIL DETAIL (1/A520) IS TO BE APPLIED CONTINUOUSLY ALONG ALL WALLS THAT ARE LOCATED PERPENDICULAR TO PARKING LOCATIONS

PREMIUM PUBLIC PARKING	RENT A CAR	ACCESSIBLE	DAA MAINT.	TOTAL
27	21	3	50	101

N

1 FIRST LEVEL FLOOR PLAN
3/32" = 1'-0"

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\DD\120910 Downloads\Sheets\A101 First Level Floor Plan.dwg Plotted on: 5/17/2013 10:59 AMPlotted by: Kristoffer Pederson

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

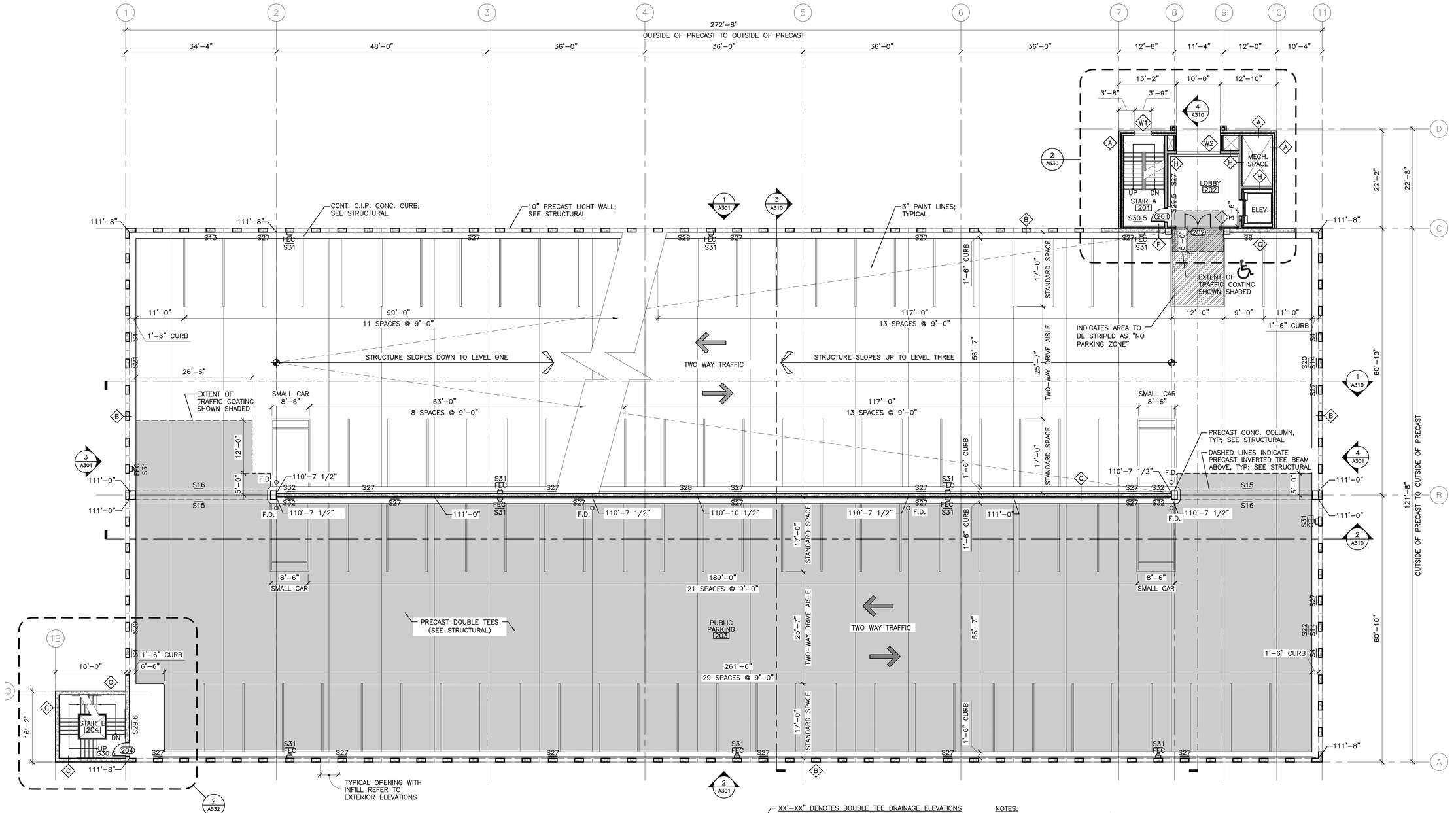
DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
FIRST LEVEL FLOOR PLAN

SHEET NUMBER
A101

ISSUED FOR BID



XX'-XX" DENOTES DOUBLE TEE DRAINAGE ELEVATIONS
DRAINAGE ELEVATIONS SHOWN ARE LOCATED WHERE PRECAST DOUBLE TEE'S INTERFACE WITH PRECAST WALL PANELS; TYPICAL FOR EACH LEVEL; SEE PLANS FOR MORE INFORMATION

NOTES:
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3. GUARDRAIL DETAIL (1/A520) IS TO BE APPLIED CONTINUOUSLY ALONG ALL WALLS THAT ARE LOCATED PERPENDICULAR TO PARKING LOCATIONS

PREMIUM PUBLIC PARKING	RENT A CAR	ACCESSIBLE	DAA MAINT.	TOTAL
101	--	1	--	102

N

1 SECOND LEVEL FLOOR PLAN
3/32" = 1'-0"

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ARCHITECTURAL CERTIFICATION
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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

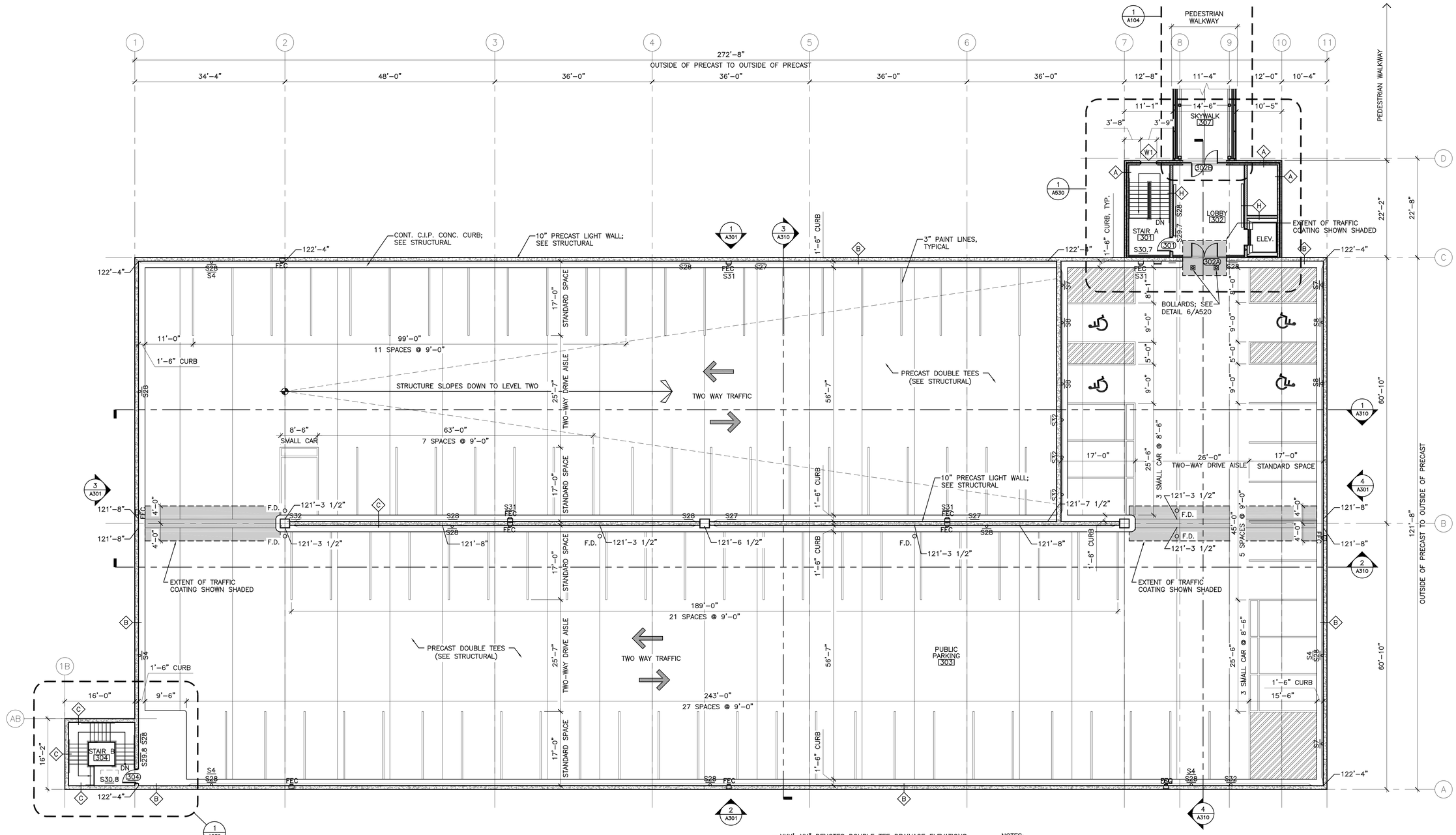
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SECOND LEVEL FLOOR PLAN

SHEET NUMBER
A102

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\DD\120910 Downloads\Sheets\A102 Second Level Floor Plan.dwg Plotted on: 5/17/2013 10:59 AMPlotted by: Kristofer Pederson



XXX'-XX" DENOTES DOUBLE TEE DRAINAGE ELEVATIONS
DRAINAGE ELEVATIONS SHOWN ARE LOCATED WHERE PRECAST DOUBLE TEE'S INTERFACE WITH PRECAST WALL PANELS; TYPICAL FOR EACH LEVEL; SEE PLANS FOR MORE INFORMATION

NOTES:
1. REFER TO SHEET A524 FOR WALL TYPES
2. S## and S## INDICATES SIGNAGE, SEE SHEET A710 AND A711 FOR SCHEDULE AND DETAILS FOR MOUNTING.
3. GUARDRAIL DETAIL (1/A520) IS TO BE APPLIED CONTINUOUSLY ALONG ALL WALLS THAT ARE LOCATED PERPENDICULAR TO PARKING LOCATIONS

PREMIUM PUBLIC PARKING	RENT A CAR	ACCESSIBLE	DAA MAINT.	TOTAL
79	--	4	--	83

N

1 THIRD LEVEL FLOOR PLAN
3/32" = 1'-0"

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Landscape Architects:
ARCHITECTURAL RESOURCES
126 East Superior Street, Duluth MN 55802
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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 Minnesota.

Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

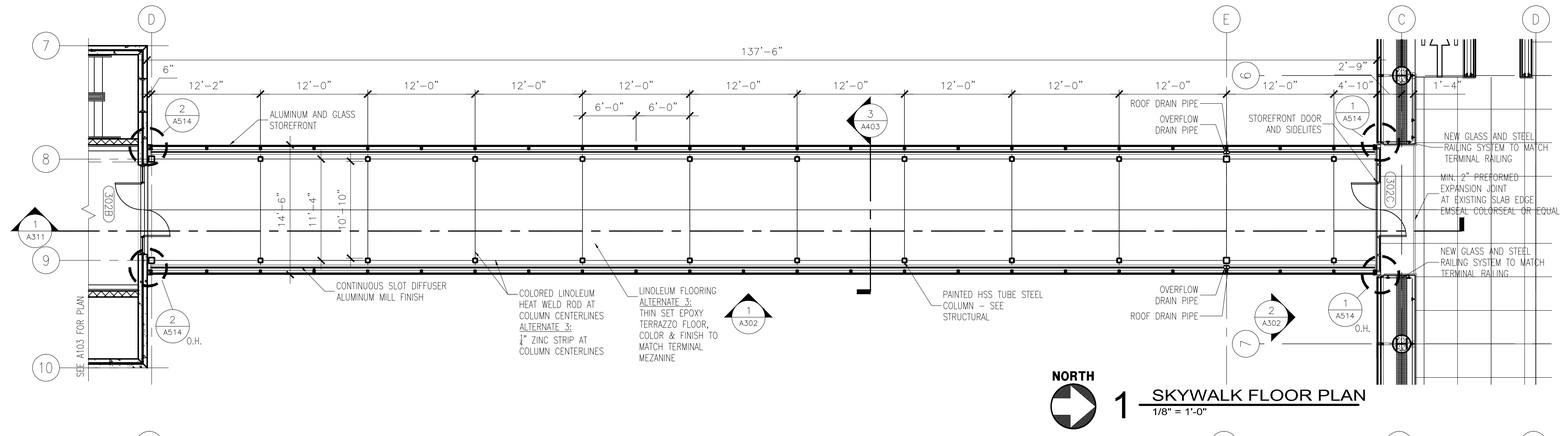
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
THIRD LEVEL FLOOR PLAN

SHEET NUMBER
A103

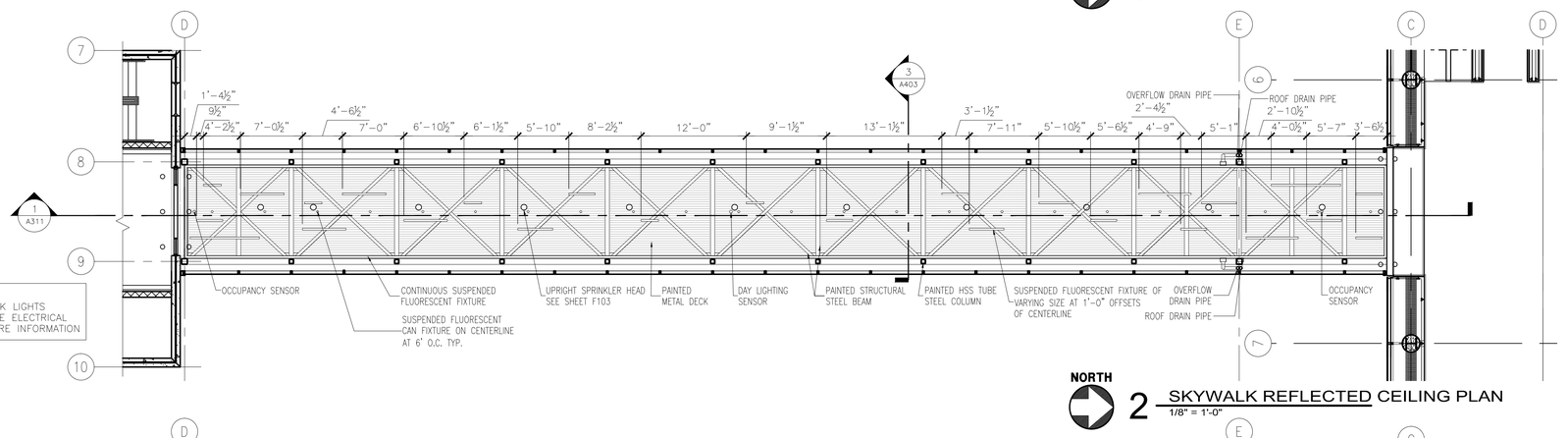
ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\DD\120910 Downloads\Sheets\A103 Third Level Floor Plan.dwg Plotted on: 5/17/2013 11:01 AMPlotted by: Kristoffer Pederson



NORTH

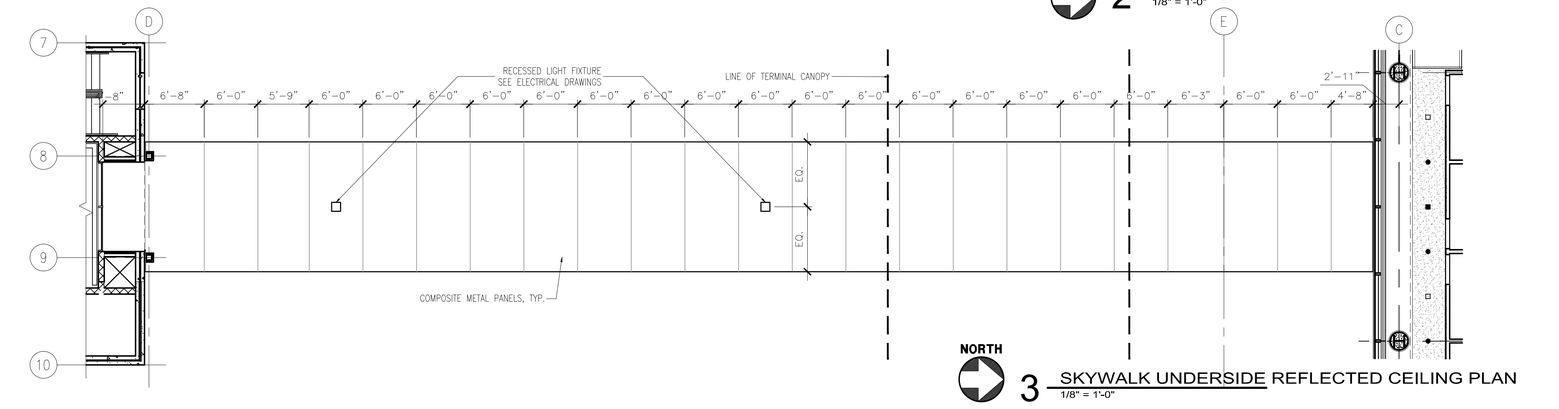
1 SKYWALK FLOOR PLAN
1/8" = 1'-0"



ALTERNATE 5:
REPLACE FLUORESCENT SKYWALK LIGHTS WITH LED LIGHT FIXTURES. SEE ELECTRICAL DRAWINGS AND SPECS FOR MORE INFORMATION

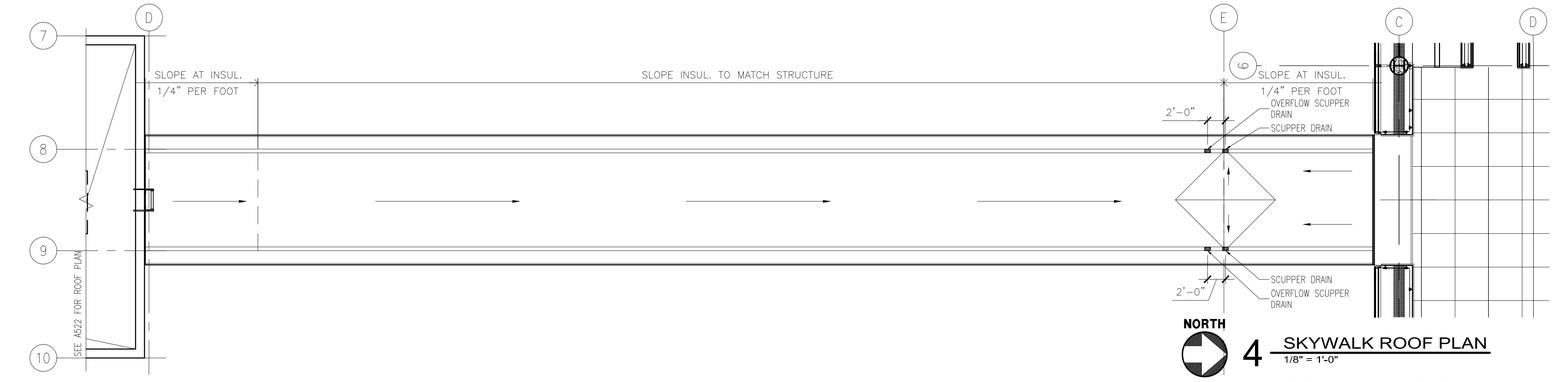
NORTH

2 SKYWALK REFLECTED CEILING PLAN
1/8" = 1'-0"



NORTH

3 SKYWALK UNDERSIDE REFLECTED CEILING PLAN
1/8" = 1'-0"



NORTH

4 SKYWALK ROOF PLAN
1/8" = 1'-0"

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Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

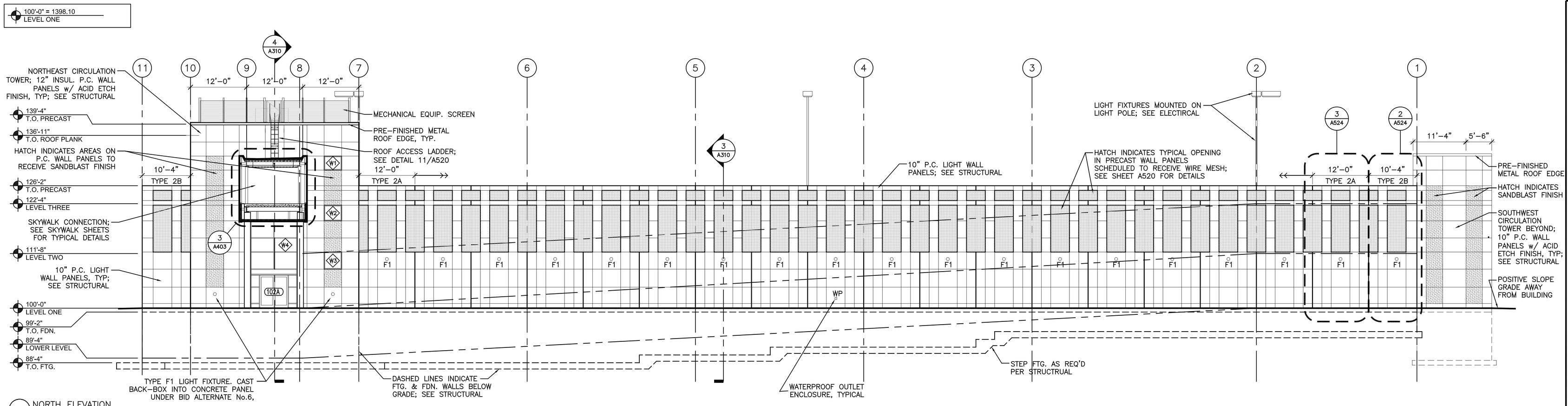
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SKYWALK PLAN REFLECTED CEILING PLAN AND ROOF PLANS

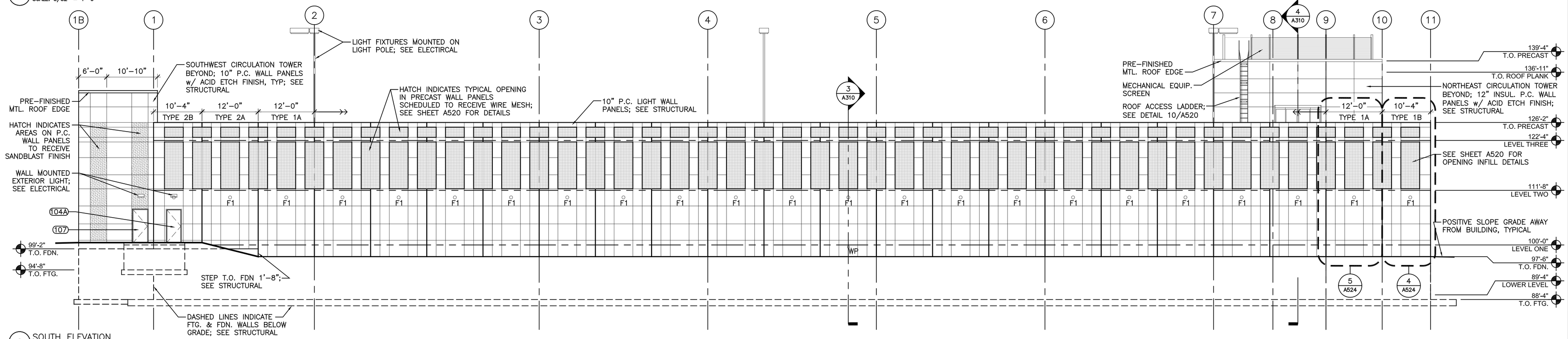
SHEET NUMBER
A104

ISSUED FOR BID

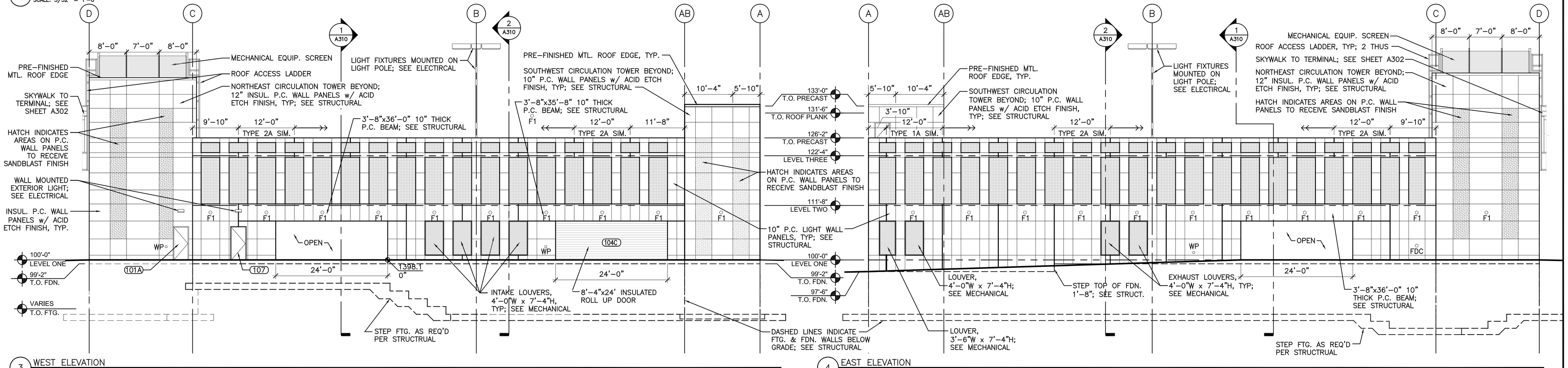
Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A104 Enlarged Skywalk Plan.dwg Plotted on: 5/16/2013 6:50 PM Plotted by: Godzina, Marc



1 NORTH ELEVATION
SCALE: 3/32" = 1'-0"



2 SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



3 WEST ELEVATION
SCALE: 3/32" = 1'-0"

4 EAST ELEVATION
SCALE: 3/32" = 1'-0"

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ARCHITECTURAL CERTIFICATION
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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

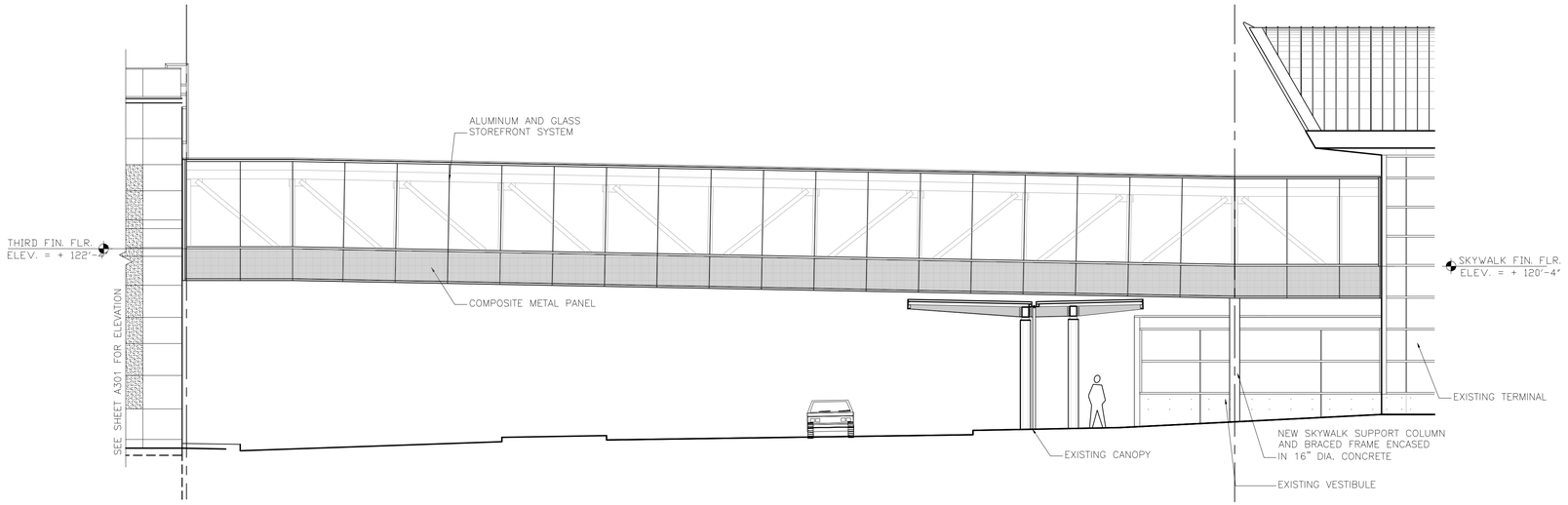
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
EXTERIOR ELEVATIONS

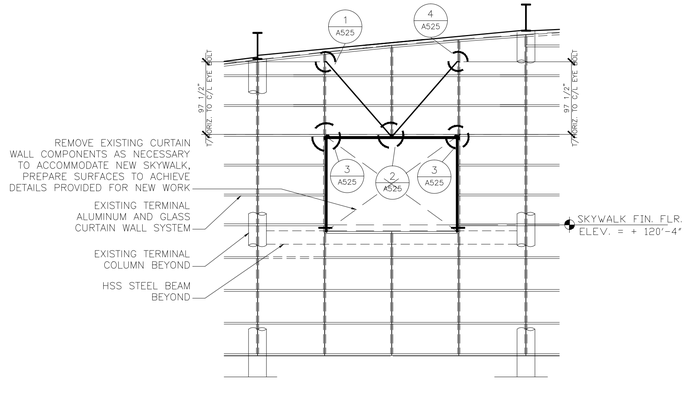
SHEET NUMBER
A301

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A301 Exterior Elevations.dwg Plotted on: 5/17/2013 1:48 PM Plotted by: Kristoffer Pederson



1 EAST SKYWALK ELEVATION
1/8" = 1'-0" WEST ELEVATION SIMILAR



2 CURTAIN WALL ELEVATION
@ EXISTING TERMINAL
1/8" = 1'-0"

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Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

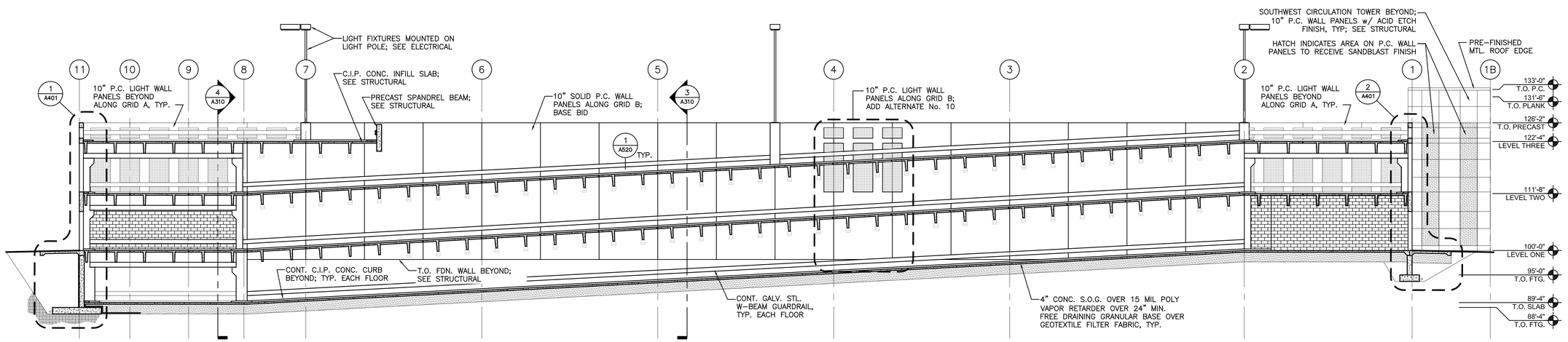
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ENLARGED SKYWALK ELEVATIONS

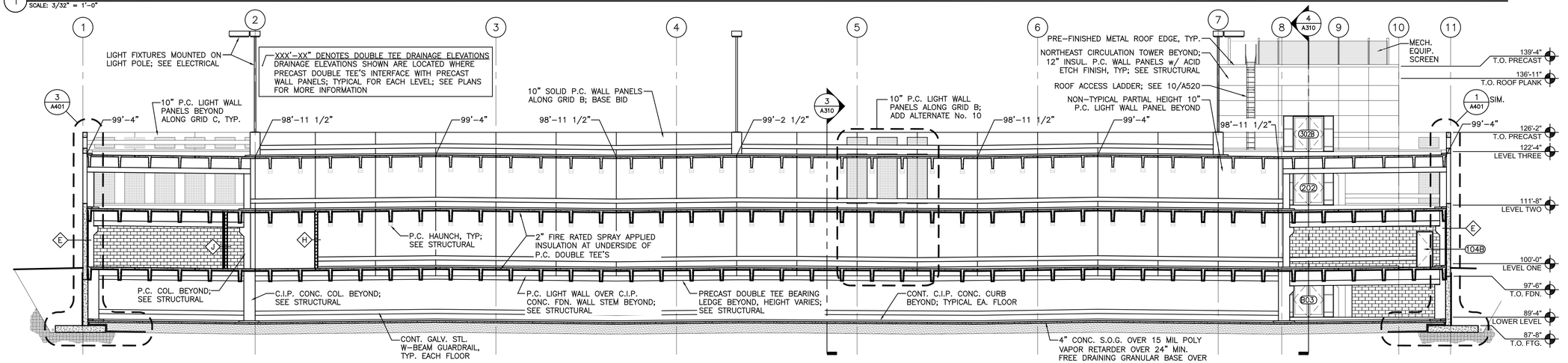
SHEET NUMBER
A302

ISSUED FOR BID

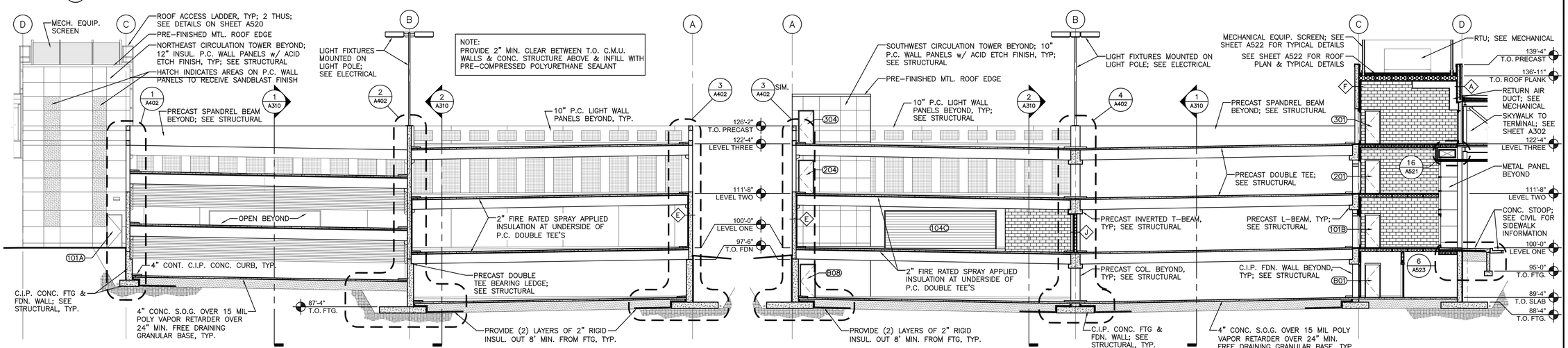
Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A302 Enlarged Elevations - Skywalk.dwg Plotted on: 5/16/2013 6:16 PM Plotted by: Godzina, Marc



1 EAST WEST BUILDING SECTION
SCALE: 3/32" = 1'-0"



2 EAST WEST BUILDING SECTION
SCALE: 3/32" = 1'-0"



3 NORTH SOUTH BUILDING SECTION
SCALE: 3/32" = 1'-0"

4 NORTH SOUTH BUILDING SECTION
SCALE: 3/32" = 1'-0"

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

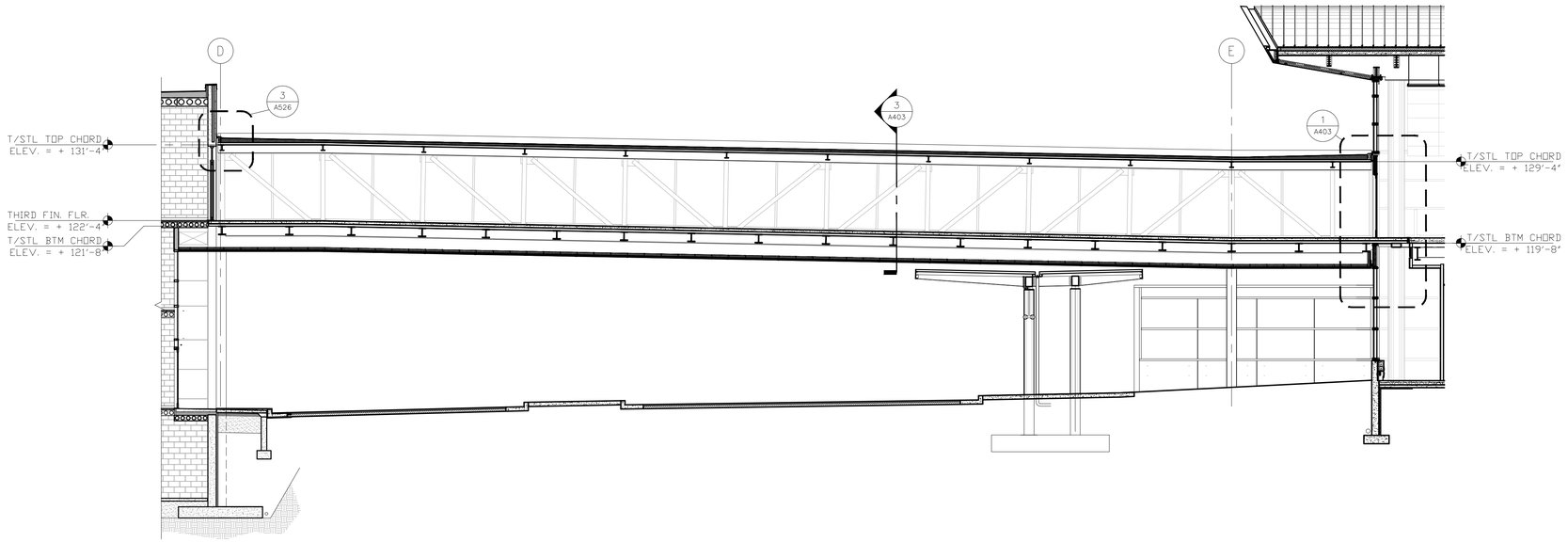
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
BUILDING SECTIONS

SHEET NUMBER
A310

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A310 Building Sections.dwg Plotted on: 5/17/2013 11:04 AMPlotted by: Kristoffer Pederson



1 SKYWALK SECTION
1/8" = 1'-0"

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

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Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

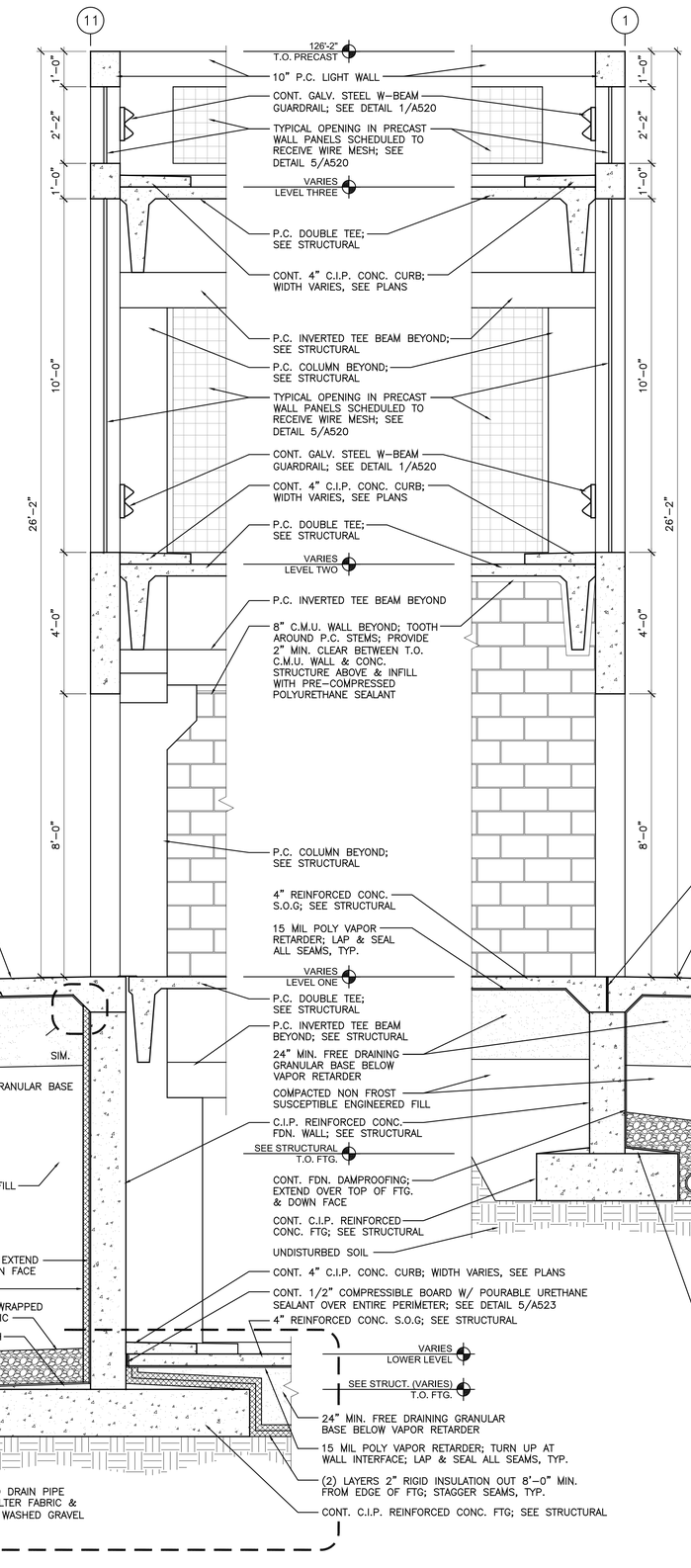
SKYWALK SECTION

SHEET NUMBER

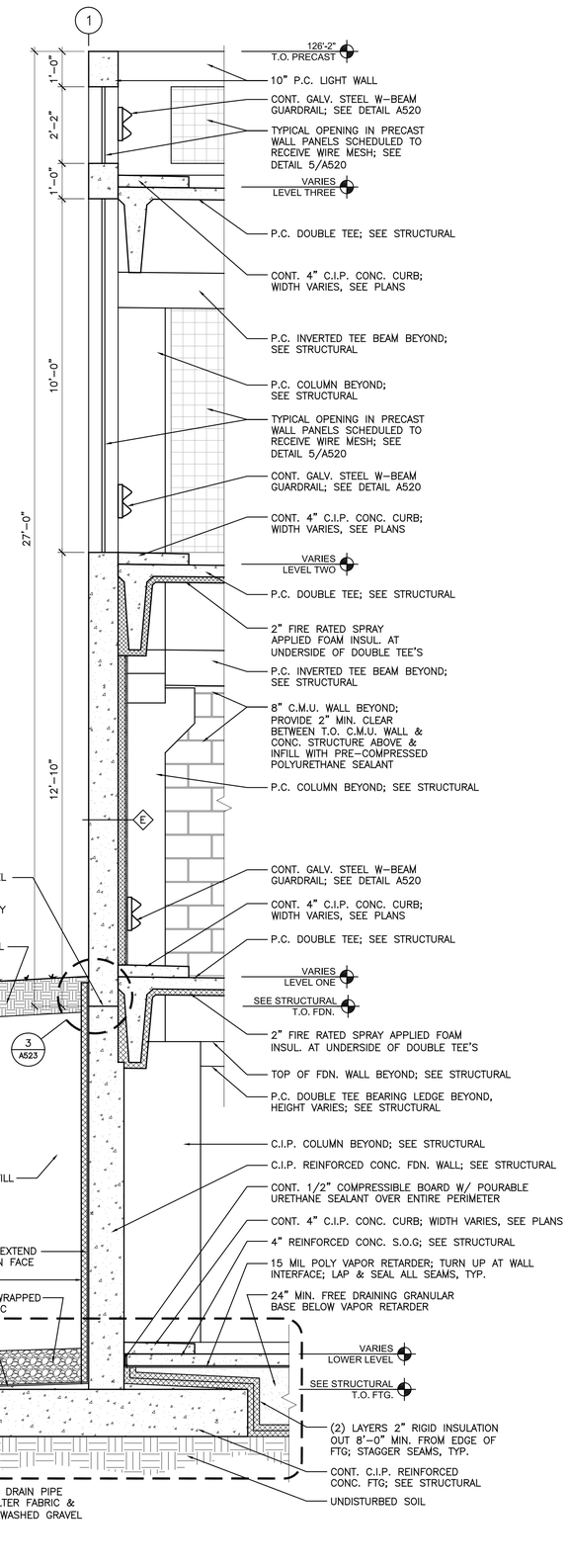
A311

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A311 Skywalk Sections.dwg Plotted on: 5/16/2013 6:51 PM Plotted by: Godzina, Marc



1 WALL SECTION
SCALE: 1/2" = 1'-0"



3 WALL SECTION
SCALE: 1/2" = 1'-0"

2 WALL SECTION
SCALE: 1/2" = 1'-0"

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Print Name: Brian D. Morse

Signature: Brian Morse

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KP
DESIGNED BY: RS&H

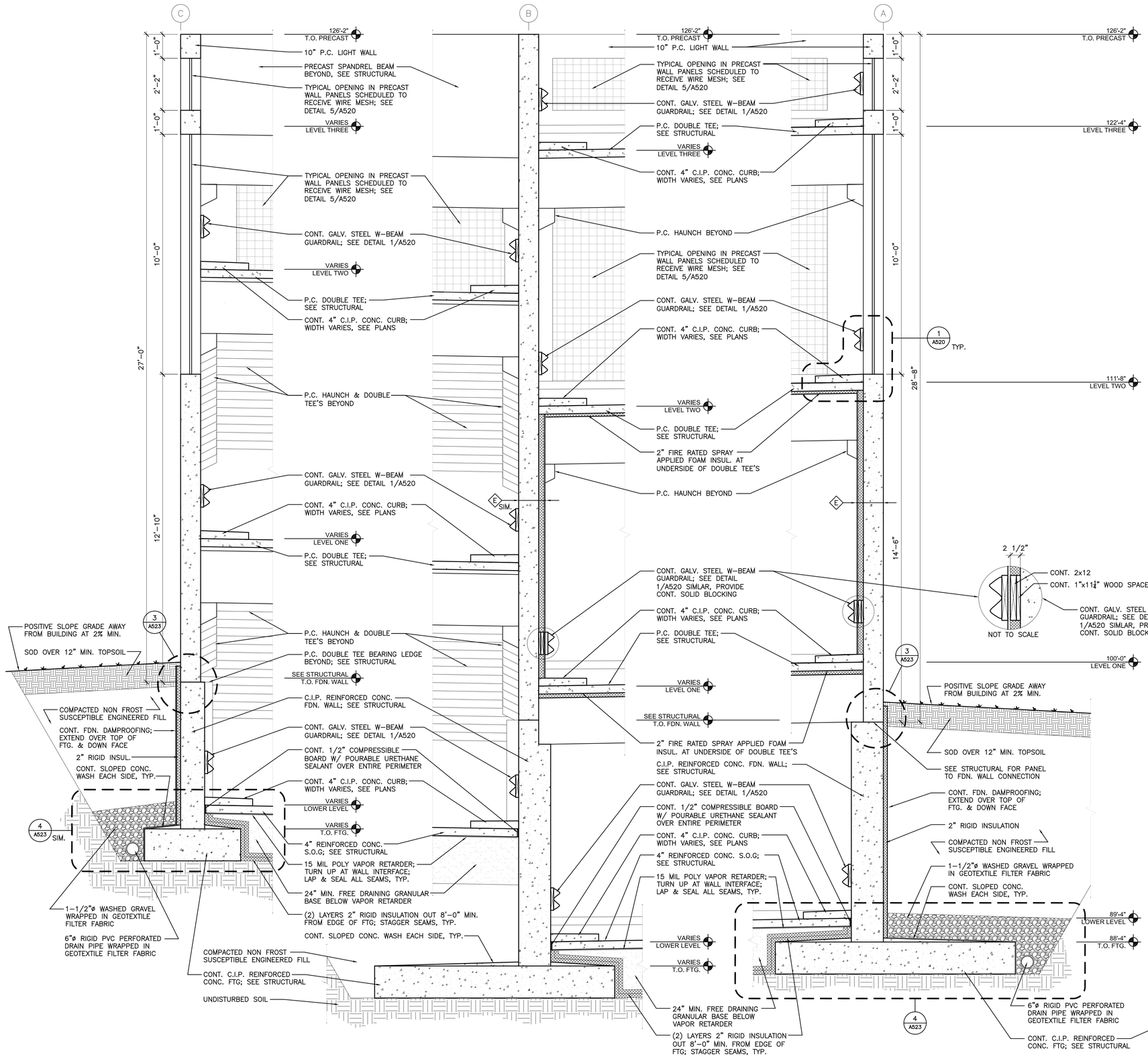
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
WALL SECTIONS

SHEET NUMBER
A401

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A401 Wall Sections.dwg Plotted on: 5/17/2013 11:08 AMPlotted by: Kristoffer Pederson



1 WALL SECTION
SCALE: 1/2" = 1'-0"

2 WALL SECTION
SCALE: 1/2" = 1'-0"

3 WALL SECTION
SCALE: 1/2" = 1'-0"

4 WALL SECTION
SCALE: 1/2" = 1'-0"

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

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DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KP
DESIGNED BY: RS&H

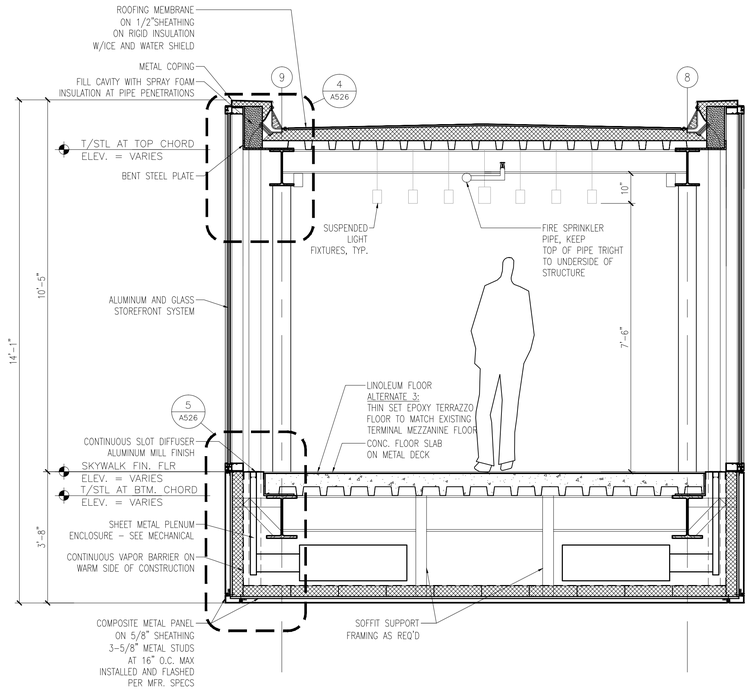
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
WALL SECTIONS

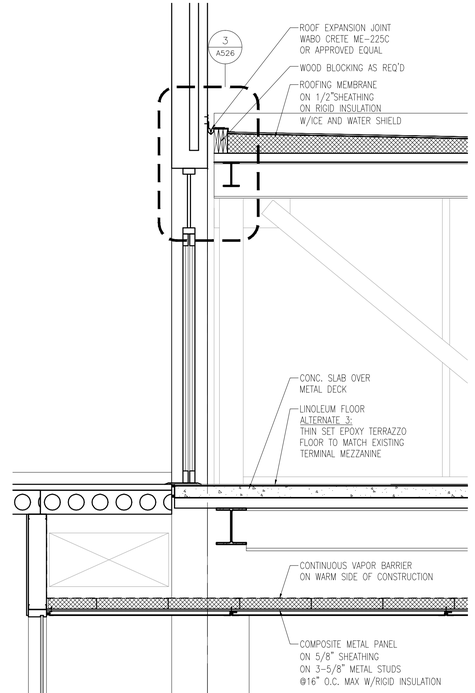
SHEET NUMBER
A402

ISSUED FOR BID

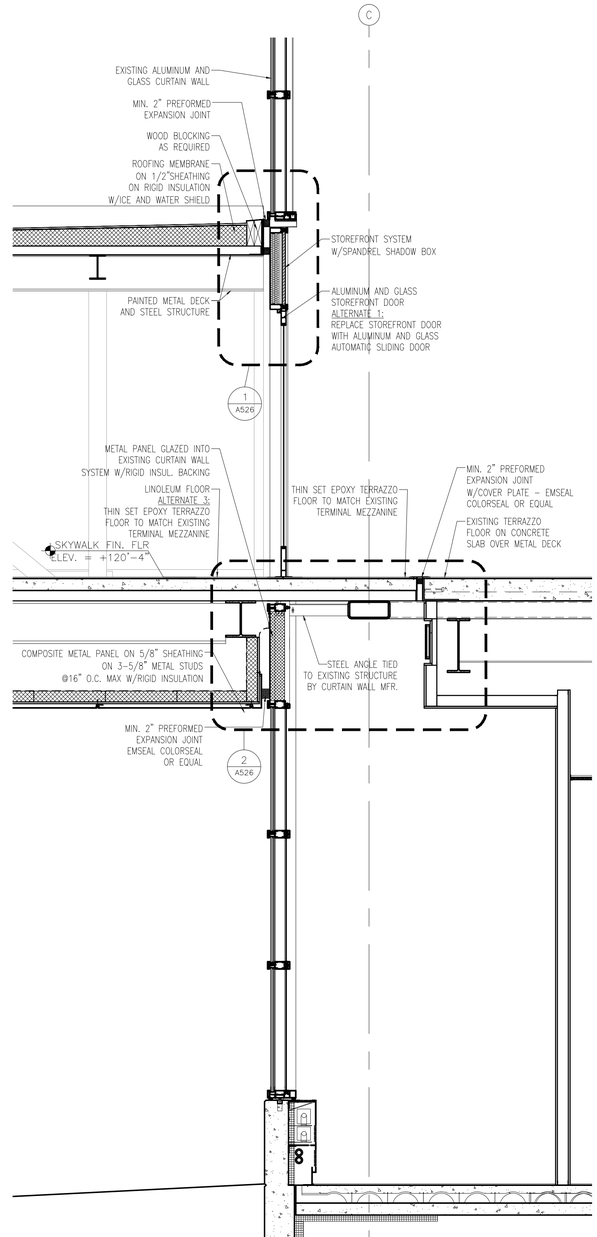
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A402 Wall Sections.dwg Plotted on: 5/17/2013 11:09 AMPlotted by: Kristoffer Pederson



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



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



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

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Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

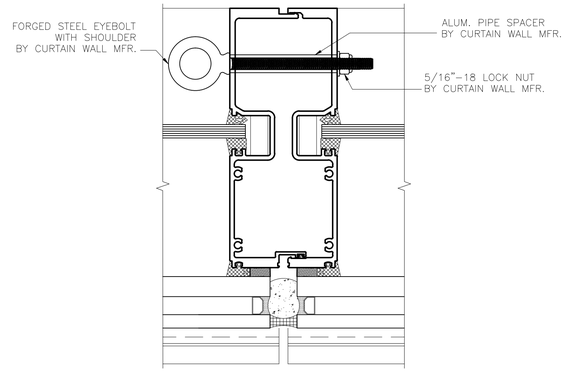
WALL SECTIONS

SHEET NUMBER

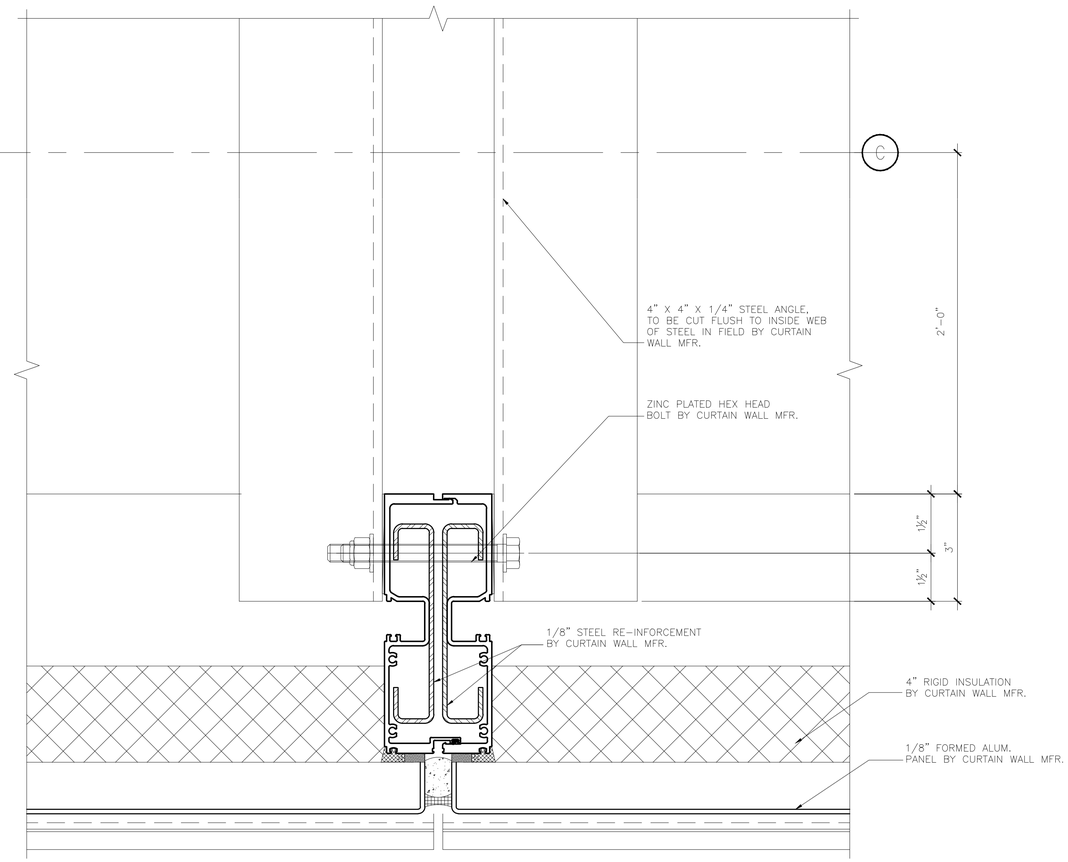
A403

ISSUED FOR BID

Drawing: T:\P\213188Z.114 Duluth Parking Structure\CAD\A\Sheets\A403 Wall Sections - Skywalk.dwg Plotted on: 5/16/2013 6:52 PM Plotted by: Godzina, Marc



1 PLAN DETAIL @ CURTAIN WALL
6" = 1'-0"



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

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

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11 E Superior Street Suite 340, Duluth MN 55802
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Landscape Architects:
ARCHITECTURAL RESOURCES
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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 Minnesota.

Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

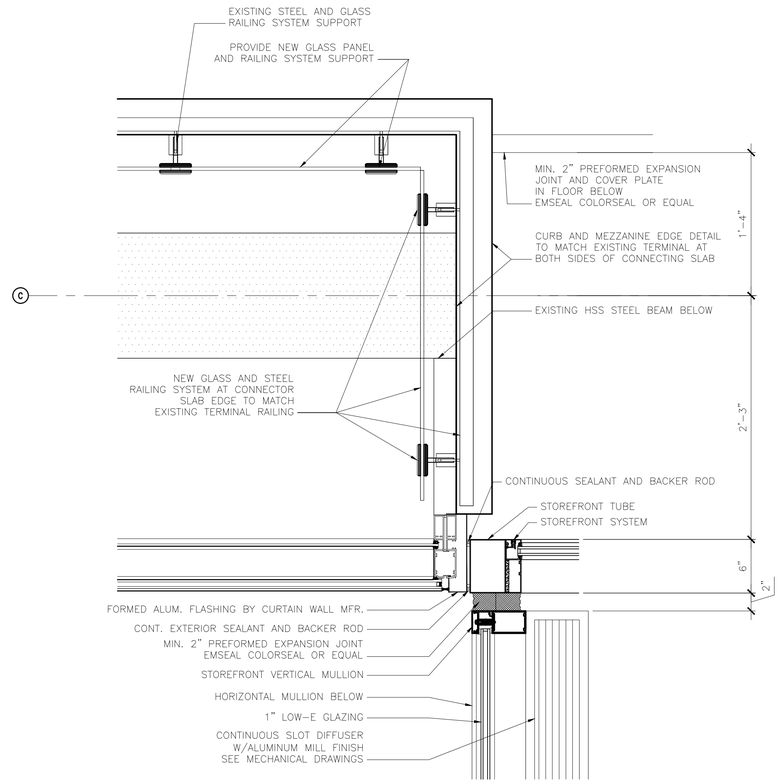
SHEET TITLE

PLAN DETAILS CURTAIN WALL

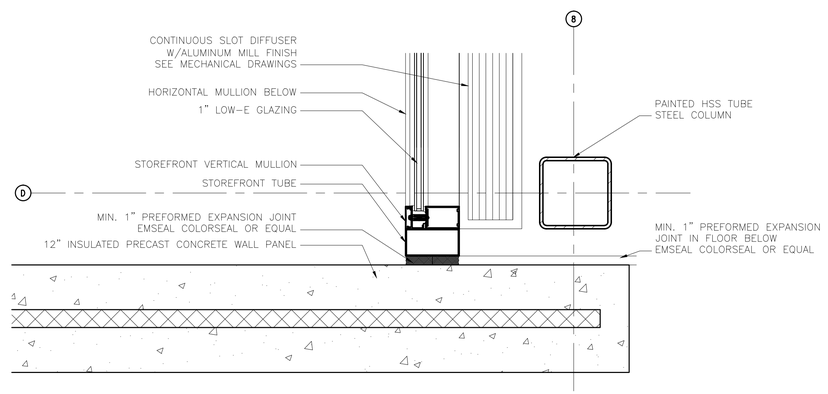
SHEET NUMBER

A513

ISSUED FOR BID



1 PLAN DETAIL @ SKYWALK END NORTH
1 1/2" = 1'-0"



2 PLAN DETAIL @ SKYWALK END SOUTH
1 1/2" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

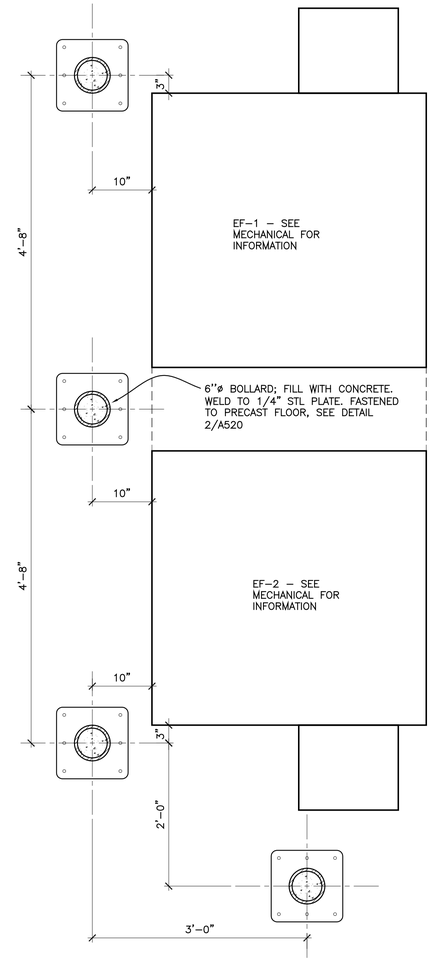
PLAN DETAILS SKYWALK

SHEET NUMBER

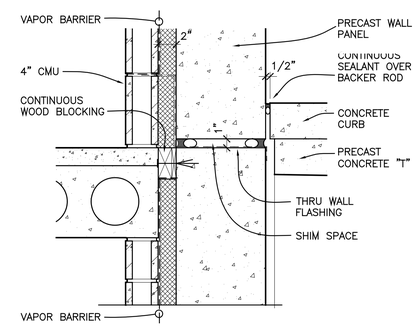
A514

ISSUED FOR BID

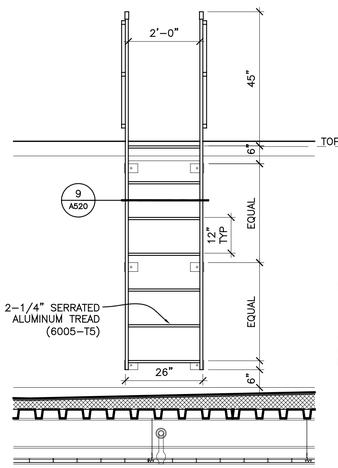
Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A514 Plan Details - Skywalk.dwg Plotted on: 5/16/2013 6:52 PM Plotted by: Godzina, Marc



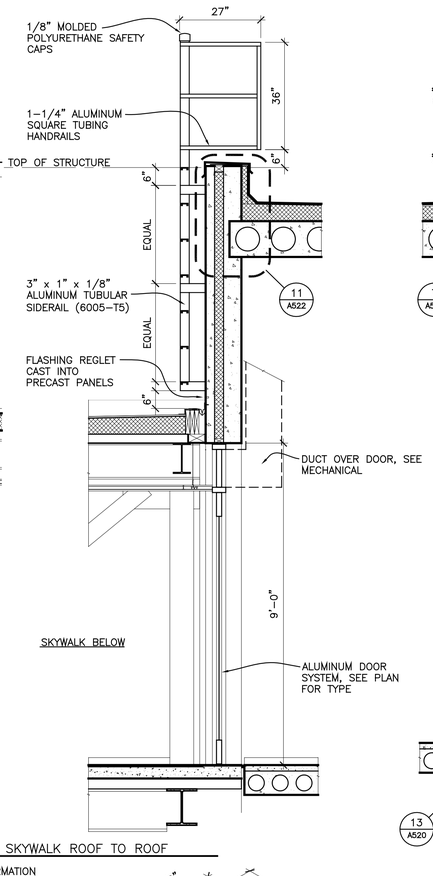
12 BOLLARD LAYOUT AT EF-1 AND EF-2
1" = 1'-0"

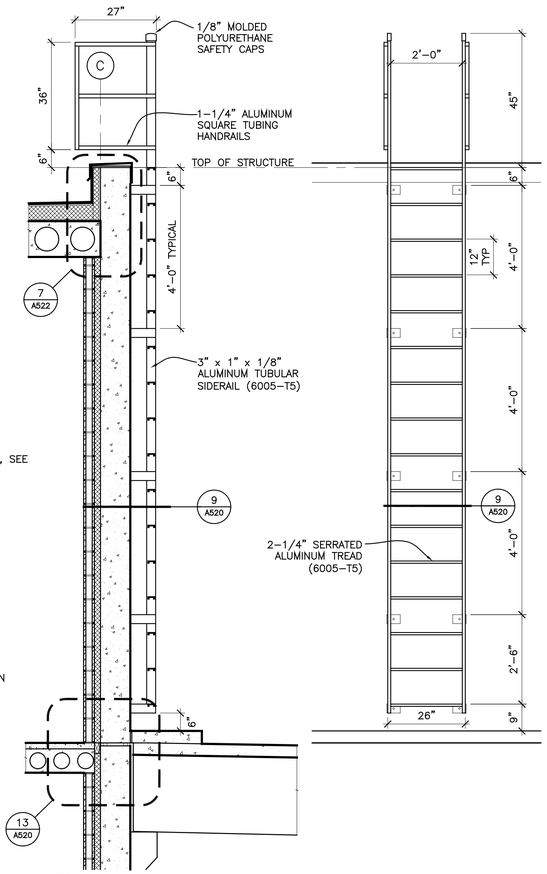


13 WALL FLASHING DETAIL
1 1/2" = 1'-0"

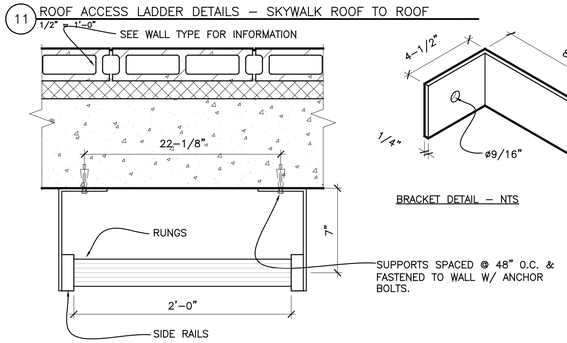


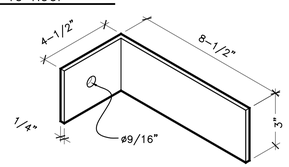
SKYWALK BELOW





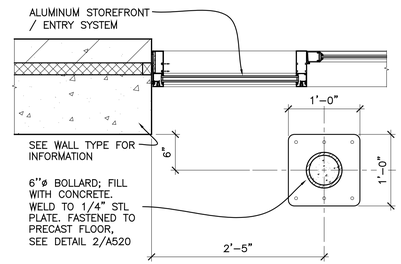
11 ROOF ACCESS LADDER DETAILS – SKYWALK ROOF TO ROOF
1/2" = 1'-0"



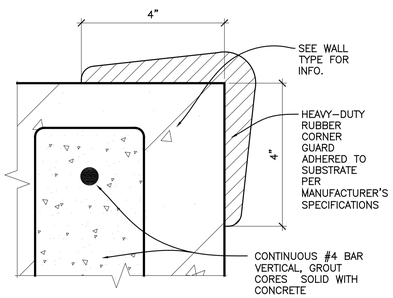


BRACKET DETAIL – NTS

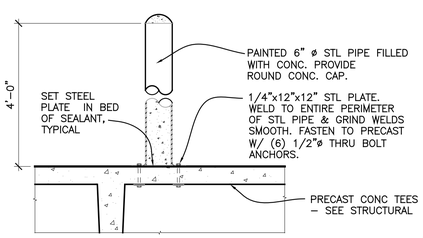
10 ROOF ACCESS LADDER DETAILS – LEVEL 3 TO ROOF
1/2" = 1'-0"



9 PLAN DETAIL AT ROOF LADDER
1 1/2" = 1'-0"

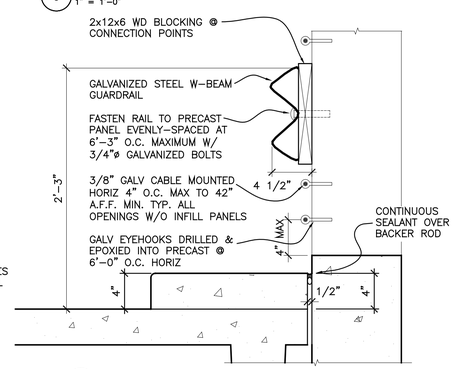


3 DETAIL AT CORNER GUARD
6" = 1'-0"

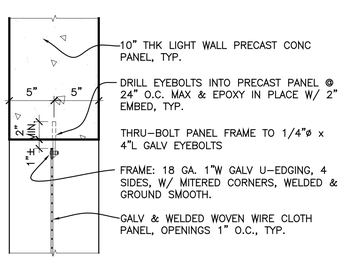


2 SECTION AT BOLLARD
3/4" = 1'-0"

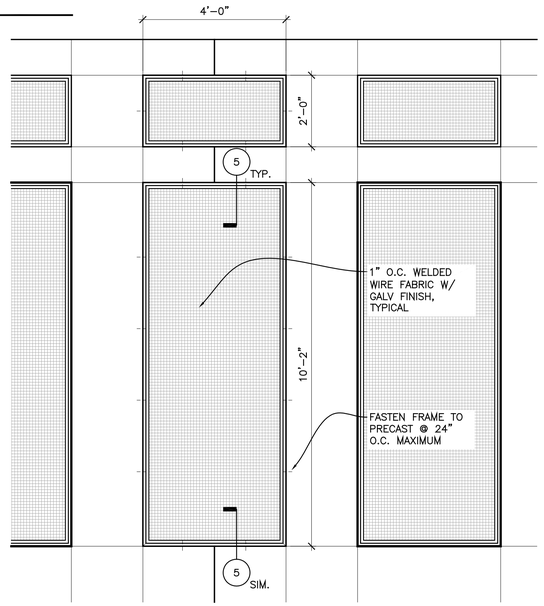
6 PLAN DETAIL AT BOLLARD
1" = 1'-0"



1 SECTION AT GUARDRAIL ASSEMBLY
1 1/2" = 1'-0"



5 SECTION AT TOP OF CABLE ASSEMBLY
1 1/2" = 1'-0"



4 ELEVATION AT TYPICAL INFILL ASSEMBLY
1/2" = 1'-0"

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
MISCELLANEOUS DETAILS

SHEET NUMBER
A520

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A520 MISCELLANEOUS DETAILS.dwg Plotted on: 5/17/2013 11:46 AMPlotted by: Kristoffer Pederson

ROOM FINISH SCHEDULE

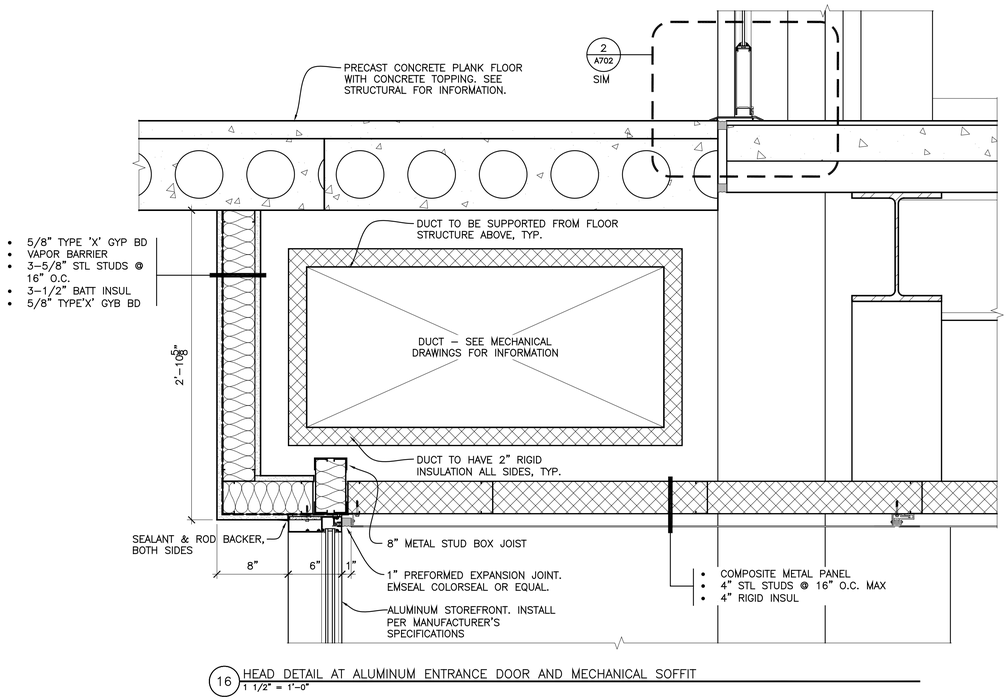
ROOM NO.	ROOM NAME	FLOOR	BASE	NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING			REMARKS *
				MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	HEIGHT	
LOWER LEVEL															
B01	STAIR 'A'	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	PC	PT–1	N/A	–	–	–
B02	LOBBY	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	CMU	PT–1	OPEN	–	–	–
B03	SPRINKLER RISER RM.	CONC	–	PC	–	PC	–	–	–	–	–	OPEN	–	–	–
B04	ELECTRICAL ROOM	CONC	–	PC	–	CMU	–	–	–	–	–	OPEN	–	–	–
B05	ELEVATOR MECH. RM.	CONC	–	CMU	–	CMU	–	CMU	–	CMU	–	OPEN	–	–	–
B06	RENTAL CAR PARKING	CONC	–	CONC	–	CONC	–	CONC	–	CONC	–	CONC	–	–	1
B07	STAIR 'B'	SC	–	PC	–	–	–	–	–	–	–	N/A	–	–	–
FIRST LEVEL															
101	STAIR 'A'	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	PC	PT–1	N/A	–	–	–
102	LOBBY	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	CMU	PT–1	OPEN	–	–	2
103	PUBLIC PARKING	CONC	–	PC	–	PC	–	PC	–	PC	–	OPEN	–	–	2
104	DAA PARKING	CONC	–	GWB	PT–1	GWB	PT–1	GWB	PT–1	GWB	PT–1	OPEN	–	–	1
105	MECHANICAL ROOM	CONC	–	–	–	–	–	–	–	–	–	OPEN	–	–	–
106	BREAK ROOM	SC	–	GWB	PT–1	CMU	PT–1	CMU	PT–1	CMU	PT–1	OPEN	–	–	–
107	STAIR 'B'	SC	–	PC	–	PC	–	PC	–	PC	–	N/A	–	–	–
SECOND LEVEL															
201	STAIR 'A'	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	PC	PT–1	N/A	–	–	–
202	LOBBY	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	CMU	PT–1	OPEN	–	–	2
203	PUBLIC PARKING	CONC	–	PC	–	PC	–	PC	–	PC	–	OPEN	–	–	2
204	STAIR 'B'	SC	–	PC	–	PC	–	PC	–	PC	–	N/A	–	–	–
THIRD LEVEL															
301	STAIR 'A'	SC	–	PC	PT–1	CMU	PT–1	CMU	PT–1	PC	PT–1	OPEN	PT–2	–	–
302	LOBBY	SC	–	PC/CMU	PT–1	CMU	PT–1	CMU	PT–1	CMU	PT–1	OPEN	PT–2	–	2
303	PUBLIC PARKING	CONC	–	PC	–	PC	–	PC	–	PC	–	OPEN	–	–	2
304	STAIR 'B'	SC	–	PC	–	PC	–	PC	–	PC	–	OPEN	PT–2	–	–
305	SKYWALK	LINO	–	GLAZING	–	GLAZING	–	CMU	PT–4	GLAZING	–	OPEN	PT–3	–	3

REMARKS

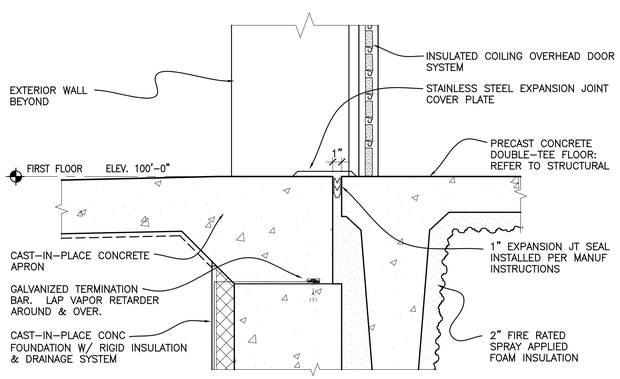
1	INSTALL FIRE–RESISTANT SPRAY–APPLIED INSULATION OVER EXPOSED PRECAST CONCRETE CEILING AS INDICATED.
2	APPLY TRAFFIC MEMBRANE TO FLOOR AREAS SHOWN SHADED.
3	ALL EXPOSED STRUCTURAL MEMBERS AND SURFACES OTHER THAN FLOORS AND STOREFRONT TO RECEIVE PT–4 U.N.O.
4	NOT USED.

ROOM FINISH ABBREVIATIONS

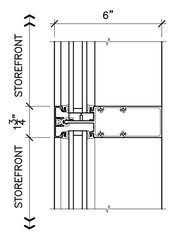
OPEN	ACOUSTICAL CEILING TILE
CMU	CONCRETE MASONRY UNITS
CONC	CONCRETE
PC	PRECAST CONCRETE
PT	PAINT
SC	SEALED CONCRETE
LINO	LINOLEUM
–	–



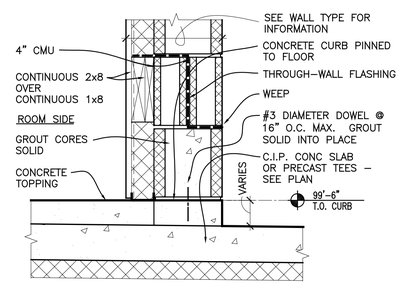
16 HEAD DETAIL AT ALUMINUM ENTRANCE DOOR AND MECHANICAL SOFFIT
1 1/2" = 1'–0"



3 SILL DETAIL AT OVERHEAD DOOR
1 1/2" = 1'–0"



2 TYPICAL MULLION AT STOREFRONT
3" = 1'–0"



1 CONDITION AT CMU WALL BASE/CURB
1 1/2" = 1'–0"

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Signature:

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DRAWN BY: KSM
DESIGNED BY: RS&H

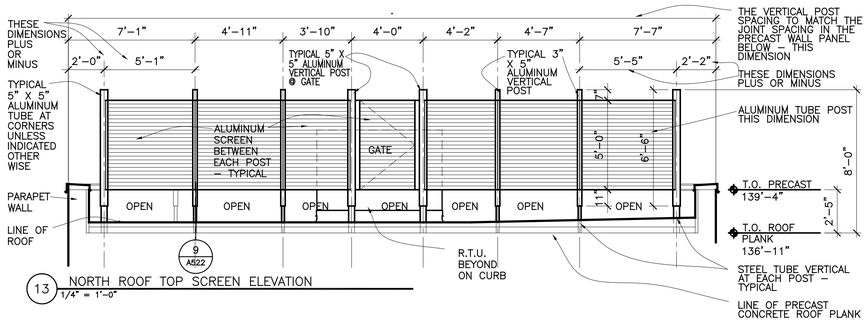
AEP PROJECT NUMBER
213–1882–114

SHEET TITLE
ROOM FINISH SCHEDULE & MISCELLANEOUS DETAILS

SHEET NUMBER
A521

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A521 Room Finish Schedule & Miscellaneous Details.dwg Plotted on: 5/17/2013 12:00 PMPlotted by: Kristoffer Pederson



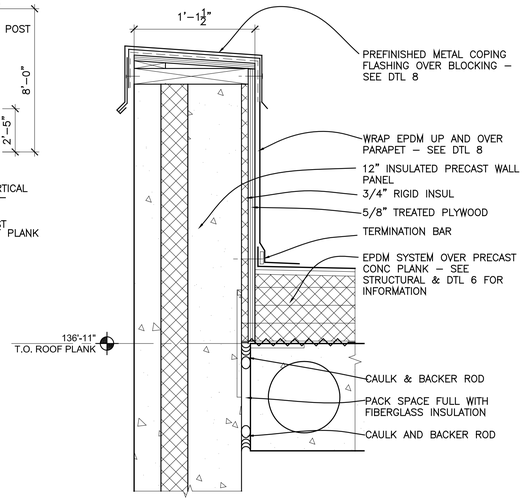
13 NORTH ROOF TOP SCREEN ELEVATION
1/4" = 1'–0"

NOTES

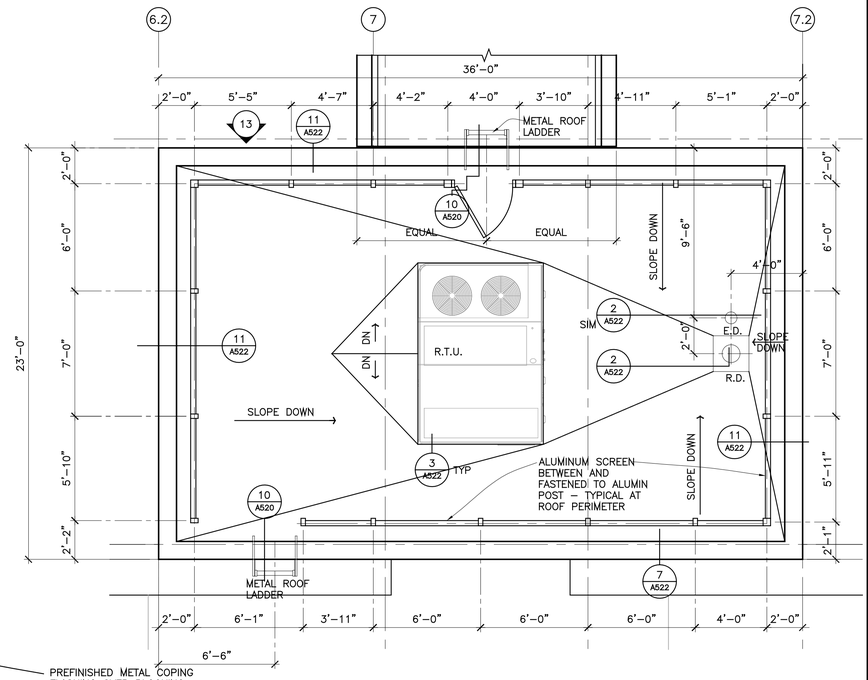
- SCREEN AT THE NORTH EAST STAIR
  1. ELEVATION 13: INDICATES THE TYPICAL CONSTRUCTION FOR THE SCREEN ON THE ROOF PERIMETER OF THE STAIR TOWER AT THE R.T.U.
  2. THE SPACING OF THE VERTICAL POST SHALL VARY FROM ONE ELEVATION TO THE OTHER ELEVATION. VERTICAL POST SPACING SHALL MATCH THE SPACING OF THE PRECAST CONCRETE WALL PANEL JOINTS AND OR THE VERTICAL REVEALS IN THE PRECAST CONCRETE WALL PANEL JOINTS OF THE EXTERIOR WALL BELOW THE SCREEN. COORDINATE LOCATION OF POSST/COLUMNS WITH THE PRECAST WALL PANELS
  3. GATE:
     A. PROVIDE FURNISH AND INSTALL: HINGES AND LATCH SET SIZE TO CARRY THE LOAD OF THE GATE AND RELATED CONSTRUCTION.
  4. ALUMINUM POST:
     A. POST NOTED AS 5"X5" SHALL BE 5"X5"X¼" THICK ALUMINUM TUBES
     B. POST NOTED AS 5"X3" SHALL BE 5"X3"X¼" ALUMINUM TUBES.
     C. ALL ALUMINUM POST TO RECEIVE WELDED 1" ALUMINUM CAP AT THE TOP OF THE POST. CAP TO BE SIZE TO SIZE OF COLUMN/POST. CONTINUOUS WELD CAP TO POST AND GRIND WELD SMOOTH.
  5. STEEL POST/COLUMNS:
     A. THE STEEL POST/COLUMN SIZE AT 5"X5" ALUMINUM POST SHALL BE 4"X4"X¼" STEEL TUBE COLUMNS.
     B. THE STEEL POST/COLUMN SIZE AT 5"X3" ALUMINUM POST SHALL BE 4"X2"X¼" STEEL TUBE COLUMNS.
     C. REFER TO DETAIL 9/A522 AND ELEVATION 13/A522.

ROOF SYMBOLS

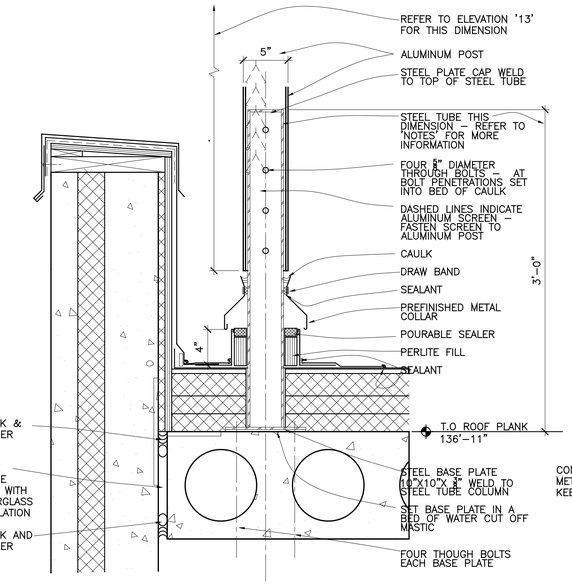
SLOPE DOWN → DENOTES ROOF SLOPE AT ¼" PER FOOT



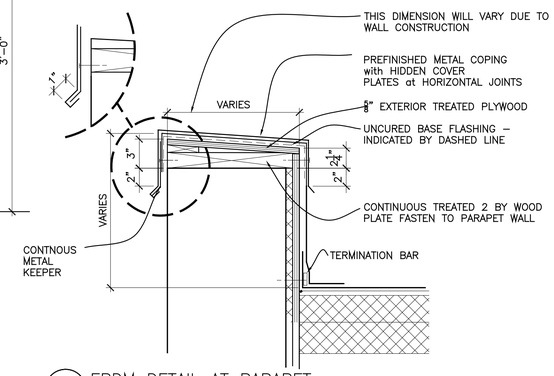
11 PARAPET AT PRECAST WALL PANEL
1 1/2" = 1'–0"



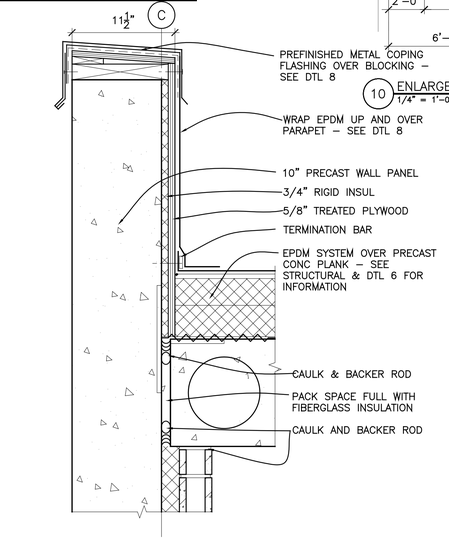
10 ENLARGED ROOF PLAN AT NORTH CIRCULATION TOWER
1/4" = 1'–0"



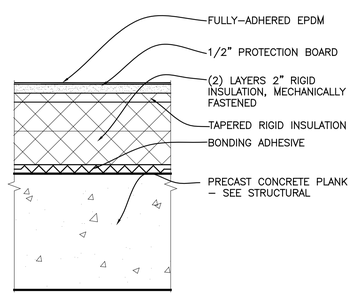
9 SCREEN MOUNTING DETAIL TO ROOF PLANK
1–1/2" = 1'–0"



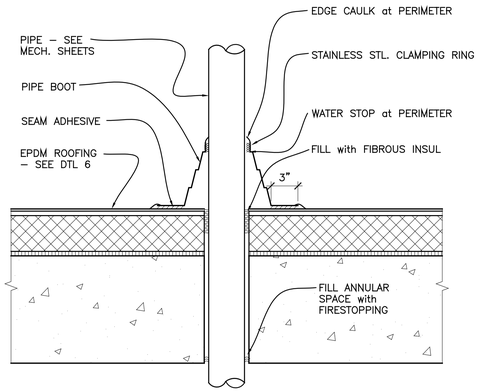
8 EPDM DETAIL AT PARAPET
1–1/2" = 1'–0"



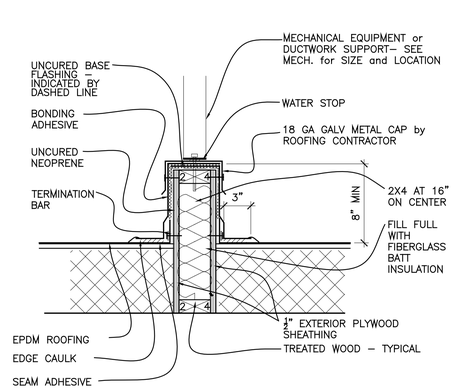
7 PARAPET AT PRECAST WALL PANEL
1 1/2" = 1'–0"



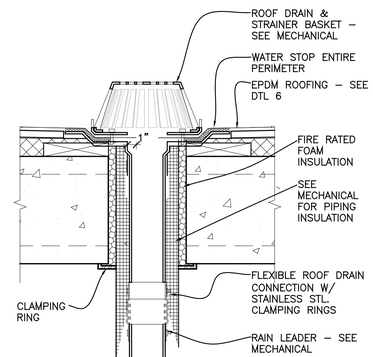
6 TYPICAL EPDM ROOF CONSTRUCTION
3" = 1'–0"



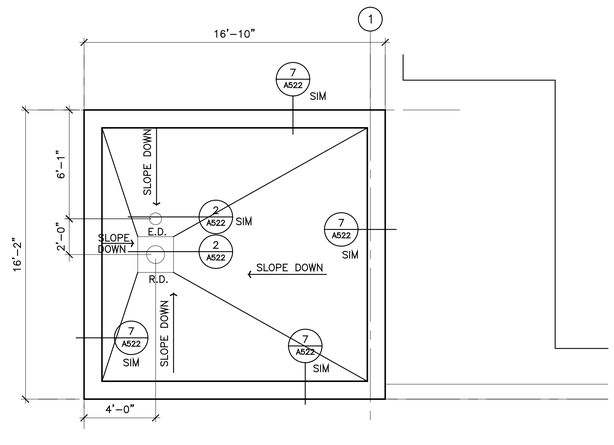
4 PIPE PENETRATION AT EPDM
1–1/2" = 1'–0"



3 EQUIPMENT SUPPORT CURB DETAIL
1–1/2" = 1'=0"



2 ROOF DRAIN AT EPDM
1–1/2" = 1'–0"



1 ENLARGED ROOF PLAN AT STAIR TOWER 'B'
1/4" = 1'–0"

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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 Minnesota.

Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

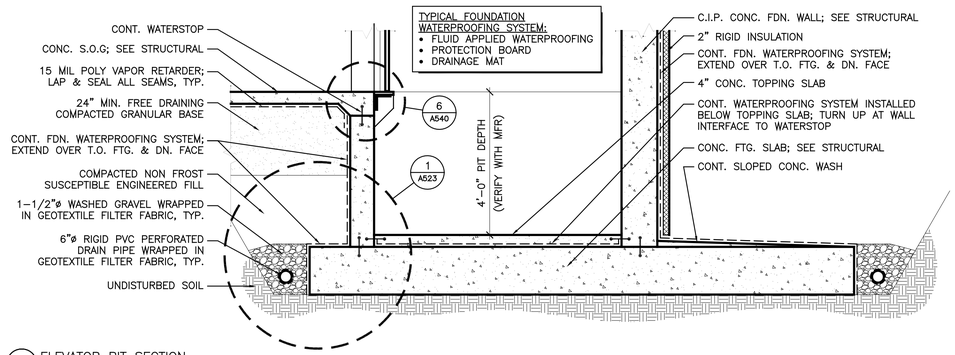
DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

AEP PROJECT NUMBER
213-1882-114

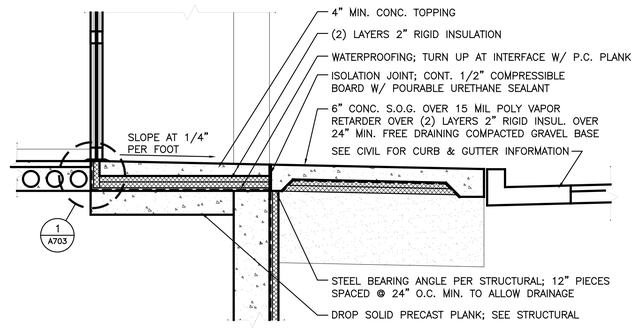
SHEET TITLE
ENLARGED ROOF PLANS & DETAILS

SHEET NUMBER
A522
OF
ISSUED FOR BID

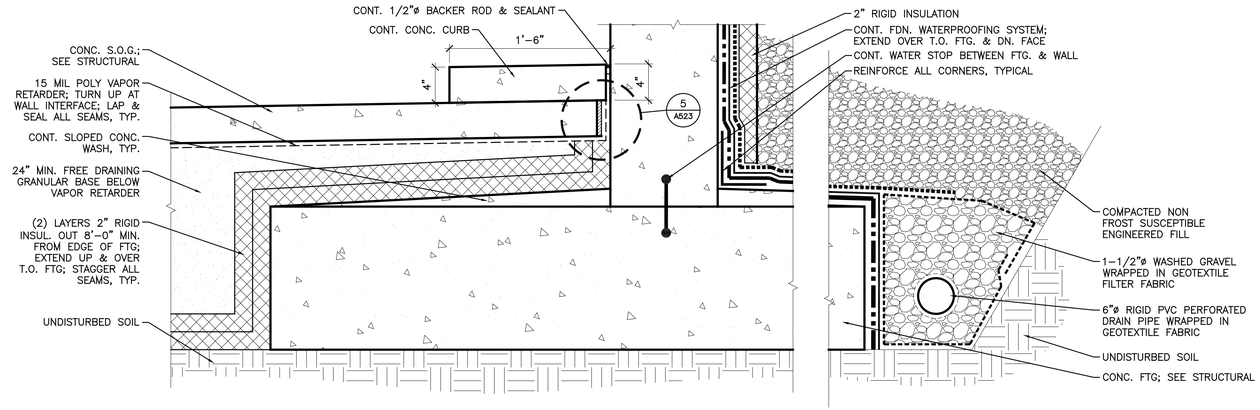
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A522 Enlarged Roof Plans & Details.dwg Plotted on: 5/17/2013 2:03 PM Plotted by: Jeffrey E. LaTour



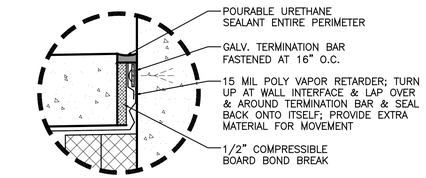
7 ELEVATOR PIT SECTION
SCALE: 1/2" = 1'-0"



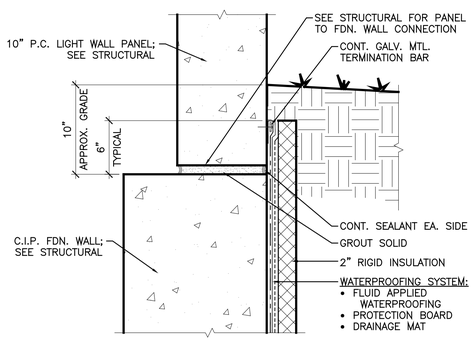
6 SECTION AT NORTHEAST CIRCULATION TOWER ENTRANCE
SCALE: 1/2" = 1'-0"



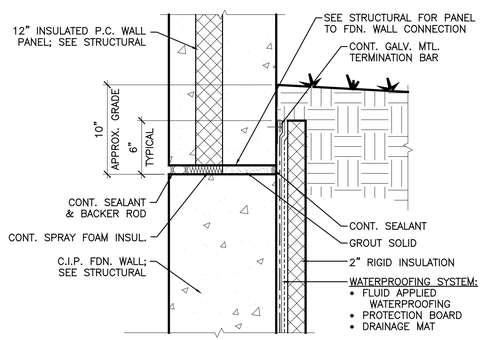
4 BASE OF WALL DETAIL
SCALE: 1-1/2" = 1'-0"



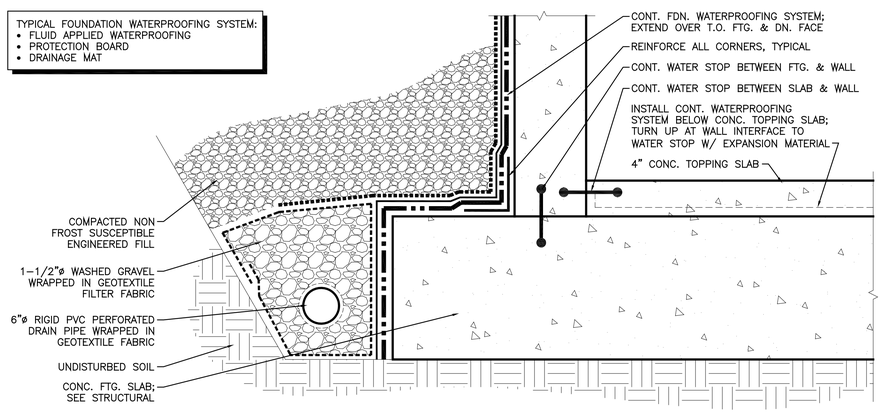
5 TYPICAL SLAB EDGE DETAIL AT FOUNDATION WALL
SCALE: 3" = 1'-0"



3 TOP OF FOUNDATION WALL DETAIL AT PRECAST LIGHT WALL PANEL
SCALE: 1 1/2" = 1'-0"



2 TOP OF FOUNDATION WALL AT INSULATED PRECAST PANEL
SCALE: 1-1/2" = 1'-0"



1 DETAIL AT BASE OF ELEVATOR PIT WALL
SCALE: 1-1/2" = 1'-0"

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Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

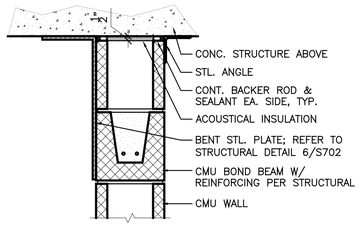
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
FOUNDATION DETAILS

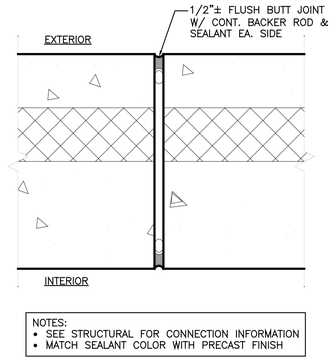
SHEET NUMBER
A523

ISSUED FOR BID

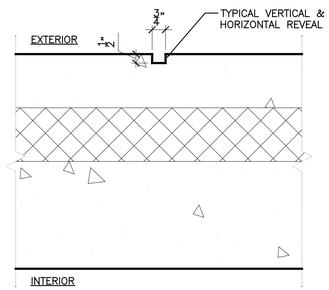
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A523 Foundation Details.dwg Plotted on: 5/17/2013 11:10 AMPlotted by: Kristoffer Pederson



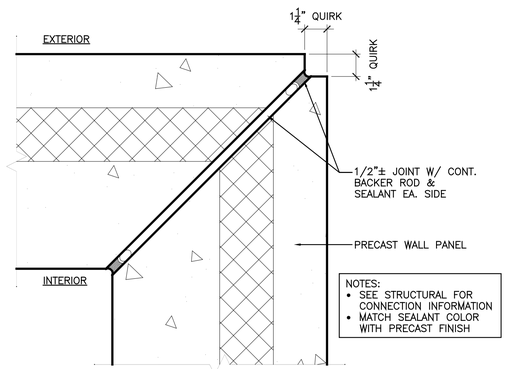
9 TOP OF CMU WALL DETAIL
SCALE: 1 1/2" = 1'-0"



8 TYPICAL PRECAST JOINT DETAIL
SCALE: 3" = 1'-0"

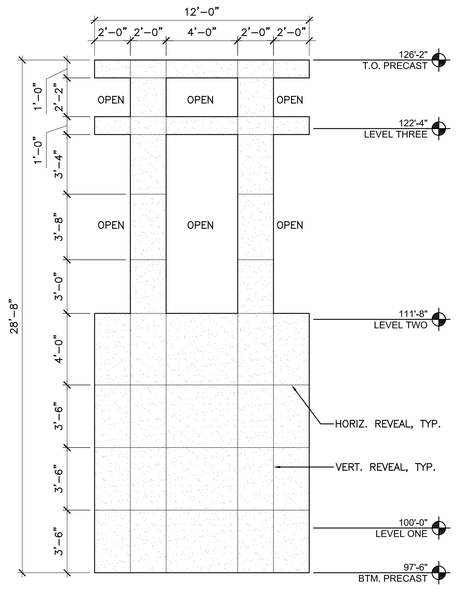


7 TYPICAL PRECAST REVEAL DETAIL
SCALE: 3" = 1'-0"

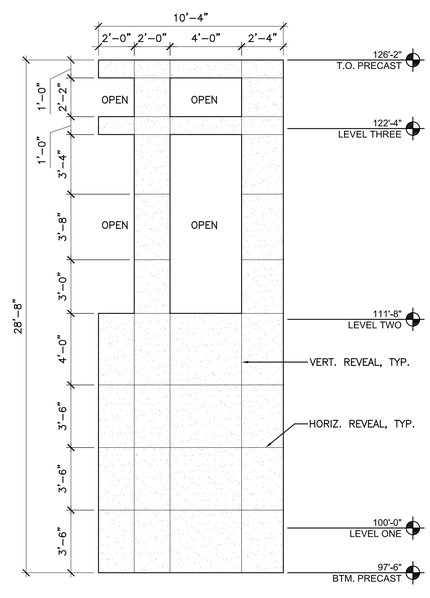


6 TYPICAL PRECAST CORNER DETAIL
SCALE: 3" = 1'-0"

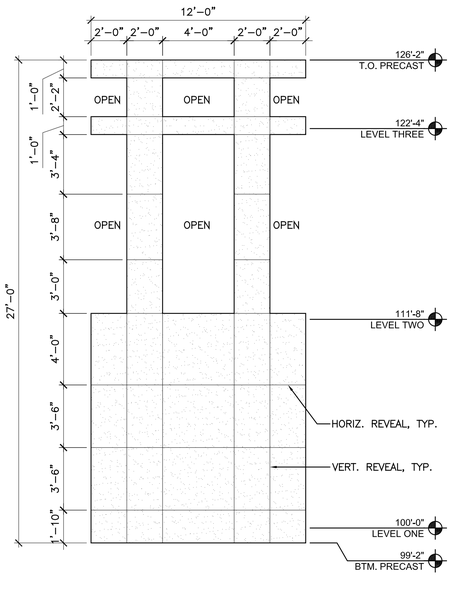
NOTE:
TYPICAL OPENINGS IN PRECAST WALL PANELS SCHEDULED TO RECEIVE WIRE MESH; SEE DETAILS 4 & 5 ON SHEET A520



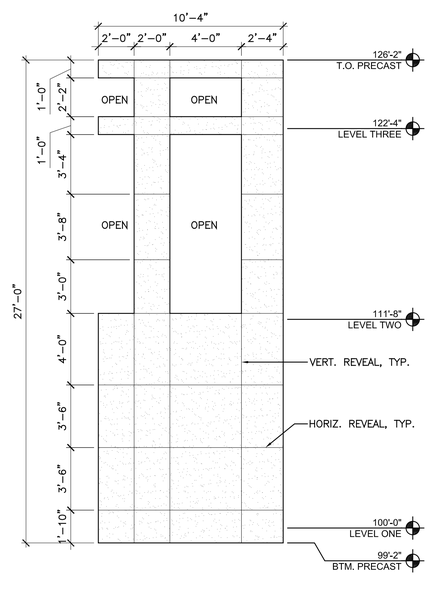
5 TYPICAL PRECAST PANEL – 1A
SCALE: 1/4" = 1'-0"



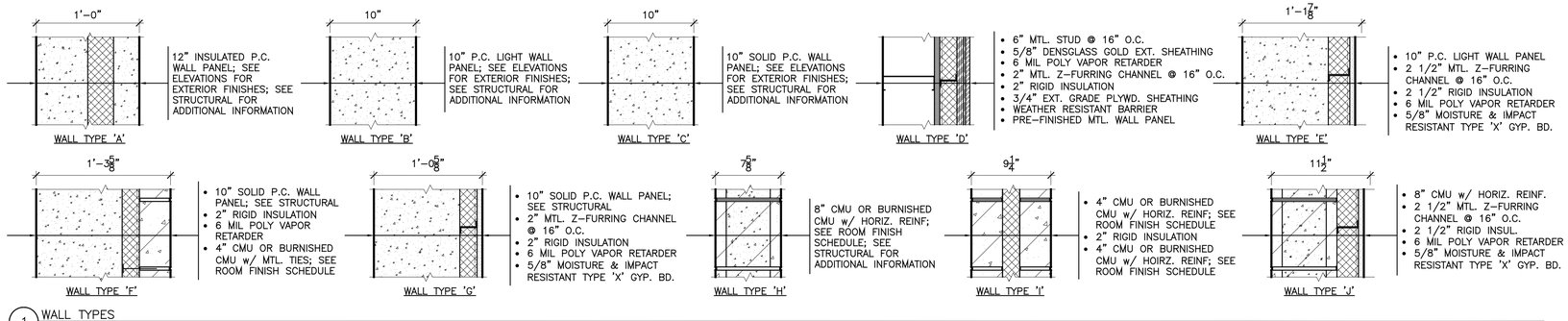
4 TYPICAL PRECAST PANEL – 1B
SCALE: 1/4" = 1'-0"



3 TYPICAL PRECAST PANEL – 2A
SCALE: 1/4" = 1'-0"



2 TYPICAL PRECAST PANEL – 2B
SCALE: 1/4" = 1'-0"



1 WALL TYPES
SCALE: 1 1/2" = 1'-0"

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

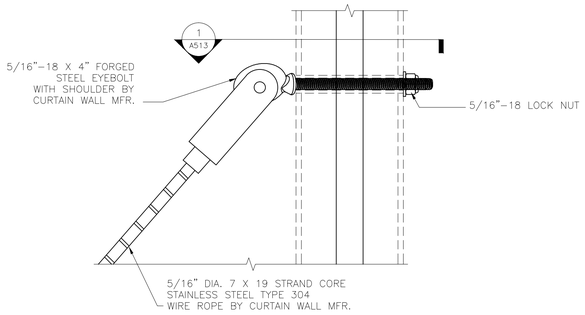
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
WALL TYPES & TYPICAL PRECAST PANELS

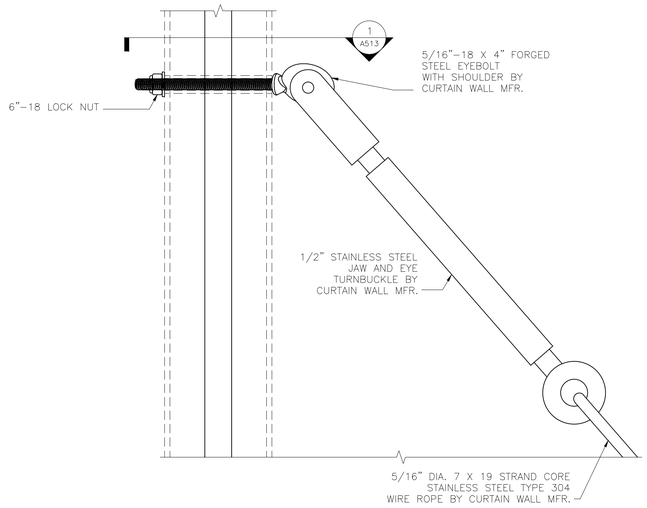
SHEET NUMBER
A524

ISSUED FOR BID

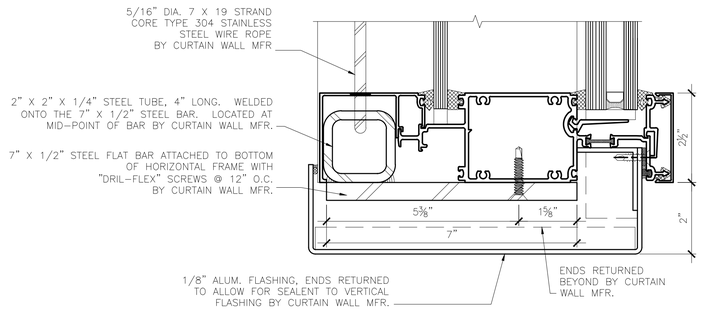
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A524 Wall Types & Typical Precast Panels.dwg Plotted on: 5/17/2013 11:10 AMPlotted by: Kristoffer Pederson



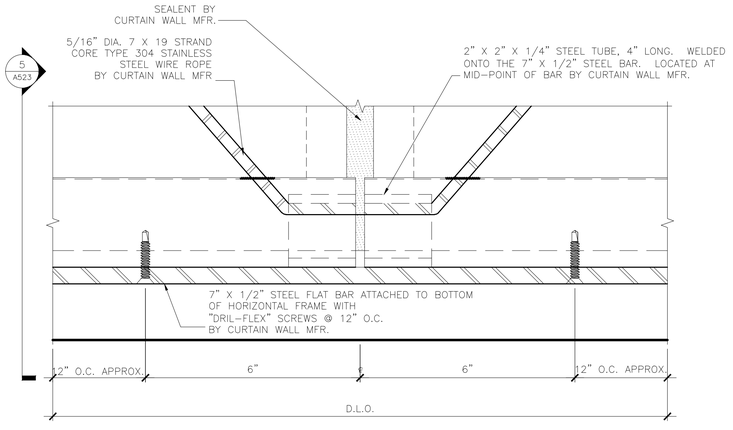
4 SECTION DETAIL @ CURTAIN WALL
6" = 1'-0"



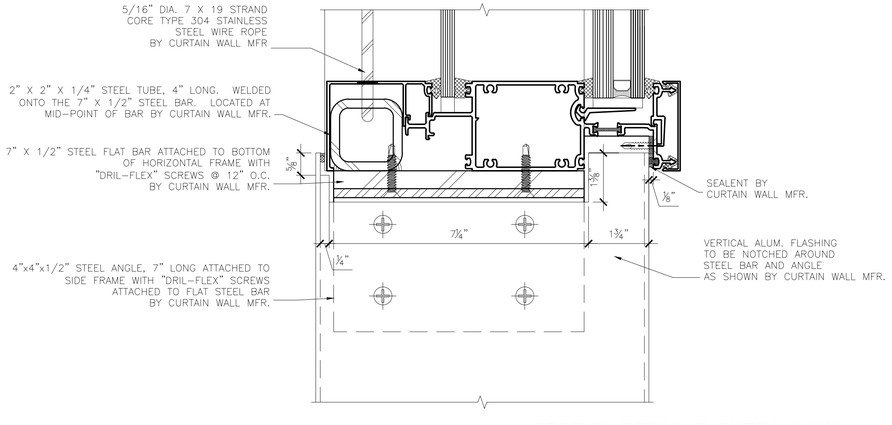
1 SECTION DETAIL @ CURTAIN WALL
6" = 1'-0"



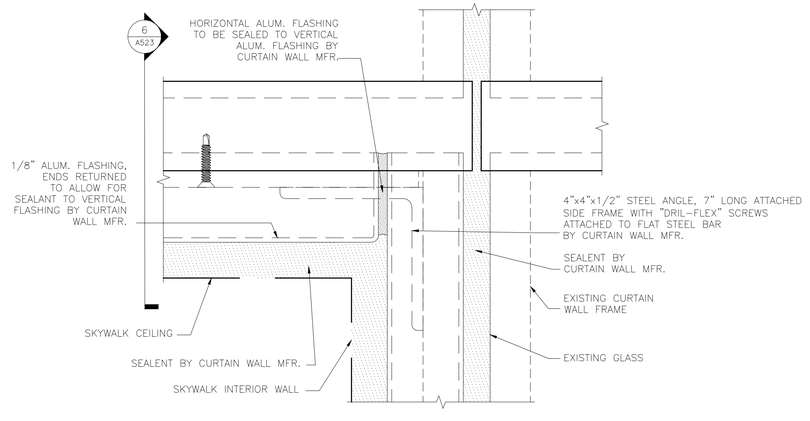
5 SECTION DETAIL @ CURTAIN WALL
6" = 1'-0"



2 SECTION DETAIL @ CURTAIN WALL
6" = 1'-0"



SECTION DETAIL @ CURTAIN WALL
6" = 1'-0"



3 SECTION DETAIL @ CURTAIN WALL
6" = 1'-0"

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Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

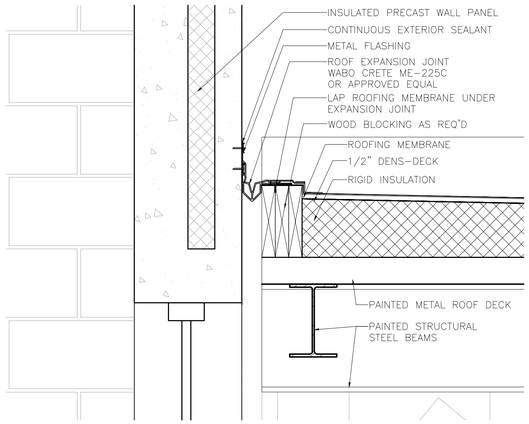
SECTION DETAILS CURTAIN WALL

SHEET NUMBER

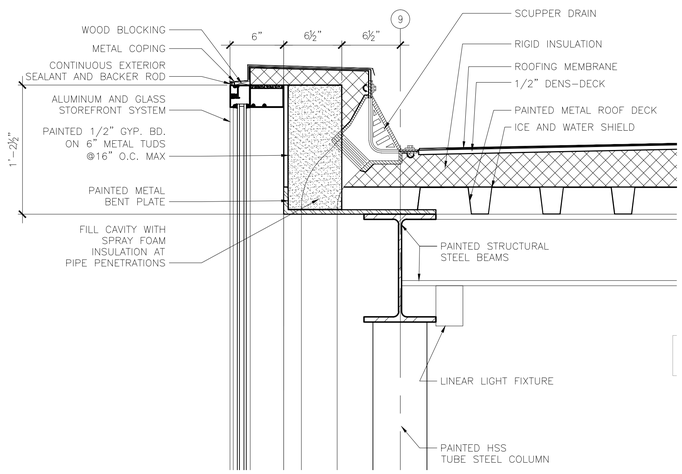
A525

ISSUED FOR BID

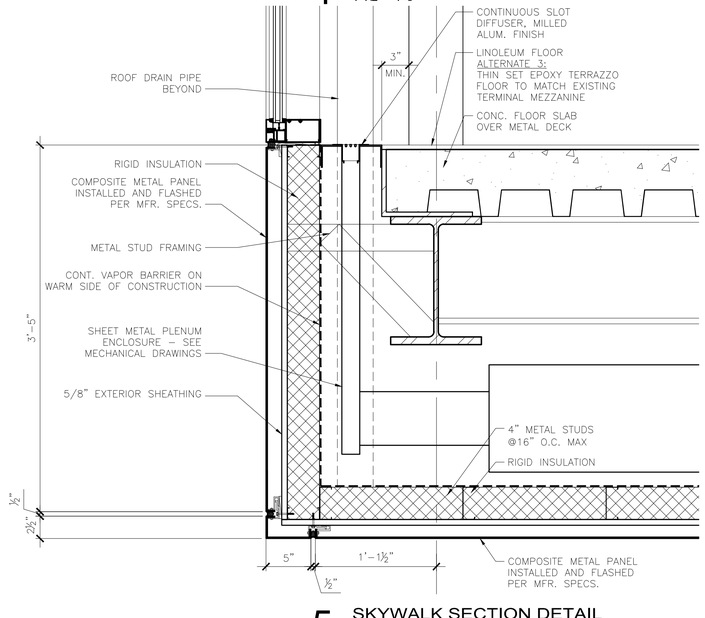
Drawing: I:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A525 Section Details – Curtain Wall.dwg Plotted on: 5/16/2013 6:53 PM Plotted by: Godzina, Marc



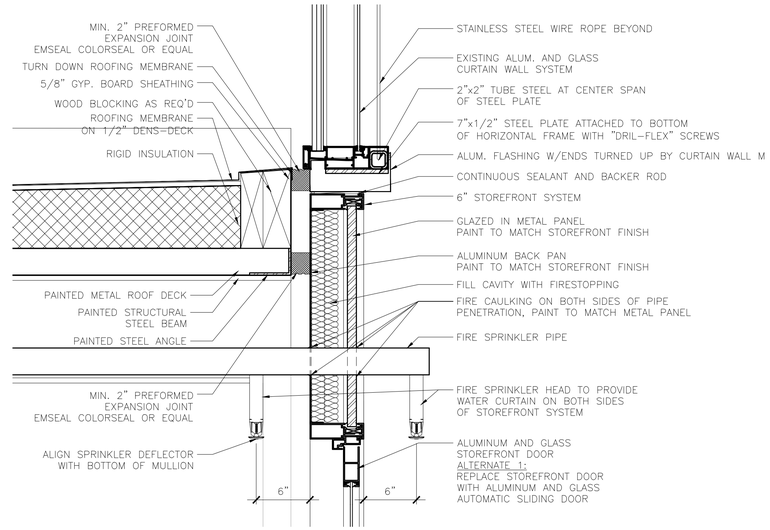
3 SECTION DETAIL @ SKYWALK GARAGE END HEAD
1-1\2" = 1'-0"



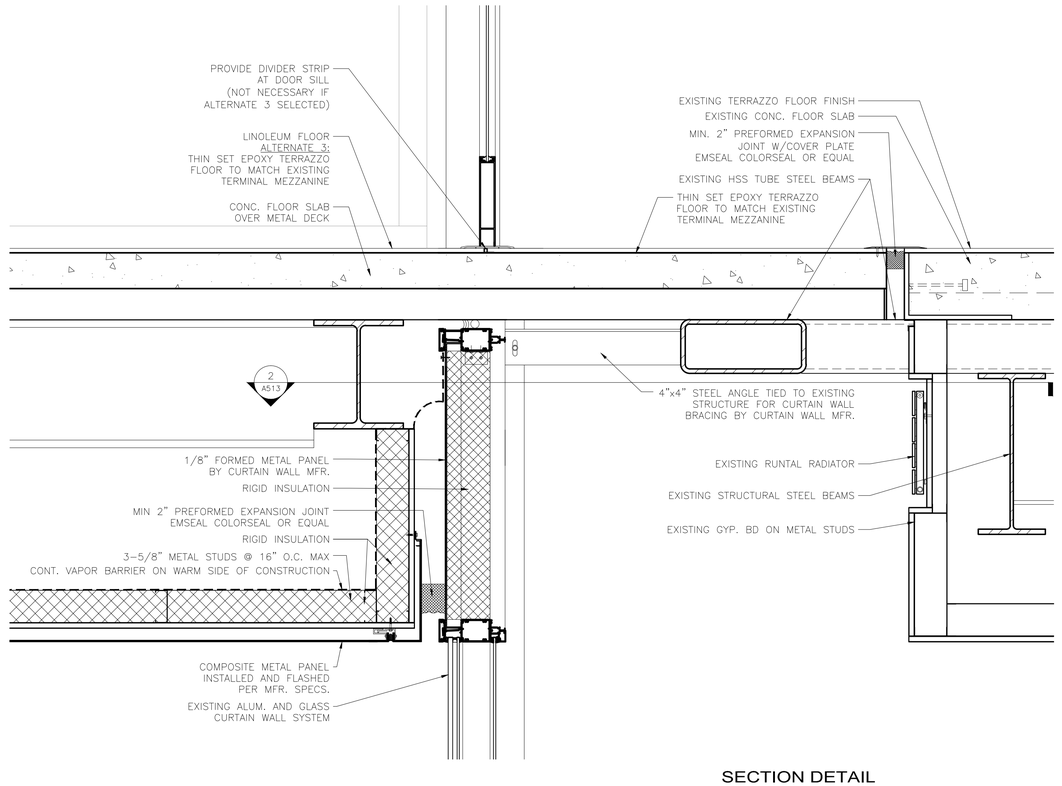
4 SKYWALK SECTION DETAIL
1-1\2" = 1'-0"



5 SKYWALK SECTION DETAIL
1-1\2" = 1'-0"



1 SECTION DETAIL @ SKYWALK TERMINAL END HEAD
1-1\2" = 1'-0"



2 SECTION DETAIL @ SKYWALKTERMINAL END SILL
1-1\2" = 1'-0"

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Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

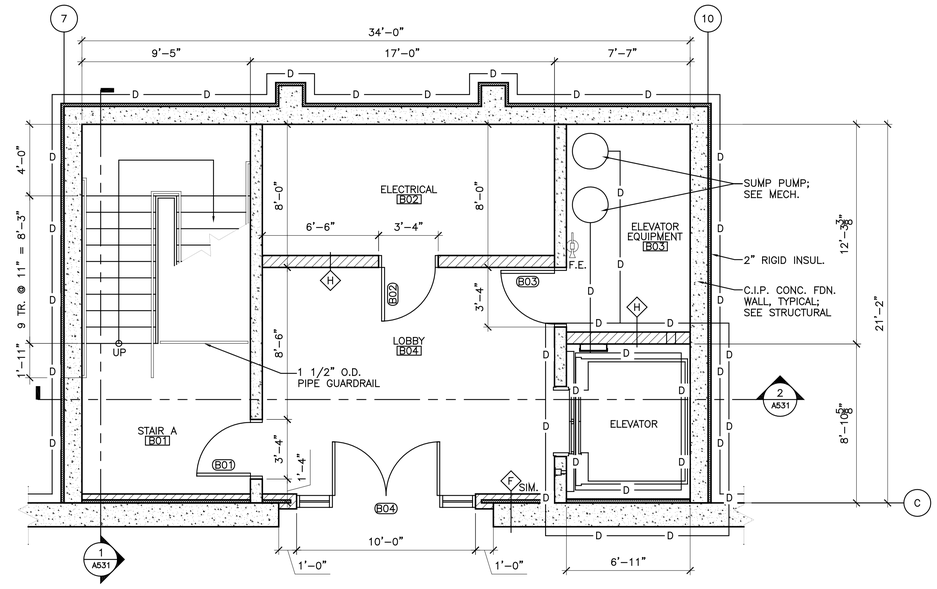
SECTION DETAILS SKYWALK

SHEET NUMBER

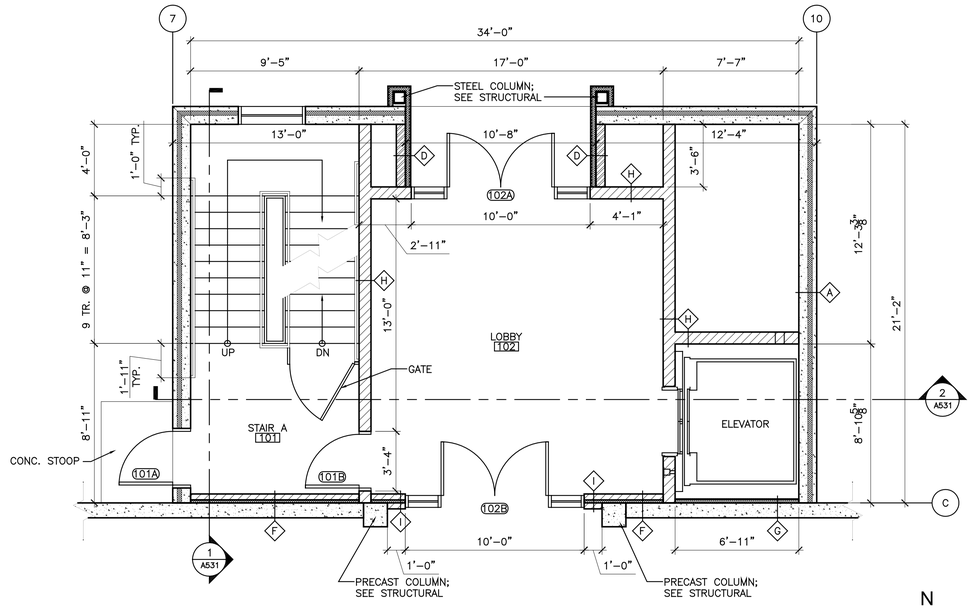
A526

ISSUED FOR BID

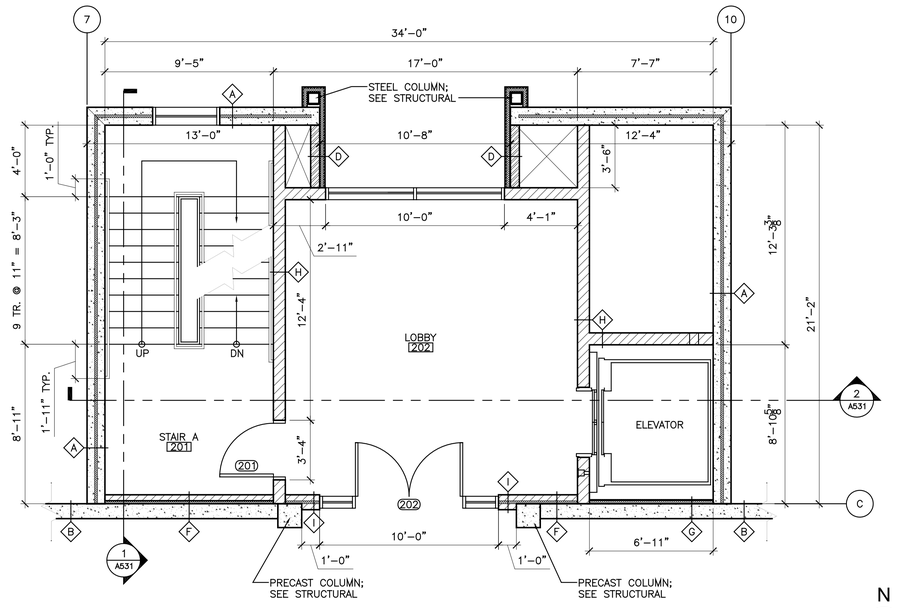
Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\A\Sheets\A526 Section Details - Skywalk.dwg Plotted on: 5/16/2013 6:53 PM Plotted by: Godzina, Marc



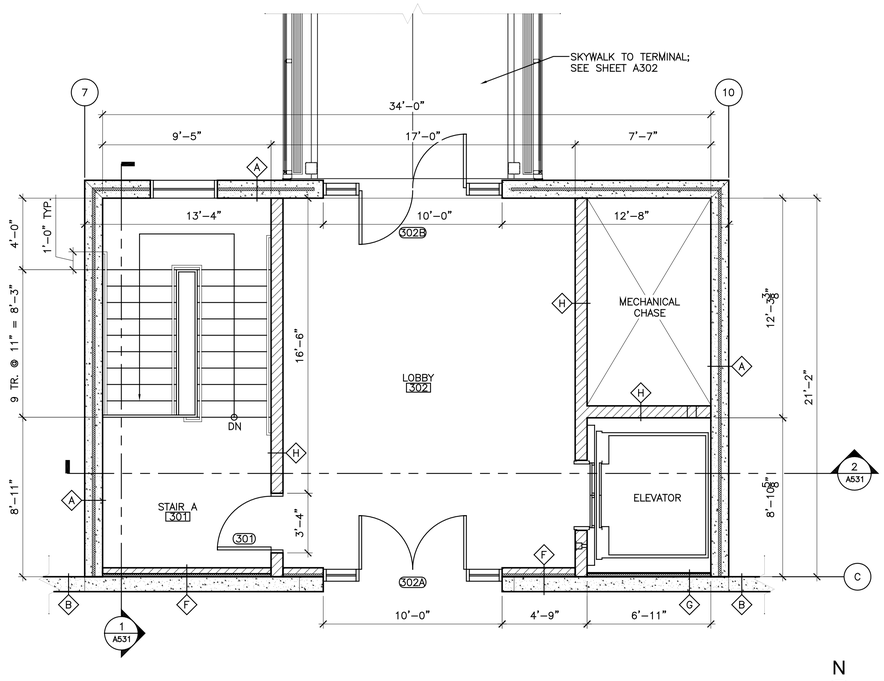
4 NE CIRCULATION TOWER ENLARGED LOWER LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"



3 NE CIRCULATION TOWER ENLARGED FIRST LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"



2 NE CIRCULATION TOWER ENLARGED SECOND LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"



1 NE CIRCULATION TOWER ENLARGED THIRD LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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ARCHITECTURAL CERTIFICATION
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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

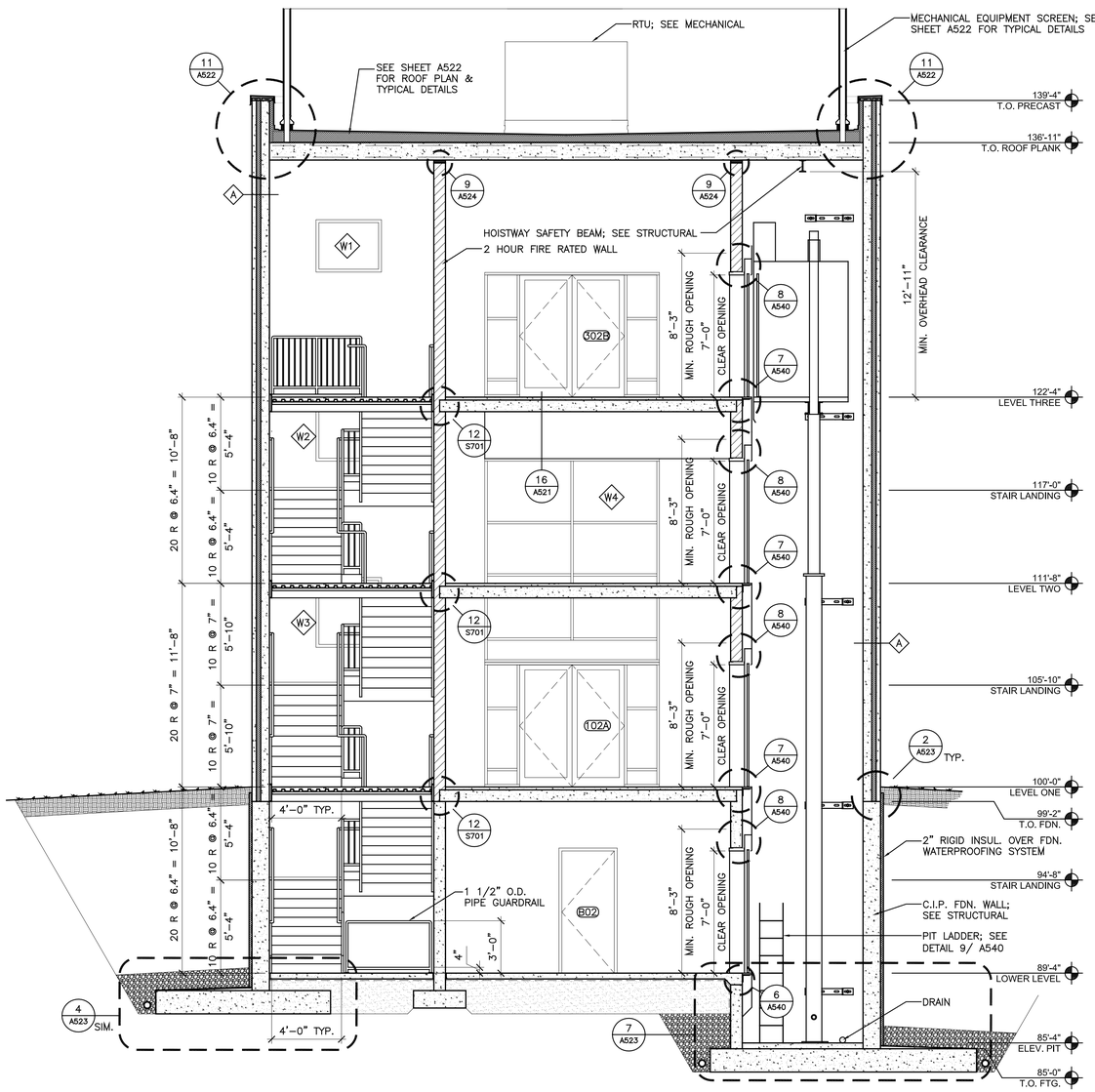
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
NE CIRCULATION TOWER ENLARGED FLOOR PLANS

SHEET NUMBER
A530

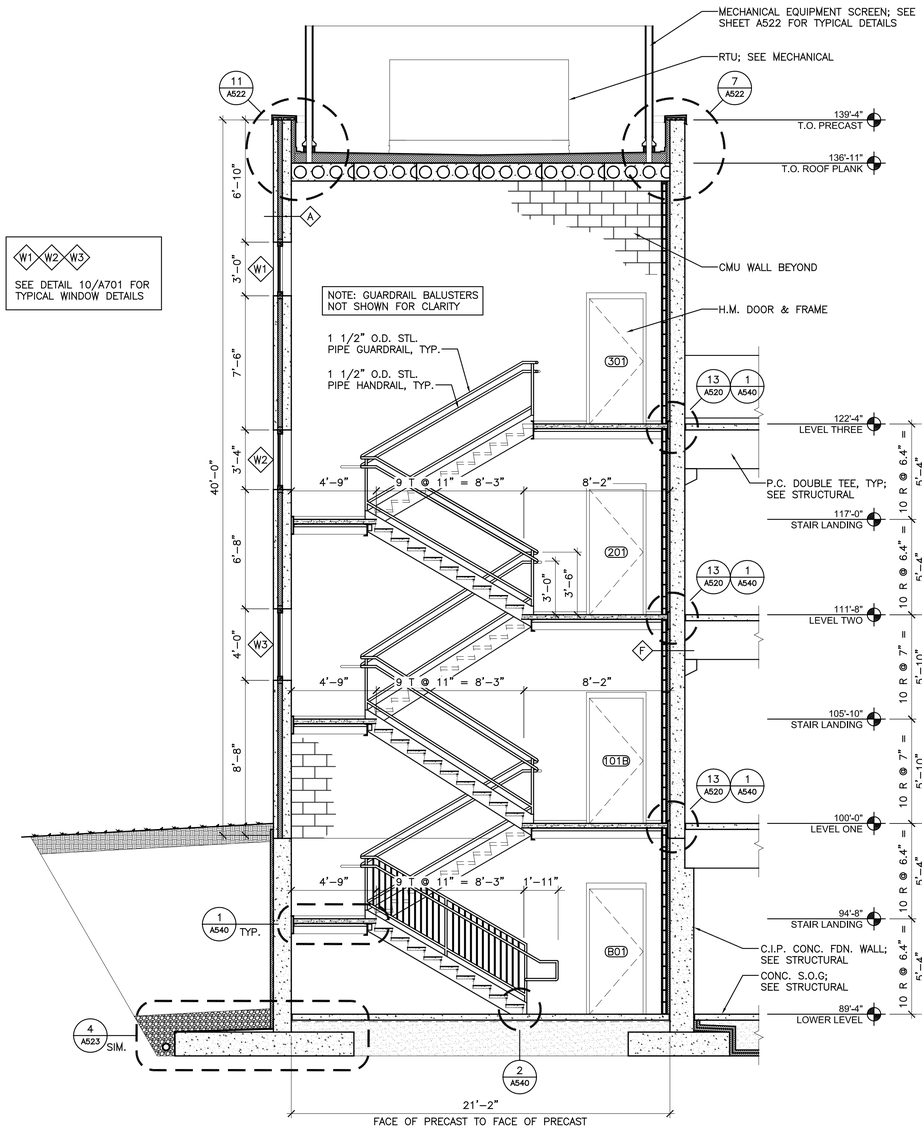
ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A530 NE Circulation Tower Enlarged Floor Plans.dwg Plotted on: 5/17/2013 11:12 AMPlotted by: Kristoffer Pederson



2 NW CIRCULATION TOWER SECTION
SCALE: 1/4" = 1'-0"

W1 W2 W3
SEE DETAIL 10/A701 FOR TYPICAL WINDOW DETAILS



1 NW CIRCULATION TOWER SECTION
SCALE: 1/4" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

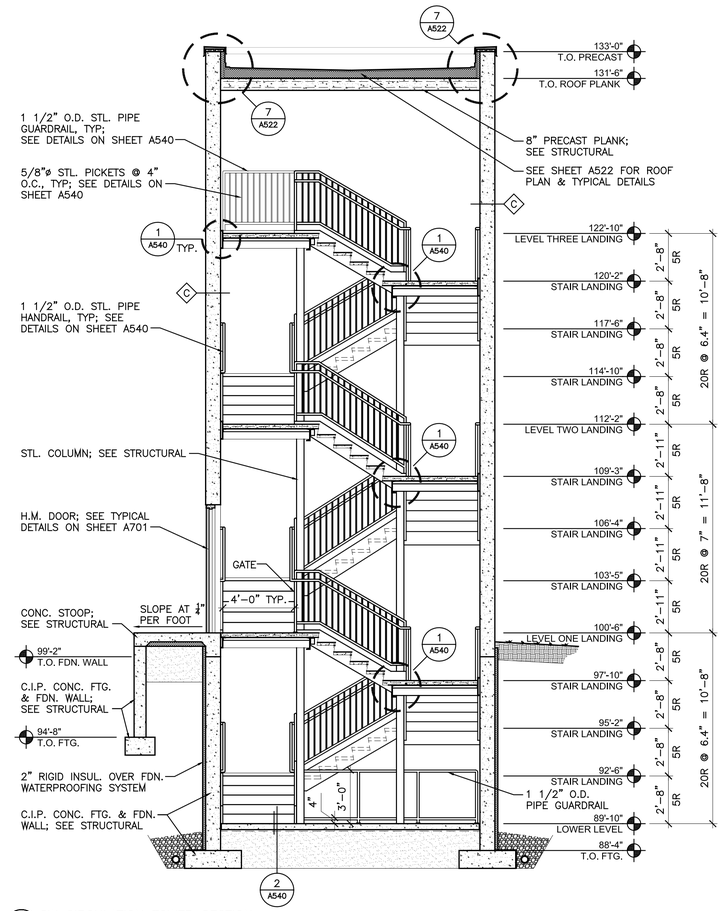
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
NE CIRCULATION TOWER SECTIONS

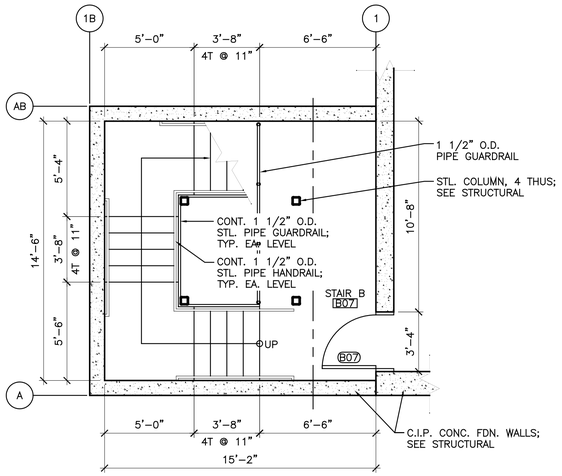
SHEET NUMBER
A531
OF
ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A531 NE Circulation Tower Sections.dwg Plotted on: 5/17/2013 11:22 AMPlotted by: Kristoffer Pederson

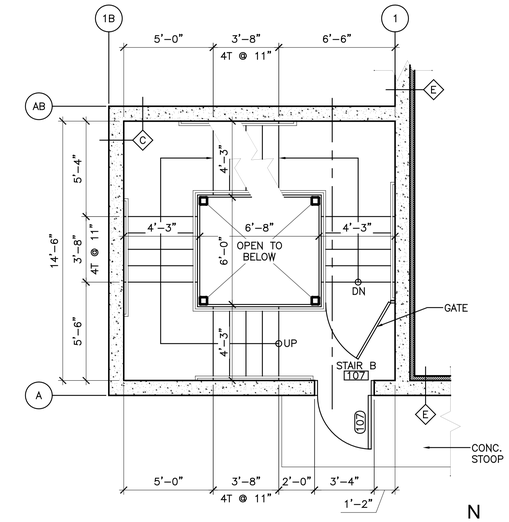
NOTES:
- EXTEND HANDRAILS AT LEAST 12 INCHES BEYOND THE TOP RISER; EXTENSION SHALL BE PARALLEL WITH FLOOR.
- EXTEND HANDRAILS AT LEAST 12 INCHES PLUS THE WIDTH OF ONE TREAD BEYOND THE BOTTOM RISER; EXTENSION SHALL SLOPE FOR A DISTANCE OF THE WIDTH OF ONE TREAD FROM THE BOTTOM RISER AND THE REMAINDER SHALL BE HORIZONTAL.
- TYPICAL GUARDRAIL HEIGHT IS 3'–6"
- TYPICAL HANDRAIL HEIGHT IS 3'–0"



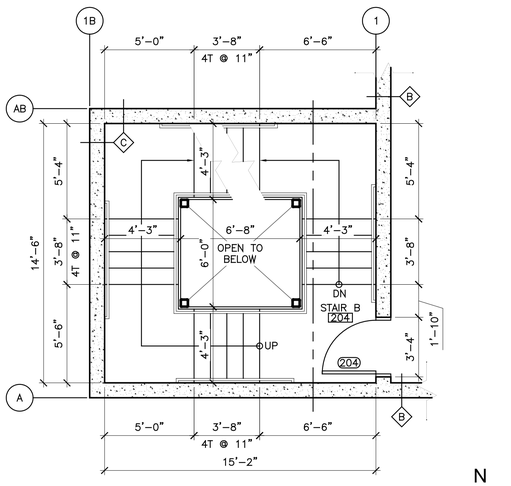
5 SW CIRCULATION TOWER SECTION
SCALE: 1/4" = 1'-0"



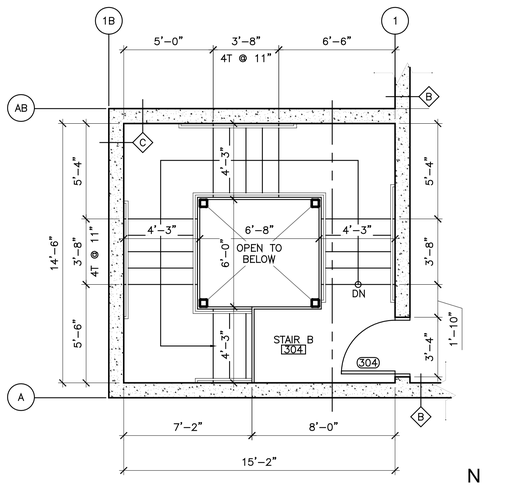
4 SW CIRCULATION TOWER ENLARGED LOWER LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"



3 SW CIRCULATION TOWER ENLARGED FIRST LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"



2 SW CIRCULATION TOWER ENLARGED SECOND LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"



1 SW CIRCULATION TOWER ENLARGED THIRD LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

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Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

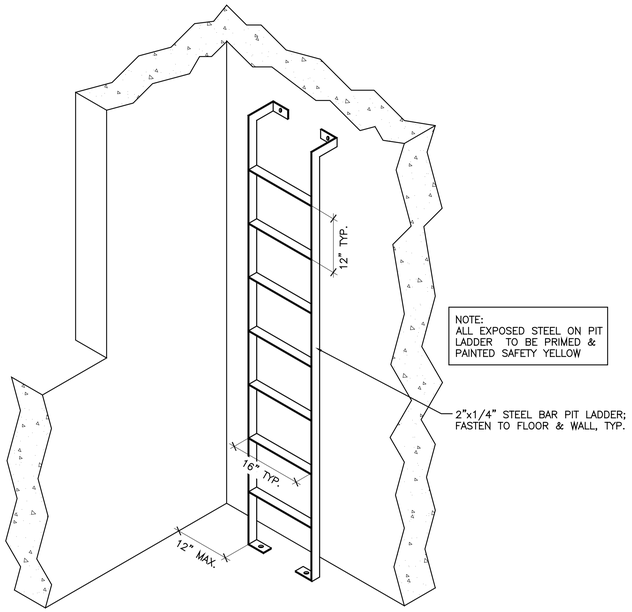
AEP PROJECT NUMBER
213–1882–114

SHEET TITLE
SW CIRCULATION TOWER ENLARGED FLOOR PLANS & SECTION

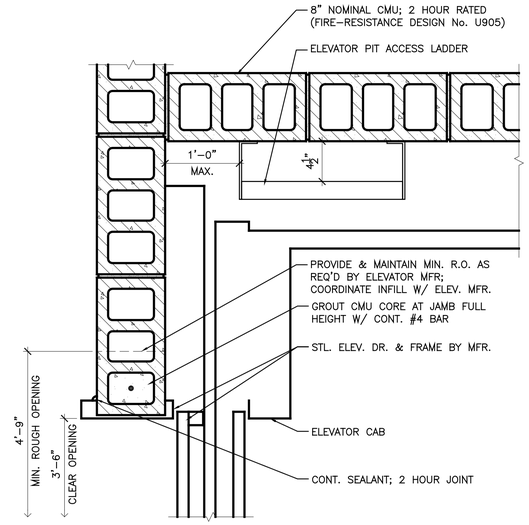
SHEET NUMBER
A532

ISSUED FOR BID

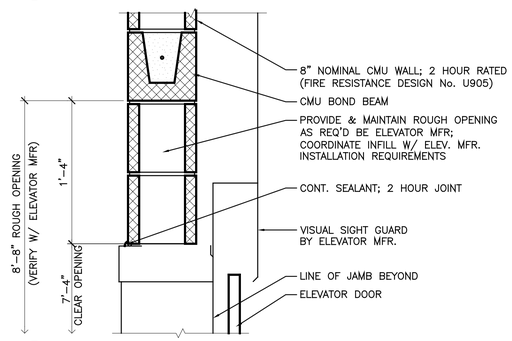
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A532 SW Circ Tower Plns & Sect.dwg Plotted on: 5/17/2013 11:13 AMPlotted by: Kristoffer Pederson



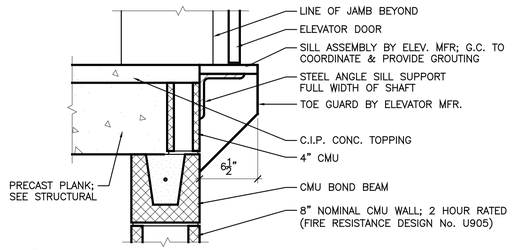
9 ELEVATOR PIT LADDER
NOT TO SCALE



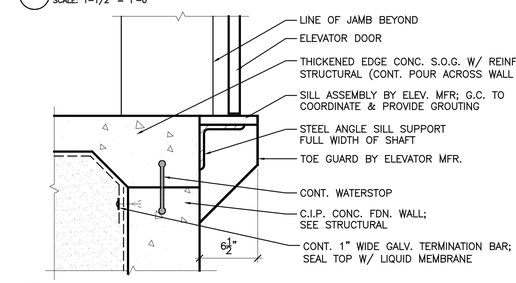
5 ELEVATOR JAMB DETAIL
SCALE: 1-1/2" = 1'-0"



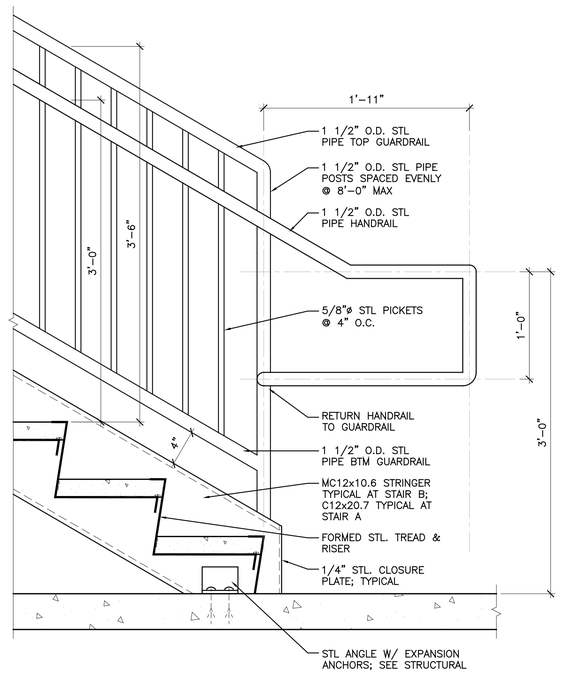
8 ELEVATOR HEAD DETAIL
SCALE: 1-1/2" = 1'-0"



7 ELEVATOR THRESHOLD DETAIL
SCALE: 1-1/2" = 1'-0"

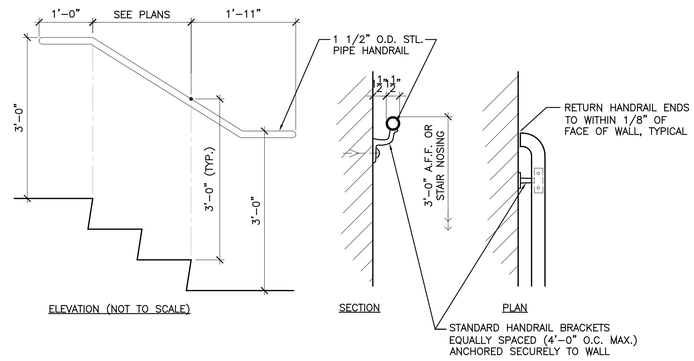


6 ELEVATOR THRESHOLD DETAIL
SCALE: 1-1/2" = 1'-0"

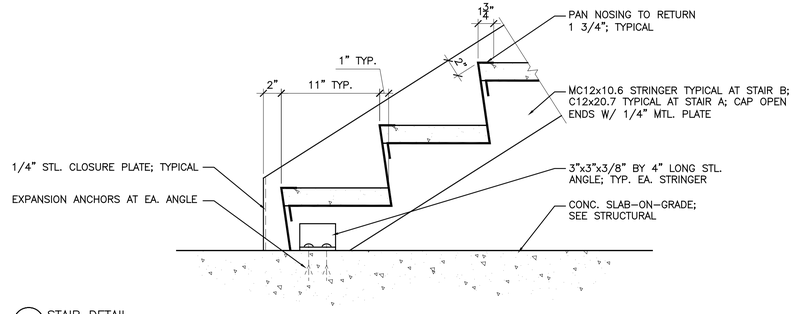


4 STAIR DETAIL
SCALE: 1-1/2" = 1'-0"

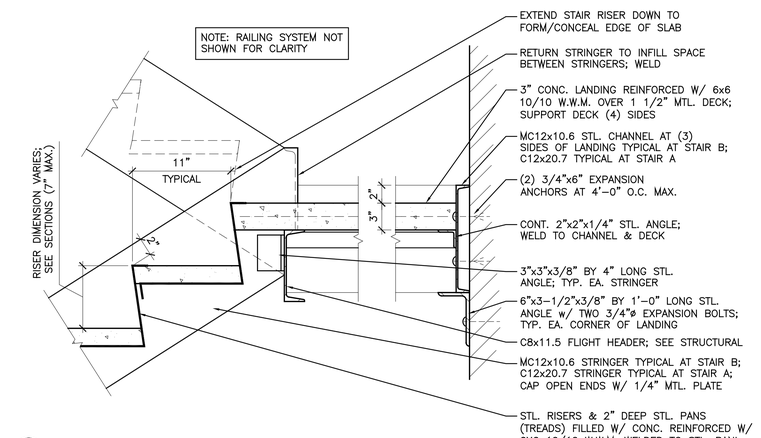
GENERAL STEEL STAIR NOTES:
- GRIND ALL WELDS FLUSH AND SMOOTH
- ALL WELDS ARE TO BE CONTINUOUS; TACK WELDING IS NOT ALLOWED
- PAINT ALL EXPOSED METAL
- PROVIDE NON-SLIP AGGREGATE AT ALL CONCRETE TREADS AND LANDINGS



3 TYPCIAL WALL MOUNTED HANDRAIL DETAIL
SCALE: 1-1/2" = 1'-0"



2 STAIR DETAIL
SCALE: 1-1/2" = 1'-0"



1 STAIR DETAIL
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REVISIONS

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DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KLP
DESIGNED BY: RS&H

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
VERTICAL CIRCULATION DETAILS

SHEET NUMBER
A540

ISSUED FOR BID

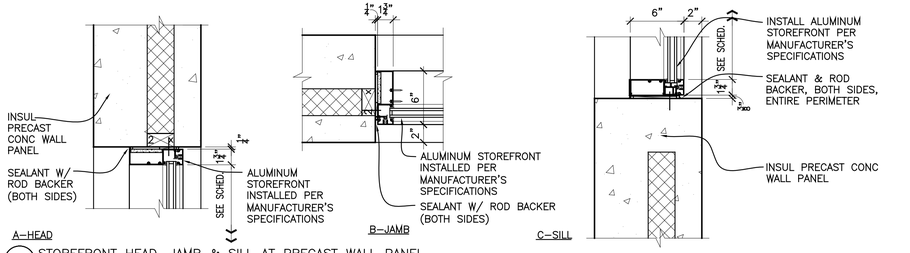
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A540 Vertical Circulation Details.dwg Plotted on: 5/17/2013 11:14 AMPlotted by: Kristoffer Pederson

DOOR SCHEDULE

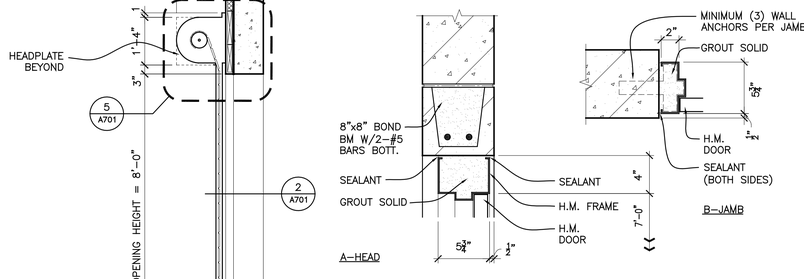
DOOR NO.	DOOR SIZE	DOOR MAT'L	DOOR ELEV	FRAME MAT'L	FRAME ELEV	FRAME HEAD DTL	FRAME JAMB DTL	FRAME SILL DTL	HDWE GROUP	LINTEL	LABEL	REMARKS *
LOWER LEVEL												
B01	3'-0" x 7'-0"	HM	N1	HM	3	7A/A701	7B/A701	–	5	–	90 MIN	4, FIRE RATED GLASS
B02	3'-0" x 7'-0"	HM	F1	HM	3	7A/A701	7B/A701	–	9	–	–	–
B03	3'-0 x 7'-0"	HM	F1	HM	3	7A/A701	7B/A701	–	9	–	90 MIN	–
B04	(2) 3'-0" x 7'-2"	AL	A1	AL	W5	10/A702	5/A702	3/A702	1	–	–	3, 5 – GLASS TYPE 1
B05	3'-0 x 7'-0"	HM	F2	HM	3	7A/A701	7B/A701	–	9	–	–	–
B07	3'-0 x 7'-0"	HM	N1	HM	1	6A/A701	6B/A701	–	4	–	90 MIN	5, FIRE RATED GLASS
FIRST LEVEL												
101A	3'-0" x 7'-0"	HM	F2	HM	1	3A/A701	3B/A701	4/A701	4	–	90 MIN	–
101B	3'-0" x 7'-0"	HM	N1	HM	3	7A/A701	7B/A701	–	5	–	90 MIN	4, FIRE RATED GLASS
102A	(2) 3'-0" x 7'-2"	AL	A1	AL	W5	8/A702	6/A702	1/A702	1	–	–	3, 5 – GLASS TYPE 1
102B	(2) 3'-0" x 7'-2"	AL	A1	AL	W5	12/A702	5/A702	2/A702	1	–	–	3, 5 – GLASS TYPE 1
103	3'-0" x 7'-0"	HM	F1	HM	1	6A/A701	6B/A701	4/A701	4	–	–	–
104A	3'-0" x 7'-0"	HM	F2	HM	1	6A/A701	6B/A701	4/A701	4	–	–	–
104B	3'-0" x 7'-0"	HM	N2	HM	1	7A/A701	7B/A701	–	6	–	–	5
104C	24'-0" x 8'-4"	–	C	–	–	5/A701	2/A701	3/A521	–	–	–	–
105	(2) 3'-0" x 7'-0"	HM	F1	HM	4	7A/A701	7B/A701	–	8	–	–	–
106	3'-0" x 7'-0"	HM	N1	HM	5	7A/A701	7B/A701	–	7	–	–	4
107	3'-0" x 7'-0"	HM	F1	HM	1	6A/A701	6B/A701	4/A701	4	–	90 MIN	–
SECOND LEVEL												
201	3'-0" x 7'-0"	HM	N1	HM	3	7A/A701	7B/A701	–	5	–	90 MIN	4, FIRE RATED GLASS
202	(2) 3'-0" x 7'-2"	AL	A1	AL	W5	12/A702	5/A702	2/A702	1	–	–	3, 5 – GLASS TYPE 1
204	3'-0" x 7'-0"	HM	N1	HM	1	6A/A701	6B/A701	–	5	–	90 MIN	4, FIRE RATED GLASS
THIRD LEVEL												
301	3'-0" x 7'-0"	HM	N1	HM	1	7A/A701	7B/A701	–	5	–	90 MIN	3, 4, FIRE RATED GLASS
302A	(2) 3'-0" x 7'-2"	ALUM	A1	AL	W5	11/A702	5/A702	2/A702	1	–	–	3, 5 – GLASS TYPE 1
302B	(2) 3'-0" x 7'-2"	ALUM	A1	AL	W7	9/A702	6/A702	2/A702 SIM.	2	–	–	1, 2, 3, 4 – GLASS TYPE 5
302C	(2) 3'-0" x 7'-0"	ALUM	A1	AL	W6	1/A526	1/A514	1/A526	3	–	–	1, 2, 3, 4
304	3'-0" x 7'-0"	HM	N1	HM	1	6A/A701	6B/A701	–	5	–	90 MIN	4, FIRE RATED GLASS

REMARKS

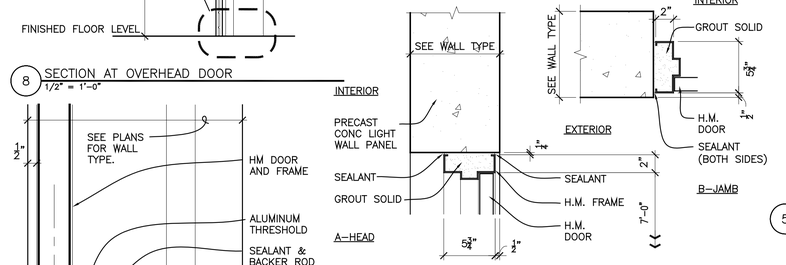
1	PROVIDE SPRINKLER PER IBC 3104.5.1
2	DOUBLE–EGRESS PAIR – ALUMINUM ENTRANCE DOORS
3	ALTERNATE: 10'–0" x 7'–6" AUTOMATIC DOOR, TYPE A2, NO FRAME, HARDWARE BY DOOR MANUFACTURER. ALTERNATE DETAILS ON SHEET A703.
4	GLAZING TYPE: GL–5
5	GLAZING TYPE: GL–1



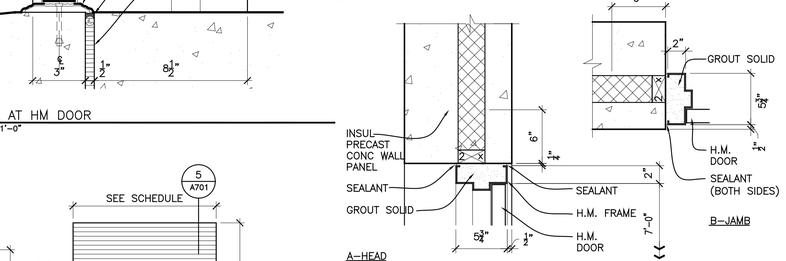
10 STOREFRONT HEAD, JAMB & SILL AT PRECAST WALL PANEL
1 1/2" = 1'–0"



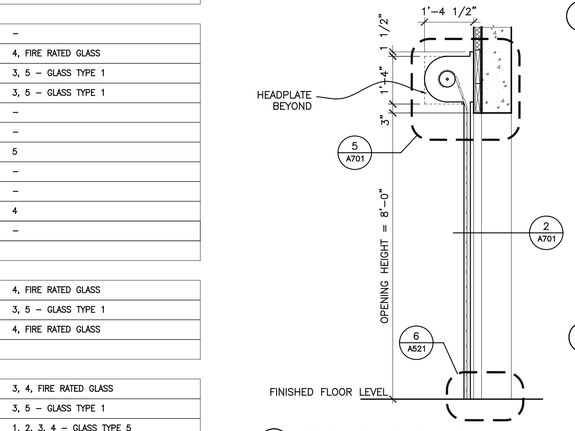
7 HM DOOR HEAD & JAMB AT CMU
1 1/2" = 1'–0"



6 HM DOOR HEAD & JAMB AT PRECAST CONC PARTITION
1 1/2" = 1'–0"



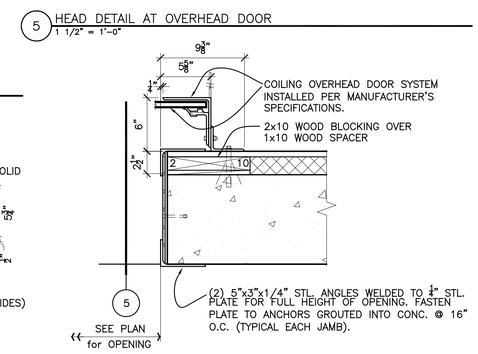
3 HM DOOR HEAD & JAMB AT PRECAST WALL PANEL
1 1/2" = 1'–0"



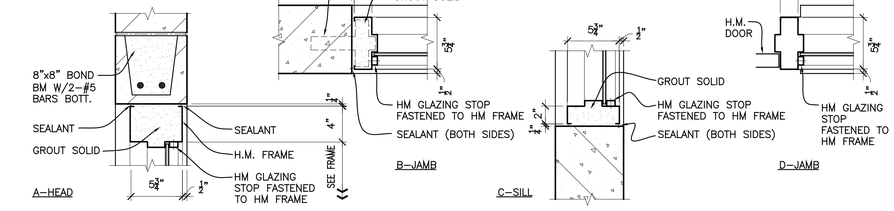
8 SECTION AT OVERHEAD DOOR
1/2" = 1'–0"

4 SILL AT HM DOOR
3" = 1'–0"

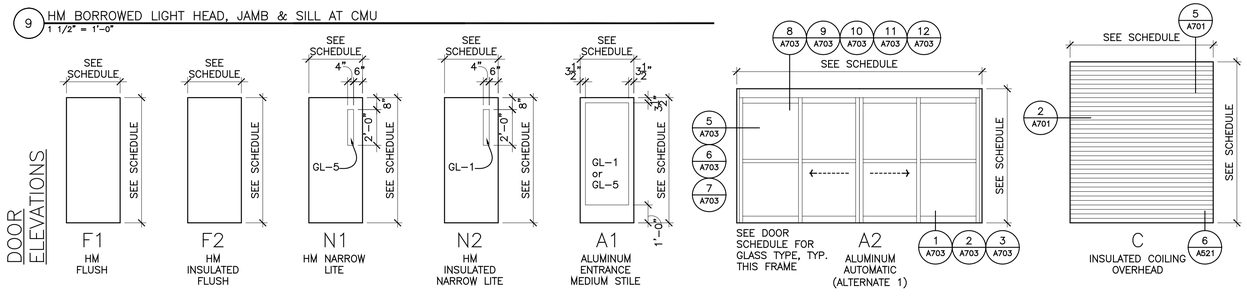
2 JAMB DETAIL AT OVERHEAD DOOR
1 1/2" = 1'–0"

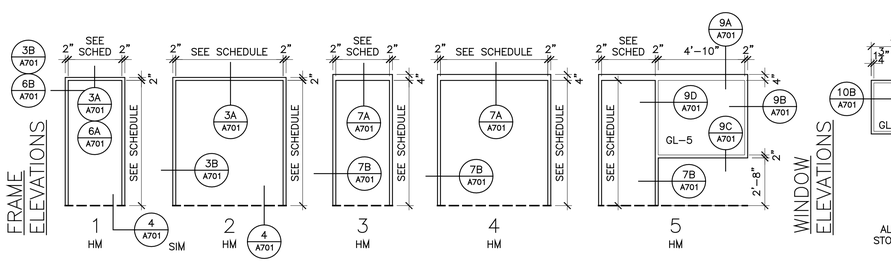


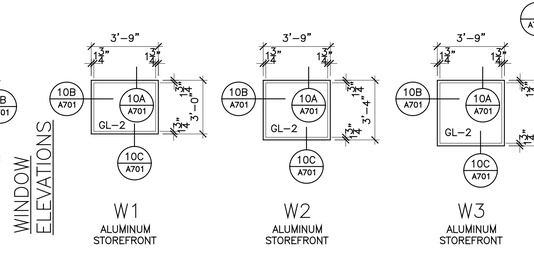
5 HEAD DETAIL AT OVERHEAD DOOR
1 1/2" = 1'–0"

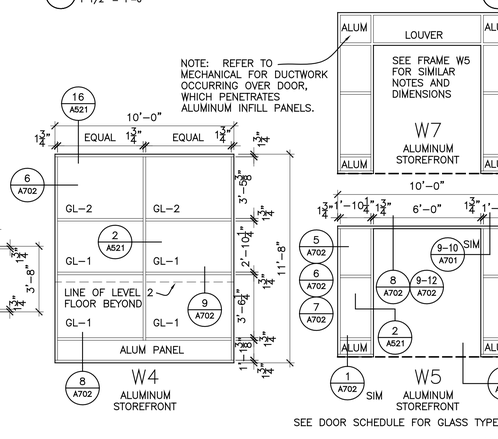


9 HM BORROWED LIGHT HEAD, JAMB & SILL AT CMU
1 1/2" = 1'–0"









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Duluth, Minnesota 55811
218–722–1227 Fax: 218–722–1052
www.rsandh.com

DULUTH AIRPORT AUTHORITY

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Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

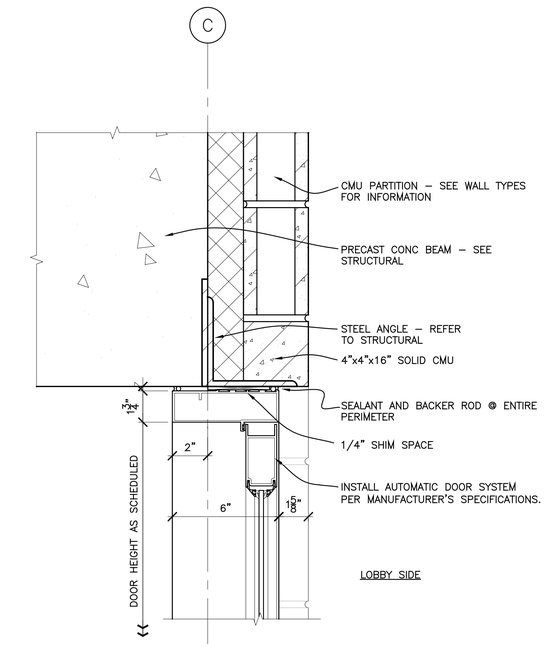
AEP PROJECT NUMBER
213–1882–114

SHEET TITLE
DOOR & WINDOW SCHEDULES, TYPES & DETAILS

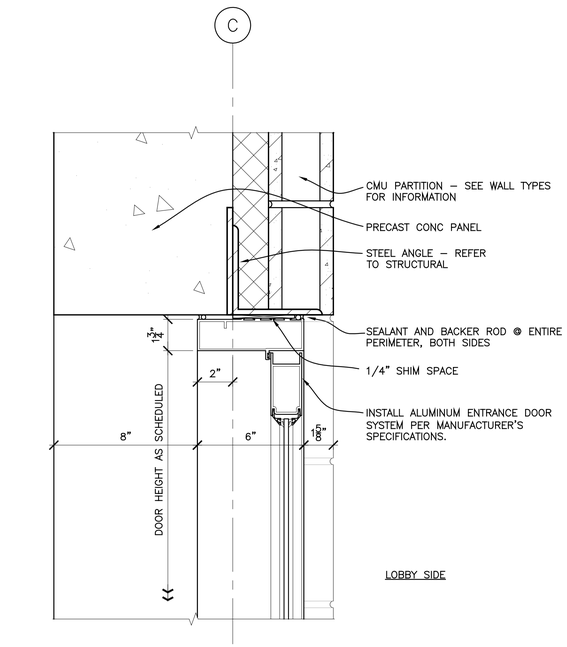
SHEET NUMBER
A701

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A701 DOOR & WINDOW SCHEDULES TYPES & DETAILS.dwg Plotted on: 5/17/2013 11:48 AMPlotted by: Kristoffer Pederson



12 HEAD AT ALUMINUM ENTRANCE DOOR
3" = 1'-0"



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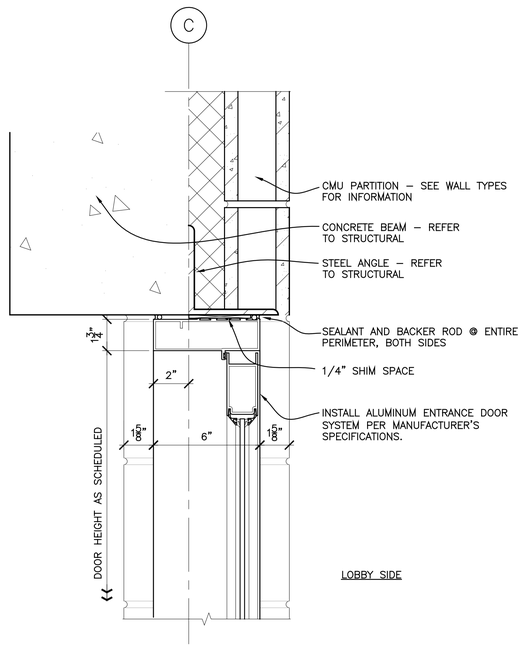

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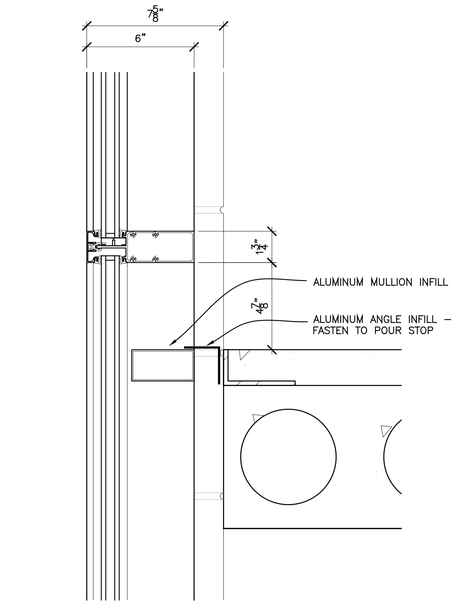
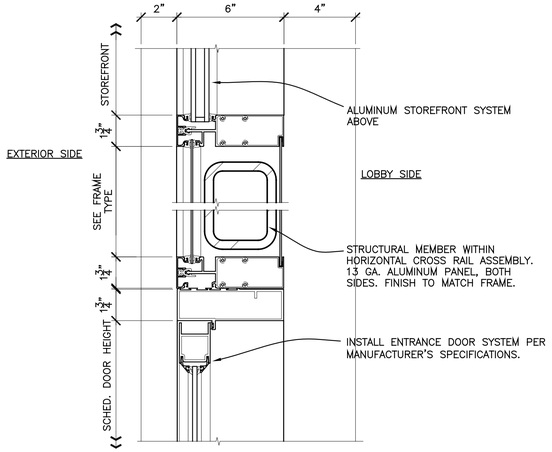
3" = 1'-0"



9 ALUMINUM FRAME TYPE W4 DETAIL AT LEVEL 2 FLOOR LINE
3" = 1'-0"



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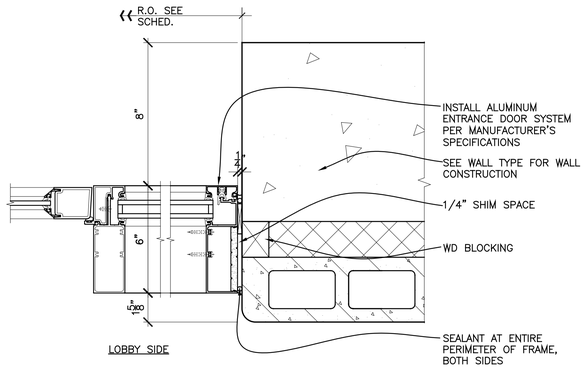
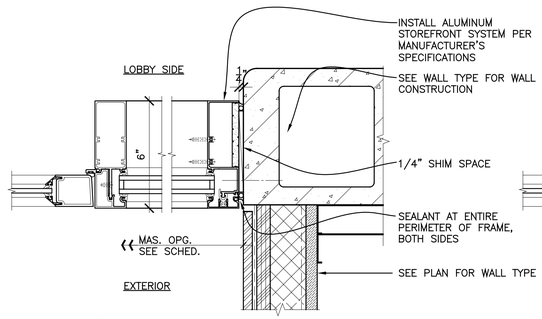
3" = 1'-0"



7 JAMB AT ALUMINUM ENTRANCE DOOR
3" = 1'-0"



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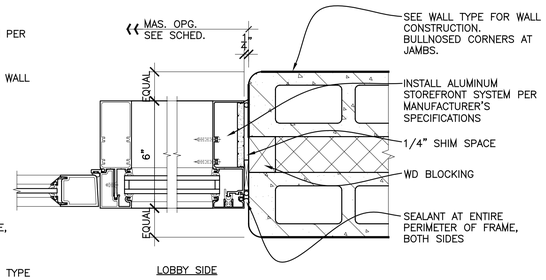
3" = 1'-0"



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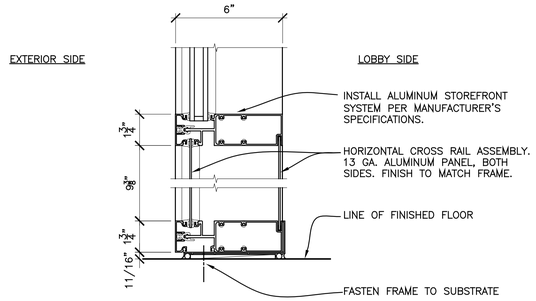
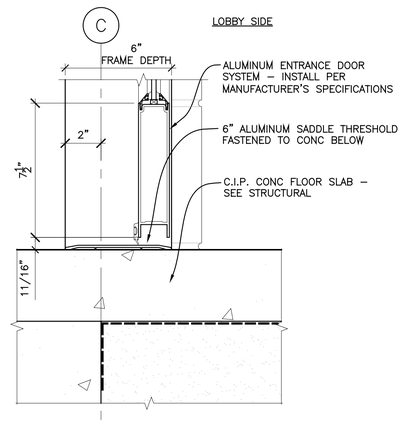
3" = 1'-0"



4 SILL AT ALUMINUM SIDELIGHT
3" = 1'-0"



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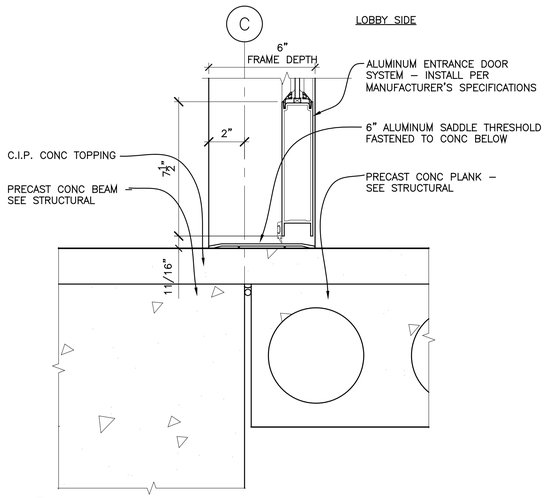
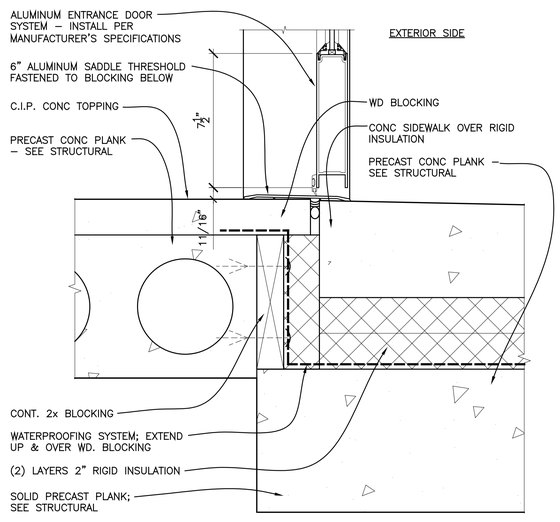
3" = 1'-0"



2 SILL AT ALUMINUM ENTRANCE DOOR
3" = 1'-0"



1 SILL AT ALUMINUM ENTRANCE DOOR
3" = 1'-0"

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DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

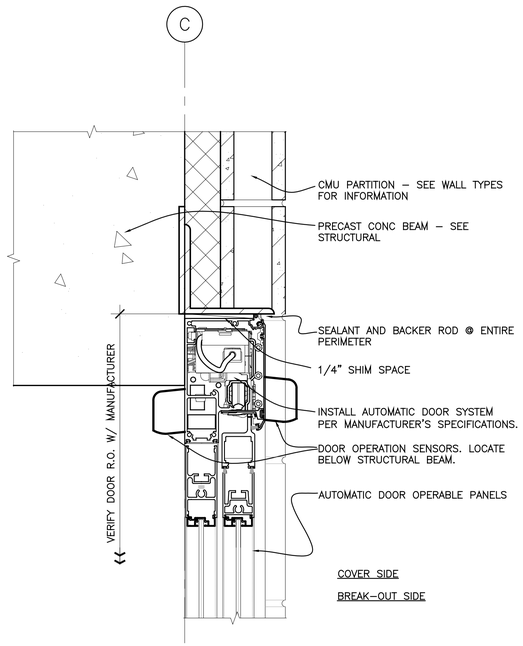
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ALUMINUM ENTRANCE DOOR DETAILS

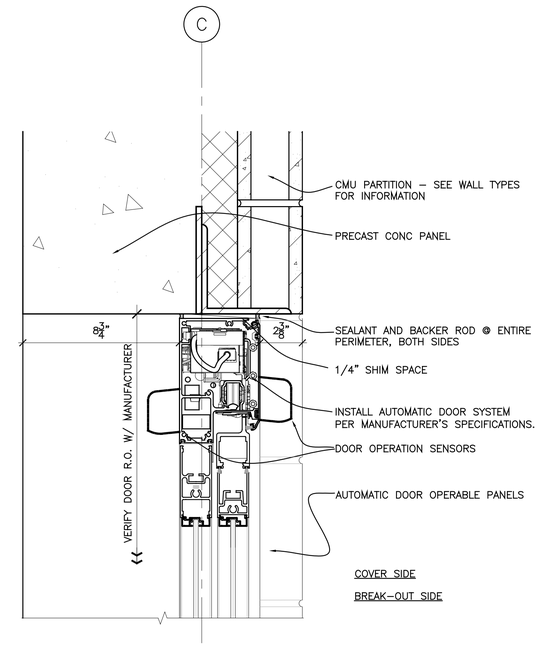
SHEET NUMBER
A702

ISSUED FOR BID

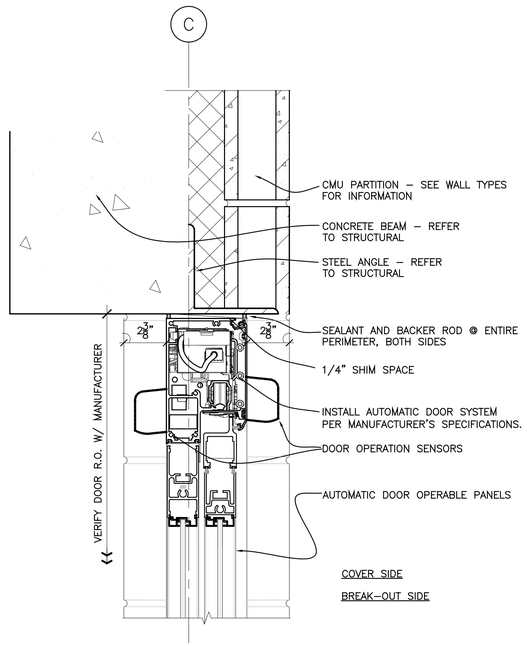
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A702 Aluminum Entrance Door Details.dwg Plotted on: 5/17/2013 11:51 AMPlotted by: Kristoffer Pederson



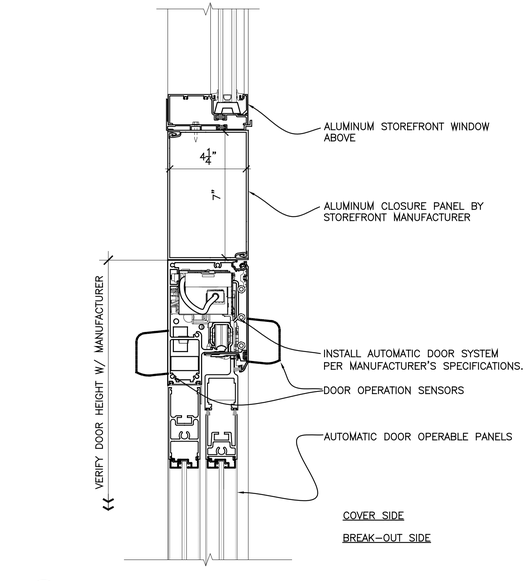
12 HEAD AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



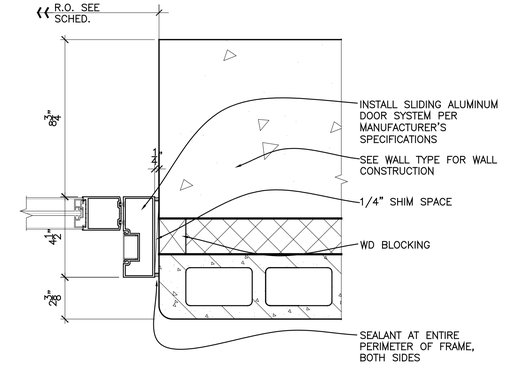
11 HEAD AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



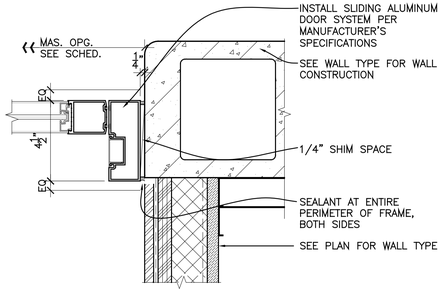
10 HEAD AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



8 HEAD AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



7 JAMB AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



6 JAMB AT AUTOMATIC SLIDING ALUMINUM DOOR
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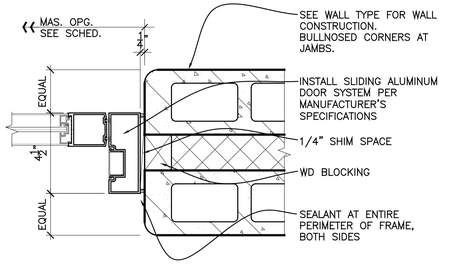
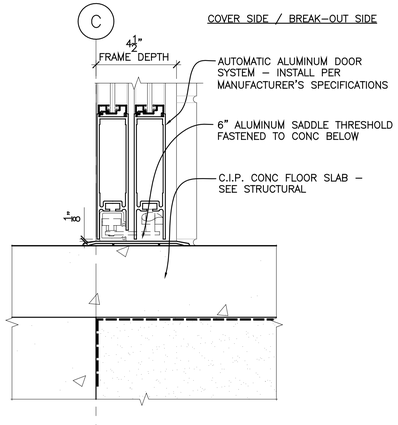
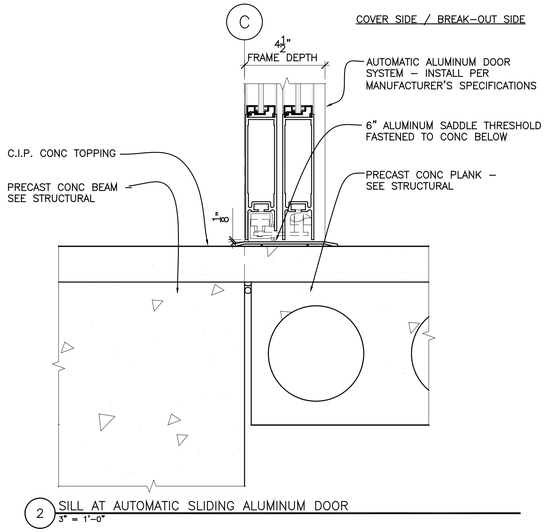


5 JAMB AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



3 SILL AT AUTOMATIC SLIDING ALUMINUM DOOR
3" = 1'–0"



2 SILL AT AUTOMATIC SLIDING ALUMINUM DOOR
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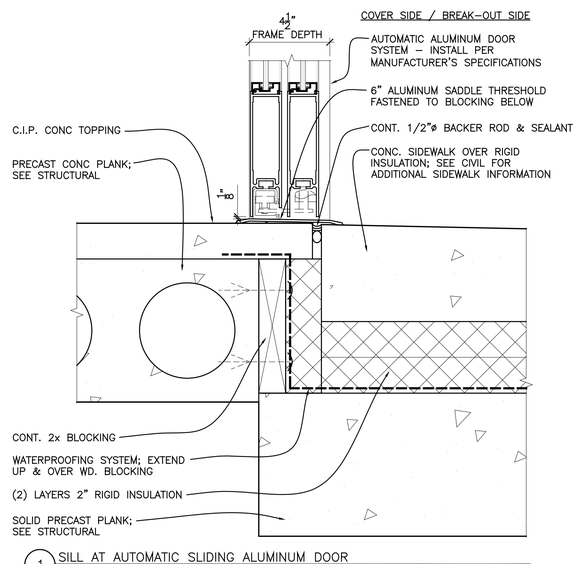

1 SILL AT AUTOMATIC SLIDING ALUMINUM DOOR
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DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

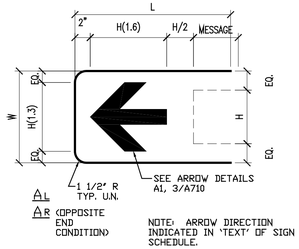
AEP PROJECT NUMBER
213–1882–114

SHEET TITLE
AUTOMATIC DOOR DETAILS

SHEET NUMBER
A703

ISSUED FOR BID

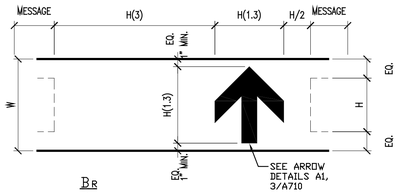
Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A703 Automatic Door Details.dwg Plotted on: 5/17/2013 11:51 AMPlotted by: Kristoffer Pederson



AL
AR (OPPOSITE END CONDITION)

NOTE: ARROW DIRECTION INDICATED IN 'TEXT' OF SIGN SCHEDULE.

SIGN COMPONENT A

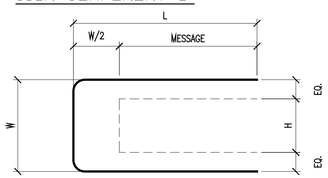


BR
BL (OPPOSITE END CONDITION)

NOTE: ARROW DIRECTION INDICATED IN 'TEXT' OF SIGN SCHEDULE.

SIGN COMPONENT B

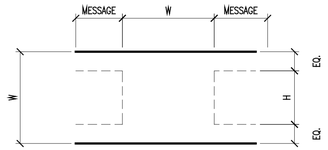
NOT USED



EL
ER (OPPOSITE END CONDITION)

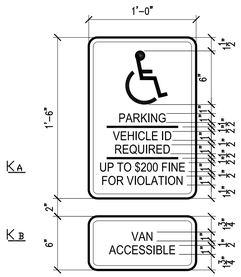
SIGN COMPONENT C

NOT USED

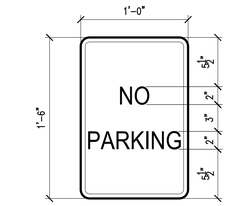


F

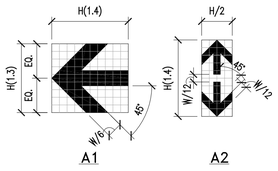
SIGN COMPONENT D



SIGN COMPONENT E

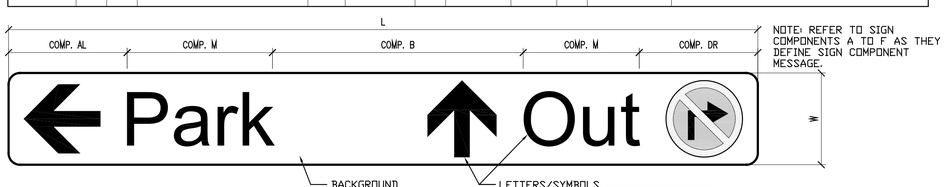


SIGN COMPONENT F



3 ARROW DETAILS
1" = 1'-0"

SIGN SCHEDULE											
MARK	SIZE W	SIZE L	TEXT/MESSAGE	SIGN TYPE	BACKGROUND COLOR	LETTERS/SYMBOLS H	LETTERS/SYMBOLS COLOR	MOUNTING DETAIL	MOUNTING HT.	SIGN DETAIL	REMARKS
S1	2'-0"	8'-0"	Entrance	EP	WHITE	1'-0"	BLACK	2/A711	8'-6"		
S2	2'-0"	8'-0"	Rental Car Parking Only	EP	WHITE	1'-0"	BLACK	2/A711	8'-6"		
S3	2'-0"	8'-0"	Restricted Parking Only	EP	WHITE	1'-0"	BLACK	2/A711	8'-6"		
S4	1'-6"	1'-0"	SPEED LIMIT 10 MPH	R	WHITE		BLACK	10/A711	5'-0"		
S5	2'-6"	2'-6"	STOP	R				2/A711	5'-0"		MUTCD W1-1
S6	8"Ø	10"-0"	8'-4" MAX. VEHICLE HEIGHT	PVC	YELLOW	6"	BLACK	1/A711	8'-2"		SEE SPECIFICATIONS FOR COLOR
S7	1'-6"	1'-0"	NO PARKING	R	WHITE		BLACK	5/A711	5'-0"		
S8	1'-6"	1'-0"	♿	R				10/A711	5'-0"	1/A710	PER STATE OF MINNESOTA REQUIREMENTS
S9	4"	1'-0"	VAN ACCESSIBLE	R				10/A711		1/A710	MOUNT 2" BELOW SIGN S8
S10	1'-6"	1'-0"	MAINTENANCE DEPARTMENT PARKING ONLY	R	WHITE	1"	BLACK	10/A711	5'-0"		
S11	8"Ø	10"-0"	8'-0" MAX. VEHICLE HEIGHT	PVC	YELLOW	6"	BLACK	1/A711	8'-0"		SEE SPECIFICATIONS FOR COLOR
S12	1'-4"	8'-0"	↑ ELEVATOR ↑	V	WHITE	6"	BLACK	3/A711	8'-2"		
S13	1'-4"	8'-0"	→ ELEVATOR →	V	WHITE	6"	BLACK	3/A711	8'-2"		
S14	1'-4"	8'-0"	← ELEVATOR ←	V	WHITE	6"	BLACK	3/A711	8'-2"		
S15	1'-4"	8'-0"	↑↓ TWO-WAY TRAFFIC - KEEP RIGHT	V	WHITE	6"	BLACK	3/A711	8'-2"		
S16	1'-4"	8'-0"	← EXIT PARK ↑	V	WHITE	6"	BLACK	3/A711	8'-2"		
S17	1'-4"	8'-0"	↑ PARK EXIT →	V	WHITE	6"	BLACK	3/A711	8'-2"		
S18	1'-4"	8'-0"	PARK → EXIT →	V	WHITE	6"	BLACK	3/A711	8'-2"		
S19	1'-4"	8'-0"	← EXIT ←	V	WHITE	6"	BLACK	3/A711	8'-2"		
S20	1'-4"	8'-0"	→ EXIT →	V	WHITE	6"	BLACK	3/A711	8'-2"		
S21	1'-4"	8'-0"	← PARK ←	V	WHITE	6"	BLACK	3/A711	8'-2"		
S22	1'-4"	8'-0"	→ PARK →	V	WHITE	6"	BLACK	3/A711	8'-2"		
S23	1'-4"	8'-0"	→ PARK →	V	WHITE	6"	BLACK	3/A711	8'-4"		
S24	1'-4"	8'-0"	← PARK EXIT ↑	V	WHITE	6"	BLACK	3/A711	8'-4"		
S25	1'-6"	2'-0"	LEVEL B	EV	BLUE		WHITE	10/A711	5'-0"	4/A710	SEE SPECIFICATIONS FOR COLOR
S26	1'-6"	2'-0"	LEVEL 1	EV	YELLOW		WHITE	10/A711	5'-0"	4/A710	SEE SPECIFICATIONS FOR COLOR
S27	1'-6"	2'-0"	LEVEL 2	EV	RED		WHITE	10/A711	5'-0"	4/A710	SEE SPECIFICATIONS FOR COLOR
S28	1'-6"	2'-0"	LEVEL 3	EV	GREEN		WHITE	10/A711	5'-0"	4/A710	SEE SPECIFICATIONS FOR COLOR
S29	8"	8-1/4"	SEE STAIR SIGN SCHEDULE	PP			WHITE		5'-0"	5/A710	
S30	8"	1'-1/4"	SEE STAIR SIGN SCHEDULE	PP			WHITE		5'-0"	7/A710	
S31	8"	1'-4"	SEE DETAIL	PP	RED		WHITE	11/A711	7'-0"	6/A710	SEE SPECIFICATIONS FOR COLOR
S32	1'-6"	1'-0"	SMALL CAR PARKING ONLY	R	WHITE	1"	BLACK	10/A711	5'-0"		



NOTE: REFER TO SIGN COMPONENTS A TO F AS THEY DEFINE SIGN COMPONENT MESSAGE.

EXAMPLE SIGN

NOTE: SIGN INDICATED IS FOR ILLUSTRATIVE PURPOSES ONLY. NOT IN CONTRACT

* SPACE BETWEEN LETTERS IS EQUAL TO VERT. STROKE WIDTH OF LETTERS (UNLESS REQUIRED TO MAKE SIGN DIMENSIONS WORK ±25% OF STROKE WIDTH)

FEDERAL SIGNS

R1-1	STOP
R1-2	YIELD
R3-1	NO RIGHT TURN
R3-2	NO LEFT TURN
R5-1	DO NOT ENTER
R5-1a	WRONG WAY
W17-1	SPEED HUMP
W11-2	PEDESTRIAN CROSSWALK

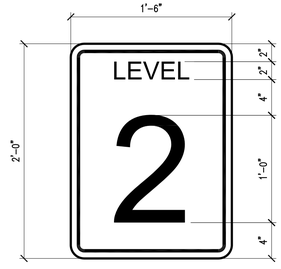
SIGN TYPES LEGEND

MARK	TYPE
V -	VEHICULAR
R -	(REFLECTIVE)
PP -	REGULATORY
PVC -	(REFLECTIVE)
EP -	PEDESTRIAN PANEL PVC CLEARANCE EXTERIOR PANEL

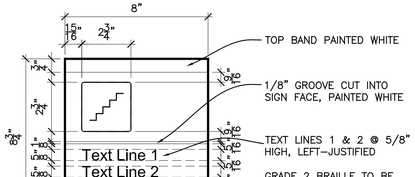
SIGNAGE GENERAL NOTES

1. LETTERFORMS SHALL BE HELVETICA MEDIUM, OF SIZE AS SHOWN ON SIGN SCHEDULE, UNLESS NOTED. UPPER AND LOWER CASE SHALL BE USED ON ALL DIRECTIONAL TRAFFIC AND PEDESTRIAN SIGNS, UNLESS NOTED.
2. SIGN CONTRACTOR SHALL REVIEW SIGN LOCATIONS PRIOR TO INSTALLATION WITH ENGINEER TO COORDINATE WITH LIGHTING SYSTEM. SIGN AND LIGHT LOCATIONS PER SPECIFICATIONS.
3. SIGNS SHALL BE MOUNTED LEVEL AND PLUMB, UNLESS NOTED.
4. WHERE TWO (2) SIGNS ARE MOUNTED BACK TO BACK, SMALLEST L DIMENSION SHALL INCREASE TO MATCH LARGEST L DIMENSION.
5. MAXIMUM BOLT INSERT EMBEDMENT LENGTH 1-1/4", UNLESS NOTED.
6. DO NOT SCALE DRAWINGS.
7. BACKS AND EDGES OF ALL ALUMINUM SIGNS MOUNTED DIRECTLY TO STRUCTURE SHALL BE PAINTED (SIGN BACKGROUND COLOR) TO PREVENT CATHODIC REACTION.
8. SEE ARCHITECTURAL PLANS FOR PARKING LAYOUT AND SIGN LOCATIONS.
9. SIGN MOUNTING DETAILS REFERENCE DETAILS ON DRAWING A711.
10. REFLECTIVE GRAPHICS AND COPY COLORS ARE 3M. ALL NON-REFLECTIVE COLORS ARE PANTONE.

1 SIGN DETAIL S8 & S9
1" = 1'-0"



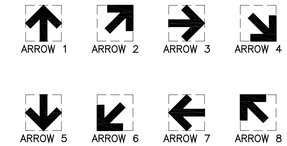
4 SIGN DETAIL S27-S30
1" = 1'-0"



5 SIGN DETAIL S29
1" = 1'-0"

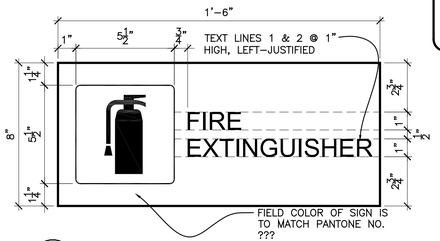
NOTES:

1. REFER TO SIGNAGE SCHEDULE FOR SYMBOLS AND TEXT USED ON ALL SIGNAGE.
2. STAIR SIGNS SHALL BE SECURED TO PARTITIONS WITH HIDDEN FASTENERS OR CLEAR ADHESIVE AS REQUIRED.
3. ALL TEXT AND SYMBOLS SHALL BE RAISED 1/8" OFF SIGN FACE.
4. TYPE FACE ON SIGNAGE SHALL BE TIRESIAS SIGNFONT. TEXT AND SYMBOLS SHALL BE WHITE.



DASHED BOX SHOWN AROUND ARROW SYMBOLS IS FOR ALIGNMENT PURPOSES ONLY.

6 FIRE EXTINGUISHER SIGN
1" = 1'-0"



7 SIGN DETAIL S30
1" = 1'-0"

8 ARROW SYMBOLS
1" = 1'-0"

SIGN NUMBER	SIGN TYPE	TEXT LINE 1 (5/8")	TEXT LINE 2 (5/8")	TEXT LINE 3 (3/8")	TEXT LINE 4 (3/8")	TEXT LINE 5 (3/8")	TEXT LINE 6 (3/8")	ARROW SYMBOL
S29.1	S29	STAIR 'A'	NO ROOF ACCESS					
S29.2	S29	STAIR 'B'	NO ROOF ACCESS					
S29.3	S29	STAIR 'A'	NO ROOF ACCESS					
S29.4	N/A							
S29.5	S29	STAIR 'A'	NO ROOF ACCESS					
S29.6	S29	STAIR 'B'	NO ROOF ACCESS					
S29.7	S29	STAIR 'A'	NO ROOF ACCESS					
S29.8	S29	STAIR 'B'	NO ROOF ACCESS					
S30.1	S30	STAIR 'A'	LEVEL B	NO ROOF ACCESS	SERVES B THRU 3	EXIT UP	TO OUTSIDE	01
S30.2	S30	STAIR 'B'	LEVEL B	NO ROOF ACCESS	SERVES B THRU 3	EXIT UP	TO OUTSIDE	01
S30.3	S30	STAIR 'A'	LEVEL 1	NO ROOF ACCESS	SERVES B THRU 3	EXIT RIGHT	TO OUTSIDE	03
S30.4	S30	STAIR 'B'	LEVEL 1	NO ROOF ACCESS	SERVES B THRU 3	EXIT RIGHT	TO OUTSIDE	03
S30.5	S30	STAIR 'A'	LEVEL 2	NO ROOF ACCESS	SERVES B THRU 3	EXIT DOWN	TO OUTSIDE	05
S30.6	S30	STAIR 'B'	LEVEL 2	NO ROOF ACCESS	SERVES B THRU 3	EXIT DOWN	TO OUTSIDE	05
S30.7	S30	STAIR 'A'	LEVEL 3	NO ROOF ACCESS	SERVES B THRU 3	EXIT DOWN	TO OUTSIDE	05
S30.8	S30	STAIR 'B'	LEVEL 3	NO ROOF ACCESS	SERVES B THRU 3	EXIT DOWN	TO OUTSIDE	05
REMARKS:								
* NOT USED								

9 STAIR SIGN SCHEDULE
1" = 1'-0"

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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 Minnesota.

Print Name: Brian D. Morse

Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

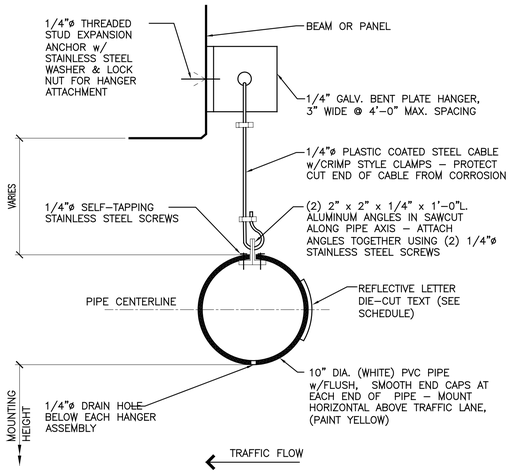
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SIGNAGE SCEDULE AND DETAILS

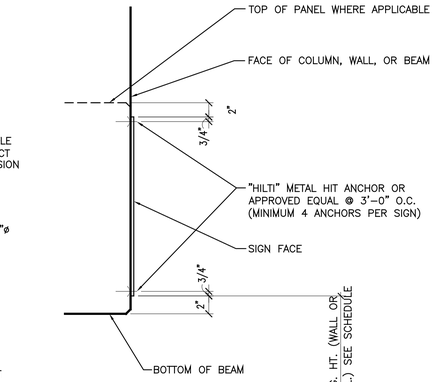
SHEET NUMBER
A710

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A710 SIGNAGE SCHEDULE AND DETAILS.dwg Plotted on: 5/17/2013 11:36 AMPlotted by: Kristoffer Pederson

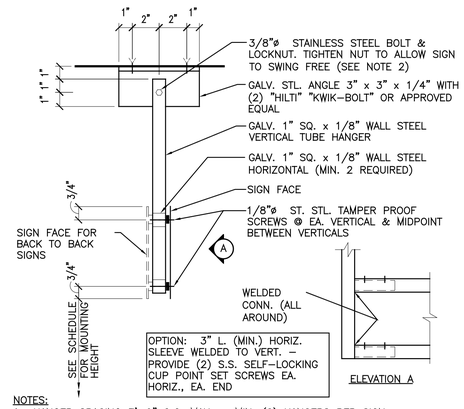


1 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"



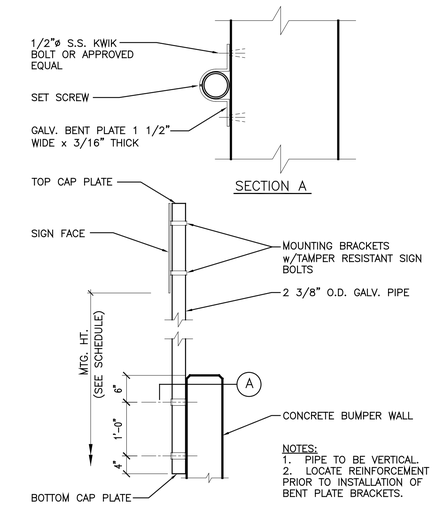
CONTRACTOR NOTE:
1. DO NOT OVERDRIVE ANCHORS. OVERDRIVEN ANCHORS WILL DAMAGE SIGNS.
2. WHERE TOP OF PANEL OR BOTTOM OF BEAM CONDITION OCCURS, MAINTAIN A CONSTANT 2" DIMENSION FROM TOP OF PANEL OR BOTTOM OF BEAM TO SIGN AS SHOWN.

2 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"



NOTES:
1. HANGER SPACING 3'-0" O.C. MAX. - MIN. (2) HANGERS PER SIGN
2. OPTIONAL HANGER CONNECTION - 3/8"ø STAINLESS STEEL CLEVIS PIN w/HAIRPIN COTTER
3. MAX. SIGN CANTILIVER 1'-0"

3 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"

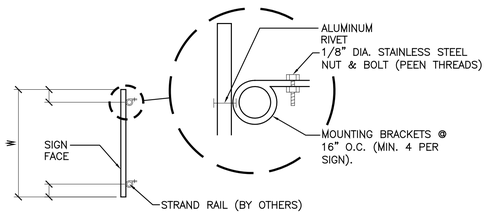


NOTES:
1. PIPE TO BE VERTICAL.
2. LOCATE REINFORCEMENT PRIOR TO INSTALLATION OF BENT PLATE BRACKETS.

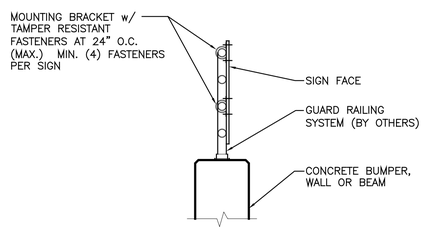
4 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"

NOTE: SIGN POST TO BE SHIMMED TO VERTICAL.

5 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"



6 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"



7 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"

8 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"

CONTRACTOR NOTE:
1. SEE SCHEDULE AND SIGNAGE GENERAL NOTES FOR MOUNTING HEIGHT.

9 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"

CONTRACTOR NOTE:
1. SEE SCHEDULE AND SIGNAGE GENERAL NOTES FOR MOUNTING HEIGHT.

10 SIGNAGE MOUNTING DETAIL
3/4" = 1'-0"

CONTRACTOR NOTE:
1. SEE SCHEDULE AND SIGNAGE GENERAL NOTES FOR MOUNTING HEIGHT.

11 SIGNAGE MOUNTING DETAIL
3" = 1'-0"

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Signature:

Date: 5/15/13 Reg. No.: 20092

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BDM
DRAWN BY: KSM
DESIGNED BY: RS&H

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SIGNAGE MOUNTING DETAILS

SHEET NUMBER
A711

ISSUED FOR BID

Drawing: W:\Projects\120010.00 DAA Parking Ramp\DRAW\Duluth Airport Parking Ramp\Sheets\A711 SIGNAGE MOUNTING DETAILS.dwg Plotted on: 5/17/2013 11:33 AMPlotted by: Kristoffer Pederson

ABBREVIATIONS

AC	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
BHP	BRAKE HORSE POWER
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOT	BOTTOM
BTU(H)	BRITISH THERMAL UNIT (HOUR)
CC	COOLING COIL
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
CU	CONDENSING UNIT
DB	DRY BULB
DG	DOOR GRILLE
DIFF	DIFFUSER
DMPR	DAMPER
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EL	ELEVATION
ELECT	ELECTRICAL
ER	EXHAUST REGISTER
EXH	EXHAUST
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FLR	FLOOR
FPM	FEET PER MINUTE
GAL	GALLONS
GR	GRILLE
HC	HEATING COIL
HP	HORSE POWER
IRH	INFRA RED HEATER
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
MAX	MAXIMUM
MIN	MINIMUM
NK	NECK
NO.	NUMBER
NTS	NOT TO SCALE
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
RA	RETURN AIR
REQ'D	REQUIRED
RG	RETURN GRILLE
RR	RETURN REGISTER
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SD	SUPPLY DIFFUSER
SR	SUPPLY REGISTER
TAB	TESTING, ADJUSTING & BALANCING
TG	TRANSFER GRILLE
TYP	TYPICAL
UH	UNIT HEATER
VAV	VARIABLE AIR VOLUME BOX
V/PH/HZ	VOLT/PHASE/HERTZ
VD	VOLUME DAMPER
VHC	VARIABLE AIR VOLUME BOX WITH HEATING COIL
WB	WET BULB
WC	WATER COLUMN
WMS	WIRE MESH SCREEN
W/	WITH
W/O	WITHOUT
°F	DEGREE FAHRENHEIT

MECHANICAL LEGEND

	DIRECTION OF FLOW
	FLEXIBLE CONNECTIONS
	PIPE ELBOW UP
	PIPE ELBOW DOWN
T	THERMOSTAT
	UNION
D	(CONDENSATE) DRAIN
RS	REFRIGERANT SUCTION
RL	REFRIGERANT LIQUID
	SUPPLY DIFFUSER
	RETURN/EXHAUST
	SUPPLY AIR DUCT ELBOW DOWN
	SUPPLY AIR DUCT ELBOW UP
	RETURN AIR DUCT ELBOW DOWN
	RETURN AIR DUCT ELBOW UP
24X12	DUCT SIZE, 1ST DIMENSION INDICATES DUCT SIZE
R	DUCT RISE IN DIRECTION OF AIR FLOW
	90° ELBOW WITH TURNING VANES
VD VD	45° RECTANGULAR BRANCH TAKE OFF WITH MANUAL VOLUME DAMPER
M	MOTORIZED DAMPER
VD	VOLUME DAMPER
UH 1	EQUIPMENT TAG (UNIT HEATER & IDENTIFYING NO.)
U	UNDERCUT DOOR
M	GAS / WATER METER

HVAC DESIGN CONDITIONS

OUTDOOR DESIGN CONDITIONS

SUMMER (0.4% VALUES)	84.5°F DB / 69.9°F WB
WINTER (99.6% VALUES)	−21°F DB

INDOOR DESIGN CONDITIONS

AREA NAME	VENTILATION REQUIREMENT CFM/SF	WINTER °F DB	SUMMER °F DB	SUMMER % RM
LOWER LEVEL PARKING	0.75	–	–	–
1ST LEVEL DAA PARKING	0.75	55	–	–
ALL REMAINING PARKING	NATURAL VENT	–	–	–
ELEVATOR MACHINE ROOM	–	60	90	–
CONNECTING BRIDGE	–	70	78	–
MECHANICAL ROOM	–	60	90	–
STAIR TOWER	–	–	–	–

GENERAL NOTES

1. PROVIDE ALL NECESSARY LABOR, MATERIALS, TOOLS, FABRICATION, EQUIPMENT, SERVICES, TRAINING, SUPERVISION AND INCIDENTALS AS REQUIRED TO INSTALL COMPLETE AND OPERATIONAL MECHANICAL SYSTEMS AS INDICATED ON DRAWINGS.
2. PRIOR TO BIDDING, THE CONTRACTOR SHALL VISIT THE SITE TO FAMILIARIZE WITH THE ACTUAL SITE CONDITIONS.
3. THE MECHANICAL DRAWINGS AND PLANS ARE DIAGRAMMATIC AND ARE BASED ON THE MANUFACTURER AND MODEL NUMBER OF THE MECHANICAL EQUIPMENT AND DEVICES AS SCHEDULED. THE DRAWINGS ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, DIMENSION OR ALL NECESSARY DETAILS FOR THE EQUIPMENT INSTALLATION. THE CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSION OF THE PROPOSED EQUIPMENT TO ENSURE THAT THE EQUIPMENT WILL FIT IN ITS AVAILABLE SPACE. PROVIDE ADEQUATE ACCESS FOR THE MAINTENANCE OF ALL MECHANICAL EQUIPMENT, AS REQUIRED BY THE LOCAL JURISDICTION AND MANUFACTURER'S RECOMMENDATIONS.
4. THE EQUIPMENT SCHEDULES AND PLANS INDICATE THE REQUIRED CAPACITIES, PERFORMANCE AND ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT AND ARE BASED ON THE EQUIPMENT, KNOWN TO THE ENGINEER TO PERFORM SATISFACTORILY FOR THE INTENDED SERVICE. THE CONTRACTOR MAY SUBMIT ALTERNATE EQUIPMENT FOR APPROVAL; WITH EQUAL OR BETTER PERFORMANCE CHARACTERISTICS, CAPACITIES, POWER REQUIREMENTS AND RATINGS; PROVIDED SUCH ALTERNATE EQUIPMENT IS APPROVED IN WRITING PRIOR TO PURCHASE OF THE EQUIPMENT. NO ADDITIONAL COST WILL BE ALLOWED RESULTING FROM THE ACCEPTANCE OF ALTERNATE EQUIPMENT INCLUDING FOR MODIFICATIONS TO MECHANICAL, ELECTRICAL, STRUCTURAL, OR ARCHITECTURAL COMPONENTS.
5. ALL HVAC SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH MINNESOTA MECHANICAL AND ENERGY CODE REQUIREMENTS INCLUDING – INTERNATIONAL MECHANICAL CODE (IMC 2006), INTERNATIONAL PLUMBING CODE (IPC 2006), INTERNATIONAL FIRE CODE (IFC 2006), INTERNATIONAL ENERGY CONSERVATION CODE (IECC 2006) AND NATIONAL ELECTRICAL CODE (NEC 2005).
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MECHANICAL WORK WITH ALL OTHER CONTRACTORS. ALL DUCTWORK SHALL BE ROUTED AS INDICATED ON THE DRAWINGS. ALL DUCT AND PIPING ROUTING SHALL BE COORDINATED WITH ALL OTHER TRADES. THE OFFSETS REQUIRED IN PIPING AND DUCTWORK TO AVOID OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
7. THE CARBON MONOXIDE DETECTORS SHALL BE FURNISHED, INSTALLED AND WIRED BY THE ELECTRICAL CONTRACTOR.
8. PROVIDE ALL NECESSARY DUCT TRANSITIONS FROM THE INDICATED DUCT SIZE TO THE ACTUAL EQUIPMENT DUCT COLLAR SIZE. THE TRANSITION SHALL BE MADE WITH A MAXIMUM 30 DEGREE TRANSITION ANGLE. PROVIDE FLEXIBLE DUCT CONNECTIONS AT THE TRANSITION TO FANS AND OTHER MOTOR DRIVEN AIR–HANDLING DEVICES.
9. ALL MANUAL ON/OFF SWITCHES AND THERMOSTATS SHALL BE INSTALLED 4'–0" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
10. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT SIZE AND LOCATIONS OF WALL LOUVERS. PROVIDE INSULATED SHEET METAL BLANK–OFF PLATES BEHIND ALL UNUSED PORTIONS OF EXTERIOR WALL MOUNTED LOUVERS. INSULATION SHALL BE SECURELY ATTACHED TO THE BLANK–OFF PLATE WITH METAL STICKPINS ON A MAXIMUM 2'–0" SQUARE GRID. THE INSULATION SHALL BE RIGID FIBERGLASS DUCTBOARD INSULATION, 2" THICK, 3 POUNDS PER CUBIC FOOT DENSITY WITH FOIL SCRIM KRAFT VAPOR BARRIER. ALL BLANK–OFFS SHALL BE CAULKED TO PROVIDE AN AIR AND WATER TIGHT SEAL.
11. PROVIDE ARCHITECT/ENGINEER WITH THE SUBMITTALS FOR APPROVAL FOR ALL EQUIPMENT, SYSTEMS, AND DEVICES AS INDICATED HEREIN. SUBMIT PRODUCT AND PERFORMANCE DATA FOR ALL EQUIPMENT. PROVIDE DOUBLE LINE DUCTWORK SHOP DRAWINGS FOR ALL HVAC SYSTEMS AT 1/4" SCALE FOR A/E REVIEW AND APPROVAL PRIOR TO FABRICATION.
12. ALL SUPPLY AND RETURN DUCTWORK SHALL BE ACOUSTICALLY LINED AT LEAST 20' FROM THE AIR HANDLING UNITS. IN ADDITION, ALL SUPPLY AND RETURN DUCTWORK SHALL BE THERMALLY INSULATED WITH 2" THICK DUCT INSULATION (MIN R=8 FOR DUCTS EXPOSED TO THE OUTDOORS AND R=6 FOR DUCTS INSIDE THE BUILDING). ALL SUPPLY AND RETURN DUCTS EXPOSED TO OUTSIDE SHALL ALSO BE PROVIDED WITH AN ALUMINUM JACKET. ALL DUCTWORK SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.
13. PROVIDE FLEXIBLE FABRIC DUCT CONNECTIONS ON ALL DUCTS CONNECTING TO SUPPLY FANS, EXHAUST FANS AND AIR HANDLING UNITS.
14. COORDINATE WITH THE ARCHITECTURAL FINISHES TO PROVIDE ACCESS PANELS AND ACCESS DOORS IN GYPSUM BOARD CEILINGS AND WALLS AS NECESSARY FOR INSPECTION, MAINTENANCE AND OPERATION OF VALVES, DAMPERS AND OTHER CONCEALED DEVICES.
15. PRIOR TO THE ORDERING OR FABRICATING ANY NEW EQUIPMENT, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CLEARANCES. EQUIPMENT LOCATIONS AND CONNECTION SIZES SHALL BE DERIVED FROM THE MANUFACTURERS' CERTIFIED DRAWINGS FOR THE SPECIFIC EQUIPMENT THAT WILL ACTUALLY BE FURNISHED AND INSTALLED FOR THE PROJECT. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY.
16. PROVIDE ALL CONTROL, POWER AND SIGNAL WIRING IN CONDUIT IN ACCORDANCE WITH ELECTRICAL SPECIFICATIONS. THE MECHANICAL CONTROLS CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SUCH CONTROL RELATED POWER AND SIGNAL WIRING AND CONDUITS.
17. ALL MANUAL VOLUME DAMPERS SHALL BE OPPOSED BLADE TYPE DAMPERS.
18. PRIOR TO FINAL INSPECTION OF EQUIPMENT BY A/E, ALL HVAC EQUIPMENT SHALL BE CLEANED AND ALL FOREIGN MATERIALS REMOVED. ALL PENETRATIONS THRU UNIT CASINGS SHALL BE PROPERLY SEALED AND ALL CONTROL DEVICES SHALL BE OPERATIONAL AND CALIBRATED.
19. PROVIDE A P–TRAP FOR AIR HANDLING UNIT DRAIN PAN PER AIR HANDLING UNIT INSTALLATION INSTRUCTIONS.
20. MECHANICAL IDENTIFICATIONS: ALL MECHANICAL EQUIPMENT SHALL BE IDENTIFIED WITH NAME PLATES AND LAMINATED PLASTIC TAGS IN ACCORDANCE WITH SECTION 230553. THE DUCTWORK AND PIPING SHALL BE PROVIDED WITH STENCILS INDICATING FLOW DIRECTION ARROW AND IDENTIFICATION OF FLUID BEING CONVEYED.
21. OPERATION AND MAINTENANCE DATA: CONTRACTOR SHALL PROVIDE START–UP INSTRUCTIONS. MAINTENANCE INSTRUCTIONS, PARTS LISTS, CONTROLS AND ACCESSORIES FOR ALL EQUIPMENT.
22. ALL MECHANICAL SYSTEMS SHALL BE PROVIDED AND INSTALLED IN GOOD WORKMANSHIP LIKE MANNER. ALL EQUIPMENT AND SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED TO ACHIEVE DESIGN RESULTS. SUBMIT TAB REPORT FOR ENGINEER'S REVIEW AND APPROVAL.
23. FOR ADDITIONAL CONTRACT REQUIREMENTS, REFER TO DIVISION 23 OF CONTRACT SPECIFICATIONS.
24. ALL ANNULAR SPACES AROUND DUCT AND PIPE PENETRATIONS THROUGH WALLS AND FLOORS SHALL BE COVERED WITH NON–COMBUSTIBLE MATERIAL THAT WILL STOP THE SPREAD OF FIRE AND SMOKE.

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NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: JB
DESIGNED BY: PL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

HVAC LEGEND, ABBREVIATIONS & GENERAL NOTES

SHEET NUMBER

M001

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\M\M001 HVAC LEGEND ABBREVIATION AND GENERAL NOTES.dwg Plotted on: 5/17/2013 11:56 AM Plotted by: Belahmira, Jamal

SINGLE-PACKAGED GAS-HEATING/ELECTRIC COOLING ROOFTOP UNIT SCHEDULE (SZ-VAV)

TAG NO.	SERVICE	LOCATION	BASIS OF SELECTION	MODEL NO.	NOMINAL TONS	AMBIENT TEMP. AT PEAK LOAD			SUPPLY FAN DATA						EXH. FAN	GAS HEATING DATA					COOLING COIL DATA						COMPRESSOR		CONDENSER FAN		REFRIG.	UNIT WT. (LBS.)	SEER	ELECTRICAL			SOUND RATING (BELS)	DIMENSIONS LXWXH	REMARKS
						WINTER DB (°F)	SUMMER DB (°F)	SUMMER WB (°F)	SYSTEM CFM	O.A. CFM	EXT. S.P. (IN)	TOTAL S.P. (IN)	BHP	MOTOR H.P.	MOTOR H.P.	CAPACITY (MBH) INPUT	CAPACITY (MBH) OUTPUT	STAGES	E.A.T. (°F)	L.A.T. (°F)	TOTAL (MBH)	SENSIBLE (MBH)	E.A.T. DB (°F)	E.A.T. WB (°F)	L.A.T. DB (°F)	L.A.T. WB (°F)	QTY	TYPE	QTY	MOTOR H.P.				VOLT	PH.	HZ.			
RTU 1	CONNECTING BRIDGE (SKYWALK)	STAIR TOWER ROOF	TRANE	VOYAGER YHD150F4	12.5	-21	83.0	69.0	6130	900	1	-	3.4	5	3/4	350	284	MODUL'G	56.3	100.1	153	103	78.8	61.0	63.0	53.0	2	SCROLL	2	1/2	410A	3000	12.0	460	3	60	9.2	122"X85"X54"	①②③④⑤⑥⑦⑧⑨

NOTES:

① PROVIDE 24" HIGH INSULATED ROOF CURB, ECONOMIZER CYCLE, SHORT CYCLING PROTECTION FOR COMPRESSORS, HIGH EFFICIENCY MOTOR, BUILT-IN DISCONNECT SWITCH, DOUBLE WALL CABINET CONSTRUCTION, AN ADDITIONAL SET OF BELTS, PRE AND FINAL FILTERS WITH A SET OF SPARE FILTERS, HINGED ACCESS DOORS AND HAIL GUARDS

② PROVIDE VARIABLE FREQUENCY DRIVE

③ A-WEIGHTED dBA - INDOOR SOUND POWER LEVEL FOR SUPPLY/RETURN

④ PROVIDE HIGH CAPACITY EVAPORATOR COIL AND HIGH EFFICIENCY CONDENSER

⑤ PROVIDE RELIATEL MICROPROCESSOR CONTROLS WITH BACNET COMMUNICATION INTERFACE

⑥ FACTORY INSTALLED SMOKE DETECTOR IN SA & RA

⑦ STAINLESS STEEL HEAT EXCHANGER AND DRAIN PAN

⑧ ZONE SENSORS FOR SINGLE ZONE VAV FUNCTIONALITY

⑨ PROVIDE FACTORY INSTALLED CO2 SENSOR AND WIRING

DIRECT GAS-FIRED MAKE-UP AIR UNIT SCHEDULE

TAG NO.	SERVICE	LOCATION	BASIS OF SELECTION	MODEL NO.	CAPACITY (MBH)		GAS SUPPLY		AIR TEMP		FAN DATA			UNIT WT. (LBS.)	ELECTRICAL			SOUND RATING (dB)	REMARKS
					INPUT	OUTPUT	SIZE	PRESS. (W.C.)	ENT °F	LVG. °F	CFM	EXT. S.P. (IN)	MOTOR H.P.		VOLT	PH.	HZ.		
MAU 1	FIRST LEVEL	MECHANICAL 105	TRANE	DFIA 122	1375	1315	2"	7"-10"	-21	71.6	12200	1.5	10	2400	460	3	60		①②③④

NOTES:

① PROVIDE DISCONNECT SWITCH, CONTROL TRANSFORMER, PROGRAMMABLE CONTROLS AND FACTORY PROGRAMMED BACNET COMMUNICATION INTERFACE.

② PROVIDE 6" CONCRETE PAD.

③ PROVIDE DOUBLE WALL CABINET

③ PROVIDE SET OF SPARE FILTERS

ELECTRIC UNIT HEATER SCHEDULE

TAG NO.	SERVICE	LOCATION	BASIS OF SELECTION	MODEL NO.	TYPE	CAPACITY KW	AIR		ELECTRICAL			REMARKS
							CFM	TEMP. RISE (°F)	VOLT	PH.	HZ.	
UH 1	ELEVATOR MACHINE ROOM	CEILING HUNG	INDEECO	UHI SERIES	HORIZONTAL THROW	5	650	49	480	3	60	①②③
UH 2	FIRE SPRINKLER ROOM	CEILING HUNG	INDEECO	UHI SERIES	HORIZONTAL THROW	5	650	49	480	3	60	①②③
UH 3	MECHANICAL ROOM	CEILING HUNG	INDEECO	UHI SERIES	HORIZONTAL THROW	5	650	49	480	3	60	①②③
UH 4	MECHANICAL ROOM	CEILING HUNG	INDEECO	UHI SERIES	HORIZONTAL THROW	5	650	49	480	3	60	①②③
UH 5	BREAK ROOM	CEILING HUNG	INDEECO	UHI SERIES	HORIZONTAL THROW	5	650	49	480	3	60	①②③

NOTES:

① PROVIDE UNIT MOUNTED DISCONNECT SWITCH

② PROVIDE WALL-MOUNTED THERMOSTAT

③ PROVIDE WALL/CEILING MOUNTING BRACKET

EXHAUST FAN SCHEDULE

TAG NO.	SERVICE	LOCATION	BASIS OF SELECTION	MODEL NO.	CFM	S.P. IN (WC)	DRIVE	MOTOR		ELECTRICAL			FAN RPM	TYPE	REMARKS
								BHP	HP	VOLT	PH.	HZ.			
EF 1 EF 2	LOWER LEVEL VENTILATION	FIRST LEVEL	LOREN COOK	300SQN-B	12000	5/8	BELT	-	5	480	3	60	-	INLINE	②③⑤⑦
EF 3 EF 4	FIRST LEVEL VENTILATION	FIRST LEVEL	LOREN COOK	225SQN-B	6000	1/2	BELT	-	2	480	3	60	-	INLINE	②③④
EF 5	ELECTRICAL ROOM VENTILATION	WALL	LOREN COOK	10SP15D	150	1/4	DIRECT	0.10	1/25	120	1	60	-	PROP	①②③⑥

NOTES:

① PROVIDE FAN SPEED CONTROL.

② PROVIDE GRAVITY BACKDRAFT DAMPER.

③ PROVIDE UNIT MOUNTED DISCONNECT SWITCH.

④ EF TO BE INTERLOCKED WITH MAU-1.

⑤ EF TO BE INTERLOCKED WITH OAI MOTORIZE DAMPERS.

⑥ EF TO BE THERMOSTATICALLY CONTROLLED.

⑦ EF TO BE SIDE DISCHARGE.

ELECTRIC BASEBOARD HEATER SCHEDULE

TAG NO.	SERVICE	LOCATION	BASIS OF SELECTION	MODEL NO.	TYPE	HEAT OUTPUT W/FT	ELECTRICAL			REMARKS
							VOLT	PH.	HZ.	
EBH 1	ELEVATOR LOBBY	WALL PERIMETER	VULCAN	SBT	WALL MOUNTED	150	208	1	60	①②③

NOTES:

① PROVIDE BUILT-IN THERMOSTAT AND DISCONNECT SWITCH

② PROVIDE ALL ACCESSORIES FOR WALL MOUNTING

③ COLOR TO BE SELECTED BY ARCHITECT.

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: JB
DESIGNED BY: PL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

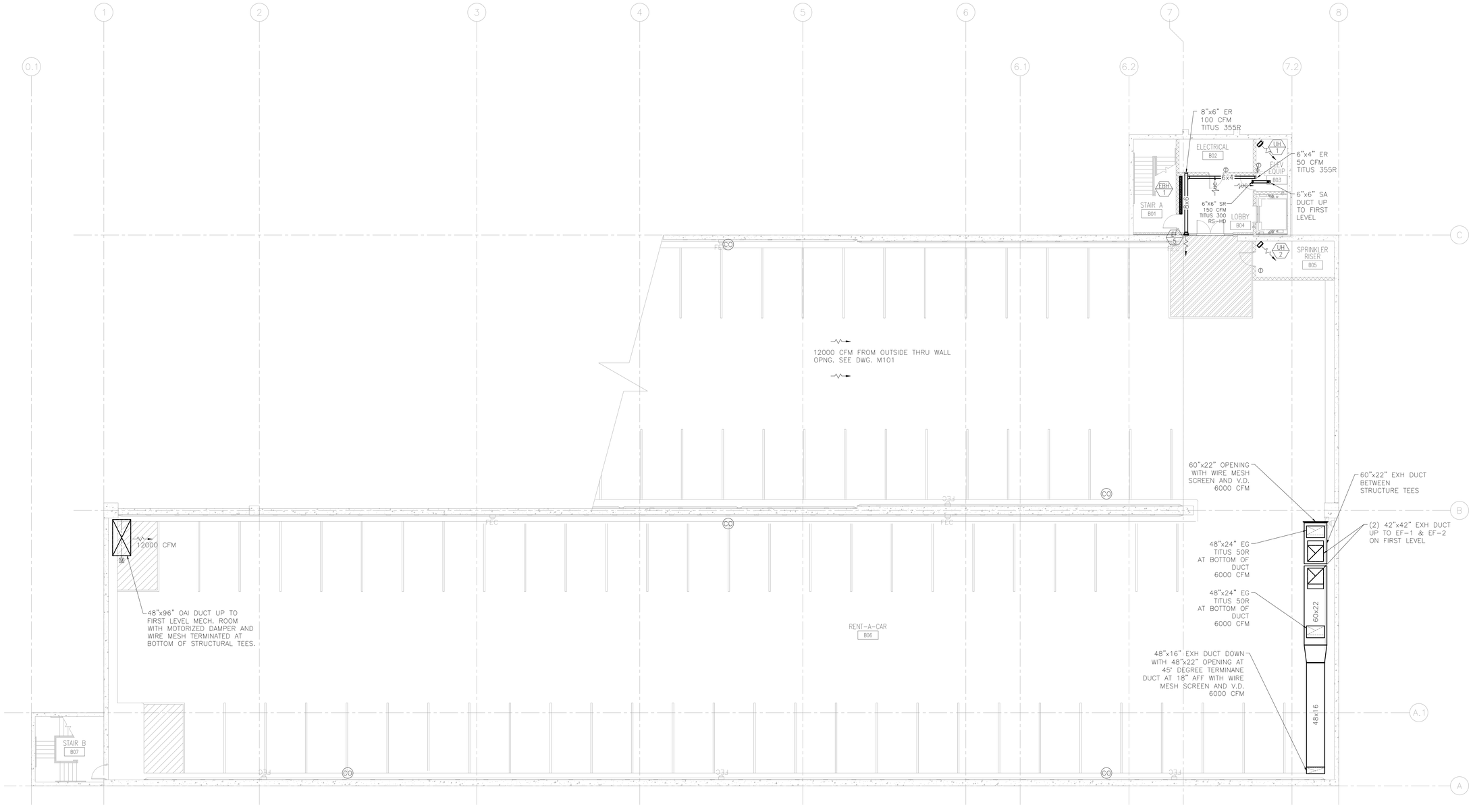
HVAC SCHEDULES

SHEET NUMBER

M002

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\M\M002 HVAC SCHEDULES.dwg Plotted on: 5/17/2013 11:56 AM Plotted by: Belahmira, Jamal



0' 8' 16' 32'

N

1 LOWER LEVEL MECHANICAL PLAN
3/32" = 1'-0"

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DESIGNED BY: PL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

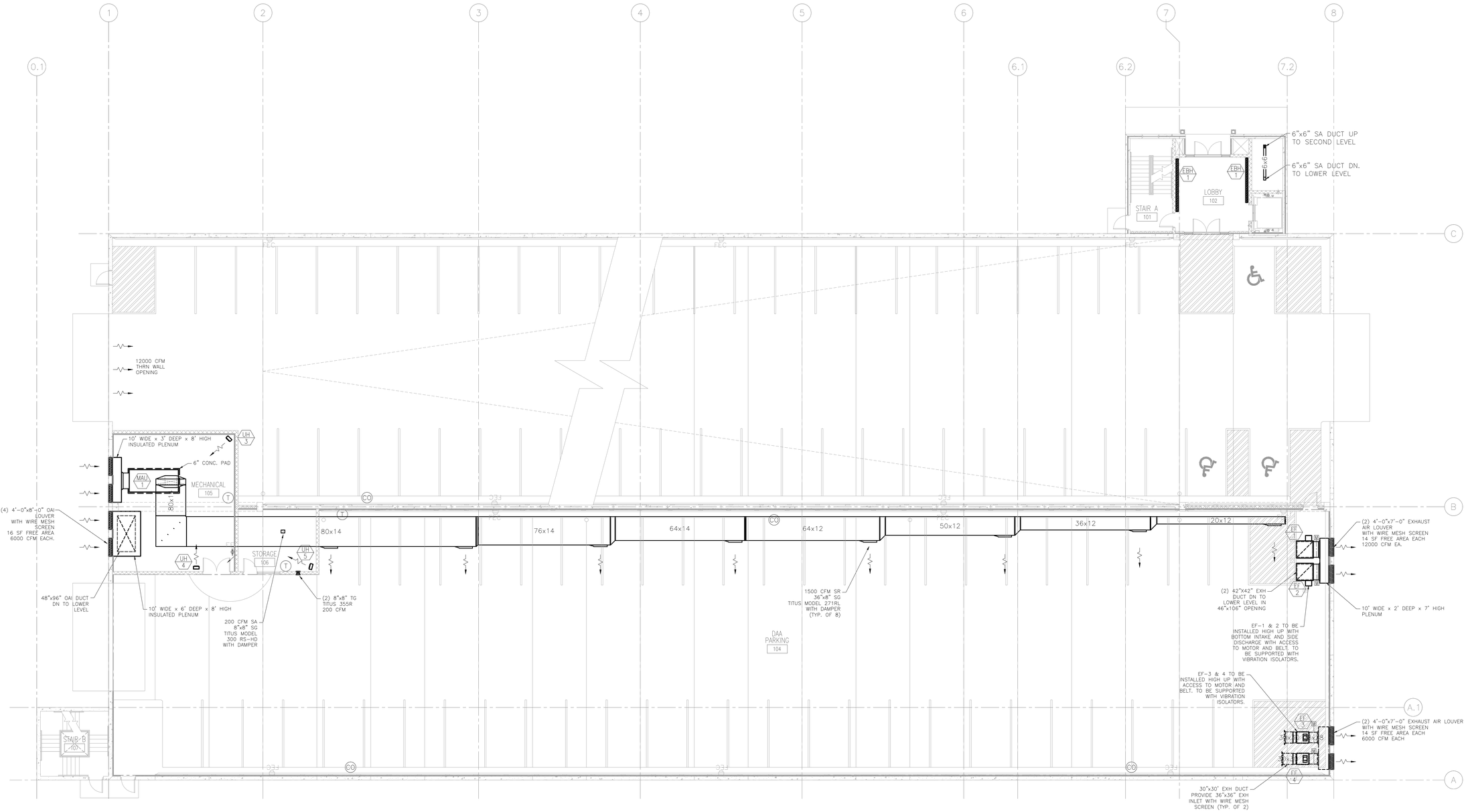
LOWER LEVEL MECHANICAL PLAN

SHEET NUMBER

M100

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\M\M100 Lower Level Mechanical Floor Plan.dwg Plotted on: 5/17/2013 11:57 AM Plotted by: Belshmira, Jamal



0' 8' 16' 32'

N

1 FIRST LEVEL MECHANICAL PLAN
3/32" = 1'-0"

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DRAWN BY: JB
DESIGNED BY: PL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

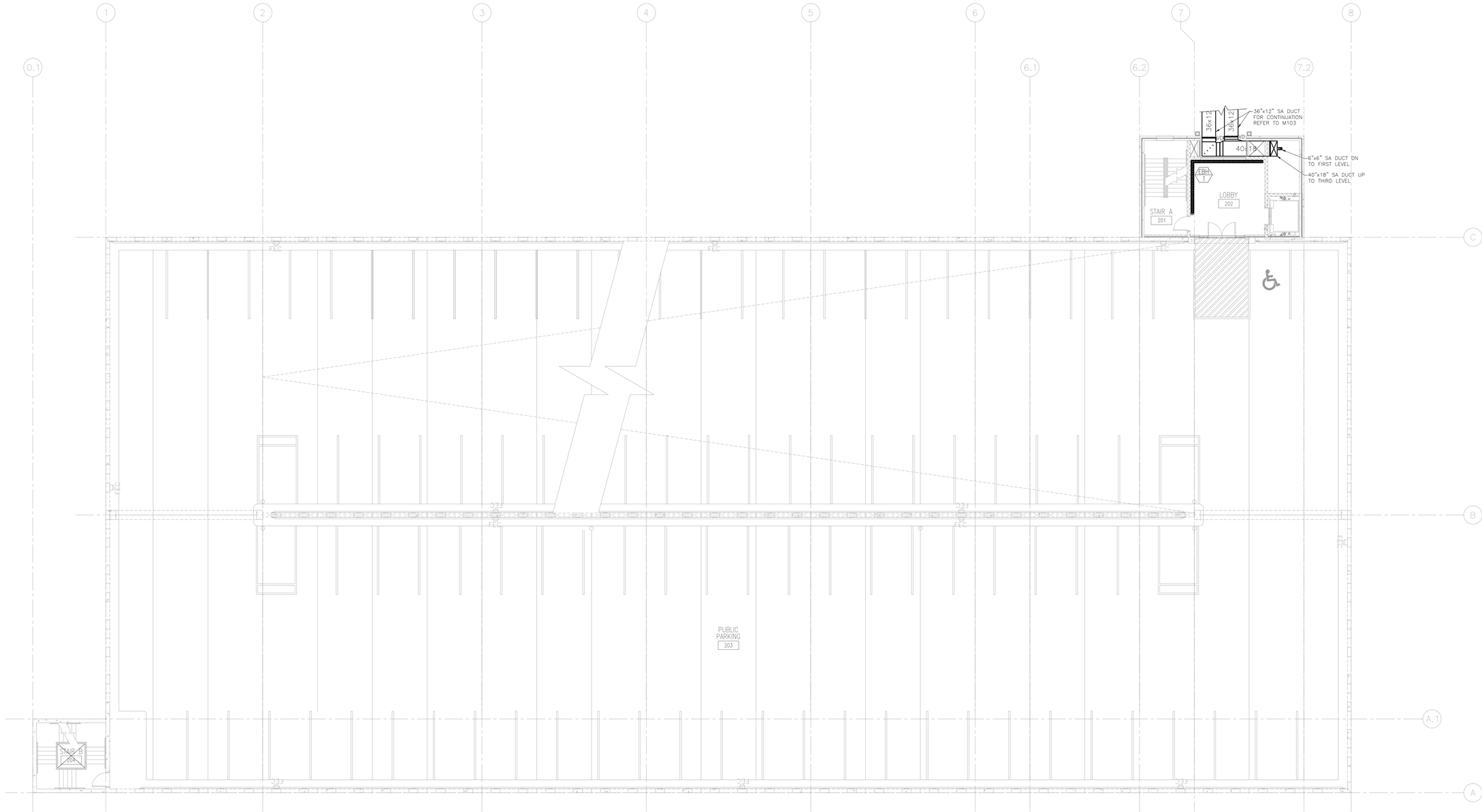
FIRST LEVEL MECHANICAL PLAN

SHEET NUMBER

M101

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\M\M101 First Level Mechanical Floor Plan.dwg Plotted on: 5/17/2013 11:57 AM Plotted by: Belahmira, Jamal



0' 8' 16' 32'

N

1 SECOND LEVEL MECHANICAL PLAN
3/32" = 1'-0"

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DESIGNED BY: PL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

SECOND LEVEL MECHANICAL PLAN

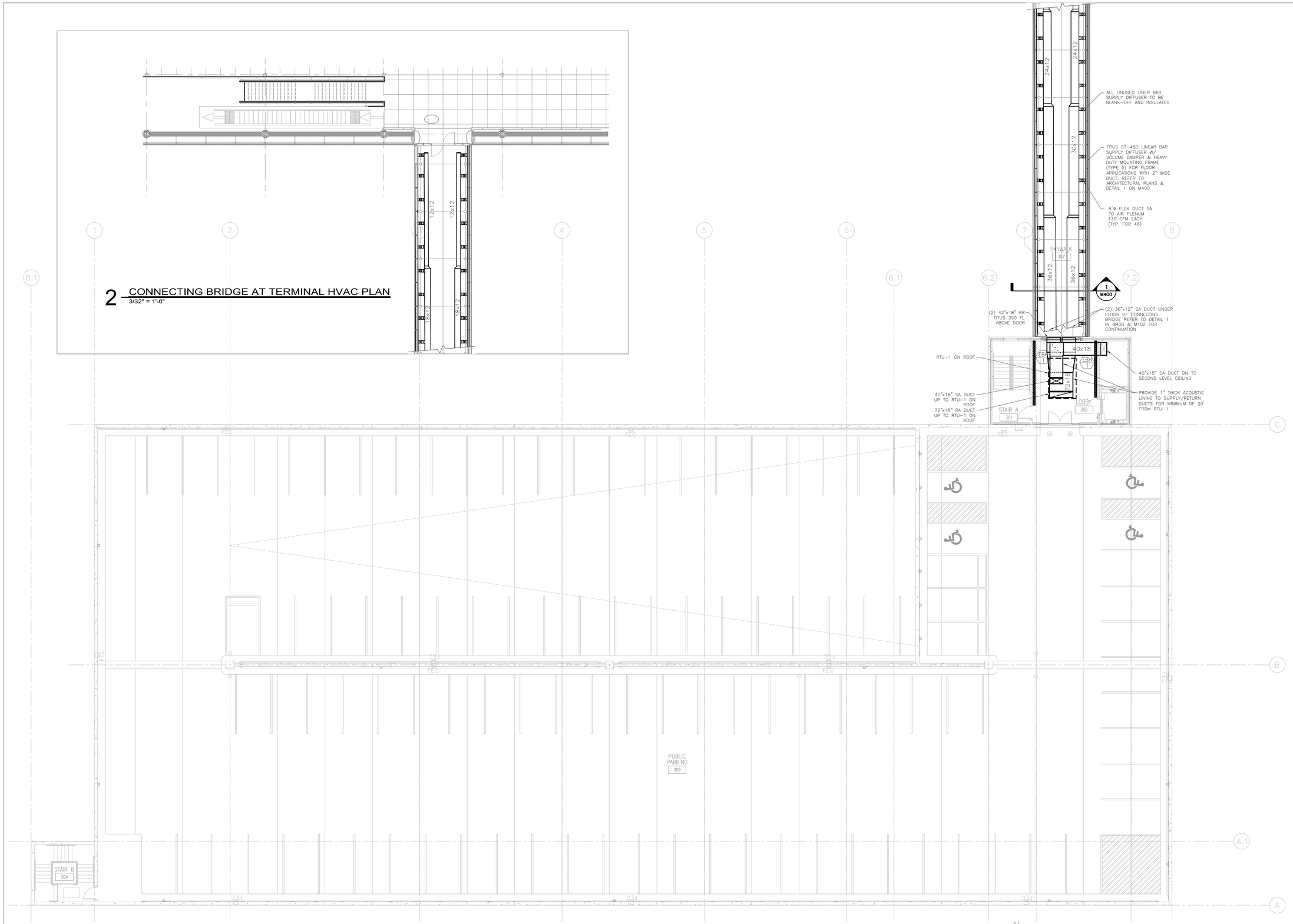
SHEET NUMBER

M102

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\M\M102 Second Level Mechanical Plan.dwg Plotted on: 5/17/2013 11:57 AM Plotted by: Belahmira, Jamal

2 CONNECTING BRIDGE AT TERMINAL HVAC PLAN
3/32" = 1'-0"



0' 8' 16' 32'

1 THIRD LEVEL HVAC PLAN
3/32" = 1'-0"

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213-1882-114

SHEET TITLE

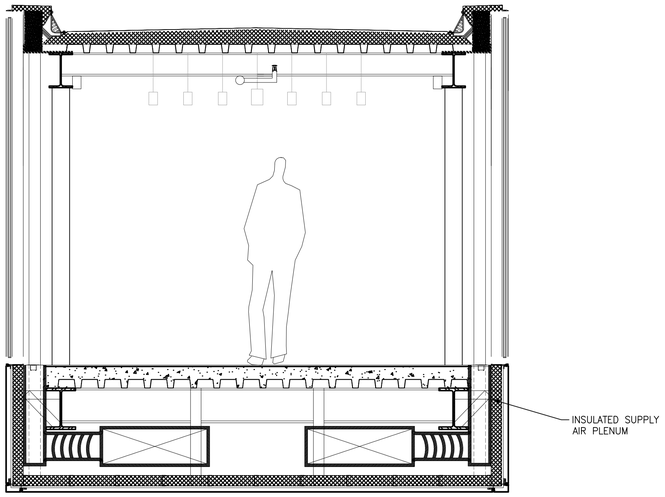
THIRD LEVEL HVAC PLAN

SHEET NUMBER

M103

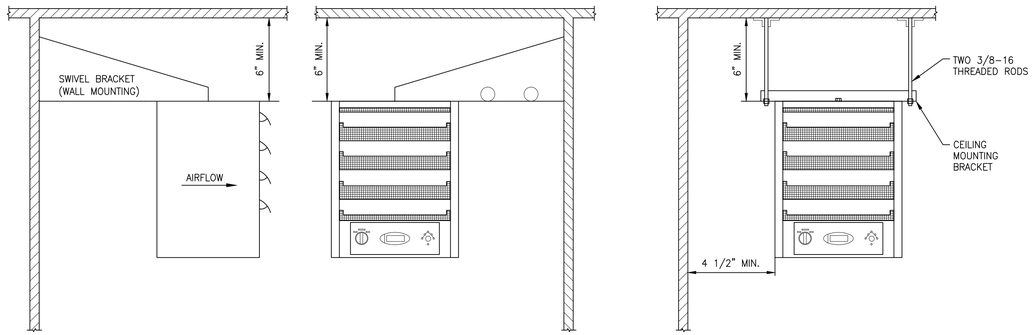
ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\M\M103 Third Level HVAC Plan.dwg Plotted on: 5/17/2013 11:57 AM Plotted by: Belahmira, Jamal



SECTION OF CONNECTING BRIDGE DETAIL

1 / M400 SCALE: NONE

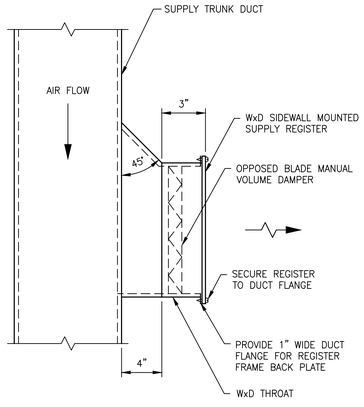


WALL MOUNTED

CEILING MOUNTED

UNIT HEATER DETAIL

2 / M400 SCALE: NONE



SIDEWALL REGISTER DETAIL

3 / M400 SCALE: NONE

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213-1882-114

SHEET TITLE

MECHANICAL DETAILS

SHEET NUMBER

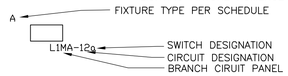
M400

ISSUED FOR BID

Drawing: T:\P\213188 2.114 Duluth Parking Structure\CAD\M\M400 Mechanical Details.dwg Plotted on: 5/17/2013 11:58 AM Plotted by: Belahmira, Jamal

ELECTRICAL LEGEND

ELECTRICAL LIGHTING LEGEND



SYMBOL	MOUNTING HEIGHT TO CENTER LINE	DESCRIPTION
	--	ENCLOSED LIGHTING FIXTURE
H	--	LED GARAGE FIXTURE
	--	EGRESS LIGHTING FIXTURE ON EMERGENCY POWER
A	--	WALL MOUNTED LINEAR FLUORESCENT
	--	EXIT LIGHT- DIRECTIONAL ARROWS AS REQUIRED
H	--	WALL MOUNTED EXIT LIGHT- PROVIDE ARROWS AS REQUIRED
	--	UNIT BATTERY FIXTURE - NUMBER OF HEADS AS SHOWN
F	--	POLE MOUNTED LIGHTING FIXTURE OR FIXTURES
F1	--	HID WALL GRAZER (SEE SCHEDULE FOR TYPE)
F2	--	WALL PACK (SEE FIXTURE SCHEDULE FOR TYPE)

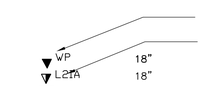
CONTROL DEVICE LEGEND

S S_2	46"	SINGLE OR DOUBLE POLE SWITCHES
D	48" TO ℄	DIMMER, WALL MOUNTED
OC	48" TO ℄	OCCUPANCY SENSOR, WALL MOUNTED
PC	--	PHOTOCELL
OS	--	OCCUPANCY SENSOR, CEILING MOUNTED
DL	--	DAYLIGHT SENSOR, CEILING MOUNTED

WIRING DEVICE LEGEND

T	46"	THERMOSTAT
	18"	DUPLEX RECEPTACLE
WP	18"	DUPLEX RECEPTACLE IN CAST BOX WITH WEATHERPROOF DOUBLE FLAP COVERS
GFI	18"	DUPLEX RECEPTACLE-GROUND FAULT PROTECTED
	18"	DOUBLE DUPLEX RECEPTACLE IN 2 GANG BOX WITH SINGLE COVERPLATE

TELECOM SYSTEMS LEGEND



		WEATHER PROOF DATA JACKS SHALL HAVE HINGED GASKETED COVERS AND CLEAR PLEXIGLASS SHIELDS TO PROTECT JACK IN USE
		SOURCE WIRING RACK
WP	18"	DUPLEX COMMUNICATION OUTLETS - (2) RJ-45 CAT6 [2 DATA 'BLUE']
L2TA	18"	TRIPLEX COMMUNICATION OUTLETS - (3) RJ-45 CAT6 [3 DATA 'BLUE']
R	--	AREA OF RESCUE PUSH BUTTON

SECURITY SYSTEMS LEGEND

CR	46"	CARD ACCESS CARD READER
IFP	--	INTELLIGENT FIELD PANEL (ACCESS CONTROL)
EIB	--	ELECTRICAL INTERFACE BOX (ACCESS CONTROL)
	--	PTZ (PAN/TILT/ZOOM) CCTV CAMERA
	--	FIXED CCTV CAMERA
	--	COMMUNICATIONS RACK
	--	EQUIPMENT CABINET

FIRE ALARM SYSTEMS LEGEND

	90"	BELL
F	46"	FIRE ALARM PULL STATION
CA	AC	CRASH ALARM CONTACT CLOSURE
F	80"	COMBINATION AUDIBLE AND VISUAL NOTIFICATION DEVICE
HD	--	HEAT DETECTOR
SD	--	SMOKE DETECTOR
SD	--	DUCT SMOKE DETECTOR
CO	--	CARBON MONOXIDE DETECTOR
TS	--	SPRINKLER SYSTEM TAMPER SWITCH
FS	--	SPRINKLER SYSTEM FLOW SWITCH

MOTOR CONTROL LEGEND

	--	UNFUSED SAFETY SWITCH
	--	FUSED SAFETY SWITCH
	--	MOTOR STARTER
	--	COMBINATION STARTER WITH FUSED DISCONNECT
	--	LIGHTING PANELBOARD
	--	POWER PANELBOARD
	--	PUSHBUTTON CONTROL

ABBREVIATIONS

A, AMP	AMPERE
AD	AUTOMATIC DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BAT	BATTERY
BKR, BRKR	BREAKER
BR	BRANCH
C	CONDUIT
CAB	CABINET
CB	CIRCUIT BREAKER
CCT, CKT	CIRCUIT
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
CONN	CONNECT, CONNECTION
CU	COPPER
DP	DISTRIBUTION PANEL
D/S	DISCONNECT SWITCH
DWG	DRAWING
EBH	ELECTRIC BASEBOARD HEATER
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
ELEC	ELECTRIC
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EP, XP	EXPLOSION PROOF
EQUIP, EQPT	EQUIPMENT
EX	EXISTING
EWC	ELECTRIC WATER COOLER
F, FU	FUSE, FUSED
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FIX	FIXTURE
FMC	FLEXIBLE METAL CONDUIT
FT	FEET
FLU	FLUORESCENT
GND	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTED
HD	HEAVY DUTY
HID	HIGH-INTENSITY DISCHARGE
HP	HORSEPOWER
HT	HEIGHT
IDF	INTERMEDIATE DISTRIBUTION FRAME
IMC	INTERMEDIATE METALLIC CONDUIT
J, JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
KWH	KILOWATT HOUR
LP	LIGHTING PANEL
LTG	LIGHTING
M	MAGNETIC
MAN	MANUAL
MAU	MAKEUP AIR UNIT
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MDF	MAIN DISTRIBUTION FRAME
MDP	MAIN DISTRIBUTION PANEL
MH	MANHOLE
MLO	MAIN LUG ONLY
MTD	MOUNTED
N, NEUT	NEUTRAL
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN
NF	NON-FUSED
NIC	NOT IN CONTRACT
OHD	OVER HEAD DOOR
PWR	POWER
REF	REFERENCE
RECEPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RTU	ROOF TOP UNIT
REQD	REQUIRED
SCHD	SCHEDULE
SE	SERVICE ENTRANCE
SEC	SECONDARY
SMR	SURFACE METAL RACEWAY
SP	SUMP PUMP
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
SW	SWITCH
T	THERMOSTAT
TYP	TYPICAL
UG, U/G	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
UTIL	UTILITY
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VA	VOLT-AMPERE
VIF	VERIFY IN FIELD
W	WATTS
WP	WEATHER PROOF
XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CODE (NFPA 70), THE LIFE SAFETY CODE (NFPA 101), OSHA, THE NATIONAL FIRE CODES, THE AMERICANS WITH DISABILITIES ACT, STATE AND LOCAL CODES.
2. INSTALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND INDUSTRY STANDARDS.
3. ALL MATERIALS AND EQUIPMENT USED ON THIS PROJECT SHALL BE NEW, U.L. APPROVED/LISTED, U.O.N.
4. ALL WIRING SHALL BE INSTALLED IN CONDUIT AS INDICATED ON THE DRAWINGS, MINIMUM CONDUIT SIZE SHALL BE ¾" TRADE SIZE. CONCRETE ENCASED, OUTDOOR, AND UNDERGROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL U.O.N. SET SCREW FITTINGS ARE NOT PERMITTED. FLEXIBLE CONDUIT SHALL NOT EXCEED 36" IN LENGTH, U.O.N. ALL CONDUIT RUNS SHALL BE CONCEALED IN FINISHED AREAS. WHERE IT IS IMPRACTICAL TO CONCEAL CONDUIT RUNS, PROVIDE SURFACE METAL RACEWAY UPON APPROVAL OF THE ENGINEER AND OWNER. ALL CONDUIT BENDS FOR DATA WIRING SHALL BE SMOOTH LONG RADIUS TYPE, "LB" TYPE FITTINGS SHALL NOT BE USED. EXTERIOR BURIED CONDUIT RUNS SHALL BE MINIMUM 24" BELOW FINISHED GRADE. PROVIDE CAUTION TAPE 12" BELOW GRADE.
5. PROVIDE GROUND STRAP ACROSS ALL CABLE TRAY JOINTS. GROUND CABLE TRAY TO SERVICE GROUND WITH #1/0 BARE COPPER IN 1" CONDUIT.
6. ALL CONDUCTORS SHALL BE #12AWG TYPE THHN INSULATED COPPER, MINIMUM U.O.N. ALL HOME RUNS OF 100' OR LONGER SHALL BE #10AWG TYPE THHN/THWN INSULATED COPPER, MINIMUM U.O.N. EACH EQUIPMENT BRANCH CIRCUIT SHALL INCLUDE AN EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC AND RUN TOGETHER WITH THE PHASE CONDUCTORS.
7. ALL EMERGENCY CIRCUITS SHALL BE RUN IN SEPARATE CONDUITS. EMERGENCY CIRCUIT CONDUIT SHALL BE PERMANENTLY IDENTIFIED WITH A RED BAND AT TEN FOOT INTERVALS AND AT ALL JUNCTION AND PULL BOXES. FIRE ALARM CIRCUITS SHALL BE RUN IN RED EMT AND ALL JUNCTION AND PULL BOX COVERS PAINTED RED.
8. ALL SECURITY SYSTEM CONDUIT SHALL BE SEPARATE, COMPLETE, AND FULLY FUNCTIONAL. SECURITY SYSTEM WIRING SHALL BE RUN IN BLUE EMT AND ALL JUNCTION AND PULL BOX COVERS PAINTED BLUE.
9. ALL ELECTRICAL WIRING DEVICES INDICATED TO BE INSTALLED IN MASONRY WALLS OR FLOORS SHALL BE FLUSH MOUNTED, INCLUDING BRANCH CIRCUIT PANELBOARDS, UNLESS OTHERWISE NOTED. THE CONDUITS TO ASSOCIATED ELECTRICAL EQUIPMENT SHALL BE CONCEALED IN WALLS OR FLOOR. DO NOT LOCATE ELECTRICAL OUTLETS AND DEVICES ON WALL PANEL JOINTS. REFER TO ARCHITECTURAL BUILDING ELEVATIONS FOR WALL PANEL LAYOUT AND PANEL JOINT LOCATIONS
10. ALL LIGHT SWITCHES AND DUPLEX RECEPTACLES SHALL BE RATED FOR 20 AMPERE AT 125 VOLTS A/C. ALL EXTERIOR RECEPTACLES SHALL BE 125VAC, 20A RATED GFI TYPE IN WEATHER PROOF ENCLOSURES U.N.O. EXTERIOR RECEPTACLES MUST BE WEATHERPROOF WITH THE ATTACHMENT PLUG INSERTED. ALL DISCONNECT SWITCHES SHALL BE THE HEAVY DUTY TYPE WITH LITTLE FUSE TIME DELAY, TYPE RK5 AND INDICATING TYPE RK5 FUSES.
11. FOR 120 VOLT/20AMP BRANCH CIRCUITS FROM OTHER THAN COMMUNICATION PANELS, CONTRACTOR MAY USE A COMMON NEUTRAL FOR A MAXIMUM OF THREE DIFFERENT PHASE CONDUCTORS (PHASES A, B, & C). A MAXIMUM OF THREE PHASE CONDUCTORS PLUS THREE NEUTRAL CONDUCTORS OR THREE PHASE CONDUCTORS PLUS A #10 NEUTRAL MAY BE RUN IN A SINGLE CONDUIT.
12. COMMUNICATION PANEL BRANCH CIRCUITS REQUIRE EITHER A SEPARATE NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR OR A #10 AWG NEUTRAL CONDUCTOR WHERE A COMMON NEUTRAL IS USED BETWEEN PHASE CONDUCTORS.
13. ALL EMPTY CONDUITS SHALL CONTAIN JET LINE #232 POLYOLEFIN 200 LB. TEST PULL STRING.
14. EACH PANEL BOARD SHALL BE PROVIDED WITH A TYPEWRITTEN CIRCUIT DIRECTORY SECURED TO THE INSIDE OF THE DOOR IN A STEEL FRAME. EACH PANEL BOARD, TRANSFORMER, AUTOMATIC TRANSFER SWITCH, AND MAIN SWITCHGEAR/SWITCHBOARD SHALL BE IDENTIFIED WITH AN ENGRAVED NAMEPLATE.
15. SPARE CONDUITS, WIRE WAYS AND CABLE TRAYS SHALL BE SUPPORTED FROM BUILDING STRUCTURE AND NOT FROM OTHER PIPES, DUCTS OR EXISTING RACKS U.O.N.
16. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE PROJECT DRAWINGS AND SPECIFICATIONS AND VISIT THE SITE TO DETERMINE THE FULL EXTENT OF THE WORK. THE BID SUBMITTED SHALL SHALL BE CONSTRUED AS EVIDENCE THAT THE BIDDER HAS COMPLIED WITH THESE REQUIREMENTS AND SHALL ENSURE THAT ALL WORK SHALL MEET OR EXCEED THE PROJECT REQUIREMENTS. ANY ALLEGED DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO BID SUBMITTAL.
17. THE CONTRACTOR IS DIRECTED TO OBTAIN COPIES OF ALL RELATED PLANS, SPECIFICATIONS, SHOP DRAWINGS AND ADDENDUM TO COORDINATE THE RELATED WORK AND SCHEDULING.
18. THE CONTRACTOR IS REMINDED THAT ELECTRICAL SERVICE TO AND FOR MECHANICAL, KITCHEN AND OTHER EQUIPMENT ARE BASED ON EQUIPMENT DESIGN DATA. THE VALUES MAY DIFFER DEPENDING UPON THE ACTUAL EQUIPMENT TO BE FURNISHED. ANY MODIFICATION TO THE ELECTRICAL, BASED UPON ACTUAL EQUIPMENT SELECTION, SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
19. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE ARCHITECTURAL AND MECHANICAL PLANS TO ASSURE THAT ELECTRICAL SERVICE FOR ALL ITEMS AND/OR EQUIPMENT REQUIRING ELECTRICAL SERVICE IS INCLUDED. ANY ITEM AND/OR EQUIPMENT NOT PROVIDED WITH ELECTRICAL SERVICE, REQUIRING ELECTRICAL SERVICE, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
20. MECHANICAL AND ELECTRICAL EQUIPMENT HAVE BEEN LOCATED AND ARRANGED TO MINIMIZE THE INTERFERENCES OF EQUIPMENT AND STRUCTURE. THE CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE WORK TO BE PERFORMED BY OTHER TRADES AND THE PHYSICAL CHARACTERISTICS OF THE STRUCTURE IN ORDER TO SCHEDULE AND INSTALL EQUIPMENT AND TO MINIMIZE POSSIBLE INTERFERENCE. FAILURE TO PROPERLY COMMUNICATE AND SCHEDULE WORK WITH OTHER TRADES AND RESULTING IN ADDITIONAL WORK AND MATERIAL, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE MODIFICATIONS REQUIRED TO RESOLVE THE CONFLICT SHALL BE DECIDED BY THE ENGINEER.
21. THE CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL SUBCONTRACTOR TO ENSURE THAT ALL NECESSARY CONDUITS FOR AIR CONDITIONING CONTROLS ARE INCLUDED. IT IS THE ELECTRICAL SUBCONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL EQUIPMENT IS WIRED PROPERLY AND ALL CONTROLS ARE OPERATIONAL. THE ELECTRICAL SUBCONTRACTOR SHALL FURNISH ALL WIRING MATERIALS AND DEVICES NOT SUPPLIED BY THE MECHANICAL SUBCONTRACTOR.
22. CONTRACTOR SHALL MAKE ALL REQUIRED OPENINGS THROUGH FLOORS, WALLS, CEILINGS, AND ROOFS AS REQUIRED FOR THE WORK INDICATED. WHERE CABLES OR CONDUITS ARE REQUIRED TO PASS THROUGH FIRE RATED WALL, FLOOR OR CEILING, THEY SHALL BE SEALED WITH 3M FIRE STOP OR APPROVED EQUAL. THE APPROVED FIRE STOP METHOD SHALL COMPLY WITH ARTICLES 300-21 OF NEC AND SHALL BE UL LISTED UNDER "THROUGH -PENETRATION FIRE STOP SYSTEM (XHEZ)" IN UL FIRE RESISTANCE DIRECTORY. PROVIDE MINIMUM 1" EMT THROUGH WALL PENETRATIONS. ALL CUTTING AND CORE DRILLING MUST BE COORDINATED WITH THE GENERAL CONTRACTOR.
23. CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE DURING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR/REPLACE ALL MATERIAL AND/OR EQUIPMENT DAMAGED. REPAIR SHALL RETURN THE DAMAGED ITEMS BACK TO THEIR ORIGINAL STATE, AS A MINIMUM, AS DETERMINED BY THE OWNER.
24. ALL REFUSE AND DEBRIS SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF LEGALLY BY THE CONTRACTOR. RETURN ANY SALVAGEABLE EQUIPMENT TO THE OWNER.
25. ANY EXISTING UTILITIES LOCATED IN THE AREA OF CONSTRUCTION WHICH REQUIRE RELOCATION BY THE OWNER SHALL BE COORDINATED WITH THE OWNER TEN DAYS IN ADVANCE, MINIMUM.
26. THE FIRE ALARM MANUFACTURER SHALL PROVIDE CERTIFIED TECHNICIAN TO SUPERVISE THE INSTALLATION, FINAL CONNECTIONS AND TESTING OF THE FIRE ALARM SYSTEM. AT THE COMPLETION OF THE PROJECT, THE MANUFACTURER SHALL INSPECT THE SYSTEM AND CERTIFY THAT IT IS INSTALLED IN ACCORDANCE WITH NFPA 72A. ALL FIRE ALARM COMPONENTS SHALL COMPLY WITH ADA REQUIREMENTS.

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REVISIONS

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SHEET TITLE
ELECTRICAL ABBREVIATIONS LEGEND AND GENERAL NOTES

SHEET NUMBER
E001

ISSUED FOR BID

Drawing: T:\P\213188Z.114 Duluth Parking Structure\CAD\E\E001.dwg Plotted on: 5/17/2013 4:35 PM Plotted by: Lizarri, Ronal

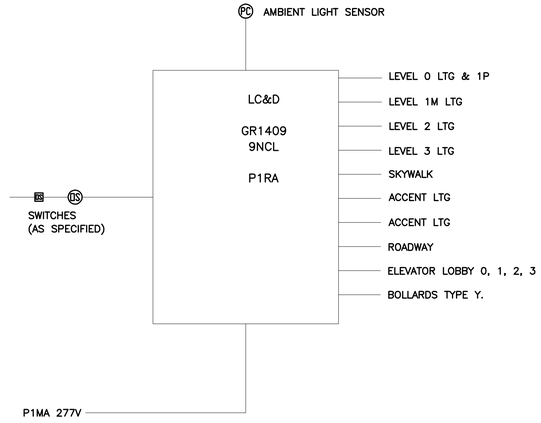
LUMINAIRE SCHEDULE

SEE NOTES THIS SHEET

MARK	DESCRIPTION	MOUNTING	LAMPS				APPROVED MANUFACTURER	MODEL/SERIES NUMBER	SEE NOTE
			QTY	TYPE	LAMP WATTS	VOLTS			
A	4' FLUORESCENT LIGHT FIXTURE W/ WHITE TGIC POLYESTER POWDER COAT 5 STAGE PRE TREATMENT, AND UV STABILIZED PEARLESCENT LINEAR PRISMATIC INTERIOR LENS. UL LISTED FOR WET LOCATION WITH BATTERY BACKUP.	WALL	2	F28T5	28	277	1 KENALL	ES54MS-228RSI-DV2H-PP-EL-TR	
							2 LITHONIA		
							3 DAYBRITE		
							4	OR APPROVED EQUAL	
C	OPEN REFLECTOR CYLINDER.	WALL OR PENDANT	1	42W CFL	42	277	1 COLUMBIA		
							2 LITHONIA		
							3 OMEGA/PHILIPS	OM6/42PLT-PC-BB-CSSFF-U-(EM)	
							4	OR APPROVED EQUAL	
C1	SMALL APERTURE LED PENDANT CYLINDER.	PENDANT	1	16W LED	16	277	1 USAI	PLR4-9016-C2-10-35KS-30-C-277-(AMB)	11.
							2 COLUMBIA	OR APPROVED EQUAL	12.
							3 OMEGA/PHILIPS		
							4		
D	FLUORESCENT, FIBERGLASS ENCLOSED AND GASKETED, WET LOCATION, RAPID START HOUSING: ONE-PIECE, HIGH-IMPACT, MOLDED POLYESTER FIBERGLASS WITH CAST WATERPROOF HUB. DIFFUSER: ONE-PIECE, IMPACT-RESISTANT MOLDED ACRYLIC WITH ABS THERMOPLASTIC LATCHES; HEAVY GAUGE DIE-FORMED STEEL LINER; HIGH GLOSS BAKED WHITE ENAMEL FINISH WITH KNOCKOUTS FOR CHAIN HANGARS. PROVIDE CHAINS AS REQUIRED FOR HANGING FIXTURE. PROVIDE BATTERY BACK UP IN ELECTRICAL AND COMMUNICATIONS ROOMS.	SURFACE OR PENDANT	2	F28T5/835	28	277	1 COLUMBIA	LUN4-228-EP-U-LUNHK/PEBA	
							2 LITHONIA	DMW-2-28T5-MVOLT-GEB10RS-BCD-H36-WLF	
							3 DAYBRITE	DWAE228-UNV-1/2-EB-UNV/TBK	
							4	OR APPROVED EQUAL	
F (F)	HID OUTDOOR AREA LIGHTING TO LIGHT THE UPPER DECK; WITH EASY HINGED ACCESS.	POLE	1	210W HID	230	277	1 KIM	AR3	14.
							2 KENALL		
							3		
							4	OR APPROVED EQUAL	
F-ALT (F)	LED OUTDOOR AREA LIGHTING TO LIGHT THE UPPER DECK; WITH EASY HINGED ACCESS, FIELD REPLACEABLE OPTICAL BEZEL AND HEAT DISIPATING FINS FOR 150000 HR RATED LIFE FOR BOTH LED AND THEIR DRIVERS.	POLE	1	90W LED	90	277	1 BEACON	TRV-D/24NB90/T3/UNV/MOB/BZ	15.
							2 KENALL	TPD-23-4P-DB-216-L40K	
							3 KIM		
							4	OR APPROVED EQUAL	
F1 (F1)	HID UPLIGHT LIGHTING FIXTURE. DIE-CAST ALUMINUM HOUSING W/ WALL MOUNTED BASE PLATE FOR DIRECT ATTACHMENT, OPTICALY CLEAR CAST ACRYLIC CYLINDER FULLY CASKETED FOR WEATHER TIGHT OPERATION.	WALL	1	T6G12MH	150	277	1 BEGA	2029MH	15.
							2 LITHONIA	OR APPROVED EQUAL	
							3		
							4		
F2 (F2)	WALLPACK FULL CUTOFF, STARVIEW COMPLIANT; DIE CAST ALUMINUM HOUSING; TEMPERED, IMPACT RESISTANT GLASS LENS; QUARTER SPHERE SHAPE; MOUNTS OVER STANDARD RECESSED J-BOX. 3500-4000K COLOR TEMPERATURE; BUTTON PHOTOCONTROL; BATTERY BACKUP.	WALL	–	42W CFL	48W	277	1 LITHONIA	WSQ LED-2-10A700/40K-SR2-ELVW	
							2 HUBBELL	OR APPROVED EQUAL	
							3		
							4		
H (H)	WHITE PAINTED CAST METAL HOUSING,FORMED SEMISPECULAR METAL REFLECTOR WITH FLUTED SIDES, CLEAR PRISMATIC PLASTIC DROP LENS WITH LINEAR PRISMATIC CENTER CROSS PATTERN IN MOLDED WHITE PLASTIC FRAME PARKING GARAGE LIGHT FIXTURE.	RIGID PENDANT	1	150W MH	175	277	1 KENALL	MR17RP-C-MW-150M-1-277-RAK	13.
							2		
							3		
							4	OR APPROVED EQUAL	
H-ALT (H)	LED PARKING GARAGE LIGHT FIXTURE WITH TYPE V RECTANGULAR LIGHTING DISTRIBUTION.	RIGID PENDANT	–	20 LED's	46	277	1 LITHONIA	DSXPG-LED-20C-700-40K-T5R-MVOLT-DWHXD	13.
							2 BEACON PRODUCTS		15.
							3 KENALL		
							4	OR APPROVED EQUAL	
S1	NARROW APERTURE, CONTINUOUS LINEAR, STAGGERED LAMPING, PERIMETER LIGHT FIXTURE.	PENDANT	–	28w T5	28	277	PINNACLE	EX44-WA-N-1T5-XX-AC48G1-UNV-1C-W	12.
							2 LITHONIA	OR APPROVED EQUAL	
							3		
							4		
S1-ALT	NARROW APERTURE, CONTINUOUS LINEAR, STAGGERED LAMPING, PERIMETER LED LIGHT FIXTURE.	PENDANT	–	28w T5	28	277	PINNACLE	EX4-A-N-40-XX-AC48G1-UNV-1C-W	12.
							2 LITHONIA	OR APPROVED EQUAL	15.
							3		
							4		
S2	NARROW APERTURE, CONTINUOUS LINEAR, STAGGERED LAMPING, AMBIENT LIGHT FIXTURE.	PENDANT	–	28w T5	28	277	PINNACLE	EX44-WA-N-1T5-XX-AC48G1-UNV-1B-W	12.
							2 LITHONIA	OR APPROVED EQUAL	
							3		
							4		
S2-ALT	NARROW APERTURE, CONTINUOUS LINEAR, STAGGERED LAMPING, AMBIENT LED LIGHT FIXTURE.	PENDANT	–	28w T5	28	277	1 PINNACLE	EX4-A-N-40-XX-AC48G1-UNV-1B-W	12.
							2 LITHONIA	OR APPROVED EQUAL	15.
							3		
							4		
Y	AREA LIGHTING.	GRADE	–	MH	150	277	1		15.
							2 BEGA	8945MH	
							3		
							4	OR APPROVED EQUAL	
EX	EMERGENCY LIGHTING UNIT	PENDANT	2	50W HAL	72 (UNIT WATTS)	120/277	1 DUAL LITE		13.
							2 LITHONIA	IND12150-W-H5012S-ULT	
							3 MCPHILBEN		
							4	OR APPROVED EQUAL	
X	LED, EDGE LIT EXIT SIGN FOR PUBLIC SPACES; DOUBLE OR SINGLE FACE WITH OR WITHOUT DIRECTIONAL ARROWS AS SHOWN ON PLANS	UNIVERSAL	–	LED UNIT	1.5 (UNIT WATTS)	120/277	1 DUAL LITE		
							2 LITHONIA	EDG-X-#-R-EL	
							3 MCPHILBEN	ER44RLDU#R	
							4	OR APPROVED EQUAL	

LUMINAIRE SCHEDULE GENERAL NOTES

1. THE MODEL/SERIAL NUMBER INDICATES THE TYPE OF THE FIXTURE AND DOES NOT INCLUDE ALL FEATURES REQUIRED. THE DESCRIPTION COLUMN INDICATES THE REQUIRED FEATURES AND FINISHES. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE LUMINAIRES INDICATING ALL REQUIRED FEATURES AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS.
2. THE LIGHTING FIXTURE SCHEDULE AND CATALOG NUMBERS INDICATE MAJOR REQUIREMENTS FOR THE LIGHTING FIXTURES. WHETHER SPECIFIED BY THE CATALOG NUMBERS OR NOT, THE CONTRACTOR SHALL PROVIDE ALL COMPONENTS, HARDWARE AND RELATED ITEMS TO PROVIDE A COMPLETE LIGHTING FIXTURE SYSTEM TO MEET THE REQUIREMENTS AS SPECIFIED IN THE DRAWINGS AND SPECIFICATIONS.
3. COORDINATE LIGHTING FIXTURE MOUNTING WITH THE ARCHITECTURAL CEILING PLANS, SECTIONS AND ELEVATIONS. PROVIDE ALL MOUNTING HARDWARE INCLUDING TRIM AND FLANGES TO COMPLETE THE INSTALLATION.
4. APPROVED EQUAL MANUFACTURERS:
   A. PROVIDE A PRODUCT EQUAL IN PERFORMANCE AND QUALITY, INCLUDING PHYSICAL ATTRIBUTES, FROM APPROVED MANUFACTURER'S LISTED IN THE FIXTURE SCHEDULE.
   B. A PRODUCT FROM MANUFACTURERS NOT LISTED AS APPROVED EQUAL IN THE SCHEDULE MAY BE SUBMITTED FOR APPROVAL DURING THE SHOP DRAWING PHASE, PROVIDED THE MANUFACTURER CAN PROVIDE A FIXTURE WHICH MEETS THE QUALITY AND PERFORMANCE REQUIREMENTS. THE A/E'S DETERMINATION FOR THE APPROVAL SHALL GOVERN. PROVIDE COMPLETE DETAIL OF THE PROPOSED EQUAL FIXTURE WITH A COMPARISON TO THE SPECIFIED FIXTURE INCLUDING COMPUTER GENERATED POINT BY POINT FOOT CANDLE CALCULATIONS, SAMPLES AND ANY ADDITIONAL INFORMATION REQUESTED BY THE A/E. PROTOTYPE PRODUCTS SHALL NOT BE SUBMITTED FOR APPROVAL AS EQUAL TO SPECIFIED PRODUCTS.
5. PROVIDE PLASTER FRAMES AS REQUIRED.
6. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLAST WITH <10% THD UNLESS OTHERWISE NOTED.
7. PROVIDE LENS DISTRIBUTION TYPE FOR OPTIMUM COVERAGE. PROVIDE COMPUTER GENERATED POINT BY POINT FOOT CANDLE CALCULATIONS FOR ALL FIXTURES SUBMITTED FOR SUBSTITUTION APPROVAL.
8. PROVIDE 10% SPARE LAMPS OF EACH TYPE TO BE TURNED OVER TO OWNER.
9. CONTRACTOR SHALL VERIFY VOLTAGE REQUIREMENTS FOR ALL LUMINAIRES, PRIOR TO SHOP DRAWING SUBMITTAL, BASED ON THE CIRCUITING REQUIREMENTS ON THE PLANS AND SCHEDULES. NO ADDITIONAL COMPENSATION WILL BE PROVIDED DUE TO FAILURE OF COMPLIANCE WITH REQUIREMENTS.
10. ALL FIXTURES REQUIRE UL, CUL, ETL OR CSA LISTING.
11. PROVIDE SOLITE AMBER LENS FOR FOUR LIGHT FIXTURES ON EACH END OF THE SKYWALK.
12. MOUNTING HEIGHT FOR THIS LIGHT FIXTURES SHALL BE 16" FROM THE BOTTOM OF THE DECK.
13. THIS LIGHT FIXTURES SHALL BE CLG MOUNTED IN BETWEEN THE STRUCTURAL TEES AND THE BOTTOM OF THIS LIGHT FIXTURE SHALL NOT BE LOWER THAN THE TEES.
14. THIS LIGHT FIXTURES SHALL MATCH EXISTING PARKING LOT FIXTURES. PROVIDE LIGHT FIXTURE WITH PHILIPS 210W CERAMIC METAL HALIDE MASTER COLOR ELITE SYSTEM.
15. THIS LIGHT FIXTURES ARE ALTERNATES SEE FLOOR PLANS FOR DETAILS.



TYP. LIGHTING CONTROL

LIGHTING CONTROL PERFORMANCE NOTES

ALL LIGHTING CIRCUITS SHALL BE CONTROLLED AUTOMATICALLY WITH MANUAL OVERRIDE CONTROL WHERE NECESSARY. MECHANICAL, ELECTRICAL, & COMMUNICATION ROOMS SHALL BE MANUAL CONTROL ONLY.

LIGHTING CONTROL SHALL BE AS SHOWN BELOW.

STORAGE ROOMS, CORRIDORS, RESTROOMS AND LOCKER ROOMS SHALL BE CONTROLLED BY OCCUPANCY SENSOR ONLY.

OUTDOOR LUMINAIRES SHALL BE CONTROLLED BY PHOTOCELL AND ASTRONOMIC CLOCK. COORDINATE SYSTEM SETUP AND OPERATING HOURS WITH OWNER.

SUBMIT SHOP DRAWINGS OF THE MANUFACTURER'S LIGHTING CONTROL PLAN SHOWING ALL LIGHT FIXTURES, WIRING AND CONTROL DEVICES FOR REVIEW TO THE ENGINEER. IT IS NOT THE INTENT OF THESE DOCUMENTS TO SHOW ALL LIGHTING CONTROL DEVICES (PHOTOCELLS, POWERPACKS, ETC.) BUT TO DESCRIBE THE LIGHTING CONTROL PERFORMANCE OF EACH SPACE.

CONTRACTOR SHALL INCLUDE TWO DAYS OF COMMISSIONING/SYSTEM SET UP FROM THE LIGHTING CONTROL MANUFACTURER TRAINED REPRESENTATIVE. COORDINATE FINAL SYSTEM SET UP DATE AND TIME WITH OWNER AND ENGINEER.PERFORMANCE OF EACH SPACE.

LIGHTING CONTROL OPERATION SEQUENCE

METAL HALIDE

LEVEL 0, 1P (PUBLIC), 1M (MECHANICAL) & 2:
- PROGRAMMABLE TIMER ON/OFF
- ALL FIXTURES NORMALLY ON

LEVEL 3:
- PROGRAMMABLE TIMER ON/OFF
- AMBIENT LIGHT OVERRIDE TO OFF (OUTDOOR)
- ALL FIXTURES NORMALLY ON

SKYWALK:
- PROGRAMMABLE TIMER ON/OFF
- ACCENT/DECORATIVE FIXTURES NORMALLY ON
- AMBIENT LIGHT OVERRIDE TO OFF
- PERIMETER FIXTURES NORMALLY DIM
- OCCUPANCY SENSOR LIGHTS ALL FIXTURES TO 100%
- VACANCY TIMEOUT ADJ. 0-30 MIN RETURN TO OFF

LIGHTING CONTROL OPERATION SEQUENCE (CONT.)

ELEVATOR LOBBY 0, 1, 2 & 3:
- PROGRAMMABLE TIMER ON/OFF
- OCCUPANCY SENSOR AT ANY ENTRY LIGHTS FIXTURES TO 100%
- VACANCY TIMEOUT ADJ. 0-30 MIN RETURN TO OFF

STAIRS A & B:
- ALL FIXTURES ON

UNDER-SKYWALK ROADWAY:
- PROGRAMMABLE TIMER ON/OFF
- AMBIENT LIGHT OVERRIDE TO OFF (OUTDOOR)

ACCENT LTG (ALTERNATE)
- PROGRAMMABLE TIMER ON/OFF
- AMBIENT LIGHT OVERRIDE TO OFF (OUTDOOR)

AREA LTG TYPE Y (ALTERNATE)
- PROGRAMMABLE TIMER ON/OFF
- AMBIENT LIGHT OVERRIDE TO OFF (OUTDOOR)

LIGHTING CONTROL OPERATION SEQUENCE (CONT.)

LED (ALTERNATE)

LEVEL 0, 1P (PUBLIC), 1M (MECHANICAL) & 2:
- PROGRAMMABLE TIMER ON/OFF
- ALL FIXTURES NORMALLY DIMMED
- OCCUPANCY SENSOR LIGHT ALL FIXTURES TO 100%
- VACANCY TIMEOUT ADJUSTABLE 0 TO 30 MIN RETURN TO DIM

LEVEL 3:
- PROGRAMMABLE TIMER ON/OFF
- AMBIENT LIGHT OVERRIDE TO OFF (OUTDOOR)
- ALL FIXTURES NORMALLY DIM
- OCCUPANCY SENSOR LIGHTS ALL FIXTURES TO 100%

SKYWALK, ELEVATOR LOBBIES 0, 1, 2, 3, STAIRS A&B UNDER-SKYWALK ROADWAY:
- SAME AS ABOVE

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BA
DRAWN BY: RJL
DESIGNED BY: RJL

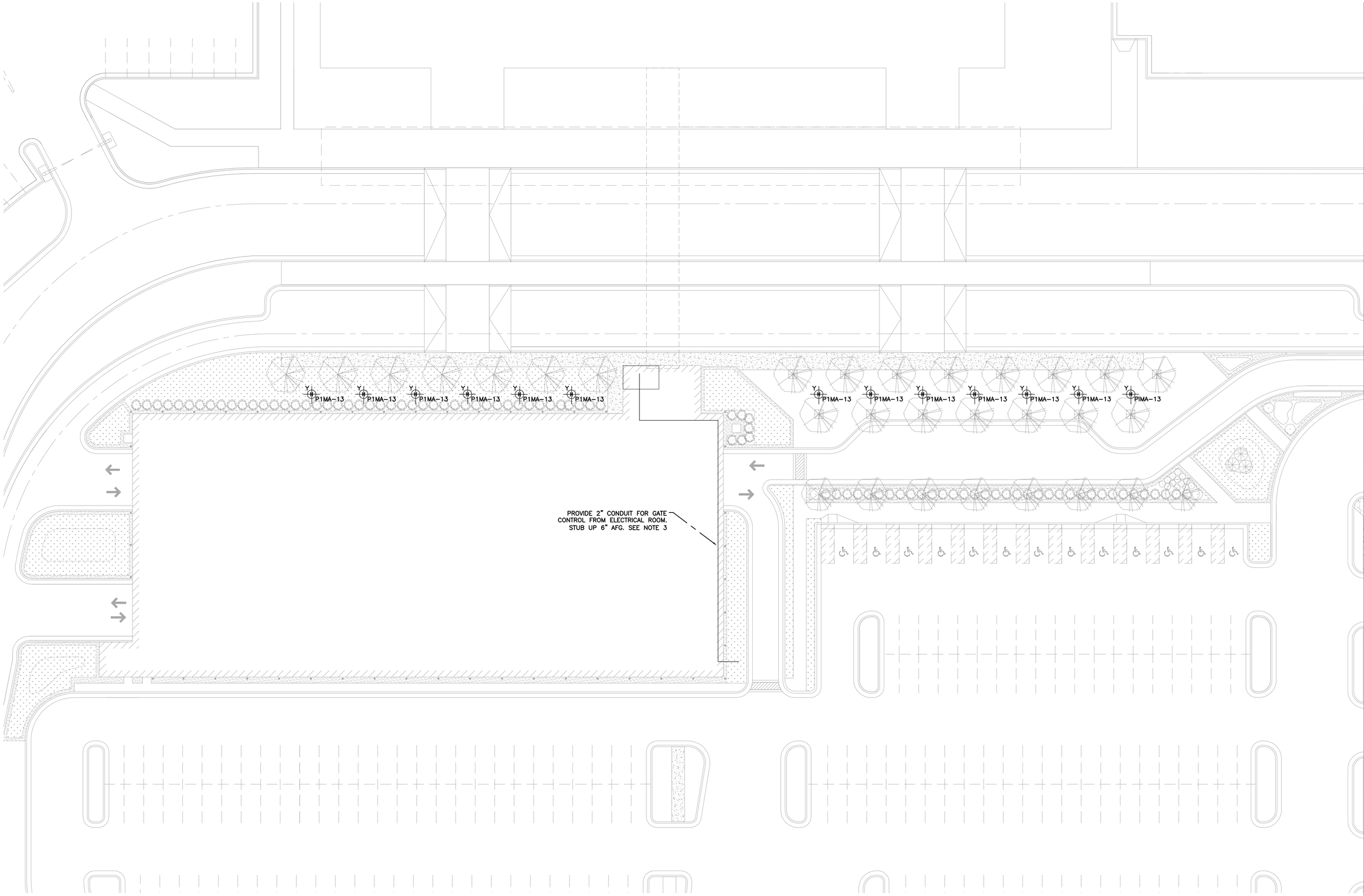
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
LUMINAIRE SCHEDULE AND NOTES

SHEET NUMBER
E002

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E002 Luminaire Scedule and Notes.dwg Plotted on: 5/17/2013 4:35 PM Plotted by: Lizarri, Rional



NOTES:

1. SEE DRAWING E002 FOR LIGHT FIXTURE TYPE.
2. SEE DETAILS 2 AND 3 DRAWING E150 FOR BOLLARD BASE AND U/G WIRING.
3. PROVIDE UNDER-GROUND VEHICLE SENSOR WIRING. SEE CIVIL DWR. CE101

ALTERNATES:

BOLLARDS INCLUDING ELECTRICAL CONNECTION, WIRING AND BOLLARD BASE SHALL BE BID SEPARATE UNDER ALTERNATE #9.

N

1 ELECTRICAL SITE PLAN
1" = 20'-0"

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DRAWN BY: RJL
DESIGNED BY: RJL/BA

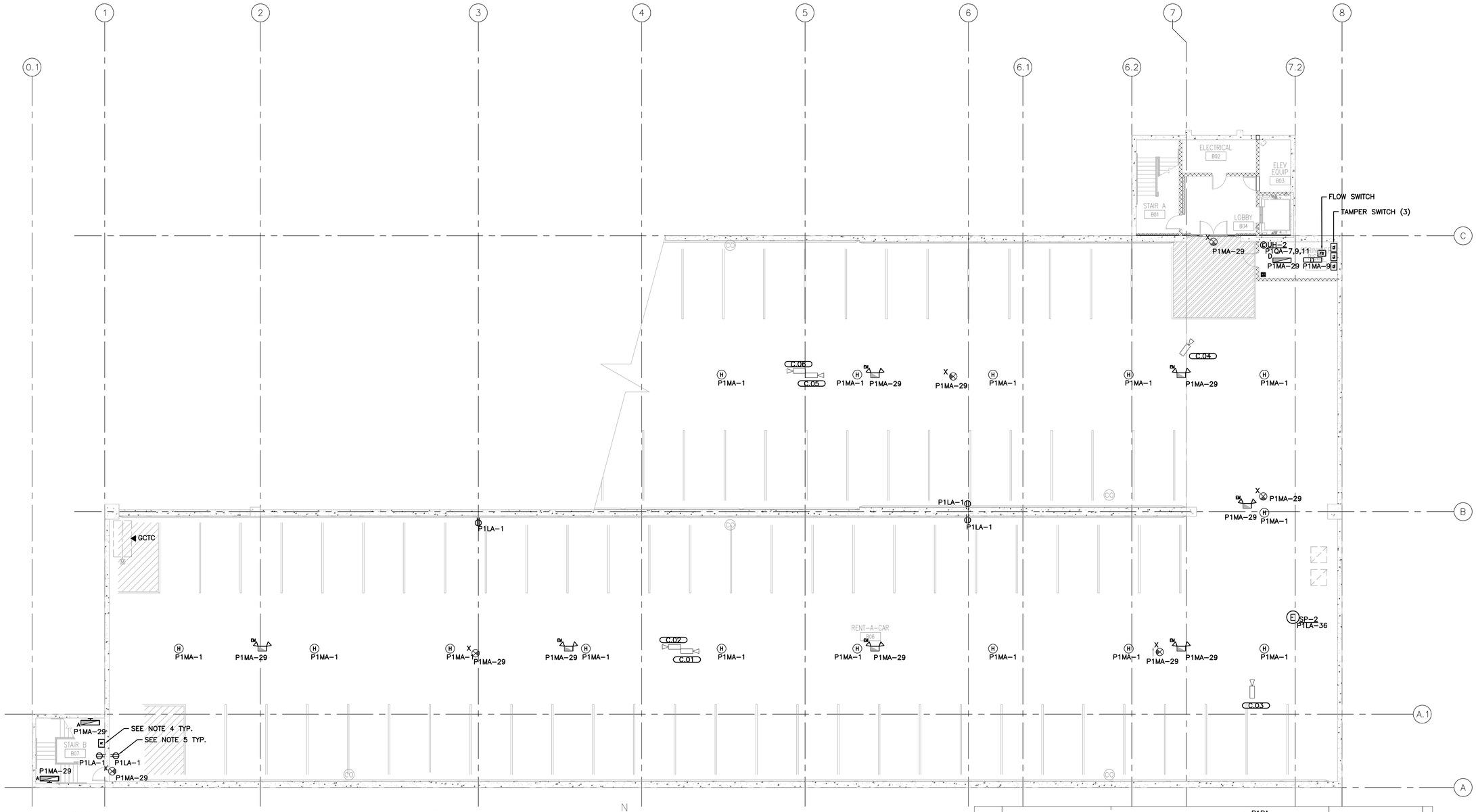
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
ELECTRICAL SITE PLAN

SHEET NUMBER
E010

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E010 Electrical SitePlan.dwg Plotted on: 5/17/2013 4:35 PM Plotted by: Lizarn, Rional



N

1 LOWER LEVEL FLOOR PLAN

3/32" = 1'-0"

NOTES:

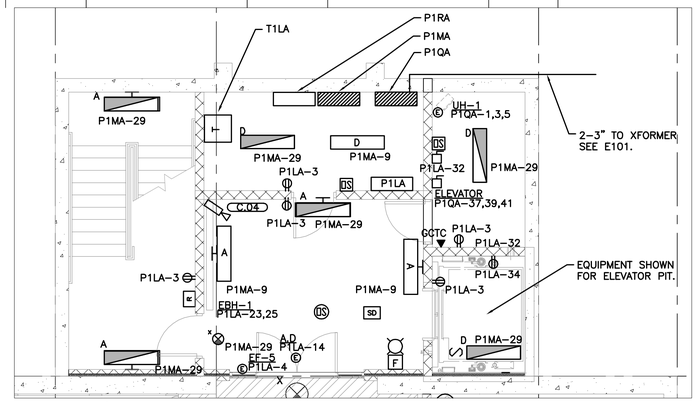
1. PROVIDE SURFACE MOUNTED CEILING BOXES AND FIXTURES WITH QUICK MOUNT OPTION.
2. WIRE LIGHTING CONTROLS & FIXTURES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. SEE CONTROL DIAGRAM ON E602.
3. LOCATE LIGHTING CONTROL SENSORS PER MANUFACTURERS INSTRUCTIONS. SEE SEQUENCE OF OPERATION ON E002.
4. PROVIDE AREA OF RESCUE INTERCOM BACK BOX IN PRECAST STAIRWAY WALLS AS SHOWN AT 45"AFF O.C. WITH 0.75"CONDUIT STUBBED TO CEILING LEVEL. WIRE TO GCTC PANEL USING CAT6 CABLE IN CONDUIT. COORDINATE WITH PRECAST MANUFACTURER. PROVIDE INTERCOM PER SPECIFICATION 27-32-01
5. PROVIDE OUTLET BOXES IN PRECAST STAIRWAY AS SHOWN @ 24" AFF WITH 0.75" CONDUIT STUBBED THROUGH WALL TO SURFACE MTD OUTLET BOX INSIDE GARAGE. TYP. COORDINATE WITH PRECAST MANUFACTURER.
6. GARAGE RECEPTACLES, LIGHT FIXTURES, SENSORS, ETC. SHALL BE SURFACE MOUNTED IN WEATHER PROOF ENCLOSURES. ALL RECEPTACLES SHALL BE GFP.
7. PROVIDE FIRE ALARM ADDITION TO TERMINAL BUILDING SYSTEM CONNECT SPRINKLER SYSTEM TAMPER & FLOW SWITCHES NOTIFICATION APPLIANCES, & INITIATING DEVICES TO TERMINAL SYSTEM. PROVIDE ELEVATOR CONTROL CONNECTIONS AS REQUIRED BY AHJ.
8. PROVIDE CONNECTIONS OF ALL CO DETECTORS TO HVAC CONTROL PANEL PER MANUFACTURERS INSTRUCTIONS. COORDINATE WORK WITH MECHANICAL CONTRACTOR SEE MECHANICAL DRAWINGS.

ALTERNATES:

ALTERNATE 1:
PROVIDE AUTOMATIC DOOR OPERATOR CIRCUIT AND WIRING AT ELEVATOR LOBBY AND SKYWALK (BOTH ENDS).

ALTERNATE 4:
PROVIDE FIFTY TWO (54) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN. PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.

ALTERNATE 8:
PROVIDE 23 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV 24 PORT PoE SWITCH WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM



N

2 PARTIAL ENLARGED DETAIL

3/16" = 1'-0"

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REVISIONS

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DRAWN BY: RJL
DESIGNED BY: RJL

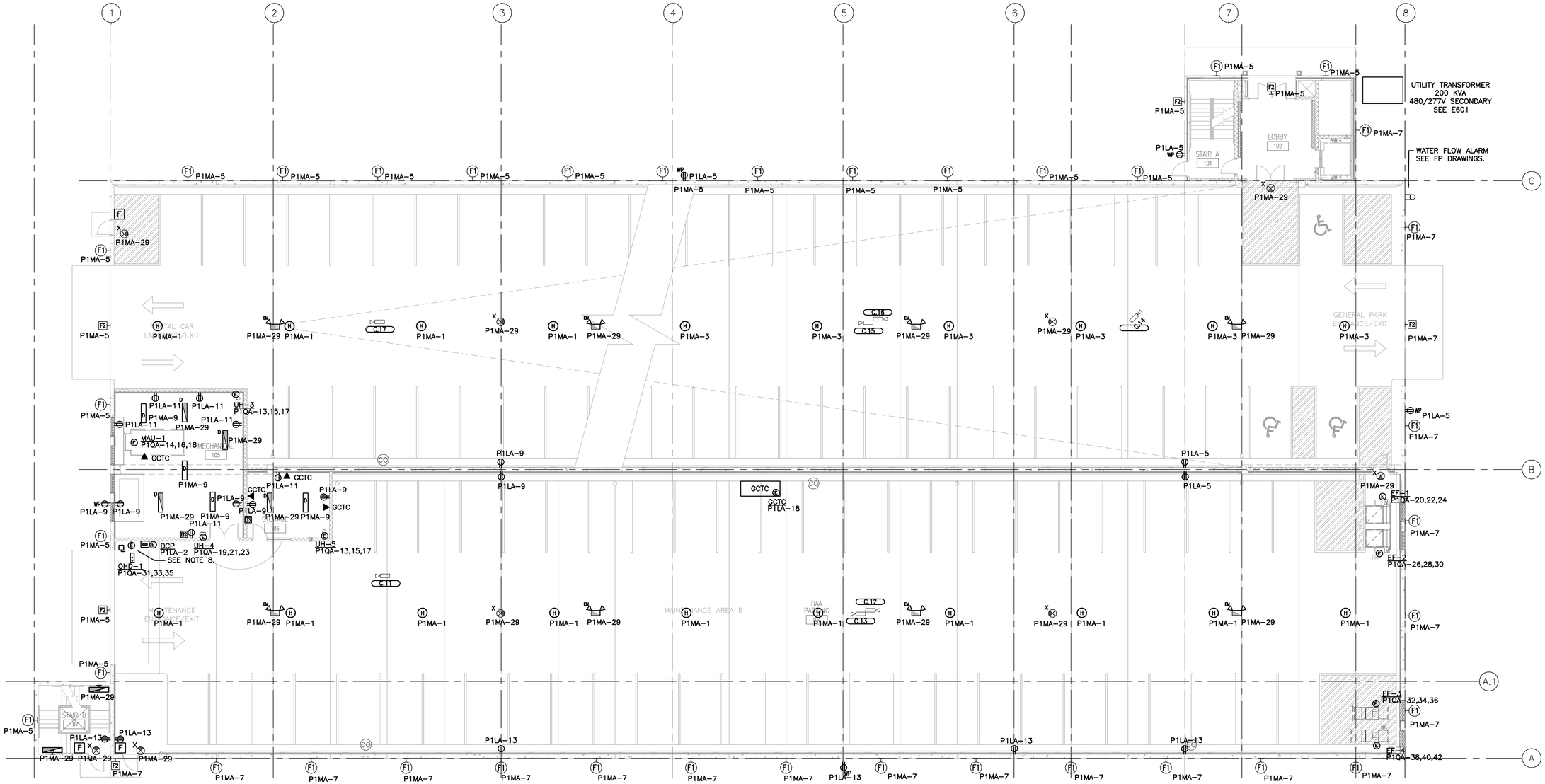
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
LOWER LEVEL ELECTRICAL PLAN

SHEET NUMBER
E100

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E100 Lower Level Lighting Plan.dwg Plotted on: 5/17/2013 4:35 PM Plotted by: Lazari, Rional



2" SLEEVED CONDUIT OPENING
THROUGH CONCRETE TEE.

CONDUIT OPENINGS TYPICAL FOR ALL LEVELS:

PROVIDE SLEEVED T OPENINGS FOR:
- 1.5" CONDUIT (COMMUNICATION)
- 1" CONDUIT (LIGHTING)
- 1" CONDUIT (SPARE)

SEE DETAIL. ONE SET EACH SIDE ALIGNED ALONG GARAGE LENGTH.

NOTES:

1. PROVIDE SURFACE MOUNTED CEILING BOXES AND FIXTURES WITH QUICK MOUNT OPTION.
2. WIRE LIGHTING CONTROLS & FIXTURES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. SEE CONTROL DIAGRAM ON E602.
3. LOCATE LIGHTING CONTROL SENSORS PER MANUFACTURERS INSTRUCTIONS. SEE SEQUENCE OF OPERATION ON E002.
4. PROVIDE OUTLET BOXES IN PRECAST STAIRWAY AS SHOWN @ 24" AFF WITH 0.75" CONDUIT STUBBED THROUGH WALL TO SURFACE MTD OUTLET BOX INSIDE GARAGE. TYP. COORDINATE WITH PRECAST MANUFACTURER.
5. GARAGE RECEPTACLES, LIGHT FIXTURES, SENSORS, ETC. SHALL BE SURFACE MOUNTED IN WEATHER PROOF ENCLOSURES. ALL RECEPTACLES SHALL BE GFP.
6. PROVIDE FIRE ALARM ADDITION TO TERMINAL BUILDING SYSTEM CONNECT SPRINKLER SYSTEM TAMPER & FLOW SWITCHES NOTIFICATION APPLIANCES, & INITIATING DEVICES TO TERMINAL SYSTEM. PROVIDE ELEVATOR CONTROL CONNECTIONS AS REQUIRED BY AHJ.
7. PROVIDE CONNECTIONS OF ALL CO DETECTORS TO HVAC CONTROL PANEL PER MANUFACTURERS INSTRUCTIONS. COORDINATE WORK WITH MECHANICAL CONTRACTOR SEE MECHANICAL DRAWINGS.

ALTERNATES:

ALTERNATE 1:
PROVIDE AUTOMATIC DOOR OPERATOR CIRCUIT AND WIRING AT ELEVATOR LOBBY AND SKYWALK (BOTH ENDS).

ALTERNATE 4:
PROVIDE FIFTY TWO (54) TYPE H–ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN. PROVIDE EIGHT (8) TYPE F–ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.

ALTERNATE 5:
PROVIDE TYPE S1–ALT & S2–ALT LIGHT FIXTURES INSTEAD OF TYPE S1 & S2 SHOWN.

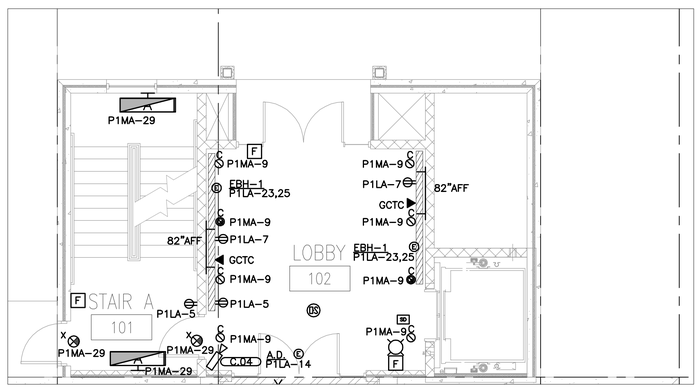
ALTERNATE 6:
PROVIDE EXTERIOR LIGHT FIXTURES TYPE F1 AS SHOWN ON PLAN, WIRING,AND CONTROL WIRING AS SHOWN IN SCHEMATIC CONTROL DIAGRAM.

ALTERNATE 7:
PROVIDE ROOM 106 DATA OUTLETS AS SHOWN ON PLAN WIERED TO GCTC.

ALTERNATE 8:
PROVIDE 23 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV 24 PORT PoE SWITCH WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM.

N

1 FIRST LEVEL FLOOR PLAN
3/32" = 1'-0"



N

2 PARTIAL ENLARGED DETAIL
3/16" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: BA
DRAWN BY: RJL
DESIGNED BY: RJL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

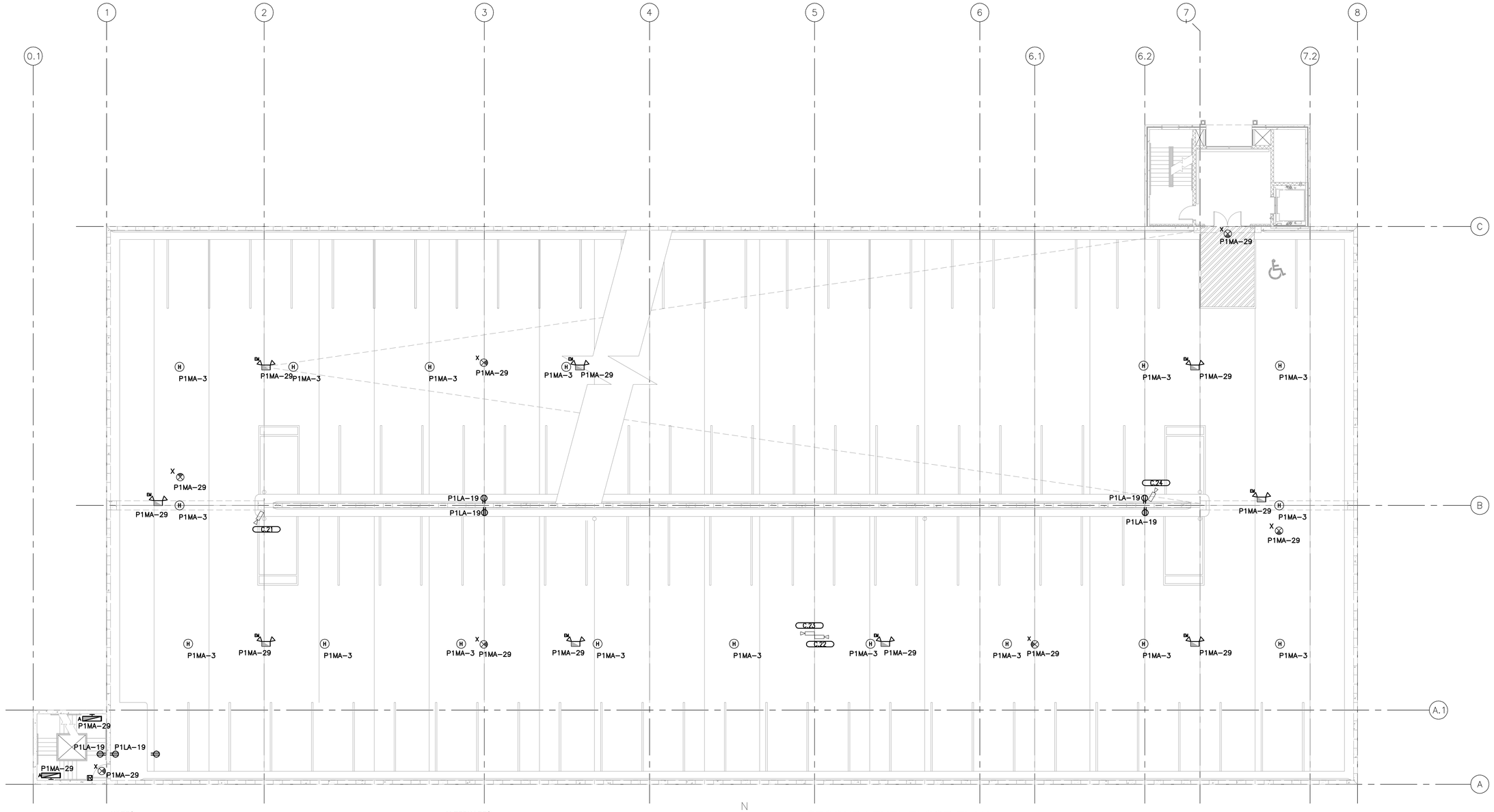
FIRST LEVEL ELECTRICAL PLAN

SHEET NUMBER

E101

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E101 First Level Lighting Plan.dwg Plotted on: 5/17/2013 4:35 PM Plotted by: Lizaori, Rional



NOTES:

1. PROVIDE SURFACE MOUNTED CEILING BOXES AND FIXTURES WITH QUICK MOUNT OPTION.
2. WIRE LIGHTING CONTROLS & FIXTURES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. SEE CONTROL DIAGRAM ON E601.
3. LOCATE LIGHTING CONTROL SENSORS PER MANUFACTURERS INSTRUCTIONS. SEE SEQUENCE OF OPERATION ON E002.
4. PROVIDE AREA OF RESCUE INTERCOM BACK BOX IN PRECAST STAIRWAY WALLS AS SHOWN AT 45"AFF O.C. WITH 0.75"CONDUIT STUBBED TO CEILING LEVEL. WIRE TO GCTC PANEL USING CAT6 CABLE IN CONDUIT, COORDINATE WITH PRECAST MANUFACTURER. PROVIDE INTERCOM PER SPECIFICATION 27-32-01
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ALTERNATES:

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ALTERNATE 4:
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ALTERNATE 8:
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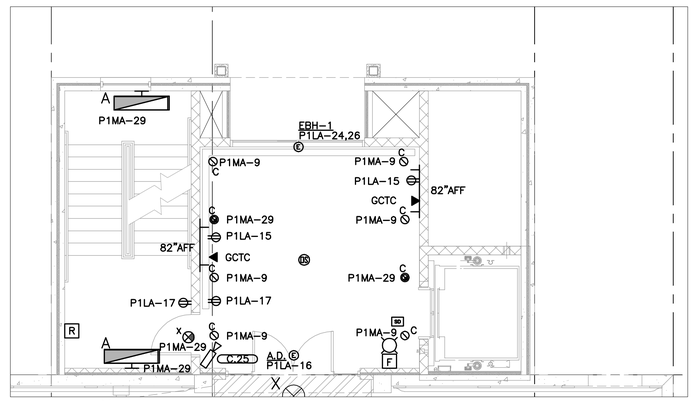
N

1 SECOND LEVEL FLOOR PLAN
3/32" = 1'-0"



N

2 PARTIAL ENLARGED DETAIL
3/16" = 1'-0"

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REVISIONS

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DATE ISSUED: 05/15/2013
REVIEWED BY: BA
DRAWN BY: RJL
DESIGNED BY: RJL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

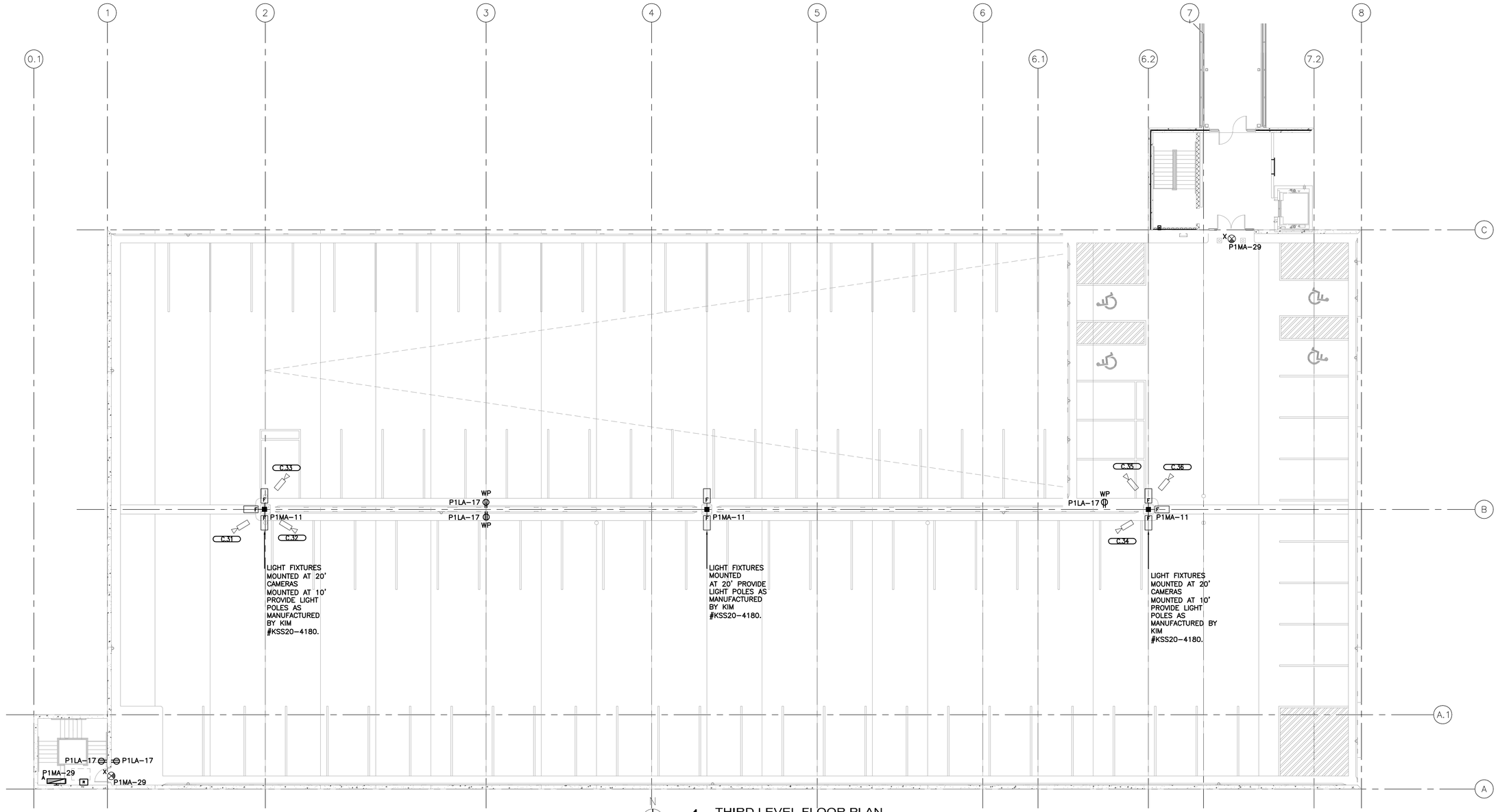
SECOND LEVEL ELECTRICAL PLAN

SHEET NUMBER

E102

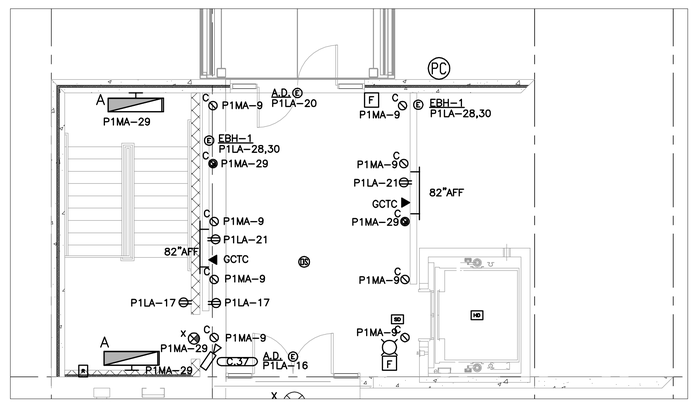
ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E102 Second Level Lighting Plan.dwg Plotted on: 5/17/2013 4:36 PM Plotted by: Lizarri, Rional



N

1 THIRD LEVEL FLOOR PLAN
3/32" = 1'-0"



N

2 PARTIAL ENLARGED DETAIL
3/16" = 1'-0"

NOTES:

1. WIRE LIGHTING CONTROLS & FIXTURES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. SEE CONTROL DIAGRAM ON E601.
2. LOCATE LIGHTING CONTROL SENSORS PER MANUFACTURERS INSTRUCTIONS. SEE SEQUENCE OF OPERATION ON E002.
3. PROVIDE AREA OF RESCUE INTERCOM BACK BOX IN PRECAST STAIRWAY WALLS AS SHOWN AT 45"AFF O.C. WITH 0.75"CONDUIT STUBBED TO CEILING LEVEL. WIRE TO GCTC PANEL USING CAT6 CABLE IN CONDUIT. COORDINATE WITH PRECAST MANUFACTURER. PROVIDE INTERCOM PER SPECIFICATION 27-32-01.
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ALTERNATES:

ALTERNATE 1:
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ALTERNATE 4:
PROVIDE FIFTY TWO (54) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN. PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.

ALTERNATE 8:
PROVIDE 23 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV SWITCHES WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY FOR TERMINAL VIDEO MANAGEMENT SYSTEM.

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DRAWN BY: RJL
DESIGNED BY: RJL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

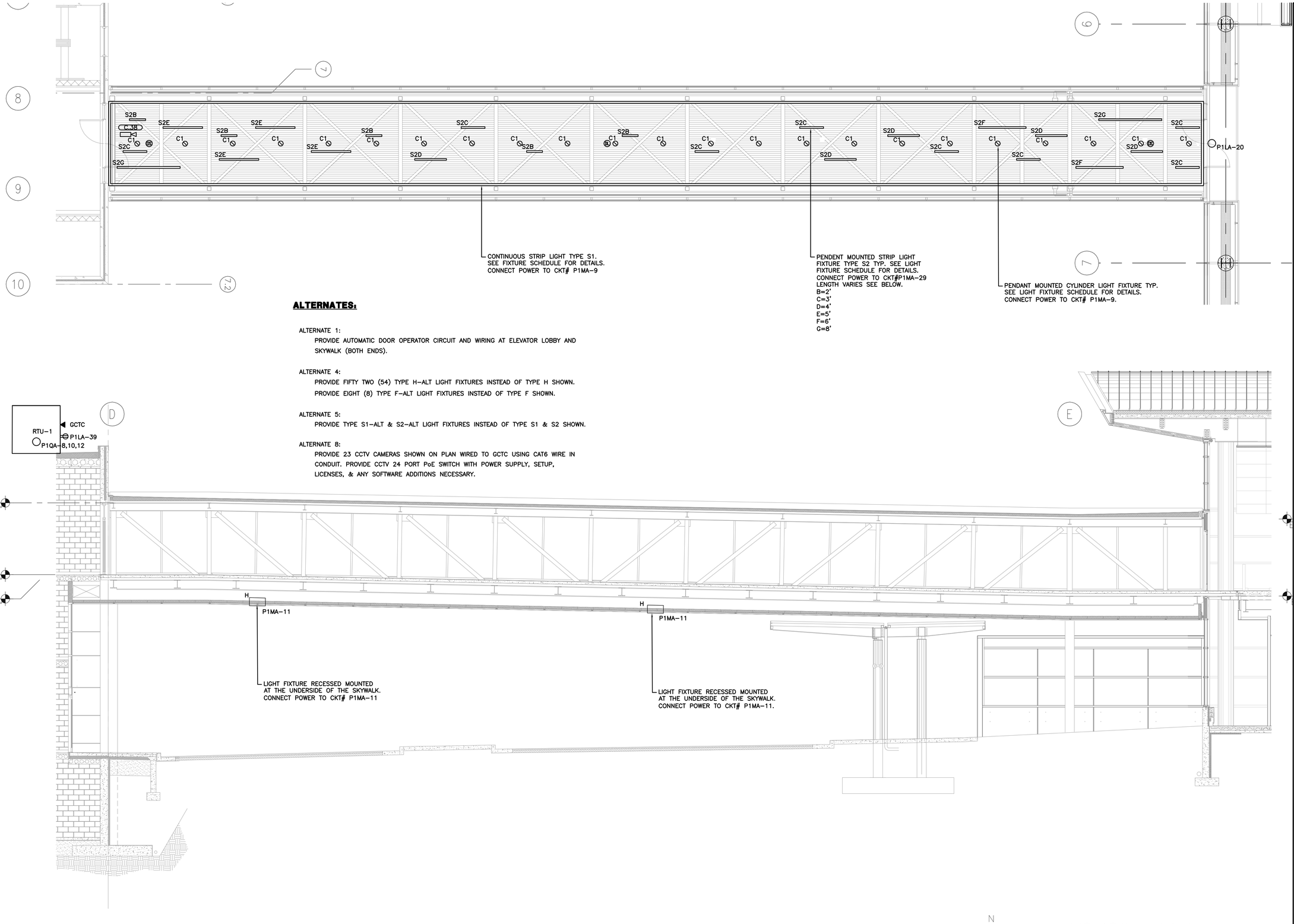
THIRD LEVEL ELECTRICAL PLAN

SHEET NUMBER

E103

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E103 Third Level Lighting Plan.dwg Plotted on: 5/17/2013 4:36 PM Plotted by: Lizaor, Ronal



CONTINUOUS STRIP LIGHT TYPE S1.
SEE FIXTURE SCHEDULE FOR DETAILS.
CONNECT POWER TO CKT# P1MA-9

PENDENT MOUNTED STRIP LIGHT
FIXTURE TYPE S2 TYP. SEE LIGHT
FIXTURE SCHEDULE FOR DETAILS.
CONNECT POWER TO CKT#P1MA-29
LENGTH VARIES SEE BELOW.
B=2'
C=3'
D=4'
E=5'
F=6'
G=8'

PENDANT MOUNTED CYLINDER LIGHT FIXTURE TYP.
SEE LIGHT FIXTURE SCHEDULE FOR DETAILS.
CONNECT POWER TO CKT# P1MA-9.

LIGHT FIXTURE RECESSED MOUNTED
AT THE UNDERSIDE OF THE SKYWALK.
CONNECT POWER TO CKT# P1MA-11

LIGHT FIXTURE RECESSED MOUNTED
AT THE UNDERSIDE OF THE SKYWALK.
CONNECT POWER TO CKT# P1MA-11.

ALTERNATES:

ALTERNATE 1:
PROVIDE AUTOMATIC DOOR OPERATOR CIRCUIT AND WIRING AT ELEVATOR LOBBY AND SKYWALK (BOTH ENDS).

ALTERNATE 4:
PROVIDE FIFTY TWO (54) TYPE H-ALT LIGHT FIXTURES INSTEAD OF TYPE H SHOWN.
PROVIDE EIGHT (8) TYPE F-ALT LIGHT FIXTURES INSTEAD OF TYPE F SHOWN.

ALTERNATE 5:
PROVIDE TYPE S1-ALT & S2-ALT LIGHT FIXTURES INSTEAD OF TYPE S1 & S2 SHOWN.

ALTERNATE 8:
PROVIDE 23 CCTV CAMERAS SHOWN ON PLAN WIRED TO GCTC USING CAT6 WIRE IN CONDUIT. PROVIDE CCTV 24 PORT PoE SWITCH WITH POWER SUPPLY, SETUP, LICENSES, & ANY SOFTWARE ADDITIONS NECESSARY.

N

1 ENLARGED SKYWALK PLAN
3/16" = 1'-0"

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DESIGNED BY: RJL

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

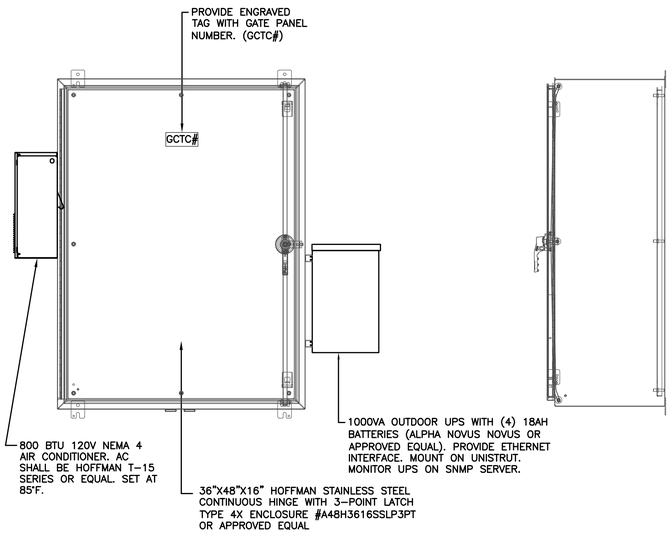
ELECTRICAL SKYWALK PLAN

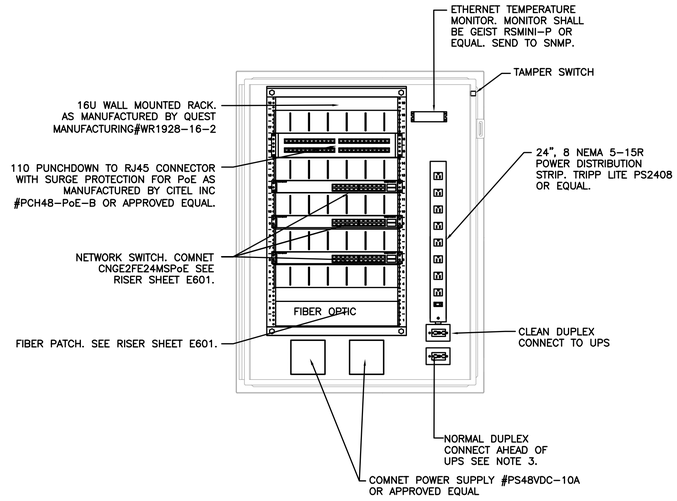
SHEET NUMBER

E104

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E104 Enlarged Skywalk Plan.dwg Plotted on: 5/17/2013 4:37 PM Plotted by: Llazari, Rional



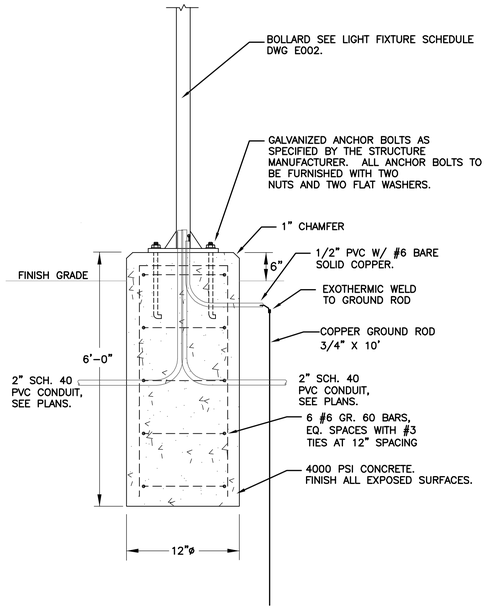


NOTES:

1. CONTRACTOR SHALL PROVIDE ALL ADDITIONAL COMPONENTS FOR A COMPLETE AND OPERATIONAL CABINET SYSTEM. PROVIDE ALL WIRING IN A NEAT AND WORKMANLIKE MANOR.
2. WHEN CABINET IS ACCESSED, THE TAMPER SWITCH SHALL BE ACTIVATED AND A VISUAL ALERT DISPLAYED AS ON THE ACCESS CONTROL SYSTEM.
3. PROVIDE TRANSFORMER AS REQUIRED. TIE INTO THE PARKING GARAGE POWER.
4. LAYOUT IS GENERAL. CONTRACTOR SHALL FULLY DEVELOP PANEL LAYOUT AND SUBMIT DETAILED DRAWING WITH SHOP SUBMITTAL.

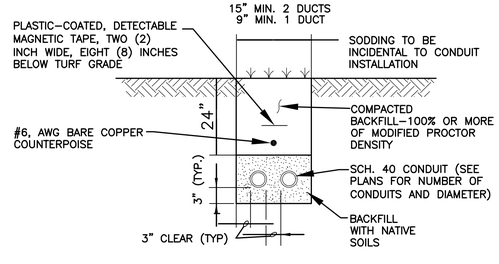
1 / E150 GCTC PANEL DETAILS

NOT TO SCALE



2 / E150 BOLLARD BASE DETAIL TYP.

NOT TO SCALE



3 / E150 TRENCH DETAIL TYP.

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REVISIONS

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213-1882-114

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER
E150

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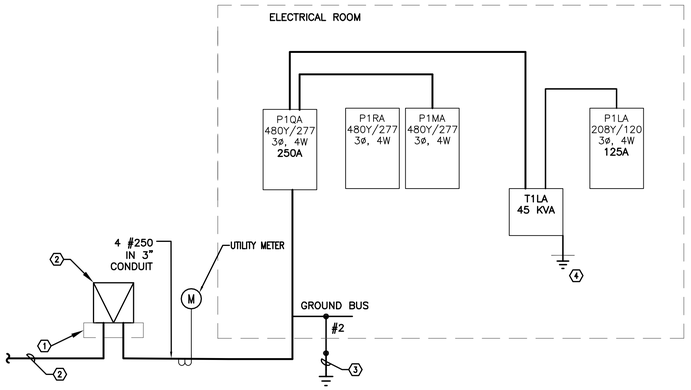
Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E150 DETAILS.dwg Plotted on: 5/17/2013 4:37 PM Plotted by: Lazan, Rional



NORMAL POWER DLH PARKING GARAGE

LOAD CALCULATIONS

DESC	NOTE	FACTOR	CON'D	DEM
LIGHTING		125%	27.2	34
RECEPTACLE		50%	9.2	9.2
MECH. EQUIP.		70%	70.7	49.5
LARGEST MOTOR		70%	22.4	15.7
HEATING LOAD		100%	33	33
EQUIP. CONN.		50%	16.2	8.1
TOTAL BLDG KVA			178.7	149.5
SPARE CAPACITY		10%	17.9	15
NEC RCPT 1ST 10 KVA			N/A	N/A
LARGEST MTR		25%	5.6	3.9
TOTAL UTILITY KVA			202.2	168.4
TOTAL AMP	DIVERSITY	0.831	168	140

NOTES:

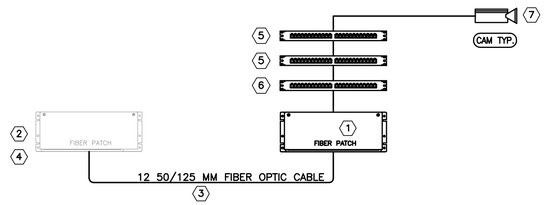
1. CONCRETE PAD PER UTILITY STANDARDS. PROVIDE SECONDARY CONDUIT DUCTBANK, CONCRETE ENCASED, AND CABLE. TRANSFORMER CONNECTIONS BY UTILITY CO.
2. CONTRACTOR SHALL COORDINATE INSTALLATION WITH UTILITY PROVIDER PER UTILITY REQUIREMENTS. SEE DWG. E101 FOR LOCATION.
3. PROVIDE SERVICE ENTRANCE GROUND PER NEC. CONNECT GROUND BUS TO 5/8" X 10' COPPERCLAD STEEL GROUND ROD DRIVEN INTO COMPACTED/UNDISTURBED EARTH TO 30" BFG. CONNECT #2 COPPER GROUNDING ELECTRODE CONDUCTOR TO GROUND ROD USING EXOTHERMIC WELD. BOND SERVICE ENTRANCE PANEL BOARD GROUND WITH #4 THWN COPPER (GREEN) TO TWO GROUNDS PER NEC.
4. BOND THE SECONDARY OF ALL TRANSFORMERS AND BUILDING STEEL.

1 E601 POWER RISER DIAGRAM

NO SCALE

GENERAL NOTES

1. CONTRACTOR SHALL PERFORM OTDR TESTING ON FIBER OPTIC CABLES PRIOR TO MODIFICATION AND AFTER FINAL COMPLETION.
2. REFER TO SPECIFICATIONS SECTION 16714, 16716 & 16717.
3. THESE DRAWINGS INDICATE TYPICAL CONNECTIONS ONLY. CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS FOR ALL FIBER AND COPPER CABLES AND PATCH PANEL CONNECTIONS. THE SHOP DRAWINGS SHALL CLEARLY SHOW LOCATION OF ALL PATCH PANELS, SIZE, QUANTITY, AND PORT USAGE. PROVIDE ADDITIONAL RACKS AND OTHER ACCESSORIES REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
4. CONTRACTOR SHALL LABEL ALL PATCH PANELS, CABLES AND TERMINATION LOCATIONS. LABELS SHALL BE TYPEWRITTEN. REFER TO SPECIFICATIONS FOR LABELING REQUIREMENTS.
5. REFER TO SPECIFICATIONS SECTION 16715 FOR COMMUNICATIONS NETWORK EQUIPMENT.
6. MANUFACTURER AND MODEL NUMBERS ARE USED TO ESTABLISH QUALITY AND PERFORMANCE OF THE SYSTEM. ANY EQUIPMENT THAT MEETS OR EXCEEDS THE PERFORMANCE SHALL BE CONSIDERED AND APPROVED AT THE DISCRETION OF THE ENGINEER AND/OR OWNER.
7. THE SCOPE SHALL INCLUDE DESIGN, IMPLEMENTATION, SETUP AND TRAINING TO THE OWNERS STAFF AND CONNECTION TO ALL THE EQUIPMENT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE ALL COMPONENTS REQUIRED TO CONNECT THE ETHERNET BASED SYSTEMS TO THE NETWORK. THE CONTRACTOR SHALL COORDINATE WITH AIRPORT "IT" SUPPORT PERSONNEL AND CONSULTANTS.
8. SUBMIT SHOP DRAWINGS AND DATA SHEETS FOR ALL COMPONENTS. SHOP DRAWINGS SHALL INCLUDE CABLE IDENTIFICATION ASSIGNMENTS AND PORT USAGE. DRAWINGS SHALL CLEARLY IDENTIFY POINT TO POINT INFORMATION FOR A COMPLETE SYSTEM.
9. PROVIDE WIRE MANAGEMENT SYSTEMS ABOVE AND BELOW EACH PATCH PANEL.
10. PROVIDE BONDING AND GROUNDING PER 16716-2.13 GROUND & 2.14 TELECOMMUNICATIONS BONDING BACKBONE.



2 E601 TECHNOLOGY RISER DIAGRAM

NO SCALE

NOTES

1. PROVIDE 24 STRAND FIBER OPTIC PATCH PANEL WITH SPLICE TRAYS & TYPE 'SC' CONNECTORS. PROVIDE 24 TWO FT LONG FIBER CROSS PATCH CORDS.
2. EXISTING IDF-1 NETWORK SWITCH.
3. PROVIDE 24 STRAND 50 MICRON OM3 MM FIBER OPTIC CABLE FROM IDF-1 TO GCTC. INSTALL IN CONDUIT ROUTE FROM IDF-1 TO CEILING OF TERMINAL MEZZANINE, TO UNDERSIDE OF SKYWALK, TO GCTC. PROVIDE 3M MAXCELL FOR USE IN CONDUIT.
4. PROVIDE 24 STRAND FIBER OPTIC PATCH PANEL W/ SPLICE TRAYS & TYPE 'SC' CONNECTION.
5. 24 PORT NETWORK SWITCH W/ POE AND 1 GIG UPLINK. SWITCH SHALL BE COMNET CNGE2FE24MSPoE OR APPROVED EQUAL. SWITCH IS DEDICATED FOR CCTV USE ONLY. THIS IS PART OF WORK SHALL BE BID SEPARATELY UNDER ALTERNATE #8
6. 24 PORT NETWORK SWITCH W/ POE AND 1 GIG UPLINK. SWITCH SHALL BE COMNET CNGE2FE24MSPoE OR APPROVED EQUAL. SWITCH IS DEDICATED FOR COMMUNICATION USE ONLY.
7. FIXED DOME CCTV CAMERA. CAMERA SHALL BE COMPATIBLE WITH EXISTING SOFTWARE. CAMERA SHALL BE AXIS P3344, PANASONIC SW355, SONY DH120 OR APPROVED EQUAL. CAMERA SHALL BE AT MINIMUM 1MP IN WEATHER/VANDAL PROOF ENCLOSURE WITH NEUTRAL AND FAN. ALL THE WORK INCLUDING CCTV INSTALLATION, CONNECTION ETC. SHALL BE BID SEPARATELY UNDER ALTERNATE #8.

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DESIGNED BY: RJL

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213-1882-114

SHEET TITLE
ELECTRICAL AND COMMUNICATION RISERS

SHEET NUMBER
E601

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Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E600 Riseres .dwg Plotted on: 5/17/2013 4:37 PM Plotted by: Liazari, Rional

Electrical P1QA Schedule

VOLTS/PHASE/WIRE	PANEL SIZE & TYPE	MAIN SIZE & TYPE	CABINET	MIN	FED FROM	NOTES
480/3/4	225 A	225A MCB	SURFACE	65 KAIC	UTLITY	100% GND

CIRCUIT NO	TRIP AMPS	NO. POLES	AREA SERVED	PHASE LOAD VA A	PHASE LOAD VA B	PHASE LOAD VA C	AREA SERVED	NO. POLES	TRIP AMPS	CIRCUIT NO
1	20			3340						
				9060					100	2
3	20	3	UH-1 & UH-2		3340					
					9060		P1MA	3	100	4
5	20					3340				
						9060			100	6
7	25			5000						
				8857					40	8
9	25	3	UH-3, UH-4, UH-5		5000					
					8857		RTU-1	3	40	10
11	25					5000				
						8857			40	12
13	60			7480						
				3880					25	14
15	60	3	ELEVATOR		7480					
					3880		MAU-1	3	25	16
17	60					7480				
						3880			25	18
19	20			0						
				8730					25	20
21	20	3	SPARE		0					
					8730		EF-1, EF-2	3	25	22
23	20					0				
						8730			25	24
25	60			11160						
				2100					20	26
27	60	3	P1LA (VIA TILA)		11160					
					2100		EF-3, EF-4	3	20	28
29	60					11160				
						2100			20	30
31	20			0						
				0					20	32
33	20	1	SPARE		0					
					0		SPARE	3	20	34
35	20					0				
						0			20	36
37	20	1		0						
				0					20	38
39	20	1	SPACE		0					
					0		SPACE	3	20	40
41	20	1				0				
						0			20	42
CONNECTED LOAD				58647	58647	58647	= 178820 VA			

Electrical P1LA Schedule

VOLTS/PHASE/WIRE	PANEL SIZE & TYPE	MAIN SIZE & TYPE	CABINET	MIN	FED FROM	NOTES
208/3/4	125 A	125A MCB	SURFACE	22 KAIC	P1QA/T1LA	100% GND

CIRCUIT NO	TRIP AMPS	NO. POLES	AREA SERVED	PHASE LOAD VA A	PHASE LOAD VA B	PHASE LOAD VA C	AREA SERVED	NO. POLES	TRIP AMPS	CIRCUIT NO
1	20		RCPT'S LOWER LEVEL	780						
				1200			MAINT. DOOR CNTRL PWR	1	20	2
3	20	1	RCPT'S LOWER LEVEL ELEV. AREA		900					
					1200		EF-5	1	20	4
5	20	1	RCP'T 1ST FLOOR			1080				
						1200	PUBLIC GATE	1	20	6
7	20	1	1ST FLOOR FUTURE FIDS	320						
				1200					20	8
9	20	1	RCPT'S 1ST FLOOR		900					
					1200		OHD POWER	3	20	10
11	20	1	RCPT'S 1ST FLOOR			900				
						1200			20	12
13	20	1	RCPT'S 1ST FLOOR	900						
				1800			ELEV LOBBY AUTO DOOR	1	20	14
15	20	1	2ND FLOOR FUTURE FIDS		900					
					1200		ELEV LBY DOOR 2ND,3RD	1	20	16
17	20	1	RCPT'S 2ND LOBBY & 3RD FLOOR			1080				
						1800	GCTC POWER	1	20	18
19	20	1	RCPT'S 2ND FLOOR	1080						
				1200			SKYWALK AUTO DOORS	1	20	20
21	20	1	3RD FLOOR FUTURE FIDS		360					
					180		RTU RCPT.	1	20	22
23	20	1				1081				
						1081	2ND FL EBH	1	20	24
25	20	1	1ST FL EBH	1081						
				1081				1	20	26
27	20	1			610					
					1237		3RD FL EBH	1	20	28
29	20	1	LOWER FL. EBH			610				
						1237		1	20	30
31	20			0						
				960			ELEVATOR DS	1	20	32
33	20	1	SPARE		0					
					960		SP-1	1	20	34
35	20					0				
						960	SP-2	1	20	36
37	20	1	SPARE	0						
				0			SPARE		20	38
39	20	1	SPARE		0					
					0		SPARE	3	20	40
41	20	1	SPARE			0				
						0	SPARE		20	42
CONNECTED LOAD				11600	9650	12230	= 33480 VA			

Electrical P1MA Schedule

VOLTS/PHASE/WIRE	PANEL SIZE & TYPE	MAIN SIZE & TYPE	CABINET	MIN	FED FROM	NOTES
480/3/4	100 A	100A MCB	SURFACE	35 KAIC	P1QA	100% GND

CIRCUIT NO	TRIP AMPS	NO. POLES	AREA SERVED	PHASE LOAD VA A	PHASE LOAD VA B	PHASE LOAD VA C	AREA SERVED	NO. POLES	TRIP AMPS	CIRCUIT NO
1	20	1	LTG GARAGE MAINT. AND RENTAL CAR AREA	3325						
							SPARE	1	20	2
3	20	1	LTG GARAGE PUBLIC PARKING 1ST & 2ND		4025					
							SPARE	1	20	4
5	20	1	LTG ACCENT NE			3960				
							SPARE	1	20	6
7	20	1	LTG ACCENT SW	3960						
							SPARE	1	20	8
9	20	1	LTG ELEVATOR STAIRS LOBBY & SKYWALK		3540					
							SPARE	1	20	10
11	20	1	3RD LEVEL GARAGE & UNDER SKYWALK			2200				
							SPARE	1	20	12
13	20	1	LTG BOLLARDS	2210						
							SPARE	1	20	14
15	20	1	SPARE							
							SPARE	1	20	16
17	20	1	SPARE							
							SPARE	1	20	18
19	20	1	SPARE							
							SPARE	1	20	20
21	20	1	SPARE							
							SPARE	1	20	22
23	20	1	SPARE							
							SPARE	1	20	24
25	20	1	SPARE							
				0					20	26
27	20	1	SPARE							
					0		SPARE	3	20	28
29	20	1	LTG EXIT.			3950				
						0			20	30
CONNECTED LOAD				9495	7565	10110	= 27170			

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SHEET TITLE
ELECTRICAL PANEL SCHEDULES

SHEET NUMBER
E701

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Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\E\E600 Riseres .dwg Plotted on: 5/17/2013 4:37 PM Plotted by: Llazari, Rional

PLUMBING GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND PROPOSED CONDITIONS AND UTILITIES, PIPE SIZES, LOCATIONS, MATERIALS, ETC., BEFORE BID, STARTING WORK OR ORDERING MATERIALS AND INCLUDE MINOR ADJUSTMENTS TO ADAPT DESIGN TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.

2. THE CONTRACTOR SHALL COORDINATE THE PLUMBING SYSTEMS INSTALLATIONS WITH WORK OF STRUCTURE, HVAC, ELECTRICAL, CASEWORK, FOOD SERVICE EQUIPMENT AND RELATED TRIM, ETC., TO PRECLUDE INTERFERENCE.

3. RECONSTRUCT OR PATCH EXISTING CONSTRUCTION, WALLS, CEILINGS, FLOORS, ROOFS, ETC., AND SURFACES DISTURBED TO MATCH EXISTING SURROUNDING CONSTRUCTION AND FINISHES, UNLESS OTHERWISE NOTED.

4. EQUIPMENT AND MATERIALS, ETC., SPECIFIED OR SCHEDULED OR NOTED ON THE DRAWINGS, METHODS DETAILED AND PIPING MATERIALS INDICATED ON THE DRAWINGS SUPERCEDE ONLY ANY CONFLICTING SPECIFICATION ARTICLES AND/OR REQUIREMENTS OF DIVISION 22 REGARDING PLUMBING MATERIALS, METHODS, ETC. THIS INCLUDES MATERIALS SPECIFIED, LEGEND ITEMS REPRESENTED SYMBOLICALLY ON THE DRAWINGS AND IDENTIFIED IN THE LEGEND DESCRIPTIONS OR ABBREVIATIONS DESCRIPTIONS.

5. INSTALL ALL PLUMBING MATERIALS, TRIM ACCESSORIES AND RELATED ITEMS IN ACCORDANCE WITH THE MANUFACTURERS WRITTEN INSTRUCTIONS AND RECOMMENDATIONS AND AS SHOWN ON THE PLUMBING DRAWINGS.

6. DIRECTIONAL CHANGES IN THE HORIZONTAL PLANE OF S, W, GW, SD, ESD AND SSD (ALL DRAINAGE) PIPING SYSTEMS SHALL NOT USE QUARTER BENDS, SHORT SWEEP QUARTER BENDS OR SHORT SWEEP QUARTER BENDS AND SHALL NOT EXCEED 45° UNLESS AN FCO OR WCO IS PROVIDED. AS PIPING IS INSTALLED AND COORDINATED WITH ALL BUILDING ELEMENTS IN THE FIELD, PROVIDE FCO'S OR WCO'S FOR HORIZONTAL ROUTES OR BRANCHES OF ALL DRAINAGE PIPING SYSTEMS WITH MORE THAN ONE OFFSET OR CHANGE IN DIRECTION EVERY 40 FEET (MAXIMUM SPACING FOR MULTIPLE OFFSETS) OF DEVELOPED LENGTH OF DRAINAGE PIPING.

7. UON ON THE PLUMBING DRAWINGS, REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONAL LAYOUTS AND EXACT LOCATIONS OF PLUMBING FIXTURES, FLOOR DRAINS, FLOOR SINKS, ROOF DRAINS, EMERGENCY ROOF DRAINS, DOWNSPOUT NOZZLES, AREA DRAINS, ETC. WHERE DIMENSIONS ARE NOT GIVEN CENTERLINE FIXTURE PLACEMENT, MOUNTING HEIGHTS, SPOUT HEIGHTS, ETC., SHALL BE IN COMPLIANCE WITH THE FEDERAL ADA, MINNESOTA BUILDING CODE AND MINNESOTA PLUMBING CODES 2009 EDITIONS.

8. THE CONTRACTOR SHALL PAY ALL REQUIRED WATER, GAS AND SANITARY PERMITS, TAPS (UTILITY CONNECTIONS), METERS, CROSS-CONNECTIONS (BACKFLOW PREVENTERS) PERMIT, INSPECTION AND TEST FEES AND OTHER FEES AS MAY BE REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

9. PROVIDE CAST IRON DEEP SEALING TRAPS BELOW FLOOR DRAINS AND FLOOR SINKS REGARDLESS WHETHER PIPING MATERIAL IS PVC OR CAST IRON.

10. PROVIDE CAST IRON CLEANOUT TEES FOR WCO AND CAST IRON COOG & FCO, INCLUDING CLEANOUT BODY, PIPING AND FITTINGS EXTENDED TO PIPING SERVED.

11. SANITARY OR WASTE BRANCHES IN WALL SERVING LAVATORIES, SINKS, URINALS, HANDSINKS AND SIMILAR FIXTURES SHALL BE COPPER DWV TUBE AND FITTINGS. WYES, TEES, CROSSES AND COMBINATION WYE AND ⅛ BENDS AT SANITARY OR WASTE STACKS SHALL BE PROVIDED WITH WASTE ARM ELBOWS IN WALL, ALL OF WHICH SHALL NOT PENETRATE FACE OF WALL; PROVIDE ELBOWS IN WALL ON WASTE ARM TO ENSURE STACK FITTING CONCEALMENT.

12. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE MINNESOTA BUILDING, PLUMBING & MECHANICAL CODES (2009 EDITIONS WITH LATEST REVISIONS) AND NFPA 101 LIFE SAFETY CODE (1994 EDITION). ALL CENTERLINE FIXTURE PLACEMENT, MOUNTING HEIGHTS, SPOUT HEIGHTS, ETC., SHALL BE IN COMPLIANCE WITH THE FEDERAL ADA AND THE MINNESOTA BUILDING AND PLUMBING CODES (2009 EDITIONS WITH LATEST REVISIONS).

13. ALL PLUMBING WORK SHALL BE INSTALLED IN A PROFESSIONAL, NEAT AND WORKMANLIKE MANNER FOR COMMERCIAL CONSTRUCTION.

14. ALL MODIFICATIONS TO THE PLUMBING WORK SHALL BE RECORDED IN DETAIL ON THE AS-BUILT DRAWINGS AS REQUIRED PER THE PROJECT SPECIFICATIONS IN THE PROJECT MANUAL.

15. ALL PLUMBING EQUIPMENT, WATER HEATERS, FIXTURES, TRIM, PIPE, VALVES SHALL BE MADE IN THE USA (DOMESTIC ONLY), FOR BOTH MATERIALS AND ASSEMBLY. DIELECTRIC UNIONS SHALL BE PROVIDED ON ONE SIDE OF THREADED BALL VALVES, GATE VALVES, CHECK VALVES AND CIRCUIT BALANCING VALVES. PROVIDE DIELECTRIC UNION ON THE UPSTREAM SIDE OF BRAZED OR SOLDERED VALVES. DIELECTRIC UNIONS ARE NOT BE REQUIRED ON THREE PIECE, UNION, FULL PORT, BALL VALVES.

16. ALL PIPING BELOW FLOOR AND BELOW GRADE SHALL BE INSTALLED WITH 4.5 MIL FOIL DETECTABLE UNDERGROUND WARNING AND IDENTIFICATION TAPE INSTALLED A MAXIMUM OF 8" ABOVE TOP OF PIPING. FOR PIPING DEEPER THAN 32" BELOW FLOOR / GRADE PROVIDE ADDITIONAL WARNING AND IDENTIFICATION TAPE(S) AT 24" DEPTH INTERVALS ALONG ENTIRE LENGTH OF PIPING. WHERE PIPING RISES TO ABOVE GRADE OR FLOOR SECURELY TERMINATE TAPE AND PROVIDE ENGRAVED PHENOLIC NAMEPLATES PERMANENTLY SECURED ADJACENT TO PENETRATION. NAMEPLATE TEXT SHALL IDENTIFY PIPING SERVICE, MATERIAL AND WHERE PIPING EXTENDS TO.

17. INSTALL CAST IRON PIPING IN RETURN AIR PLENUMS. PLASTIC PIPING SHALL NOT BE INSTALLED IN RETURN AIR PLENUMS.

18. WHERE VALVES ARE INSTALLED ABOVE CEILING, PROVIDE VISUAL IDENTIFICATION AT CEILING GRID ACCESS OR AT ACCESS PANELS. IDENTIFICATION SHALL VISIBLE FROM BELOW CEILING. THIS IS IN ADDITION TO MECHANICAL IDENTIFICATION REQUIREMENTS SPECIFIED IN THE PROJECT MANUAL. PROVIDE AP (FOR ACCESS PANELS SPECIFICATION SEE SCHEDULE THIS SHEET) AT HARD (GYPSUM BOARD OR PLASTER) CEILINGS TO ACCESS AND MAINTAIN VALVES.

PLUMBING LEGEND

	ABBREVIATION	DESCRIPTION
SD	SD	STORM DRAINAGE PIPING
S OR W	S OR W	SANITARY OR WASTE PIPING
CW	CW	DOMESTIC COLD WATER
G	G	NATURAL GAS DISTRIBUTION PIPING
BV	BV	BALL VALVE; THREE PIECE, FULL PORT, SS BALL AND STEM; MSS-SP-10, ASTM B62 BRONZE, THREADED WITH UNION
GV	GV	GATE VALVE; UNION BONNET, NON-RISING STEM, WITH SS SEAT RING AND THREADED ENDS
UN	UN	DIELECTRIC UNION
		ELBOW, PLAN VIEW
		ELBOW, PLAN VIEW (45°)
		ELBOW, TURNING DOWNWARD
		ELBOW, TURNING UPWARD
		BRANCH TEE OUT OF TOP OF PIPING
		BRANCH TEE OUT OF BOTTOM OF PIPING
		BRANCH TEE OUT OF SIDE OF PIPING
		DRAINAGE WYE, PLAN VIEW
		DRAINAGE COMBINATION WYE AND ONE-EIGHTH BEND, PLAN VIEW
FCO	FCO	CAST IRON FLOOR CLEANOUT, BRONZE PLUG, SQUARE NICKEL BRONZE TOP TO MATCH FLOOR FINISHES
WCO OR WCO	WCO	CAST IRON WALL CLEANOUT TEE, BRONZE PLUG, WITH CHROME PLATED BRONZE FRAME & ACCESS COVER
COOG	COOG	CAST IRON CLEANOUT ON GRADE IN 12"x12"x4" CONCRETE PAD, TRACTOR COVER AND BRONZE PLUG
FD1 FD2 FD3 FD4	FD1	FLOOR DRAINS WITH CAST IRON DEEP SEALING TRAP & PRIMER TAP (NUMBER INDICATES TYPE)
	TP	TRAP PRIMER PIPING - TYPE L SOFT COPPER TUBING - NO FITTINGS BELOW FIRST FLOOR
RD1	RD1	PRIMARY ROOF DRAIN WITH 15" ALUMINUM DOME; NUMBER INDICATES TYPE; SIZES ON DRAWINGS
ERD1	ERD1	SECONDARY (EMERGENCY) ROOF DRAIN; 15" ALUM. DOME & INTERNAL DAM; NUMBER INDICATES TYPE; SIZES ON DWG'S
GD	GD	COATED CAST IRON L-SHAPED GUTTER DRAIN BODY WITH ANGLED BRONZE FACE, INDEPENDENT FLASHING CLAMP
DN	DN	POLISHED BRONZE DOWNSPOUT NOZZLE AND WALL FLANGE WITH BIRD SCREEN
AP OR AP	AP	ACCESS PANEL, RECESSED, FLUSH ENAMELED STEEL, LOCKING, FIRE RATED IN RATED CONSTRUCTION
		CONNECT TO EXISTING
DTL / SHNO		PLAN / SECTION LETTER OR DETAIL NUMBER / RISER DIAGRAM IDENTIFICATION
		SHEET NUMBER WHERE PLAN, SECTION, DETAIL OR RISER DIAGRAM IS DRAWN

PLUMBING ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AAV	AIR ADMITTANCE VALVE, INSTALLED ACCESSIBLE WITH FRESH AIR LOUVER
AC	ABOVE CEILING (GENERALLY INDICATES NOTED PIPING INSTALLED ABOVE CEILING
ACT	REMOVABLE LAY-IN ACOUSTICAL CEILING TILE ASSEMBLY
AF	ABOVE FLOOR - REFERENCE TO TOP OF FINISHED FLOOR ELEVATION (UON)
BF	BELOW FLOOR (GENERALLY INDICATES NOTED PIPING INSTALLED BELOW FLOOR)
BG	BELOW GRADE (GENERALLY INDICATES NOTED PIPING INSTALLED BELOW GRADE, APRON AND / OR 1st FLOOR)
BTSP	SINGLE FLOOR DRAIN BATTERY OPERATED TRAP SEAL PRIMER
CI	CAST IRON PIPING, FITTINGS AND COUPLINGS, ETC., (CAST IRON MATERIAL)
CP	CHROME PLATED FINISH ON SPECIFIED PIPING, MATERIAL OR EQUIPMENT
CU	COPPER PIPING, MATERIAL OR EQUIPMENT; TYPE OF COPPER INDICATED
CWV	COMBINATION WASTE AND VENT; ENGINEERED PIPING SYSTEM
DI	DUCTILE IRON PIPING, FITTINGS AND COUPLINGS, ETC., (DUCTILE IRON MATERIAL)
ETSP	MULTIPLE ELECTRONIC FLOOR DRAIN TRAP SEAL PRIMER
GPM	GALLONS PER MINUTE (UNITED STATES)
IE	PIPING INVERT ELEVATION - REFERENCE TO FINISHED GROUND LEVEL FLOOR SLAB ELEVATION 0.00', UON
PVC	POLYVINYL CHLORIDE PIPING, FITTINGS AND COUPLINGS, ETC., (POLYVINYL CHLORIDE MATERIAL)
SF	SQUARE FEET OF HORIZONTALLY PROJECTED ROOF SURFACE AREA INCLUDING VERTICAL WALLS
SS	STAINLESS STEEL PIPING, FITTINGS AND COUPLINGS, ETC., (STAINLESS STEEL MATERIAL)
TPRV	ASME APPROVED COMBINATION TEMPERATURE AND PRESSURE RELIEF VALVE
TSP	SINGLE FLOOR DRAIN TRAP SEAL PRIMER (ADDED SUFFIX LETTERS INDICATE MULTIPLE DRAINS)
TYP	TYPICAL AND TYPICAL AS SHOWN
UON	UNLESS OTHERWISE NOTED
VTR	VENT-THRU-ROOF; VANDAL-PROOF, WITH SKIRT, BOOT, FLASHING AND HOOD
X OR XW	"EXISTING" OR "EXISTING WATER CLOSET" (OR OTHER) PREFIX STANDARD. PIPING ABBREV. WITH "X" FOR EXISTING PIPING

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

FD1: SMITH 2005Y-F38-PB-B-P050-U-G DRAIN (NO P-TRAP).

FD2: SMITH 2614 FLOOR DRAIN WITH HEAVY DUTY TRACTOR GRATE AND HEAVY DUTY WIDE FLANGE FLASHING COLLAR (NO P-TRAP).

RD1: SMITH 1025C-CL-R-U-AD, ADJUSTABLE 15¼" DIAMETER ROOF DRAIN WITH SIDE OUTLET, L-SHAPED UNDERDECK CLAMP, SUMP RECEIVER AND ALUMINUM VANDAL PROOF DOME;, SIZES ARE INDICATED FOR EACH INDIVIDUAL DRAIN ON THE DRAWINGS. 102.5 SQUARE INCHES FREE AREA MINIMUM.

ERD1: SMITH 1045Y-WD03-CL-R-C-AD, ADJUSTABLE 15¾" DIAMETER ROOF DRAIN WITH 3" EXTERIOR WATER DAM, SUMP RECEIVER, L-SHAPED UNDERDECK CLAMP, AND ALUMINUM VANDAL PROOF DOME; SIZES ARE INDICATED FOR EACH INDIVIDUAL DRAIN ON THE DRAWINGS. 102.5 SQUARE INCHES FREE AREA MINIMUM.

DN: SMITH 1770-BS-PB, POLISHED BRONZE DOWNSPOUT NOZZLE WITH BIRDSCREEN; SIZES VARY AND ARE INDICATED INDIVIDUALLY ON THE DRAWINGS.

SD1: SMITH 1570T, POLISHED BRONZE SCUPPER DRAIN WITH 45° THREADED OUTLET

FCO: SMITH 9760 FLOOR CLEANOUT STAINLESS STEEL BODY AND COVER WITH GASKET

WCO: SMITH 9776T WALL CLEANOUT THREADED PLUG W/ SMOOTH ACCESS COVER

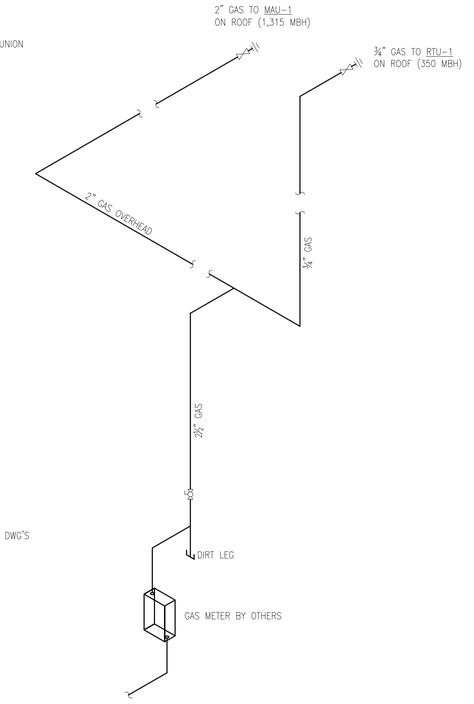
OWS1: SMITH 9857 OIL SEPARATOR

RPBFP: 1" FEBCO MODEL 825Y INSTALLED ±24" ABOVE FLOOR; PROVIDE ISOLATION BV ON INLET AND OUTLET PIPING AND PROVIDE STRAINERS BETWEEN INLET ISOLATION VALVE AND BACKFLOW PREVENTER.

PLUMBING PUMP SCHEDULE

MARK	SERVICE	CONTROL ON	CONTROL OFF	GPM	TDH	PSI	HP	VOLTAGE	PHASE	HERTZ	NOTES
SP1	SUMP	HI LEVEL	LO LEVEL	20	30'	10	3/10	115	SINGLE	60	1,2,3
SP2	SUMP	HI LEVEL	LO LEVEL	20	30'	10	3/10	115	SINGLE	60	1,4,5

NOTES:
1. PUMPS SP1 AND SP2 SHALL BE ZOELLER MODEL #940-0005 OR EQUAL. PROVIDE EXTENDED LENGTH CORDS AS REQUIRED. PUMPS SHALL BE UL LISTED.
2. PROVIDE NEMA 4X SIMPLEX CONTROL PANEL WITH ELECTRICAL ALTERNATOR, ALARM AND (4) 10-0330 VARIABLE LEVEL FLOAT CONTROL SWITCHES. PROVIDE CHECK VALVE (UNICHECK) AND BALL VALVE IN DISCHARGE PIPING FROM THE PUMP. INTEGRATE HIGH-LEVEL ALARM WITH BAS.
3. PREASSEMBLED SYSTEM SHALL INCLUDE PUMP, SIMPLEX CONTROL PANEL, VARIABLE LEVEL FLOAT SWITCH, JUNCTION BOX BASIN WITH ANTI-FLOTATION RING, 2" DISCHARGE PIPE, STAINLESS STEEL SQUARE GUIDE RAIL, BALL VALVE, CHECK VALVE, 4" CI INLET HUB, FIBERGLASS COVER, (2) PULL RODS AND (2) LIFTING CABLES.
4. PROVIDE NEMA 4X DUPLEX CONTROL PANEL WITH ELECTRICAL ALTERNATOR, ALARM AND (4) 10-0330 VARIABLE LEVEL FLOAT CONTROL SWITCHES. PROVIDE CHECK VALVE (UNICHECK) AND BALL VALVE IN DISCHARGE PIPING FROM EACH PUMP. INTEGRATE HIGH-LEVEL ALARM WITH BAS.
5. PREASSEMBLED SYSTEM SHALL INCLUDE PUMP, DUPLEX CONTROL PANEL, VARIABLE LEVEL FLOAT SWITCH, JUNCTION BOX BASIN WITH ANTI-FLOTATION RING, 4" DISCHARGE PIPE, STAINLESS STEEL SQUARE GUIDE RAIL, BALL VALVE, CHECK VALVE, 4" CI INLET HUB, FIBERGLASS COVER, (2) PULL RODS AND (2) LIFTING CABLES.



2½" NATURAL GAS MAIN BELOW GRADE SEE CIVIL DRAWINGS FOR CONT.; METER INSTALLED BY GAS UTILITY COMPANY; ±1,665 MBH CAPACITY, 2 PSI SUPPLY PRESSURE, 1 PSI PRESSURE DROP.

1 / P001 **GAS RISER DIAGRAM**
SCALE: NTS

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: BJL
DESIGNED BY: BJL

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213-1882-114

SHEET TITLE

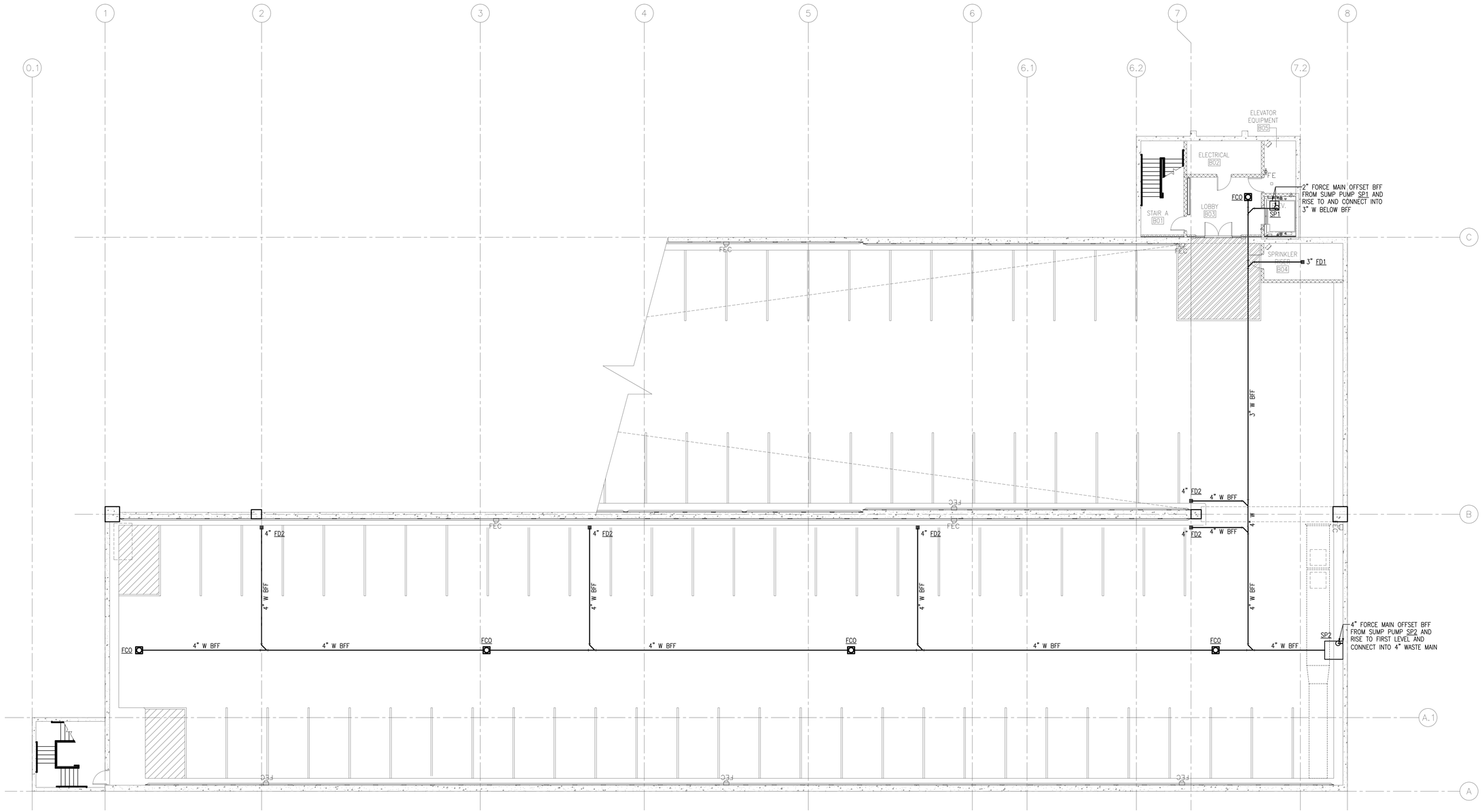
PLUMBING LEGEND, ABBREVIATIONS & GENERAL NOTES

SHEET NUMBER

P001

ISSUED FOR BID

Drawing: \\Chifile01\aviation\P\2131882.114 Duluth Parking Structure\CAD\P\P001.dwg Plotted on: 5/16/2013 2:00 PM Plotted by: Lucius, Brian



N

1 LOWER LEVEL PLUMBING PLAN
3/32" = 1'-0"

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213-1882-114

SHEET TITLE

LOWER LEVEL PLUMBING PLAN

SHEET NUMBER

P100

ISSUED FOR BID

Drawing: \\Chifile01\aviation\P\2131882.114 Duluth Parking Structure\CAD\P\P100 Lower Level Plumbing Plan.dwg Plotted on: 5/16/2013 2:00 PM Plotted by: Lucius, Brian

N

1 FIRST LEVEL PLUMBING PLAN
3/32" = 1'-0"

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SHEET TITLE

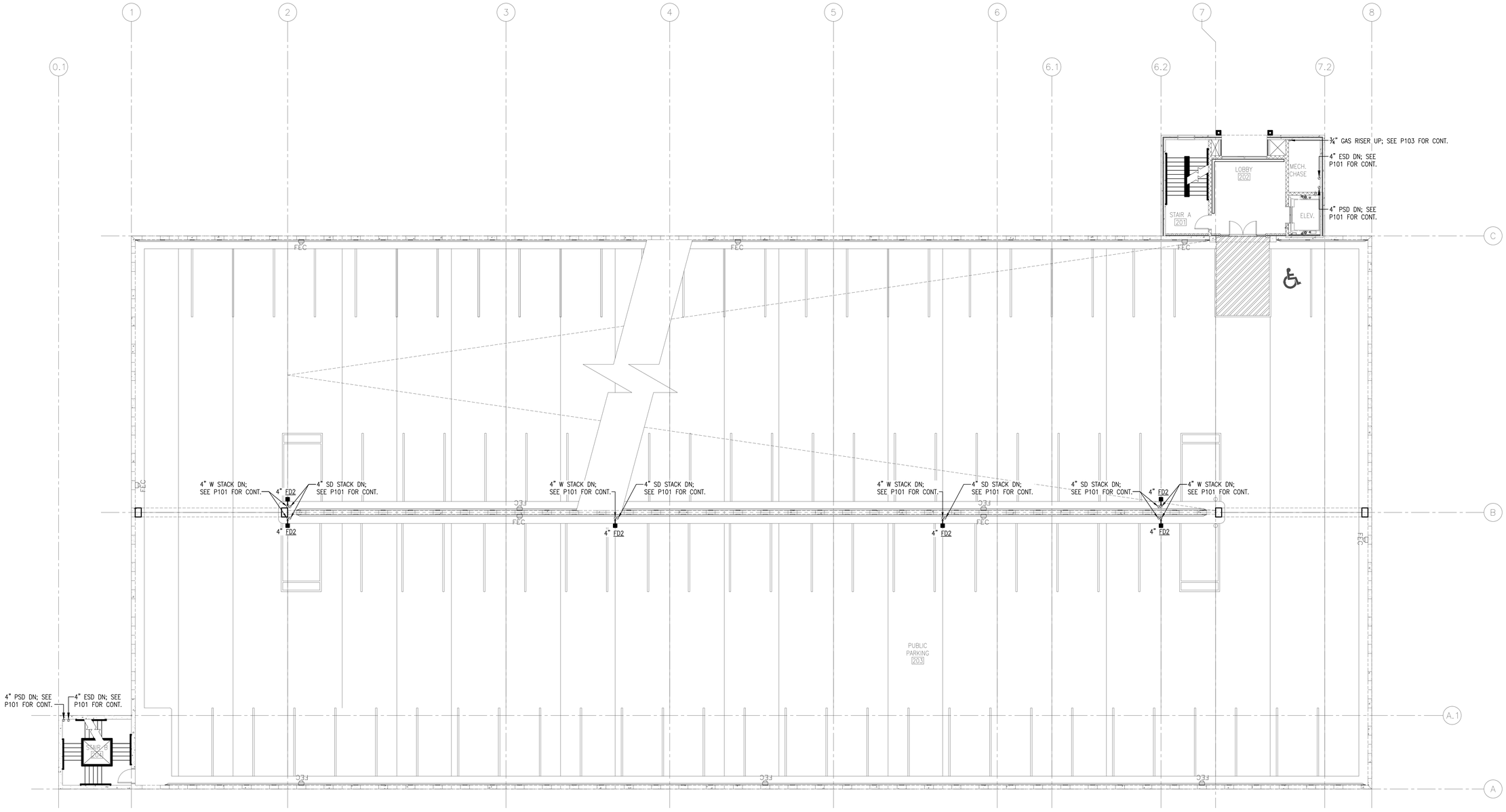
FIRST LEVEL PLUMBING PLAN

SHEET NUMBER

P101

ISSUED FOR BID

Drawing: \\Chifile01\aviation\P\2131882.114 Duluth Parking Structure\CAD\P\P101 First Level Plumbing Plan.dwg Plotted on: 5/16/2013 2:01 PM Plotted by: Lucius, Brian



N

1 SECOND LEVEL PLUMBING PLAN
3/32" = 1'-0"

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SHEET TITLE

SECOND LEVEL PLUMBING PLAN

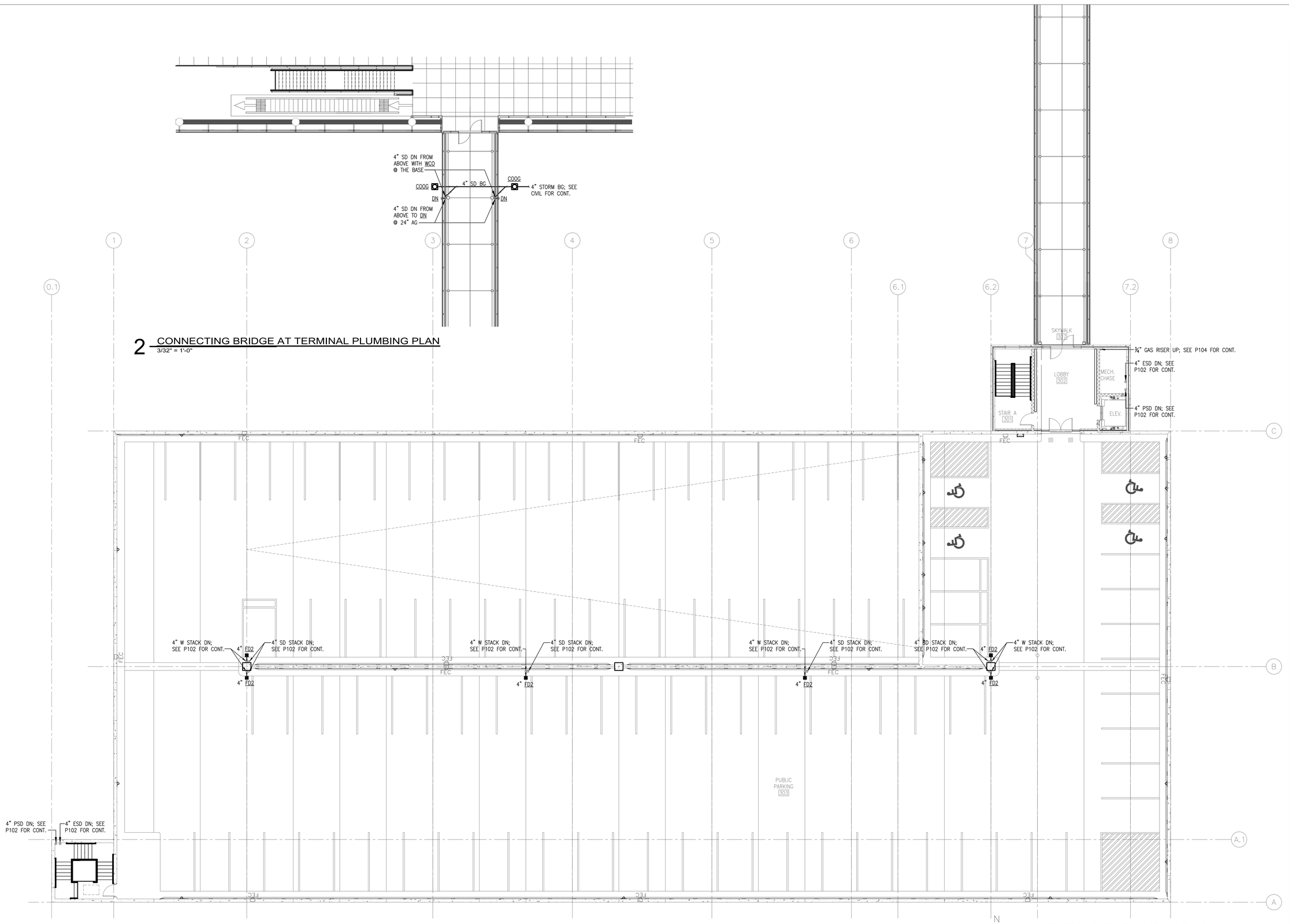
SHEET NUMBER

P102

ISSUED FOR BID

Drawing: \\Chifile01\aviation\P\213188Z.114 Duluth Parking Structure\CAD\P\P102 Second Level Plumbing Plan.dwg Plotted on: 5/16/2013 2:01 PM Plotted by: Lucius, Brian

2 CONNECTING BRIDGE AT TERMINAL PLUMBING PLAN
3/32" = 1'-0"



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1 THIRD LEVEL PLUMBING PLAN
3/32" = 1'-0"

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SHEET TITLE

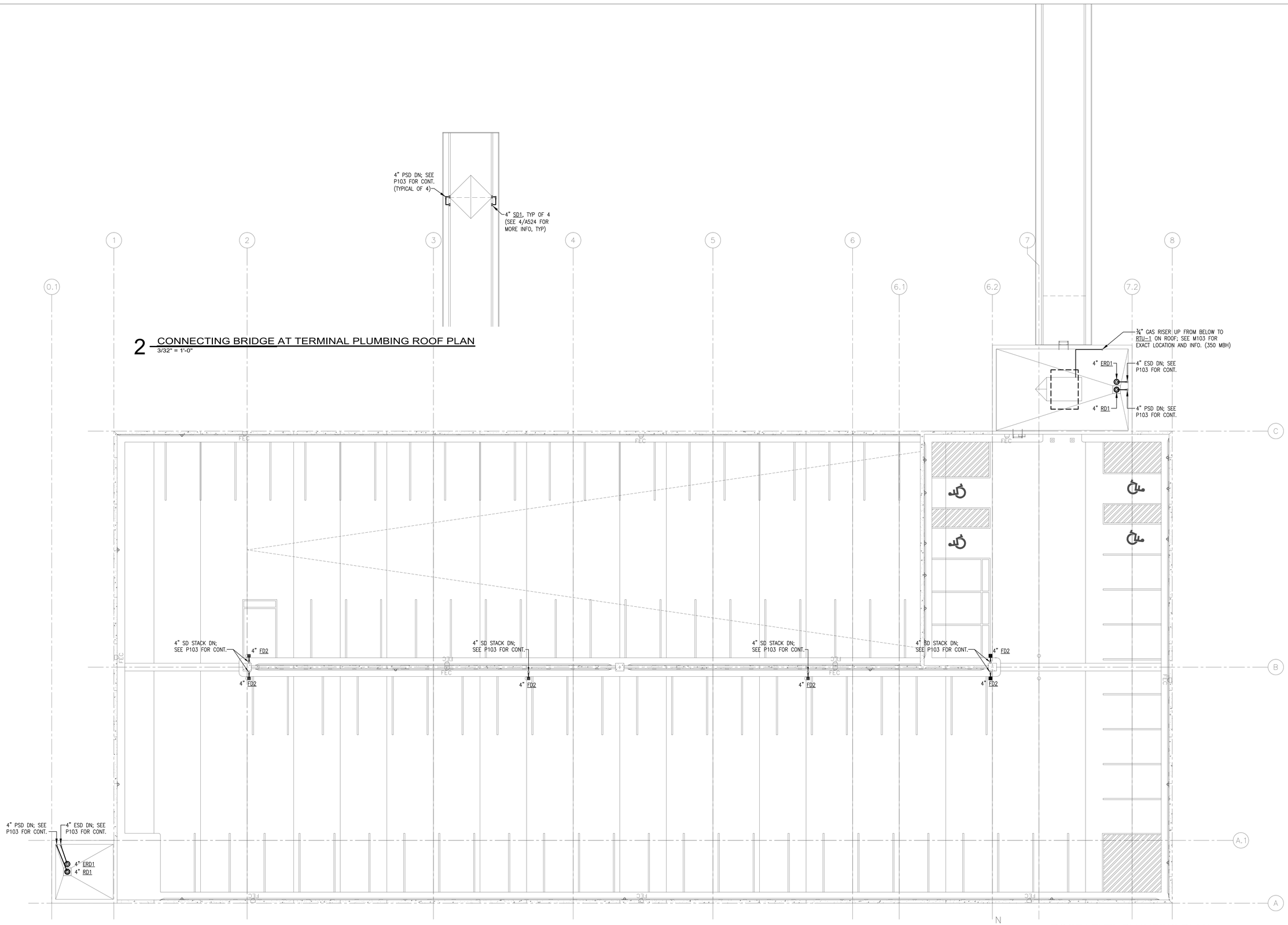
THIRD LEVEL PLUMBING PLAN

SHEET NUMBER

P103

ISSUED FOR BID

Drawing: \\Chifile01\aviation\P\2131882.114 Duluth Parking Structure\CAD\P\P103 Third Level Plumbing Plan.dwg Plotted on: 5/16/2013 2:01 PM Plotted by: Lucius, Brian



2 CONNECTING BRIDGE AT TERMINAL PLUMBING ROOF PLAN
3/32" = 1'-0"

1 ROOF LEVEL PLUMBING PLAN
3/32" = 1'-0"

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SHEET TITLE

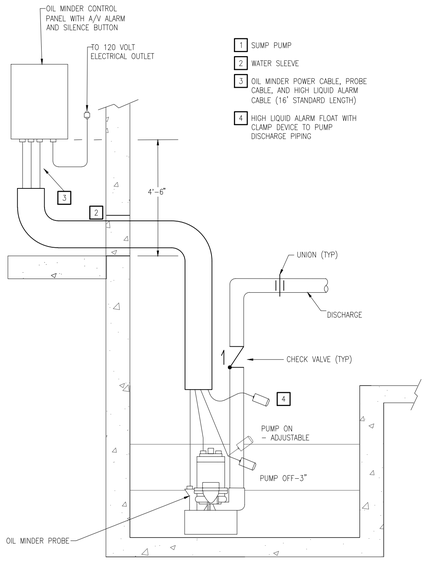
ROOF LEVEL PLUMBING PLAN

SHEET NUMBER

P104

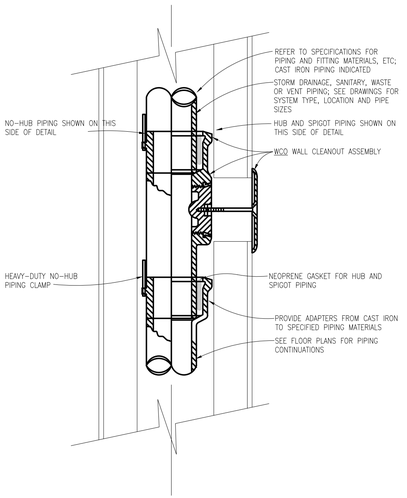
ISSUED FOR BID

Drawing: \\Chifile01\aviation\P\2131882.114 Duluth Parking Structure\CAD\P\P104 Roof Level Plumbing Plan.dwg Plotted on: 5/16/2013 2:02 PM Plotted by: Lucius, Brian



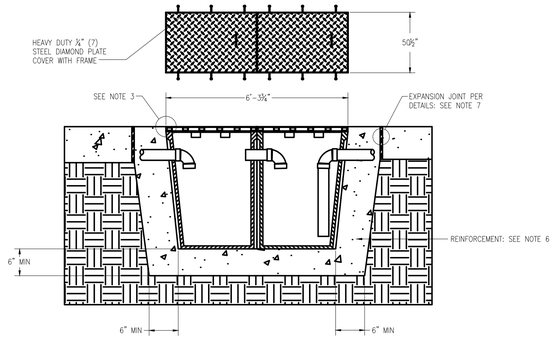
1 P201 SUMP PUMP DETAIL

SCALE: NTS



2 P201 WALL CLEANOUT ASSEMBLY (WCO) DETAIL

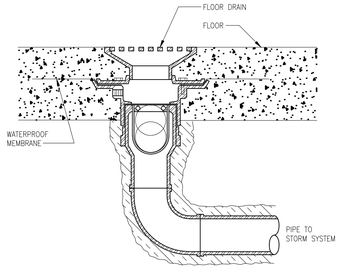
SCALE: NTS



NOTES:
1. IT IS NECESSARY TO ENSURE THE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR THE EXISTING GROUND CONDITIONS.
2. A MINIMUM CONCRETE STRENGTH OF 3000 PSI I RECOMMENDED. THE CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. THE FINISHED LEVEL OF THE CONCRETE MUST BE APPROXIMATELY ⅜" ABOVE THE TOP OF THE CATCH BASIN EDGE..
4. REFER TO SMITH/ACO'S LATEST INSTALLATION INSTRUCTIONS FOR COMPLETE DETAILS.
5. CONCRETE BASE THICKNESS SHOULD MATCH THE SLAB THICKNESS.
6. REBAR OR STEEL MESH REINFORCEMENT MAY BE REQUIRED.
7. EXPANSION AND CRACK CONTROL JOINTS ARE RECOMMENDED TO PROTECT THE CATCH BASIN AND THE CONCRETE SURROUND.

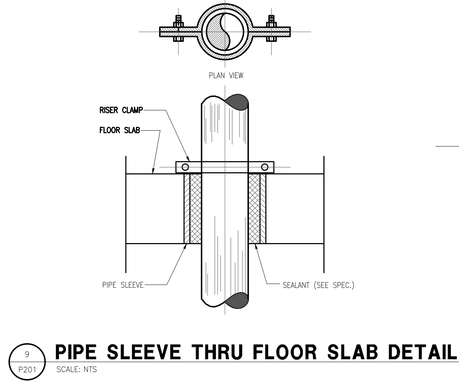
3 P201 OIL/WATER SEPARATOR DETAIL

SCALE: NTS



4 P201 STORM WATER FLOOR DRAIN DETAIL

SCALE: NTS



5 P201 FLOOR CLEANOUT (FCO) DETAIL

SCALE: NTS

6 P201 DOUBLE TWO-WAY CLEANOUT ON GRADE (DTWCOOG) DETAIL

SCALE: NTS

7 P201 CLEANOUT ON GRADE (COOG) DETAIL

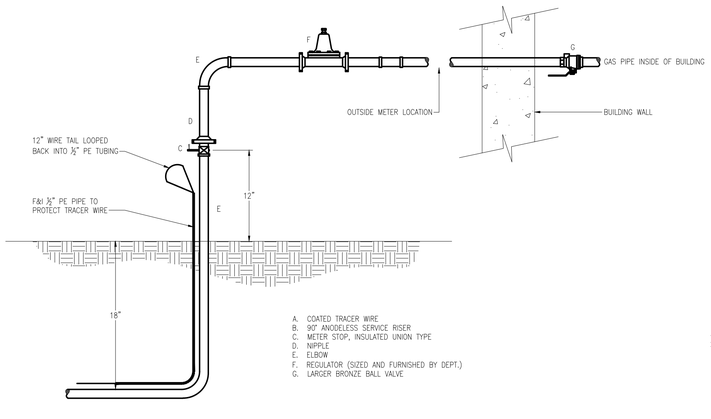
SCALE: NTS

8 P201 FOUNDATION WALL PENETRATION DETAIL

SCALE: NTS

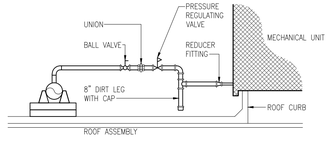
9 P201 PIPE SLEEVE THRU FLOOR SLAB DETAIL

SCALE: NTS



10 P201 GAS SERVICE INSTALLATION

SCALE: NTS



11 P201 GAS PIPING CONNECTION DETAIL

SCALE: NTS

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SHEET TITLE

PLUMBING DETAILS

SHEET NUMBER

P201

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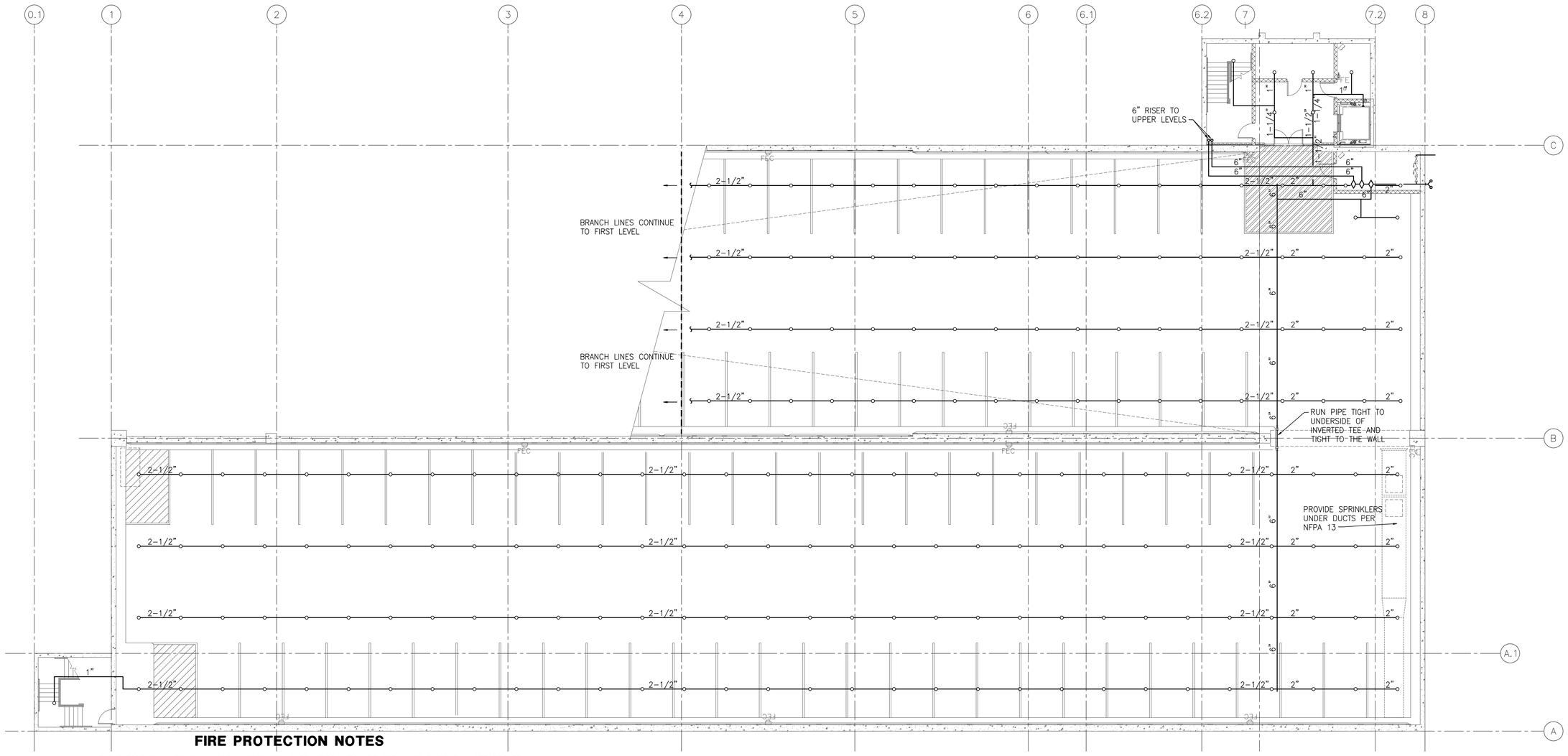


FIRE PROTECTION NOTES

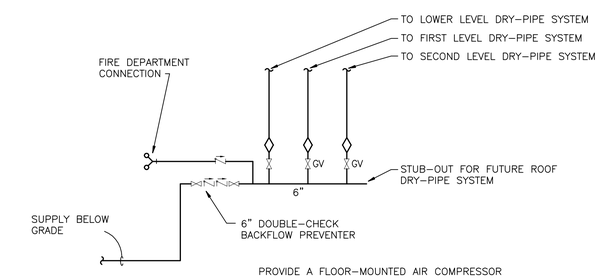
1. THE GARAGE SHALL BE FULLY–SPRINKLERED WITH A DRY–PIPE AUTOMATIC SPRINKLER SYSTEMS IN ACCORDANCE WITH NFPA 13 AND STATE AND LOCAL REQUIREMENTS. ALL COMPONENTS SHALL BE UL LISTED OR FM APPROVED FOR AUTOMATIC SPRINKLER SYSTEMS.
2. ALL AREAS ARE ORDINARY HAZARD, GROUP 1, EXCEPT STAIRS, LOBBIES AND THE BRIDGE, WHICH ARE LIGHT HAZARD.
3. THE SYSTEMS SHALL BE HYDRAULICALLY CALCULATED IN ACCORDANCE WITH NFPA 13. THE SYSTEMS SHALL PROVIDE 0.1 AND 0.15 GPM/SQ. FT. OVER THE HYDRAULICALLY MOST REMOTE AREAS FOR LIGHT AND ORDINARY HAZARD GROUP 1 AREAS, RESPECTIVELY. THE DESIGN AREAS SHALL BE 1,950 SQ. FT. FOR DRY–PIPE SYSTEMS.
4. PROVIDE A WATER CURTAIN (SPRINKLERS SPACED 6–FT ON CENTER) AT THE BRIDGE AS INDICATED.
5. PROVISIONS SHALL BE MADE FOR EXPANSION OF AN ADDITIONAL DRY–PIPE VALVE AND A VERTICAL IN–LINE FIRE PUMP FOR A FUTURE ROOF.
6. THE SPRINKLER SPACING SHALL BE AS INDICATED ON THE DRAWINGS BUT SHALL NOT EXCEED 225 SQ. FT AND 130 SQ. FT. FOR LIGHT AND ORDINARY HAZARD, RESPECTIVELY.
7. PROVIDE RISERS WITH APPROPRIATE TRIM PER NFPA 13. CONNECT PRESSURE AND TAMPER SWITCHES (INSTALL ON ALL INTERIOR SYSTEM CONTROL VALVES) AND ALL OTHER FIRE ALARM DEVICES TO FIRE ALARM SYSTEM. PROVIDE AND EXTERIOR BELL/STROBE AS REQUIRED BY LOCAL REQUIREMENTS. PROVIDE A FLOOR–MOUNTED AIR COMPRESSOR TO SERVE ALL OF THE DRY–PIPE SYSTEMS.
8. COORDINATE ROUTING OF PIPING, TEST CONNECTIONS, ETC. WITH PLUMBING AND MECHANICAL (HVAC) ROUTING. PIPING SHALL NOT BE LOCATED ABOVE ELECTRICAL PANELS, ETC. PER NFPA 70.
9. ALL TEST/DRAIN LINES (MORE THAN 5 GALLONS) SHALL DISCHARGE DIRECTLY TO THE EXTERIOR WITH THE APPROPRIATE SPLASH PROTECTION. AUXILIARY DRAINS MAY DISCHARGE INTO MECHANICAL ROOM FLOOR DRAINS. WORKING DRAWINGS SHALL INDICATE THE LOCATION OF ALL TEST/DRAIN VALVES AND DISCHARGE POINTS.
10. SPRINKLERS AND PIPING LOCATIONS AND ELEVATIONS SHALL BE COORDINATED TO BE LOCATED ABOVE THE MINIMUM GARAGE CLEARANCES. COORDINATE ALL REQUIRED SLEEVES/PENETRATIONS WITH STRUCTURAL SYSTEM.
11. ALL PIPES SERVING A SINGLE SPRINKLER ARE 1 INCH MINIMUM. PROVIDE ASTM A 53 SCHEDULE 40 STEEL PIPE FOR WELDED, THREADED, AND GROOVED FITTINGS ONLY. PROVIDE ASTM A135 OR A795 SCHEDULE 10 STEEL PIPE FOR WELDED OR ROLLED–GROOVE FITTINGS ONLY. ALL DRY–PIPE SYSTEM PIPING (PIPE, FITTINGS, AND HANGERS) SHALL BE GALVANIZED.
12. ALL SPRINKLER SHALL BE QUICK RESPONSE. PROVIDE 1/2" SPRINKLERS (ORDINARY TEMPERATURE) IN INTERIOR SPACES WITH FINISHED CEILINGS, AS INDICATED ON THE DRAWINGS. ALL SPRINKLERS SHALL BE UPRIGHTS OR DRY–PENDENT (RECESSED AND CONCEALED) SPRINKLERS. RECESSED PENDENT SPRINKLERS MAY BE USED IN HEATED AREAS. SPRINKLERS SHALL BE CENTERED IN CEILING TILE (BOTH DIRECTIONS). COORDINATE THE LOCATION AND ELEVATION OF SPRINKLERS WITH RESPECT TO STRUCTURAL MEMBERS AND OTHER OBSTRUCTIONS IN ACCORDANCE WITH NFPA 13.
13. PROVIDE HANGERS IN ACCORDANCE WITH NFPA 13, THE SPECIFICATIONS, AND STRUCTURAL.
14. A FLOW TEST WAS PERFORMED ON 12/5/2011. THE FLOW HYDRANT WAS AT THE INTERSECTION OF AIRPORT RD. AND HAINES RD. AND THE PRESSURE HYDRANT WAS LOCATED ON AIRPORT RD. NEAR THE PARKING LOT ENTRANCE. THE STATIC PRESSURE WAS 58 PSI WITH A RESIDUAL PRESSURE OF 40 PSI AT 1,138 GPM. A SINGLE 2–1/2" BUTT WAS FLOWED WITH A PITOT PRESSURE OF 46 PSI. THE LOWEST GARAGE LEVEL IS APPROXIMATELY 1–FT BELOW THE ELEVATION OF THE LOWEST FLOOR LEVEL.
15. PROVIDE A DOUBLE–CHECK BACKFLOW PREVENTER. THE CALCULATIONS WERE BASED ON MAXIMUM PRESSURE DROP OF 5 PSI.

N

1 LOWER LEVEL FIRE PROTECTION PLAN
3/32" = 1'-0"

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
———	FIRE PROTECTION DISTRIBUTION PIPING
——GV——	OS&Y GATE VALVE WITH TAMPER SWITCH
——⋈——	CHECK VALVE, ARROW INDICATES DIRECTION OF FLOW
- - - - - -	REMOTE HYDRAULIC AREA
○	UPRIGHT SPRINKLER
◎	DRY–PENDENT SPRINKLER
▸	SIDEWALL SPRINKLER
	FIRE DEPARTMENT CONNECTION
#	HYDRAULIC NODE
△	RISER



2 RISER SCHEMATIC
NTS

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DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

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TEL: (218) 722-1056 / FAX: (218) 722-9306

Landscape Architects:
ARCHITECTURAL RESOURCES
126 East Superior Street, Duluth MN 55802
TEL: (218) 727-8481 / FAX: (218) 727-8483

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: SWD
DESIGNED BY: SWD

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

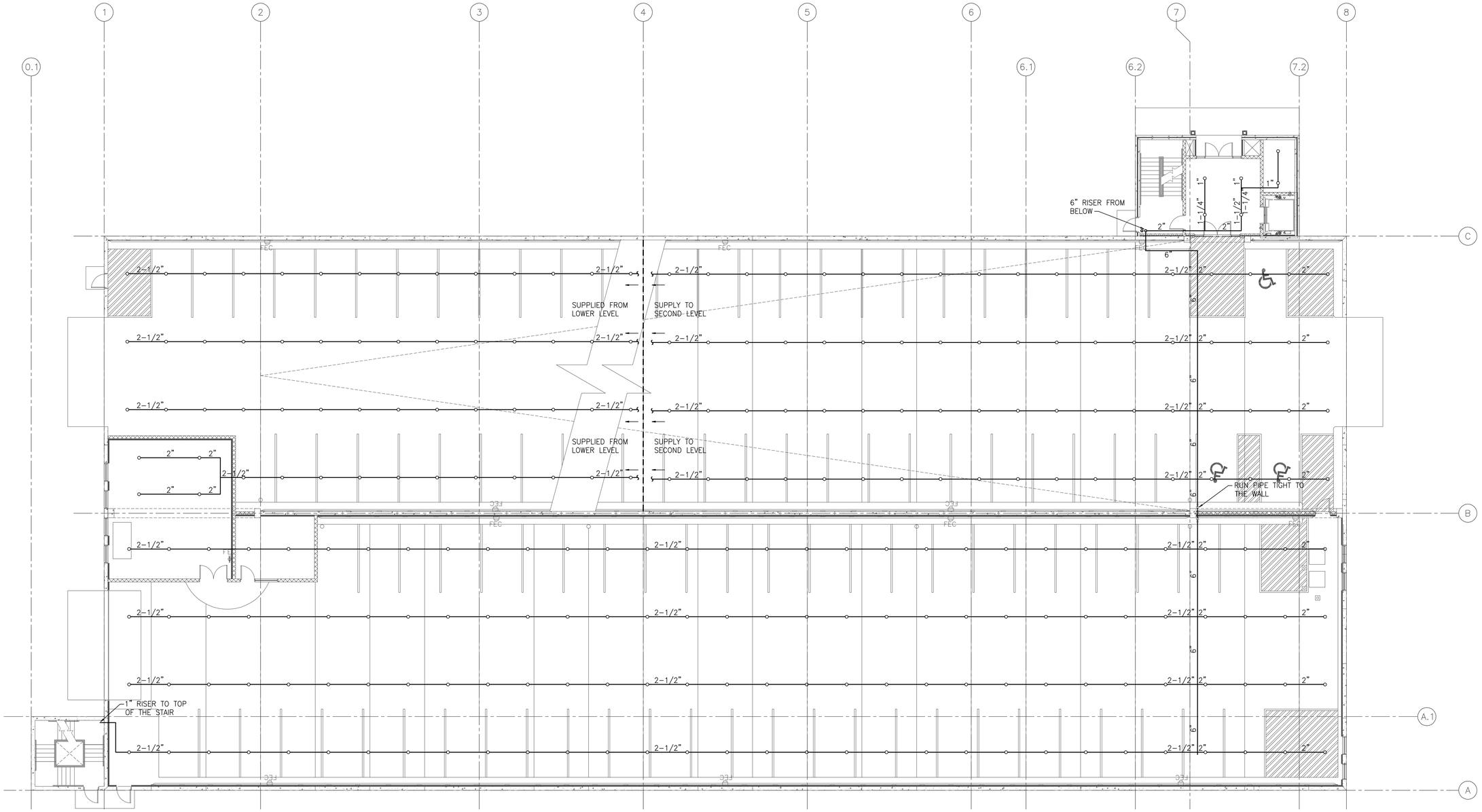
LOWER LEVEL FIRE PROTECTION PLAN

SHEET NUMBER

F100

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\F\F100.dwg Plotted on: 5/17/2013 4:02 PM Plotted by: Godzina, Marc



1 FIRST LEVEL FIRE PROTECTIONPLAN
3/32" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: SWD
DESIGNED BY: SWD

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

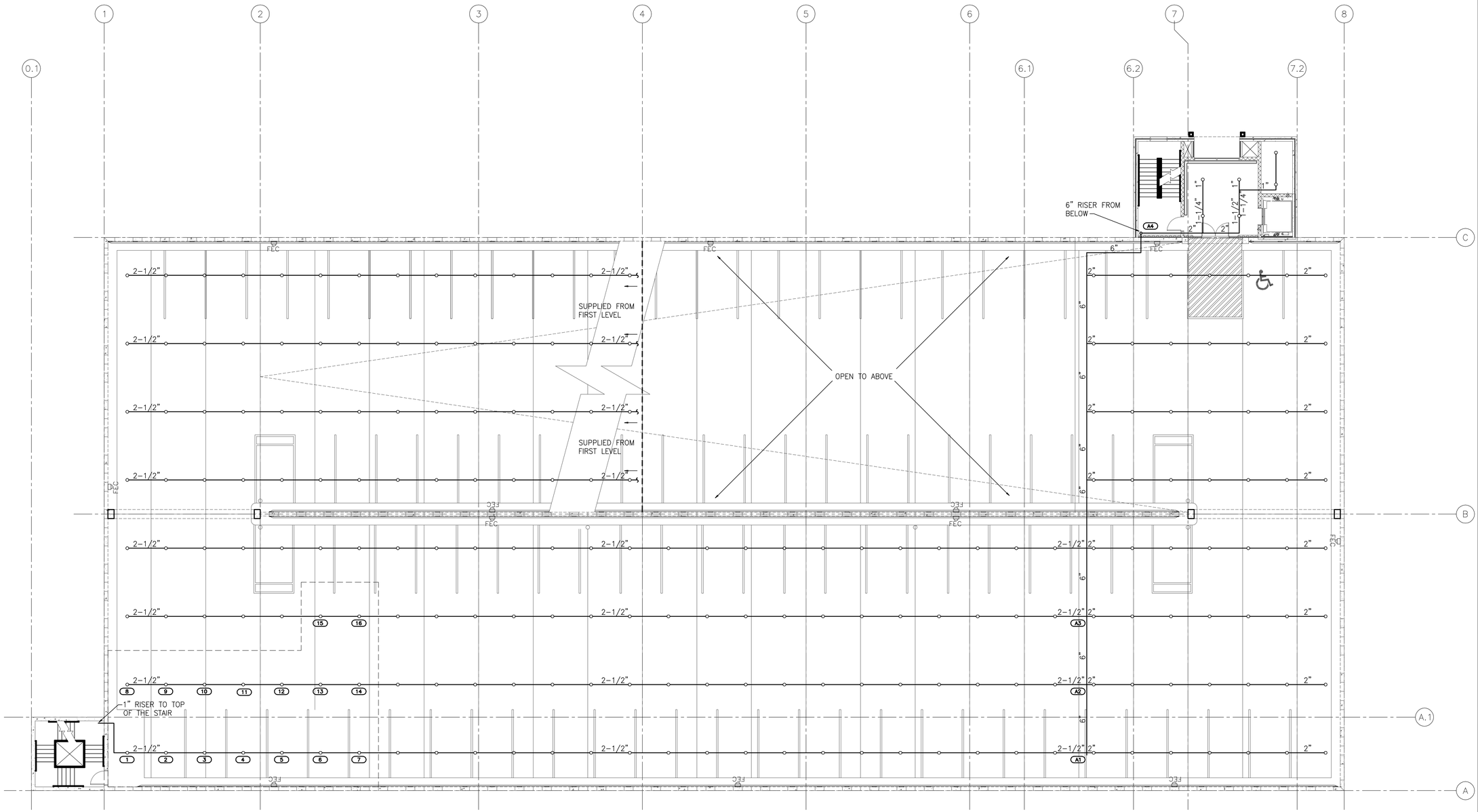
FIRST LEVEL FIRE PROTECTION PLAN

SHEET NUMBER

F101

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\F\F101.dwg Plotted on: 5/17/2013 4:03 PM Plotted by: Godzina, Marc



N

1 SECOND LEVEL FIRE PROTECTION PLAN
3/32" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: SWD
DESIGNED BY: SWD

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

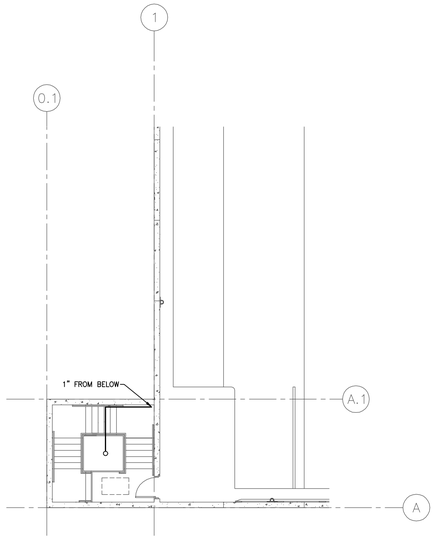
SECOND LEVEL FIRE PROTECTION PLAN

SHEET NUMBER

F102

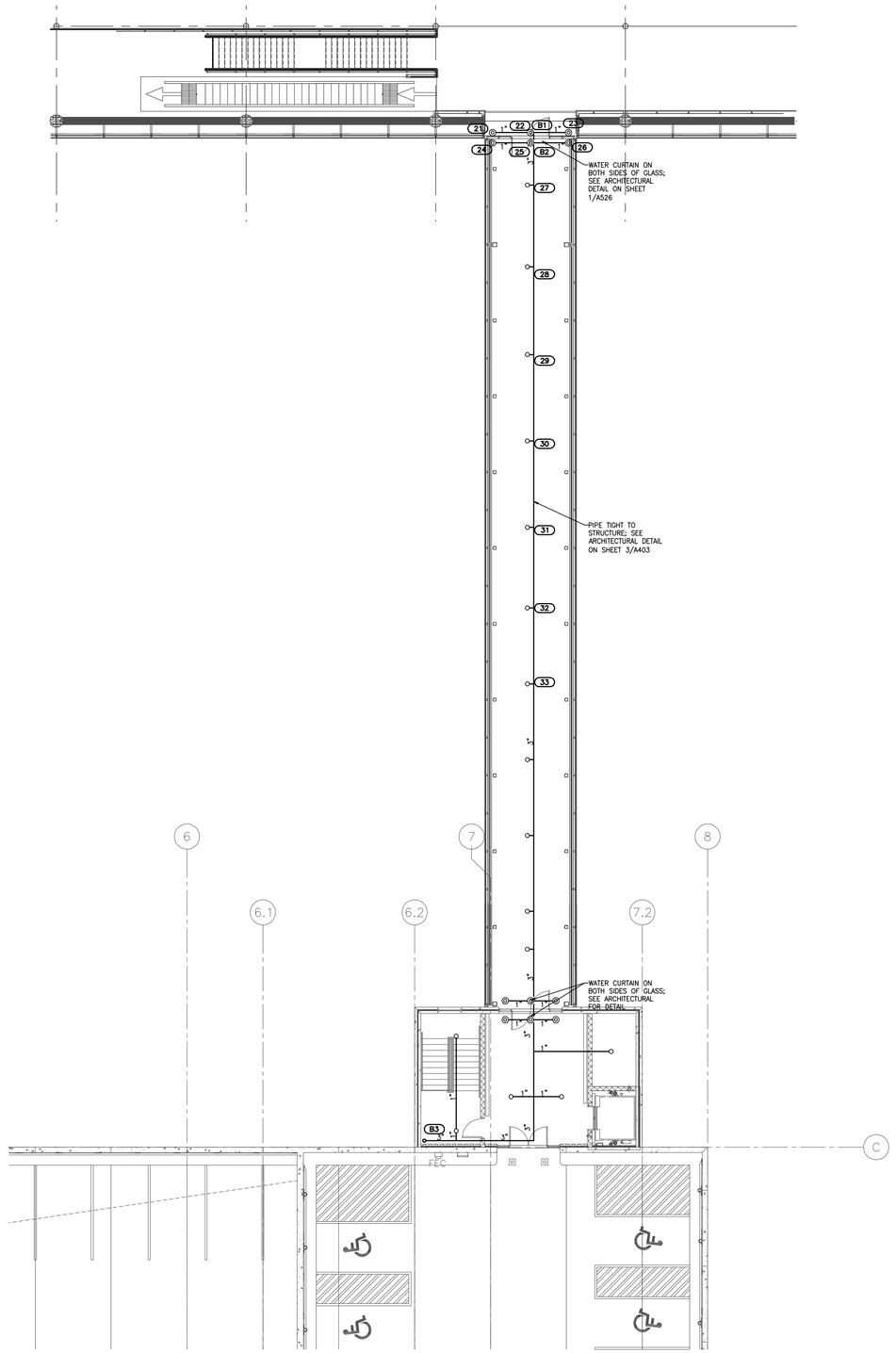
ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\F\F102.dwg Plotted on: 5/17/2013 4:03 PM Plotted by: Godzina, Marc



N

1 THIRD LEVEL FIRE PROTECTION STAIR PLAN
3/32" = 1'-0"



2 THIRD LEVEL ELEVATOR CORE AND BRIDGE PLAN
3/32" = 1'-0"

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REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: PL
DRAWN BY: SWD
DESIGNED BY: SWD

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

THIRD LEVEL FIRE PROTECTION PLAN

SHEET NUMBER

F103

ISSUED FOR BID

Drawing: T:\P\2131882.114 Duluth Parking Structure\CAD\F\F103.dwg Plotted on: 5/17/2013 4:04 PM Plotted by: Godzina, Marc

SIGNAGE SCHEDULE

EXTERIOR WAYFINDING

Sign No.	Sign Type	Face	Arrow	Symbol	Text	Plan Sht. Ref.	Sign Type Ref.	Remarks
E/01	E.1				*SIGN NOT USED*			
E/02	E.4	A left	-	-	*LEFT LANE Parking*	W100	W201	
"	"	A right	-	-	*RIGHT LANE Cell Phone Lot / Terminal / Rental Return*			
E/03	E.5.1	A	↘	-	*Cell Phone Waiting Lot*	W100	W201	
E/04	E.2L	A	↙		*Parking*	W100	W201	
E/05	E.1.2	A left	↙		*Commercial Lane/Taxis/Buses/Limos/Shuttles*	W100	W201	
"	E.1.1	A right	↓	-	*To Terminal / Rental Return*			
E/06	E.3	A	→	-	*Cargo / Receiving*	W100	W202	Affix R5.1A to back
E/07	E.5.2	A	↙		*Commercial Lane/Taxis/Buses/Limos/Shuttles*	W100	W201	
E/08	E.1.1	A left	↙		*Economy Parking*	W100	W201	Provide Removable Tempory "Long Term" Panel made of like materials to cover "Economy"
"	"	A right	↓		*Premium Parking*			Provide Removable Tempory "Short Term" Panel made of like materials to cover "Premium"
E/09	E.6	A	-		*Premuim Parking /First 20 Minutes Free/Each 1/2 Hour $1.00/Daily Max $15.00/Weekly Max $54.00*			Verify Current Parking Rates. Provide Removable Tempory "Short Term" Panel made of like materials to cover "Premium"
E/10	E.3	A	→	-	*Rental Return*	W100	W202	Affix R5.1A to back
E/11	E.6	A	-		*Economy Parking/First 20 Minutes Free/Each Hour $2.00/Daily Max $9.00/Weekly Max $45.00*			Verify Current Parking Rates. Provide Removable Tempory "Long Term" Panel made of like materials to cover "Economy"
E/12	E.6	A	-		*Economy Parking/First 20 Minutes Free/Each Hour $2.00/Daily Max $9.00/Weekly Max $45.00*			Verify Current Parking Rates. Provide Removable Tempory "Long Term" Panel made of like materials to cover "Economy"
E/13	E.2L	A	↙		*Economy Parking*	W100	W201	Provide Removable Tempory "Long Term" Panel made of like materials to cover "Economy"
E/14	E.4	A left	↓	-	*LEFT LANE Return to Terminal*	W100	W201	
"	"	A right	-	-	*RIGHT LANE Exit Airport*			
E/15	E.5.1	A	-	-	*Return to Terminal*	W100	W202	Affix R5.1A to back
E/16	E.3	A	-	-	*Thank you for visiting Duluth International Airport*	W100		Affix R5.1A to back
LED 1	Programmable LED Sign- Daktronics Model AF-3200-32X96-8-A					W724	To be installed on revenue control canopy	
LED 2	Programmable LED Sign- Daktronics Model AF-3200-32X96-8-A					W724	To be installed on revenue control canopy	
LED 3	Programmable LED Sign- Daktronics Model AF-3200-32X96-8-A					W724	To be installed on revenue control canopy	

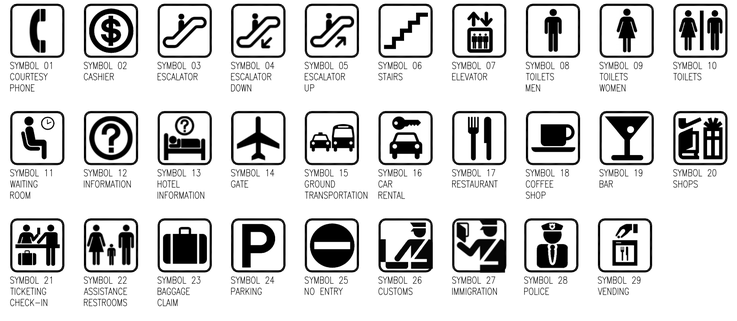
1 EXTERIOR WAYFINDING SIGNAGE SCHEDULE

NOTES:
FINAL SIGNAGE TEXT SUBJECT TO CHANGE. ALL SIGNS MUST BE SUBMITTED AND APPROVED PRIOR TO INSALLATION
ADDITIONAL COMPENSATION WILL NOT BE CONSIDERED FOR FOR TEXT CHANGES

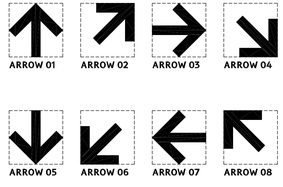
AaBbCcDdEeFfGgHhIiJj
KkLlMmNnOoPpQqRrSs
TtUu VvWw XxYyZz
&1234567890

NOTE: TYPE FACE ON WAYFINDING SIGNAGE SHALL BE TIRESIAS SIGNFONT AND BE WHITE UNLESS NOTED OTHERWISE

2 TYPE FACE LEGEND
6" = 1'-0"



3 SYMBOL LEGEND
6" = 1'-0"



NOTE: DASHED BOX SHOWN AROUND ARROW SYMBOLS IS FOR ALIGNMENT PURPOSES ONLY

4 ARROW SYMBOLS
6" = 1'-0"

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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 Minnesota.

Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: TC
DRAWN BY: MKG/MI
DESIGNED BY: TC

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE

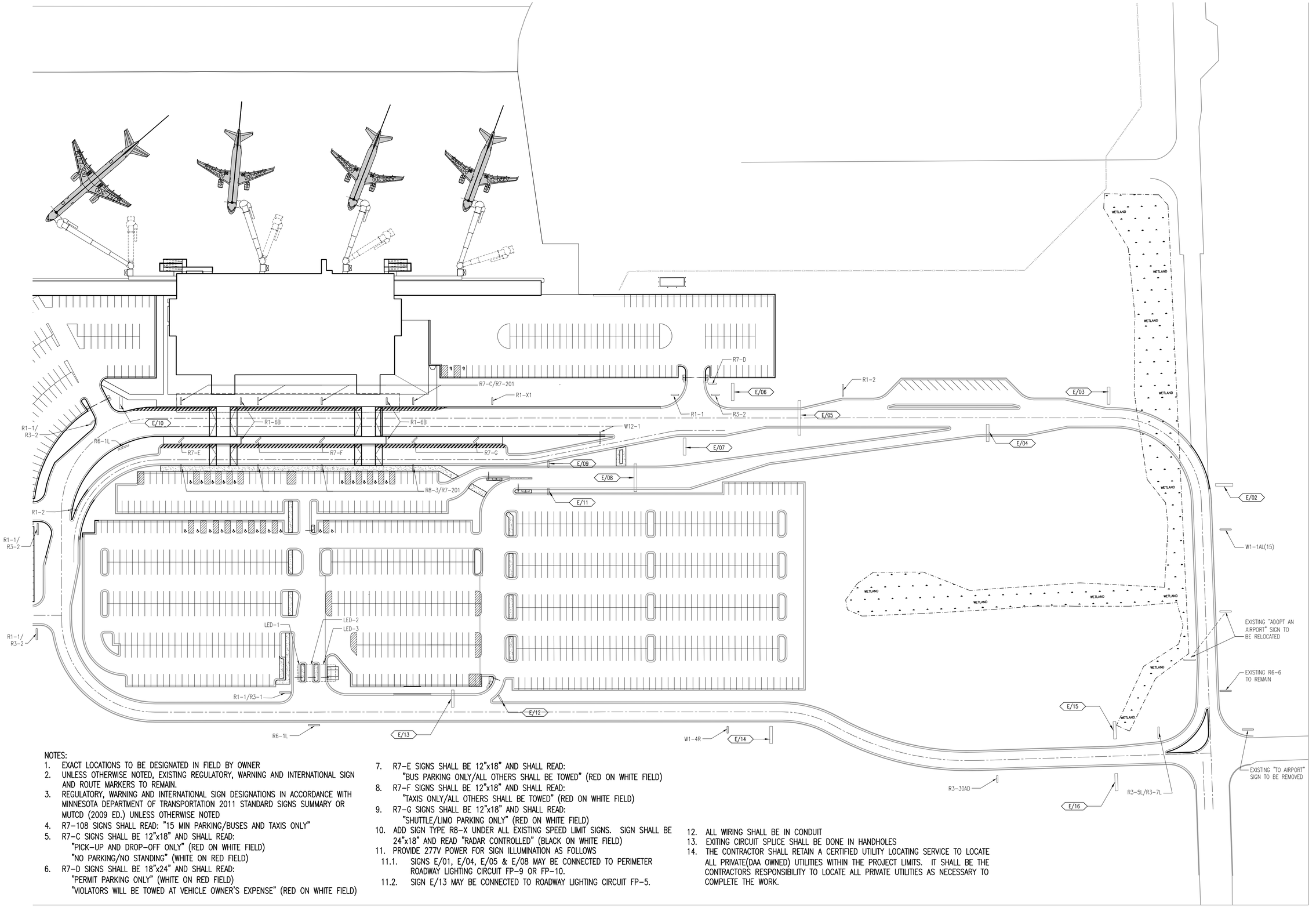
TYPOGRAPHIC STANDARDS & SYMBOL SCHEDULE

SHEET NUMBER

W001

ISSUED FOR BID

Drawing: I:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\G001 Typographic Standards & Symbol Schedule.dwg Plotted on: 5/8/2013 3:46 PM Plotted by: Godzina, Marc



NOTES:

1. EXACT LOCATIONS TO BE DESIGNATED IN FIELD BY OWNER
2. UNLESS OTHERWISE NOTED, EXISTING REGULATORY, WARNING AND INTERNATIONAL SIGN AND ROUTE MARKERS TO REMAIN.
3. REGULATORY, WARNING AND INTERNATIONAL SIGN DESIGNATIONS IN ACCORDANCE WITH MINNESOTA DEPARTMENT OF TRANSPORTATION 2011 STANDARD SIGNS SUMMARY OR MUTCD (2009 ED.) UNLESS OTHERWISE NOTED
4. R7-108 SIGNS SHALL READ: "15 MIN PARKING/BUSES AND TAXIS ONLY"
5. R7-C SIGNS SHALL BE 12"x18" AND SHALL READ:
   "PICK-UP AND DROP-OFF ONLY" (RED ON WHITE FIELD)
   "NO PARKING/NO STANDING" (WHITE ON RED FIELD)
6. R7-D SIGNS SHALL BE 18"x24" AND SHALL READ:
   "PERMIT PARKING ONLY" (WHITE ON RED FIELD)
   "VIOLATORS WILL BE TOWED AT VEHICLE OWNER'S EXPENSE" (RED ON WHITE FIELD)
7. R7-E SIGNS SHALL BE 12"x18" AND SHALL READ:
   "BUS PARKING ONLY/ALL OTHERS SHALL BE TOWED" (RED ON WHITE FIELD)
8. R7-F SIGNS SHALL BE 12"x18" AND SHALL READ:
   "TAXIS ONLY/ALL OTHERS SHALL BE TOWED" (RED ON WHITE FIELD)
9. R7-G SIGNS SHALL BE 12"x18" AND SHALL READ:
   "SHUTTLE/LIMO PARKING ONLY" (RED ON WHITE FIELD)
10. ADD SIGN TYPE R8-X UNDER ALL EXISTING SPEED LIMIT SIGNS. SIGN SHALL BE 24"x18" AND READ "RADAR CONTROLLED" (BLACK ON WHITE FIELD)
11. PROVIDE 277V POWER FOR SIGN ILLUMINATION AS FOLLOWS
    11.1. SIGNS E/01, E/04, E/05 & E/08 MAY BE CONNECTED TO PERIMETER ROADWAY LIGHTING CIRCUIT FP-9 OR FP-10.
    11.2. SIGN E/13 MAY BE CONNECTED TO ROADWAY LIGHTING CIRCUIT FP-5.
12. ALL WIRING SHALL BE IN CONDUIT
13. EXITING CIRCUIT SPLICE SHALL BE DONE IN HANDHOLES
14. THE CONTRACTOR SHALL RETAIN A CERTIFIED UTILITY LOCATING SERVICE TO LOCATE ALL PRIVATE(DAA OWNED) UTILITIES WITHIN THE PROJECT LIMITS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL PRIVATE UTILITIES AS NECESSARY TO COMPLETE THE WORK.

1 OVERALL SITE SIGNAGE PLAN
1" = 80'-0"

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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 Minnesota.

Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY: TC
DRAWN BY: MKG/MI
DESIGNED BY: TC

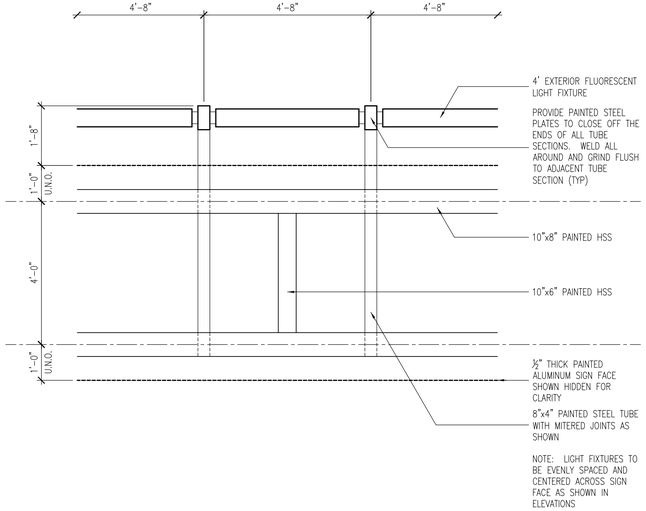
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SITE SIGNAGE PLAN

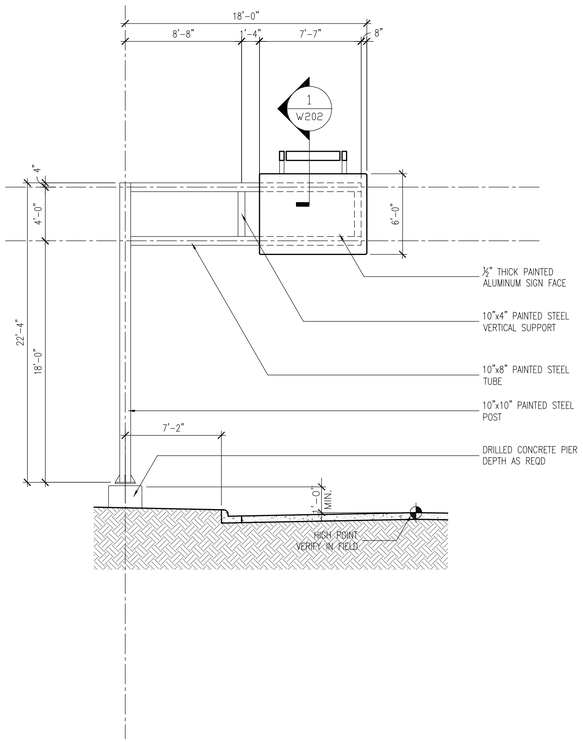
SHEET NUMBER
W100

ISSUED FOR BID

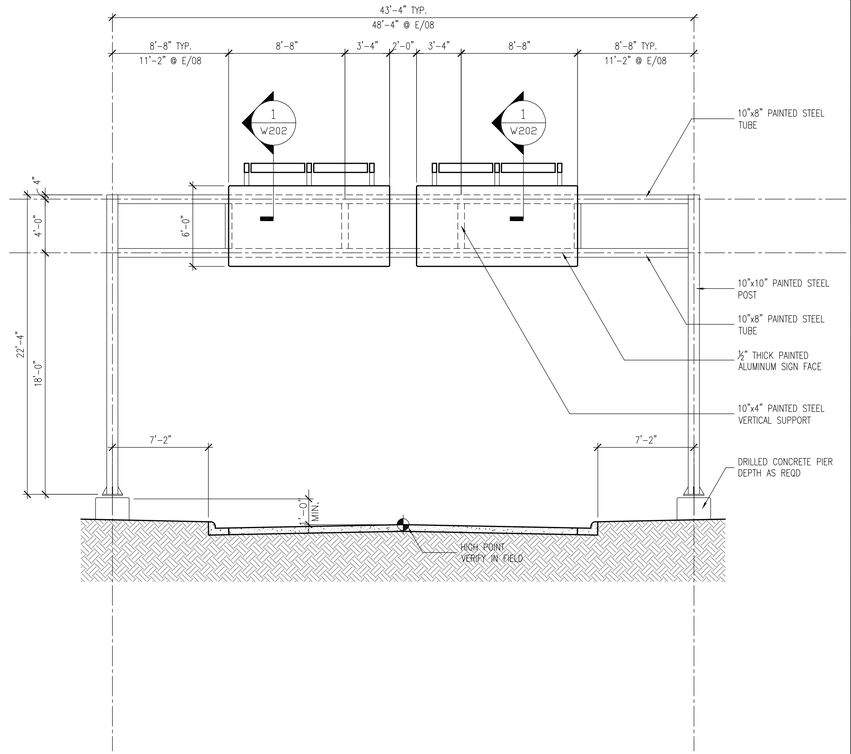
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\G100 Site Signage Plan.dwg Plotted on: 5/8/2013 3:39 PM Plotted by: Godzina, Marc



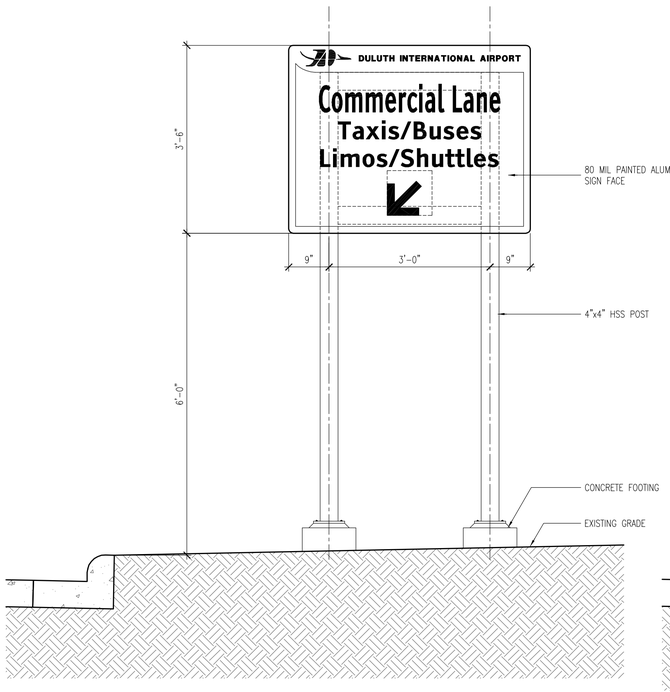
5 ROADWAY SIGN LIGHT FIXTURE DETAIL
1/2" = 1'-0"



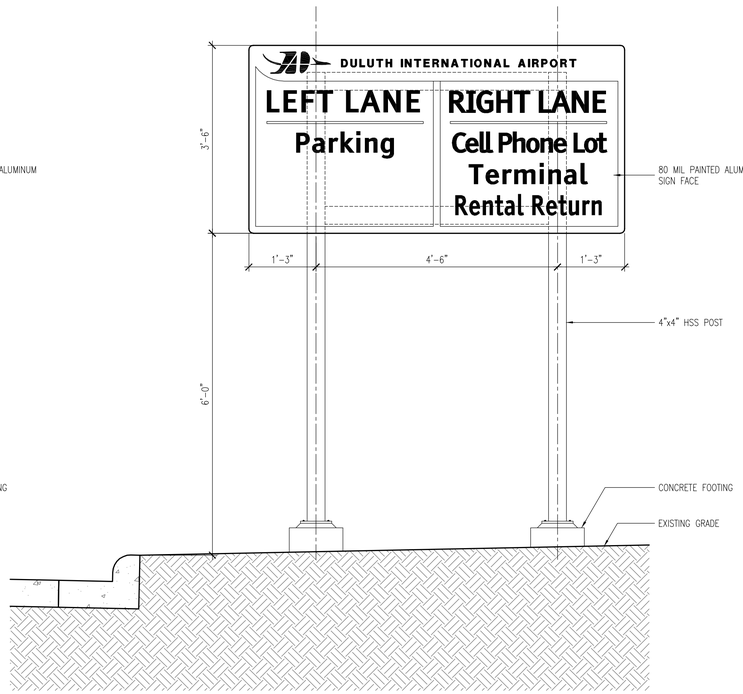
3 SIGN TYPE E.2(L) ELEVATION
3/16" = 1'-0"



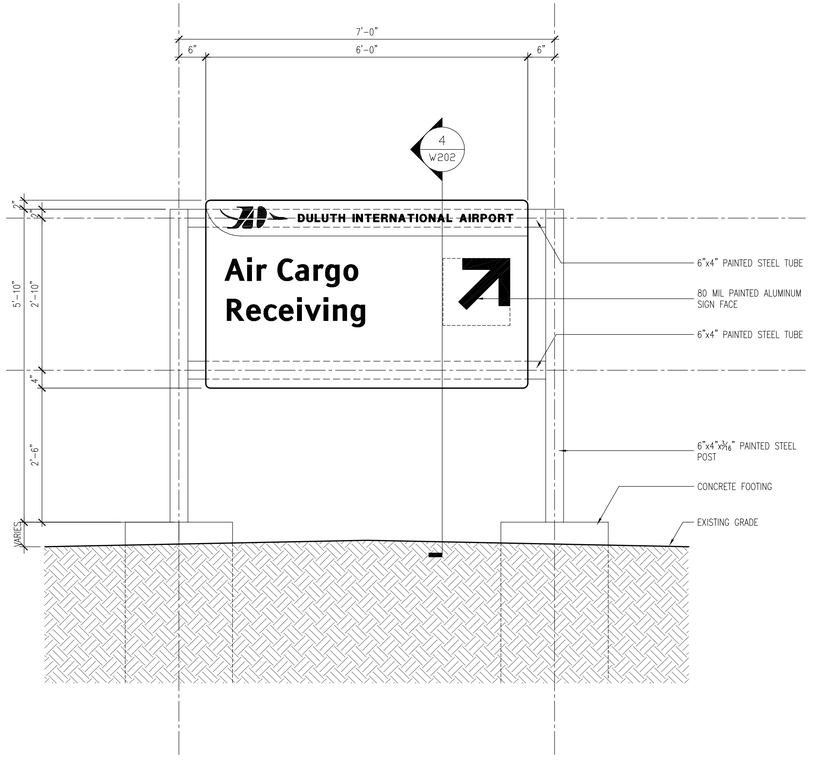
1 SIGN TYPE E.1.1 & E.1.2 ELEVATION
3/16" = 1'-0"



6 SIGN TYPE E.5.1, E.5.2 & E.6 ELEVATION
3/4" = 1'-0"



4 SIGN TYPE E.4 ELEVATION
3/4" = 1'-0"



2 SIGN TYPE E.3 ELEVATION
3/4" = 1'-0"

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DULUTH AIRPORT AUTHORITY

DULUTH INTERNATIONAL AIRPORT DULUTH, MN

NEW PARKING STRUCTURE AND EXTERIOR WAYFINDING SIGNAGE

CONSULTANTS

Interior Architects:
TKDA ARCHITECTS
11 E Superior Street Suite 340, Duluth MN 55802
TEL: (218) 724-8578 / FAX: (218) 724-8717

Structural Engineers:
MEYER BORGMAN JOHNSON
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TEL: (218) 722-1056 / FAX: (218) 722-9306

Landscape Architects:
ARCHITECTURAL RESOURCES
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TEL: (218) 727-8481 / FAX: (218) 727-8483

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 Minnesota.

Print Name: Mark Ip

Signature:

Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

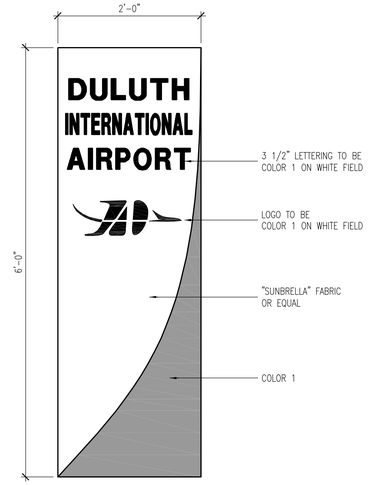
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SIGNAGE TYPES & DETAILS

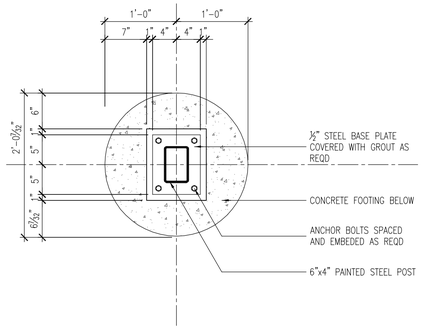
SHEET NUMBER
W201

ISSUED FOR BID

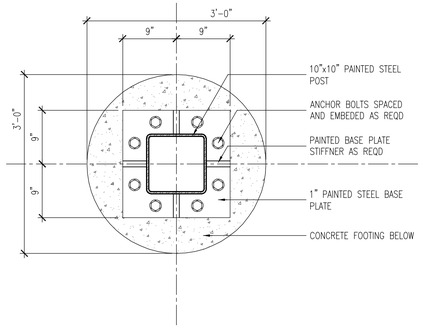
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\G201 Signage Types and Details.dwg Plotted on: 5/8/2013 3:20 PM Plotted by: Godzina, Marc



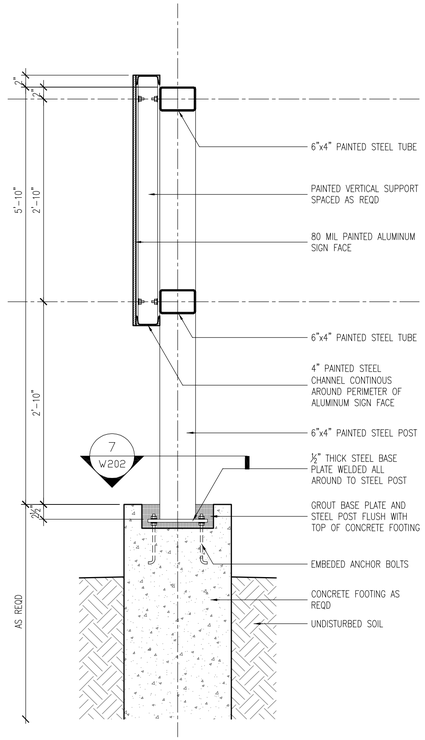
13 BANNER DETAIL
1" = 1'-0"



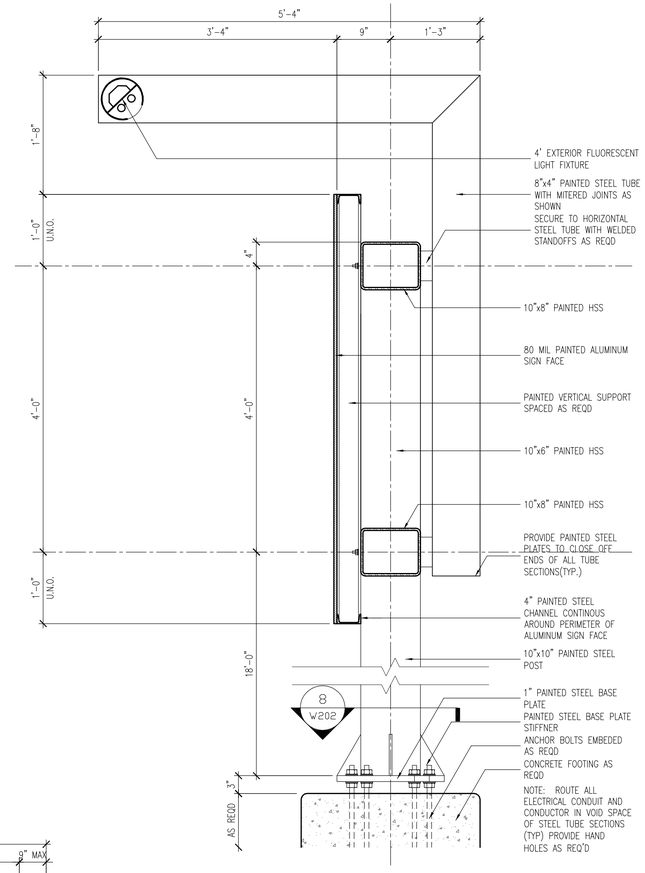
7 SIGN TYPE E.3 & E.4 BASE DETAIL
1" = 1'-0"



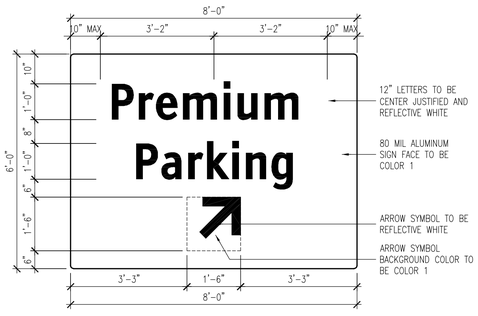
8 SIGN TYPE E.1 & E.2 BASE DETAIL
1" = 1'-0"



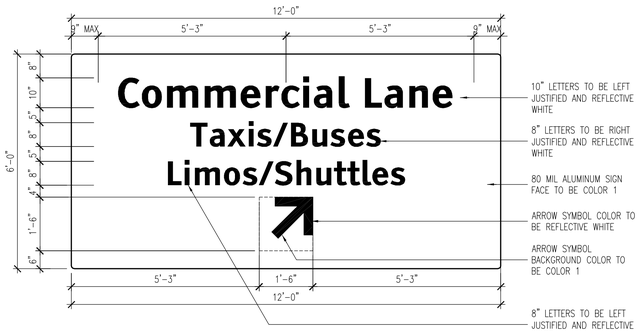
4 POST MOUNTED ROADWAY SIGN SECTION
1" = 1'-0"



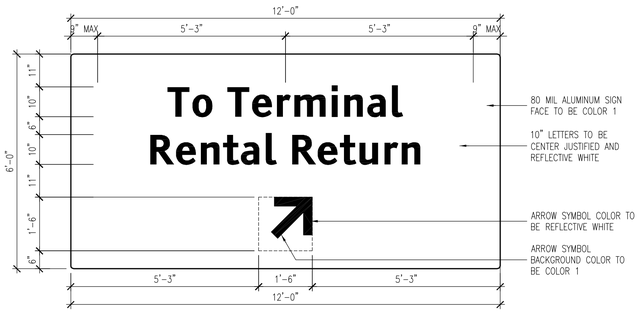
1 OVERHEAD ROADWAY SIGN SECTION
1" = 1'-0"



11 SIGN TYPE E.2 FACE
1/2" = 1'-0"



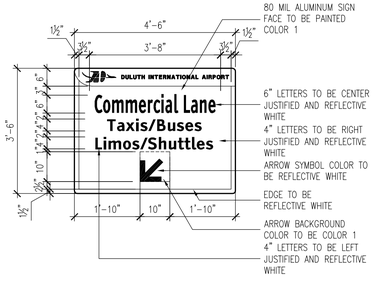
9 SIGN TYPE E.1.2 FACE
1/2" = 1'-0"



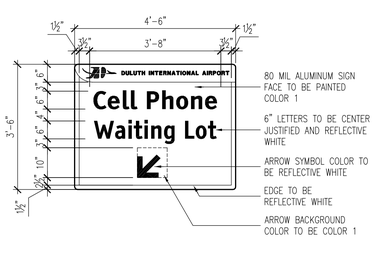
5 SIGN TYPE E.1.1 FACE
1/2" = 1'-0"

2 SIGN TYPE E.3 FACE
1/2" = 1'-0"

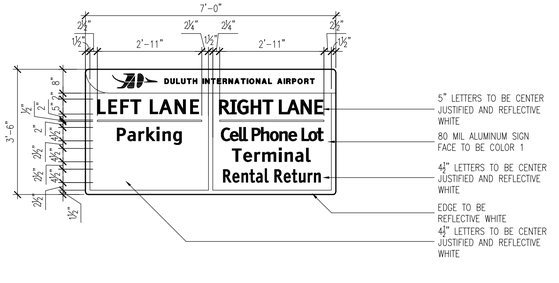
12 SIGN TYPE E.6 FACE
1/2" = 1'-0"



10 SIGN TYPE E.5.2 FACE
1/2" = 1'-0"



6 SIGN TYPE E.5.1 FACE
1/2" = 1'-0"



3 SIGN TYPE E.4 FACE
1/2" = 1'-0"

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Reynolds, Smith and Hills, Inc.
4525 Airport Approach Rd, Ste A
Duluth, Minnesota 55811
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Date: 05-15-13 Reg. No.: 46001

REVISIONS

NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

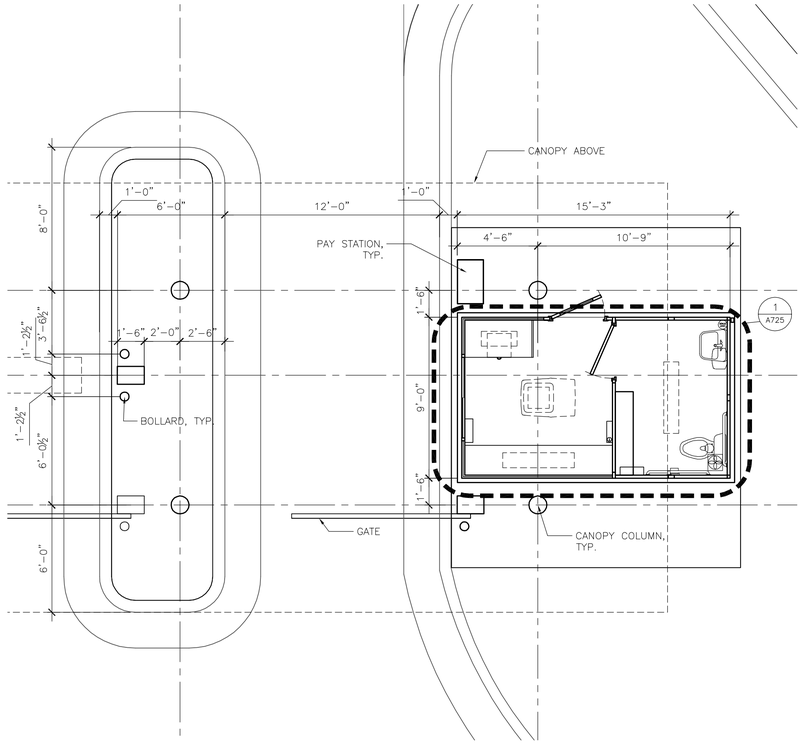
AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
SIGNAGE TYPES & DETAILS

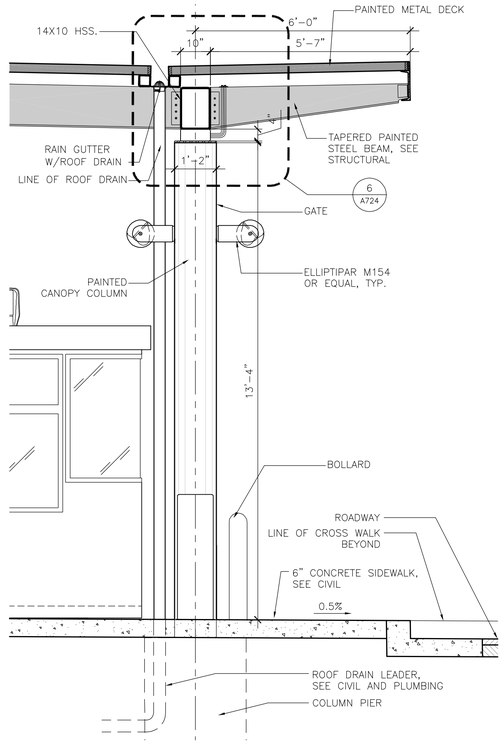
SHEET NUMBER
W202

ISSUED FOR BID

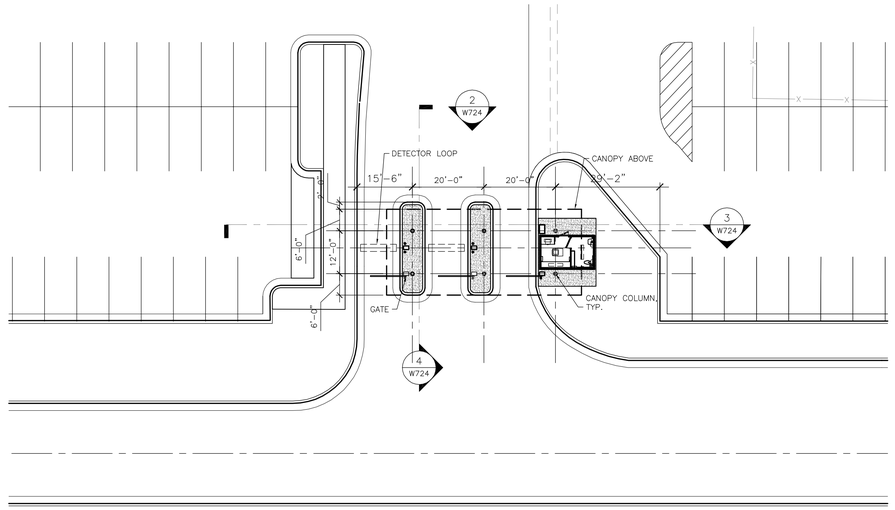
Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\G202 Signage Types and Details.dwg Plotted on: 5/8/2013 3:21 PM Plotted by: Godzino, Marc



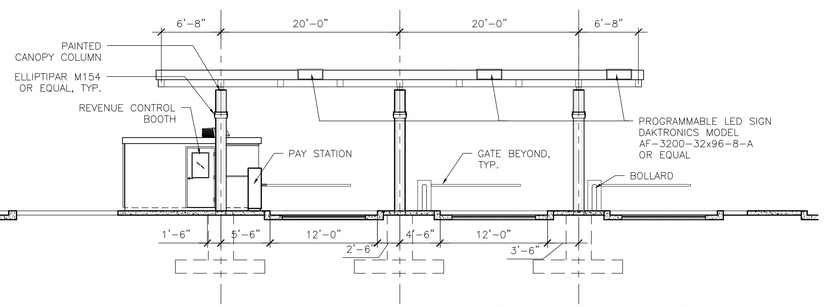
8 ENLARGED PLAN @ REVENUE CONTROL
1/4"=1'-0"



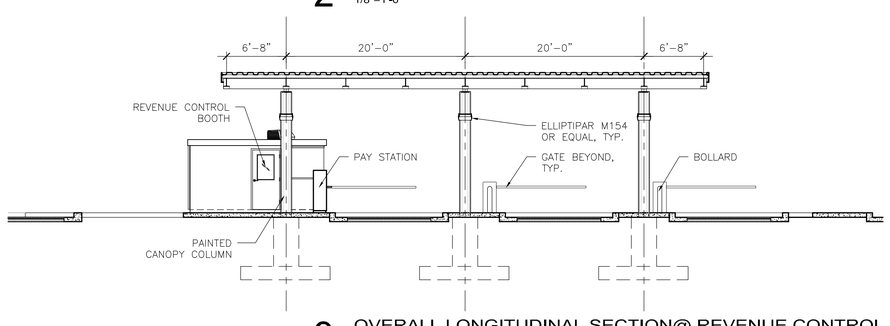
5 CANOPY PARTIAL SECTION @ REVENUE CONTROL
1/2"=1'-0"



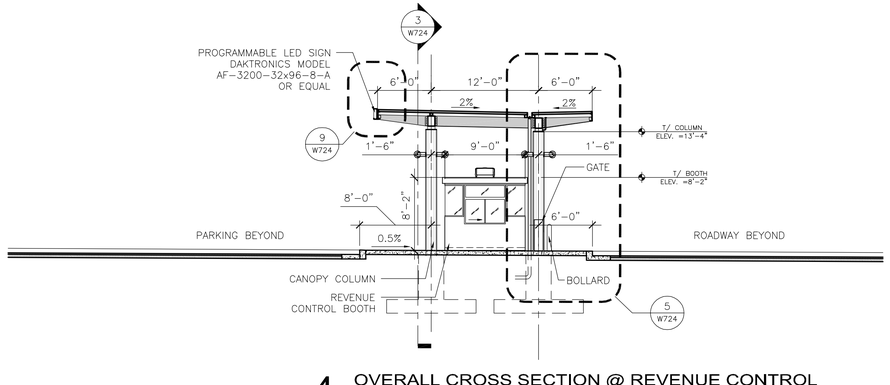
1 ARCHITECTURAL SITE PLAN @ REVENUE CONTROL
1"=20'-0"



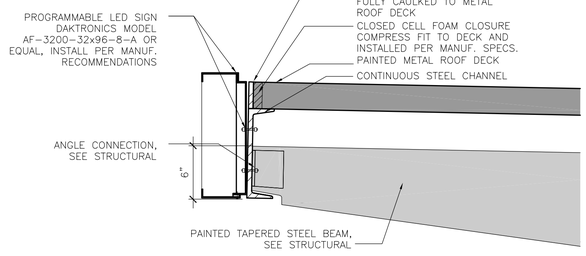
2 OVERALL ELEVATION @ REVENUE CONTROL
1/8"=1'-0"



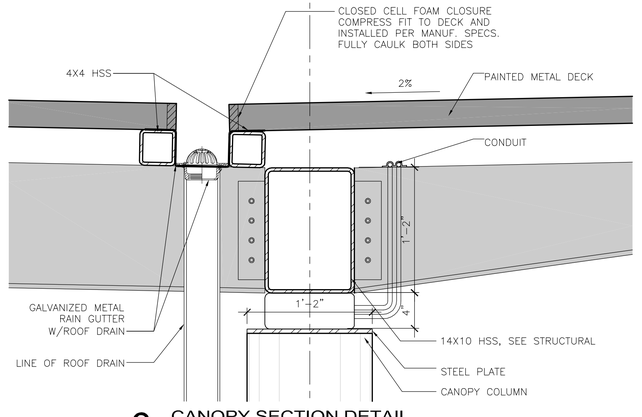
3 OVERALL LONGITUDINAL SECTION@ REVENUE CONTROL
1/8"=1'-0"



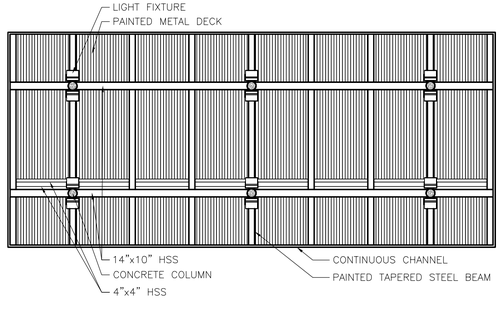
4 OVERALL CROSS SECTION @ REVENUE CONTROL
1/8"=1'-0"



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



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



10 CANOPY REFLECTED CEILING PLAN
1/8"=1'-0"

NOTE: CONTRACTOR ONLY TO PROVIDE PROGRAMMABLE LED SIGNAGE INDICATED ON THIS PAGE. ALL OTHER INFORMATION PROVIDED FOR REFERENCE ONLY.

7 NOT USED

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NO.	DESCRIPTION	DATE

DATE ISSUED: 05/15/2013
REVIEWED BY:
DRAWN BY: MKG
DESIGNED BY:

AEP PROJECT NUMBER
213-1882-114

SHEET TITLE
EXTERIOR SYSTEM SHEET- REVENUE CONTROL

SHEET NUMBER
W724

ISSUED FOR BID

Drawing: T:\P\2131882.091 Duluth New Terminal\Cad\A\Sheets\A724 Exterior System Sheet – Revenue Control.dwg Plotted on: 5/8/2013 3:59 PM Plotted by: Godzina, Marc